HAZARDOUS WASTE MANAGEMENT PLAN ELEMENT

VIII

Approved by the City Council
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CITY OF HERCULES

FINAL HAZARDOUS WASTE MANAGEMENT PLAN

AN ELEMENT OF THE

HERCULES GENERAL PLAN

December 1990

Prepared for: **CITY OF HERCULES**
111 Civic Drive
Hercules, California 94547

Prepared by: **NETWORK ENVIRONMENTAL SYSTEMS, INC.**
13407 Folsom Boulevard, Suite B
Folsom, California 95630

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EXECUTIVE SUMMARY

The City of Hercules has created this Hazardous Waste Management Plan (HWMP) to be included as an element of the City General Plan. The Plan is intended to achieve the twin goals of:

- Safe and effective management of hazardous waste within the City of Hercules
- Protection of public health and safety and the environment

In order to accomplish these goals, the Plan focuses on land uses and facility siting criteria as a major emphasis. The Plan also inventories existing hazardous waste generation and export, projects hazardous waste generation to the year 2000 and defines facilities siting needs and criteria. Policies and programs for effective management of hazardous waste now and in the future are identified as well as implementation measures for those policies and programs.

REGULATORY BACKGROUND

This Plan has been developed under the provisions of the Tanner Legislation (AB 2948 (1986), AB 1201 (1989)) which provides that cities may adopt a Hazardous Waste Management Plan provided that it is consistent with provisions of the respective County Plan. This Plan has been prepared to be consistent with the Contra Costa County Final HWMP (Contra Costa County 1989a) which was approved by the California Department of Health Services (DHS) on February 28, 1990. This Plan has also been developed to conform to the guidelines for HWMPs formulated by the DHS (DHS 1987a,b).

The City of Hercules was notified of approval of the Contra Costa County HWMP during June 1990. Following that notification, the City must adopt a Plan within 180 days if it wishes to do so. This Draft HWMP is being circulated for public comment so that it may be revised and ready for final approval within the statutory period.

HAZARDOUS WASTE GENERATION AND MANAGEMENT

The City of Hercules has been dealing with the issues of hazardous waste management, solid waste management and emergency response for several years. The City is a member of Joint Powers Authority (JPA) for solid waste management and for emergency response with four other Contra Costa County cities and the County to deal with these issues. The West County Solid Waste JPA is currently working with the requirements of AB 939 to address household hazardous waste, resource recovery and recycling issues. The West County Emergency Response JPA has been dealing with multi-hazard issues and has been instrumental in the establishment of a HAZMAT response team at the Richmond-Hilltop Fire Station.

Hazardous waste generated within the city limits is currently limited to one "large quantity generator" (as defined by DHS as those generating more than 1.0 tons per month of hazardous waste), a number of small quantity generators and household hazardous waste. The large quantity generator is Pacific Refining Company. This company accounted for approximately 57 percent of the approximately 741.3 tons of hazardous waste shipped off-site in 1988. Seven percent of the hazardous waste generated in the City in 1988 came from disposal of contaminated soil from site cleanups, while 26 percent came from small quantity generators (except waste oil), 7 percent from small quantity waste oil and three percent came from household hazardous waste.

Hazardous waste production in Hercules is expected to increase in the future both from expansions of existing businesses and the addition of new businesses. This Plan projects waste generation in the year 2000 both with and without waste minimization programs. It is possible that concerted cooperative waste minimization programs supported by both the City and local industry could result in overall reduction of hazardous waste on a citywide or regional basis.

LOCAL RESPONSIBILITIES

The Local Government Commission has identified local government responsibilities for hazardous waste management involving three categories:

- Waste reduction
- Enforcement
- Providing for waste management capacity

Since the City of Hercules has a relatively small amount of waste generation within its borders, a regional approach is probably the best means of addressing these local responsibilities. The City will investigate the feasibility of a Joint Powers Agreement (JPA) to deal with hazardous waste management issues. Waste reduction programs could be better handled by an entity (such as a JPA) with a larger base of industries than are present in Hercules.

Enforcement of hazardous waste ordinances will be carried out by the City within its boundaries in terms of police response. The City will co-inspect industrial facilities as needed in coordination with the Rodeo-Hercules Fire Protection District. Other hazardous waste management issues will be coordinated with the JPA (if deemed feasible) or with appropriate county agencies.

Waste management capacity is only present in the City as on-site waste reduction capabilities at large quantity generator sites. There is no treatment, storage or disposal facility (TSD) in or near the City of Hercules. The City intends to explore siting of any facilities, as needed, on a regional basis in coordination with the existing JPA's, a newly created JPA for hazardous waste (if deemed feasible) or with Contra Costa County. This Plan contains siting criteria for TSD facilities.

PLAN POLICIES AND PROGRAMS

From the two major goals of the HWMP, this document defines a set of objectives and corresponding policies and programs with which the City of Hercules proposes to improve and more closely control hazardous waste management. The policies and programs involve: 1) adoption of administrative authority to more closely monitor and enforce hazardous waste ordinances, 2) establishment of coordinated efforts with appropriate regional and county agencies, 3) training for city workers, and 4) establishment of necessary programs to minimize hazardous waste produced by businesses and households.

PLAN IMPLEMENTATION

Recommendations for effective implementation of the HWMP include public education and participation, an ongoing data collection and analysis program and a waste reduction implementation program. Specific recommendations for facilities siting requirements, transportation and storage regulations for hazardous waste, emergency response coordination, monitoring and enforcement are included in the Plan. Also included are recommended management measures for large and small quantity generators, contaminated sites and household hazardous waste. The City of Hercules intends to implement hazardous waste management programs which do not cause duplicative effort or paperwork on the part of industry, small businesses of residents.

Implementation will occur through the City Manager and designated departments coordinating specific hazardous waste management tasks to be assigned as shown in the following chart. All emergency response implementation will be coordinated with the Rodeo-Hercules Fire Protection District (RHFPD) and appropriate county and state agencies. The City will investigate the feasibility of a JPA for hazardous waste management issues which would most likely be implemented with other west-county cities.

CHART OF DEPARTMENT RESPONSIBILITIES FOR HWMP IMPLEMENTATION

TASK	POSITION/DEPARTMENT	PAGE
<u>One Time Tasks</u>		
JPA Development	City Manager	14
Establish Data Base	Planning Director	64
Waste Reduction Implementation	Planning Director	64
Review of New Facility Applications	Planning Director	46
City Facility Inventory	Public Works Director	67
<u>Ongoing Tasks</u>		
Maintain Data Base	Planning Director	64
Public Education/Participation	Planning Director	63
Waste Reduction Programs	Planning Director	64
Household Hazardous Waste Program	Public Works Director	63
Transportation Programs	Public Works Director	66
Monitoring & Evaluation Programs	Planning Director	73
Small Quantity Generator Programs	Planning Director	68
Emergency Response Programs	Police Chief, (RHFPD)	71

1.0 INTRODUCTION

Hazardous waste generation in Hercules occurs primarily at two facilities which represent the petrochemical and biochemical industries. These industries in addition to 1) other smaller industrial generators, 2) some non-industrial commercial businesses which deal in hazardous materials, and 3) residential households all create proportional amounts of hazardous waste. Safe and effective management of that waste to protect public health and the environment is a major concern of the Hercules City Government.

Due to a growth in commercial development in the City, hazardous waste management has become an important priority of the residents of Hercules. Based on this priority, in March 1990, the City contracted for the preparation of a specific City Hazardous Waste Management Plan (HWMP) to augment the Contra Costa County HWMP. This document will serve as the primary planning document for hazardous waste in the City of Hercules.

Hazardous waste is defined by the State of California in Section 25117 of the Health and Safety Code as:

25117. "Hazardous waste"

(a) "Hazardous waste" means either of the following:

(1) A waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either:

(A) Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.

(B) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

(2) A waste which meets any of the criteria for the identification of a hazardous waste adopted by the Department (DHS) pursuant to Section 25241.

(b) "Hazardous waste" includes, but is not limited to, RCRA hazardous waste.

(c) Unless expressly provided otherwise, the term "hazardous waste" shall be understood to also include extremely hazardous waste and acutely hazardous waste.

The City of Hercules Hazardous Waste Management Plan has been prepared pursuant to AB 2948 (Tanner, 1986) and to Final Guidelines for the Preparation of Hazardous Waste Management Plans (Department of Health Services 1987a,b). It has been prepared to be consistent with the goals, objectives and basic content of the Contra Costa County Final County Hazardous Waste Management Plan (Contra Costa County Community Development Department 1989). This Plan has been constructed to meet the specific needs of the City of Hercules and to conform with the goals and objectives of the citizens and the city government.

This HWMP consists of the following major components:

- An introduction to the Plan and its purpose (Chapters 1.0 and 2.0)

- A statement of goals, objectives and policies for the general management of hazardous waste and the potential siting of hazardous waste management facilities (Chapters 3.0 and 4.0)

- An analysis of hazardous waste generated within the City, including the volumes produced of each waste category, and expected rates of hazardous waste generation to the year 2000 (Chapter 5.0, Sections 5.1,5.2)

- A description of existing hazardous waste management facilities (Chapter 5.0, Section 5.3)

- An analysis of the potential for reduction of the volume and hazard of hazardous waste at the source and/or the potential for recycling of such waste (Chapter 5.0, Section 5.6)

- A discussion of the waste generated by light industrial, commercial zone businesses and residential households, and the need for programs to manage this waste (Chapter 5.0, Sections 5.14 and 5.15)

- A determination of the need for additional hazardous waste facilities to manage the volume of hazardous waste currently produced or projected to be produced in the year 2000 (Chapter 5.0, Sections 5.4 and 5.5)

- An identification of existing hazardous waste facilities which can be expanded to accommodate projected needs and siting criteria to be used in siting new facilities (Chapter 5.0, Section 5.7)

- Definition of programs and a schedule for city actions necessary to implement this plan (Chapter 6.0)

References used in the report are cited in Chapter 7.0. Project staff are acknowledged in Chapter 8.0. Supporting tables, maps and diagrams are included in Chapters 9.0 and 10.0, with detail supporting technical material in Chapter 11.0.

The City of Hercules is located within an area of highly diverse land uses and jurisdictions (Figures 1 and 2). Land uses vary from industrial and office park areas to retail commercial centers, residential communities and open space, but the major land use is now residential. These varied uses are present within the city limits (Figure 3) and in adjacent cities and counties in the eastern portion of the San Francisco Bay Area.

The City of Hercules has legal jurisdiction over hazardous waste produced or hazardous materials handled within the city limits. The City also has a strong interest in hazardous waste and hazardous materials which may affect areas within the city limits through accidents, spills, transport or natural processes (runoff or leaching). Thus this report has focused on the City and an area northeast of the City termed the City's Sphere of Influence (Figure 3). The City has adopted a policy position of annexing properties within the Sphere of Influence, providing development of those properties ensure a continued high standard relative to environmental quality. Part of such assurance will be conformance of properties within the Sphere of Influence with this Plan.

This Plan has been developed in conjunction and with the assistance of Contra Costa County agencies including the County Planning Department, County Health Department and the Rodeo-Hercules Fire Protection District. In addition, the City of Hercules has worked with cities in nearby Contra Costa County in the development of this plan. Personnel from the State Department of Health Services have also contributed expertise and assistance.

2.0 PURPOSE

The passage of AB 2948 in September of 1986 authorized counties and cities in California to prepare Hazardous Waste Management Plans (HWMPs). Subsequently, every county in the State elected to prepare a plan to manage all hazardous wastes in their respective counties. While extremely beneficial to developing data and developing policies on a county level, these plans are not aimed toward the specific needs of cities. AB 2948 (Chapter 1504, California Annotated Code) therefore provides for cities to elect to prepare their own Hazardous Waste Management Plans provided that such plans are consistent with the adopted county plan.

The Hercules HWMP has been formulated to conform with the federal, state and county hazardous waste laws, policies and regulations, and to bring together in one document waste management strategies for the City of Hercules. It is the intent of the City to develop an integrated approach to hazardous waste management which is workable at a city level and which enhances cooperation between the City and other affected jurisdictions.

This Plan synthesizes data on present and projected hazardous waste generated, stored, treated, transported or disposed of within the City of Hercules. From these data, County, State and Federal hazardous waste management statutes, regulations and existing city ordinances, a set of policy guidelines for hazardous waste management have been formulated (see Chapter 4.0). Based on these policies and existing statutes and ordinances, a variety of implementation measures and city programs are recommended (Chapter 6.0). It is the City of Hercules' intent to establish these policies and programs in order to ensure effective hazardous waste management at the local level, including coordination with existing and evolving county, state and federal programs.

The City will take a two-phased approach toward establishing these programs. The first phase will be adoption of this Plan and revision of appropriate ordinances, and the second phase will be establishment and implementation of the appropriate programs as growth in the generation of hazardous waste in the City makes this necessary and feasible.

3.0 GOALS AND OBJECTIVES

This Hercules Hazardous Waste Management Plan (HWMP) synthesizes information and formulates policies which make possible achievement of the overall goals of the City and this Plan. Those goals are: 1) to achieve the safe and effective management of hazardous waste within the City of Hercules, and 2) to protect the health and safety of the public and the environment.

This Plan inventories current wastes generated within the City, projects waste generation anticipated for the planning period (to year 2000) and determines specific needs for facilities, policies, regulations and procedures to safely and effectively manage that waste, now and in the future. To accomplish the Plan's goals and the objectives outlined below, a number of city programs are identified within the HWMP.

The objectives of this Hercules City HWMP are as follows:

- Accept responsibility and develop appropriate planning for the safe and responsible treatment and transfer or disposal of wastes within the city jurisdiction or in coordination with other jurisdictions.

- Designate prevention of deterioration of public health or the environment caused by hazardous waste as a primary goal of the city government.

- Adopt policies and targets which restrict further increases in and seek reductions in the volume and toxicity of hazardous waste committed to land disposal.

- Oppose increases of hazardous waste treatment, storage or disposal within the city limits unless such activities are consistent with this Plan, and laws and ordinances of the City of Hercules.

- Encourage as a first priority, waste minimization and source reduction of existing waste generation facilities.

- Encourage recycling, reuse and on-site treatment as second priorities for hazardous waste management techniques.

- Provide strong direction and support to actively enforce laws, regulations and ordinances concerning issuance of permits, inspection, compliance and data availability concerning the generation, storage, transportation, treatment and disposal of hazardous waste or the generation, storage and transportation of hazardous materials.

- Develop effective programs for waste management within the appropriate city agencies to achieve a coordinated strategy to deal with citywide waste management issues.

- Work in coordination with other applicable jurisdictions to formulate workable agreements for inter-jurisdictional policies regarding mutual hazardous waste management concerns.

- Investigate the feasibility of a Joint Powers Authority (JPA) or other regional agreement for the management of hazardous waste.

Taken as a group, these goals should provide an effective hazardous waste management effort within the City of Hercules, provided the City pursues effective and consistent development and implementation of the programs necessary to achieve these goals. Sections 4.3 and 4.4 summarize the major policies and recommended programs necessary to achieve these goals in a direct and effective manner.

4.0 LEGISLATION, POLICIES AND PROGRAMS

This HWMP is a comprehensive document covering hazardous waste management in Hercules from generation through reclamation, treatment and/or disposal. Specific recommendations are made in the plan to improve existing methods of hazardous waste management and to develop and implement specific city programs. The goals of these programs will be to continue and improve effective hazardous waste management to protect public health and the environment of the City of Hercules in the future.

The Contra Costa County Final Hazardous Waste Management Plan (Contra Costa County 1989a) states that the County is one of the largest generators of hazardous waste in the State and that most of that waste is treated in on-site treatment facilities. The remainder of the generated waste is managed in off-site recycling, treatment or disposal facilities, principally outside of the County. The county HWMP indicates that this export of hazardous waste for treatment is likely to continue in the foreseeable future due to the lack of available treatment, storage and disposal (TSD) facilities within the county, and economic factors. The HWMP indicates the intention of the County to work with other counties or the State to solve waste disposal problems which may not be solvable within the County.

The City of Hercules currently has within its borders one large industrial generator of hazardous waste (according to DHS definition, large quantity generators are those producing more than 1.0 tons per month of hazardous waste). In addition there are a number of Small Quantity Generators (SQG's) and a small amount of hazardous waste generated by small-scale commercial and residential users. Total generation of hazardous waste in Hercules is relatively small in comparison to nearby industrial parts of Contra Costa County.

