CITY OF MILPITAS

HOUSEHOLD HAZARDOUS WASTE ELEMENT

MILPITAS, CALIFORNIA

August 1991

EMCON ASSOCIATES

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Household Hazardous Waste Element

City of Milpitas, California

Prepared for

City of Milpitas

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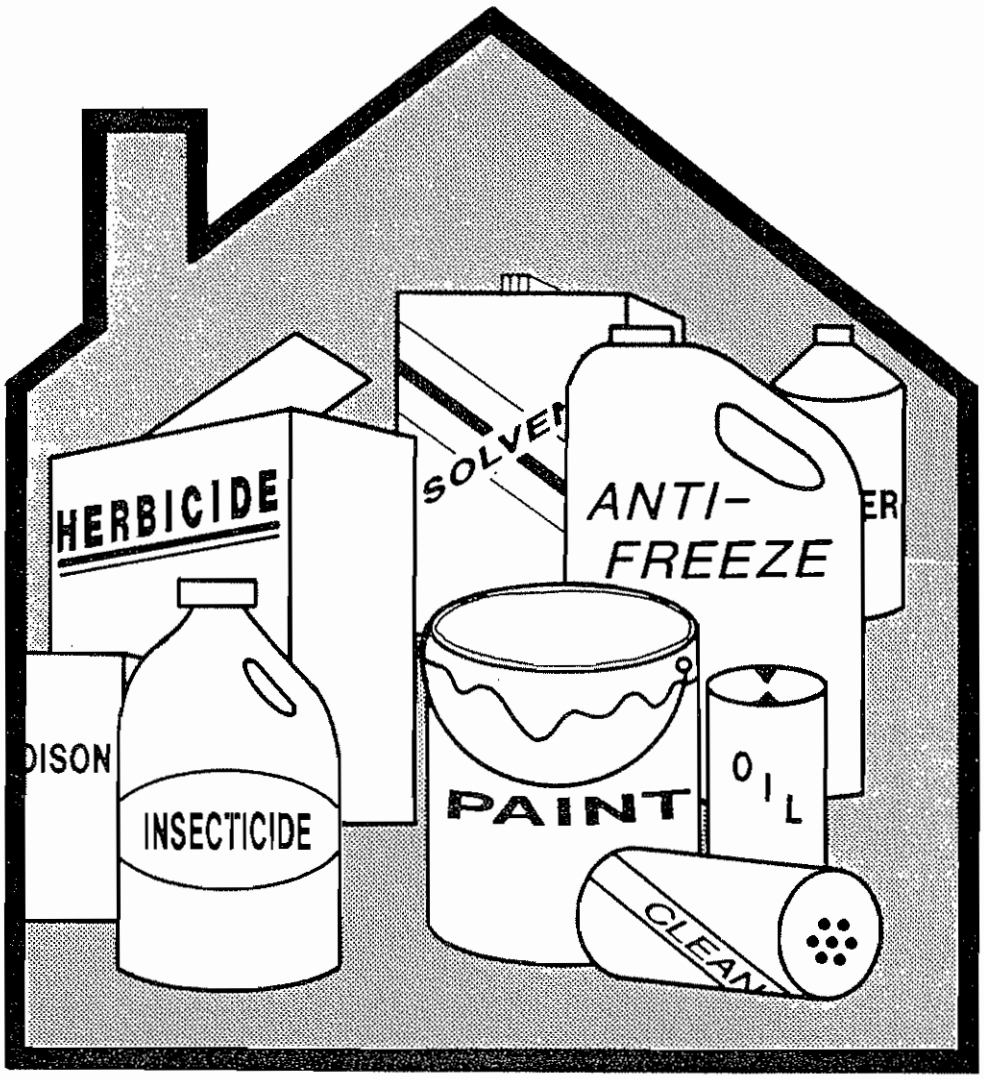

HOUSEHOLD HAZARDOUS WASTE

1 INTRODUCTION

Hazardous chemicals are prevalent in modern society, not only in the commercial and industrial sectors, but also in residential sectors as well. Hazardous substances can be found throughout the home, garage, garden, and hobby shop as constituents in such products as cleaners, paints, pesticides and glue. Once these hazardous products are no longer needed by the consumer, they become household hazardous waste (HHW). Improper disposal of HHW can pose a risk to human health and the environment and thus requires special handling.

A substance is classified as a hazardous waste by the Department of Health Services (DHS), California Code of Regulations (CCR) Title 22, if it demonstrates one of the following characteristics:[1]

- ignitability—flammable (e.g., lighter fluid, spot and paint removers)
- corrosivity—eats away materials and can destroy human and animal tissue by chemical action (e.g., oven and toilet bowl cleaners)
- reactivity—creates an explosion or produces deadly vapors (e.g., bleach mixed with ammonia-based cleaners)
- toxicity—capable of producing injury, illness, or damage to human, domestic livestock, or wildlife through ingestion, inhalation, or absorption through any body surface (e.g. rat poison, cleaning fluids, pesticides, bleach)

Such products include toxic pesticides, caustic drain openers, ignitable paint thinners and other reactive or explosive materials. Table 1-1 lists hazardous materials commonly found around the home, garage, and garden.

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[1] A glossary of terms and a list of acronyms are presented at the end of the document.

Until recently, programs to properly manage HHW were virtually non-existent, thereby resulting in wastes being disposed of in the garbage, down the sewer, into storm drains, or directly onto the ground. The improper disposal of hazardous substances can result in refuse workers being exposed to hazardous chemicals, equipment damage, contamination of ground water and surface water, and potential hazardous leachate migration from municipal solid waste landfills. Ultimately, improper disposal of HHW can lead to costly consequences.

In response to the growing awareness of the HHW issue and the need for proper disposal of these wastes, Milpitas has offered community collection and recycling programs for better management of these wastes.

Table 1-1
Hazardous Materials Commonly Found
Around the Home, Garage, and Garden

Household Products

- abrasive cleaners and scouring products (C,T)
- muriatic acid (C)
- ammonia-based cleaners (C,T)
- bleach (C,T)
- disinfectants (C,T)
- drain openers and cleaners (C,T)
- glass and window cleaners (C,T)
- oven cleaners (C,T)
- rug and upholstery cleaners (C,T)
- spot removers (F,T)
- toilet bowl cleaners (C,T)
- floor and furniture polish (T)
- aerosol sprays (R, F)
- moth repellents (T)
- rubbing alcohol (T, F)
- silver and brass polishes (T)
- hair colorings (T)
- nail acrylics (T, F)
- hair spray (F)
- pharmaceuticals (T)

Hobby/Workshop

- dry cell batteries (C)
- oil-based paints (F)
- oil-based woodstains (T,F)
- paint thinners (F)
- turpentine (F)
- acetone (F,T,R)
- varnish removers (T)
- paintbrush cleansers (T)
- contact cement (F,T)
- photographic chemicals (C,T)
- solvent-based glues (F,T)
- firearm-cleaning solvents (F, T)
- mineral spirits (F)

Garden and Garage Products

- chemical fertilizers (T)
- pool chemicals (C,T)
- fungicides (T)
- weed killers (T)
- insecticides (T)
- flea collars and sprays (T)
- tire cleansers (C)
- brake fluid (c)
- gas barbecues (F)
- kerosene (F)
- car waxes (F,T)
- antifreeze (F)
- brake fluid (F,T)
- used oil (T)
- propane cylinders (F)

Key to Symbols:

(C) corrosive
(F) flammable (ignitability)
(R) reactivity
(T) toxicity

Source:

1 *Household Products Guide, Handle with Extra Care,* BC Hazardous Waste Management Corp., 1990.

2 *Hazardous Household Products, A Guide to the Disposal of Hazardous Household Products and the Use of Non-Hazardous Alternatives,* Department of Health Services, Toxic Substances Control Program, OPGL-90-4.

2 OBJECTIVES

The City of Milpitas selected the following objectives to properly manage HHW generated within the City. The objectives are organized according to the short-term (1991 to 1995) and medium-term planning periods (1996 to 2000).

2.1 Short-term Planning Period

- provide disposal alternatives for HHW generated in the city, including participation in the County of Santa Clara's HHW program
- provide education programs to reduce the volume and hazards of HHW entering the waste stream by encouraging
  - proper use and disposal of hazardous products
  - waste reduction, including the use of safer alternatives
- promote proper storage and handling methods to protect the public's health and safety
- recycle HHW to the extent possible
- participate in the load inspection program at the Newby Island landfill.

2.2 Medium-term Planning Period

- continue to provide disposal alternatives for HHW generated in the city
- continue education and public information programs implemented in the short-term planning period
- recycle HHW to the extent possible

2.3 Targeted Materials

All household materials that have the characteristics of hazardous waste, including ignitability, toxicity, corrosivity, and reactivity, have been targeted for collection, except those excluded by the Department of Health Services. Excluded household wastes include compressed gasses, explosives, and medical or radioactive wastes.

3 EXISTING HHW CONDITIONS DESCRIPTION

Milpitas currently provides several programs for HHW management, including (1) annual collection events, and (2) curbside pickup of used motor oil. The City also participates in the load checking program at the Newby Island landfill. The City's public education program is described in section 9.

