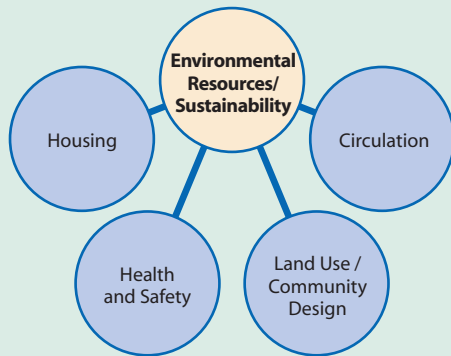


Section 5

Environmental Resources/Sustainability



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INTRODUCTION

Sustainable planning and development accommodate the City's future changes while recognizing that the community's environmental resources are fragile, invaluable and interrelated. Sustainable planning integrates and balances environmental decisions with economic considerations and recognizes the symbiotic relationship between the natural environment, the community and the economy. In the long term, protecting and sustaining the City's viable ecological communities and environmental resources will result in the protection of both the human and natural environments.

PLANNING FOR SUSTAINABILITY

Planning for the location of land use activities is one of the fundamental components of sustainability. Suburban land use practices isolate housing, retail uses and employment locations from one another, and scatter low-density development that becomes solely reliant on the automobile for access and transportation. This inefficient and unsustainable growth pattern has resulted in loss of natural habitat and open space, deteriorating air and water quality, increased traffic congestion and a loss of a sense of community. Sustainability requires a change from past land use planning to a system that creates and maintains competent and efficient community facilities, human scale neighborhoods and a sense of community while preserving environmental resources.



The Environmental Resources/Sustainability element contains an inventory of the City's key environmental issues and resources, and it also includes policies for the efficient use and conservation of these resources.

Sustainability Principles

The Environmental Resources/Sustainability Element and implementation strategies are based upon the following fundamental principles:

- **Linking**– the linking of Resource Management and Economic Determinations when evaluating development projects
- **Conservation/Efficiency**– the protection, intelligent use and reuse of renewable and nonrenewable resources
- **Reduction of Waste**– reuse, recycling and use reduction
- **Resource Management**– for the benefit of future generations
- **Prevention/Mitigation** of significant environmental impacts
- **Restoration** of impacted environmental resources
- **Innovation** in building technologies, including the substitution of materials
- **Community Participation** – the comprehensive involvement of City government, city residents and the private sector
- **Education** – preparation and dissemination of educational materials

The City's sustainable, environmental resource program is based on the perception of the community as a holistic system, where people are inescapably related to the community's natural resources and other environmental conditions. These conditions not only include topography, air and water quality, surface drainage, and open space, but all other forms of life.



A SUSTAINABLE FUTURE FOR THE CITY OF CUPERTINO

► **Policy 5-1: Principles of Sustainability**

Incorporate the principles of sustainability into Cupertino's planning and development system.

Strategies

1. **Appoint a Task Force or Commission to develop an appropriate comprehensive annual Sustainability and Resource Plan for the City.** The mission for the Task Force/Commission would be:
 - a. write and keep current the annual Tactical Plan and measurement of City-wide programs to help achieve the Environmental Resources and Sustainability section of the General Plan.
 - b. Identify and evaluate resources, technologies, products and the life-cycle cost of ownership for each recommended.
 - c. Work with City staff to evaluate the financial feasibility of the recommendations.



2. **Implementation Programs.** Adopt and implement energy policies and implementation programs that include the City's planning and regulatory process.
3. **City-Wide Inventory.** Conduct a City-wide sustainability inventory in order to identify issues, opportunities and planning alternatives.
4. **Sustainable Energy and Water Conservation Plan.** Prepare and implement a comprehensive sustainability energy plan as a part of the City's General Plan. This plan will specifically include recommendations regarding:
 - a. Reduction of energy consumption.
 - b. Reduction of fossil fuels.
 - c. Use of renewable energy resources whenever possible.
 - d. Improve City-wide water usage and conservancy.
 - e. Reduce water consumption by the City.
 - f. Promote residential and business water reduction.
5. **Community Gardens.** Encourage community gardens, which provide a more livable environment by controlling physical factors such as temperature, noise, and pollution.

The Task Force/Commission will work with Staff to keep the Sustainability Energy and Water Conservation portion of the General Plan current and abreast of beneficial cost-effective technologies.

ENERGY CONSERVATION/ EFFICIENCY

Cupertino reliance on the use of non-renewable energy supplies has serious environmental consequences. For our community to be sustainable, it must reverse this situation.

The City of Cupertino receives electrical power from Pacific Gas and Electric (PG&E). PG&E's power is derived from several sources such as wind turbines, hydroelectric dams and nuclear generation. The Association of Bay Area Governments (ABAG) power consortium provides the City with natural gas. In the State of California and the San Francisco Bay Area, approximately 95 percent of the residential units are heated by natural gas, the remainder by electricity and propane.

Since the severe energy shortages of the 1970's, which culminated in the critical statewide electrical power shortages of 2001, Californians (and particularly Bay Area residents) have become acutely aware of the need to reduce energy demand for both the short and long term in order to achieve a sustainable future. This was further reinforced by the severe blackouts in the Northeast U.S. and Canada in the summer of 2003. The continuously rising cost of energy production, together with diminishing fossil fuel sources (non-renewable resources), has required public agencies to conserve, efficiently use and search for alternative energy resources.

Overall energy use
in the Bay Area

Use	%
Commercial	7
Residential	17
Industrial	35
Transportation	31
Other	10
	100

Sources: PG&E,
Planning Resource
Associates

Planning and Regulatory Processes

Urban areas in California, (including Cupertino) contain approximately 85 percent of the State of California's population.



These urban communities are in the best position, through their planning and regulatory processes to promote and implement effective energy conservation/efficiency sustainability programs. Cupertino has expressed its commitment to these programs in the following ways:

- Installed lighting and/or retrofitted energy efficient lights for all street lights and traffic control lights.
- Retrofitted all overhead lights in City Offices.
- Reduced lighting and equipment use where possible in all City facilities through staff training.
- Acquired several electric vehicles.
- Distributed conservation/efficiency information to architects, contractors and the general public.
- Endorsed the “Draft Compact for a Sustainable Bay Area” as promoted by the Bay Area Alliance for Sustainable Development. This “Compact” constitutes a commitment to take specific steps toward a sustainable region.

