CITY OF HAYWARD

AGENDA REPORT

AGENDA DATE 09/25/01

AGENDA ITEM

WORK SESSION ITEM WS 2

TO: Mayor, City Council, Planning Commission

FROM: Director of Community and Economic Development

SUBJECT: General Plan Update Regarding Environmental Resources and Constraints and Preliminary Policies and Strategies

RECOMMENDATION:

It is recommended that the City Council and Planning Commission review this report and comment on the preliminary policies and strategies.

BACKGROUND:

This report provides background information on environmental issues not previously addressed during this General Plan Revision process. Major issues addressed include protection of environmental resources, environmental constraints on development, and mitigation of environmental hazards. This report also contains preliminary policies and strategies to address these issues as they relate to existing and future development (see Exhibit A).

This report summarizes technical background information that has been gathered by Lamphier-Gregory, the City's lead consultant for the preparation of the Draft Environmental Impact Report. Topics include geologic and seismic hazards, hydrology and water quality, biological resources, hazardous materials, and air quality. The technical background information will be incorporated in the section on environmental resources and constraints in the revised General Plan. As the Environmental Impact Report is still in preparation, it is possible that further analysis of potential impacts and mitigation measures may result in suggestions for additional policies and strategies.

Geologic and Seismic Hazards

This section summarizes the current state of knowledge about existing conditions and provides information on related geologic and seismic hazards within the city for development of criteria to protect life and property. Active and potentially active faults in the Hayward area are identified and discussed briefly. Five primary geologic and seismic hazards are also discussed in this section, including: strong ground shaking, fault rupture, liquefaction, slope instability, and water inundation from tsunami or dam-failure.

Active and Potentially Active Faults. The Hayward fault is one of the most hazardous faults in the United States, because of its high slip rate, its demonstrated ability to generate a large earthquake and, importantly, its location through the highly urbanized eastern San Francisco Bay area. The Hayward fault is of particular significance to the City of Hayward because it traverses the most intensively developed portions the city and because it has generated a large, surface-rupturing earthquake in historic time. The Hayward fault lies along the southwestern margin of the East Bay Hills and extends from the Warm Springs district of Fremont on the south to San Pablo Bay on the north (Figure 1). The fault is deemed capable of generating a maximum earthquake of about Mw 6.9 (CDMG, 1996). The Hayward fault accumulates strain at one of the highest rates of all the faults within the San Francisco Bay region, which suggests that it is one of the most likely faults in the region to generate a large earthquake. The Working Group on California Earthquake Probabilities (1999) has estimated there is a 32% probability for the occurrence of a large earthquake in the next 30 years on the Hayward-Rodgers Creek fault system.

The Hayward fault typically is divided into two major rupture segments (the northern and southern Hayward faults), each approximately 30 miles long. The northern segment of the fault extends from Oakland to San Pablo Bay. The southern Hayward fault extends from Fremont on the south to Oakland on the north, and is the segment that traverses the City of Hayward. The southern Hayward fault ruptured in a M6.8 earthquake in 1868 and caused extensive damage to man-made structures in downtown Hayward. The earthquake was accompanied by surface rupture along the Hayward fault zone from Oakland to the Warm Springs District of Fremont. Fault creep is occurring along the entire length of the Hayward fault, resulting in slow but persistent damage to man-made structures. The rate of creep deformation along the fault in Hayward is about 5 mm/yr (roughly 2 inches every 10 years). The Hayward fault is one of only a handful of faults throughout the world that are known to creep at these rates.

Other potentially active faults within Hayward include the Chabot fault, the Carlos Bee fault, and several unnamed secondary faults adjacent to the Chabot and Hayward faults. There are few or no studies that address the activity (and seismic potential) of several additional secondary faults that parallel and may be interrelated with the Hayward fault. These faults may or may not experience secondary ground rupture during a large earthquake on the Hayward fault. The amounts of possible displacement along these faults during such a scenario is unknown, but most likely is substantially less than the amount of displacement expected along the main trace of the Hayward fault.