4.1 LEGISLATIVE AND REGULATORY BACKGROUND

In September of 1986, Assembly Bill 2948 (Tanner) was enacted. This Bill, now a part of the State Health and Safety Code, authorized counties and cities to prepare Hazardous Waste Management Plans or supplemental hazardous waste management elements. Subsequent to passage of AB 2948, each county within the State elected to prepare a Hazardous Waste Management Plan (HWMP). These plans have been submitted to the State Department of Health Services and are undergoing final State approval and local adoption processes.

The county HWMPs provide general overall data for hazardous waste management at the county level. Certain cities, particularly those with a significant industrial sector, require more detailed information for hazardous waste management within their boundaries. AB 2948 provides such cities authority for developing such a city HWMP provided the city plan is consistent with the adopted county HWMP.

In 1989, the legislature passed AB 1201 (Tanner) amending the original Assembly Bill (AB 2948) on Hazardous Waste Management Plans. The language in AB 1201 leaves unchanged the authority for cities to prepare HWMPs, but does provide additional detailed guidance and some provisions for the process of siting new hazardous waste management facilities.

The Hercules City HWMP has been developed in accordance with AB 2948 (Tanner), AB 1201 (Tanner) and the California Department of Health Services Guidelines for the Preparation of Hazardous Waste Management Plans (DOHS 1987a). The Plan has also been developed to be consistent with the policies and provisions of the Contra Costa County Final Hazardous Waste Management Plan (Contra Costa County 1989).

4.2 PLAN COMPONENTS AND KEY RESULTS

This HWMP will serve as the primary planning document for the management of hazardous waste within the City of Hercules. The scope of this Plan includes the generation, storage, handling, recycling, treatment, transport and disposal of such waste. To the extent that hazardous materials are of significance as waste sources or as major hazards, such materials are also discussed herein. The document recommends programs which deal more thoroughly with hazardous materials issues which are beyond the scope of this Plan.

4.3 HAZARDOUS WASTE MANAGEMENT POLICIES

The City of Hercules intends to achieve the goals and objectives outlined in Chapter 3.0. The City has developed the specific policies listed below in order to accomplish this intention.

The City of Hercules' policies with respect to hazardous materials and hazardous waste shall be:

- To adopt appropriate administrative authority to monitor and enforce city ordinances for businesses and other hazardous waste users within the city limits of Hercules.

- To designate the City Manager as the lead coordinator with each department (see chart on page 6) responsible for the achievement of specific hazardous waste management goals for the City of Hercules. The Department shall accomplish these management goals by working with designated county agencies including the Rodeo-Hercules Fire Protection District, County Planning Department and County Health Department.

- To bring all city facilities into compliance with proposed hazardous waste management policies of this plan, and with other existing statutes and ordinances at the county, state and federal level.

- To train city employees who handle or otherwise come in contact with hazardous materials or hazardous waste in the proper safety procedures for management and handling of these substances.

- To establish an enhanced hazardous waste and materials data base, oriented toward land use issues and zoning ordinance enforcement, to be implemented by the Planning Department, which will incorporate information from businesses which hold City of Hercules business licenses.

- To enhance information submitted by local businesses regarding the generation, storage, transport and disposal of hazardous waste within the city limits of Hercules upon application or renewal of city business licenses.

- To encourage waste minimization by local businesses through source reduction, product substitution, development of alternative technologies, recycling or other effective means.

- To assist with coordination of county or regionally sponsored technical assistance programs to small quantity generators and other industry regarding hazardous material handling and hazardous waste management.

- To train current inspectors to recognize hazardous materials and hazardous waste management problems and to coordinate with fire department inspectors in order to ensure compliance with the Hercules Municipal Code and other applicable regulations.

- To direct the City Attorney to enforce all applicable ordinances pertaining to hazardous waste generation, transport, storage and handling, and to adequately deter accidental or purposeful violations of these ordinances.

- To encourage community participation in municipal household hazardous waste collection through educational and technical programs. Such programs might include distribution of educational materials, sponsoring educational events, arranging community hazardous waste collection days and investigation of potential for a permanent household hazardous waste collection facility, in accordance with the solid waste JPA.

- To coordinate city actions with the Rodeo-Hercules Fire Protection District and other emergency response agencies. To train city personnel in the emergency response procedures in interagency agreements through establishment of an interagency emergency response task force for this purpose.

- To appoint a person or committee charged with maintaining communication with other (neighboring) jurisdictions and arrange a mechanism for developing inter-jurisdictional waste management strategies for common problems involving the city and neighboring jurisdictions.

These policies would be implemented through specific programs. Each policy or group of policies serves as a mandate for establishment of a program or other set of actions which the City must establish in order to achieve an effective system of hazardous waste management.

4.4 PLAN RECOMMENDATIONS

Establishment of specific programs to achieve the goals and policies of this plan will allow the City of Hercules and its citizens to effectively control and regulate hazardous waste generation, treatment and disposal within the city jurisdictional limits. This Plan recommends that the following programs be enacted in accordance with the goals and policies listed above:

- Establish and maintain a data base on hazardous materials handled, and hazardous waste managed within the City's sphere of influence (consistent with AB 2185 (1986)). The data base should contain information to facilitate land use decisions such as the permitting of new facilities which generate or use hazardous waste or materials and the proximity of development to hazardous sites as well as residential areas. This will encourage development of compatible uses and provide the City with mechanisms to develop appropriate regulatory guidelines and incident response procedures in these areas of the city.

- Participate, in conjunction with appropriate County and State agencies, in monitoring programs for air and water which will adequately protect the health and safety of Hercules citizens from potential exposures to hazardous materials on a sustained basis and which will alert citizens to any incidents or short-term threats of exposure.

- Work with the local business community to undertake and encourage a program of identifying waste minimization opportunities or procedures for local industry. Provide staff support to work with industry and accomplish these goals. The procedures developed should encourage source reduction, recycling, reuse and on-site treatment. Investigate the feasibility of developing such a program as part of regional program undertaken by a group of neighboring jurisdictions (west-county cities).

- Enact a requirement for all generators or handlers of hazardous materials above a specified minimum (consistent with AB 2185 (1986) and AB 3777 (1989)) to provide the City with an on-file Hazardous Waste Business Plan and Risk Management and Prevention Plan. Generators and handlers subject to this requirement are those who generate or handle more than 55 gallons (liquid), 500 pounds (solids), or 200 cubic feet (gas at standard temperature and pressure) of hazardous materials annually. More detailed questionnaires regarding storage and handling of hazardous substances should be issued to each applicant for a City business license and issuance of the license should be contingent upon satisfaction of city requirements and ordinances pertaining to handling and storage of hazardous materials and waste.

- The City should develop, in coordination with the Rodeo-Hercules Fire Protection District, a program to regularly inspect and/or monitor facilities which are determined to be or suspected of handling or managing hazardous waste or hazardous materials within the city's jurisdiction. Such inspection may be possible in conjunction with existing inspection programs.

- Continue to work with other jurisdictions and establish lines of communication and programs for pursuing hazardous waste management on an area-wide basis, thereby solving mutual problems of inter-jurisdictional waste management.

Once the City has committed to developing the above programs, funding mechanisms will be required for achievement of continuing activity on each program.

5.0 TOPICS

This Chapter covers first the detailed information on current and projected hazardous waste generation in the City of Hercules based on shipping manifest data from the California Department of Health Services and information provided by Contra Costa County Planning and Environmental Health Departments. Small quantity generator information is based on business lists and categories provided by the City of Hercules. The remainder of the Chapter covers various aspects of hazardous waste treatment, storage and disposal facilities as mandated by AB 2948 (1986) and AB 1205 (1989).

To determine need for waste treatment, existing facilities are inventoried, followed by examination of the need for such facilities, effects of waste reduction on such needs and siting criteria for such facilities. The final sections of the Chapter deal with a variety of special topics including transportation and storage of hazardous waste, facility inspection and enforcement of regulations, implementation and emergency response procedures, existing contaminated sites and hazardous waste generated by small quantity generators and households.

5.1 CURRENT WASTE GENERATION

Hazardous waste within the city limits of Hercules (Figure 3) is generated primarily by two industrial facilities which deal with petroleum products, chemicals and biomedical products (Figure 4). The one large quantity generator is Pacific Refining Company. Bio-Rad Laboratories generates smaller quantities of waste, but does generate and handle flammable solvents as well as biological and low level radio active waste. Other small generators which have produced waste manifested on the DHS data base include the Mechanics Bank of Richmond Operations Center and the Caltrans District 4 Maintenance yard.

The substances and quantities of hazardous waste generated by these facilities and shipped off-site for treatment or disposal, based on DHS manifest data, is shown in Table 1 for the years 1986, and 1988. A brief description of the operations of these facilities follows in this section. The wastes from these facilities fall into a variety of waste categories which are discussed in detail below in Section 5.1.1.

Pacific Refining Company

Pacific Refining Company is a medium sized refinery with capability to produce fuel grade products from crude oil. The refinery generates air emissions which are permitted by the Bay Area Air Quality Management District (BAAQMD), effluents which are dischargeable directly to San Pablo Bay under the Company's National Pollutant Discharge Elimination System Permit (NPDES) and other effluents treated at the on-site sewage treatment plant (STP) prior to discharge. Process components at the facility include a crude unit, a vacuum unit, a catalytic refiner, a hydro-cracker, a stack gas concentration unit, boilers, cooling towers and the wastewater treatment facility.

Bio-Rad Laboratories

Bio-Rad Clinical Division is a facility located in the North Shore Business Park together with the Bio-Rad Laboratories corporate headquarters. The Bio-Rad Chemical Division is located in Richmond approximately 10 miles south of Hercules. Bio-Rad activities include radioactive materials research connected with biomedical/ diagnostic test kits, testing and research using small quantities of flammable solvents and biological research including viral testing and associated biomedical technologies.

The Bio-Rad Hercules facility has two permits on file with the Bay Area Air Quality Management District (BAAQMD). One is an abatement permit for the use of HEPA equipment and the second is for use of ethanol spray disinfectant in an amount greater than five gallons annually. Radioactive wastes are permitted by the California Department of Health Service and are disposed of at approved off-site Class I facilities in Washington State (high level waste), held until half-life decay makes the material safe for sanitary landfill disposal (low level handling waste such as gloves and gowns), or concentrated using activated carbon and discharge of treated water to the sewer system as specified by State Permit (low level liquid waste). Other waste streams include solvent waste and biomedical waste which are discussed in detail in Section 5.1.1 below.

The Mechanics Bank of Richmond has its Operations Center in Hercules, where a large amount of document film developing is done. The resulting silver from photographic laboratory waste is diluted and discharged with wastewater to storm drains, and is thus not "shipped" off-site.

At the Caltrans District 4 Maintenance Yard, wastes include a diesel/asphaltic emulsion as well as waste motor oil. Total manifested waste quantities were reduced since some wastes were unnecessarily manifested as hazardous in 1988 (see Table 1).

5.1.1 Wastes Shipped Off-Site

Wastes shipped off-site by major industries within the city limits include both RCRA (wastes identified in the Resource Conservation and Recovery Act) and non-RCRA wastes:

- API separator wastes from Pacific Refining Company (RCRA)
- Bio-sludge wastes from Pacific Refining Company (non-RCRA)
- Spent catalyst and miscellaneous wastes from Pacific Refining Company
- Halogenated and unspecified solvent waste from Bio-Rad Laboratories

No known large quantities of hazardous waste are currently generated at facilities located outside of the city limits of Hercules, but within the City's sphere of influence. There are four facilities in this zone which do not have manifested waste streams according to the most recent DHS records (1988), however, these facilities may produce small quantities of waste. These companies are:

- Unocal, Inc. (coke plant)
- Asbury Graphite
- Yellow Freight System
- Loprest Company

The waste products from the two major industrial generators, Pacific Refining Company and Bio-Rad Laboratories, are the result of individual operations which are described briefly below. King Oil Company, an oil recycling operation, apparently ceased operations and generated hazardous wastes during the period 1976-1987.

Pacific Refining Company

Pacific Refining produces API-Separator sludge at approximately 150 dry tons annually. This includes KO48 and KO51 wastes which are both federally classified as hazardous wastes under RCRA (Resource Conservation and Recovery Act). Actual annual tonnages are shown in Tables 1 & 2. In addition, Pacific Refining produces non-RCRA bio-sludges at approximately 130-150 tons per year (see Tables 1 & 2). These sludges result from processing at the on-site wastewater treatment plant. These sludges are dewatered on-site with the filtrate being reprocessed by the sewage treatment plant (STP). The RCRA and non-RCRA solid waste is then shipped to the Class I disposal facility at Kettleman Hills. Due to the state ban on landfills accepting untreated hazardous waste, the RCRA "K" (KO48, KO51) wastes may have to undergo incineration in the future or be treated or recycled on-site.

Bio-Rad Laboratories

Bio-Rad Laboratories generates several levels of State permitted radioactive waste as discussed above. State manifested waste includes approximately 1.12 tons per year of unspecified solvent waste. In addition, the facility sterilizes (auto clave) and disposes of biomedical waste through shipment to the Richmond landfill or normal trash pickup depending on material type and quantity.

Other Sites

The other sites inside and outside the City have been discussed in summary form above. Contaminated sites are discussed further under Section 5.2.4. Small quantity generators are shown in the waste generation tables (Tables 3 and 4).

5.1.2 Wastes Managed On-Site

The two major industries in Hercules both have some programs to manage portions of their wastes on-site. Pacific Refining dewaters its RCRA and non-RCRA wastes returning filtrate to the Sewage Treatment Plant (STP) and shipping only dry solid waste off-site for disposal. Bio-Rad Laboratories uses auto-claving and radioactive decay to reduce the amount of their waste streams requiring special off-site disposal methods.

Some small quantity generators may treat wastes on-site. Details of this treatment are not available on a generator-specific basis, however, oil recyclers and other recycling or mobile treatment volume reduction services are the most typical forms of on-site treatment for these generators.

5.1.3 Small Quantity Generators

Small quantity generators are defined by the California Department of Health Services (DHS) as those generators whose monthly production of hazardous waste is less than 1,000 kilograms (approximately one ton). For the purposes of this report, the definition shall be those generators who produce less than one ton per month or approximately twelve tons annually.

Small quantity generators mainly produce wastes from their commercial or industrial processes in quantities too small to warrant economical on-site treatment. The bulk of these wastes are shipped to commercial recyclers, treatment or disposal facilities outside the City of Hercules.

Table 3 is a summary of the waste generation by waste type and waste group (with the exception of waste oil) from small businesses (small quantity generators or SQG) within the City of Hercules.

Table 4 is a summary of waste oil generated by small quantity generators. Table 4 is categorized according to the total number of firms per group, the waste oil generation factor and total volume of waste oil. Further information on calculations used in compiling Table 4 is contained in Appendix A.

The estimated amount of hazardous waste generation from small businesses was calculated by utilizing the Department of Health Services "Guidelines for the Preparation of Hazardous Waste Management Plans" (DHS 1987a). The Methodology used was the "No Survey Method" modified by utilization of available lists of permitted businesses within the City. This methodology is considered valid since DHS reports that the waste streams associated with small quantity generators is basically consistent throughout the nation.

The use of the "No Survey Method" for this report involved:

- Identifying the number of businesses within the City of Hercules and categorizing the businesses into the appropriate "industry groups" as specified by the DOHS Technical Reference Manual (DHS 1987b)

- The quantity of hazardous waste generated by each industry was calculated by multiplying the number of companies within each group by the U.S. Environmental Protection Agency generation factors

- The small quantity waste generation was then reported as the percent of total waste for each waste type

The data base utilized for small quantity waste generation was established through the use of a business license list supplied by the City of Hercules (March 1990). The 238 operational small

businesses were categorized, by the City of Hercules, into 22 major SIC groups. Businesses not readily classifiable (33 businesses) were placed into a miscellaneous grouping (group # 20). The latter category were not included in the waste generation calculations since their waste streams could not be readily identified.

Additionally, 38 businesses were not included in the waste generation calculations since their business license had expired and the business was assumed non-operational.