The Land Use Element and the Circulation Element commit to sustainability in the following areas:

- **Land Use Planning and Zoning:** Provide energy efficient higher density housing in proximity to employment centers and transportation corridors and include mixed use development where appropriate. (See Section 2 – Land Use)
- **Transportation Planning:** Consider alternatives to the automobile such

as increased car pooling, flexible work schedules, use of bicycles, pedestrian pathways and telecommuting. Support multi-modal public transit to reduce congestion, air and water quality pollution and the significant costs of road construction. Encourage reduced street width. Strengthen street tree protection. (See Section 4 – Circulation)



REDUCED USE OF NON-RENEWABLE ENERGY RESOURCES

► **Policy 5-2: Conservation and Efficient Use of Energy Resources**

Encourage the maximum feasible conservation and efficient use of electrical power and natural gas resources for new and existing residences, businesses, industrial and public uses.

Strategies

1. **Alternate Energy Sources.** Encourage the use of solar energy and other alternate, renewable energy resources for all new and significantly renovated private and public buildings. Ensure that all homes have an acceptable balance of access to the sun and protection from it. Promote new technologies, such as waterless water heaters to effect this change.
2. **Comprehensive Energy Management Plan.** Prepare and implement a comprehensive energy management plan for all applicable public facilities, equipment and procurement and construction practices.
3. **Consistency with State and Federal Regulation.** Review and evaluate



applicable City codes, ordinances, and procedures for inclusion of local, state and federal policies and standards that promote the conservation and efficient use of energy and for consistency with the goal of sustainability. Change those that will promote energy efficiency without a punitive effect.

4. Energy Efficient Replacements. Using life cycle cost analysis, identify City assets for replacement with more energy efficient replacements.

5. Incentive Program. Implement an incentive program to include such items as reduced permit fees for building projects that exceed Title 24 requirements. Promote other incentives from the State, County and Federal Governments for improving energy efficiency by posting information regarding incentive, rebate and tax credit programs on the City's web site. Let's make learning about this easy and help those interested get started!

6. Solar Access Standards. Ensure compliance with the State of California Subdivision Map Act solar access standards in order to maximize natural heating and cooling opportunities for future residences. Encourage the inclusion of additional shade trees and landscaping for energy efficiency.

7. Educational Programs.

- Develop conservation/efficiency educational programs serving all utility users.
- Provide informational materials and participate in energy conservation workshops.

- Provide educational materials, seminar and staff training on energy conservation/efficiency for those who design, build and manage building facilities, and for those who regulate building design and construction.

- In partnership with De Anza College develop a "Sustainable Building Practices" guide for Cupertino residents and businesses. The Guide should include information regarding current rebates and subsidies to make implementing a sustainable building more financially attractive with references back to the City, State, Federal and other web sites for up-to-date information.

- Provide education materials, seminars and a certification program for contractors and architects who have participated in "Sustainable Building" courses. Many of the curriculums are currently available at De Anza College. As an incentive for participating the "Sustainable Building" program the City will maintain a "Sustainable Builder/ Developer" page on their current City website. This page will not be an endorsement of the individual or company listed, but a resource center for the community.

- Establish and maintain an Energy Information Center or Kiosk at City Hall where information concerning energy issues, building standards, recycling and assistance is available.

- Require residents and businesses that are remodeling to review and sign as acknowledgment that they have reviewed the "Sustainable Building Practices" guide prior to permits being issued.



8. **Energy Cogeneration Systems.**

Encourage the use of energy cogeneration systems through the provision of an awareness program targeting the larger commercial and industrial users and public facilities.

9. **Regulation of Building Design:**

Ensure designer, developers, applicants and builders meet California Title 24 Energy Efficient Building Standards and encourage architects, building designers and contractors to exceed “Title 24” requirements for new projects through the provision of incentives. Encourage either passive solar heating and/or dark plaster interior with a cover for swimming pools, cabanas and other related accessory uses where solar access is available. Encourage the use of alternative renewable sources where feasible, and develop energy audits or subvention programs.

10. **Use of Discretionary Development Permits (Use Permits):**

Require, as conditions of approval for new and renovated projects, the provision of energy conservation/efficiency applications.

11. **Energy Efficient Transportation Modes.**

Encourage alternative, energy efficient transportation modes such as “clean” multi-modal public transit, car and van-pooling, flexible work hours, and pedestrian and bicycle paths.

Green Buildings

The planning, construction and maintenance of buildings has an extraordinary effect on environmental resources. Buildings consume significant quantities of water, wood and energy. Nationally, buildings consume one-third of all the energy and two-thirds of the electricity. Fifty percent of home energy consumed is used for heating and cooling. In addition, buildings are a significant source of interior and exterior urban air quality problems and generate large quantities of waste and affect climate change.

A “green” building is one that is designed, constructed, renovated and maintained in an ecological and resource efficient manner. Green buildings provide opportunities not only for conservation and efficient resource use, but also to create healthier structures and long term, cost savings.

The essential components of a green building design and planning process include:

- **Location** – in proximity to public transit, shopping and recreational facilities
- **Site Planning** – solar orientation, protection of existing vegetation and use of ecologically appropriate landscaping
- **Energy Efficiency** – Exceeding State, Title 24 energy requirements, see Energy section below; architectural design to mitigate heating, cooling and lighting loads
- **Material Efficiency** – selection, substitution and reuse of sustainable construction materials
- **Water Efficiency** – employ water saving design techniques and devices





ENERGY CONSERVING AND EFFICIENT BUILDINGS

► **Policy 5-3: Green Building Design**

Set standards for the design and construction of energy and resource conserving/efficient building (Green Building Design).