Strong Ground Shaking. An earthquake produces seismic waves that emanate in all directions from the fault rupture surface. The seismic waves cause strong ground shaking, which typically is strongest near the fault and diminishes (attenuates) as the waves move through the earth away from the fault. The severity of ground shaking at a particular site is controlled by the interaction of several factors, including the distance from the earthquake source, earthquake magnitude, and the type, thickness, and condition of underlying geologic materials (bedrock, sediment, soils, and man-made fill). Recent research has shown that areas underlain by unconsolidated, recent alluvium and/or man-made fill may amplify the strength and duration

of strong ground motions, increasing the risk of damage. Strong ground shaking caused by fault movement during an earthquake has the potential to result in significant loss of life and property damage throughout the city. Maximum ground shaking within the city would be expected to result from a large earthquake on the nearby Hayward fault, although strong ground shaking may also occur as a result of moderate or large earthquakes on other faults in the San Francisco Bay region.

Fault Rupture. Surface fault rupture occurs when movement on a fault deep within the earth breaks through to the surface and ground displacement occurs. Damage associated with fault-related ground rupture is normally confined to a fairly narrow zone along the trend of the primary fault, and to a lesser extent along secondary faults. Structures are often not able to withstand fault rupture, although well-engineered structures having favorable locations with respect to the fault trace may be able to withstand collapse and provide for the life-safety of occupants. Similarly, utilities crossing faults may undergo damage as a result of surface rupture, particularly if they are not specifically designed to accommodate fault displacements. Overall, however, fault displacement involves forces so great that it is generally not economically feasible to design and build structures to accommodate this rapid relative movement. The Alquist-Priolo Earthquake Fault Zone Act (A-P Act) was developed by the State of California to regulate development near active faults and mitigate the risk from surface fault-rupture. The A-P Act requires identification of active earthquake fault zones and restricts building structures for human occupancy over known active faults. A fault or fault zone is considered active under the provisions of the Act if there is evidence of surface displacement within the past 11,000 years.

Liquefaction. Liquefaction is defined as the transformation of a granular material from a solid state into a liquefied state as a consequence of increased pore pressure and decreased effective stress. Liquefaction typically is caused by strong ground shaking during an earthquake. The potential for liquefaction to occur depends on both the susceptibility of near-surface deposits to liquefaction, and the likelihood that ground motions will exceed a specified threshold level. Much of the city is adjacent to the Hayward fault and thus will be exposed to strong ground shaking during a large earthquake on the fault. The State of California currently is planning to map the distribution of liquefaction hazard within the Hayward area as part of CDMG's ongoing statewide liquefaction hazard zonation project. Areas most susceptible to liquefaction in Hayward are underlain by granular sediments within younger alluvium and include low-lying lands adjacent to creeks and estuaries.

Slope Instability. The eastern part of Hayward is located on steep, hilly terrain underlain by geologic materials prone to slope instability during large earthquakes. Landslides and slope instability can also occur as a result of wet weather, weak soils, improper grading, improper drainage, steep slopes, adverse geologic structure, or a combination of any of these factors. Landslides are most likely to occur in areas where they have occurred previously. Landslides and debris flows can result in damage to property and cause buildings to become unsafe either due to distress or collapse during sudden or gradual slope movement. Construction on slopes steeper than about 15 percent typically require special grading, special foundation design, or

site modification to mitigate slope ground conditions and reduce the potential for slope instability.

Water Inundation. Another hazard associated with earthquakes is water inundation resulting from dam failure or a tsunami. Although no dams or open reservoirs are sited within the city limits, potential inundation may occur downstream as the result of failure of reservoirs or dams upstream of the city. Inundation from South Reservoir in Castro Valley would affect a few small areas at the northeastern edge of the city. Inundation from Del Valle and other dams along Alameda Creek would be limited to the salt evaporation ponds south of Old Alameda Creek in the shoreline area. Tsunamis are a series of waves typically produced by an offshore earthquake, volcanic eruption, or landslide. A tsunami with a wave height of 20 feet at the Golden Gate Bridge, which is likely to occur approximately once every 200 years, would result in a runup of less than 10 feet above sea level if it reached Hayward. Areas most likely to be inundated by tsunami runup within the city are marshlands, tidal flats, and former bay margin lands that are now artificially filled but are still at sea level.