The waste disposal characterization conducted by EMCON Associates in February 1991, indicated that HHW comprises approximately 0.24 percent of the waste stream, representing approximately 637 tons of HHW improperly disposed of annually. This quantity was estimated by identifying hazardous materials originating from self-haul and residential loads.

3.1 Periodic Collection Events

Since initiating a collection program for HHW in 1985, Milpitas has sponsored annual collection events for the community. Funded by the City from the General Fund, the collection program is publicized through newspaper announcements, flyers, signs, and a banner.

The City has contracted with waste management firms to staff the collection events, and to transport and dispose of the collected HHW in compliance with federal, state, and local regulations. The City's annual fully funded program has been well received in the community. During the fiscal year 88-89, the City collected HHW from 350 vehicles. During the following year, the City collected HHW from 361 residents, representing less than 1 percent of the City's households. The total amount of HHW collected at the April 21, 1990, HHW collection day is presented in Table 3-1 (CIWMB Form 303).

3.2 Curbside Collection of Used Motor Oil

The City's HHW management program includes curbside collection of waste oil; the program has been accepting used motor oil for recycling

since 1986. Used motor oil which is collected on the same day as refuse must be placed in a 1-gallon plastic or metal container with a tight-fitting lid.

The City collects approximately 46 tons of used oil annually.

3.3 Load Checking Program

The City of Milpitas disposes of municipal solid waste at the Newby Island landfill located in the City of San Jose. A load checking program is operated at the Newby Island landfill. The objective of the load-checking program is to discourage the improper disposal of prohibited waste at sanitary landfills. No records are kept on quantities of HHW discovered through the load checking program. The landfill has a written agreement with the local haulers to take responsibility for any hazardous materials discovered at the landfill. The City of Milpitas' hauler, BFI, provides the load checking program.

Incoming loads are randomly inspected for prohibited wastes at Newby Island's front gate. The gate attendant asks the public using the site whether they are disposing of HHW. If HHW is being disposed, the person is informed that hazardous materials are not accepted at the landfill. Customers are also informed of the date of the next County household hazardous waste collection day.

Landfill workers are trained in hazardous waste identification. Geiger counters are also available at the scales to detect radioactive materials. Surveillance cameras are located at the scales to record transactions. At the public dumping areas, self-haul loads are visually inspected for hazardous and infectious materials. The landfill also conducts detail inspections on random loads each week.

3.4 Status of Programs

The City intends to cease the periodic collection events it currently sponsored and participate in a Countywide HHW collection program. The Countywide program consists of a mobile collection facility and a permanent collection site. The mobile facility is anticipated to begin collection in Fall 1991. The permanent facility is anticipated to be operational before the end of the short-term planning period (1995).

Table 3-1

HOUSEHOLD HAZARDOUS WASTE COLLECTION INFORMATION

City of Milpitas

CIWMB-303 (1/90) - Collection Event April 21, 1990

Name of Local Agency: Bureau of Fire Prevention

Phone: (408) 942-2386

Address:	City:	County:	State:	Zip:
777 S. Main Street	Milpitas	Santa Clara	California	95035

(Please Use Applicable Units of Measurement)

Waste Category	Gallons	Pounds	Number of Containers	Number of Drums (55 gal)	Management Method
A. Flammable					
1. Used Oil	1125				RE
2. Paints a. Latex	600				RE
b. Oil Base	943				BF
3. Solvents, thinners, and stains					
4. Gasoline and oil (mixed)					
5. Aerosols (excluding pesticides/ herbicides)		1,040			D
6. Other	30	4000			
FLAMMABLE SUBTOTAL	2718	5040			

Management Methods

Ru	Re-used	Tr	Transfer Station	T-3	Stabilization
Rc	Recycled	T-1	Incinerator	D	Land Disposal
Bf	Blended Fuel	T-2	Aqueous Treatment	Other	

Waste Category	Gallons	Pounds	Number of Containers	Number of Drums (55 gal)	Management Method
B. Pesticides					
Such as herbicides, insecticides, fungicides, etc.		1,200			D
PESTICIDE SUBTOTAL		1,200			
C. Corrosives					
1. Acids a. Oxidizing	5				T-I
b. Non-Oxidizing		1,200			D
2. Alkaline		400			D
CORROSIVES SUBTOTAL	5	1600			
D. Oxidizers					
Excluding acids	15				T-I
OXIDIZERS SUBTOTAL	15				
E. Miscellaneous					
1. Car Batteries			150		RE
2. Dry Cells					
3. Mercury		5			T-I
4. Other	50	6300			D
MISC. SUBTOTAL	50	6305	150		
TOTAL WASTE COLLECTED	2868	14145	150		

4 EVALUATION APPROACH

4.1 Evaluation Criteria

The *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans, Section 18733.3, Chapter 9, Division 7, Title 14, California Code of Regulations,* require certain criteria to be used in evaluating alternative programs. These criteria reflect a broad range of technical, economic, and socio-political considerations. The evaluation criteria are described below in light of their application to integrated waste management programs. In addition, a rating system is provided for each criterion; a brief explanation of the rating is included for each of the criteria.

1. Hazard[1]

Hazard refers to the potential hazards that are created by the alternative. Hazards can include health risks, injury, fire, or others identified for the alternative. A high rating corresponds to few or no potential hazards. This criterion is rated as follows:

High:	Few or no potential hazards exist. All potential hazards can be controlled.
Medium:	Some potential hazards exist that, for the most part, can be controlled.
Low:	Potential hazards exist that are not completely understood or controllable, or the alternative increases the potential hazards.

[1] Note that several of the criteria—hazard, institutional barriers, facility requirements, and estimated cost—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

2. Ability to Accommodate Change

Ability to Accommodate Change refers to the alternative's ability to accommodate changing economic, technological, and social conditions. This criterion is rated as follows:

High: The alternative is anticipated to be readily adaptable in meeting changing conditions. Significant changes in the program are not anticipated.

Medium: The alternative is anticipated to demonstrate a moderate ability to respond to changing conditions. Significant changes in the program may be required.

Low: The alternative has a limited ability to respond to changing conditions. Limitations might include inflexible or unpredictable markets for diverted materials, existing contracts with waste management companies, operational limitations, unwillingness of the public to participate in programs, or others identified for the alternative.

3. Implementation Period

Implementation Period refers to the potential for implementing the alternative in the short-term or medium-term planning periods. This criterion is rated as follows:

High: Implementation of the alternative is anticipated to be completed by 1995.

Medium: Implementation of the alternative is anticipated to be completed by 2000.

Low: Implementation of the alternative could not be completed until after 2000.

4. Facility Requirements

Facility Requirements refers to the need for expanding existing facilities or building new facilities to support the implementation of the alternative. This criterion is rated as follows:

High: The alternative can be easily integrated into existing facilities.

Medium: Existing facilities must be expanded or altered to accommodate implementation of the alternative.

Low: New facilities must be developed to accommodate implementation of the alternative.

5. Consistency with Local Plans and Policies

Consistency with Local Plans and Policies reflects the alternative's consistency with local conditions, including local plans, policies, or ordinances. This criterion is rated as follows:

High: There are no existing local plans, policies, or ordinances that would impede the implementation of the alternative.

Medium: The alternative would require minor changes to existing local plans, policies, or ordinances for implementation.

Low: The alternative would require major changes to existing local plans, policies, or ordinances for implementation.

6. Institutional Barriers

Institutional Barriers refers to the potential for institutional barriers (such as long-term franchise agreements or other contracts), to impact the implementation of the alternative. This criterion is rated as follows:

High: There are no existing institutional barriers to the alternative.

Medium: The alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control.

Low: The alternative is impacted by existing institutional barriers that are not under the control of the jurisdiction.

7. Estimated Cost

Estimated Cost reflects the estimated order-of-magnitude implementation costs of the alternative, including capital costs and operating costs. A high rating corresponds to a relatively low order-of-magnitude cost. This criterion is rated as follows:

High:	$0-50,000
Medium:	$50,000-200,000
Low:	> $200,000

8. End Uses

End Uses reflects the availability of markets for the diverted materials. This criterion is rated as follows:

High:	Available end uses are relatively stable.
Medium:	End uses are available, but are subject to moderate fluctuations. The potential for the development of short-term markets may exist.
Low:	End uses are currently unavailable or unreliable, though the potential for the development of long-term or medium-term markets may exist.

5 EVALUATION OF ALTERNATIVES

This section presents an evaluation of alternative HHW programs. The following seven alternatives were evaluated based on the evaluation approach presented in Section 4. For each evaluation criterion, a rating of high, medium, or low is assigned, and the potential issues are discussed. The results of the evaluation are summarized in Table 5-1.

As structured by the regulations governing AB 939, some criteria by which the alternatives are required to be evaluated are positive in tone (e.g. consistency with local policies) while others are inherently negative (e.g., hazard). A high rating for each criterion implies a positive rating; consequently a high rating for a negative criterion corresponds to few or no impacts associated with this potential problem. For example, a high rating for the hazard criterion means there are few or no hazards for this alternative.