Strategies

1. **“Green Building” Program.** Prepare and implement “Green Building” standards for all major private and public projects that ensure reduction in energy consumption for new development through site and building design.
2. **Building energy audits.** Participate in and encourage building energy audits, where feasible, for commercial, industrial and city facilities and convey to the business and industrial communities that energy conservation/efficiency is, in the long term, economically beneficial. PG&E also offers energy evaluation tools and services free of charge.
3. **“Green Buildings” Evaluation Guide.** Prepare a “Green Buildings” evaluation guide based upon the above listed “essential components” for use by the city staff when reviewing projects.
4. **Staff Training.** Train appropriate staff in the design principles, costs and benefits of energy conservation/efficient buildings and landscape design.
5. **“Green Buildings” Informational Seminars.** Conduct and/or participate in “Green Buildings” informational sem-

inars and workshops to include people involved in the design and construction industry, land development, real estate sales, lending institutions, landscaping and design, the building maintenance industry and prospective project applicants. We recommend modeling this program after the CERT program.

6. **Public Communication:** Become a regular feature article in the Cupertino Scene, do media outreach to the Courier and the Guide (San Jose Mercury) tape the Sustainable Building and other conservation courses, or seminars and broadcast them on the City Channel as well, and make them available at the Library.



AIR QUALITY

Air quality remains a serious health hazard for residents in the Bay Area Air Basin. Even after three decades of efforts to cleanse the air, air pollution still causes a significant amount of discomfort, illness and sometimes death in the region. Particularly vulnerable are children, the elderly and people with heart or lung problems. Sometimes healthy adults may experience breathing problems during periods of intense outdoor exercise. Air pol-



lutants may also have an adverse effect on vegetation, animals and property. In addition, national or world-wide pollution issues, the depletion of the ozone layer and world-wide climatic changes pose serious challenges for communities seeking a sustainable future.

Air pollution potential is based upon the tendency for high pollutant concentrations to develop at any given location. This potential is dependent upon the amount of pollutants emitted into the air and the local atmosphere's ability to transport and dilute that pollutant. The County's topography, prevailing wind pattern and frequent air inversions combine to catch and hold the pollutants that the urban area releases daily into the air. Air pollution is composed of a vast assortment of gases and particles that can be grouped in three categories: particulate matter, carbon monoxide and ozone. A large proportion of air pollution in Santa Clara County is automobile related.

The existing development patterns, countywide, contribute to the further deterioration of air quality. For example, the majority of affordable housing for low to moderate employees is outside of the County or in adjoining cities. This requires employees to commute long distances daily to and from work which in turn increases air pollution countywide. Also, much of the Citywide residential areas are separated from commercial uses, which in turn requires residents to drive vehicles to complete errands. This tends to increase air pollution within the community. Land use planning is beginning to change with these considerations in mind.

Much progress has been made in monitoring and reducing fixed or "point sources" of pollution, such as factories and power plants. Pollution from "non-point" or mobile sources, such as motor vehicles, private prop-

erty, etc., continues to prove an illusive challenge. As Santa Clara County continues to be the population and employment growth center of the region, residents, employers and municipalities must take responsibility for the impacts of air pollution on the quality of life. The policies and strategies identified in the "Green Building" and "Energy" portions of this General Plan and those listed below are designed to improve air quality to a healthy and sustainable level.

Regional, State and Federal Planning

Air quality standards are established by both the State Air Resources Board and the Federal Environmental Protection Agency air quality management agencies. The Bay Area Air Quality Management District has the responsibility to create compliance strategies, and monitor and enforce State and Federal standards in the nine county Bay Area District. Bay Area air quality has improved significantly over the past 20 years of air quality planning and control efforts, in spite of substantial increases in population, traffic and industrialization. The last full Air Quality Plan was adopted in 1991 and there have been three updates since, including the last in December 2000, to assess compliance and adopt needed measures to meet those standards that are still not met in the Bay Area. In 2002, the District was designated as non-compliant only for State and Federal ozone standards and for State particulate standards. Local government agencies are expected to participate in adopting policies to support District, State and Federal air quality management planning.

Responsibilities of the City

While air quality is often regarded as a regional or state problem, it is important for



local land use and growth decisions to support improvements in air quality. The land use, circulation, energy and environmental policies that comprise this General Plan will contribute to meeting BAAQMD and ARB Air Quality improvement plans.



**HEALTHY AIR QUALITY LEVELS FOR THE
CITIZENS OF CUPERTINO UTILIZING LOCAL
PLANNING EFFORTS**

**Policy 5-4: Air Pollution Effects of
New Development**

Minimize the air quality impacts of new development projects and the impacts affecting new development.

Strategies

1. **Toxic Air Contaminants.** Review projects for potential generation of toxic air contaminants at the time of approval and confer with BAAQMD on controls needed if impacts are uncertain.
2. **Dust Control.** Require water application to non-polluting dust control measures during demolition and the duration of the construction period.
3. **Planning Decisions.** Assess the potential for air pollution effects of future land use and transportation planning, and ensure that planning decisions support regional goals of improving air quality.
4. **Environmental Review.** Evaluate the relationship of sensitive receptors, such as convalescent hospitals and residential uses, to pollution sources through the environmental assessment of new development.

**Policy 5-5: Air Pollution Effects of
Existing Development**

Minimize the air quality impacts of existing development.

Strategies

1. **Public Education Program.** Establish a Citywide public education program regarding the implications of the Clean Air Act and provide information on ways to reduce and control emissions; provide information about carpooling and restricting physical activities on “Spare the Air” high-pollution days.
2. **Home Occupations.** Expand the allowable home occupations in residentially zoned properties to reduce the need to commute to work.
3. **Tree Planting.** Increase planting of trees on City property and encourage the practice on private property.
4. **Fuel-efficient Vehicles.** Maintain City use of fuel-efficient and low polluting vehicles.
5. **Work with County to monitor and influence improvement of emissions and dust from the Hanson and Stevens Creek Quarries on the West end of the City.**

1

**Policy 5-6: Walking, Jogging and
Bicycling**

Encourage walking, jogging and bicycling instead of driving in the City.

**Policy 5-7: Use of Open Fires and
Fireplaces**

Discourage high pollution fireplace use.