Hydrology and Water Quality

Major concerns in Hayward include the protection of surface watercourses and groundwater supplies, as well as minimizing flood hazards associated with storm water runoff.

Surface Water. Several creeks and numerous storm drainage channels pass through the city, originating in the hills to the east and ultimately draining into San Francisco Bay. The discharge from these facilities may contain pollutants from rural and urban storm runoff, and illegal dumping into creeks. Pollutant levels are dependent on the pattern and frequency of storm events, local land uses, development activity, and the quality of pollution control measures and practices.

The Regional Water Quality Control Board (RWQCB) Region 2 has prepared a comprehensive Water Quality Control Plan (*Basin Plan*, 1995) that includes water quality objectives and an implementation plan for the various waterways in the region. A National Pollutant Discharge Elimination System (NPDES) storm water discharge permit has been granted to the Alameda County Urban Runoff Clean Water Program, which was established to comply with the non-point source pollution control requirements mandated by the RWQCB. The Alameda County Flood Control and Water Conservation District is responsible for the overall coordination and implementation of the Storm Water Management Plan, which is designed to reduce the discharge of pollutants in storm water to the maximum feasible extent. The City of Hayward monitors the efforts of municipal storm water programs to implement the NPDES storm water permits and reviews the efforts of developers to reduce the impacts of proposed development to a less than significant level as part of the CEQA process.

Groundwater. Groundwater resources are most prevalent in the Bay Plain and the shoreline area. Water-bearing sand and gravel layers extend to a depth of approximately 1,000 feet below the Bay Plain and are divided into upper and lower zones. The upper zone contains two

major aquifers that are located at depths of 60 feet and 250 feet. The lower zone occupies a depth below 400 feet and contains a much higher percentage of permeable material than the low yield upper zone. Nearly all of the high-yielding wells in the area utilize the deep zone. Replenishment of the aquifers is accomplished primarily through percolation from the streambeds of major creeks. Relatively high concentrations of nitrates and total dissolved solids were measured in local area groundwater as early as the 1950s. Contaminants such as nitrates can come from a variety of sources, including runoff from fertilizers applied to lawns and landscaped areas as well as from agricultural activities and improperly operated septic systems. Groundwater contamination can also be attributed to leaking underground storage tanks and inadvertent releases of hazardous materials.

Flood Hazards. Storm water runoff is collected through a series of storm drainage facilities and ultimately enters San Francisco Bay. Most of these systems are governed by the Alameda County Flood Control and Water Conservation District (ACFCWCD), which designs and constructs drainage facilities to meet the existing and projected flood control needs. The City of Hayward provides local storm drains, generally within local streets and easements that ultimately enter the County system. These systems are adequate for most conditions. A 100-year flood is an event that would occur on the average every 100 years, and that has a one percent probability of occurring in any given year. Areas potentially subject to flooding from a 100-year event include various low-lying areas and areas adjacent to creek channels, as mapped by the Federal Emergency Management Agency (FEMA). Flood elevations and limits have been determined throughout the City. New mapping completed in 2000 indicates that certain portions of the industrial corridor are potentially subject to flooding.

The City of Hayward participates in the Federal Flood Insurance Program, which will provide flood insurance to residents and businesses in known flood hazard areas. To participate in this program, a community must regulate development within or adjacent to flood-prone areas to avoid worsening the hazard. City standards require floor elevations of new development within the floodplain to be at least one foot above the 100-year flood height, or prohibit development within the floodway (generally, the stream channel required to carry the 100-year flood waters).

Biologic Resources

As Hayward is an urbanized area, vegetation cover in Hayward's remaining open spaces is critical to environmental issues of erosion, sedimentation, flooding, landsliding, groundwater percolation, and water quality. In addition, mature plants and moderate climatic conditions contribute significantly to the aesthetic quality of the city. The city's remaining riparian plant communities are important for their aesthetic quality and for the stream bank protection they provide. The city's shoreline plant communities are particularly valuable as wildlife habitat and are also particularly sensitive to environmental changes caused by development.