A total of 238 small businesses were utilized in the waste generator calculations. The small quantity generator data base information is detailed in Appendix A. The City of Hercules reviewed the business type and categorized the business group into the appropriate SIC code group. The data base may be limited due to the fact that the SIC code was assigned to the small business rather than using the State's SIC designation based on information supplied by the business.

5.1.4 Household Wastes

Households produce hazardous waste through the use of products which contain hazardous substances or materials. Such products include:

Paints	Batteries
Solvents	Pesticides
Thinners	Photographic Chemicals
Pool Chemicals	Auto-body Products
Cleaners	Waste Oil

and similar materials. Such wastes are produced in small quantities by most households, however, the cumulative effect on a landfill or other disposal center may become significant, particularly over a long period of time.

According to the DHS, the average household produces 7.5 pounds of hazardous waste per year. The Hercules General Plan Housing Element (Sedway and Associates 1990) has identified 16,500 residents in 5,300 occupied households. Therefore, the City of Hercules generates approximately 20.0 tons of household hazardous waste per year. This quantity is further classified in Table 5. The data was calculated by using DHS methodology which is based on a study of the composition of hazardous waste within a landfill. It has been estimated that in a city of 20,000 residents, .75 tons of toilet bowl cleaner, 2.75 tons of liquid household cleaners and .69 tons of motor oil are discharged into city drains each month.

Disposal of these materials and wastes into the sanitary landfill is illegal. Currently the City's solid waste stream is serviced by Richmond Sanitary Service. The final waste disposal is at the Richmond Sanitary Landfill. Once the landfill is full, the waste will be hauled to a transfer station with the final waste disposal at a remote site within the County.

5.1.5 Contaminated Sites

Known contaminated sites in Hercules are generally contaminated from past industrial practices. Within the City of Hercules, contaminated sites included in the U.S. Environmental Protection Agency CERCLIS Data Base and the State Department of Health Services Data Base (USEPA 1989; DHS 1989a,b) are shown in Table 6. The location of the major sites are shown in Figure 9.

The contaminated sites within the city limits are primarily contaminated due to past land use activities at the Hercules Powder Works Company site. These sites are under cleanup monitoring and enforcement by the State Department of Health Services. Portions of the sites have been cleaned up during the past few years and

soon may be deleted from the list. The Final HWMP will contain these updates.

5.1.6 Designated and Non-Hazardous Waste Facilities

There are no licensed Treatment Storage or Disposal (TSD) facilities within the City for the disposal of designated waste (special state category for certain hazardous wastes which are of less threat to human health or the environment than those classified as "hazardous wastes"). Municipal solid waste is managed by Richmond Sanitary and transported to a Class III landfill in Richmond.

5.1.7 Wastes Imported and Exported

Most industrial waste generated within the city limits is exported to outside facilities with the ability to recycle, treat, store or dispose of the waste. Wastes classified as hazardous and extremely hazardous which are not amenable to treatment or recycling are transported to the Class I Waste Disposal Facility at Kettleman Hills, California managed by Chemical Waste Management, Inc; or, in the case of Bio-Rad, wastes are shipped to the Class I facility in eastern Washington State.

5.2 PROJECTED WASTE GENERATION

This section projects generation of hazardous waste in the year 2000 based on current waste generation and assumed population increases within the City. Several scenarios are given, one depending on the achievement of waste minimization goals for current industries and another based on implementation of various proposed permits now before the City. The estimated generation of hazardous waste in the City for the year 2000 may range from 643.7

to 1,189.2 tons per year (based on industry projections) as shown in Table 7.

5.2.1 Large Industrial Producers

Large industrial hazardous waste producers will continue to produce the bulk of Hercules hazardous waste into the year 2000 under all scenarios. Large industries, designated as those that produce more than 1.0 tons per month of hazardous waste, presently include only Pacific Refining Company and Bio-Rad Laboratories.

5.2.2 Small Quantity Generators

Small quantity generators will remain a small but growing component of hazardous waste generation into the year 2000. An inventory of the City's small quantity generators shows that approximately 238 businesses produce hazardous waste. Some SQG's produce or use extremely hazardous substances as defined in Health and Safety Code Section 25500 et seq. Numerous other facilities are likely to use hazardous materials or produce designated waste.

The amount of hazardous waste estimated to be generated by SQG's in the year 2000 was calculated by applying a population adjustment factor of 14.0 percent to current figures. A scenario involving application of waste minimization was then calculated as an adjustment on these figures, using DHS waste minimization estimates (Department of Health Services 1987a). Projections of small quantity generator hazardous waste generation in the year 2000 are summarized in Table 8 as based on details shown in Appendix A, Table A-2.

5.2.3 Household Hazardous Wastes

Household hazardous waste will rise due to the increase in population if waste reduction measures are not effectively implemented. Reductions in current levels of generated household hazardous wastes are possible. Effective collection days, recycling and alternative materials can achieve reduction in the total quantity of hazardous waste generated and disposed. To achieve this reduction, the program must receive citizen support and participation.

The City of Hercules has a projected population growth rate of 14 percent between the year of 1990 and 2000 (Sedway and Associates 1990). This growth rate is consistent with the growth rate of Contra Costa County. If a growth rate of 14 percent occurs, the total number of occupied households will increase to 6,048 in the year 2000. The estimated amount of household hazardous waste generation in the year 2000 is calculated by multiplying 7.5 pounds by the projected number of households; therefore, the projected amount for the year 2000 is 22.7 tons. This data is shown in Table 8.

5.2.4 Contaminated Sites

Contaminated hazardous waste sites have been documented by the State of California on the Bond Expenditure Plan List, "Cortese List" and other documentation of known hazardous sites. Most of the known sites within the city limits of Hercules result from past land use practices and historical industrial usage. The sites are listed in Table 6.

Cleanup of contaminated sites has considerably added to the quantities of manifested waste listed in DHS data (See Table 1). Large annual fluctuations in waste amounts generally indicate that

some site cleanup has occurred. Such cleanups have added waste types including metals, asbestos and contaminated soils and similar substances to the data during the period 1986-1988. Projections of cleanups from contaminated sites to the future are difficult since waste cleanups are usually relatively short-term events. Since some contaminated site cleanups have already occurred and the two known sites are listed for remediation before 1995, Table 9 projects wastes from contaminated sites as zero in the year 2000.

Two large listed contaminated sites within the city limits are owned by Hercules, Inc., and Hercules Properties Ltd. The sites are discussed below.

Hercules, Inc.

This 41 acre site is located near the corner of San Pablo Avenue and Sycamore Avenue, and was once a portion of the Hercules Powder Work Company site. Various munitions and explosives were manufactured and stored at the site from the early 1900's to the late 1950's. The primary contaminants of concern found in the soil on-site include explosives and metals: 1) trinitrotoluene (TNT), 2) dinitrotoluene, 3) dinitrobenzene and 4) lead.

The primary threats to public health and the environment are associated with direct contact with the contaminated soil, and inhalation of contaminated dust particles by nearby residents. Remedial actions have been implemented and are currently ongoing at the site. One of the interim remedial measures (IRM's) included excavation and off-site disposal of lead contaminated soils. Currently, a 6-month pilot test to determine the effectiveness and rate of biodegradation is being conducted.

Little League Field

The Little League ball field was part of the site owned by Hercules, Inc. Contaminated soil was removed from the site in 1986. Continuing cleanup measures have included aeration and biodegradation of soil containing low level contamination on nearby land owned by Hercules Ltd.

Hercules Properties, Inc.

This 105 acre site at 560 Railroad Avenue is an inoperable nitroform fertilizer plant located on a portion of land previously used by the Hercules Powder Works Company. The site was used for manufacturing and storage of nitrogen fertilizers from the 1950's to the 1970's. The primary contaminants of concern identified in soils at the site include: 1) concentrated acids, 2) caustics, 3) heavy metals, and 4) asbestos.

The primary threats to public health and the environment are associated with direct contact with the contaminated soil, and inhalation of contaminated dust particles. Several phases of remedial investigation have been completed, and additional investigations are proposed to begin in July 1990.

5.2.5 New Waste Streams

New waste streams are indicated in Tables 8 and 9 in terms of increases in waste generation between 1986 and 1988. Further increases in waste streams are possible from existing industry and from new industries (see Section 5.2.6 below). Data on projected new waste streams from existing industry have been based on interviews of Pacific Refining Company (Knight, personal communication) and Bio-Rad Laboratories (McAll, Young, personal communication) and are included in Table 9. Potential new waste

streams for both facilities depend on general business growth. In addition, increases in present wastes streams depend on a potential facility expansion at Pacific Refining and a potential relocation to Hercules of the Bio-Rad chemical division.

5.2.6 Wastes from New Industries

There are no current applications for new major industries projected to locate within the Hercules city limits. Both Bio-Rad and Pacific Refining are currently discussing, with the City, potential plans for expanding new facilities (Garrett, personal communication). Small research and development firms, service businesses, gasoline service stations, drycleaners and other small quantity generators are expected to locate in the City during the 1990's in accordance with the City's plans for growth and development (City of Hercules General Plan, 1990). These facilities are expected to individually generate only relatively small amounts of hazardous waste.

Three areas within the City of Hercules are shown on potential siting maps for hazardous waste treatment, storage or disposal (TSD) facilities in the Contra Costa County Hazardous Waste Management Plan (Contra Costa County 1989). The City believes that county and city siting criteria coupled with buffer zones, health risks and other environmental factors make considerable portions of these potential areas unsuitable for use by most TSD facilities. Any waste streams from TSD's or other facilities which might apply for permits in these areas would be facility specific and cannot be projected at this time.

5.3 TSDF FACILITY INVENTORY

Currently there are no commercial treatment, storage or disposal facilities for hazardous waste within the Hercules city limits.

Previous operations in Contra Costa County included IT Vine Hill and Acme Landfill which previously accepted RCRA wastes and substances regulated as hazardous under Title 22 of the California Code of Regulations (CCR). These facilities are located approximately 15-20 miles east of Hercules and neither facility is currently active as a disposal facility, although the County currently operates a solid waste transfer station at the Acme Landfill site.

5.4 TSDF NEEDS ANALYSIS

The need for Treatment, Storage or Disposal (TSD) facilities in Hercules depends strongly on the interpretation of need for the City to process wastes other than amounts equivalent to those it produces. Industry within the City presently generate a relatively small amount of waste which is probably not easily or economically treatable except through expanded on-site treatment of at a larger regional facility.

The Contra Costa County Hazardous Waste Management Plan shows only three areas which meet potential siting criteria within the City of Hercules. These are a light industrial area, located between Interstate 80 and San Pablo Avenue, the Pacific Refinery Company site and the original site of the Hercules Powder Works Company (see Figure 7). Other areas of the City are precluded by the County's TSDF Siting Criteria.

The City of Hercules has recognized a need to pursue industrial and commercial growth in order to balance its residential community with an appropriate amount of jobs and services. The City's Economic Development Strategy Plan (City of Hercules 1990b) cites the need for strong economic development to be balanced against conservation and protection of environmental concerns. This report also recognizes that industrial development may lead to the need

for consideration of additional hazardous waste management issues. The City intends to deal with such issues for new facilities primarily through focusing on waste minimization and on-site treatment requirements when appropriate.

Table 10 shows a capacity needs analysis for the City of Hercules based on the assumption that the City should treat an amount of hazardous waste equivalent to that which it generates. The needs analysis shows that no hazardous wastes are treated or disposed within the City, and that 600-800 tons of hazardous waste generated (from the present to the year 2000) annually within its boundaries will be transported out of the county for treatment or disposal. Table 10 has been constructed based on small quantity generator and household hazardous waste information supplemented by DHS records and contacts with the City's large generators.

The large generator industry within the City does not treat wastes on-site, although Pacific Refining Company significantly reduces the weight and volume of its STP wastes through dewatering, filtration and sludge separation. Pacific Refining exports 300-400 tons per year to sites outside the City. This industry is expected to increase waste disposal to potentially 250 tons per year on-site and 550-1,000 tons per year off-site by the year 2000 if proposed expansion project is approved. On-site treatment/ disposal capacity is presently non-existent, but could increase to 250 tons/year if Pacific Refining perfects a contemplated treatment/recycling-recovery project for waste which is currently shipped to off-site hazardous waste facilities. The proposed project would reduce waste toxicity through on-site processing.

The Richmond Landfill is expected to continue collecting municipal waste until full at which time solid waste will be shipped to a transfer station en route to a permanent permitted facility. As Contra Costa County and west-county cities further implement their

household hazardous waste programs, hazardous waste from these facilities are expected to be separated from other municipal waste and shipped to appropriate treatment/disposal facilities outside the County. Hercules' portion of household hazardous waste will increase slightly to up to 22.7 tons per year in the year 2000 without waste reduction programs.

5.5 TSDF CAPACITY EXCESS OR SHORTFALL

There are currently no on-site or off-site TSD facilities within the City of Hercules. The need for TSD facilities, defined as equivalent to the amount of hazardous material the City produces shows a relatively small current shortfall of TSD capacity within the City, based on two large quantity generators, small quantity generators and household hazardous waste.

In the year 2000 the presence of an excess or shortfall will be partly determined by hazardous waste reduction and on-site treatment programs that may be implemented at the major generators facilities and by the addition of waste treatment or recycling programs for small quantity generators and households.

5.6 HAZARDOUS WASTE REDUCTION

Hazardous waste reduction efforts may strongly affect the quantity of excess or shortfall TSD facility capacity. If all major facilities can process or significantly reduce their own waste or implement effective on-site treatment programs then the TSD facility need is only for processing hazardous waste from small quantity generators and households, plus whatever surplus waste cannot be treated by those major facilities.

Hazardous waste reduction in facilities outside Hercules would reduce the overall need for hazardous waste TSD facilities. The

extent of such potential reduction will be limited by institutional, physical and technical constraints. Projected reduction through implementation of source reduction and recycling programs is shown in Table A-2.

5.6.1 Projection of Hazardous Waste Reduction; Impacts on Facility Siting Needs

Table 8 shows estimated potential for hazardous waste reduction from SQG's and households based on the DHS Technical Reference Manual (DHS 1987) and information from local industry. This waste reduction will decrease the shortfall of TSD capacity, although projection data is presently insufficient to calculate the exact difference. Both Pacific Refining and Bio-Rad Laboratories plan to expand existing facilities and to reduce hazardous waste through waste management and possibly some forms of on-site treatment, recycling or resource recovery. The projected reductions cannot be closely quantified at this time (Knight, McAll, personal communication). This change will reduce the local need for siting new TSD Facilities.

Household hazardous waste reduction has been recently mandated by the State in AB 939, the integrated waste management bill. Reduction of solid hazardous waste and reduction of all solid waste by 50 percent in the year 2000 is required under this law. We have used the 50 percent volume reduction requirement as applying to household hazardous waste in Table 8 in order to generate projections to the year 2000.

Regional and statewide needs for TSD facilities will probably remain during the next decade. The decision regarding the relative perspectives of local versus regional or statewide needs as to the siting of TSD Facilities has yet to be resolved.

5.6.2 Barriers to Waste Reduction

Potential barriers to hazardous waste reduction include the following:

- Technical barriers - impede a firms's ability to develop, evaluate or implement waste reduction methods. These barriers include 1) lack of information on waste reduction methods, 2) lack of in-house expertise to evaluate and implement waste reduction and 3) absence of readily available technologies.

- Financial barriers - prevent a firm from undertaking a waste reduction project because of funding inadequacies.

- Institutional barriers - can be either regulatory constraints or lack of awareness and commitment at the decision-making level in companies.

- Physical barriers - such as lack of space on the property of the waste generator to install a facility or process, can impede waste reduction.

These barriers can often be overcome at the local government level through programs of communication and education on available hazardous waste reduction techniques and technologies. Often a joint program between local government and industry has proven highly effective at overcoming these barriers.

5.6.3 Local Waste Reduction Programs

The City presently has no in-place hazardous waste reduction program, however, one of the programs recommended by this plan would be to implement such a program as part of a JPA. Certain industries have already implemented waste reduction programs. Pacific Refining reduces its API Separator sludge and bio-sludge through dewatering, filtration and sludge separation processes. Bio-Rad Laboratories reduces biomedical hazardous waste through sterilization and its low-level radioactive waste through storage and subsequent half-life decay.