1
SEE POLICY
4-3 IN THE
CIRCULATION
ELEMENT



Strategies

1. **BAAQMD Literature.** Make available BAAQMD literature on reducing pollution from fireplace use.
2. **Installation of New Fireplaces.** Prohibit the use of wood-burning fireplaces in new construction, except for Environmental Protection Agency Certified Woodstoves.



WILDLIFE AND VEGETATION

Biodiversity, which includes a diversity of plants and animals found in nature, provides the foundation for the ecosystems that are required to sustain life. The City's current and continued health and prosperity depends, in part, on the ability of its natural resources to renew themselves.

Cupertino's wildlife and natural vegetation resources are concentrated in the relatively undeveloped western foothills and mountains and along Stevens Creek, not on the valley floor. Urbanization of the valley floor has rendered this environment ill-suited to the needs of wildlife and native plants.

Most of the native vegetation was removed by historic agricultural activities and the introduction of non-native grasses and crops. Native vegetation was further reduced by the more recent construction of homes, businesses, industries and infrastructure that supports the community. Fire also threatens vegetation and the animals that depend on it for food and shelter. The loss of vegetation also meant a concomitant loss of wildlife habitat that provided food, cover and shelter for numerous wildlife species.

Streamsides

Riparian vegetation grows along stream courses where there is fertile soil and ample water. It often appears as a distinct band of vegetation when contrasted against other uses. Such vegetation can be found along Stevens Creek, Permanente Creek, Regnart Creek, Heney Creek and a portion of Calabazas Creek. Common plants include: willow, California buckeye, Coast live oak, coyote brush, poison oak and California blackberry. Riparian habitats are considered among the most valuable habitats of wildlife because of the presence of water, lush vegetation and high insect populations. Less disturbed riparian areas support a wide variety of wildlife, including amphibian, reptile, bird and mammal species.

Grasslands

Grassland habitats occur on the lower slopes of the western foothills and at scattered locations at higher elevations in the Montebello Ridge system. Much of these areas were formerly used for pasture and are largely composed of non-native grasses. Plant species occurring in this habitat include wild oat, clover, rye grass and vetch. During the spring season, displays of wildflowers are



Vegetation

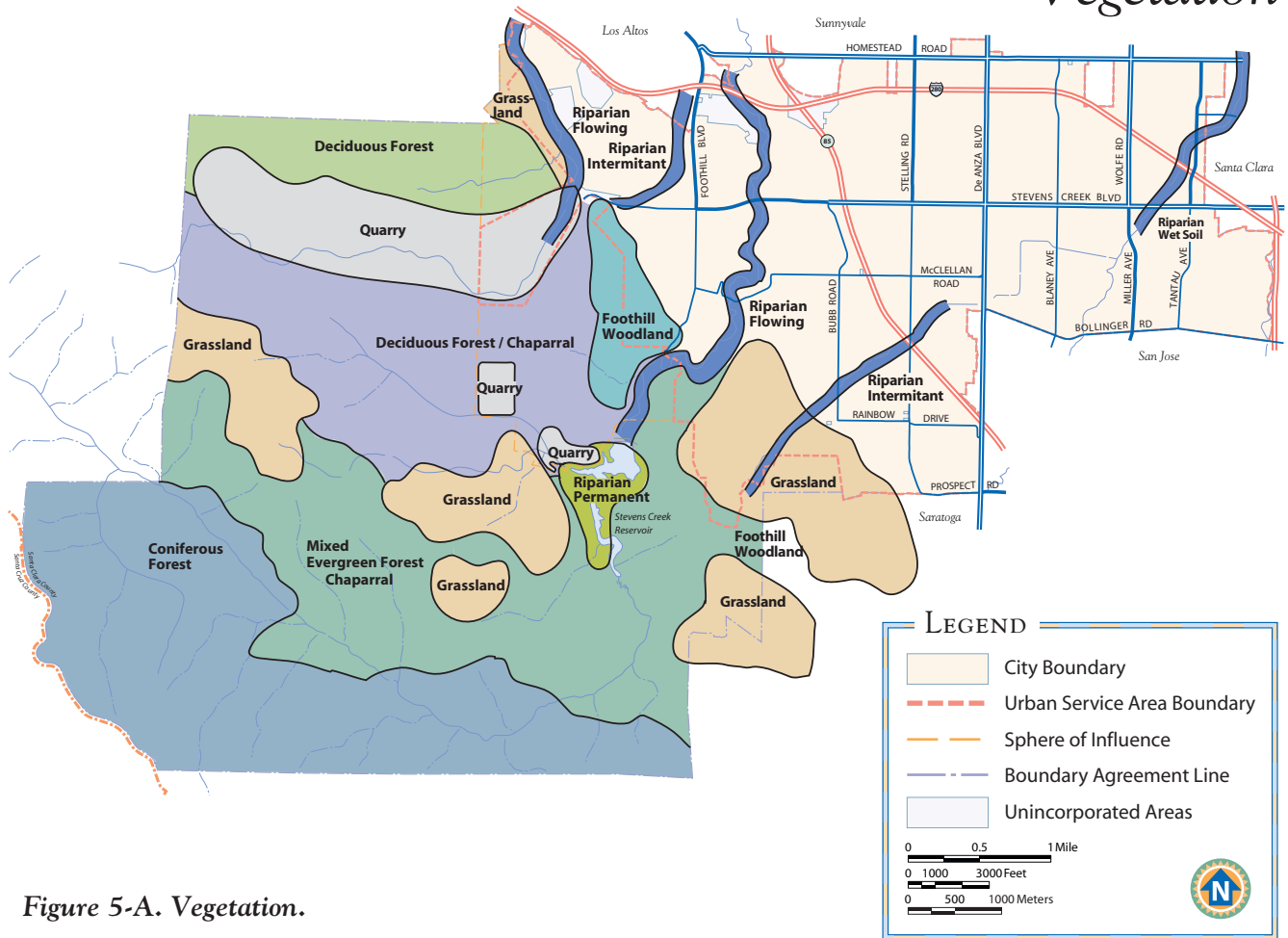


Figure 5-A. Vegetation.

expected which may include California poppy, plantago and owl clover.