As with other urbanized areas in the East Bay, viable wildlife habitats are sensitive to development and are becoming scarce. Wildlife resources are located throughout the undeveloped portions of the hill area, along streams, in parklands, and in the shoreline marshes

and salt evaporation ponds. In the shoreline areas, tidal flats and salt ponds of low salinity provide habitat for migratory waterfowl. In addition, a few species such as deer, many birds, and a few small mammals are found in even the most urbanized residential zones of the city. Rare or sensitive species sometimes require much more effort in their management and protection than more common wildlife species.

Special Status Species. In general, "special-status species" are plants and animals that are legally protected under the State and Federal Endangered Species Acts or other regulations, and species that are considered rare by the scientific community. Native vegetation and creeks have been modified over the past century to a degree that severely limits the value of the urban areas as habitat for special status plant and animal species. However, there are still some areas in the Hayward hills and the Hayward shoreline that provide grassland, woodland, and aquatic habitat, which are important for a number of protected species. In the hills, habitat areas may be present in large blocks of land that have not been systematically surveyed. This area is considered capable of supporting several special-status species and important habitat types generally associated with annual grasslands and coast live oak. In the shoreline area, which comprises over 8,500 acres, the Hayward Area Shoreline Planning Agency (HASPA) has prepared an Environmental Enhancement Program that identifies the various habitat types based on the geophysical and biophysical associations and makes recommendations for enhancements to each of the properties. In addition, provisions in several federal and state regulatory programs that address water quality concerns have also served to further protect wetland and riparian habitats. These regulations establish jurisdiction over those areas defined as "other waters of the United States", which include several drainage channels in the Hayward area.

Hazardous Materials

Hazardous materials include substances that may be described as toxic, ignitable, corrosive, or reactive. In an urban area such as Hayward, most of the contaminated sites are related to the use or maintenance of fuels and motor vehicles, especially gas stations where underground fuel storage tanks have leaked. Repair garages, sales and service centers, and wrecking yards also generate auto-related wastes that have often been illicitly disposed of or spilled during the regular course of business. Gas station sites are regulated by existing state and federal law and most sites have been treated and returned to productive use. Other sources and types of properties that are contaminated include plant nurseries, building supply yards, paint stores, welding shops, and corporation yards for governmental agencies. Drycleaning establishments also have been identified as potential sources of hazardous materials. In most cases, listed sites within the City are located along major roadway corridors where automotive-oriented businesses tend to congregate.

Storage, handling, and documentation of hazardous materials and hazardous wastes are governed by federal, state and local laws designed to protect human health and the environment. In addition to the various programs of federal, state and county regulatory agencies, the City has instituted a Hazardous Materials Program within the Fire Department to inventory, map, and regulate the storage and handling of specified materials. The inventory is

part of the City's enforcement of a law passed to protect Hayward property and citizens, as well as the fire fighters who respond to emergency calls. Contamination cases that are more difficult to investigate, such as those that involve industrial solvents that affect not only soils but groundwater as well, are being handled by the California Regional Water Quality Control Board.

Household hazardous wastes include leftover paint, solvents, antifreeze, used oil and batteries, cleansers, pesticides and pool chemicals. Alameda County has implemented provisions of its Household Hazardous Waste Plan that called for the development of three permanent facilities for household waste collection and recycling in Oakland, Hayward, and Livermore. These facilities collect, identify, sort, store, pack, and recycle or dispose of all hazardous wastes (except radioactive waste and explosives) delivered by residents of Alameda County and small businesses.

Emergency response is coordinated by the State Office of Emergency Services. The Hayward Fire Department has jurisdiction in the City limits and would respond to hazardous materials spills. The Department is a Certified Unified Program Agency (CUPA), in that it is qualified to handle multiple hazardous material issues that normally are under County or State jurisdiction. As a CUPA city, Hayward is responsible for hazardous materials programs such as storage tank regulations, accidental release plans, and hazardous material business plans. The Regional Water Quality Control Board would respond to spills that could enter the storm drain or flood control system. The Bay Area Air Quality Management District would respond to airborne releases to ensure compliance with applicable rules and regulations.