Many of these activities are complementary and depend significantly on the implementation of other alternatives or programs. The alternatives are evaluated for their effectiveness and impact on the entire HHW management system, including public education, collection, recycling, and monitoring and not as independent alternatives. The alternatives evaluated are

- Alternative 1 - Periodic collection
- Alternative 2 - Permanent collection facility
- Alternative 3 - Mobile collection facility
- Alternative 4 - Door-to-door collection
- Alternative 5 - Load-checking program
- Alternative 6 - Recycling program
- Alternative 7 - Education and public information

5.1 Alternative 1 - Periodic HHW Collection

The City of Milpitas has sponsored HHW collection events since 1985. Periodic collection events provide the City with a means of collecting some of the HHW generated by residents. The periodic collection program is described in Section 3.1, Existing Conditions Description.

Hazard. Medium[1]. Potential public health risks and safety hazards associated with periodic collection include spills, fires, leaks, or explosions resulting from improper collection, storage, handling, or transport of hazardous materials. However, proper design, equipment, and health and safety training minimize any potential hazards. There have been no accidents have occurred at any collection event held in Milpitas, so the risk is considered minimal.

Ability to accommodate change. Low. Collection events have a limited ability to respond to changing conditions. Collection events cannot properly manage HHW if participation rates increase considerably. The result would be long lines, traffic queuing problems, and an increased potential for accidents associated with collection.

Implementation period. High. The program has been offered annually to the community since 1985 and will continue to operate while the County of Santa Clara's regional program is being developed.

Facility requirements. High[2]. Collection events do not require expansion or development of facilities. The collection events are held at a centrally located senior citizens center located on N. Main St.

Consistency with local policies and plans. High. The City has supported the HHW collection program since its inception.

Institutional barriers. High[3]. Institutional barriers are anticipated to have minimal impact on this alternative.

Estimated costs. Medium[4]. The estimated budget for the fiscal year 1989-90 was $60,000. The actual cost for the program was $33,600. The

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1 Refers to relative rating of the alternative with respect to this criterion.

2 Note that several of the criteria—hazard, facility requirements, institutional barriers and estimated cost—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

3 Ibid.

4 Ibid.

cost of each collection event has ranged from $20,900 to $63,000, depending on the types of materials collected, the number of drums collected, and participation rates.

End uses. Medium. Collection events divert latex paint, oil, and batteries from the waste stream through recycling. Nonrecyclable HHW collected through the events are either properly disposed of at a permitted hazardous waste disposal facility or incinerated.

5.2 Alternative 2 - Permanent Collection Facility

The cities located in S.C.C. and the County are developing plans for a regional HHW collection program that the City of Milpitas plans to participate in. The program will initially consist of a mobile collection facility with a centralized permanent site. The permanent HHW collection facility would accept HHW delivered by county residents at a fixed location and be open for approximately 50 days each year. The permanent facility will be housed in either a prefabricated building or an existing permanent building and sited at a landfill or city corporation yard to allow access from major population centers.

The collection facility will operate a program for exchanging materials to reduce the quantity of HHW requiring collection. The Department of Health Services (DHS) encourages the exchange of materials as long as certain safeguards are maintained.

Hazard. Medium. Potential public health risks and safety hazards associated with a permanent facility include spills, fires, leaks, or explosions resulting from improper collection, storage, handling, or transport of hazardous materials. However, proper design, equipment, and health and safety training minimize any potential hazards. A permanent facility provides the safest means of collecting and properly disposing of HHW.

Ability to accommodate change. High. A permanent facility can accommodate changing social conditions by increasing or decreasing the days of operation, as needed. A permanent facility can process participants more efficiently than 1-day collection events, because of the dedicated staffing and operational characteristics of the facility. Recycling opportunities are also enhanced by increased storage time and experienced staff.

The Countywide program will initially accept HHW by appointment. The schedule will be flexible to accommodate people who are moving, emergencies, and residents delivering HHW without an appointment. Once the program is established and the quantities, costs, and number of residents utilizing the program are known, the program may convert to posted hours.

Implementation period. Medium-High. The implementation phase for the permanent facility requires approximately 3 to 5 years for site assessment, CEQA compliance, permitting, design, and construction. The Countywide program intends to initially develop a mobile collection program in order to offer residents immediate disposal options for their HHW. The permanent facility may be operational by 1992 or 1993.

Facility requirements. Low. This alternative requires the development of a collection and storage facility. An HHW facility must meet specific state and federal safety and operating standards. A facility should be designed to prevent spills or leaks from incompatible wastes from mixing, and should include explosion proofing, grounding columns, proper containment, sufficient ventilation, and adequate emergency response and safety equipment. A permanent facility should be situated on an impervious surface and fenced for security. An area for analyzing unknowns is also needed.

Consistency with local policies and plans. High. A permanent facility is consistent with local policies, plans, and ordinances. The City Council approved City participation in the Countywide HHW program on January 16,1991.

Institutional barriers. High. Institutional barriers are anticipated to have little impact on this alternative.

Estimated cost. Medium. The Countywide HHW program will be designed to bill the City according to the number of cars (residents) from Milpitas using the program. Residency will be established using the participant's California Driver license. Preliminary cost estimates determined by the County are approximately $88 to $110 per car. Based on these costs, the City has budgeted $60,000 for approximately 500 Milpitas households to participate in the program. However, the City can, if necessary, increase the number of households utilizing the program.

End uses. High. Reuse of unopened, reusable products can be promoted through waste exchanges or organized referrals. Nonrecyclable

HHW can be disposed of properly in a hazardous waste disposal facility or incinerated.

5.3 Alternative 3 - Mobile HHW Collection

As noted previously, a countywide HHW collection program is being developed in Santa Clara County that will consist of a mobile collection unit to service County residents approximately 50 days per year. The mobile facility will be located near or in Milpitas approximately four times each year. The Countywide HHW program also includes a permanent facility that will operate when the mobile unit is in between service. The residents of Milpitas will have to make an appointment to use both the mobile collection and permanent facility.

A mobile collection program is an effective collection approach for a dispersed population. A mobile waste collection program consists of a modified trailer and support unit containing an electric generator, a compressor, and a water system; a fire response system; and a HazCat laboratory. A mobile unit usually includes a bathroom, an emergency shower, and a first aid station. A mobile facility should be capable of being dismantled quickly, once a collection event is completed. A mobile waste collection program will be implemented county-wide. Residents in suburban communities and unincorporated areas should be assured that a mobile collection unit would be within a 15- to 20-minute drive from their homes some time during the year.

Hazard. Medium. Potential public health risks and safety hazards associated with mobile collection include spills, fires, leaks, or explosions resulting from improper collection, storage, handling, or transport of hazardous materials. However, proper design, equipment, and health and safety training minimize any potential hazards.

Ability to accommodate change. Medium. A mobile collection unit is flexible, since both location and frequency of operation can be modified to accommodate variations in demand or shifts in population density. Because the location changes, however, the public must be informed in advance of that location. Site locations can be selected to provide adequate access and convenience for residents.

The mobile collection facility will initially accept HHW from residents by appointment only. This impedes residents from participating in collection events, if they do not speak English or hesitate to call for an appointment.

Implementation period. High. To purchase and modify equipment needed to operate a mobile collection facility will require approximately 6 to 12 months. The DHS regulates mobile collection programs similarly to a temporary collection facility; the permitting process would therefore require approximately the same amount of time.

Facility requirements. Medium. The mobile collection program requires a modified trailer and support unit. When set up for operation, the collection site will cover approximately 5,000 square feet of paved area with canopies over the work area. The collection site should be secured at night with a portable fence. Potential collection sites can be a church parking lot, fire department parking lots, or a school parking lot.

Consistency with local policies and plans. High. The City Council approved City participation in the County program on January 16, 1991.

Institutional barriers. Medium. The DHS does not currently have regulations guiding the operation of mobile collection facilities. The DHS is developing regulations regarding periodic and permanent HHW collection facilities. Mobile collection facilities are anticipated to be addressed at that time.

Estimated Cost. Medium. The County of Santa Clara's program will be designed to bill the City according to the number of cars (residents) from Milpitas using the program. Residency will be established using the residence California Driver license. Preliminary cost estimates by the County are approximately $88 to $110 per car. Based on these costs, the City has budgeted $60,000 for approximately 500 households to participate in the program. The City can, however, increase the number of households participating in the program if necessary.

End uses. High. A mobile collection program can divert latex paint, oil, and batteries from the waste stream through recycling. Nonrecyclable HHW collected through the program are properly disposed of at a permitted hazardous waste disposal facility or incinerated.

5.4 Alternative 4 - Door-to-door HHW Collection Program for the Elderly and Handicapped

A HHW door-to-door collection program is designed to offer residents unable to participate in collection events (usually the elderly and handicapped) an opportunity to dispose of HHW. Residents are asked to call

and make an appointment; a routing plan is then developed. The HHW must be picked up by a registered hazardous waste hauler using licensed hazardous waste transport vehicles that comply with Department of Transportation (DOT) regulations. Vehicles used for this type of program require a staff trained in hazardous waste identification.

Once collected, the load is transferred to an approved treatment, storage, or disposal (TSD) facility or transported directly to a permitted hazardous waste disposal facility.