Reptile and mammal species adapted to dry conditions are common in this habitat. They include the western fence lizard, western rattlesnake and the common king snake. Mammals include a variety of burrowing rodents, such as meadow mice and California ground squirrel.

Brushlands

Brushlands are a scrubby, dense vegetation type that often integrates with wood-

land habitat. This vegetation is often found on dry, rocky, steep slopes. Dominant plant species include coyote brush, poison oak, California sage and ceanothus. Mule deer, brush rabbit, bobcat and coyote utilize brushlands as part of a larger home range.

Foothill Woodlands and Forests

Characteristic of the woodland vegetation are scattered oak trees with an undergrowth in some areas of plants and low shrubs. Higher elevations in the Montebello Foothills include mixed hardwood trees and evergreen, including redwoods. Woodlands benefit wild-



life as a food source, and as shelter, nesting or cover; they help control erosion from foot-hill drainage basins; they reduce wind speeds, increasing the oxygen in the atmosphere and neutralizing certain pollutants.

Woodlands provide visual relief from the urbanized valley floor. The Montebello Ridge system's extensive tree cover gives seasonal color variation, variety of shape and definition of hillside contours. Insect or seed eating birds and mammals are common in the woodlands and are preyed upon by raptors and owls that also inhabit these areas. The larger mammals, deer coyote, etc., utilize these areas as well.



PROTECTION OF SPECIAL AREAS OF NATURAL VEGETATION AND WILDLIFE HABITATION AS INTEGRAL PARTS OF THE SUSTAINABLE ENVIRONMENT.

▶ **Policy 5-8: Public Project Landscaping**

Encourage public and quasi-public agencies to landscape their city area projects near native vegetation with appropriate native plants and drought tolerant, non-invasive, non-native plants.

Strategy

Development Plans. Review development plans for opportunities for use of native plants and drought tolerant, non-invasive, non-native plants.

▶ **Policy 5-9: Development Near Sensitive Areas**

Encourage the clustering of new development away from sensitive areas such

as riparian corridors, wildlife habitat and corridors, public open space preserves and ridgelines. New developments in these areas must have a harmonious landscaping plans approved prior to development.

Strategy

Riparian Corridor Protection. Require riparian corridor protection through a riparian corridor ordinance and through the development approval process.

▶ **Policy 5-10: Landscaping Near Natural Vegetation**

Emphasize drought tolerant and pest-resistant native and non-invasive, non-native, drought tolerant plants and ground covers when landscaping properties near natural vegetation, particularly for control of erosion from disturbance to the natural terrain.

▶ **Policy 5-11: Natural Area Protection**

Preserve and enhance the existing natural vegetation, landscape features and open space when new development is proposed.

Strategy

Native Plants. Encourage drought tolerant native and drought tolerant, non-invasive, non-native plants and trees, and minimize lawn area in the hillsides.

▶ **Policy 5-12: Hillside Property Fencing**

Confine fencing on hillside property to the area around a building, rather than around an entire site, to allow for migration of wild animals.



► **Policy 5-13: Recreation in Natural Areas**

Limit recreation in natural areas to activities compatible with preserving natural vegetation, such as hiking, horseback riding, mountain biking and camping.

► **Policy 5-14: Recreation and Wildlife Trails**

Provide open space linkages within and between properties for both recreational and wildlife activities, most specifically for the benefit of wildlife that is threatened, endangered or designated as species of special concern.

Strategy

Require identification of creeks and water courses on site plans and require that they be protected from adjacent development. State that trail easements for trail linkages may be required if analysis determines that they are needed.

MINERAL RESOURCES

Longstanding extraction of mineral resources in the Cupertino area has provided valuable construction materials to the region. At the same time, the air quality, noise and traffic impacts on the community created by extraction activities quarries need to be addressed.

The State of California, recognizing the value of preserving the State's mineral deposits, in order to achieve a sustainable future, enacted the Surface Mining and Reclamation Act of 1975 (SMARA). The objective of SMARA is to assist local governments in conserving mineral deposits for



future use. These mineral resource areas are shown in Figure 5-B. This map identifies natural resource areas and requires that jurisdictions recognize them and emphasize conservation and development of these areas.

There are mineral resource areas in the City's boundary agreement areas and in the City limits. Within Cupertino's boundary agreement areas there are two quarries, Hanson Permanente and Stevens Creek, which have been designated by the State as having mineral deposits of regional or state significance. Since the quarries are in the unincorporated area, Santa Clara County has regulatory jurisdiction. The County's mineral resource policies are directed toward preserving existing resource areas and, where feasible, designating new areas and expanding existing sites.

Within Cupertino's City limits there are classified mineral resource areas for which the State requires policies supporting preservation and extraction. Most of the areas are already developed into residential and other uses. One area, the "Gravel Pit" is considered depleted. These areas, therefore, would not benefit from conservation. The areas that would benefit from conservation are outside the City limits.



