

Environmental Protection Element

INTRODUCTION

The Environmental Protection Element addresses the impact of urbanization including the use of oil and gas resources and hazardous waste on the natural environment. In highly urban San Francisco environmental protection is not primarily a process of shielding untouched areas from the initial encroachment of a man-made environment. The scales already are and will continue to be balanced toward the side of development.

The challenge in San Francisco is to achieve a more sensitive balance, repairing damage already done, restoring some natural amenity to the city, and bringing about productive harmony between people and their environment. An important purpose, therefore, of an environmental protection element is to give natural environment amenities and values appropriate consideration in urban development along with economic and social considerations.

One of the lessons of the increasing environmental consciousness is that "environment" is not accurately compartmentalized as animals and trees versus people and cars. In an urban setting this is particularly true. All elements of the General Plan deal to a certain extent with protecting aspects of the total urban environment. In that sense the objectives and policies contained in this element must be read together with other objectives and policies throughout the General Plan. However, this element is mainly concerned with protecting what is not man-made in the environment, especially through protection of plant and animal life and through restoration of natural qualities of land, air and water by elimination of pollution. It also addresses conservation and management of energy in the residential, commercial and transportation sectors. Additionally the reduction of hazardous materials use in the residential, commercial and governmental sectors is encouraged in this element.

Deterioration of the environment as a consequence of population growth, urbanization, industrialization, improper disposal of hazardous materials, resource exploitation and technological developments has been a growing concern world-wide. Another influence has been a realization of the finite nature and rising costs of energy and other natural resources. On a national and state level, it has given rise to policies and controls dealing with air, water and noise pollution and other forms of degradation of the natural environment as well as regulation of energy production and hazardous waste. It was logical, therefore, that in giving direction to local general plans the California Legislature should have mandated preparation of two elements which address environmental protection issues, one for natural resource conservation and another for transportation noise. This Environmental Protection Element combines those two state-mandated elements, along with a comprehensive energy management plan. A hazardous waste section which responds to separate State planning requirements for county-level hazardous waste management and siting of facilities is also included in this element.

Conservation

INTRODUCTION

Conservation As Resource Management

Conservation, as a resource ethic, is based on the premise that resources are not commodities to be developed and consumed in whatever amount that users demand or can afford. Unrestricted development and use of resources may either exhaust or pollute the supply. Resources, consequently, should be managed in ways that will assure their availability for generations to come.

Sensible resource management does not exclude, by any means, the development and utilization of resources. Nevertheless, with the population of the nine-county Bay Region expected to grow to 6.6 million persons by the year 2005, increasingly greater demands will be placed on these resources. Programs are already in force to conserve and in some cases to improve the quality and supply of our resources. Some of the programs may need to be strengthened.

Scope of the Plan

As a very urban place, San Francisco is not as extensively involved as rural counties re in the conservation of natural resources. Of those resources which the State Legislature directed to be included in the Conservation Sections, the following are not found in San Francisco to any appreciable extent.

- Rivers
- Water with hydraulic force potential
- Minerals

These resources, consequently, are omitted from the plan. Natural resources that properly concern San Francisco are:

- Waters of the Bay and Ocean
- Fish and other marine animals
- The shoreline
- Air
- Fresh water for consumption and fire fighting
- Land
- Plants and animals of the city's land area and lakes

Finally, and of particular concern to San Francisco, are the special urban amenities which may combine both natural and man-made resources. For San Francisco, almost wholly developed, conservation of those man-made features of high quality and cultural value may be more important than the natural features of the environment that are of such importance to rural areas of the State. The Urban Design Element focuses on how these special qualities of San Francisco may be preserved.

Existing Regional Efforts

A number of official regional agencies operate to regulate the use of resources as related to San Francisco: the San Francisco Bay Conservation and Development Commission, the Bay Area Quality Management District, the California Regional Water Quality Control Board (San Francisco Bay Region), and the California Coastal Commission. San Francisco's participation in these regional efforts goes a long way toward achieving the goals of resource management. Accordingly, the Conservation Plan does not propose new policies to replace those already adopted at the regional level.

Relation To Other General Plan Elements

Conservation, in the broadest sense of the word, refers to the entire process of determining to what extent any of the city's resources - natural as well as man-made — should be protected or used. To limit the scope of the Conservation section of the Environmental Protection Element (as required by State planning law) seems arbitrary. It implies that conservation is not an issue in residence, transportation, urban design, recreation, or any other General Plan element and, furthermore, that conservation of the many worthwhile aspects of the urban environment is somehow of less importance.

Maintaining a proper balance between the preservation and the development of San Francisco's resources is an issue recognized in all the elements of the General Plan. The Urban Design Element, for example, indicates areas of the city where increased height and bulk of buildings would be permissible and areas where open space ought to be protected from any building. The City Planning Commission has adopted General Plan elements for Housing, Urban Design, Transportation, and Recreation and Open Space. To a varying extent, each of these plans deals with conservation.

OBJECTIVES & POLICIES

General

OBJECTIVE 1

ACHIEVE A PROPER BALANCE AMONG THE CONSERVATION, UTILIZATION, AND DEVELOPMENT OF SAN FRANCISCO'S NATURAL RESOURCES.

San Francisco enjoys an abundance of natural beauty. Surrounded on three sides by water and graced with parks, lakes, and vistas, San Francisco provides a magnificent urban environment with the potential to exist in harmony with its natural surroundings. While years of exhaustive use of the natural landscape have depleted and polluted some of the city's resources, San Francisco is fortunate in that it is not entirely developed and has some rather outstanding natural resources remaining. Those remaining resources should be protected from further encroachment and enhanced in order to achieve the necessary balance between the conservation of natural systems and the normal functioning of the city. This means ending pollution; protecting vegetation and wildlife; controlling shoreline uses; developing guides for the use and development of land, water, and air; and, where desirable, increasing the supply of natural resources.

POLICY 1.1

Conserve and protect the natural resources of San Francisco.

A major thrust of science and technology in the oncoming years must be that of making cities more livable places by offsetting the imbalance between the natural and man-made environments. Man and his technology must become a more interrelated part of nature and not an exploiter of the physical environment.

San Francisco must assure that its remaining natural resources are protected from misuse. The intricate relationships between living things and their natural and man-made surroundings should be recognized as primary in improving the quality of environment. The most important uses of existing resources should be those which provide maximum benefits for public use while preserving and protecting the natural character of the environment. Moreover, the supply and quality of resources should be considered as major determinants of the nature and extent of development that is dependent on them.

POLICY 1.2

Improve the quality of natural resources.

If the present trend toward environmental deterioration is to be curbed, all forms of pollution must be controlled and eventually eliminated. Those resources within the exclusive jurisdiction of the City should be guarded against contamination through local regulatory action. Where effective resource management against pollution requires regional action, San Francisco should support and comply with all anti-pollution standards of the region.

POLICY 1.3

Restore and replenish the supply of natural resources.

Undoing past mistakes must also be a major part of comprehensive environmental action. In this regard, San Francisco should undertake projects to acquire or create open space, cultivate more vegetation, replenish wildlife, and landscape man-made surroundings. Projects revitalizing the urban environment should be encouraged and receive top priority. With major efforts in this direction, the City will help reverse past trends toward the destruction of the natural qualities of the environment.

POLICY 1.4

Assure that all new development meets strict environmental quality standards and recognizes human needs.

In reviewing all proposed development for probable environmental impact, careful attention should be paid to upholding high environmental quality standards. Granted that growth provides new economic and social opportunities, uncontrolled growth can also seriously aggravate environmental deterioration. Development projects, therefore, should not disrupt natural or ecological balance, degrade the visual character of natural areas, or otherwise conflict with the objectives and policies of the General Plan.

OBJECTIVE 2

IMPLEMENT BROAD AND EFFECTIVE MANAGEMENT OF NATURAL RESOURCES.

The urban environment will deteriorate unless protected by well-defined and effectively managed public programs. Additionally, the solutions to present environmental problems are tied up in significant and widespread social change in consumer choices and life styles. The establishment, ultimately, of broad-based, more effective environmental action programs will require involvement of individual citizens, citizen groups, government agencies, and elected officials. Such involvement is essential in the identification of critical issues, development of specific goals and strategies, and the implementation of firm regulatory processes.

POLICY 2.1

Coordinate regional and local management of natural resources.

Historically, local government has been formed in response to local areas of need. Natural resources, however, often extend beyond the boundaries of municipalities, covering regions, inter-regions, and states. Thus, in the Bay Region, local government has become an ineffective instrument for the management of resources dispersed and interconnected throughout the region. With regard to the more diffuse environmental problems such as air pollution and managing the Bay, Ocean, and Shorelines, San Francisco is ill-equipped to solve the problems alone.

San Francisco should cooperate with existing regional agencies in developing methods whereby cities can lend support to regional efforts to improve the environment. The regional concept, supported and strengthened by well-conceived local programs, is essential to enhancing both natural and man-made surroundings.

POLICY 2.2

Promote citizen action as a means of voluntarily conserving natural resources and improving environmental quality.

A comprehensive program of citizen participation can assure that public policy will serve the best interests of all elements of society. Moreover, programs conceived through extensive involvement of the communities to be served are generally more effective, for they reflect the desires of a multiplicity of people and thereby carry additional momentum. Since our physical environment is to be shared by all, a balance among all factors (human and economic) must be achieved.

POLICY 2.3

Provide environmental education programs to increase public understanding and appreciation of our natural surroundings.

If we are to preserve and enhance the quality of our surroundings, we must cherish their values. Environmental education programs promoting an understanding and appreciation of our natural systems serve to expand public awareness of environmental problems and man's place in the world.

Course instruction on the nature and problems of the environment should be continued and emphasized in the public schools, adult education centers, and colleges.

Bay, Ocean and Shorelines

OBJECTIVE 3

MAINTAIN AND IMPROVE THE QUALITY OF THE BAY, OCEAN, AND SHORELINE AREAS.

In the past, the Bay and its waterfront were extensively used for commercial purposes and for waste disposal. The Ocean side was largely free of this kind of activity. Although the utilitarian values of the water and shorelines are valid, expediency and short-term gain can lessen the value and attractiveness of these resources. There should be not only a balance between recreational and commercial uses but a balance between preservation and utilization of the Bay, Ocean, and Shorelines.

Protecting and enhancing the many values of these resources requires ending pollution of the Bay and Ocean, closely controlling commercial uses of the water and shorelines, preserving and adding to the recreational frontage along the water, and protecting and improving the existing recreational frontage.

POLICY 3.1

Cooperate with and otherwise support regulatory programs of existing regional, State, and Federal agencies dealing with the Bay, Ocean, and Shorelines.

Managing the resources of the Bay and Ocean and the abutting lands is under the regulation of a number of limited-purpose regional and State agencies. The region-wide scope of the problems calls for region-wide solutions.

San Francisco has representation on the multi-county agencies, and, consequently, its particular interests are considered along with those of the other constituent counties. When it is apparent, for example, that regionally operated facilities may be more costly to San Francisco than a local facility, common practice is to allow the local option so long as it meets regional performance standards. This policy of local option is essential to the spirit of regional cooperation. Conformity should not override good sense. With this important proviso, San Francisco should support and cooperate with regional, State, and Federal agencies in setting and achieving goals for the conservation of the resources of the Bay, Ocean, and Shorelines.

POLICY 3.2

Promote the use and development of shoreline areas consistent with the General Plan and the best interest of San Francisco.

Other portions of the General Plan set policy on how the city's shoreline areas should ultimately be developed. They are the Recreation and Open Space and Urban Design Elements and the Northeastern Waterfront, Western Shoreline, and South Bayshore Area Plans. For specific policies governing Hunters Point Shipyard, see the Hunters Point Shipyard Redevelopment Plan and its accompanying Design for Development document The Bay Conservation and Development Commission (BCDC) and the California Coastal Commission also set policy on shoreline development. Within the

framework set by these regional planning agencies, San Francisco should promote the use and development of its shoreline areas in accordance with those policies in the General Plan that serve the best interests of the citizens of the city.

POLICY 3.3

Implement plans to improve sewage treatment and halt pollution of the Bay and Ocean.

San Francisco's Master Plan for Waste Water Management is an orderly plan for upgrading the collection, treatment, and disposal of San Francisco's sewage. The City should proceed as rapidly as possible to finance and construct facilities required to end the discharge of untreated and insufficiently treated sewage into the Bay and Ocean.

Regulations controlling the discharge of industrial wastes into the sewers should be vigorously enforced as a further means of preventing the pollution of the waters of the Bay and Ocean.