Air Quality

The climate of Hayward is affected by its proximity to San Francisco Bay. Winds are predominantly out of the northwest during the summer months. As a result, Hayward has a relatively high potential for poor air quality during the summer and fall. When high pressure dominates, low mixing depths and bay and ocean wind patterns can concentrate and carry pollutants from other cities to Hayward, adding to the locally emitted pollutant mix. In winter and spring the air pollution potential in Hayward is moderate.

Pollutants of Concern. Federal and state ambient air quality standards have been established for important pollutants. The state standards are more stringent, particularly for ozone and PM_{10}. The state and national ambient air quality standards cover a wide variety of pollutants; however, only a few of these pollutants are problems in the Bay Area either due to the strength of the emission or the climate of the region. The Bay Area Air Quality Management District (BAAQMD) maintains a monitoring site in Hayward, but it monitors a single pollutant, ozone. Ozone is also monitored in San Leandro just north and west of Hayward. A monitoring site in Fremont is the closest multi-pollutant monitoring site to Hayward. A summary of violations of air quality standards at these monitoring sites for the period 1998-2000 is provided in Figure 2. The federal ambient air quality standards are generally met in the Hayward area, but the more stringent state standards for ozone and PM_{10} are exceeded. Wood burning in fireplaces and stoves is a significant source of PM_{10}, particularly at times when PM_{10} levels are highest.

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern in the Bay Area. Unlike criteria pollutants, no safe levels of exposure to TACs can be established. There are many different types of TACs, with varying degrees of toxicity. Sources of TAC's include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Diesel exhaust is of growing concern in the Bay Area. Diesel engine particulate has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships and farm equipment are the largest source of diesel emissions.

Other air quality issues of concern in the Bay Area include nuisance impacts of odors and dust. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries and chemical plants. Similarly, nuisance dust may be generated by a variety of sources including quarries, agriculture, grading and construction. Dust emissions can contribute to increased ambient concentrations of PM_{10}, particularly when dust settles on roadways where it can be pulverized and re-suspended by traffic.

Sensitive Receptors and Sources of Pollution. The BAAQMD defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals and medical clinics. Such sensitive receptors are spread throughout most parts of Hayward.

The BAAQMD maintains inventories of stationary sources of both criteria pollutants and Toxic Air Contaminants (TACS). The BAAQMD inventory lists several major emitting facilities for criteria pollutants in Hayward; all are industrial in nature. The current inventory identifies numerous dry cleaners as sources of TACs spread over the commercial areas of Hayward. Several industrial sources are identified as TAC sources, as well as the Hayward Wastewater Treatment Plant. None of the sources of TACs in Hayward are considered as facilities with health risks requiring public notification under the Air Toxics Hot Spots Program.

Transportation Control Measures. There are currently no federal, state or local air quality-related constraints on cities in the Bay Area. Although the Bay Area is a federal non-attainment area for ozone, there are no plans to impose the federal sanctions provided for in the federal Clean Air Act. The BAAQMD has, however, developed guidelines and thresholds of significance for local plans that will affect the CEQA documentation for the Hayward General Plan Update. These guidelines recommend that general plans support the regional air quality plan by implementing those strategies that cities can implement. Appropriate language has been included in the preliminary policies and strategies.

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Attachments: Figure 1. Regional Fault Map
Figure 2. Air Quality Data Summary
Exhibit A. Preliminary Policies and Strategies