Mineral Resources

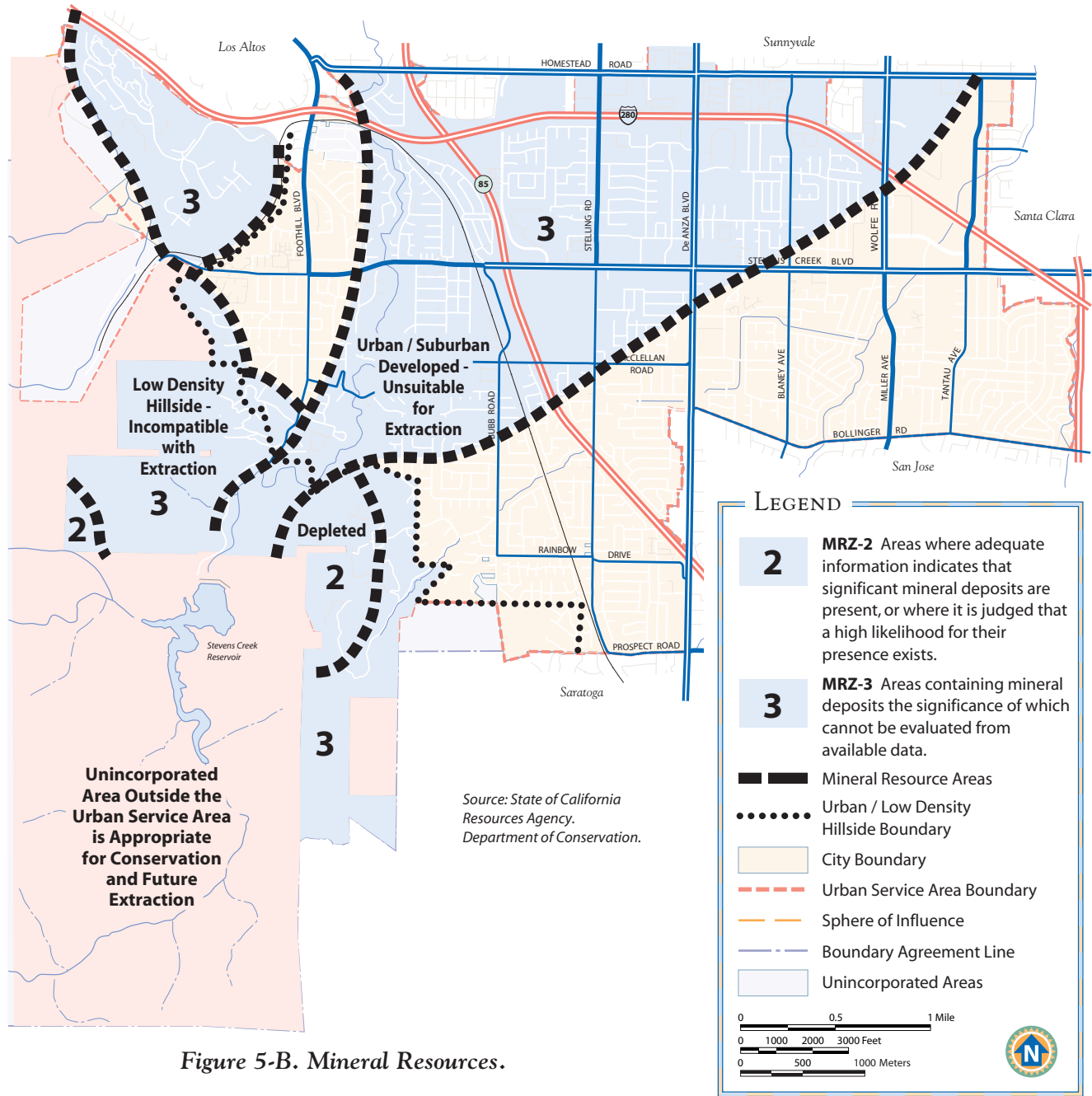


Figure 5-B. Mineral Resources.

Cupertino’s proposed policies recognize the existence and potential of the identified mineral resource areas. However, proposed policies reflect an underlying assumption the quarries should be limited to their existing operations in terms of noise and traffic. For many years, Cupertino residents have

expressed concern about quarry pollution, noise and traffic. Cupertino officials have stated at public hearings that the operation controls and limits should be set. New areas could be accessed as long as current noise and traffic levels are not exceeded and environmental concerns are met.





MINERAL RESOURCE AREAS THAT MINIMIZE COMMUNITY IMPACTS AND IDENTIFY FUTURE USES

► **Policy 5-15: Mineral Resource Areas**

Consider new mineral resource areas within Cupertino's sphere of influence, but the cumulative impact of existing and proposed activity should not exceed present operations in terms of noise and traffic. Work with Santa Clara County to assure that mining operations outside the City limits are consistent with the City's General Plan, that restoration plans are adequate, and that mining activity is not extended into undisturbed lands without adequate documentation of economic purpose and environmental impacts and mitigations.

Strategies

1. **Traffic and Noise Studies.** Perform traffic and noise studies if applications for increased mineral extraction activities are proposed.
2. **Joint Study Process.** Establish a joint study process in the sphere of influence and boundary agreement areas with Santa Clara County to reach agreement on future land uses and mineral extraction activities.

► **Policy 5-16: Mineral Extraction Controls**

Control scenic restoration and noise pollution as well as air and water pollution in mineral extraction quarrying, processing and transportation

► **Policy 5-17: Incompatible Land Uses**

Conserve mineral resource areas outside the City.

Strategy

New Development. When new development is proposed, do not allow incompatible land uses in and around identified mineral resource areas. Uses considered incompatible are high density residential, low density residential with high unit value, public facilities and industrial and commercial uses with intensive impacts.

► **Policy 5-18: Recreation at Old Quarries**

Consider the desirability of designating abandoned quarries for passive recreation to rehabilitate the land.

WATER RESOURCES

The City's sustainable future is, in part, dependent upon an adequate supply of clean water as well as the effective management of natural watershed resources. In addition to fundamental health and sanitation, an adequate potable water supply provides significant public and private benefits such as irrigation, ecological habitat, recreation opportunities and aesthetics.

In recent years water management emphasis has shifted away from supply side efforts such as the creation of dams and reservoirs to water conserving and efficiency technologies used in planning, design and construction of sites, buildings and land uses.



Preservation of Watersheds

The Cupertino planning area has a very productive watershed lands, with abundant vegetation and heavy rainfall. This watershed is important to the City, the county and the region as surface runoff flows into the stream corridors and storm drain systems and eventually terminates at the wildlife refuges and environmentally sensitive areas of the southern portion of San Francisco Bay. It is, therefore, crucial that the City's watershed, including stream corridors, be protected from pollutants, siltation, sedimentation erosion and loss of vegetation.



PROTECTION AND EFFICIENT USE OF WATER RESOURCES

► **Policy 5-19: Natural Water Bodies and Drainage Systems**

Require that site design respect the natural topography and drainages to the extent practicable to reduce the amount of grading necessary and limit disturbance to natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.

► **Policy 5-20: Reduction of Impervious Surfaces**

Minimize storm water flow and erosion impacts resulting from development.

Strategies

1. Change City codes to include a formula regulating how much paved surface is allowable on each lot. This would include driveways and patios installed at the time of building or remodeling.