POLICY 3.4

Encourage and assist privately operated programs to conserve the resources of the Bay, Ocean, and Shorelines.

Voluntary, private organizations concerned about conservation deserve special recognition. They help keep conservation issues in the public consciousness. More importantly, they perform a watchdog function essential to effective enforcement. The City should seek the participation of voluntary groups in monitoring activities that affect the water and shore areas.

POLICY 3.5

Protect sensitive economic and environmental resources in Northern California offshore coastal areas threatened by oil development.

The regional economy of Northern California, heavily dependent on tourism and commercial fishing, is threatened by offshore oil and natural gas development in the Outer Continental Shelf (OCS) ocean area. Of particular significance to San Francisco is proposed development in the area within the Pt. Reyes-Farallon Island Marine Sanctuary, an important local fishery resource.

The official City position supports continued protection of environmentally sensitive coastal areas that are important to local economic activities. It is imperative that the City make its position known by participating in State Coastal policy review to ensure that local concerns are taken into account by Federal decision-makers.

Air

OBJECTIVE 4

ASSURE THAT THE AMBIENT AIR OF SAN FRANCISCO AND THE BAY REGION IS CLEAN, PROVIDES MAXIMUM VISIBILITY, AND MEETS AIR QUALITY STANDARDS.

Air pollution is one of the major problems facing the cities of the San Francisco Bay Region. In San Francisco, the need for conserving the air resource and improving air quality is undeniable. While San Francisco benefits from having few large upwind industrial polluters and from certain topographical and climatic conditions, Federal and State air quality standards continue to be violated on a number of days in the city.

The local air supply extends beyond the physical boundaries of San Francisco, covering the entire Bay Region, and effective air resource management must include regionwide planning, monitoring, regulations, and enforcement. San Francisco, however, can take certain actions which supplement and strengthen the efforts of existing regional programs.

Local initiatives should be keyed to the curtailment of pollution emissions from sources typically found in San Francisco. Ultimately, solutions to the air pollution problem must be interrelated with virtually all facets of urban existence — industry, transportation, employment, housing, open space, recreation — even the products we buy and consume.

POLICY 4.1

Support and comply with objectives, policies, and air quality standards of the Bay Area Air Quality Management District.

Regionwide monitoring of air quality and enforcement of air quality standards constitute the primary means of reducing harmful emissions. The conservation of San Francisco's air resource is dependent upon the continuation and strengthening of regional controls over air polluters. San Francisco should do all that is in its power to support the Bay Area Air Quality Management district in its following operations:

- Monitoring both stationary and mobile sources of air pollution within the region and enforcing District regulations for achieving air quality standards.
- Regulating new construction that may significantly impair ambient air quality.
- Maintaining alert, permit, and violations systems.
- Developing more effective controls and method of enforcement, as necessary.

POLICY 4.2

Encourage the development and use of urban mass transportation systems in accordance with the objectives and policies of the Transportation Element.

During the 1950's, 1960's, and 1970's, San Francisco's resident population decreased while employment within the city increased. The 1980's have seen an increase in population and continued employment growth. Consequently, the number of commuters traveling to and from San Francisco, usually by automobile, has risen, creating a serious threat to ambient air quality. Because of the highly centralized nature of San Francisco and the surrounding region, areawide rapid transit, integrated with convenient municipal transit systems, can be used effectively in reducing automobile emissions.

Urban mass transit systems should be encouraged, with the proper economic incentives, as the most sensible mode of urban travel. To this end, designation of express lanes for commuter buses on the Golden Gate Bridge and the San Francisco-Oakland Bay Bridge would help reduce motor vehicle emissions by encouraging greater use of public transit. Commuters should be encouraged to make the best use of mass transit services available to them. Swift, convenient transit service available during commute hours will provide a major incentive for rejecting the automobile as the primary mode of urban transportation.

Lastly, where feasible, diesel buses should be replaced with buses powered by electricity or other clean energy sources. Existing electric trolley bus lines should be retained wherever possible.

POLICY 4.3

Encourage greater use of mass transit in the downtown area and restrict the use of motor vehicles where such use would impair air quality.

San Francisco's downtown area is the major focus of the city and the region. Comprised of the financial-office district, a vast governmental administration center, and the stores, hotels and places of entertainment within the area, the downtown area provides the chief center of employment, shopping, and visitor accommodation in the entire Bay Region. Because traffic congestion is so prevalent, air quality often suffers.

Greater use of public transit to, from, and within the downtown area will reduce the amounts of pollutants emitted from motor vehicles. Furthering the objectives and policies of the Transportation Element of the General Plan, a "transit first" approach would reduce air pollution in the downtown area.

Zones have been identified in which concentrated efforts to control automobile use should be pursued in order to reduce air pollution and to improve the pedestrian environment. A few downtown streets should be designated as traffic-free zones, allowing for the free-flowing movement of pedestrians. Additionally, some other streets in the area should be restricted to pedestrian, transit, delivery vehicle, and emergency use. Vehicle-free and restricted zones should be landscaped, have widened sidewalks, and be oriented to pedestrian use.

Finally, an increase in the frequency of shuttle bus service within the downtown area would provide a reasonable and convenient alternative to the private motor vehicle as a method of travel in the central city, but only in areas that are not already served by public transit.

POLICY 4.4

Promote the development of nonpolluting industry and insist on compliance of existing industry with established industrial emission control regulations.

The City and County of San Francisco, in cooperation with the Chamber of Commerce, should actively encourage the development and expansion of industries which do not add to the air pollution problem. Those industries which are a major source of industrial air pollution should be identified and made to comply with all industrial emission control regulations. They should be equipped with effective air Quality Management devices.

POLICY 4.5

Exert leadership in the voluntary reduction of pollution emissions during air pollution alerts.

As provided in the Bay Area Air Quality Management District Alert Plan, air pollution alerts will be called throughout the Bay Region when meteorological forecasts for any twelve-hour period indicate that air contamination levels will reach or exceed alert standards. During alert periods, Bay Area residents are encouraged to follow a set of voluntary actions to diminish air pollution concentrations. San Francisco should exert leadership during alert periods and assist the Air Quality Management District in the following ways:

- Providing assistance in disseminating information on air conditions.
- Encouraging commuters and city residents to use mass transit systems instead of the automobile.
- Making the Police Department's helicopter available for spotting illegal burning in the city.
- Utilizing Police Department staff to issue citations for excessive automobile emissions.
- Utilizing Fire Department staff to detect illegal open burning and to refer violations to the Bay Area Air Quality Management District for enforcement.
- Urging volunteer organizations to monitor compliance with emission control regulations.
- Promoting the establishment of emergency centers for persons with respiratory ailments.

Fresh Water

OBJECTIVE 5

ASSURE A PERMANENT AND ADEQUATE SUPPLY OF FRESH WATER TO MEET THE PRESENT AND FUTURE NEEDS OF SAN FRANCISCO.

The City and County of San Francisco owns and operates one of the most extensive water and power systems in the world. At present, the supply of fresh water generated by the Hetch Hetchy/Water Department system is more than adequate. Current projections indicate that the present system will meet San Francisco's needs until the year 2020. Over the years, the consumption of fresh water in the city has risen substantially: over 100 percent between 1940 and 1971. This increase in water consumption is primarily due to commercial expansion and has occurred despite a decline in San Francisco's resident population since 1950.

Hetch Hetchy and the Water Department should continue their excellent planning program to assure that the water supply will adequately meet foreseeable consumption demands. To this end, the City should be prepared to undertake the necessary improvements and add to the Hetch Hetchy/Water Department system in order to guarantee the permanent supply. Furthermore, San Francisco should continually review its commitments for the sale of water to suburban areas in planning how to meet future demand.

POLICY 5.1

Maintain an adequate water distribution system within San Francisco.

Storage reservoirs and distribution lines within San Francisco should match the pattern of development in the city. Areas most intensively developed, having the greatest water demand, should be served by facilities having the greatest capacity.

POLICY 5.2

Exercise controls over development to correspond to the capabilities of the water supply and distribution system.

New development places additional demands on the water supply and distribution system. Nonresidential water users, representing approximately 45 percent of the consumption in the city, have been the principal cause of the increase in total city water consumption. Development that might place too great a strain on the system should be discouraged.

POLICY 5.3

Ensure water purity.

San Francisco's drinking water must meet State and Federal water quality standards. Ensuring water quality means continuing the present water purification process and monitoring storage facilities and transmission lines for threats to the water supply.

POLICY 5.4

Promote nonpolluting recreation uses of fresh water lakes and reservoirs.

A few of San Francisco's lakes serve as a valuable source of recreation. Boating and fishing are permitted at Lake Merced, and other recreational activities are enjoyed at Stow Lake and Spreckels Lake in Golden Gate Park and at Laguna Puerca in Pine Lake Park. San Francisco should encourage continued recreational uses of these lakes where such use does not mar the scenic beauty or water quality.

Fresh water reservoirs without scenic value should be covered, wherever feasible, to prevent evaporation and to provide additional area for recreation or other compatible uses.

POLICY 5.5

Improve and extend the Auxiliary Water Supply system of the Fire Department for more effective fire fighting.

The Fire Department maintains and operates the Auxiliary Water Supply System (AWSS), a water storage and distribution network that supplements the hydrants connected to the regular water distribution lines. The AWSS presently serves those areas of San Francisco most intensively developed. A recent public referendum authorized a bond issue to extend this system to the remainder of the city, and to modernize certain of its components. Recommendations to remedy system deficiencies should be implemented as soon as is feasible.

It is incumbent upon the City and County of San Francisco to undertake long-term planning for emergency preparedness. Planned expansions and improvements to the AWSS would improve the City's preparedness to meet potential fire disasters.

OBJECTIVE 6

CONSERVE AND PROTECT THE FRESH WATER RESOURCE.

The fresh water resource, like all natural resources, is finite and measurable. While San Francisco's water supply seems vast in relation to current demands, it should not be wasted. Supplementary sources should also be investigated.

POLICY 6.1

Maintain a leak detection program to prevent the waste of fresh water.

Reservoirs, storage tanks, cisterns, and pipelines can develop leaks and waste the fresh water resource. The continued operation of leak detection programs by the Water Department and Fire Department will help prevent unnecessary waste.

POLICY 6.2

Encourage and promote research on the necessity and feasibility of water reclamation.

Reclaiming water for public use from waste water may prove to be a necessary step in securing an adequate water supply in the future. Other communities, not as fortunate as San Francisco, are currently looking into water reclamation as a means of conserving fresh water and generating additional supply. San Francisco should investigate the future possibilities of water reclamation, especially for such purposes as fire fighting and industrial use.

Land

OBJECTIVE 7

ASSURE THAT THE LAND RESOURCES IN SAN FRANCISCO ARE USED IN WAYS THAT BOTH RESPECT AND PRESERVE THE NATURAL VALUES OF THE LAND AND SERVE THE BEST INTERESTS OF ALL THE CITY'S CITIZENS.

San Francisco's dramatic landforms and intimate alliance with the Bay and Ocean give the land a special value. Other elements of the General Plan recognize the value of this land resource in recommending how the city should develop to achieve an optimum utilization of the land. Just as important as development, however, is the protection of remaining open space to preserve the natural features of the land that form such a striking contrast with the city's compact urban development. In exercising land use controls over development and in preserving permanent open space, the land should be treated as a valuable resource to be carefully allocated in ways that enhance the quality of urban life.

POLICY 7.1

Preserve and add to public open space in accordance with the objectives and policies of the Recreation and Open Space Element.

Publicly owned open space is located principally in the western half of the city. While these valuable open spaces are preserved and enhanced, great effort should be made to acquire and make available more recreation area in the eastern half of the city. Acquisition and limited filling of tideland areas in the South Bayshore District, for example, would provide needed opportunities for more recreation. The Recreation and Open Space Element should guide the selection and improvement of land for recreation.

The usefulness of land for recreation, however, should not necessarily determine whether or not land areas ought to be preserved. Features of a scenic, geological, topographical, and ecological nature are also important criteria of their value as open space. These natural values of land should be respected.

POLICY 7.2

Protect land from changes that would make it unsafe or unsightly.

The excavation of land for off-site use of the removed material is subject to control by the City Planning Commission and the Department of Public Works. Quarrying or unnecessary excavation should be strongly discouraged because it defaces the landscape and can limit the usability of the land. Too much earth removal can also create a potentially dangerous slide condition.

POLICY 7.3

Require that filling of land adhere to the highest standards of soils engineering consistent with the proposed use.