Hazard. Medium. Potential public health risks and safety hazards associated with door-to-door collection include spills, fires, leaks, or explosions resulting from improper collection, storage, handling, or transport of hazardous materials. However, proper design, equipment, and health and safety training minimize any potential hazards. Another problem of door-to-door collection is the limited time and space constraints.

Ability to accommodate change. High. Door-to-door collection events can accommodate changing conditions. Residents are usually required to call to request the service. The City can develop a routing plan that enables all residents requesting the service to be accommodated.

Implementation period. High. Door-to-door collection programs are implementable in the City during the short-term planning period.

Facility requirements. High. Door-to-door collection events require trucks equipped to transport, handle, sort, and store hazardous materials. An area is also needed to store materials once collected.

Consistency with local policies and plans. Medium. Door-to-door collection is not inconsistent with local policies. Formal policies regarding this type of service have not, however, been instituted in the City.

Institutional barriers. Medium. The liabilities of a curbside collection program are significant, including potential hazards associated with the collection and transportation of HHW. The City must contract with firms permitted to collect and transport HHW.

Estimated Cost. Low. Door-to-door collection programs incur transportation and collection costs above the disposal costs that are included in the costs for other types of collection events. Servicing approximately 200 disabled and elderly residents would cost the City an additional $8,000 to $9,000 for transportation and collection. If combined with another collec-

tion program, such as mobile, periodic, or a permanent facility the total costs are estimated at $30,000 to $35,000, depending on the types and quantities of materials collected.

End uses. Medium. End uses for HHW are presented in section 5.6 the recycling alternative.

5.5 Alternative 5 - Load-Checking Program

The purpose of a load checking program is to detect and deter attempts to dispose of prohibited waste. It involves a visual inspection for hazardous waste at the entrance to the landfill and at the working face. If prohibited waste is identified, the generator is notified and becomes responsible for removing the waste. If the generator cannot be found, the waste is removed and disposed of properly. The load checking program at the Newby Island landfill is conducted in compliance with the site's approved load checking program. A description of Newby Island landfill's load checking program is given in Section 3.3.

Hazard. Medium. The potential hazards involved in a load checking program include the risk from exposure to the prohibited waste while inspecting the waste or handling it. Measures to reduce the potential for these hazards include employee training, use of appropriate protective gear and equipment, and contingency plans in the event of an emergency.

Ability to accommodate change. Medium. A load checking program can adapt to changing conditions at the landfill. Each week random load checks are conducted of franchised hauler loads and self-haul loads. In addition, a visual inspection of all self-haul loads is conducted. Additional inspections can be added to strengthen the existing program.

Implementation period. High. The load-checking program has been in operation since 1987.

Facility requirements. High. A load checking program requires a storage area to temporarily place detected hazardous materials for which the generator of the waste cannot be determined. Hazardous wastes are managed at the Newby Island landfill in accordance with the site's approved load checking program.

Consistency with local policies and plans. High. The load-checking program is consistent with the City's policy of keeping prohibited wastes from entering sanitary landfills.

Institutional barriers. High. A load-checking program is required in the State of California. The State Water Resources Control Board requires landfills to operate hazardous waste load-checking programs (Section 2523, Title 23, California Code of Regulations [CCR]). The DHS and CIWMB require solid waste facilities to follow certain procedures regarding their load-checking programs. The DHS requires a solid waste facility with a hazardous waste load-checking program to obtain an identification number as a hazardous waste generator. Hazardous waste can be stored for up to 90 days, without a HW permit, as long as the facility complies with state regulations. However, if HW will be stored for more than 90 days, the solid waste facility must apply to the DHS for a hazardous waste facility permit or variance.

Estimated cost. High. The costs for the load checking program are approximately $12,000, including staffing, transport and disposal. The cost of operating the load checking program are dependent on the types and quantities of hazardous waste discovered and whether or not the generator can be located to take responsibility of the waste.

End uses. End uses for HHWs are presented in Section 5.6, the Recycling Alternative.

5.6 Alternative 6 - Recycling Program for Waste Oils, Paints, and Batteries

A recycling program for HHW can help reduce the high costs of disposal at a permitted hazardous waste disposal facility. Many communities have integrated recycling programs for latex paint, oil, and batteries into collection events, drop-off centers, and curbside recycling programs. By recycling HHW, the City can help divert these materials from disposal and preserve resources.

Milpitas currently recycles used oil at the curb, and paints, batteries, and antifreeze at annual collection events.

Hazard. High. Recycling HHW produces minimal hazards. Some hazards are associated with latex paint; if stored for many years, latex paint may contain mercury or lead. To reduce potential hazards, older latex paint, improperly labeled paint, paint that is not in its original container, and possibly contaminated paint should be disposed of instead of recycled.

Ability to accommodate change. High. Recycling programs are flexible to changing conditions.

Implementation period. High. Recycling operations can be relatively easy to implement with existing or planned programs.

Facility requirements. High. A storage facility is needed to recycle HHW. Recycling HHW can be readily integrated into existing facilities and programs, including curbside collection programs, drop-off centers, and periodic, mobile, and permanent collection facilities.

Consistency with local policies and plans. High. Recycling HHW is consistent with the City's policy of recycling and providing collection options for HHW.

Institutional barriers. High. Institutional barriers are anticipated to have little impact on this alternative. Effective January 1, 1991, pursuant to AB 2597, HHW collection agencies will no longer need a hazardous waste permit if materials accepted are limited to (1) latex paint, (2) used oil, (3) antifreeze, (4) spent lead acid batteries, (5) nickel-cadmium, alkaline, carbon-zinc, and other small batteries.

Section 25250.11(a), Health & Safety Code, exempts from its HW permit requirements "any person who receives used oil from consumers or other used oil generator," as long as no more than 20 gallons of used oil are received at a time, and containers hold no more than 5 gallons each. The DHS will allow a facility or collection event to bulk latex paint if it is properly authorized to accept it as one of its household hazardous wastes.

Government Code Section 66798.9 (Statute, 1989) provides immunity for local agencies operating HHW programs unless the agencies act negligently. Additional immunity from state liability is provided in Health & Safety Code, Section 25366.5, for local governments or their contractors who are running HHW facilities and events.

Estimated cost. High. Recycling HHW reduces the cost of disposal for HHW collected during collection events, door-to-door events, or at a permanent facility. No specific costs are associated with a recycling program because it can be implemented in conjunction with these other collection programs.

End uses. High. Reuse of unopened reusable products can be promoted through waste exchanges or organized referrals. Common uses of recyclable HHW include the following:

- Latex paint can be collected, sorted, consolidated, blended, repackaged, and sold or given to local public agencies and nonprofit groups. It is commonly used to cover graffiti. It can also be sorted, consolidated, and sent to a paint company, which can mix it with its own waste paint and manufacture new paint.
- Used oil is a valuable resource; recycling it saves energy and natural resources. Used oil can be (1) refined into lubricating oil, (2) reused as motor oil, or (3) reprocessed and used as fuel in industrial burners and boilers. The Environmental Protection Agency estimates that only 1 gallon of used oil is needed to make 2.5 quarts of lubricating oil, compared to 42 gallons of raw crude oil.
- Lead-acid batteries - According to the CIWMB, 7 percent of spent lead-acid batteries are recycled. "After the lead is separated from the non-metallic components of the battery, it is then smelted to produce soft lead and lead alloys. Most of these lead products are used to make new lead acid batteries. The non-metallic materials include sulfuric acid, which is neutralized and released into the sewer; the plastic shell is reclaimed; and other non-recyclable, non-hazardous material is disposed of." (*Household Hazardous Waste, Lead-Acid Batteries,* CIWMB, September 1990).
- Antifreeze - Used antifreeze can be recycled for use by the mining and glycol industries. Antifreeze is sprayed on coal to keep it from sticking together. Antifreeze can also be used for airplane de-icing solution, cement grinding, and brake fluid. (*Household Hazardous Waste, Antifreeze,* CIWMB, September 1990).

5.7 Alternative 7 - Education and Public Information

The City's existing public education and information programs includes publicizing the collection events through newspaper advertisements, mail-

ers to homeowners, flyers, a banner, and educational materials and videos emphasizing reducing the amount of HHW generated.

An effective program must inform the community about the available recycling and disposal options available, in addition to educating the public about the dangers of HHW and safer alternatives. The City plans to coordinate efforts with the Countywide HHW program. The Countywide HHW program will develop and administer a multi-jurisdictional education and public information program.

See Section 9 for a complete description of HHW public education programs.

Hazard. High. The information regarding safer alternatives to HHW must be accurate to minimize hazards.

Ability to accommodate change. High. A public education program can account for changing conditions in demographics, products, etc. The program educates consumers about the hazards of household products and the proper management of these products. An education program can encourage (1) the use of less toxic products, (2) buying household hazardous materials only in quantities that will be used, and (3) proper storage and disposal of HHW when the products are no longer needed.

Implementation period. High. Additional education and public information programs are being developed that are implementable in the short-term planning period.

Facility requirements. High. No additional facilities are needed. Existing facilities could serve as locations for seminars and educational workshops.