2. Encourage the use of non-impervious materials for walkways and driveways. If used in a City or quasi-public area, mobility and access for handicapped should always take precedent.
3. Minimize impervious surface areas, minimizing directly-connected impervious surfaces, maximizing onsite infiltration and using on-site retaining facilities.
4. Encourage volunteer organizations to help restore and clean the creek beds.

► **Policy 5-21: Pollution and Flow Impacts**

Prior to making land use decisions, estimate increases in pollutant loads and flows resulting from projected future development to avoid surface and groundwater quality impacts.

Strategy

Best Management Practices. Require incorporation of structural and non-structural Best Management Practices (BMPs) to mitigate the projected increases in pollutant loads and flows.

► **Policy 5-22: Compact Development Away from Sensitive Areas**

Where such measures do not conflict with other municipal purposes or goals, encourage, via zoning ordinances, compact development located away from creeks, wetlands, and other sensitive areas.

► **Policy 5-23: Conformance with Watershed-Based Planning and Zoning**

Encourage development projects to follow watershed-based planning and zoning by examining the project in the context of the entire watershed area.



Ground Water Recharge Facilities

The Santa Clara Valley Groundwater sub-basin provides approximately half of the total water demands in Santa Clara County, with an estimated operating capacity of approximately 350,000 acre-feet. The Santa Clara Valley Water District is the groundwater management agency in Santa Clara County. The District conjunctively manages the basins to maximize water supply, protect the basins from contamination and ensure that groundwater supply is sustained. The District manages the groundwater resources, including groundwater recharge, through percolation ponds and in-stream recharge of the creeks. The McClellan Ponds recharge facility is located in Cupertino.

► **Policy 5-24: Ground Water Recharge Sites**

Support the Santa Clara Valley Water District to find and develop groundwater recharge sites within Cupertino's planning area and provide for public recreation at the sites where possible.

► **Policy 5-25: Other Water Sources**

Encourage the research of other water sources, including water reclamation.

► **Policy 5-26: Industrial Water Recycling**

Encourage industrial projects, especially at the building permit approval stage, to have long-term conservation measures including recycling equipment for manufacturing and pooling water supplies in the plant. Work with the Cupertino Sanitary District to carry out this policy.

► **Policy 5-27: Natural Water Courses**

Retain and restore creek beds, riparian



corridors, watercourses and associated vegetation in their natural state to protect wildlife habitat and recreation potential and assist groundwater percolation. Encourage land acquisition or dedication of such areas.

Strategy

Santa Clara Valley Water District. Work with the Santa Clara Valley Water District and other relevant regional agencies to enhance riparian corridors and provide adequate flood control by use of flow increase mitigation measures.

Other Water Resources

Cupertino has two major water suppliers: the California Water Company and the San Jose Water Company. Both of these retailers purchase their water supply from the Santa Clara Valley Water District.

Water comes from two main sources: wells fed by groundwater, and imported water from the Rinconada Treatment Plant. Cupertino receives approximately 1.7 million



gallon a day from the underground sources and about 4.5 million gallons a day from the Rinconada plant. Stevens Creek Reservoir yields about 2,500 acre feet per year to the seasonal run-off from groundwater recharge. The Santa Clara Valley Water District projected the total demand for Cupertino at about 6.85 million gallons a day, which can be reduced through conservation. Cupertino residents consume approximately 131.7 gallons of water per day (6.85 MM gallons per day/52,000 residents), which compares favorably to the Bay Area average of 161.2 gallons per day (Bay Area Water User Associations). However, this does not mean further conservation is not necessary.

Urban Conservation

Climatic conditions of the region within which Cupertino is located reflect the climatic conditions typical of the rest of the State of California.

These conditions are characterized by periods of hot and dry seasons and seasons of heavy rainfall during the wet winter months. Weather conditions, however, can vary from year to year. In recent times, the region experienced periods of multi-year droughts in 1976-1977 and again in 1987-1992. Given the cyclical nature of the climatic conditions, it may be assumed that the region may again experience periods of drought in the future.

Water conservation is of great economic, social and environmental importance. During these past periods of drought, the two retailers serving the City imposed water restrictions on their customers in response to the Santa Clara Valley Water District's calls for water use reduction. The reduction targets were periodically adjusted during the drought based upon water reserves, water

usage and projected water supplies from both local and imported sources. Through the water management programs of both the District and the retailers, groundwater levels remained healthy and land subsidence was avoided.

The District is currently updating its Integrated Water Resource Plan (IWRP), the purpose of which is to develop a flexible and incremental water supply plan for Santa Clara County through the year 2040. According to the District, flexibility is a key aspect of the IWRP 2002, which calls for periodic reassessments to respond to ever-changing water demand and water supply conditions. The District strives to meet the needs of its water retailers, but unpredictable eventualities necessitate continual monitoring and revisions to the District's water management activities.

In the 2001 session, the State Legislature and Governor enacted Senate Bills 221 and 610, which requires jurisdictions to secure a water supply assessment from suppliers of water systems, for projects subject to the California Environmental Quality Act. The water supply assessment must be incorporated into the environmental documents and considered when determining if projected water supplies are sufficient to satisfy the demands of the project, in addition to the existing and planned future demands.

▶ **Policy 5-28: Interagency Coordination**

Actively pursue interagency coordination for regional water supply problem solving.

▶ **Policy 5-29: Coordination of Local Conservation Policies with Region-wide Conservation Policies**



Coordinate city-wide water conservation efforts with the Santa Clara Valley Water District efforts being conducted on a regional scale. Many of these conservation efforts are outlined in the Santa Clara Valley Water District Drought Plan and Countywide Water Use Reduction program.

Policy 5-30: Public Information Effort

Provide the public information regarding water conservation/efficiency techniques, including how paving and other impervious surfaces impact runoff.

Strategy

Consider sending regular notices to households and businesses on water prohibitions, water allocations and conservation tips. Become a regularly featured article in the Cupertino Scene, Courier and Guide. Provide conservation videotapes on the City’s government channel.