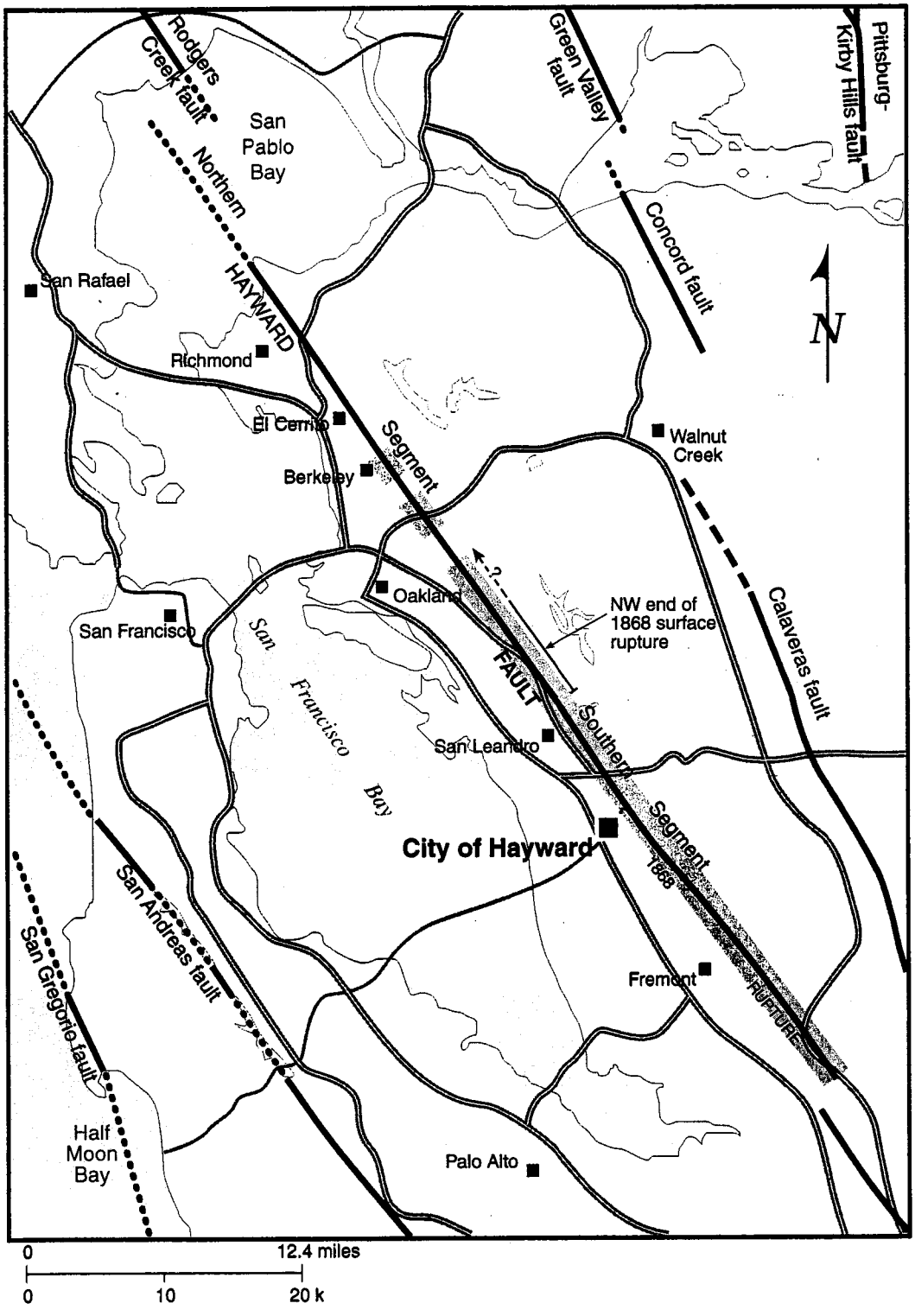

Figure 1. Regional fault map showing location of the City of Hayward, and the 1868 rupture (green) on the Hayward fault.

Figure 2. Air Quality Data Summary for Hayward, San Leandro and Fremont, 1998-2000

Pollutant	Standard	Monitoring Site	Days Standard Exceeded		
			1998	1999	2000
Ozone	Federal 1-Hour	Hayward	0	0	0
		San Leandro	0	0	0
		Fremont	0	1	0
Ozone	State 1-Hour	Hayward	4	4	1
		San Leandro	2	3	1
		Fremont	7	3	2
Ozone	Federal 8-Hour	Hayward	0	2	0
		San Leandro	0	0	0
		Fremont	0	1	0
PM_{10}	Federal 24-Hour	Fremont	0	0	0
PM_{10}	State 24-Hour	Fremont	1	2	1
Carbon Monoxide	State/Federal 8-Hour	Fremont	0	0	0
Nitrogen Dioxide	State 1-Hour	Fremont	0	0	0

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2001.