5.7 SITING OF HAZARDOUS WASTE FACILITIES

Section 25135.1 (d)(6) of the California Health and Safety Code specifies that each Hazardous Waste Management Plan shall include:

- an identification of existing hazardous waste management facilities which can be expanded to accommodate projected needs

- general areas or specific sites for new hazardous waste management facilities determined to be needed

In lieu of specific site identification, the HWMP may identify siting criteria to be used in selecting sites for future hazardous waste management facilities and should designate general areas where such criteria may be applicable. These requirements were formulated for the County Hazardous Waste Management Plans and it is not clear whether the intent of the legislation was to apply this criteria directly to cities where the amount of land available and existing land use may not lend itself to development for hazardous waste management facilities.

5.7.1 Intent

Siting criteria have been developed by the State Department of Health Services for the siting of hazardous waste management (TSD) facilities. The guidelines specify that individual sites to be established or selected by these criteria should at the time of the designation of a site and proposed new facility be required to complete a Risk Assessment and California Environmental Quality Act (CEQA) Evaluation for the proposed site. The criteria listed in Section 5.7.2 below are based on DHS requirements with minor modifications to ensure compliance with the Contra Costa County HWMP and City Code requirements.

Figure 6 shows City of Hercules Zones and Land Uses according to the Hercules Municipal Code, Title 10 (City of Hercules 1987) and the Hercules General Plan (City of Hercules 1990). Figure 8 shows Sensitive Areas, developed to include both public health and environmental considerations, which are inappropriate for TSD facility siting. These areas are based in part on the Siting Criteria discussed in Section 5.7.2 below and in part from specific considerations from the City of Hercules Municipal Code and General Plan.

5.7.2 Siting Criteria

The DHS siting criteria indicate that most TSD facilities, specifically those which are aboveground and similar in nature to any industrial plant can be sited in areas zoned for light or heavy industry. The guidelines also indicate that companies which produce hazardous waste may wish to locate near treatment plants in order to take advantage of services offered by such facilities. The DHS encourages the establishment of industrial tracts for such companies in order to minimize risks associated with the transportation of hazardous waste.

The DHS guidelines for HWMPs indicate that any existing hazardous waste treatment, storage or disposal facilities which do not meet the siting criteria shall be considered existing non-conforming land uses and consistent with the Hercules HWMP. These facilities are not subject to a finding with consistency with the HWMP when they are being reviewed for modification, enlargement or renewal of a permit from DHS unless a risk assessment prepared pursuant to the DHS procedures demonstrates a significant adverse impact on human health or the environment due to the continued operation of the facility. There are presently no off-site hazardous waste treatment facilities in Hercules. The only existing facilities in Hercules are on-site waste reduction and storage facilities at Bio-Rad Laboratories and Pacific Refining Company.

The DHS and Contra Costa County criteria have been reviewed by Hercules and modified or supplemented based on particular needs of and issues important to the city, based on local conditions and known citizen concerns. These criteria include both state and county criteria in addition to a few specific criteria and modifications developed by Hercules to apply to the City's specific concerns. The criteria are as follows:

SPECIFIC SITING CRITERIA

1) HIGH HAZARD AREAS: (Those areas in which human or animal life could be jeopardized by fugitive or accidental emissions).

SEISMIC AREAS:	No facility should be placed within 200 feet of an active or recently active fault.
FLOODPLAINS:	Repositories may not be located in areas subject to 100 year flood events. Other facilities may be built in areas subject to 100 year flooding if protected by engineering solutions such as berms, raised foundations etc.
WETLANDS:	No facilities shall be located in wetlands (marshes, swamps or bogs as defined).
HABITAT OF ENDANGERED SPECIES	No facilities should be located within critical habitat areas as defined in adopted general regional or state plans.
UNSTABLE SOIL:	Facilities located within these areas should have engineered design features to assure structural stability. This area includes steep slopes and areas subject to liquification and subsidence due to natural causes.
MAJOR RECHARGE AREAS FOR AQUIFERS	Repositories should be prohibited within areas known or suspected to be supplying principal recharge for regional aquifers. Other facilities should be discouraged from locating in these areas. If so located, these facilities should provide properly engineered spill containment features, inspection measures and other environmental controls.

2) PUBLIC SAFETY:

DISTANCE FROM RESIDENCES	Repositories must provide a buffer zone of 2,000 feet unless owner demonstrates to DHS and the City that such a buffer is not required to protect public health and safety. All other facilities shall prepare a risk assessment which shall consider the need for buffering residences and other sensitive areas.
DISTANCE FROM IMMOBILE POPULATIONS	Risk assessments shall be performed at the time of permitting to determine the need for buffer zones between the facility and immobile populations.

PROXIMITY TO MAJOR TRANSPORTATION ROUTES

Repositories should have good access to major transportation routes but may have to be more distant from waste generation sites due to requirements for larger land areas. Other facilities should be located so as to minimize distance from major transportation routes and designed to accommodate heavy vehicles. No facility should be so close to transportation corridors as to block access during an upset condition or other emergency. Road networks leading to major transportation routes should not pass through residential neighborhoods and should be demonstrated to be safe with regard to accident rates, excessive traffic and road design and construction.

BUFFER ZONES

A buffer zone will be established precluding development of facilities within 2,000 feet of major highways or arterials, residential neighborhood, immobile population or incompatible land use as defined by the Land Use Element of the City General Plan.

AIR EMISSIONS

TSD facilities or repositories potentially have significant hazardous air emissions shall be required to prepare a detailed Risk Assessment and to mitigate all health risks. Such facilities shall be discouraged from locating up wind from residential areas.

3) <u>PHYSICAL LIMITATIONS OF THE SITE AREA</u>:

PERMEABLE STRATA AND SOILS

Repositories shall conform to the requirements of the State Water Resources Control Board. All other facilities should have engineered design features including spill containment and monitoring devices.

NONATTAINMENT AIR AREAS

Siting should not be precluded from these areas unless risk assessments performed as part of permitting, considering the physical and chemical characteristics of the specific types of wastes that will be handled and design features of the facility, show that emissions will significantly contribute to nonattainment of standards, that such emissions cannot be mitigated and that the emissions of the facility are significantly greater than those associated with transportation of hazardous waste out of this area.

PSD AIR AREAS — Transfer and Storage Facilities could be permitted in Prevention of Significant Deterioration (PSD) areas, if they are necessary to handle potentially hazardous wastes generated by visitors or residents in recreational or cultural facility areas which are in the PSD zone. For other facilities, unless an analysis for a specific proposed facility shows that air emissions cannot be adequately mitigated, other facilities can be established in PSD zones. These facilities, however, cannot be located near or within National Parks, wilderness and memorial areas and other similarly dedicated areas.

PRIME AGRICULTURAL LAND — Prime agricultural lands under California law may not be used for urban purposes unless an overriding public need is served. When siting hazardous waste management facilities in these areas, such overriding need must be demonstrated.

DEPTH TO GROUNDWATER — Repositories shall meet siting requirements of the State Water Resources Control Board. Other facilities may be located in high groundwater areas if the engineered design of the containment structure is capable of withstanding a failure because of geologic or soil failures which may arise.

4) LOCATION-SPECIFIC CRITERIA:

PROXIMITY TO PUBLIC FACILITIES — Potential adverse impacts due to proximity to public facilities should be considered and appropriately mitigated through the risk assessment and design features. Public services including water and sewer service should be available where TSD facilities are constructed.

PROXIMITY TO WASTE GENERATION STREAM — All TSD facilities except repositories should be located close to the points of generation in order to minimize transportation risks.

INDUSTRIAL, COMMERCIAL AND SPECIALLY ZONED LANDS — Hazardous waste management facilities (other than residual repositories) are basically industrial facilities and should be sited in industrial zone. Facility siting is not limited to these zones if special zones are created.

RECREATIONAL, CULTURAL OR AESTHETIC AREAS	Facilities other than low volume Transfer and Storage Facilities should not be permitted in these zones.
MINERAL RESOURCES AREAS	No Facilities should be sited so as to preclude extraction of minerals necessary to sustain the economy of the State.
OTHER LANDS	Military lands are not suitable for the establishment of public TSD facilities according to Department of Defense policies. Other state or federal lands may be suitable, as outlined by the foregoing criteria.

5.8 TRANSPORTATION

Transportation of hazardous waste and materials presently occurs on all major transportation corridors in and near the City of Hercules. Both rail transport through the City via the Southern Pacific Railroad and Atcheson-Topeka and Sante Fe tracks and truck transport to major industries and small quantity generators within and near the city via Interstate 80, State Highway 4 and City streets are the result of commercial/industrial operations which require these materials (Figure 5).

The Southern Pacific Railroad and Atcheson-Topeka and Sante Fe tracks pass through the City along the San Francisco Bay shoreline and north of the downtown area respectively (Figure 5). Railcars of fuels, spent refinery wastes, solvents, acids and other materials are periodically sided along the tracks (along the shoreline and near State Highway 4) and trains carrying similar materials pass through periodically en route to local industries or points near the City. Truck traffic of hazardous materials and waste is particularly heavy on Interstate 80 and State Highway 4.

5.9 INSPECTION, TECHNICAL ASSISTANCE AND ENFORCEMENT

The City of Hercules or an appropriately constituted JPA shall develop and maintain a program for technical assistance, inspection and enforcement of hazardous waste management objectives contained in this plan. The City attorney shall be charged with ensuring that appropriate enforcement procedures are carried out against parties who negligently generate, store, spill or dispose of hazardous wastes or materials in such a manner as to endanger human health or the environment. The City or JPA in coordination with emergency services responders shall develop procedures for dealing with any such incident in terms of emergency response, cleanup and assignment of liability and costs to the responsible parties.

5.10 ORGANIZATIONAL RESPONSIBILITIES FOR IMPLEMENTATION

Primary responsibility for implementation of the Hazardous Waste Management Plan shall lie with the City Manager who will oversee city departments and coordinate with other agencies. Individual city departments shall implement assigned components as shown in the chart on page 6. Access to the data base will be given to all applicable departments and emergency response agencies serving the city. The Department of Public Works shall be responsible for all hazardous waste management activities at City facilities including compliance with handling and storage regulations.

5.11 EMERGENCY RESPONSE PROCEDURES

The City of Hercules and other west-county cities (Pinole, San Pablo, Richmond, El Cerrito) have been involved in a three year effort which formed an emergency response Joint Powers Authority (JPA) for dealing with mutual emergency response issues. The

cities have developed and adopted a state approved multi-hazard plan which includes dealing with toxic spills. The JPA has also accomplished:

- Specific scenario training and operation of the Emergency Operating Center.

- Close coordination between the cities and emergency responders (Rodeo-Hercules Fire Protection District, City Police, City Public Works Department).

- Regular training of police and fire department in toxic substances response.

- Creation of a HAZMAT Team in West-County, located at the Richmond-Hilltop Fire Substation.

The City of Hercules intends to continue working as part of the West County Emergency Response JPA on these issues. Emergency services responders utilize the County's Area Plan for Emergency Response which outlines duties and responsibilities of all responders.

The City has, in coordination with Rodeo-Hercules Fire Protection District, implemented a data base indicating the presence of hazardous materials handled, and hazardous wastes generated at any given site within the City subject to a business license requirement (much of this data is already on file from business plans specified by AB 2185). The minimum reporting quantities are 55 gallons of liquid, or 500 pounds by weight, or 200 cubic feet of compressed gases. Sources of information that may contribute to the development of the data base include the following sources:

- Biennial reports filed with California Department of Health Services and the U.S. Environmental Protection Agency every March 1 on the even numbered years.

- SARA, Title III reporting information required from sections 302 and 313 (provided to the "Administering agency" and local Fire Department).

- California business plans as required per AB 2185 and amended by AB 2187 and AB 2189 (currently collected by Contra Costa County Environmental Health Division of the Health Services Department). These data are provided by the County to the City and the Rodeo-Hercules Fire Protection District under an existing Memorandum of Understanding (MOU).

- Review and evaluation of current business license applications and subsequent revisions for future use.

- Independent surveys from those industries and businesses currently located within the city limits.

This information, once collected, would be usable for reference material by the Rodeo-Hercules Fire Protection District, city police and other appropriate emergency response agencies and personnel if a chemical emergency incident was to occur. Effective emergency response procedures involve the input and planning from those agencies directly involved with administering and assisting any incidents. The primary objectives of emergency response planning should be to first protect human health, second the public, third the environment and forth, property. Emergency response procedures should serve the City's interests in the above four areas as a result of coordinated plans and policies with both governmental agencies and private industry support.

Some emergency response resources may be provided to the City from private industry through a contractual arrangement. The City receives copies of the "Hazardous Material Release Response Plans" and inventory programs from those current businesses in Hercules city limits from Contra Costa County Environmental Health Division of the Health Services Department (HSD). HSD is the administering agency and recipient of the Business Plans (per AB 2185) from industry that include:

- facility emergency response procedures to incidents
- locations, types, and amounts of hazardous materials
- handling procedures for all such materials

This information can be applied to better enable the City to identify and evaluate those potential emergency response incidents that could occur, and what appropriate procedures the City may implement to manage such occurrences.

5.12 STORAGE REGULATIONS

The City will develop guidelines for storage of hazardous materials and hazardous waste applicable for industries or businesses that handle hazardous materials and/or accumulate hazardous wastes. The Uniform Fire Code (UFC) has promulgated guidelines for building design and construction to hazardous chemicals, along with state and federal regulatory requirements that specify the proper labeling, marking and containment specifications. The City may wish to coordinate with fire inspectors in order to ensure that local businesses are meeting all city hazardous waste requirements.

These regulatory requirements are currently enforced by the U.S. Environmental Protection Agency (EPA), the California Department of Health Services (DHS), and Contra Costa County Health Services

Department (HSD) through a Memorandum of Designation (MOD) entered into in 1983, with the State of California (DHS 1983).

Facility managers should be informed that they are required to separate incompatible hazardous materials/wastes and place both materials/wastes in containers in designated areas that do not present a fire hazard, reactive hazard, nor potential threat to human health, public health or environment. Part V and Part VIII of the UFC regulates the use and storage of hazardous substances used in special processes and several classes of hazardous chemicals not otherwise covered in the UFC, which are highly flammable, or which may react to cause a fire or make a fire especially difficult or dangerous to fight.

The Western Fire Chiefs Association amended Part VIII, Article 80 in 1987 which established storage, secondary containment and monitoring requirements for all classes of hazardous materials. This article also requires hazard identification signs for first responders and development of procedures for chemical spill responses.

In 1984, the Cortese and Sher Assembly Bills required the registration and permitting of nonexempt underground tanks containing hazardous materials. The Environmental Health Division of the County Health Services Department (HSD) is the local agency administering this program. The City should develop a parallel data base that identifies and list all known underground storage tanks (UST) in the city limits and regulatory states.

5.13 CONTAMINATED SITES

The City should identify, on the Hazardous Waste Data Base, the location and type of each contaminated site within the city limits or within 1.0 miles of the city limits which may affect city

property through leaching, air emissions or other processes. Known contaminated sites can be preliminarily identified from lists of sites published by the federal and state government agencies responsible for their supervision throughout the monitoring and cleanup (remediation) process.

Site lists consulted to identify known contaminated sites in Hercules sphere of influence include the Environmental Protection Agency's National Priority List (NPL) and CERCLIS data bases, the State Bond Expenditure Plan List, and the "Cortese List" of known toxic sites (U.S. EPA 1989, DHS 1989a,b). In addition, the City has identified known contaminated sites within the city limits using unpublished data files from Contra Costa County Planning Department (Contra Costa County, unpublished data). All of the data bases overlap to some extent with the others.

Contaminated sites identified from these lists are shown in Figure 9. There are a total of 2 listed sites within the city limits which have resulted from past land use practices. These sites are monitored by the State Department of Health Services and are currently being characterized in preparations for site cleanup, or have implemented cleanup action (Hercules, Inc. and Hercules Properties, Inc. sites). The City of Hercules tracks progress by DHS and the site owners in meeting cleanup schedules and requirements.

More major sites within 10 miles of the City include 5 listed State Bond Expenditure Plan Sites. These are shown in Table 6.