San Francisco has had a good deal of experience with filling marshlands and shallow areas of the Bay. It is recognized that future Bay filling will be limited and subject to City and Regional policies regarding appropriateness. When appropriate purposes for filled land are approved, the highest engineering standards should be followed to ensure safety consistent with the use to which the filled land is to be put. Landfill operations need to recognize potential problems of the mud layer on the Bay bottom, the quality of any previously deposited fill, and the loads to be placed on the fill.

POLICY 7.4

Assure the correction of landslide and shore erosion conditions where it is in the public interest to do so.

The existing erosion and slide areas along the Ocean shore are within the Golden Gate National Recreation Area. It should be decided first whether all of these problems should be corrected or whether some should be left to the forces of nature. The erosion of Ocean Beach should be corrected through a program of dune stabilization, where feasible. In cases where dune stabilization is not possible, structural measures may need to be utilized. Any stabilization and restoration of these damaged areas, to increase their recreational value, should be undertaken as part of the Federal administration of this recreation area.

Elsewhere in the city, corrective steps should be taken at City expense or through special assessment to solve slide and erosion problems.

POLICY 7.5

Prohibit construction, as a general rule, on land subject to slide or erosion.

To minimize the hazard to life and property in areas subject to slide or erosion, building should be prohibited. Likewise utilities should not be installed in these areas because of the possibility of disruption.

Flora & Fauna

OBJECTIVE 8

ENSURE THE PROTECTION OF PLANT AND ANIMAL LIFE IN THE CITY.

A totally manufactured environment without plants and animals would be sterile. That bit of nature which still remains in San Francisco is a precious asset. The ecological balance of wildlife and plant communities should be protected against further encroachments.

POLICY 8.1

Cooperate with and otherwise support the California Department of Fish and Game and its animal protection programs.

The California Department of Fish and Game has overall authority to protect animals in San Francisco. The Municipal Code reinforces this control in protecting animals in public areas. The City should foster greater public awareness of these laws.

POLICY 8.2

Protect the habitats of known plant and animal species that require a relatively natural environment.

Golden Gate Park, a product of years of planning and design, provides to a certain extent the natural environment needed by wildlife and plant communities. The natural areas of Golden Gate Park should remain as they are, and any move to convert them into areas for more active recreation should be discouraged.

Other parks and undeveloped areas in San Francisco remain relatively undisturbed and provide a variety of environments for flora and fauna: beaches, sand dunes, wooded areas, open fields, grassy hills, and lakes. All these areas should be protected. The Presidio, not subject to local jurisdiction, should, nevertheless, be urged to protect animal and plant habitats within its boundaries.

POLICY 8.3

Protect rare and endangered species.

A number of native plant and animal species are designated as rare or endangered. Interested individuals and groups, together with knowledgeable public agencies such as the Recreation and Park Department and the California Academy of Sciences, should identify the rare and endangered flora and fauna that merit special protection. Cooperatively they should devise ways to assure the fullest possible protection of these species.

Transportation Noise

Introduction

People who can clearly recollect the sights and sounds of San Francisco during the 1930's and 1940's remember how noisy the streets were then. Numerous cable cars and streetcar lines operated throughout the city. Market Street, with four sets of streetcar tracks, was extraordinarily noisy. The streetcars then were not the quieter types that came into use later. Automobiles, although much less numerous, were noisier than today's models. Then, of course, the bustling waterfront activity and vessels in the Bay further contributed to the sounds of the city.

Despite these noisy transportation systems, ambient or background noise levels over most of the city then were lower than now. Over the years, however, motor traffic - automobiles, trucks, and buses - has risen dramatically. Aircraft flights have multiplied. Today, in some parts of the city, background noise levels are so high that for many people, quiet can only be found inside a building with the windows shut.

We are learning that not only does noise annoy, it can endanger our physical and even mental health. Because of this potential health hazard, some people are becoming convinced that we are as much entitled to a quiet environment as to unpolluted air and water and pure food.

Purpose

Ground transportation noises from trucks, buses, motorcycles, and poorly muffled automobiles predominate over other types of noises as the most persistent cause for complaint. This is why Section 6530(g) of the California Government Code, added in 1972, requires all cities and counties to include a transportation noise element in their general plans.

This Transportation Noise Element is designed to comply with that law. The plan, furthermore, is based on an analysis of present noise levels and 1995 projected noise levels and on the following basic assumptions:

- Surface transportation facilities constitute a major contributor to today's noise levels.
- People do react adversely to excessive noise when it interferes with sleep and other activities.
- People want and are entitled to a quiet environment.
- The technological means are available for reducing transportation noise levels.

OBJECTIVES & POLICIES

The Transportation Noise Plan is directed toward achieving an environment in which noise levels will not interfere with the health and welfare of people in their everyday activities. Much of the adverse effect of transportation noise can be reduced through sound land use planning and transportation planning. How those elements of the general planning process are implemented is crucial to achieving the goal of a quieter environment. However, in a fully developed city, such as San Francisco, where the land use and circulation patterns are by and large fixed, the ability to reduce the noise impact through a proper relationship of land use and transportation facility locations is limited. In San Francisco, major attention must be given to three main aspects of the problem: the source of the noise, the path it travels, and the receiver of the noise. In general, techniques should be designed to quiet the noise at the source, to block the path over which it is transmitted, and to shield or remove the receiver from the noise.

OBJECTIVE 9

REDUCE TRANSPORTATION-RELATED NOISE.

Much can be done to reduce noise at the source. Technological means are available for reducing vehicular noise emissions well below present levels.

POLICY 9.1

Enforce noise emission standards for vehicles.

The noise emission standards of the State Vehicle Code are enforced by the California Highway Patrol on the freeways, and by the local police on the city streets. The Noise Abatement Unit of the Police Department is responsible for identifying vehicles that violate the noise emission standards and for securing the correction of the problem. This work should be continued and expanded.

POLICY 9.2

Impose traffic restrictions to reduce transportation noise.

Transportation noise levels vary according to the predominance of vehicle type, traffic volume, and traffic speed. Curtailing any of these variables ordinarily produces a drop in noise level. In addition to setting the speed limit, the City has the authority to restrict traffic on city streets, and it has done so on a number of streets. In addition, certain movement restraints can be applied to slow down traffic or divert it to other streets. These measures should be employed where appropriate to reduce noise.

POLICY 9.3

Limit City purchases of vehicles to models with the lowest noise emissions and adequately maintain City-owned vehicles and travel surfaces.

The City owns and operates over a thousand vehicles in addition to its large fleet of automobiles. Street noise performance specifications for City vehicles (transit; trucks; specialized vehicles, such as street sweepers, brush chippers, etc.) should be included in the purchasing procedures of the City so that the City will obtain the quietest available models.

With proper maintenance, the City's inventory of vehicles can be kept in good working order, thereby reducing the noise they generate. Proper emphasis must also be placed on smooth street surfaces and on smooth rails for the streetcars and cable cars. Trackbeds for the rail vehicles also require special attention as do the various underground elements of the cable car traction system.

POLICY 9.4

Regulate use of emergency sirens.

Police Vehicles, fire engines, and ambulances, in their function as emergency vehicles, are entitled to the use of emergency warning sirens. Under State law, sirens must produce a sound level of at least 90 decibels at 100 feet. Many persons find these sirens - especially the warbling type - annoying. The warbling siren should be replaced by conventional sirens and measures should be taken to assure that the use of all sirens is restricted to assuring the emergency vehicle the right-of-way only in genuine emergencies.

POLICY 9.5

Retain and expand the electric trolley network.

Electric trolley buses are quiet, economical, and relatively pollution-free in their use. These benefits outweigh the adverse environmental impact of power generation or fossil fuel utilization. Electric trolleys should be retained where feasible and consideration should be given to electrifying selected existing diesel bus routes.

POLICY 9.6

Discourage changes in streets which will result in greater traffic noise in noise-sensitive areas.

Widening streets for additional traffic lanes or converting streets to one-way direction can induce higher traffic volume and faster speeds. Other techniques such as towaway lanes and traffic light synchronization also facilitate heavier traffic flows. Such changes should not be undertaken on residential streets if they will produce an excessive rise in the noise level of those streets.

OBJECTIVE 10

MINIMIZE THE IMPACT OF NOISE ON AFFECTED AREAS.

The process of blocking excessive noise from our ears could involve extensive capital investment if undertaken on a systematic, citywide scale. Selective efforts, however, especially for new construction, are both desirable and justified.

POLICY 10.1

Promote site planning, building orientation and design, and interior layout that will lessen noise intrusion.

Because sound levels drop as distance from the source increases, building setbacks can play an important role in reducing noise for the building occupants. (Of course, if provision of the setback eliminates livable rear yard space, the value of the setback must be weighed against the loss of the rear yard.) Buildings sited with their narrower dimensions facing the noise source and sited to shield or be shielded by other buildings also help reduce noise intrusion. Although walls with no windows or small windows cut down on noise from exterior sources, in most cases it would not be feasible or desirable to eliminate wall openings. However, interior layout can achieve similar results by locating rooms whose use require more quiet, such as bedrooms, away from the street noise. In its role of reviewing project plans and informally offering professional advice on site development, the Department of City Planning can suggest ways to help protect the occupants from outside noise, consistent with the nature of the project and size and shape of the building site.

POLICY 10.2

Promote the incorporation of noise insulation materials in new construction.

State-imposed noise insulation standards apply to all new residential structures except detached single-family dwellings. Protection against exterior noise and noise within a building is also important in many nonresidential structures. Builders should be encouraged to take into account prevailing noise levels and to include noise insulation materials as needed to provide adequate insulation.

POLICY 10.3

Construct physical barriers to reduce noise transmission from heavy traffic carriers.

If designed properly, physical barriers such as walls and berms along transportation routes can in some instances effectively cut down on the noise that reaches the areas beyond. There are opportunities for a certain amount of barrier construction, especially along limited access thoroughfares and transit rights-of-way (such as BART), but it is unlikely that such barriers can be erected along existing arterial streets in the city. Barriers are least effective for those hillside areas above the noise source. Where feasible, appropriate noise barriers should be constructed.

OBJECTIVE 11

PROMOTE LAND USES THAT ARE COMPATIBLE WITH VARIOUS TRANSPORTATION NOISE LEVELS.

Because transportation noise is going to remain a problem for many years to come, attention must be given to the activities close to the noise. In general, the most noise-sensitive activities or land uses should ideally be the farthest removed from the noisy transportation facilities. Conversely, those activities that are not seriously affected by high outside noise levels can be located near these facilities.



MAP 1 – Background Noise Levels (2009)

POLICY 11.1

Discourage new uses in areas in which the noise level exceeds the noise compatibility guidelines for that use.

LAND USE COMPATIBILITY CHART FOR COMMUNITY NOISE

LAND USE CATEGORY	Sound Levels and Land Use Consequences <small>(see explanation below)</small>						
	L _{eq} Value in Decibels						
	55	60	65	70	75	80	85
RESIDENTIAL All Dwellings, Group Quarters							
TRANSIENT LODGING Hotels, Motels							
SCHOOL CLASSROOMS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES, ETC.							
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES, MUSIC SHELLS							
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS							
PLAYGROUNDS, PARKS							
GOLF COURSES, RIDING STABLES, WATER-BASED RECREATION AREAS, CEMETERIES							
OFFICE BUILDINGS Personal, Business, and Professional Services							
COMMERCIAL Retail, Movie Theatres, Restaurants							
COMMERCIAL Wholesale and Some Retail, Industrial/Manufacturing, Transportation, Communications and Utilities							
MANUFACTURING Noise-Sensitive							
COMMUNICATIONS Noise-Sensitive							

- Satisfactory, with no special noise insulation requirements.
- New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
- New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- New construction or development should generally not be undertaken.

Land Use Compatibility Chart for Community Noise

New development should be examined to determine whether background and/or thoroughfare noise level of the site is consistent with the guidelines for the proposed use. If the noise levels for the development site, as shown on Map 1 (which should be revised periodically to keep them current), exceed the sound level guidelines established for that use, as shown in the accompanying land use compatibility chart, then either needed noise insulation features should be

incorporated in the design or else the construction or development should not be undertaken. Since the sound levels shown on the maps are estimates based on both traffic data and on a sample of sound level readings, actual sound levels for the site, determined by accepted measurement techniques, may be substituted for them.

POLICY 11.2

Consider the relocation to more appropriate areas of those land uses which need more quiet and cannot be effectively insulated from noise in their present location, as well as those land uses which are noisy and are presently in noise-sensitive areas.

Many commercial and industrial activities do not need to be in a quiet area, because interior noise levels typically are already high and tend to override noise from exterior sources. On the other hand, some uses require quiet locations and cannot be effectively insulated from noise. When feasible and desirable to do so, such activities should be encouraged to relocate to quieter areas. Conversely, there may on occasion be opportunities to relocate noisy uses to areas where the noise they generate will be less disturbing to their neighbors.