Notes. Ground level *ozone*, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions between nitrogen oxides and reactive organic gases in the presence of sunlight. Motor vehicles are the single largest source of ozone precursors emissions in the Bay Area. *Carbon monoxide* is formed by the incomplete combustion of fuels. Motor vehicles are by far the single largest source of carbon monoxide in the Bay Area. Concentrations of this pollutant have been steadily declining, and the region has been designated an attainment area for both the state and federal ambient air quality standards. Fine *particulate matter* (PM_{10}) includes a wide range of solid or liquid particles, including smoke, dust, aerosols and metallic oxides. There are many sources of PM_{10} emissions, including combustion, industrial processes, grading and construction, and motor vehicles. Reductions in motor vehicle use are needed to significantly reduce PM_{10} emissions from re-suspended road dust. Other controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. Interest in wood smoke is likely to increase with the recent adoption of a $PM_{2.5}$, (particulate matter less than 2.5 microns in diameter) national standard. The monitoring of this pollutant and determination of the attainment status of the region are several years off due to the lack of a monitoring system.

EXHIBIT A

PRELIMINARY POLICIES AND STRATEGIES

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

(Policies appear in **bold** type; Strategies appear in regular type)

Open Space Preservation

Retain open space where it is important to preserve natural ecology and to avoid environmental hazards.

1. Designate areas on the shoreline, in the hills, and along waterways to be protected as open space in coordination with East Bay Regional Park District, Hayward Area Recreation and Park District, Alameda County, and other affected agencies.

2. Encourage interagency cooperation enabling bayland acquisition and marsh restoration, and support eventual expansion of the national wildlife refuge.

3. Incorporate design sensitive to maintaining a natural environment within infill hill area development, including maximum retention of natural topographic features such as drainage swales, streams, slopes, rock outcroppings and natural formations, and native vegetation such as oak trees.

4. Avoid development on unstable or steep slopes, wooded hillsides, and creekbanks.

Geologic and Seismic Hazards

Seek to minimize risks from geologic and seismic hazards in the siting and design of new development.

1. Continue enforcement of the seismic safety provisions of the Alquist-Priolo Act and the Building Code to minimize earthquake-related hazards in new development, particularly as it relates to high occupancy structures or buildings taller than 50 feet in height.

2. Work with other agencies to ensure that electric transmission lines, water supply systems, gas mains and oil transmission lines crossing fault traces include provision for shut-off-valves, switches and equipment needed to restore service in the event of a major fault displacement.

3. Assume that any site within 50 feet of any fault zone is underlain by an active fault trace until proven otherwise, and prohibit placement of structures for human occupancy across such trace.

Continue development and implementation of programs to strengthen existing structures that may pose a significant threat to human life.

1. Examine the feasibility of developing a program to reduce the hazards posed by soft-story buildings (multifamily structures with little or no first floor bracing).

2. Examine the feasibility of developing a program to minimize risks to buildings in areas subject to liquefaction or other areas where soil/substrata amplify and prolong ground motion.

3. Strongly encourage the retrofitting of existing structures to withstand ground shaking.

Promote greater public awareness of earthquake hazards, along with assistance to help property owners make their homes and businesses more seismically safe.

1. Expand the educational materials about seismic risks and mitigation measures distributed through the city's emergency preparedness program to include maps that identify potential ground shaking and liquefaction hazards.

2. Explore possible programs to assist single-family homeowners with earthquake retrofitting measures to reduce the risk of damage and injury during an earthquake

Flood Hazards

Cooperate with federal, state and county agencies to develop short- and long-term programs that reduce flood hazards in the city.

1. Continue to work with the Federal Emergency Management Agency to ensure that Federal Insurance Rate Maps correctly depict flood hazards in the city.

2. Implement federal requirements relating to new construction in flood plain areas to ensure that future flood risks to life and property are minimized.

3. Work with the Alameda County Flood Control and Water Conservation District to ensure that flood channels are regularly cleaned and maintained.

Hydrology and Water Quality

Protect existing watercourses and enhance water quality in surface water and groundwater sources.