5.14 SMALL QUANTITY GENERATORS

In 1989, Small Quantity Generators produced approximately 191.63 tons of hazardous waste within the City of Hercules. A breakdown of the EPA Waste Types and California DHS Waste Groups are shown

in Table 3. Waste oil accounts for 48.67 tons as shown in Table 4 (based on DHS "No survey method").

Waste oil and certain other hazardous waste types are often collected by route haulers who operate from another jurisdiction. These haulers report and manifest their waste from their own location which may be outside the City of Hercules or outside Contra Costa County, since many such haulers service multi-county areas. Since small quantity generators often lack the technical knowledge and economic resources to manage their own wastes, these haulers provide an important source of waste recovery. The true number and type of route haulers in Hercules is not presently known; therefore, the waste oil and similar waste types generated by small businesses was estimated using the DHS "No Survey" methods for this report.

In an attempt to accurately assess the types, quantities and disposal methods of hazardous waste generated by small businesses, a SQG data base with accurate SIC code groups should be developed by the City or cooperating County agencies. The data base could identify the actual amount of waste generated, the availability of recycling or reuse and proper disposal method for each waste type. To facilitate the data base information collection, all hazardous waste generation should be disclosed by small businesses upon business license application or renewal. An audit of various industrial groups can be conducted to ascertain the accuracy of reporting of hazardous waste types and quantities generated.

The City of Hercules will evaluate the need to develop a small quantity generator program with emphasis on a regional program with neighboring cities. This program might include distribution of educational materials, providing a SQG hotline and/or coordinating a SQG waste consolidation program. These three options are described briefly in the points below:

- Educational Materials - Educational materials can be disseminated as part of a SQG inspection program. Educational materials should address recycling, re-use options, waste minimization and proper disposal methods.

- SQG Information Hotline - The City of Hercules should evaluate the potential feasibility of establishing a SQG hotline service. This service would provide an information clearinghouse coordinating with Contra Costa County, and responsible State and Federal Agencies. The service would provide technical assistance, contacts within these agencies and respective telephone numbers.

- Coordinate an SQG Waste Consolidation Program - The City could enhance proper hazardous waste disposal for SQG's by coordinating a frequent consolidated collection program. Currently SQG hazardous waste is managed by individual companies. Consolidated collection by a service contractor could reduce disposal cost to each generator and serve as a valuable asset for consolidated bulk handling of used oil, solvents and other frequently generated wastes.

The City or JPA could work with the local Chamber of Commerce or other business groups to coordinate such programs.

5.15 HOUSEHOLD HAZARDOUS WASTES

Household hazardous waste management is one of the most difficult issues to deal with due to the small volume of waste and large numbers of necessary participants. Household hazardous waste in Hercules and nearby cities is currently being addressed (along with related requirements of AB 939) by the West County Solid Waste JPA.

That JPA is currently evaluating the advisability of providing oversight capability for household hazardous waste requirements in its jurisdiction. The JPA is also participating in the development of the West County Resource Recovery Center which is expected to provide a transfer station, recycling center and household hazardous waste capability by 1991. The sections below outline current and potential household hazardous waste management methods.

5.15.1 Current Household Hazardous Waste Management

Currently, common household hazardous waste is disposed of by depositing the waste into a residential garbage container; dumping the waste into the City sewer system via a sink or storm drain; pouring the waste onto driveways, streets and land or extending the storage of the waste in old and obsolete containers. The City and County are currently undertaking joint efforts which included a recent collection day for household hazardous waste in June 1990.

Household hazardous waste which is disposed of in a residential garbage container places a potential risk on human and environmental health. Through this disposal method a potential human injury could result from chemical exposure with respect to the refuse collector, transfer station worker, or landfill operator.

Additionally, the surrounding environment is at risk of contamination from the hazardous waste during the transferring, compacting, or final disposal process. Recent data has indicated that household hazardous waste, which is deposited in municipal landfills, has the potential to contaminate groundwater. Contamination occurs through absorption of the chemical which does not degrade similar to the other constituents of the landfill site.

Household hazardous waste which is disposed into a homeowner's sink or drain will migrate along the sewer system and eventually enter into a wastewater treatment facility. Wastewater treatment facilities are not designed to treat, store or dispose of hazardous waste; therefore, the waste stream may disrupt the normal wastewater treatment process or pass through the system untreated. If wastewater effluent or residual solids are toxic, the wastewater treatment facility could be fined or have other regulatory action imposed.

Household hazardous wastes that are disposed via a septic system may disrupt the normal septic process and pass through the system untreated creating a potential groundwater contamination. Hazardous waste that is dumped into street gutters, catch basins and storm drains contaminate the creeks which discharge to the Bay/Delta estuary.

Household hazardous waste such as waste oil and auto-body shop products were previously deposited on land as a form of weed control. This practice actually destroyed plants and had the potential to harm animals and contaminate groundwater. Illegal land disposal still occurs - this disposal technique may also include burying the substance in the back yard or improperly disposing of the waste on other property.

Many homeowners are unaware of the proper disposal procedures for household hazardous wastes, therefore, in some instances, the waste is stored indefinitely. This practice can produce unstable and reactive chemicals which represent additional hazards. Mixing incompatible chemicals can create a harmful potential chemical reaction such as an explosion, fire, vapor generation, heat, etc.

5.15.2 Recommended Household Hazardous Waste Management

The City of Hercules and the West County Solid Waste JPA should continue to assist the community in the proper household hazardous waste management procedures. This effort should promote and incorporate household hazardous waste collection days, educational programs, publicity campaigns and the development and implementation of a household hazardous waste component at the Richmond Transfer Station (West County Resource Recovery Center).

Household hazardous waste collection, recycling and disposal days should continue to be held and should be scheduled on a regular basis and available to all residents within the City of Hercules. Regular household hazardous waste collection programs can greatly reduce the volume of hazardous waste in the solid waste steam and wastewater treatment process. Additionally, a convenient collection program will provide an avenue for homeowners to dispose of their hazardous waste in a responsible manner and will discourage illegal disposal practices.

Along with the aforementioned collection efforts, the City of Hercules should continue to focus attention on public educational programs. The educational element should concentrate on homeowners awareness, waste minimization, safe handling guidelines and proper disposal techniques. Educational programs can be promoted in public school, various organizations, private clubs and public outreach centers. Household hazardous waste promotion programs can be sponsored through the City of Hercules or in conjunction with another agency or association.

Publicity can be a useful tool in the effort to increase public awareness of household hazardous wastes and the proper management of these waste streams. Publicity information can be distributed by direct mailing, posters, flyers, newspaper advertisements and

public service announcements on the radio and television. Annually, the City of Hercules generally identifies the recycling locations, provides information regarding household hazardous waste and encourages recycling efforts to all residents within the City of Hercules via the city newspaper, "Herculean". The City newspaper is distributed on a quarterly basis to all the residents with a Hercules postal address and the Viewpoint development in Rodeo. Additionally, a household hazardous waste management video has been produced by the City and is periodically shown on TV and Cable TV.

6.0 CITY HAZARDOUS WASTE MANAGEMENT PLAN IMPLEMENTATION

Implementation of the Hazardous Waste Management Plan can only result from the establishment of long-term programs for effective hazardous waste management. The Plan also deals in part with the establishment of programs which will encourage safer handling of hazardous materials. This Chapter outlines major procedures and estimated timeframes for carrying out the implementation of this HWMP.

6.1 PUBLIC EDUCATION AND PARTICIPATION

Public education and participation regarding hazardous waste and hazardous materials is probably the most important element in developing an effective HWMP. Only the public can give the City of Hercules the broad support it needs to carry out hazardous waste programs at the small quantity generator and household level. This HWMP recommends that the following programs involving the public be carried out during the first two years following adoption of the plan:

- Consider establishing a regional group to oversee plan implementation and develop further public programs as necessary. Such a group might be composed of staff from neighboring cities and Contra Costa County

- Establish household hazardous waste collection days and collection programs (similar to that held in early summer 1990)

- Develop public seminars, workshops and other means to educate the public regarding hazardous waste and hazardous materials

Establishment of these and other necessary programs will help bring pressure to bear on generators, transporters and others involved with hazardous waste to pursue all available hazardous waste reduction and on-site treatment options available to them.

6.2 ONGOING DATA COLLECTION AND ANALYSIS PROGRAM

The City of Hercules will enhance an existing program for establishing and maintaining a data base of hazardous waste generation, treatment, transportation and disposal within the City's Sphere of Influence. The program will be implemented by the City Planning Department for the City Manager and will derive updated data based on questionnaires associated with business license applications and renewals. For facilities within the City's sphere of influence, but outside city limits, the City will rely on Contra Costa County to supply needed information.

6.3 WASTE REDUCTION IMPLEMENTATION PROGRAM

Waste reduction is the primary and preferred tool for coping with the problems of hazardous waste management according to the California Department of Health Services (DHS 1987a). Waste reduction, and waste minimization can be effectively implemented by local governments or regional groups through:

- Educational outreach programs
- Technical assistance programs
- Regulatory programs

Such programs have proven extremely effective at both the county and city level in areas where they have been effectively implemented. Case study examples cited by DHS include Ventura County, where off-site treatment volume was reduced by 70 percent in a three year period, as well as in Orange County, Los Angeles,

Santa Clara County and the City of Hayward. Effective program implementation usually involves coordination by several local government agencies as well as coordination with other jurisdictions (Local Government Commission 1988).

The City of Hercules will seek to establish aggressive and effective programs for controlling production of hazardous waste, and for reducing the total amount of waste produced within the city through the proposed Joint Powers Authority discussed above. This JPA will be charged with establishing waste minimization goals and implementing waste minimization programs which may include a requirement of hazardous waste generators to prepare formal Hazardous Waste Minimization Plans as one tool to pursue waste minimization. If a JPA is not formed, the City will consider alternative programs to promote hazardous waste minimization.

The Hercules Municipal Code will be revised to conform with waste minimization requirements. Businesses generating hazardous waste will be required to submit the following information to the City of Hercules Planning Department:

- An estimate of the quantity of hazardous waste generated
- A review of feasible source reduction approaches, including the potential for input changes, operational improvements, production process changes, in-process recycling, and product reformulations
- An identification of the source reduction measures which will be implemented
- An evaluation of the cross-media impacts of the chosen measures

- An implementation timetable

These elements will form the Hazardous Waste Minimization Plan for each business affected.

6.4 SITING

The siting of Treatment, Storage and Disposal (TSD) Facilities within the city limits shall be governed by the criteria developed in Section 5.7.2 of this document. The criteria include standard State criteria developed by DHS, criteria in the Contra Costa County Hazardous Waste Management Plan (Contra Costa County 1988) and additional criteria specific to the City of Hercules.

6.5 TRANSPORTATION

The Circulation Element of the Hercules General Plan currently contains no explicit references to transport of hazardous waste or materials. The plan element does designate two roadways as scenic routes including State Highway 4 and San Pablo Avenue. These roadways, however, are not specifically restricted from hazardous waste transport. The downtown area of Hercules is generally considered by the city to be inappropriate for transport of hazardous waste, however, these areas are not specifically restricted in any way against transport of hazardous waste.

The City is currently in the process of amending the City General Plan through addition of this element (HWMP) to include restrictions on hazardous waste facilities, however, these restrictions will not affect transport of waste to and from these facilities. The City should update the Circulation Element of the General Plan to include both guidelines and restrictions for hazardous waste carriers from roads which are environmentally

sensitive, lie along high density residential or commercial areas, or pose undue risk of public health and safety.

Rail transport of hazardous materials occurs in Hercules on two rail lines, Southern Pacific and the Atcheson-Topeka and Santa Fe. The update of the Circulation Element should also address risks associated with these transport facilities.

6.6 STORAGE

In early 1984, the Environmental Health Division of the County Health Services Department (HSD) was granted the power to administer the underground tank program in the County. Currently, HSD administers the countywide program. The HSD has currently identified 1,100 tank owners in the County and notified them of newly promulgated state requirements. The City should evaluate generating a data base in coordination with Rodeo-Hercules Fire Protection District, for those underground storage tanks (UST) or aboveground tanks located in Hercules to identify and track the progress of known tank problems.

Hercules should also provide a review of currently promulgated storage requirements to businesses that obtain or renew business licenses. Additional data could also be collected from the industries on hazardous materials/wastes upon renewal of licenses. A city hazardous materials storage permit could be an additional item for future consideration to obtain certain basic information for later review and future data base development. Current storage requirements enforced by the County are now made readily available to businesses in conjunction with license renewal applications.

The City should also bring city facilities into compliance with hazardous waste and hazardous materials regulations. This could be accomplished through a self-audit of city facilities.

6.7 CONTAMINATED SITES

Cleanup (remediation) of contaminated sites is generally the responsibility of the State and Federal Government or private owners of the sites. To date, local government has not become heavily involved in such cleanups. The City can, however, through maintenance of a contaminated site list and periodic checking with the appropriate regulatory agencies, maintain pressure to have sites within the City's sphere of influence remediated as expeditiously and in the most environmentally sound manner as possible.

6.8 SMALL QUANTITY GENERATORS

Hazardous waste from SQG's is often disposed of through inappropriate means because the wastes are generated in amounts small enough that use of certified route haulers is not perceived to be economical or necessary by the generators. The generator may not be aware of hazardous waste management requirements and penalties. The generator may also be unaware of alternative technologies for waste management including source reduction, recycling, treatment and disposal. The SQG waste program can be successfully implemented by the City of Hercules through:

- Educational Materials
- SQG Information Hotline
- SQG Waste Consolidation Program

The City of Hercules should evaluate the implementation of a SQG program on a regional west-county basis following the adoption of the Hazardous Waste Management Policies contained in this plan. The designated lead department shall organize and implement the SQG Program.

6.9 HOUSEHOLD WASTES

The City of Hercules has developed a JPA with neighboring cities to deal with solid waste issues and is developing required household hazardous waste programs as required by AB 939. The proper management of household hazardous waste in the City of Hercules can be achieved by: 1) utilizing collection days, 2) educational and publicity programs, and 3) developing and implementing a household hazardous waste component at the future Richmond Sanitary Transfer Station. The City members of the solid waste JPA should work with the county, state and federal government along with private sectors to ascertain proper household hazardous waste management. Proper household hazardous waste management will minimize the entry of this waste into the municipal solid waste stream, minimize the entry of this waste stream into the wastewater treatment facility, and potentially eliminate or reduce illegal waste disposal.

6.9.1 Collector Days

The City of Hercules and the solid waste JPA should further focus efforts around regular and frequent household hazardous waste collection, recycling and disposal days. To make the collection days successful, they should be on a regular basis, held in various locations throughout the city, convenient and homeowner friendly. The collection program enables household hazardous waste to be properly managed by:

- Promoting household hazardous waste awareness
- Promoting waste minimization and recycling
- Disposing of the waste

An alternative approach to the collection program is a permanent collection point such as the Richmond Transfer Station or a

permitted hazardous waste management facility. Richmond Sanitary Service is evaluating a phased approach program to add a household hazardous waste component to the Richmond Transfer Station.

6.9.2 Education Programs

The household hazardous waste education program shall target:

- Homeowner awareness of household waste
- Alternatives to hazardous waste production
- Safe handling practices of household waste and appropriate disposal

The program will improve public understanding both of the proper handling and disposal of household hazardous waste and of alternatives to household products which contain hazardous materials. This program will be implemented by the solid waste JPA of which Hercules is a member.

An educational outreach could be achieved by developing educational materials such as flyers, brochures, pamphlets, posters, videos, etc. The educational materials will encourage the public to reduce their purchase of products with hazardous ingredients, to completely utilize the product containing hazardous ingredients, to recycle as appropriate and finally to utilize proper disposal mechanisms. The educational information can be distributed by direct mailing (i.e., Herculean, garbage bill, etc.), posters and flyers, newspaper advertisements and public service announcements on the radio and television.

Publicity campaigns can be sponsored by the City in public schools and various organizations and affiliations to further educate the residents. The campaign can incorporate contests with regard to developing posters, flyers and brochures development, which

concentrate on alternatives to waste production and proper disposal.

6.9.3 Responsibility and Resources

The household hazardous waste program should be developed and implemented as part of the solid waste JPA. The funding of this program can be costly and should be supported by residents of the cities in the JPA. A commonly employed and effective means of resource support is the placement of a nominal surcharge on all household garbage bills. The surcharge is used to properly dispose of hazardous waste.