POLICY 11.3

Locate new noise-generating development so that the noise impact is reduced.

Developments which will bring appreciable traffic into or through noise-sensitive areas should be discouraged, if there are appropriate alternative locations where the noise impact would be less. For those activities — such as a hospital — that need a quiet environment, yet themselves generate considerable traffic, the proper location presents a dilemma. In those cases, the new development should locate where this traffic will not present a problem and, if necessary, incorporate the proper noise insulation.

The feasibility of making noise-reducing changes to existing transportation facilities remains an obstacle to any large-scale transformation. New thoroughfares and new Municipal Railway facilities, however, offer opportunities to overcome objectionable noise aspects. Ideally, new transportation facilities should be located in areas or along routes of least noise-sensitive land uses. Where it is infeasible or undesirable to do so, special noise-suppressing design features should be incorporated into the facilities in order to make them acceptable neighbors.

Energy

Introduction

Events of the past decade have brought the issue of energy fully into public view. Ever-increasing energy prices, combined with constraints in the development of conventional energy supplies, have forced the public to question and debate the energy future they would like to see. The debate has centered on public and governmental participation in pricing and energy supply issues.

San Francisco, through its regulatory and planning activities, directly influences how, and to what extent, energy is used in the city. Local regulations governing the design, construction and use of buildings affect operational energy needs. Transportation policy decisions directly affect petroleum-based fuel requirements. Daily decisions on these and other issues should occur within a locally approved policy framework, since they will help determine San Francisco's energy future for decades to come.

Increasing the efficiency of energy use is predicated on matching needs with resources. Moreover, the local setting is an important aspect of this process and should be taken into consideration when developing a citywide energy policy. In tackling its energy problems, San Francisco has two natural assets: mild climate and compact urban form. The city's temperate climate effectively eliminates the need for mechanical air conditioning, with the exception of commercial buildings that are sometimes overheated by interior lighting. San Francisco's density reduces the energy requirements for transportation and increases the economic feasibility of co-generation, district heating and integrated energy systems.

The Energy section of the Environmental Protection Element provides the City and County of San Francisco with a comprehensive and pragmatic energy management program that can promote a productive collaboration between municipal government and local residents. This document should guide both public and private decisions affecting the use of energy. San Francisco's Energy Policy was designed with four goals in mind: (1) increasing the efficiency with which energy is used locally; (2) diversifying the present balance of resource supplies to meet local energy needs; (3) fostering the economic development of energy management services and renewable energy systems; and (4) encouraging the active participation of members of the community to carry out this program. Seven objectives are set forth to achieve these goals. The first four objectives address energy management opportunities in the government, residential, commercial and transportation sectors. The fifth encourages renewable resource use. The remaining two objectives focus on the complex and interrelated roles of municipal government, PG&E, and State and Federal governments in energy management and financing activities.

Each objective is accompanied by policies and arguments to clarify the objective's intent.

Goals

The objectives and policies contained in the Energy Policy are based on the premise that energy management programs for San Francisco should be designed to protect and enhance the economic and environmental well being of City residents. This is to be accomplished through:

More Efficient Use of Energy

Conservation is best understood as a productive enterprise designed to increase the energy efficiency of public and private activities within the City. Substantial energy savings can be produced without requiring either major changes in lifestyle or economic dislocation. Increasing the efficiency of energy use will benefit the local economy by reducing the flow of dollars exported outside the region for fuel needs.

Measured in terms of economic payback, quantity of supply and prevention of environmental disruption, energy conservation becomes a preferred strategy when compared to the increased use of conventional fuels or the development of new fuel sources. It will provide San Francisco residents with the cheapest, most accessible and least disruptive energy supply alternative.

Balance of Energy Supplies to Meet Local Needs

Pacific Gas and Electric Company supplies electricity and natural gas to San Francisco. Hydro, oil and natural gas comprise the primary energy sources used to generate electricity, with lesser amounts coming from geothermal and nuclear fuels. Most natural gas is shipped either from Canada or the Southwest, with the balance coming from California producers. The Hetch Hetchy system provides electricity for City and County municipal operations.

PG&E will be shifting to an increased deployment of renewable, alternate energy resources such as solar, geothermal, co-generation and wind. This energy policy envisions and encourages a similar energy future for San Francisco. It is consistent with the assessment of the California Energy Commission that renewable energy resources will provide State residents with the greatest long term monetary, social and environmental benefits. The Commission believes local public policy should be directed toward the accelerated development of these resources through both private and municipal actions.

Although these energy alternatives will not displace conventional fuels in the near future, their development will provide San Francisco residents with a more varied resource mix that will be less susceptible to supply and price uncertainties.

Economic Development

A citywide energy program has significant job development implications. Reducing utility expenditures will redirect money currently going to energy suppliers outside the region back into the local economy. This bolsters local jobs and can help foster economic development. Increased reliance on conservation and renewable energy technologies will expand local job opportunities, since these industries tend to be labor-intensive in nature.

Job training programs should recognize employment opportunities arising from implementation of local energy programs. Certain energy service enterprises should be located in neighborhood commercial areas, while other energy related manufacturing firms require industrial sites. These needs can be addressed within the City's land use policies.

Responsible Community Participation

An effective local energy management program is contingent upon responsible participation from all members of the community. This requires the formation of a partnership between the private and public sectors to coordinate their efforts in finding acceptable solutions to energy problems facing San Francisco. Solutions based on proven and economical methods are the most reliable way of transforming San Francisco into an energy efficient urban community.

Municipal

OBJECTIVE 12

ESTABLISH THE CITY AND COUNTY OF SAN FRANCISCO AS A MODEL FOR ENERGY MANAGEMENT.

Municipal government accounts for a small, but growing fraction of San Francisco's total energy use. In 1979, the combined Governmental sector (Federal, state and local) used 3% of the natural gas, and 20% of the electricity supplied to the City. The municipal energy budget in 1980 amounted to \$21 million. Electricity demand is expected to increase significantly in the future as municipal wastewater treatment and electrified transit programs are implemented.

Electricity is supplied to municipal facilities through Hetch Hetchy, the City-owned hydro electric facility. Natural gas is supplied by Pacific Gas and Electric Company. Adequate hydro capacity is available to meet projected municipal electrical demand. In this context, electrification of the municipal transit system provides a two fold benefit. It reduces oil dependency while increasing overall reliance on a renewable energy resource, i.e., water.

The City and County should set a positive example for the rest of San Francisco in the management of energy resources. First and foremost, local government should develop a strong internal energy conservation program to learn first hand what management techniques are available to the community. Reducing energy use will reduce operational expenditures, while providing additional city revenues through the sale of conserved energy to private customers.

There are excellent opportunities for saving energy within municipal government. Many energy management measures can be incorporated into routine maintenance and operating procedures at virtually no cost. Other measures require a minor investment, while providing a financial return within one or two years. Still others offer longer term monetary and energy savings to San Francisco, while requiring extensive financial investment. A program of budgetary incentives should be developed to encourage City agencies to save energy. Comprehensive municipal energy management requires the participation of all departments and the political and financial support of the Mayor and the Board of Supervisors.

POLICY 12.1

Incorporate energy management practices into building, facility, and fleet maintenance and operations.

The City has already begun taking the first step in municipal energy conservation by increasing the energy efficiency of existing facilities. A primary conservation technique involves building energy audits that identify potential energy saving practices and capital investment options. Reductions in electricity use offer the greatest potential, since municipal buildings consume energy primarily for heating, ventilating, air conditioning (HVAC) and lighting needs. Much of this potential could be realized through changes in operational and maintenance procedures. Energy monitoring reports, issued on a regular monthly basis, provide a means for comparing actual and budgeted energy use.

The City and County of San Francisco owns and operates a sizable vehicle fleet. Management practices involving the operation and maintenance of these vehicles provide a method for reducing unnecessary fuel usage. A scheduling system for vehicle maintenance would, for instance, insure that energy conservation actions are taken on a planned basis. Gasoline, diesel, and electricity consumption would be affected. Education is critical to an effective fleet energy management program since personal driving habits greatly influence overall energy requirements.

POLICY 12.2

Integrate energy cost reduction measures into the budget process.

Once measures have been taken to improve maintenance and operations, additional energy cost savings can be obtained from retrofit investments and the acquisition of new assets. Energy criteria should be considered in purchase decisions to allow the City to identify and evaluate cost reduction investment opportunities.

Payback is a reliable measure for appraising municipal investments opportunities in energy conservation and renewable technologies. Payback provides an indication of the length of time required to recover an initial investment in an energy saving measure based on the dollar value of the energy savings resulting from that investment. It can help answer such questions as whether the City should replace its incandescent street lights with fluorescent or low sodium lights.

Life cycle cost analysis is a useful method for assessing municipal decisions on the purchase of capital equipment. The cost-effectiveness of the item is evaluated by combining the initial cost of the asset with all of the related energy costs associated with using the asset over its expected life. In many cases, a higher priced item might be a better investment if its operational costs for energy use are relatively low over time. Life cycle cost analysis should replace the current municipal bid process, which emphasizes initial costs to the exclusion of life time operational costs in purchasing decisions.

POLICY 12.3

Investigate and implement techniques to reduce municipal energy requirements.

When low cost energy management practices have been incorporated into operations and maintenance procedures, emphasis should be placed on capital investments that would reduce municipal energy demand still further. State of the art energy technologies, such as solar water heating systems, should be considered for use in municipal demonstration projects. The Steinhart Aquarium in Golden Gate Park is a successful example of a solar retrofit demonstration project. Co-generation systems might provide an attractive investment for facilities such as schools and hospitals that have large space heating needs. Governmental buildings with constant hot water but seasonal space heating requirements could be likely candidates for separate boiler systems. Such applications increase the efficiency of energy use while providing opportunities to inform and educate the public.

In new City and County facilities, redevelopment projects, and extensive rehabilitation or modernization work, building design should be encouraged that will minimize overall energy requirements. Recently completed State and Federal facilities in Northern California consume substantially less energy than is currently allowed under the State's Title 24 energy conservation standards. District heating and other "total energy" systems can provide economical alternatives to less efficient decentralized energy systems. Demonstration projects of this type would set an example to the private sector on feasible methods to reduce energy budgets for major new projects.

POLICY 12.4

Encourage investment in capital projects that will increase municipal energy production in an environmentally responsible manner.

The City's Hetch Hetchy system currently provides ample electricity to meet all municipal needs. Excess power is sold to other government agencies and private customers, providing revenues to the City and County. Recent studies have indicated that Hetch Hetchy's electrical capacity could be increased through investments in a variety of projects, including small hydro development throughout the system. Such expansion should be undertaken in conjunction with careful consideration of the environmental consequences to the surrounding region.

The City and County has several additional opportunities to increase municipal energy production capability in an environmentally responsible manner. These include participation in a solid waste to energy plant to produce electricity, treatment of sewerage for possible production of methane gas, and involvement in community waste recycling efforts. These projects would alleviate current waste problems while producing fuels that might prove useful in governmental demonstration projects.

POLICY 12.5

Include energy emergency preparedness plans in municipal operations.

The City and County of San Francisco should be prepared for possible fuel shortages or disruptions in energy supplies due to political or economic events in addition to emergency situations resulting from natural disasters such as earthquakes. These situations could have a severe impact on important municipal services normally supplied to the public. Energy contingency plans are essential to minimize impacts on the health, safety, and general welfare of the public. Such plans should be coordinated with State emergency preparedness efforts.

San Francisco's energy emergency preparedness plan should emphasize management systems such as fuel rationing, delineation of essential and non essential services and restricted vehicle operations that would ensure the continued provision of essential public services. In addition, community preparedness and financial management strategies should be examined to reduce local economic dislocations from sudden energy scarcity and price increases.

Residential

OBJECTIVE 13

ENHANCE THE ENERGY EFFICIENCY OF HOUSING IN SAN FRANCISCO.

San Francisco's residents have seen their utility bills rise well beyond the rate of inflation. Higher utility costs only exacerbate the fact that the city is one of the most expensive housing markets in the nation. The Federal government has reduced its funding commitments to energy conservation. The State's role in residential energy conservation, though important, has also been limited by budget cutbacks. As a result, city government must provide leadership in working with the private sector and PG&E to stabilize energy costs.