Consistency with local policies and plans. High. Education and public information are consistent with City policies. The Countywide HHW program will develop and administer a multi-jurisdictional education and public information program.

Institutional barriers. High. There are no barriers to offering residents public education materials.

Estimated cost. High. The City's current budget for education and public information is $5,000. A more aggressive public education program would increase public awareness of the dangers of household hazardous substances. If such a program is pursued, participation in the County's pro-

posed collection program should increase. The budget for the County's public education program has not yet been determined.

End uses. Not applicable.

Table 5-1

Summary of Alternatives Evaluation

Criteria	Program Alternatives						
	Collection Events	Permanent Facility	Mobile Collection	Door-to-door Collection	Load Checking Program	Recycling Program	Education and Public Information
Hazard	Medium	Medium	Medium	Medium	Medium	High	High
Ability to accomodate change	Low	High	Medium	High	Medium	High	High
Implementation Period	High	Medium-High	High	High	High	High	High
Facility requirements	High	Low	Medium	High	High	High	High
Consistency with local policies	High	High	High	Medium	High	High	High
Institutional barriers	High	High	Medium	Medium	High	High	High
Estimated Cost	Medium	Medium	Medium	Low	High	High	High
End Uses	Medium	High	High	Medium	N/A	High	N/A

6 PROGRAM SELECTION

The selection of programs was based on the evaluation criteria and the ease of implementation in the City of Milpitas. Based on the dynamics of the City, a combination of programs was selected to provide the most comprehensive approach to managing HHW.

6.1 Alternatives Selected

6.1.1 Short-term Planning Period

The programs selected to manage HHW during the short-term planning period include

- permanent collection facility (countywide program)
- mobile collection facility (countywide program)
- collection of recyclable HHW
- curbside collection of waste oil (existing program)
- education and public information program
- load-checking program at the Newby Island landfill (existing program)

Permanent HHW collection facility. The permanent facility will offer the public a convenient, fixed location to deposit their HHW. A permanent facility will also reduce the potential liability to the City from the improper disposal of HHW in the landfill. The permanent facility is expected to be developed by the County by the end of the short-term planning period.

The collection facility will sponsor a program for exchanging materials. The DHS encourages the exchange of materials as a means of waste reduction.

Mobile Collection Facility. A mobile collection program is being developed by the County of Santa Clara that will operate approximately 50 times each year. The City Council approved participation in the County's program and budgeted funding for approximately 500 Milpitas households to participate in the collection events. If the number of Milpitas residents requesting an appointment increases above that amount, the City has the option of increasing the number of residents from Milpitas that will be serviced by the program.

The mobile facility will be located in or near Milpitas approximately 4 times each year. In addition, the residents of Milpitas can dispose of their HHW at any of the locations where the mobile facility is operational.

Recycling program for HHW. The County's HHW program will collect recyclable HHW for reuse. Effective January 1,1991, pursuant to AB 2597, HHW collection agencies will no longer need a HW permit for collection of recyclable HHW, if the materials accepted are limited to (1) latex paint, (2) used oil, (3) antifreeze, (4) spent lead acid batteries, and (5) nickel-cadmium, alkaline, carbon-zinc, and other small batteries.

Offering the public an on-going HHW recycling program will reduce the congestion at collection events, since fewer materials will need processing.

Curbside collection of used oil. The City of Milpitas provides curbside collection service for used motor oil. This service will be continued because it provides readily-available collection for "do-it-yourselfer's."

Education and public information. A public education program that informs the community about HHW and its proper disposal should be implemented. The program should educate consumers about the hazards of some household products and their proper management. The program should encourage the use of nonhazardous products, the purchase of household hazardous materials only in quantities that will be used, and the proper storage and disposal of these products once they are no longer needed. See section 9 for a complete description of the education and public information programs selected for the City of Milpitas.

Load-checking program. A load checking program detects prohibited wastes from entering the landfill. The State Water Resources Control Board requires landfills to operate hazardous waste load-checking programs (Section 2523, Title 23, CCR). The Newby Island landfill has been

operating a load-checking program since 1987. The load checking program is in compliance with the site's approved load checking program. Since it is required by law, the load checking program at the landfill will continue as an on-going program.

6.1.2 Medium-term Planning Period

The programs selected to manage HHW during the short-term planning period will continue during the medium-term planning period.

6.2 Types and Quantities of HHW Anticipated to be Collected, Recycled, and/or Disposed

The HHW programs selected for the City of Milpitas are designed to increase the collection of HHW and the public's awareness of the hazards of HHW.

The CIWMB surveyed HHW programs in 1989. The survey indicated that paint, household and lead acid batteries, and used oil typically comprise approximately 68.5 percent of the HHW collected during collection programs. The remaining 31.5 percent consists of flammables, pesticides, corrosives, and other HHW. The County expects to collect about the same proportions of HHW. Approximately 46 tons of used oil will be collected through curbside collection; the County HHW program will collect the remaining materials. At present, determining the quantities of HHW that will be collected through the program is difficult. The program will, however, be designed to accept varying quantities of HHW, if the quantities anticipated to be collected increase. As the public begins to reduce the quantity of HHW generated, the quantities should decrease.

6.3 Recycling and Reuse Efforts

The permanent collection facility and mobile collection facility will include a program for exchanging materials. The material should be in its original container, and if opened, its contents must be judged sound and uncontaminated by the sponsors of the exchange event. Once that has been done, the party accepting the material should be asked to sign a liability waiver releasing the HHW facility operator from responsibility pertaining to the materials received.

6.4 Education and Public Information Programs

See Section 9 for a description of education and public information programs selected for the City of Milpitas.

6.5 Multijurisdictional HHW Efforts

Within Santa Clara County, a countywide HHW program is being developed that provides mobile services and a permanent site for collection of HHW. The City plans to participate in the Countywide program, which will provide collection services and education programs.

The City will work closely with the Santa Clara Valley Nonpoint Source Pollution Control Program providing the County of Santa Clara and the Santa Clara Valley Water District with a public education program regarding the illegal disposal of HHW down the drain and into storm sewers. See Section 9 for a description of countywide education and public information programs.

6.6 Facilities Needed for Implementation

A mobile collection facility and a permanent collection facility are needed to implement the County of Santa Clara's program.

6.7 Handling and Disposal Methods

Proper handling and disposal methods are guided by state and federal regulations. The existing collection events are staffed by professional certified to handle hazardous materials; the staff for the permanent facility will be trained in handling of HHW.

Once a site is selected for the permanent facility, the County must submit an application to the DHS to operate the facility. The DHS is currently revising its regulations guiding operations of permanent HHW facilities.

The County will be required to contract with licensed hazardous waste haulers to remove the collected materials. Markets for recyclable materials must be established and maintained.

7 PROGRAM IMPLEMENTATION

The following section describes the tasks necessary to implement the selected HHW collection and monitoring programs. See section 9 for a description of the education and public information implementation tasks.

7.1 Government Agencies Responsible for Implementation

The County of Santa Clara, Division of Environmental Health Services will serve as the lead agency for the administration and implementation of the countywide HHW program. The County is required to follow all applicable state regulations regarding HHW. The City's Community Development Department will assist with education and public information programs that will be coordinated under the Countywide programs. Prior to participating in the Countywide HHW program, the City of Milpitas sponsored annual collection events. The City's Fire Department was the lead agency for these events. Since the City will be participating in the Countywide program, the Milpitas Fire Department will cease to be responsible for administrating the City's HHW program.

7.2 Tasks Necessary to Implement Program

Several tasks will be needed in the short-term planning period in order to have the HHW program operational before the medium-term planning period. These are summarized below for each alternative.

7.2.1 Permanent facility

- evaluate alternative sites and select site
- determine staffing and operation requirements
- prepare permitting documents and environmental review documents
- identify funding sources

- identify entity operating facility
- develop agreement between County and owner of site
- identify specific wastes to be handled
- estimate number of drums to be handled each month
- develop design criteria for permanent facility, including sizing, containment features, storage needs, fire safety requirements, ventilation and heating needs, laboratory and office space needs
- obtain equipment and supplies
- contract for waste transportation, recycling and disposal services
- develop recordkeeping system
- develop waste exchange program

7.2.2 Mobile Collection Unit

- formalize interjurisdictional relationships for HHW services
- purchase equipment and supplies
- recruit and train staff to conduct HHW collection events
- develop collection program schedule and select mobile sites
- obtain permits
- develop recordkeeping system
- develop waste exchange program

7.3 Short-term and Medium-term Planning Period Implementation Schedule

- The mobile collection facility is anticipated to be operational during fiscal year 1991-92.
- The permanent facility should be operational during fiscal year 1994-95.

7.4 Implementation Costs

See section 10 for a discussion of funding and implementation costs.

8 MONITORING AND EVALUATION

8.1 Methods to Quantify and Monitor Achievement of Objectives

As required by CCR Section 18751.6, the City will monitor and evaluate the success of the HHW program. The City selected the load checking program as a targeted waste characterization study to monitor the improper disposal of HHW at the landfill. The load checking program not only deters the improper disposal of HHW from the waste stream, but also serves a secondary function, as a targeted hazardous waste characterization. Data from the load checking program can be used to measure the success of the HHW collection programs and also the public education program. To effectively monitor the achievement of the objectives outlined in section 2, several additional monitoring tasks should be performed; these are summarized below.