6.10 EMERGENCY RESPONSE

The City will continue to coordinate with Rodeo-Hercules Fire Protection District and to operate as part of the West County Emergency Services JPA. In addition, the City should evaluate the need to adopt new city guidelines that coordinate city emergency management resources with the County Hazardous Materials Area Plan. Specific items that could be identified for city planning purposes could focus on the potential scenarios present in Hercules from existing and future industries. City, county, state, federal and private industry resources should be identified and information on their availability and resources be made available to city management personnel. Elements of city planning may include:

- Information gathering (data on likely and worst case hazardous waste spills or other HAZMAT incidents)
- Identify local agencies and their roles in a chemical emergency response incident
- Development of any applicable city ordinances

- Communication of resources and emergency response information to industries in Hercules

- Distribution of any restrictions and/or alternatives, if chosen, to the public

- Provide additional training to city personnel responsible for implementing any changes

6.11 REGULATIONS, ENFORCEMENT AND SURVEILLANCE

The City of Hercules is currently revising and updating the City General Plan (this HWMP) to contain provisions appropriate to dealing with hazardous waste produced and hazardous materials handled within the city limits.

The City of Hercules should train its current building and public works inspectors to recognize problems associated with hazardous waste and hazardous materials and to coordinate with fire inspectors on selected inspections. City police, building inspectors and other code enforcement inspectors have been trained in the basic elements of proper hazardous waste and hazardous materials management and handling. Such training should be continued and increased as appropriate. The City officials will coordinate with appropriate county officials to enforce laws and regulations.

6.12 ORGANIZATION AND RESPONSIBILITY

The two key departments responsible for hazardous waste and hazardous materials monitoring and enforcement under the direction of the City Manager will be the City Planning Department (land use related issues) and the Department of Public Works (city facilities). In addition, the City Attorney, coordinating with the

Finance Director, has jurisdiction over obtaining recompense for the City following emergency response incidents which are caused by transport or improper handling of hazardous wastes or materials within the city limits.

The Hercules police force and Rodeo-Hercules Fire Protection District shall respond appropriately to hazardous waste or material spills or incidents at facilities which endanger public health or safety. The City police shall coordinate with the State Highway Patrol, the Rodeo-Hercules Fire Protection District and other agencies having authority over such incidents. Whichever entity is the first responder generally establishes incident control until relieved by the appropriate incident commander (dependent upon jurisdiction).

6.13 FUNDING

Funding sources will be required for compiling and maintaining the City's data base, for developing and maintaining regulatory programs and for monitoring and inspection programs. Funding for the data base and associated activities can probably best be accomplished through a hazardous waste fee collected in association with collection of the City business license tax since the data for the data base will be acquired through the business license process. Funding for regulatory programs and for monitoring and inspection programs could be developed through a specific charge levied on hazardous waste producers or hazardous materials handlers. The Planning Department will work with the Finance Department to establish fees for such programs.

6.14 MONITORING AND EVALUATION

A critical component of the success of the City of Hercules for managing hazardous waste and hazardous materials within its

boundaries will be properly coordinated and implemented monitoring and evaluation programs. These are recommended to include:

- monitoring of generators of hazardous waste and hazardous materials to ensure compliance with the terms of this Hazardous Waste Management Plan, with the City Municipal Code and the City General Plan

- Development of a procedure for evaluating compliance programs for hazardous waste generators and hazardous materials handlers including waste minimization requirements

- Development of a procedure for tracking the progress of responsible agencies in cleaning up hazardous sites within the City's sphere of influence and for identifying responsible parties for sites not under active cleanup by agencies

- General monitoring of hazardous indicator parameters (such as toxic air contaminate) in the City's air, water and soil as necessary to protect human health and safety and the environment

- Designation of a person or task force to work with neighboring jurisdictions on a broad spectrum of hazardous waste issues.

Utilization of these monitoring and evaluation programs will accomplish the City's goal to carefully monitor hazardous waste and to coordinate the various City programs.

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8.0 PROJECT STAFF

Network Environmental Systems Staff who participated in this project include:

- Dr. G. Bradford Shea, Project Manager
- Mr. Jerry Bucklin, Contract Administrator and Policy Analyst
- Ms. Geri Silva, Hazardous Materials Analyst
- Mr. Robert M. Boggs, Chemical Engineer
- Mr. Joseph Wasilewski, Environmental Engineer
- Mr. Bruce Lazarus, Health and Safety Expert
- Ms. Mary Shea, Word Processor

Network Environmental Systems, Inc. also wishes to thank City Staff who participated in and helped provide information for this project. These include:

- Ms. Marilyn Leuck, City Manager
- Mr. Kevin Garrett, Planning Director
- Mr. William Bullard, City Attorney
- Mr. Ron Richardson, Public Works Director

In addition, many people from various industries and government agencies provided data and information without which this Plan would not have been completed. These include:

- Mr. Dennis Salmi, Rodeo-Hercules Fire Protection District
- Mr. John Knight, Pacific Refining Company
- Mr. David McAll, Mr. Bill Young, Bio-Rad Laboratories

In addition to these major contributors, others too numerous to mention assisted the effort by supplying data and information on specific facilities.