The residential sector consumes nearly one fourth of the electricity and approximately two-thirds of the natural gas used in San Francisco. San Franciscans use considerable less electricity than average PG&E residential customers, although they consume close to the average amount of natural gas. Natural gas is used primarily for space and water heating, while electricity is used for lighting and appliances. Older housing typical of San Francisco is poorly insulated and requires more heating, and generally contains fewer appliances. Natural gas usage represents the largest energy savings potential in the residential sector, through the implementation of cost-effective weatherization measures and more efficient operation of space and water heating systems.

Actions taken to increase the efficient use of energy may raise initial housing costs for private owners in some cases. These actions will, however, promote affordable housing in the long run by reducing annual utility expenses. San Francisco residents can save substantial sums of money and energy by undertaking an aggressive energy management program that includes community education and promotion, regulation, creative financing, and some capital investment. Special emphasis should be devoted to programs that benefit the city's renter and elderly residents, since this portion of the population pays a higher proportion of their income on energy bills.

POLICY 13.1

Improve the energy efficiency of existing homes and apartment buildings.

The vast majority of the City's homes and apartment buildings were built prior to the adoption of California's building energy standards. Economical remedial energy measures are currently available that can produce significant energy and monetary savings to residents of these structures. These measures include, but are not limited to, increased levels of ceiling insulation, weatherstripping and caulking of windows and exterior doors, low flow showerheads, thermostat setbacks, water heater blankets and electric ignition devices for appliances. Implementation of these measures on a citywide level would reduce projected expenditures for energy by millions of dollars, and at a relatively low cost to the city's residents.

A special problem exists in attempts to upgrade the energy efficiency of San Francisco's apartment buildings. Tenants pay utility bills, either directly when billed by PG&E, or indirectly when landlords pass through utility costs in rents. As a result, landlords have little incentive to install energy management measures. Likewise, tenants are reluctant to make capital improvements to their apartments for a number of reasons: many tenants move relatively frequently, making justification of capital improvements difficult; tenants perceive building improvements as a landlord responsibility; and, in master metered buildings, tenants who reduce their energy consumption often are not rewarded by lower utility charges and/or rent reductions.

Local weatherization activities should emphasize a combination of educational and governmental enforcement measures. Utility and community organizations are good resources for educating homeowners, tenants, and landlords about energy cost reduction opportunities, including financial and technical assistance programs. Master metering should be strongly discouraged, and conversion to individual metering encouraged when shown to be cost-effective. Municipal building and housing codes should be examined for ways to include economical energy efficiency standards in existing residential structures. These efforts are necessary to protect the affordability of housing in San Francisco.

POLICY 13.2

Strengthen enforcement of the state's residential energy conservation building standards.

California has adopted energy standards for new residential buildings and buildings undergoing extensive remodeling (Title 24). Homes and apartments constructed according to these standards are expected to consume approximately 40% less energy than comparable older units.

The State has left enforcement of Title 24 energy standards to local government, without providing financial assistance for staff support. As a result, local government enforcement is uneven at best. It is important that San Francisco have an inspection staff that is knowledgeable about State energy standards for this region. In addition, there must be sufficient personnel to properly review plans and undertake site inspections to insure compliance with Title 24.

POLICY 13.3

Expand the environmental review process to encourage the use of additional measures to save energy in new housing.

Designers of new housing should address the site as the first step in production of energy efficient housing. The primary energy needs of residential structures in San Francisco are space and water heating. Whenever practical, housing sites should be oriented to provide maximum exposure of living areas to sunlight and daylight. This will significantly reduce space heating and lighting needs.

Building technologies currently on the market make it economically feasible to produce energy efficient housing beyond the State adopted standards. These technology options include solar water heating systems, operational skylights for natural daylighting and ventilation, and co-generation and waste heat recovery systems in mixed use projects. Specific guidelines should be made available to assist developers in assessing specific technologies for new development projects.

POLICY 13.4

Encourage the use of energy conserving appliances and lighting systems.

Over two-thirds of San Francisco's residential electrical demand is devoted to the operation of refrigerators, household appliances and lighting systems. State and Federal legislation has set minimum efficiency standards for major new appliances and requires labels that reveal anticipated lifetime operational costs. Labeling, combined with educational programs, should make consumers more aware of the energy requirements of major household appliances such as refrigerators, stoves and heaters.

The use of fluorescent lighting systems for service areas, in combination with light dimmers for living areas, is a proven way to reduce electricity use while providing adequate lighting comfort.

POLICY 13.5

Emphasize energy conservation in local government housing assistance programs.

City housing agencies should take the lead in adopting energy conservation criteria into their housing programs. Reducing energy expenditures is an important part of providing affordable housing. Energy audit and weatherization work should be coordinated with the city's rehabilitation loan programs. Energy efficiency should be stressed in new subsidized units.

Redevelopment areas should be targeted as demonstration sites for the purpose of constructing energy efficient housing. Sites should be analyzed for their energy production potential. Housing construction within redevelopment areas should achieve lower energy budgets than currently allowed under State Title 24 energy standards, in order to set an example for other areas of the city.

POLICY 13.6

Advocate real estate association participation in residential energy management program efforts.

Homeowners and investors increasingly seek information on utility bills prior to purchasing property. The general public relies on the opinion and expertise of the real estate industry on housing matters. As such, San Francisco's realtors should become actively involved in marketing energy management strategies to both home and apartment building owners. By educating clients on energy efficiency improvements that will reduce operating energy costs, the real estate industry would provide a valuable service in helping to upgrade San Francisco's housing, without the need for additional government regulations.

Commercial

OBJECTIVE 14

PROMOTE EFFECTIVE ENERGY MANAGEMENT PRACTICES TO MAINTAIN THE ECONOMIC VITALITY OF COMMERCE AND INDUSTRY.

The commercial sector is the fastest growing energy use sector in San Francisco. Commercial buildings consume over half of the electricity and over a quarter of the natural gas supplied to the city. Within this sector, electrical demand has been growing at a rate double the growth of total city demand. The current boom in new office construction will further increase commercial energy use. Energy conservation in commercial buildings, therefore, represents an important citywide objective.

In the commercial and industrial sectors, electricity is used for lighting, air conditioning, office equipment and welding operations, while natural gas is used for space and water heating, food storage/ preparation and metal fabrication. The greatest energy savings can be made through better management of lighting and better design and management of heating, ventilation and air conditioning (HVAC) systems. An effective conservation program will save businesses and industry substantial amounts of money that can be reinvested in the local economy. In the absence of efficiency improvements, energy expenditures by commercial and industrial users would be expected to triple in a decade.

An effective commercial and industrial energy management program will require the participation of architects and design engineers, and representatives of organizations, such as the Building Owners and Managers Association, the Chamber of Commerce, and PG&E.

POLICY 14.1

Increase the energy efficiency of existing commercial and industrial buildings through cost-effective energy management measures.

The vast majority of commercial and industrial buildings were constructed when energy costs were of little concern to architects and engineers. The costs associated with doing business in San Francisco have risen partially as a result of energy expenditures that have increased dramatically over the past decade. Many of the barriers to multifamily residential energy conservation apply to commercial structures as well. There is a diversity of building types and equipment in use, thus requiring specialized analysis for each structure. Many commercial businesses are tenants in master-metered buildings and are only indirectly held accountable for energy use through operating cost clauses in their leases.

There is a strong need for private business leadership in promoting energy efficiency in existing buildings. Key strategies to reduce operating energy loads involve proper maintenance and operation of mechanical systems. Lighting levels can be adjusted and incandescent lighting replaced with fluorescent, mercury and sodium alternatives. Computerized energy management systems can be an economical measure for large energy users. Commercial and industrial energy conservation is limited only by the innovation and imagination of building architects and engineers.

POLICY 14.2

Insure adequate local enforcement of California's non-residential building standards.

The California Energy Commission has adopted and periodically reviews energy design standards for all new non-residential buildings (Title 24). The standards require that all new buildings be designed to use significantly less energy than buildings built prior to the passage of the new requirements.

The City is charged with the enforcement of the State building standards. Enforcement of the standards is a responsibility of the City's Bureau of Building Inspection (BBI). Conformance with the State's energy efficiency standards should be a priority in the City's building permit review process. This will require adequate training of building code inspectors on the energy components of the building standards.

POLICY 14.3

Expand the environmental review process to encourage the use of additional measures to save energy in new commercial buildings.

California Title 24 Standards do not reflect the state of the art in building efficiency design. There are a number of design features which have been used successfully in some San Francisco highrise buildings to further reduce energy consumption, e.g. the use of natural ventilation to reduce air conditioning demand. Detailed case studies should be undertaken to evaluate the performance of such features. This information should be shared with parties involved in building design and EIR preparation.

The environmental impact report (EIR) process is designed to review the potential environmental impacts associated with major new development projects. This process provides an opportunity for dialogue among the City, developer and public on a range of issues, including energy. Commercial case studies and energy research efforts should be undertaken to determine cost-effective energy conservation strategies, e.g. single metering, integrated energy systems, flextime to reduce peak transit use, that should be integrated into EIR procedures.

POLICY 14.4

Promote commercial office building design appropriate for local climate conditions.

The climate of San Francisco is dominated by the sea breezes characteristic of maritime climates. Because of the steady stream of marine air, there are few heat and cold extremes. Temperatures exceed 90 degrees F. on an average of once a year, and drop below freezing on an average of less than once a year.

Commercial building design should reflect San Francisco's climate. Buildings designed to take advantage of nearly year long westerly winds will be able to maximize natural ventilation opportunities. Heating, ventilation and air conditioning (HVAC) systems should be designed with these climatic conditions in mind. These actions would reduce both operating costs and energy demand.

POLICY 14.5

Encourage use of integrated energy systems.

Integrated energy systems are a promising method for increasing the efficiency with which energy is used in commercial and mixed use projects. This concept encompasses a variety of systems. District heating and cooling systems deliver hot water or steam to buildings from a central location. San Francisco has three district heating systems serving the Civic Center and downtown areas, two of which are owned by PG&E. These systems are presently underused, despite considerable activity in new commercial office construction downtown. A feasibility study on providing steam service to new projects within or adjacent to the present steam distribution area should be undertaken. The present system could be operated more efficiently at lower unit cost with additional customers.

Other integrated energy technologies, such as co-generation and waste heat systems, use one fuel source to provide two or more end needs, thereby reducing overall energy requirements. Such systems might present a feasible and economically attractive energy supply option for new commercial office, mixed use and industrial projects. Initial studies should be undertaken to assess the potential application of these technologies on new development projects.

Transportation

OBJECTIVE 15

INCREASE THE ENERGY EFFICIENCY OF TRANSPORTATION AND ENCOURAGE LAND USE PATTERNS AND METHODS OF TRANSPORTATION WHICH USE LESS ENERGY.

Transportation activities consume more than a fifth of San Francisco's total energy. Personal auto use accounts for more than half of total transportation energy use locally, and more than half of this total is for work commuting. The most obvious way to reduce this level of fuel consumption is to reduce personal auto use for both work and non work travel. Where people still must rely on autos, it is necessary to make more efficient use of them, by increasing both passenger loads and fuel economy.

Providing efficient transportation services in metropolitan areas is a complex problem. The best way to reduce transportation energy use is to increase the overall efficiency of transportation systems. Policies should be developed which take advantage of densities and location to reduce the need to travel and increase access to transit. Significant energy savings could result from construction of mixed use development projects that integrate employment with residential and shopping uses.

The benefits of reduced transportation energy use are clear. It will save money for both San Francisco's residents and business community while conserving critical fuel resources. This will, in turn, reduce the city's vulnerability to oil supply interruptions, with the added environmental benefit of lessening pollution and congestion.

POLICY 15.1

Increase the use of transportation alternatives to the automobile.

Transit remains one of the more energy efficient methods of accommodating personal transportation needs, particularly the daily commute to and from work. The City of San Francisco is fortunate to have an extensive transit system that is used and supported by local residents. As such, its continuance and expansion should be encouraged.

The system, however, is not without its problems. Local revenue sources are declining in proportion to the rising costs of maintaining existing service levels. The growth of commercial office development downtown, while increasing the local tax base, also imposes pressure to expand the existing service network in order to avoid both increased congestion and a reduction in transit service levels. A financing partnership should be established to maintain and enhance the city's energy efficient transportation network. Financing mechanisms should be pursued to allocate the costs associated with increased transit service demand. In addition, a variety of transportation alternatives, including the provision of bicycle, jitney, and pedestrian facilities, should be carried out through both public and private transportation energy management programs.

POLICY 15.2

Provide incentives to increase the energy efficiency of automobile travel.