Objective: Provide disposal alternatives, including a permanent collection facility and a mobile collection facility

- conduct a future waste generation study to gauge the effectiveness of the HHW program
- monitor the implementation of the permanent facility against the implementation schedule to determine if facilities will be developed on schedule
- determine the funding needed to ensure continued operation of the facility
- ensure that self-haul loads are visually inspected at the public dumping area.
- prepare biannual summary reports and evaluations of the status of the permanent facility

Objective: Participate in the load inspection program at the Newby Island landfill to reduce improper HHW disposal

- Monitor the quantities of HHW discovered in the load-checking program for increases or decreases from previous years. If possible, determine if specific truck routes tend to produce more HHW than others.
- Ensure that self-haul loads are visually inspected at the public dumping area.
- Prepare an annual report on the inspection and diversion efforts conducted by landfill personnel.
- Conduct a waste generation study prior to revising the HHWE in 1995 to ascertain effectiveness of load inspection program.

Objective: Establish a waste exchange program at the permanent and mobile collection facilities to reduce the amount of HHW requiring disposal

- provide an annual report on the types and quantities of HHW that is reused through a waste exchange program at the permanent facility

Objective: Recycle HHW to the extent possible

- provide an annual report on the types and quantities of HHW being recycled

8.2 Written Criteria for Evaluating Program's Effectiveness

Santa Clara County will evaluate the success of each HHW program implemented by the following criteria:

- **Total and type of HHW collected.** The total and type of HHW collected or otherwise diverted from disposal will be recorded by specific waste type using CIWMB Form 303 (see Table 3-1).
- **Disposal quantity.** The amount of collected HHW disposed of will be summarized by waste type and weight along with the cost of disposal.

- **Recycled quantity.** The amount of collected recycled HHW will be summarized by waste type and weight, along with the cost for recycling.
- **Staffing requirements.** The level of staffing needed to effectively manage the selected HHW programs will be evaluated to determine if adequate staffing is being allocated for the proposed programs.
- **Households utilizing programs.** Each program will monitor the locations of residents utilizing the programs to determine if residents in certain areas need to be targeted for education and public information, or if additional collection programs need to be implemented to serve these residents.
- **Markets for recyclable HHW materials.** The markets for recyclable materials will be monitored to determine if additional markets are necessary or if additional materials can be added to the program.

8.3 Responsible Parties for Monitoring, Evaluation, and Reporting

The County of Santa Clara, Department of Environmental Health Services will oversee responsibility of the Countywide HHW program, including monitoring, evaluating and reporting.

The Santa Clara County Solid Waste Program, and the County Department of Environmental Health Services will monitor and evaluate the Countywide HHW program. The City of Milpitas Community Development Department will monitor the curbside waste oil recycling program and the load checking program.

8.4 Monitoring and Evaluation Funding Requirements

Funding is needed to monitor and evaluate the effectiveness of the selected programs, including

- staffing for recordkeeping
- monitoring recyclable materials markets

- tracking the demographics of participants utilizing the program

Each of the monitoring and evaluation tasks will be conducted by staff responsible for specific programs. The cost for monitoring and evaluation is included in the cost of operating the selected programs.

8.5 Contingency Measures

If the HHW objectives described in Section 1 fail to meet the goals of reducing and recycling HHW, the following tasks will be implemented:

- increase staffing
- revise the implementation schedule
- increase the City's budget for the countywide program to ensure that all residents in the City will have access to the mobile and permanent collection facilities
- augment the County program with periodic collection events

9 EDUCATION AND PUBLIC INFORMATION

Education and public information are separate mechanisms that work together towards a common goal. Education is an ongoing activity that explains, through knowledge and awareness, *why* waste reduction programs are necessary. Public information is a method of letting the public know *how* to effectively participate in programs. Both ongoing education and public information are essential to the successful implementation of the HHWE.

A community could fall short of its goals if it merely selects programs without providing methods of informing and educating the people who generate the waste. Changing the behavior of the community as a whole is an essential component of these programs.

This section presents education and public information objectives and identifies existing and proposed education activities for achieving those objectives.

9.1 Objectives

The City of Milpitas selected the following education and public information objectives to augment the HHW collection programs. The objectives apply to both the short and medium term planning periods (1991-2000).

9.1.1 Objective #1 Promote Source Reduction, Safer Use, and Proper Disposal of HHW

Multidisciplinary education and public information program. The City of Milpitas will participate in public education programs which will be coordinated by the Countywide HHW Program. The Countywide HHW Program will coordinate public education efforts with the Nonpoint Source Pollution Control Program, the wastewater treatment plants' source reduction programs, the school science education curriculums, and non-profit educational organizations.

City public education and information programs. The City of Milpitas will provide information to residents regarding the curbside collection of used motor oil.

Source reduction. Information will be distributed to residents regarding the availability of non-hazardous substitutes. The public will also be asked to support the development of non-hazardous product substitutes by manufacturers.

Proper use and storage. Information will be distributed to residents about the hazardous nature of some products and methods for proper use and storage of such products.

Proper disposal. Information will be distributed about the environmental hazard associated with improper disposal of HHW, and will receive guidance on proper disposal methods.

9.1.2 Objective #2 Increase the Accuracy and Uniformity of HHW Information Disseminated by Public Agencies

County of Santa Clara Training for Use of Guidebook. The County of Santa Clara is offering a training program on the use of the "Guidebook for Proper Management of Household Waste for the Protection of Our Local Environment." The Guidebook will be distributed to approximately 250 agencies and organizations in the Summer of 1991. The City of Milpitas will participate in the training program and will utilize the guidebook.

Guidebook updates. The County Hazardous Waste Planning staff will oversee updates/supplements of the manual as necessary.

9.2 Existing Education and Public Information Programs

The City has developed an HHW public education program. The City distributes pamphlets at collection events that encourage reducing the use of hazardous products by purchasing non-hazardous alternatives. The City also televises an HHW video on Channel 6, the City's cable television channel. Brochures are mailed periodically to homeowners that provide information on how to properly dispose of HHW and on methods to reduce the HHW generated. Collection events are publicized through

- advertisements in the local newspaper

- flyers distributed to 6,000 school children
- an announcement in the City calendar mailed to residents each year
- a banner at City Hall
- signs placed throughout the City
- announcements in the City-sponsored community newsletter

9.2.2 Non-profit and Volunteer Organization Efforts

League of Women Voters. In 1990, the League of Women Voters sponsored the production and distribution of a video entitled *Clean Up Toxics at Home.* The League distributed copies of the video to 16 libraries, 15 city governments, the County Hazardous Waste Management Program, 7 junior colleges, 3 universities, and 8 prenatal education groups in Santa Clara County.

The League also printed and distributed 4,000 copies of *Take Me Shopping*, as well as a flyer entitled *Clean Up Toxics*, in 1990.

9.2.3 Public Agency-Sponsored Programs

Nonpoint Source Pollution Control Program. In 1988, the City of Milpitas joined the Nonpoint Source Pollution Control Program, (NSPCP) a project of the Santa Clara Valley Water District. Nonpoint source water pollution refers to pollutants which run off from broad areas of land rather than enter the water through a discrete pipe or conduit. The purpose of the NSPCP is to reduce stormwater-borne pollutants entering the southern San Francisco Bay. Specific pollutants of concern, in order of priority, are heavy metals (cadmium, copper, lead, mercury, nickel, silver, and selenium); hydrocarbons (contained in oil and grease); pesticides and herbicides; suspended sediments; and organic pollutants.

The NSPCP's public education program aims to inform the public about the causes and origins of nonpoint source pollution, explain the correct practices for controlling pollutants at their source, and involves the active support of the public in implementing these practices. The NSPCP aims to reduce improper disposal of HHW into nonpoint pathways and at the same time discourage disposal of HHW into the solid waste stream.

In 1991, the NSPCP began its educational efforts with publication of a brochure entitled *The Bay Begins at Your Front Door!* The brochure explains how residents can prevent pollution of the San Francisco Bay by keeping hazardous materials from entering the storm drain system. The NSPCP plans to distribute this brochure and several pollutant specific brochures focusing on motor oil and pesticides. Additional educational programs are under development.

Santa Clara County Office of Education. The County Office of Education oversees the implementation of the State Department of Education's mandated Science Framework in the 37 school districts in Santa Clara County. A revised science curriculum is being phased into the schools in 1990 and 1991 and contains lessons on hazardous materials for grades Kindergarten through twelfth.

Santa Clara County Hazardous Waste Management Plan (Tanner Plan). The Santa Clara County Tanner Committee developed the following public education policies for management of HHW.

> Public Education Policy #1
>
> The County and Cities shall coordinate the development of a program for the proper management and disposal of household hazardous waste on a countywide basis in accordance with the waste management hierarchy and considering existing programs and conditions.

This policy resulted in the formation of the Household Hazardous Materials Working Group. The Working Group is composed of representatives from each of the cities; County hazardous waste, solid waste, and environmental health staff; private solid waste contractors; and community advisory members. The Working Group conducted a thorough evaluation of HHW management alternatives. This evaluation resulted in a plan to implement a pilot countywide HHW collection and public education program in fiscal year 1991-1992.