9.0 FIGURES

Figure 1
AREA MAP

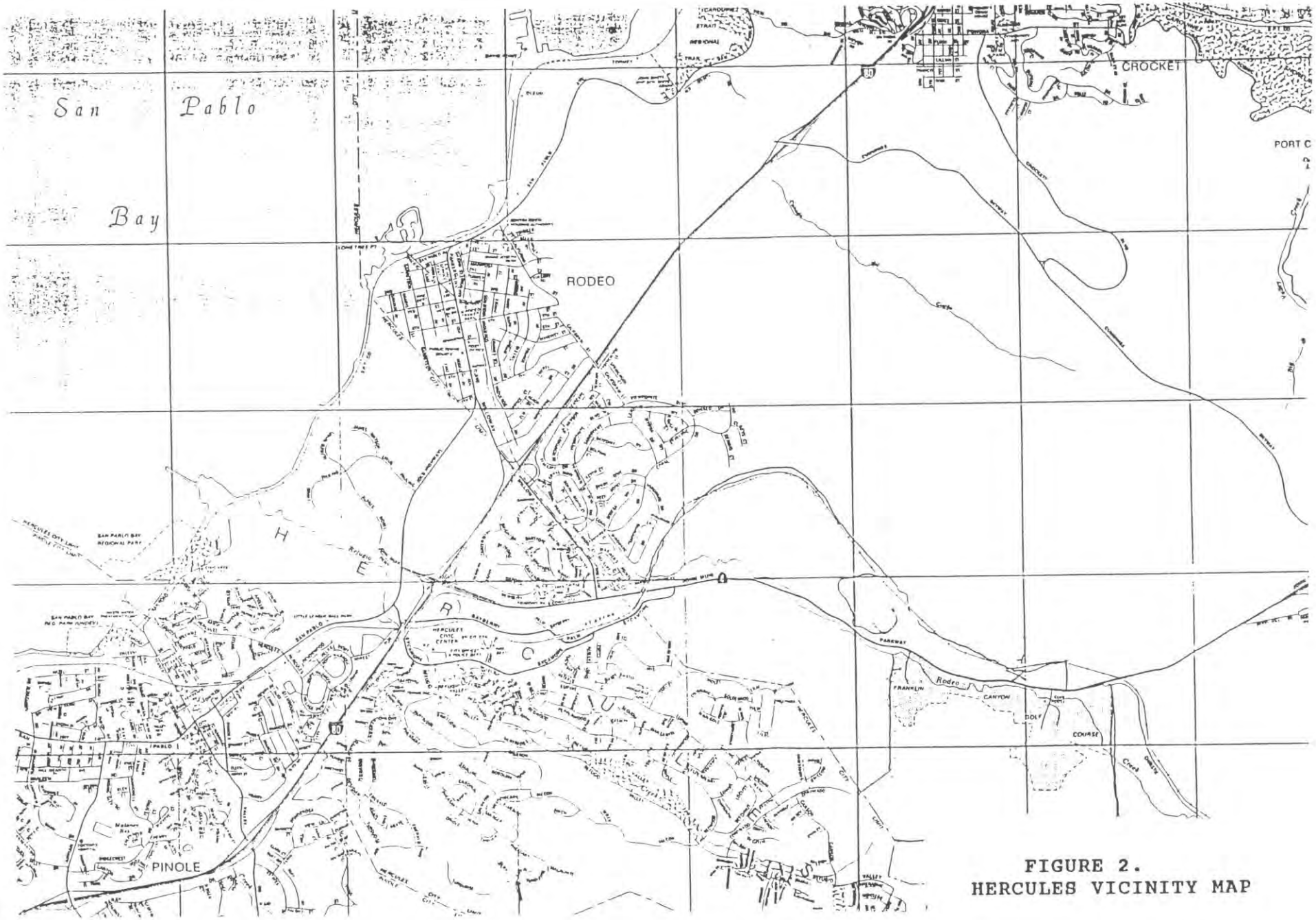


FIGURE 2.
HERCULES VICINITY MAP

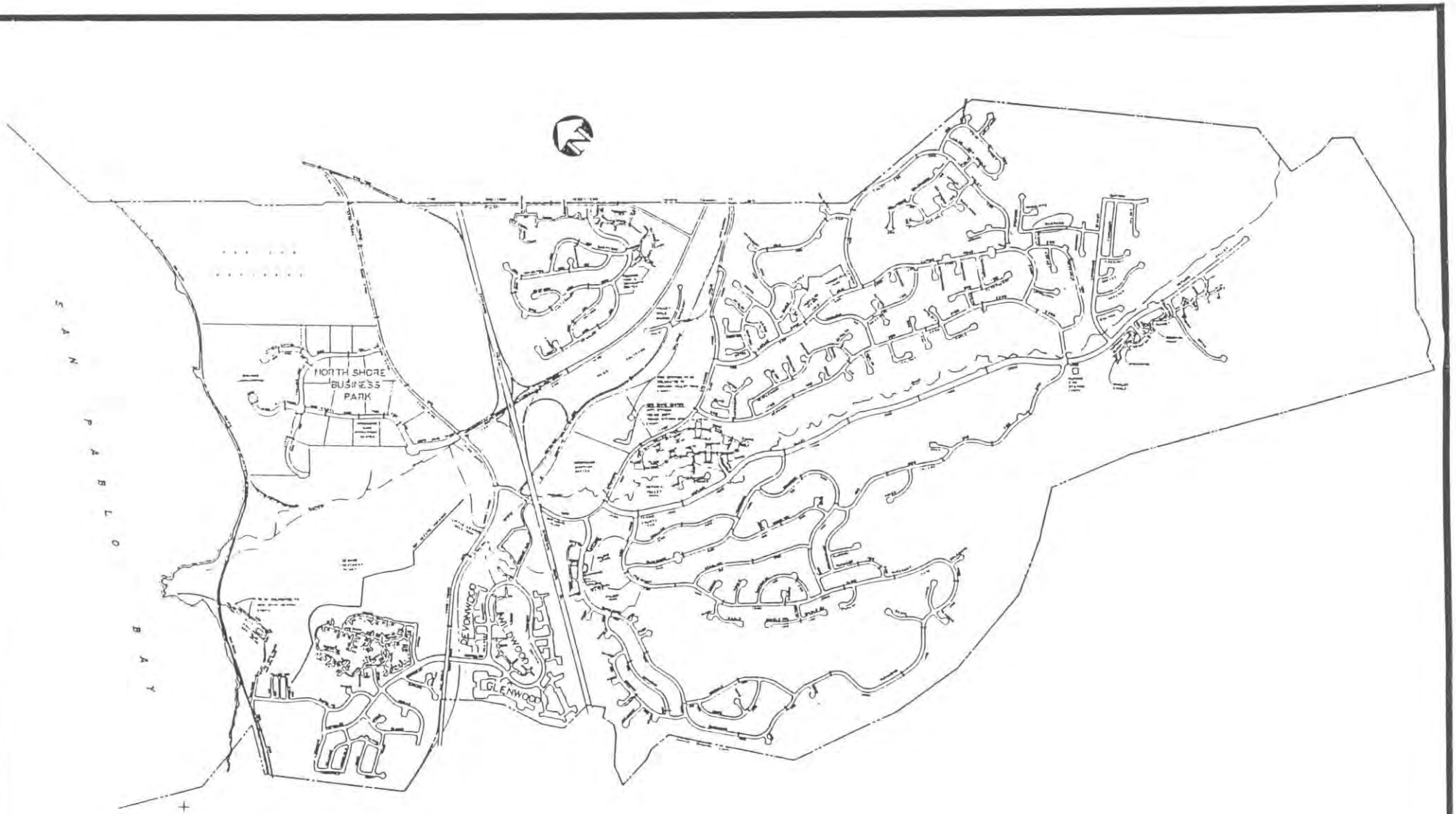


FIGURE 3.
HERCULES BOUNDARY MAP

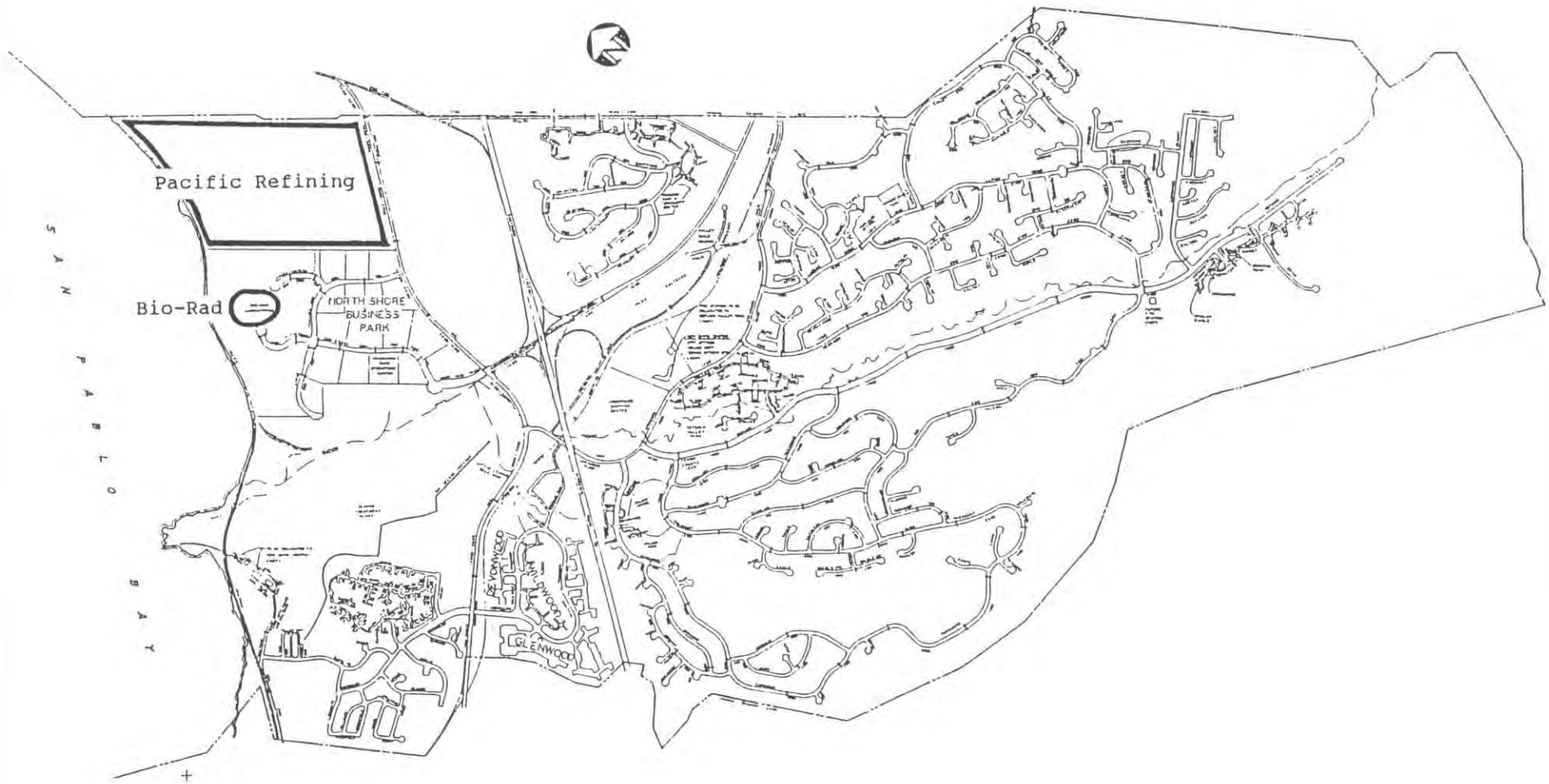
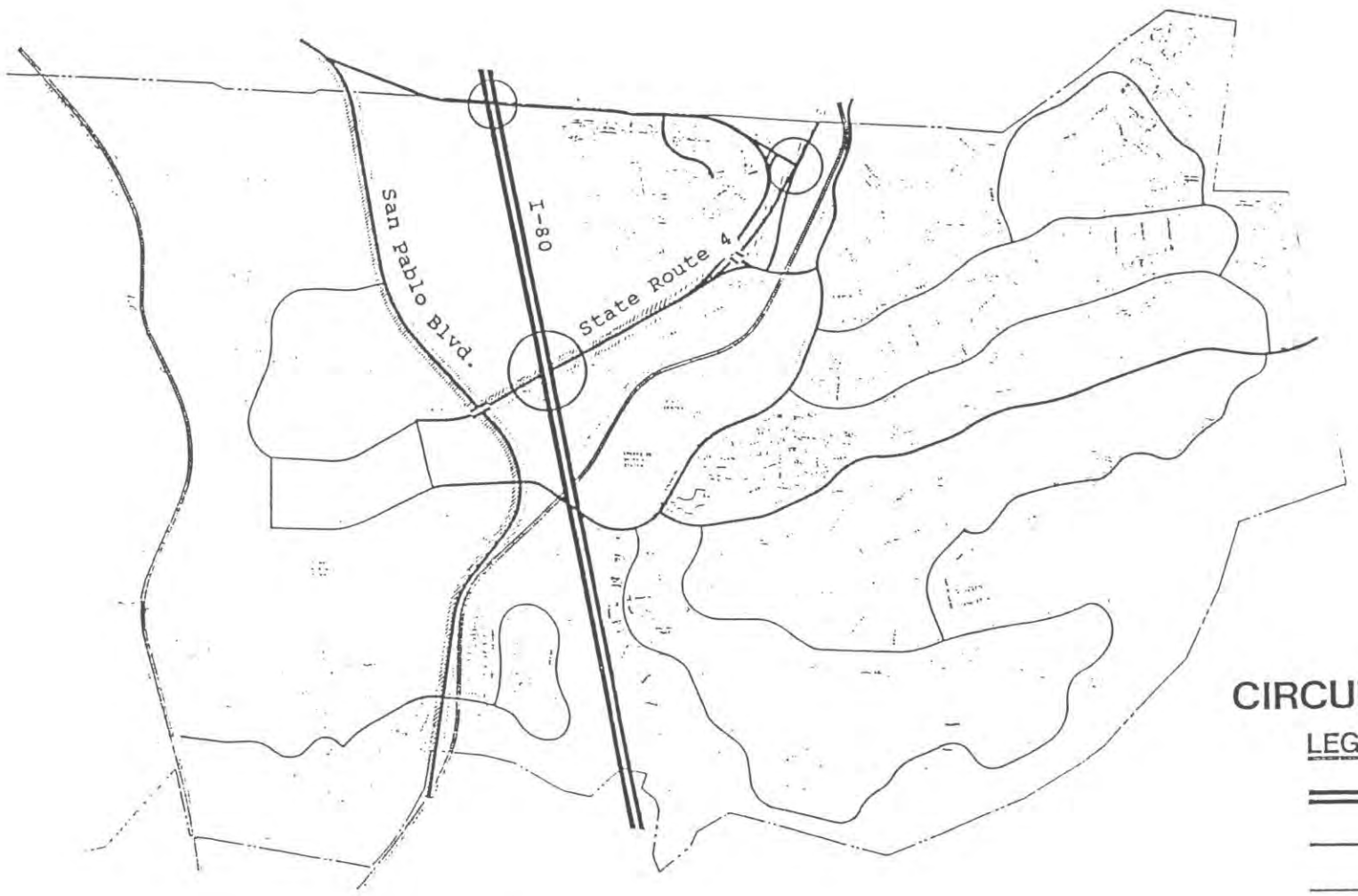


FIGURE 4. MAJOR EXISTING GENERATORS



CIRCULATION PLAN

LEGEND

- FREEWAYS
- ARTERIALS
- LOCAL COLLECTOR
- FREEWAY INTERCHANGE
- RAILROADS
- SCENIC ROUTES
- FUTURE HIGHWAYS
- GRADE SEPERATION