Increasing the energy efficiency of automobile travel should be a major local transportation energy policy. Incentives should be instituted to increase the number of passengers per vehicle for local travel. Preferential parking for carpools and van pools, restrictions on the availability of long term parking for single occupant vehicles, and continuance of state tax credits for employers who implement carpool and vanpool programs, are some of the ways to encourage energy efficient high occupancy auto travel. In addition, the city can promote use of fuel efficient vehicles through implementation of preferential parking policies for smaller autos, and reducing the size of off-street parking spaces.

POLICY 15.3

Encourage an urban design pattern that will minimize travel requirements among working, shopping, recreation, school and childcare areas.

An energy efficient transportation system is highly dependent on local land use policies. San Francisco's high density, compact form lends itself to the use of various transportation alternatives in order to satisfy the daily needs of local residents. Recent developments, however, could seriously alter this balance. New housing has not kept pace with the growth in local employment, imposing pressure on existing housing and encouraging housing growth outside the city. Commercial neighborhood districts are under intense development pressure, forcing certain neighborhood services to move outside the area. These trends increase distances, and thus energy requirements, for personal travel.

The city should implement programs that reinforce facilitate neighborhoods where proximity to daily needs and high-quality community services and amenities promotes social connections, supports caregivers, reduces the need for private auto travel, and advances healthy activities.

Neighborhood commercial policies should promote the continued presence of diverse local service establishments.

Aligning housing production with job growth, encouraging local businesses, reducing employee need to travel, and centering growth around transit corridors would enhance the city's existing urban character, while minimizing the need for personal transportation beyond these mixed-use neighborhoods.

POLICY 15.4

Promote more efficient commercial freight delivery.

Better designed and more adequate space for freight loading in major high rise commercial buildings will increase the energy efficiency of the transportation system by minimizing traffic congestion. San Francisco should aggressively enforce recently enacted off-street freight loading and service vehicle space requirements. The City should also examine the feasibility of establishing satellite freight centers to reduce truck movement into the downtown.

POLICY 15.5

Encourage consideration of energy use issues when making transportation investment decisions.

The development of new transportation facilities can either increase total energy demand or encourage greater energy conservation. The funding of highway and transit projects is complex and involves the agreement of many government agencies. San Francisco should work with other local governments and regional agencies to ensure that future transportation plan development is consistent with its transportation and energy policies, both of which emphasize energy conservation.

POLICY 15.6

Promote alternative work arrangements which will contribute to more efficient transportation use.

Currently, the work trip is the largest single component of personal transportation needs, responsible for peak service loads and overcrowding of the existing transportation system. Energy savings could be achieved through more efficient utilization of the existing transit system. Alternate work arrangements, such as flex-time or staggered work hours, have the potential for increasing the efficiency of the existing transportation system while reducing the need for system expansion.

Alternate Energy

OBJECTIVE 16

PROMOTE THE USE OF RENEWABLE ENERGY SOURCES.

Renewable energy is a term applied to energy sources which do not rely on finite reserves of fossil or nuclear fuels. These sources are directly or indirectly due to the sun, with the exception of tidal energy, and include such forms as solar, wind, biomass, and hydro. Renewable energy sources are non-depletable; hence, their use reduces dependence on conventional fossil fuels, particularly from foreign sources. They are relatively benign to the natural environment. In addition, renewable energy sources tend to be labor intensive, encouraging the growth of local enterprises and jobs. For these reasons, their use should be actively encouraged.

All City agencies should give greater consideration to the potential use of renewable energy systems. Land use and regulatory codes should integrate renewable energy concerns. Solar access issues should be identified and local approaches developed to facilitate the use of various systems for space and water heating needs. Local government codes have, directly or indirectly, encouraged greater energy use and discouraged investments in renewable energy technologies. Changes in land use policies and regulatory codes can significantly increase local reliance on renewable energy resources. These programs include expediting permit applications, consumer protection, information services, and special programs for low-income residents and small commercial businesses. Local government should be committed to undertaking this re-examination in order that it might better reflect a position of leadership in support of renewable energy sources.

POLICY 16.1

Develop land use policies that will encourage the use of renewable energy sources.

Steps should be taken to protect areas offering high solar energy collection potential, such as south facing slopes, from being shaded. Solar access strategies will differ according to existing and proposed height and bulk regulations. South wall and rooftop solar access may be achievable in low density residential districts. Rooftop access should be possible in medium to high density residential, commercial and mixed use districts. If new development impairs the performance of existing systems, compensatory or mitigation measures should be taken.

POLICY 16.2

Remove obstacles to energy conservation and renewable energy systems in zoning and building codes.

A detailed analysis of zoning and building codes should be performed, particularly in terms of problems encountered by persons who have installed or tried to install systems. The National Association of Building Officials has anticipated many such problems and has developed a Uniform Solar Code to facilitate installation of solar equipment. The California Energy Commission has developed model solar access and wind legislation. These codes should be reviewed for possible adoption in San Francisco. In addition, constraints in existing local codes and permit procedures should be analyzed and modified, if the modifications do not conflict with basic health and safety concerns.

POLICY 16.3

Develop information resources to assist in the use of renewable energy.

Providing reliable information is an important activity in the marketing of renewable energy. Such information can motivate individuals to install energy conservation measures and renewable energy technologies. However, a key part of a successful information service program involves developing materials best suited to individual needs.

Local information services should not duplicate work proceeding at other government and utility levels but, instead, focus on local concerns: system performance in San Francisco, applicable planning and building codes, solar orientation, system sizing and access criteria, consumer protection programs, and technical assistance on solar and wind audits. A local renewable resource information service should keep citizens informed of technology developments, while acting as a clearing house on land use and code requirements. Monitoring existing solar installations is necessary to develop reliable information on expected performance. Such information is essential to those making decisions involving the local use of renewable resources.

Intergovernmental

OBJECTIVE 17

SUPPORT FEDERAL, STATE AND PG&E ENERGY PROGRAMS THAT ARE EQUITABLE, AND ENCOURAGE CONSERVATION AND RENEWABLE ENERGY USE.

Local energy programs should be tied closely to existing Federal and State laws. The complexity of energy supply and distribution systems, in addition to social equity and economic considerations, require coordination of government and utility energy plans. Local energy management efforts should be designed to inform and support local residents and businesses in using available Federal, State and utility energy assistance programs.

To carry out this objective, San Francisco should monitor energy legislation at all government levels and maintain an open dialogue with public and private agencies which have energy planning programs underway.

POLICY 17.1

Support continuation of state and federal tax incentives and credits for conservation and renewable energy technologies.

Conservation and renewable technologies are, for the most part, economical methods to reduce utility operating costs. Their widespread use, however, is dependent on the decisions of individuals and business firms to invest in these technologies. The initial costs associated with conservation and renewable energy systems dissuade individuals from investing in these technologies, regardless of potential long term benefits in reduced operating expenses. Federal, State and utility financing programs are necessary to reduce, or defer the initial costs of investing in conservation or renewable energy resources, in order to make the investment option attractive to the individual. Tax credits, depreciation allowances, and low interest loans are but a few examples of financing incentives currently in place which, when combined with high energy bills, are convincing utility customers to invest in conservation and renewable energy.

Financing incentives for small business and apartment building owners are of particular importance. Small businesses typically lack the capital to invest in energy technologies that would reduce long term operating costs. Many small businesses are tenants and thus are not responsible for making structural improvements and/or changes to the buildings they occupy. Owners of apartment buildings face a different disincentive. Generally, these owners either do not pay their tenants' utility bills, or pass on the operating costs to tenants as part of rents. Investments will occur only if building owners are offered financial incentives, e.g. tax credits, to offset investment income.

POLICY 17.2

Promote state energy building standards that are cost-effective and take into account San Francisco's climate and density patterns.

The California Energy Commission has recently revised its energy standards for new building construction. The new standards are intended to reduce energy costs by relying on increased ceiling and wall insulation, thermostat controls, fluorescent lighting, double and triple paned windows, passive solar design and solar water heating systems. Although these energy standards will increase initial building costs, they will, in the long run, provide an economic benefit to consumers by reducing operating costs during the life of the building.

Local governments have the opportunity to review energy standards for their region and propose alternatives that can be demonstrated to be both cost effective and save as much, or more energy, than the state standards. San Francisco has a topography, density and climate pattern that is unique in the state. It is in the city's interest to review the state energy building standards to determine their cost-effectiveness for this area, as well as the ease of implementation.

POLICY 17.3

Encourage PG&E involvement in energy management programs for residential, commercial and industrial users.

PG&E is actively involved in customer-related energy conservation activities. Examples of existing programs include residential energy audits and information referrals, low-interest loans, award and promotion programs for energy efficient building design, street light conversion, and commercial and residential load management programs.

Load management offers great potential for holding down the cost of electricity. It is a strategy to influence consumers' use of electricity by time-differentiated pricing - charging rates that reflect the cost of supplying a level of demand by either time of day or season. In the PG&E service territory, afternoons are a time of daily "peak" electricity demand, while summer afternoons represent a period of system "peak" demand.

San Francisco is experiencing a rapid increase in commercial office development activity. This activity is expected to increase significantly both the daily and seasonal "peak" electrical requirements of the local service area, since commercial office energy use is primarily for air conditioning, lighting and office equipment. Expansion of utility load management programs into the downtown office district could relieve "peaking" requirements by shifting electricity loads to times when base load generation could be more effectively used. Commercial customers could lower their operating costs, while reducing the need for PG&E to purchase expensive oil and natural gas.

Evidence to date suggests a positive correlation between financial responsibility for energy use and reduced levels of energy consumption. Commercial and residential tenants who do not directly pay their utility bills will generally consume larger amounts of energy than those held directly accountable. Commercial and residential master metering practices should be examined and alternatives encouraged which place direct responsibilities on tenants for energy use.

Financing

OBJECTIVE 18

DEVELOP FINANCING OPPORTUNITIES TO IMPLEMENT LOCAL ENERGY PROGRAMS

One of the major energy issues facing San Francisco is the unequal consequences escalating prices have on different segments of the community. Three of the groups most seriously affected by price increases are lower and fixed income renter populations, energy-intensive small neighborhood businesses such as restaurants and corner grocery stores, and certain industries that require large quantities of heat for manufacturing.

While the implementation of low cost and no cost conservation measures are a first step to reduce energy bills, over the long term, investments in conservation measures and renewable energy will be needed. Fixed income renter populations often use large amounts of gas for space heating, and large amounts of electricity to operate relatively inefficient older appliances. Over the long run, weatherization, more efficient HVAC systems, and the use of solar systems to provide hot water will help alleviate increasing utility costs for fixed income renters. Without such improvements, the city's efforts to stabilize rent costs and protect the affordability of housing will be compromised.

Access to loans or other financing options to install these measures is critical. The City should investigate possibilities for acquiring funding to assist or subsidize residential and private business improvements if other sources of financing are not available. This effort should be targeted to fixed and lower income populations, energy-intensive small businesses such as restaurants and corner grocery stores, and local energy intensive industries.

POLICY 18.1

Promote government and private financing partnerships to carry out local energy programs.

Creative use of State and Federal financial assistance programs should be explored. A local revolving fund, through the issuance of revenue bonds, might be established to undertake local energy conservation programs. Tax-exempt leasing and lease-purchase arrangements offer another promising method to implement energy conservation and renewable resource strategies.

A local non-profit energy corporation could provide a means to channel financing resources to local conservation programs. Local governments can assist in the formation of special assessment districts to undertake energy projects. Such a district could be applied to certain industrial and neighborhood areas for the production, sale and use of alternate energy systems.

Government and utility involvement is particularly appropriate in hardship and low income situations. San Francisco's utility user tax (5% of PG&E billings) may provide a funding source for an energy conservation loan program geared to low-income residents. The City should encourage PG&E to aggressively market its zero interest loan (ZIP) program to San Francisco's low-income and elderly residents.

POLICY 18.2

Encourage private financial institutions to offer energy loan programs responsive to local market needs.