> Public Education Policy #2
>
> The County, in coordination with the Cities, shall initiate a public education campaign which will inform all county residents about the potential hazards associated with household products, how to dispose of them safely, and safe substitute products and practices that can be used in place of hazardous substances.

Several educational publications have been produced: *Take Me Shopping—A Consumer Guide to Safer Alternatives for Household Hazardous*

Products and *The Guidebook for Proper Management of Hazardous Wastes.* Additional countywide educational activities are currently under development and are described in detail in this document.

9.3 Implementation of Education and Public Information Programs

9.3.1 Program Description

City efforts. The public information efforts currently underway in the City are described under Section 9.2.1 "Existing Conditions." It is anticipated that these city-sponsored programs will be continued into the short- and medium-term planning periods. A summary of public education activities to be carried out in the short- and medium-term planning period follows.

- Use of the *The Guidebook for Proper Management of Hazardous Wastes*
- Non-point Source Pollution Control Program Public Education brochures
- Distribution of Take Me Shopping

Countywide efforts. The City of Milpitas plans to participate in the educational efforts coordinated by the Countywide HHW Program. Residents will be informed about how to use, store, and dispose of household hazardous waste properly. An aggressive source reduction component will be included to promote non-hazardous alternatives and thereby reduce generation of HHW.

The Countywide HHW Program will coordinate educational efforts with participating cities, non-profit organizations, and public agencies such as the Nonpoint Source Control Program, wastewater treatment plants, and local schools.

9.3.2 Community Audiences to be Targeted

The City of Milpitas intends to provide HHW collection services and source reduction public information for all residents. Educational materials will be printed in non-English languages for those sections of the community that do not speak English. In addition, associations and groups serving non-English speaking populations will be targeted to assist in the public information effort.

9.3.3 Government Agencies Responsible for Implementation of Education and Public Information Program

The County Department of Planning and Development will serve as the lead agency for public education efforts. The County Planning Department will coordinate the educational efforts with the participating cities, County Environmental Health, Santa Clara Valley Water District, the wastewater treatment facilities, schools, and non-profit agencies. The City of Milpitas Community Development Department is responsible for oversight of the HHW education and public information programs in the City of Milpitas.

9.3.4 Implementation Tasks

Public education.

• Advertise periodic collection events	1991, ongoing
• Develop and distribute the guidebook to public agencies	1991
• Participate in training for use of the guidebook	1991-1992
• Review the guidebook	annually
• Reproduce and distribute the "Take Me Shopping" booklet at collection events and upon request	1991, ongoing
• Participate in ongoing multi-agency HHW public education efforts	1991, ongoing
• Develop and disseminate source reduction and product-specific information pamphlets	1991, ongoing
• Continue City-sponsored advertisements of the curbside collection program for motor oil	ongoing

9.3.5 Costs and Sources of Funding for Implementation of Education and Public Information Programs

The City of Milpitas HHW education and public information programs are anticipated to cost approximately $10,000 per year. The costs for the countywide public education programs are included in the cost of the mobile and permanent collection facilities. The non-point source pollution

control program is funded by the Santa Clara Valley Water District. Funding sources for City-sponsored programs are discussed in Section 10.

9.4 Monitoring and Evaluation

9.4.1 Evaluation Methods

The methods described below will be used to measure achievement of the education and public information objectives.

Objective - Promote Source Reduction, Safer Use, and Proper Disposal of HHW

Evaluation Method 1. Residents will be surveyed annually to determine the extent to which buying habits have changed towards the purchase of non-hazardous products and also to determine whether residents' awareness has increased regarding safe use and disposal practices. Results of the surveys will be included in the annual reports. When possible, changes in purchasing behavior may also be monitored using locally-obtained retail sales data or regional marketing data.

Evaluation Method 2. Data from program records will be reviewed to determine the adequacy of HHW program advertising efforts.

Evaluation Method 3. An annual survey of retail businesses will be done to monitor availability of non-hazardous alternatives to specific products.

9.4.2 Written Criteria for Evaluating Program Effectiveness

The City of Milpitas will prepare annual reports describing the findings of the evaluation outlined above. Education and public information programs will be evaluated to determine changes in purchasing habits, level of awareness of proper use and disposal, level and distribution of participation, and changes in availability of non-hazardous products.

9.4.3 Agencies Responsible for Monitoring, Evaluation, and Reporting

The agencies responsible for monitoring, evaluation, and reporting include the City's Community Development Department, the County Division of

Environmental Health Services, and the County Department of Planning and Development.

9.4.4 Funding Requirements and Sources for Monitoring and Evaluation

Monitoring and evaluation of HHW management programs in the City of Milpitas will be funded through the City's General Fund.

9.4.5 Contingency Measures

Should annual evaluations indicate a shortfall in attainment of the education and public information objectives, the following measures should be implemented:

- Analyze existing programs for obstacles to successful implementation
- Increase or improve education and advertising efforts
- Increase funding and staff
- Modify objectives
- Increase frequency of program monitoring and review

9.4.6 Program Monitoring and Reporting Schedule

Annual reports will be written and distributed at the end of each 12 months of operation. It is anticipated that the first annual report will be written in 1992.

10 FUNDING COMPONENT

Adequate and long-term funding is an essential component of a successful HHW management system. Inadequate funding can cause an otherwise effective program to fail. The purpose of the funding component is to demonstrate that the City of Milpitas has sufficient funds and allocation of resources to plan, develop, and implement the selected HHWE programs identified in this document.

This section briefly describes (1) the current mechanisms used to fund solid waste and HHW programs for the City of Milpitas, (2) estimated costs for the component programs scheduled for implementation in the short-term planning period, (3) revenue sources to support the component programs, and (4) contingency funding sources.

10.1 Current Funding Sources

The source of funding for solid waste and HHW management activities in Milpitas is the City's General Fund. Revenue sources for the General Fund include the City's franchise fee for refuse collection by BFI. Effective January 1, 1991, the City Council approved a 0.8 percent refuse collection fee increase over the previous year, raising the basic monthly rate per single family dwelling to $7.45[1]. Of this amount, the franchise fee represents $0.74, or 10 percent of the basic rate. In fiscal year 1990-1991, the franchise fee is estimated to account for approximately $417,000 of the General Fund's revenues.

As of January 1, 1991, 1.5 percent of the basic monthly rate per single family was earmarked by the City Council for billing, which is a function of the City's Finance Department. The billing allocation for 1991 represents a reduction of over 150 percent from the 4 percent rate apportioned to billing activities in 1989. This reduction has occurred during a period when

[1] As noted on the following page, this rate was raised an additional $1.29 per month on January 28, 1991, to cover curbside collection costs. This increase brings the current rate to $8.74 per month.

a growing number of waste management activities have placed increasing demands on the City's finance department.

The City's curbside recycling program was implemented on January 28, 1991, resulting in an adjustment from the January 1, 1991 rate of $7.45 per month for a single family to $8.74 per month. This increase ($1.29 per month) represents a curbside fee that is paid to the refuse collector, BFI to provide the curbside collection service, including the collection of used oil. The curbside recycling contract with BFI includes recyclable material revenue sharing. Because of dynamic markets, the revenue available from this source is unpredictable. As of February 6, 1991, revenues of approximately $15,000 had been received.

10.2 Estimated Program Costs

Estimated costs have been determined for each of the new or expanded programs that have been identified in Sections 3 through 7 for implementation during the short-term planning period. Table 10-1 shows the estimated capital and operating costs for each of these programs, by year, for 1991 through 1995. Capital costs include equipment purchases, and new or improved structures. Operating costs include operations and maintenance, publications, and other promotional materials, Milpitas staff time, and other expenses.

10.3 Revenue Source for New and Expanded Programs

The source of funding the programs to be implemented during the short-term planning period in the City of Milpitas will be the City's General Fund. It is likely that current revenue sources for the General Fund are adequate to cover new and expanded programs beyond 1992. The City must identify additional revenue sources. One method of generating the revenues is a rate increase for all regular garbage service accounts. The City will have the opportunity to adjust garbage rates in 1992 when the City's contract with BFI will be reviewed.

10.4 Contingency Funding Sources

Funding sources and mechanisms that could be explored by Milpitas if a shortfall in waste management funds occurs are as follows:

- Special taxes or assessment. These can take the form of short-term taxes or assessments to develop HHW programs.
- Non-discretionary HHW grant - Four million dollars is available annually for the grant program. Funding eligibility is open to cities, counties, and local agencies that have implemented HHW programs such as construction of a permanent HHW facility, sponsorship of periodic collection day programs, and operation of load checking programs, etc.

Table 10-1
Implementation Costs for Selected Programs

Programs	Estimated Annual Costs[1]
Short-Term Programs	
Alternative 2 - Permanent Collection Facility	$60,000[2]
Alternative 3 - Mobile Collection Facility	$60,000[2]
Alternative 5 - Load-Checking Program	12,000
Alternative 6 Recycling Program for HHW - Curbside Collection of Use Oil	12,000
Alternative 7 - Public Education and Information	10,000

1. Includes provisions for staffing.
2. The City budgeted $60,000 for fiscal year 1991-92 for 500 Milpitas residents to participate in the County program (permanent and mobile collection facilities). Funding is available if participation rates increase beyond 500 households.