FIGURE 5.
MAJOR EXISTING TRANSPORTATION CORRIDORS

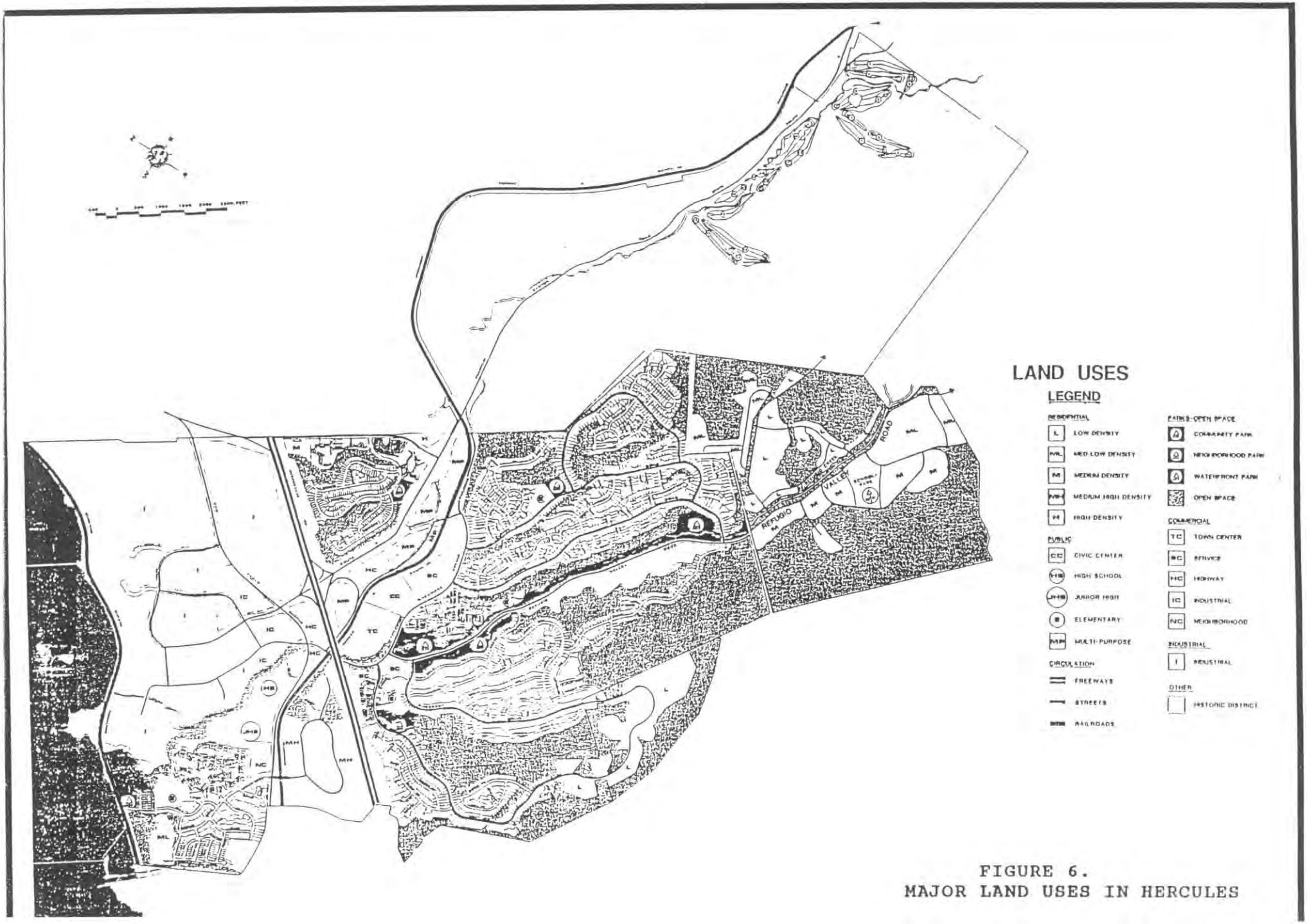


FIGURE 6.
MAJOR LAND USES IN HERCULES

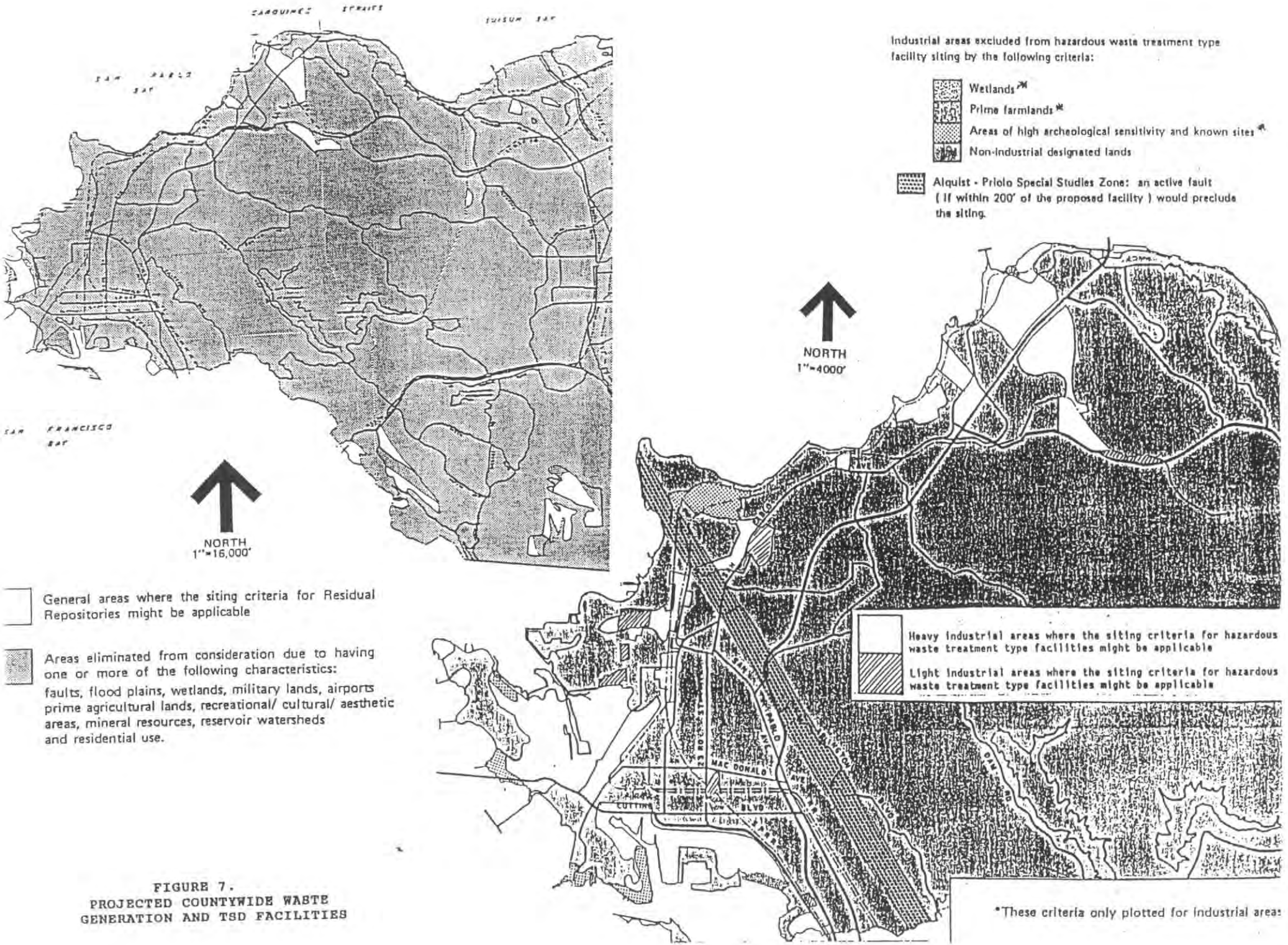


FIGURE 7.
PROJECTED COUNTYWIDE WASTE GENERATION AND TSD FACILITIES

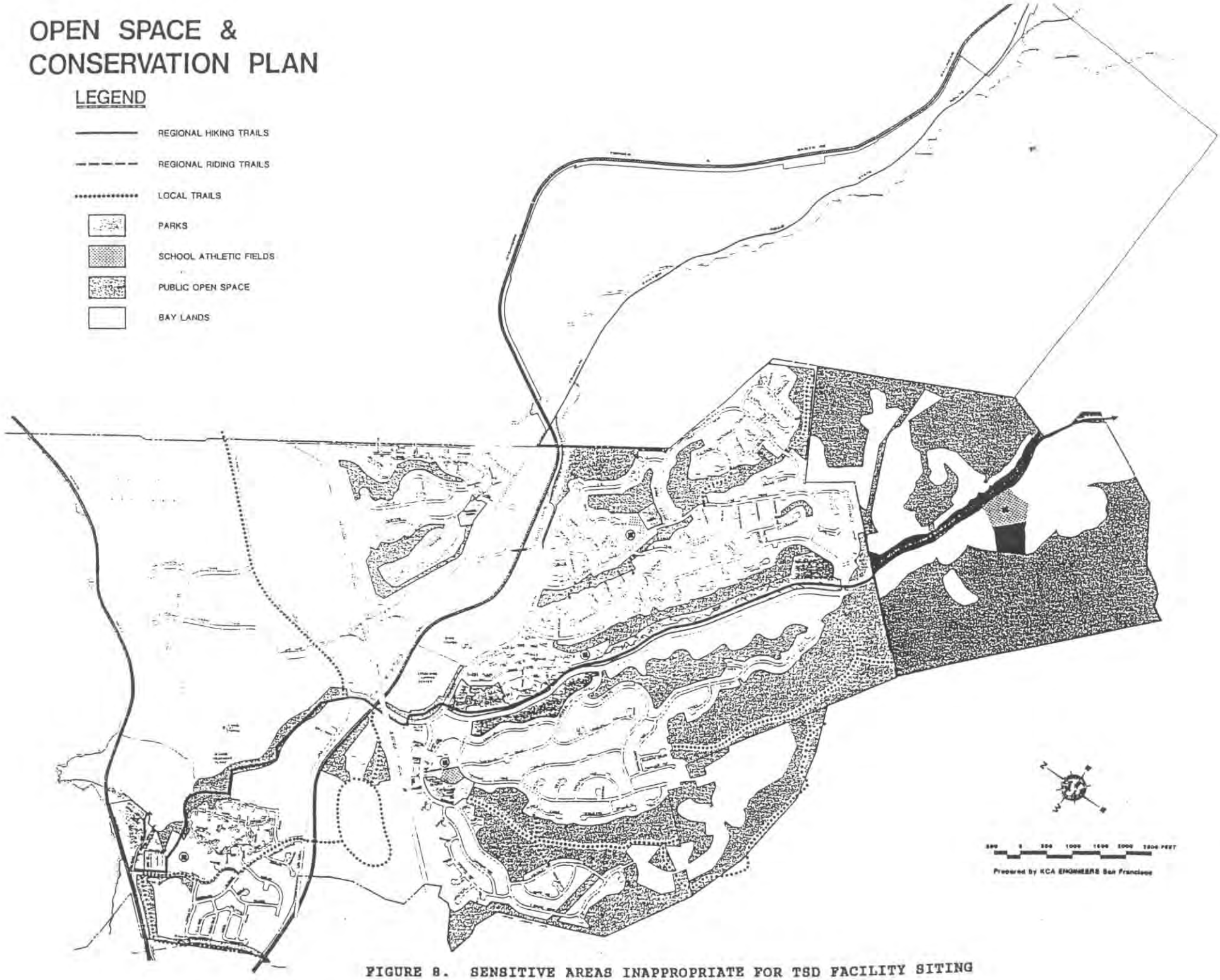


FIGURE 8. SENSITIVE AREAS INAPPROPRIATE FOR TSD FACILITY SITING

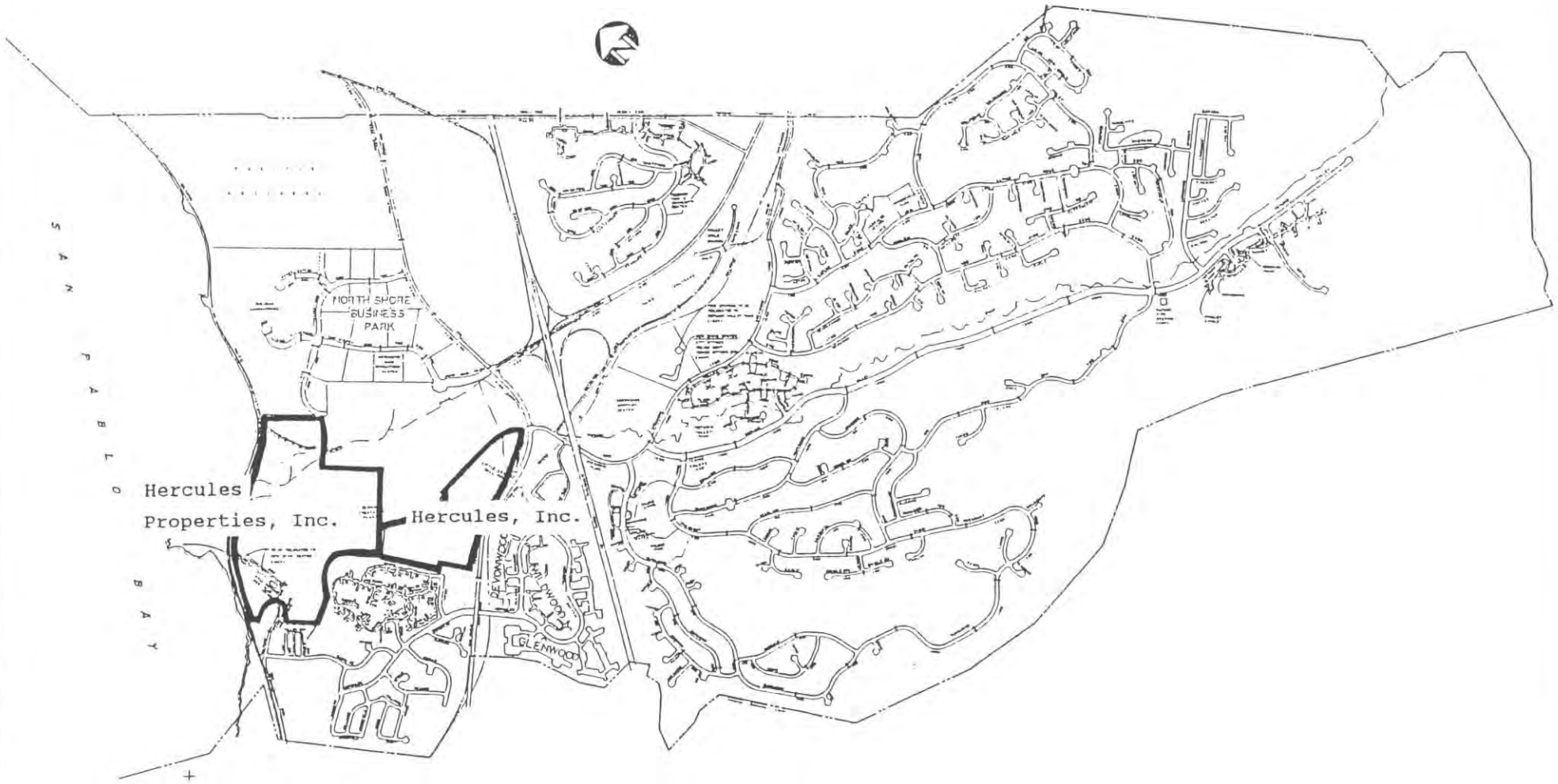


FIGURE 9.
MAJOR KNOWN CONTAMINATED SITES

10.0 TABLES

TABLE 1. QUANTITIES OF MANIFESTED WASTE GENERATED IN HERCULES AND SHIPPED OFF-SITE

Facility Name	Waste Generation (Tons)*	
	1986	1988
King Oil Company	1,646.43	ND
Hercules Little League Field	1,603.08	ND
Pacific Refining Company	497.49	423.83
Hercules Properties Ltd	ND	53.92
Mechanics Bank of Richmond-Trustee	ND	0.08**
Caltrans District 4	ND	0.88***
Bio-Rad Laboratories	ND	1.12
TOTAL	**3,747.00**	**478.83**

* Note: These figures from DHS Manifest summary data often disagree with Annual Reports submitted to DHS by industries by up to 20%.

**Best estimate from available data.

***These wastes were not shipped off-site but were contained in wastewater discharged to storm drain.

TABLE 2. CURRENT MANIFESTED HAZARDOUS WASTE IMPORTED AND EXPORTED FROM HERCULES (1988, 1989)

Generator	Waste Stream	Manifested Waste (tons)	Imp/Exp
Pacific Refining Company (1989)	K-Waste	155.0	E
	Bio-Sludge	141.0	E
	Spent Catalyst	15.0	E
	Asbestos Waste	27.0	E
Bio-Rad Laboratories (1988)	Halogenated Solvents	0.22	E
	Unspecified Solvent Mixture	0.90	E

TABLE 3. CURRENT WASTE PRODUCTION FROM SMALL QUANTITY GENERATORS BY WASTE TYPE (1988 Estimated)

Waste Type	Waste Group	Waste Production (Tons/yr)
Arsenic Wastes	Metal Containing Liquids	0.00
Cyanide Wastes	Cyanide & Metal-Containing Liquid	0.32
Dry Cleaning (Filtration Residue)	Non-Halogenated Organic Sludges & Solids	17.79
Empty Pesticide Containers	Miscellaneous Wastes	0.68
Heavy Metal Dust	Miscellaneous Wastes	0.29
Heavy Metal Solutions	Metal-Containing Liquids	0.00
Heavy Metal Waste Material	Metal-Containing Liquids	0.54
Ignitable Paint Wastes	Dyes, Paint Sludges & Resin Wastes	10.03
Ignitable Wastes	Non-Halogenated Solvents	14.66
Ink Sludges Containing Chromium or Lead	Metal-Containing Sludges	0.04
Mercury Wastes	Metal-Containing Liquids	0.14
Other Reactive Wastes	Non-Metallic Inorganic Liquids	1.90
Paint Waste Containing Heavy Metals	Metal-Containing Sludges	0.21
Pesticide Solutions	Pesticides	1.09
Photographic Wastes	Miscellaneous Wastes	2.40
Solvent Still Bottoms	Halogenated or Non-Halogenated Sludges & Solids	0.24
Spent Plating Wastes	Metal Containing Liquids	0.30
Spent Solvents	Halogenated or Non-Halogenated Solvents	30.64
Solutions or Sludges Containing Silver	Metal-Containing Liquids & Sludges	0.00
Strong Acids or Alkalies	Non-Metallic Inorganics Liquids	11.46
Used Lead-Acid Batteries	Miscellaneous Wastes	16.95
Waste Formaldehyde	Organic Liquids	33.23
Waste Inks Containing Flammable Solvents or Heavy Metals	Metal Containing Liquids	0.38
Waste Pesticides	Pesticides	3.15
Wastewater Containing Heavy Metal Sludges	Metal Containing Sludges	0.08
Wastewater Containing Wood Preservatives	PCBs and Dioxins	0.00
Wastes Containing Ammonia	Non-Metallic Inorganic Wastes	1.35
Other	Miscellaneous Wastes	44.88
TOTAL		**192.75**

TABLE 4. WASTE OIL GENERATION BY SMALL QUANTITY GENERATORS IN THE CITY OF HERCULES FOR 1990

Business Sector	Specific Business Type	1990 No. of Firms	Waste Oil Generation Factor DHS (gal/yr)	Total Amount (tons/yr)	Generated (tons)
Vehicle Maintenance (Automotive Related)	Recycling Centers		3,222	12.10	
	Service Stations		2,998	11.26	
	Repair Shops		3,032	11.39	
	Auto Dealers		2,962	11.12	
	Auto Centers	1	3,010	11.30	11.30
	Fleet Shops		3,160	11.30	
	Airports		2,800	10.51	
				Subtotal	11.30
Industry Related (Manufacturing)	Wood Products		2,676	10.05	
	Furniture & Fixtures		2,365	8.88	
	Pulp/Paper		*	*	
	Newspapers		2,779	10.44	
	Chemicals		2,799	10.51	
	Rubber/Plastic	1	2,407	9.04	9.04
	Leather		*	*	
	Glass		*	*	
	Primary Metals		2,969	11.15	
	Fabricated Metals		2,691	10.10	
	Machinery		2,592	9.73	
	Electronics	1	2,655	9.97	9.97
	Motor Vehicles	1	2,501	9.39	9.39
	Instruments	1	2,389	8.97	8.97
	Miscellaneous Manufacturing		2,522	9.47	
	Electrical Utilities		5,319		
	Commercial Marine Terminals		*		
	Railroad Yards		*		
				Subtotal	37.37
				Estimated Total	48.67

Number of businesses based on Small Business List.
Source: "Determining Used Oil Volumes Generated by Selected Small Quantity Generators", DHS 1987
* DHS did not supply a waste oil generation factor for this industry, and, thus, a quantity cannot be calculated.

TABLE 5. HOUSEHOLD HAZARDOUS WASTE GENERATED IN 1989

Waste Group	Ton/year	Quantity Percent
Oil and Similar Lubricant Products	9.2	46%
Paint and Building	5.8	29%
Gasoline and Solvents	4.0	20%
Other Wastes	1.0	5%
Total Household Hazardous Wastes	20.0	100%

TABLE 6. KNOWN CONTAMINATED SITES WITHIN AND NEAR THE CITY OF HERCULES DESIGNATED BY THE STATE BOND EXPENDITURE PLAN

Site Name	Type of Contamination	Cleanup Status*
Hercules Properties Ltd.	Acids, Caustics, Heavy Metals, Asbestos (soil)	Ongoing (Additional Investigations)
Hercules, Inc.	Munitions and Explosives (soil) (trinitrotoluene, dinitrotoluene, dinitrobenzene, lead)	Ongoing (Pilot Test in Progress)
ASARCO*	Arsenic, Lead, and other Heavy Metals (soil)	Ongoing
American Standard Products*	Lead (soil)	Remediation to begin 1990
Cooper Chemical*	Lead, Zinc, Copper (soil)	Ongoing
FMC Corporation*	Heavy Metals in Soil; Solvents Organochlorine and organophosphorus Pesticides in Soil & Groundwater	Ongoing
Drew Sales*	Copper, Nickel, Lead and Zinc (soil)	Ongoing

*These sites are not located within the Hercules City Limit, but are within approximately 10 miles of the City.

TABLE 7. PROJECTED QUANTITIES OF HAZARDOUS WASTE GENERATION IN HERCULES (Year 2000)

Facility Name	Waste Generation (Tons)*	
	1988	2000
Pacific Refining Company	423.8	423.8-847.6
Mechanics Bank of Richmond - Trustee	0.08	0.08-0.16
Caltrans District 4	0.88	0.88-1.76
Contaminated oil from existing sites	53.9	0.0
Bio-Rad Laboratories	1.12	1.12-2.3*
Small Quantity Generators	192.8	150.9-218.4
Waste oil	48.7	55.5
Household Waste	20.0	18.7- 22.6
Total	741.28	650.98-1,148.32

*This number could be considerably higher if the company's chemical division locates in Hercules.

TABLE 8. ESTIMATE OF HOUSEHOLD AND SQG HAZARDOUS WASTE IN THE YEAR 2000 (Tons/Year)

Waste Group	Without Waste Min.	With Waste Min.
HOUSEHOLD HAZARDOUS WASTE		
Oil and Similar Lubricant Products	10.5	9.6
Paint and Building	6.6	6.2
Gasoline and Solvents	4.5	2.3
Other Wastes	1.1	0.6
Total Household Hazardous Waste	22.7	18.7
SMALL QUANTITY GENERATOR HAZARDOUS WASTE		
Arsenic Wastes	0.00	0.00
Cyanide Wastes	0.36	0.03
Dry Cleaning Filtration Residues	20.28	20.08
Empty Pesticide Containers	0.77	0.75
Heavy Metal Dust	0.33	0.25
Heavy Metal Solutions	0.00	0.00
Heavy Metal Waste Materials	0.62	0.46
Ignitable Paint Wastes	11.43	10.86
Ignitable Wastes	16.71	15.21
Ink Sludges Containing Chromium or Lead	0.05	0.04
Mercury Waste	0.16	0.12
Other Reactive Wastes	2.17	2.13
Paint Wastes Containing Heavy Metals	0.24	0.18
Pesticide Solutions	1.24	1.22
Photographic Wastes	2.74	2.07
Solvent Still Bottoms	0.27	0.25
Spent Plating Wastes	0.34	0.25
Spent Solvents	33.65	30.62
Solutions or Sludges Containing Silver	0.00	0.00
Strong Acids or Alkalies	13.06	9.79
Used Lead-Acid Batteries	19.32	14.49
Waste Formaldehyde	37.88	36.36
Waste Inks Containing Flammable Solvents or Heavy Metals	0.43	0.32
Waste Pesticides	3.59	3.52
Wastewater Containing Heavy Metals	0.09	0.07
Wastewater Containing Wood Preservatives	0.00	0.00
Waste Containing Ammonia	1.54	1.51
Other	51.16	50.14
Total SQG Hazardous Waste	218.43	200.72

The year 2000 Household Hazardous Waste Projection was based on information obtained from the State DOHS; and the ABAG projection (1987).

TABLE 9. PROJECTED QUANTITIES OF CLEANUP WASTES AND NEW WASTE STREAMS

Facility Name		Waste Generation (Tons) 1988	2000
Pacific Refining Company	K-Waste	155.0	155.0-310.0
	Bio-Sludge	141.0	141.0-282.0
	Spent Catalyst	15.0	15.0- 30.0
	Asbestos Waste	27.0	< 1.0
	Other Waste	85.8	85.8-171.6
Bio-Rad Laboratories	Solvents	1.12	1.12-2.3
	Other Waste	0.2	0.2-0.4
Contaminated Sites	Contaminated Soil	53.9	0

TABLE 10. PROJECTED CITY OF HERCULES NEEDS ASSESSMENT YEAR 2000 (TONS/YEAR)*

Waste Type	Projection	Current Capacity
Waste Oil	58.3	0.0
Halogenated Solvents & Non-Halogenated Solvents	33.5	0.0
Organic Liquids	37.5	0.0
Pesticides	4.8	0.0
PCB's & Dioxins	0.0	0.0
Oily Sludges & Halogenated Organic Sludges & Solids	0.3	0.0
Dye & Paint Sludges & Resins	11.3	0.0
Metal Containing Liquids	1.6	0.0
Cyanide & Metal Liquids	0.0	0.0
Non-Metallic Inorganic Liquids	2.1	0.0
Metal Containing Sludges	0.4	0.0
Non-Metallic Inorganic Sludges	444.0	0.0
Contaminated Soil	0.0	0.0
Miscellaneous Wastes	74.7	0.0
TOTAL	**668.5**	**0.0**

TABLE 11. METHODS FOR REDUCING EXPOSURE TO HOUSEHOLD TOXICS
(Source: Golden Empire Health Planning Center)

- Purchase less toxic or non-toxic items whenever possible.
- Buy only the amount needed to do the job.
- Give leftover paint (not lead-based) to a neighbor to use.
- Avoid use of aerosols. They are a high source of indoor air pollution.
- Recycle motor oil at a participating service station. Call the California Waste Management Board at (800) 925-5545 for locations.
- Keep products in their original containers.
- Use products in well-ventilated areas. An open door or window may not be enough.
- Wear protective clothing.
- Never mix products unless instructions call for it. Adverse chemical reactions can occur.
- Use only the recommended amount. "More" is not better.
- Consider whether the product can be used less frequently.
- Keep products out of reach of children and pets.
- Use the free collection program to rid your home of old and unwanted products containing toxic chemicals.