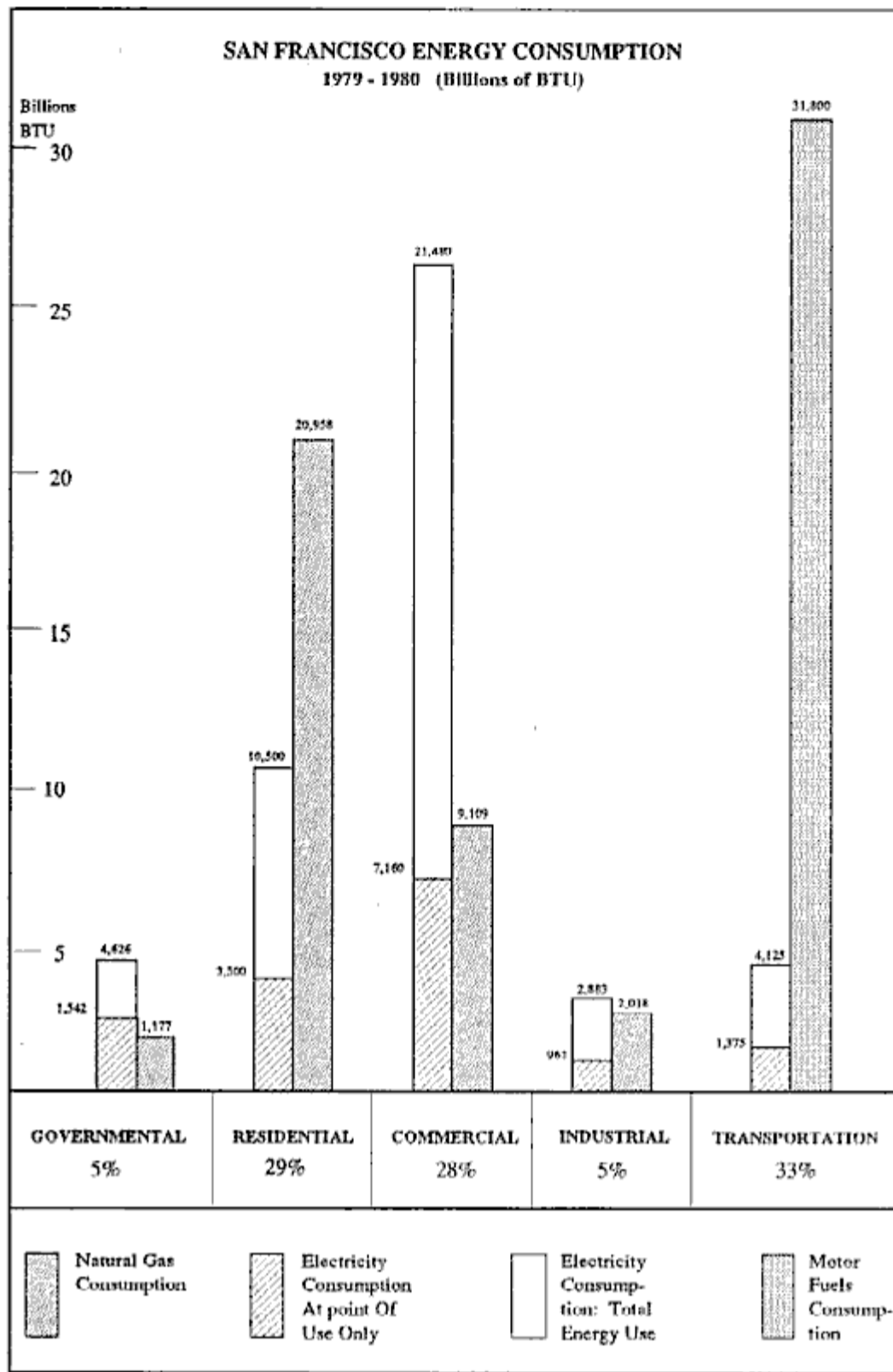
Local lending institutions are important sources for financing commercial and residential conservation. A pioneering program involving solar "T-bills", which are earmarked for solar system financing, has been successfully developed in San Francisco. San Francisco lenders have also taken the lead in supporting State legislation to create a secondary market for solar loans. Continued innovation and more aggressive participation by additional lenders is needed to service and promote a growing energy investment market.

POLICY 18.3

Establish a self-supporting system for funding municipal energy cost reduction investments.

The City should explore the feasibility of establishing a revolving loan fund, using Hetch Hetchy revenues, to undertake municipal electrical conservation programs. All electricity conserved from these investments not only will reduce expenditures for electricity, but will also generate additional revenues to Hetch Hetchy, since conserved electricity can be sold at rates two to three times higher than the rate charged to City departments. These additional revenues can be used to finance future energy-saving investments in natural gas, which will, in turn, further reduce budgetary expenditures and generate additional net revenue.

USE PATTERNS BY SECTOR - 1980



Use Patterns by Sector - 1980

Glossary of Energy Terms

British Thermal Unit: (BTU) The amount of heat needed to raise one pound of water (approximately 8.3 gallons) one degree Fahrenheit. Both electricity (kilowatts) and natural gas (therms) can be converted to BTUs. BBTU is a billion BTU.

Co-generation: Any of several processes which use either power generation reject heat to satisfy process heat requirements, or process waste heat for steam generation of electricity.

Cost-effective: Determination that a financial investment today in a given technology or program will produce an adequate financial return in reduced costs.

District Heating: A system which provides residential and commercial space heating for a neighborhood or large complex of buildings from a central heat source. District heating, which exists in San Francisco, could also provide opportunities for co generation.

Energy Audit: The measurement of energy flow within a structure for the purpose of measuring energy waste and potential savings. Subsequent recommendations usually include operational improvements and retrofitting.

Energy efficiency: The degree to which energetic input yields a desired output (e.g. work or space heating).

High Pressure Sodium Vapor: A high efficiency light-emitting electric bulb; more efficient than standard mercury vapor street lights.

Kilowatt Hour: The basic unit of electrical energy, equal to one kilowatt of power supplied to or taken from an electrical circuit for one hour (1000 watts). One kilowatt hour is equal to 3,412 BTU.

Master Metering: A single utility company electric or gas meter which serves on structure or building with multiple tenants. Tenants typically are not directly billed for master metered services.

Natural Gas: A natural hydrocarbon gas composed typically of methane, ethane, butane and propane. It comes from terrestrial wells with or without accompanying crude oil and is generally much higher in heat content than manufactured gas.

Non renewable energy resources: Energy resources that rely on oil, gas, coal and/or nuclear sources.

Payback: In this document, the time it takes to recover a financial investment in energy conservation or solar technology through reduced payments for energy use.

Renewable energy technologies: Technologies using energy resources that are sustainable over time or that have slow rates of depletion such as solar, wind, biomass, solid waste, geothermal, co generation and hydropower.

Residential Conservation Service: (R.C.S.) A Federal mandate that utility companies provide energy audits for residential customers.

Retrofit: Upgrading of an existing systems through subsequent addition of new components. In terms of energy conservation, addition of materials or devices to an existing building to achieve energy conservation (for example, insulation).

Solar access: Access which prevents solar energy collection (heat absorbing) areas from being blocked or shadowed from direct sun exposure.

Therm: A unit of measurement for natural gas, equivalent to 100,000 BTUs.

Waste conversion: Recovery of energy as an adjunct to waste disposal. It may involve pyrolysis (heating to produce gas or oil); hydrogenation (chemical reduction of materials to produce oil); or fermentation ("digestion") of activated sewerage sludge to produce methane.

Weatherization: A set of measures such as insulation, caulking, and weatherstripping, which reduce heat loss (infiltration) in buildings.

Hazardous Waste

This section was added by Resolution 13941 adopted on 8/17/1995

Mandates for Hazardous Waste Planning

The Tanner Act enacted by the State in 1986 requires California counties to prepare Hazardous Waste Management Plans or have the State supersede local government in terms of the siting authority for treatment, storage and disposal facilities. A detailed Plan, responding to state hazardous waste mandates was developed by the Office of San Francisco's Chief Administrative Officer in conjunction with a citizens advisory group. The detailed Plan including many management and educational programs was approved by the Board of Supervisors in 1992 and by the State Environmental Protection Agency in 1995. This section of the Environmental Protection Element condenses and summarizes the more detailed document with emphasis on land use issues for purposes of the General Plan.

In general, hazardous waste responsibilities are divided among federal, state and local levels of government. Local government takes the lead for land use decisions related to hazardous waste facilities and for emergency response programs. State government oversees "cradle to grave" management of hazardous waste including all transport activities. This usually involves manifests which are forms indicating types and amounts of hazardous waste being transported on State highways and where such waste is being taken. The State has delegated much of its enforcement and inspection function for facilities and those entities using hazardous materials and generating hazardous waste to the local Departments of Public Health. The federal government has taken the lead in regulating and in some cases funding the cleanup of past contamination which all levels of government now seek to prevent.

Characteristics of Hazardous Waste in San Francisco

San Francisco County is a moderate generator of hazardous wastes in California. The management of hazardous wastes in San Francisco presents some unique challenges. There is a diversity of hazardous waste sources and types. There are a large number of businesses which are very small quantity generators. San Francisco is characterized by high-intensity land use, and limited land area which makes siting of a hazardous waste facility difficult.

Waste is generated by public agencies, the private sector, and individuals in the City and County. The principal waste types in San Francisco are oil, paint and solvents. The hazardous waste management system is operated by private industry to collect, handle, transport, treat, store and dispose of hazardous waste generated in San Francisco County and extends far beyond the County's own boundaries for off-site disposal. The City and County of San Francisco under the Chief Administrative Officer, Solid Waste Management Program administers the local hazardous waste management process. Authorization of the siting of hazardous waste facilities is a responsibility of the Planning Department and Commission. This section contains guidance for such siting decisions.

A transfer and storage facility (TSF) where San Francisco residents can drop off hazardous waste from their homes free of charge is run by the Sanitary Fill Company under contract with the City. In the future this facility may evolve to serve additional business users and to treat some of the wastes in order to facilitate reuse or recycling. The existing facility is at the San Francisco Solid Waste Transfer and Recycling Center on Tunnel Avenue on the City's southern border. The San Francisco Department of Public Health has a major role in enforcement and monitoring of that facility.

The City's ability to use an out of county landfill site at Altamont in Alameda County for solid waste is dependent on the proper management of hazardous waste and avoidance of its presence within solid waste loads taken to the landfill site. The City's contract with Altamont requires it to have a program to keep hazardous waste out of the landfill. The City is responsible for substantial penalties if hazardous waste is found within materials brought to the landfill site.

The Hazardous Materials Citizens Advisory Committee appointed by the Board of Supervisors advises the San Francisco Health Department on numerous practices encompassed by the hazardous waste management plan including the storage and reuse of hazardous material and the implementation of many state and local regulations.

Goal

The major goal of hazardous waste planning is to minimize or eliminate harm to public health and the environment from hazardous wastes and prevent hazardous waste being disposed into land or water or emitted into the air. The County's detailed plan emphasized in order of priority: source reduction, including chemical elimination as well as substitution; recycling and reuse; treatment (on-site and off-site) and as a last resort, disposal (off-site). In recycling and reuse, the minimization of air emissions is especially important. The County Plan also provided the basis for siting of hazardous waste facilities still required after serious efforts to achieve source reduction.

Source Reduction

OBJECTIVE 19

PROMOTE SOURCE REDUCTION THROUGH REDUCED USE OF HAZARDOUS MATERIALS AND GENERATION OF HAZARDOUS WASTE.

FIGURE 1.

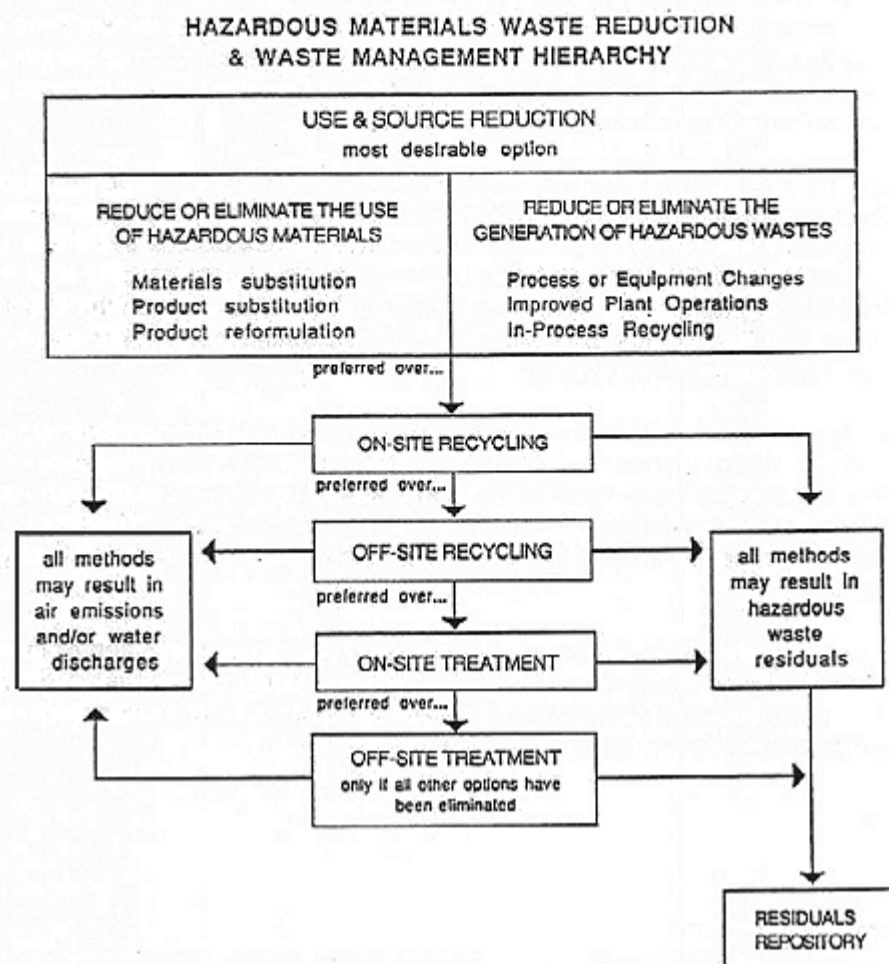


Figure 1. Hazardous Materials Waste Reduction & Waste Management Hierarchy

In terms of environmental protection, the emphasis needs to shift from the disposal of hazardous wastes to their prevention by not using hazardous materials in the first place. In Addition to protecting the environment, source reduction helps conserve chemical resources. It allows for significant financial savings due to the elimination or reduction of costs associated with management, transportation, treatment and disposal of hazardous waste. Also eliminated are risks of human exposure and environmental release, and liability which are exacerbated by San Francisco's high population density. The need for expansion of treatment and disposal facilities is reduced.