ACRONYMS

ACRONYMS

DHS	Department of Health Services (California)
EPA	Environmental Protection Agency
HHW	Household Hazardous Waste
HSC	Health and Safety Code (California)
MSW	Municipal Solid Waste
PCB	Polychlorinated Biphenyl
RCRA	Resource Conservation and Recovery Act
SQG	Small Quantity Generator
TSDF	Treatment, Storage and Disposal (Facility)

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Acid - Chemical compound or solution which has a low pH (below 7). Strong acids are corrosive to many materials, especially metals. Acids with pH equal to or below 2.0 are considered hazardous.

Capital Costs - Those direct costs incurred in order to acquire real property assets such as land, buildings and building additions; site improvements; machinery; and equipment.

Characteristics of Hazardous Wastes - Characteristics identifying substances as hazardous waste, by their physical and chemical properties. EPA has established four characteristics that can be determined by tests:

- Ignitability - The ability to catch fire.
- Corrosivity - The ability to wear away or destroy other materials, including human tissue.
- Reactivity - The ability to enter into a violent chemical reaction, which may involve explosion or fumes.
- EP (Extraction Procedure) Toxicity - The ability to release certain toxic constituents when leached with a mild acid.

Disposal - Abandoning, depositing, interring, or otherwise discarding waste as a final action after use has been achieved or a use is no longer intended. (Section 66048, Title 22, California Administrative Code; the Department of Health Services is proposing to revise this definition.)

Disposal Site - An area, location, tract of land, building, structure or premises used or intended to be used for disposal of refuse or hazardous waste.

Environmental Protection Agency - A federal agency, established in 1970, which, among other duties, has responsibility for ensuring that governmental, residential, commercial and industrial waste-disposal activities do not adversely impact the environment.

Flammable - Material which will burn below 140°F, either spontaneously or as a result of coming in contact with sparks or flame.

Generator - The person, company, or facility that, by nature or ownership, management or control, is responsible for producing (or allowing to be produced) the hazardous waste.

Hazard - Having one or more of the characteristics that cause a substance or combination of substances to qualify as a hazardous material, as defined by section 66084 of Title 22 of the California Code of Regulations.

Hazardous Waste - is a waste, or combination of wastes, which because of its quantity, concentration, physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed. The term "hazardous waste" includes extremely hazardous waste, unless otherwise specified (Section 25117 of the Health and Safety Code). Examples of hazardous wastes include strong acids, explosives, flammables, toxic chemicals, and corrosives.

Heavy Metals - A group of metallic elements with high atomic weights and densities. Toxic heavy metals include arsenic, cadmium, chromium, lead, mercury, nickel, selenium, and thallium.

Herbicide - A chemical used to kill plants.

Household Hazardous Wastes - Hazardous wastes resulting from the use of such household products as paint products, solvents, insecticides, oven cleaners, disinfectants, medications, and drugs. Generally any products labeled poison, corrosive, flammable, or toxic belong in this category.

Incineration - The controlled combustion of burning solid, liquid or gaseous waste, producing gases and ashy residue containing little combustible material. This reduces the volume and toxicity of the hazardous wastes.

Land Disposal Method - Disposal, storage or treatment of hazardous wastes on or into the land, including, but not limited to, landfill, surface impoundment, waste piles, deep-well injection, land spreading, and co-burial with municipal garbage.

Landfill - A disposal site employing an engineered method of disposing solid wastes on land in a manner that minimizes environmental hazards by spreading solid wastes in layers, compacting the waste to the smallest practical volume and applying cover materials at the end of each operating day.

Lead Agency - The public agency which has the principal responsibility for the execution or approval of the project. For example, under the California Environmental Quality Act, such an agency decides if an EIR or negative declaration will be required for the project and causes the document to be prepared.

Manifest - A State form which indicates generator, quantity, type of waste, and disposer of waste for each shipment of hazardous wastes handled in off-site facilities.

Materials Recovery Facility - A permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery, for the purposes of recycling or composting.

Medium-Term Planning Period - A period beginning in the year 1996 and ending in the year 2000.

Municipal Solid Waste or MSW - All solid wastes generated by residential, commercial, and industrial sources, and all solid waste generated at construction and demolition sites, at food-processing facilities, and at treatment works for water and waste water, which are collected and transported under the authorization of a jurisdiction or are self-hauled.

Normally Disposed Of - Those waste categories and waste types which: (1) have been demonstrated by the Solid Waste Generation Study, conducted pursuant to CCR, Title 14, Section 18722, to be in a solid waste stream attributed to the jurisdiction as of January 1, 1990; (2) which are deposited at permitted solid waste landfills or transformation facilities subsequent to any recycling or composting activities at those solid waste facilities; and (3) which are allowed to be considered in the establishment of the base amount of solid waste from which source reduction, recycling, and composting levels shall be calculated, pursuant to the limitations listed in Public Resources Code section 41781(b).

On-Site Disposal - Treatment of waste material on the premises where they were generated.

Operator - A person, industry, or agency that conducts the treatment, disposal and/or storage of hazardous materials.

Permit to Operate - A mandate issued by Air Pollution Control Districts and Air Quality Management Districts, which is required before operation of a facility, based on a demonstration that the facility can comply with applicable rules, regulations and conditions imposed in the Authority to Construct.

Permitted Landfill - A solid waste landfill for which there exists a current Solid Waste Facilities Permit issued by the local enforcement agency and concurred in by the California Integrated Waste Management Board.

Pyrolysis - The process of heating combustible hazardous waste in the absence of oxygen, usually breaking the waste down to a residue of reduced toxicity.

Re-Use - The use, in the same form as it was produced, of a material which might otherwise be discarded.

Recyclables - Materials that still have useful physical or chemical properties after serving their original purpose and that can, therefore, be reused or remanufactured into additional products.

Recycling[1] - A series of activities by which materials that would become or otherwise remain waste are diverted from the solid waste stream for collection, separation, and processing and are used as raw materials or feedstocks in lieu of, or in additional to, virgin materials in the manufacture of good sold or distributed in commerce, or the reuse of such materials as substitutes for goods made from virgin materials.

Reduction - A chemical reaction involving the addition of electrons to atoms or compounds; the opposite of oxidation, (not the same as waste reduction).

Reusability - The ability of a product or package to be used more than once in its same form.

Short-Term Planning Period - A period beginning in the year 1991 and ending in the year 1995.

Small Quantity Generator (SQG) - A generator of waste material amounting to less than 1,000 kilograms of hazardous waste per month.

Solid Waste - Discarded material with insufficient liquid to be free-flowing. Examples of this include garbage, rubbish, paper, ashes, industrial wastes, abandoned vehicles, manure, vegetable or animal solid and semisolid wastes, and other discharged solid and semisolid wastes.

Solvent - A liquid capable of dissolving another substance. Common solvents include water, acetone, alcohol, and paint thinner.

Source Reduction - The design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Source reduction prevents waste either by redesigning products or by otherwise changing societal patterns of consumption, use, and waste generation.

Storage Facility - A hazardous waste facility at which hazardous waste is contained for period greater than 96 hours at an off-site facility or for periods greater than 90 days at an on-site facility. (Health and Safety Code Section 25123.3)

Tipping Fee - A fee, usually dollars per ton, for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton; also called a disposal or service fee.

Ton - A unit of weight in the U.S. Customary System of Measurement, an avoirdupois unit equal to 2,000 pounds. Also called short ton or net ton.

Toxic - Capable of producing injury, illness, or damage to humans, domestic livestock or wildlife through ingestion, inhalation, or absorption through any body surface.

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[1] As defined by the natural Recycling Advisory Council in *Recycling Times*, December 18, 1990.

Transfer Station - A fixed facility used for transferring waste from small collection trucks or trains, packaging for transport, and loading it into larger vehicles, and directing it toward large capacity treatment or disposal facilities.

Treatment - Any method, technique or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste or so as to render such waste nonhazardous.

Treatment Facility - Any facility at which hazardous waste is subjected to treatment or where a resource is recovered from a hazardous waste.

TSDF - A treatment, storage or disposal facility. This may also include transfer stations. This term is used in definitions of federal regulations.

Variance - An exemption from the Department's permitting process which is granted under special, stated conditions. Notifications of variances are sent to the local environmental health and land use planning departments and such facilities are still subject to local land use permits.

Volume - A three dimensional measurement of the capacity of a region of space or a container. Volume is commonly expressed in terms of cubic yards or cubic meters. Volume is not expressed in terms of mass or weight.

Waste - Material which is discarded by the generator as no longer useful to the generator.

Waste Exchange - A network connecting waste generators with parties that can use treated or untreated hazardous wastes as raw materials for industrial processes.

Waste Reduction - On-site practices that eliminate, reduce, or avoid the need for off-site hazardous waste facilities.
Section 66680 of Title 22 of the CAC presents a list of chemicals and common wastes and their respective potential hazardous properties.