1. Retain surface watercourses in their natural condition to the greatest extent possible.

2. Explore opening (or daylighting) water channels in selected areas to increase visibility to the public, enhance the aesthetics of the creekside environment, and provide for limited public access as appropriate.

3. Concentrate development in those areas least susceptible to erosion, and minimize grading and the introduction of impervious ground surfaces.

4. Maintain continuity of creekside trees, with sufficient setback of development from creek slopes, with sensitive flood control designs, and with maintenance or reestablishment of native trees.

5. Protect riparian plant communities from direct encroachment of development and from the adverse effects of increased storm water runoff, sedimentation, or erosion that may occur from improper development in adjacent areas.

6. Discourage groundwater withdrawal in areas where the activity could result in intrusion of saltwater into freshwater aquifers.

7. Conduct inventory of private wells to assure the health and safety of citizens and to protect groundwater supplies.

8. Ensure that activities such as dredging, grading, or the disposal of treated sewage does not contribute to sedimentation of sloughs or marshes or the release of toxic metallic wastes into Bay muds.

9. Take an active role in increasing the use of reclaimed water where feasible.

Biologic Resources

Protect and enhance vegetative and wildlife habitat throughout the Hayward area.

1. Avoid development that would encroach into important wildlife habitats, limit normal range areas, or create barriers that cut off access to food, water, or shelter.

2. Support efforts to reestablish and maintain marsh habitats on the baylands.

3. Preserve tidal flats and salt ponds of low salinity for the migratory waterfowl that depend on these areas.

4. Preserve saltwater evaporation ponds to provide important habitats and/or enhance in a manner commensurate with continued salt production.

5. Maintain environmental corridors across the bay plain such as creeks with native vegetation.

6. Utilize drought-tolerant plant materials in city landscaping in order to moderate the climate and improve air quality.

7. Encourage the planting of native vegetation to preserve the visual character of the area and reduce the need for toxic sprays and groundwater supplements.

8. Preserve mature vegetation where possible to provide shade, break unwanted wind, and enhance the appearance of development.

Hazardous Materials

Work with other agencies to minimize risks associated with the use, storage and transport of hazardous materials.

1. Continue implementation of the Hazardous Materials Program and enforcement of ordinance on use and storage of hazardous materials.

2. Maintain a suitable buffer zone between industrial firms involved with hazardous materials and residential areas.

3. Coordinate with State and Federal agencies to provide appropriate labeling on vehicles transporting hazardous materials through the city and to encourage utilization of designated routes.

4. Continue collection program for household toxic wastes and small business generators.

5. Provide educational materials concerning hazardous materials to the general public and enforcement agencies.

Air Quality

Incorporate measures to improve air quality in the siting and design of new development.

1. Provide adequate buffers between sources of toxic air contaminants or odors and existing or potential sensitive receptors.

2. Evaluate hazardous air pollutant emissions in review of proposed land uses that may handle, store or transport hazardous materials.

3. Consider measures that would reduce PM_{10} emissions from fireplaces and wood stoves.

Maintain improved air quality by creating efficient relationships between transportation and land use.

1. Guide development into patterns that reduce dependency on automobile usage.

2. Require pedestrian-, bicycle-, and transit-oriented features in new development projects.

3. Encourage compact development featuring a mix of uses that locates residences near jobs and services.

4. Facilitate the development of higher-density housing and employment centers near existing and proposed transit stations and along major transit corridors.

Support implementation of Transportation Control Measures adopted by the Bay Area Air Quality Management District.

1. Work with regional and local ridesharing organizations.

2. Maintain and implement the Hayward Bicycle Facilites Master Plan.

3. Encourage employers and developers to provide bicycle access and facilities.

4. Continue ongoing local signal timing programs.

5. Incorporate subdivision, zoning and site design measures that reduce the number and length of single-occupant automobile trips.

6. Promote demonstration projects to develop new strategies to reduce motor vehicle emissions, such as projects that include low emission vehicle fleets and LEV refueling infrastructure.

7. Emphasize pedestrian travel through establishment of pedestrian-friendly design standards and inclusion of pedestrian improvements in capital improvement programs

8. Consider traffic calming strategies in capital improvement programs.