Because of the importance and value of source reduction, it is at the top of the waste reduction hierarchy. Barriers to source reduction include: institutional inertia, overemphasis on disposal and need for assistance by the public on understanding the availability of non-hazardous substitute products. Source reduction is also essential in strengthening the position of the County in negotiating potential intercounty agreements for provision of off-site waste management.

POLICY 19.1

Identify reduction opportunities through waste reduction audits.

A waste reduction audit examines existing production and hazardous materials use practices within a plant or business and provides a roadmap for developing a source reduction and waste reduction strategy. Waste reduction audits should be performed for all firms using hazardous materials. Specific recommendations of such audits can include: housekeeping changes such as waste segregation and modification of cleaning and rinsing procedures; modification of technical processes or equipment to produce the same product but reduce the waste stream; substitution of raw materials or of the manufactured products used in facility operations; and external reduction opportunities such as a waste exchange. Audits could be a service and/or requirement for users of the hazardous waste facility or for firms generating hazardous waste.

POLICY 19.2

Support public education related to lowered use or substitution of hazardous chemicals and on the proper management of hazardous waste.

San Francisco's residents, businesses, work force and public officials should be educated on source reduction including chemical elimination as well as substitution and on the safe handling of hazardous waste generated in their homes, workplaces, recreational facilities and public buildings.

Policy 19.3

Encourage City agencies to act as role models by establishing a Waste Minimization Program.

A City government top management interdepartmental program should commit to implementation of waste minimization efforts. A Waste Minimization Pilot Program for City Departments can assist with strategies for choosing alternatives to hazardous materials, reducing waste quantities and recycling. This should include review of the purchase of hazardous products for safer substitutes.

Adequate Facilities

OBJECTIVE 20

ENCOURAGE DEVELOPMENT OF FACILITIES NEEDED TO RECYCLE, TREAT, STORE, TRANSFER AND DISPOSE OF HAZARDOUS WASTE.

Recycling and reuse are the next preferred approaches over source reduction. Even after serious attention to source reduction, there will still be a quantity of hazardous materials requiring appropriate facilities for recycling, or storage and transfer out of San Francisco. Over time these quantities should diminish. The City will need to evaluate expansion options for the existing facility, whether to pursue curbside removal of used oil and whether a collection at a number of decentralized locations is appropriate. In considering these options, the potential for recycling and reuse should be strongly emphasized, after all possible efforts at hazardous chemical elimination or substitution have been pursued.

Through its solid waste management contractor, the Sanitary Fill Company, the City operates a centralized household hazardous waste collection facility at Beatty and Tunnel Avenues. The existing hazardous waste collection, storage and transfer facility is part of a much larger complex which includes recycling and refuse collection and transfer. The analysis of long term trends in source reduction, as well as the use of this hazardous waste facility and its pilot program for commercial very small quantity generators is crucial to the evaluation of potential new facilities and services.

POLICY 20.1

Ensure that siting and permitting authorization for proposed off-site facilities or facilities expansion adequately protects the public health and provides for effective hazardous waste management and economic efficiency.

An off-site facility involves the transfer of hazardous waste from the site where it was generated to another location where it may be stored, treated, transferred again. In some cases, disposal may be involved. After extensive review of State criteria for location of hazardous waste transfer, storage or treatment facilities, the County Hazardous Waste Management Plan directed that such facilities should only be located in San Francisco's Heavy Industrial (M-2) districts. However, not all parts of the heavy industrial district which rings major portions of the shoreline in the southeastern part of the City are equally suitable. Such attributes as federal ownership, potential landslide hazards, liquefaction and/or subsidence hazards as shown on Map -- reduce suitability for locations of a transfer, storage or treatment facility (TSF). Other State and local criteria and considerations are summarized in the tables on the following pages.

A disposal site for waste remaining after recycling or treatment is not possible within San Francisco because of the State's extensive land requirements (50-300 acres plus a 2000 foot buffer from residences). San Francisco therefore will need to continue exporting these residual wastes out of the county.

The need for the siting of any additional hazardous waste facilities should be assessed against the State siting criteria and local considerations as developed in the County Hazardous Waste Management Plan and summarized here. State law also requires the appointment of a local advisory committee to advise the City on terms and conditions by which a new facility or a proposed expansion may be acceptable to the community.

POLICY 20.2

Support San Francisco's participation in regional agreements on a fair share allocation for future facilities.

In November, 1990 the Board of Supervisors adopted a resolution endorsing San Francisco's participation in a regional Hazardous Waste Management Facility Allocation Committee. This committee convened by the Association of Bay Area Governments is intended to refine the fair share concept, limiting the number, types and size of hazardous waste facilities based on regional needs of the nine Bay Area counties. No one county in the region would be the recipient of all the needed facilities.

This concept is important because San Francisco clearly cannot manage its hazardous waste in isolation from other counties as it does not have areas meeting State criteria for disposal facilities. As of 1992, San Francisco exported all its manifested hazardous waste to 16 or more other counties. San Francisco is reliant on out of county disposal facilities. Only transfer, storage and treatment facilities can be located in San Francisco.

Map Showing Potential Sites in Heavy Industrial Districts

HAZARDOUS WASTE TRANSFER AND STORAGE FACILITY (TSF) SITING CRITERIA¹

The TSF **should** be:

- close to the waste generators (75% of waste generators who send waste off-site are located in the southeast area of San Francisco), and
- near major transportation routes (major highways are easily accessed from the southeast area of the City).

The TSF **may be** sited conditionally provided there is a risk assessment, engineered design features, and/or buffer zone:

- in areas of potential flooding because of reservoir failure
- in areas with unstable soils
- in areas subject to subsidence (ground collapses) or liquefaction (ground changes from granular material to a fluid state)
- in areas subject to tsunamis (tidal waves)
- in areas with high groundwater · in areas with permeable strata and soils
- in an air quality "non-attainment" area
- near residences
- near immobile populations (e.g., schools, hospitals)
- in recreational areas (e.g., Golden Gate National Recreation Area, but only for low volume transfer and storage of wastes generated there), and on State or Federal lands

The TSF **may not** be sited:

- on military land (e.g., Hunters Point Naval Shipyard);
- in wetland areas (areas determined by the Army Corps of Engineers and the California Department of Fish and Game); and
- in critical habitat areas; there is no precise mapping of the existence
- of sensitive species in the southeast section of San Francisco; field analysis may be required if and when facilities are proposed.

¹ County Hazardous Waste Management Plans are required to utilize criteria listed in California Department of Health Services, Toxics Substances Control Division, Guidelines for preparation of Hazardous Waste Management Plans, June, 1987.

LOCAL CONSIDERATIONS FOR HAZARDOUS WASTE FACILITIES

- Identification of waste reduction techniques which can be employed by users of the facility and what modification to the scope of the project such waste reduction efforts require.
- Landscaping around the facility to enhance esthetics and reduce noise.
- Limitation of hours of truck arrival or departure related to peak traffic periods.
- Designation of special transportation routes for highly hazardous materials or waste that are to be handled by a facility.
- Education of the users of the facility by the project sponsor on waste reduction, waste handling, and transportation techniques.
- Assistance by the project sponsor in establishing milk runs (to pick up hazardous wastes) where it is economically feasible.

Policy 20.3

Preserve the existing treatment and storage facilities at the site they currently occupy, if feasible.

The only remaining hazardous waste treatment facility in San Francisco at China Basin provides service for ship waste, oil and tank bottom wastes. The recovered oil is sent to a re-refiner and the treated water is transported by truck to the local waste water treatment facility after appropriate testing. Without this treatment facility, sizable quantities of facility of locally generated oil waste would have to be transported and managed outside of San Francisco. This facility also is an important component of San Francisco's regional fair share of hazardous waste facilities.

Protection of Health and Environment

OBJECTIVE 21

CONTROL ILLEGAL DISPOSAL AND ELIMINATE LAND DISPOSAL OF UNTREATED WASTE

Lack of awareness and lack of convenient low-cost disposal options are probably the two major causes of illegal disposal of hazardous waste on City streets and sidewalks, vacant lots, private property and into the sewer system. Hazardous waste presents environmental problems when disposed of in streets or sewers, or when combined with solid waste for disposal in municipal waste land fills. The improper disposal of hazardous waste can result in exposure and health risk to sewer and solid waste collection employees and the public. The combined effect over time of many small volumes of illegally disposed of hazardous waste can contaminate soil and groundwater.

POLICY 21.1

Prevent illegal disposal.

A major continuing approach to preventing illegal disposal is the Waste Acceptance Control Program which samples solid waste collected in San Francisco by the local garbage haulers. This program is directed to preventing hazardous waste from being delivered to the landfill. It consists of methods for identifying and removing any prohibited wastes which are delivered to the transfer station. When a prohibited waste is found, the Sanitary Fill facility is equipped to safely hold it on a temporary basis until the customer is contacted and is required to reclaim the waste. The most common problem materials are paint and oils.

POLICY 21.2

Strengthen enforcement efforts.

There should be a balance of education and enforcement to ensure that the latter is used when, and only when, necessary. Enforcement programs need to be coordinated with the identification of hazardous waste management and disposal options. Generators of hazardous waste who fail to respond to Department of Public Health notices are referred to the City Attorney's Office and District Attorney's Office for legal action. Management information system capability is critical to cross check, anticipate and evaluate illegal disposal problems.

OBJECTIVE 22

ENSURE EMERGENCY RESPONSE CAPABILITY.

Local, state and federal laws require emergency response planning and training of hazardous waste materials users. Each business must develop its own emergency response plan. Within local government, the San Francisco Fire Department has a Hazardous Materials Emergency Response Team that is on call 24 hours a day. There are four fire fighters on duty at any one time on this ERT team. The ERT works closely with and receives technical assistance from the San Francisco Department of Health. It is the only such team in San Francisco. Better equipment and improved information on hazardous materials locations based on disclosure provisions of the San Francisco hazardous materials ordinance should be provided to this important unit.

POLICY 22.1

Ensure proper emergency response preparation.

Improved on-the-scene data access is needed to help emergency response teams in their analysis of the hazards at sites of emergencies. The latest existing hazardous materials inventory, as required under the storage ordinance, should be computerized and made available to responding emergency authorities. The Fire Department needs improved equipment and additional equipment to use at emergencies for evaluating the risk to fire fighters and the public and for stabilizing the materials involved.

POLICY 22.2

Coordinate and strengthen interagency response efforts.

Implementation of the emergency provisions of the local storage ordinance should be integrated with the requirements of state and federal laws. The Fire Department should continue to work in close coordination with the Department of Public Health, the City Office of Emergency Services and the Police Department. The Fire Department utilizes San Francisco Health Department industrial hygienists when the substance(s) and its properties and potential health effects are unknown. Actual clean up of spills and similar contamination are generally conducted by a contractor under Health Department supervision.

Amendment by Resolution 13941 on 8/17/1995.

Amendment by Resolution 16900 on 12/2/2004.

Amendments by Board of Supervisors Ordinance 0010-23 on 1/31/2023.

San Francisco Planning Department
sfplanning.org

Questions or comments on the General Plan? Please email us at pic@sfgov.org.



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