Include water-wise demonstration gardens in some parks where feasible as they are relandscaped or improved using draught tolerant native and non-invasive, non-native plants.

Work with the County Master Gardeners to identify water-wise plant materials and irrigation methods for use in public and private areas. This information should be posted on the Sustainable portion of the City’s web site and included in Cupertino Scene Sustainable column.

Policy 5-31: Water Use Efficiency

Promote efficient use of water throughout the City.

Strategies:

1. **Landscaping Plans.** Require water-efficient landscaping plans that incorporate the usage of recycled water for landscape irrigation as part of the development review process.
2. **Water Conservation Programs.** Work with the Santa Clara Valley Water District to undertake programs that promote water use efficiency for residential and commercial customers. Maintain programs for long-term water conservation at City Buildings, including installation of low flow toilets and showers, installation of automatic shut off valves in lavatories and sinks and water efficient outdoor irrigation.

2
SEE MUNICIPAL
CODE CHAPTER
9.189

Urban Runoff Pollution

Urban runoff pollution is caused by the accumulated debris and chemicals on streets and pavements that are carried by water runoff into the storm drain system and eventually into San Francisco Bay. Unlike pollutants that come from a point source, such as sewer pipe, urban runoff pollutants are washed from streets, parking lots, neighborhoods, construction sites and other exposed surfaces throughout the City.

While urban runoff pollutants come from a variety of sources, many of them are familiar to residents because they originate from the home and automobile. They include detergents, paint products, pet wastes, garden pesticides, fertilizers, eroded soils, motor oil and car exhaust. Since the storm drains are separate from the sanitary sewers, pollutants carried by water runoff into the storm drain are not treated and flow directly into the creeks and streams that feed San Francisco Bay.



Previously, it was widely believed that wastewater treatment plants industries and other sources were the main contributors of contaminants to the Bay. Today, urban runoff is recognized as a significant contributor to Bay pollution. The concentrations of pollutants can have deleterious effects on aquatic wildlife, which include the impairment of growth, reproduction and overall health of sediment-dwelling organisms, fish and other wildlife. Some toxic substances accumulated by aquatic organisms enter the food chain when consumed by larger fish, birds or humans.

Government Action

To comply with an National Pollutant Discharge Elimination System (NPDES) Municipal Storm Water permit, enforced by the San Francisco Bay Regional Water Quality Control Board, the 15 local municipalities formed the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). The SCVURPPP works with the participating agencies and the Regional Board to Develop feasible solutions to controlling urban runoff quality. In addition, Cupertino is required to prepare a city-specific Urban Runoff Management Plan. This plan identifies the strategies, tasks and schedules needed to implement a wide array of pollution control measures.

Initially, many of the urban runoff pollution control measures centered on education and eliminating illegal discharges. As the public has become more aware of the urban runoff problem and illegal discharges elimination, the focus has shifted to controlling the impacts of new and re-development.



IMPROVED QUALITY OF STORM WATER RUNOFF

▶ **Policy 5-32: Urban Runoff Pollution Prevention Program**

Support and participate in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) in order to work cooperatively with other cities to improve the quality of storm water runoff discharge into San Francisco Bay.

▶ **Policy 5-33: Illicit Discharge into Storm Drains and Waterways**

Prohibit the discharge of pollutants and the illicit dumping of wastes into the storm drains, creeks and waterways.

▶ **Policy 5-34: Storm Water Runoff**

Encourage the reduction of impervious surface areas and investigate opportunities to retain or detain storm runoff on new development.

▶ **Policy 5-35: Development on Septic Systems**

Do not permit urban development to occur in areas not served by a sanitary sewer system, except in the previously approved Regnart Canyon development.

▶ **Policy 5-36: Mitigation for Potential Storm Water Impacts**

Require mitigation measures for potential storm water pollutant impacts for projects subject to environmental review.



► **Policy 5-37: Pest-Resistant Landscaping and Design Features**

The City will encourage the consideration of pest-resistant landscaping and design features, and the incorporation of storm water detention and retention techniques in the design and landscaping of proposed development projects

The City will reduce runoff from the use of pesticides and chemical fertilizers from public and quasi-public land by employing companion planting techniques, using pesticides such as insecticidal soaps and oils, mulching and release of beneficial insects as appropriate.

SOLID WASTE

In recognition of the concerns expressed regarding the diminishing landfill capacity and the scarcity of potential landfill sites to meet the future solid waste disposal needs, the State Legislature passed AB 939, which required that cities reduce the amount of waste going to landfill sites. The State mandated requirement was a two step process: a twenty-five (25) percent reduction by 1995 and a second twenty-five (25) percent reduction by 2000 for a total reduction of fifty (50) percent. The City has now reduced the solid waste tonnage disposal to comply with the State mandated requirements.

The Los Altos Garbage Company provides garbage pickup and recycling services to the City of Cupertino. The Cupertino residents and industries dispose of approximately 38,000 tons of garbage annually. Residential land uses account for 22% of the total tonnage; commercial and industrial land uses account for 40%; debris boxes (construction materials) account for 22%; while self-haul accounts for 16% of the total annual tonnage.

Concerns regarding the lack of potential landfill sites to meet future needs for solid waste disposal and growing recognition of the environmental impacts associated with landfill usage prompted Cupertino to explore potential solutions to the solid waste disposal problem. To meet its future solid waste disposal needs, the City has executed a contract with Browning and Ferris that provides landfill capacity at Newby Island in Milpitas. The term of the agreement is 35 years and ends in 2023, or at the time the specified tonnage allocated (2,050,000 tons) is reached.



A SOLID WASTE STREAM REDUCTION PROGRAM THAT MEETS OR EXCEEDS STATE REQUIREMENTS

The City is beginning to explore the possibility of expanding its recycling programs to include food waste (to be composted) and construction and demolition waste (to be recycled or reused). In addition, the City is investigating the available options for recycling or disposal of electronic waste. Some of the current options have been shown to be unacceptable for environmental reasons. The City will continue to work to determine the best options for its residents and businesses.

► **Policy 5-38: Commercial/Industrial Recycling**

Expand existing commercial and industrial recycling programs to meet and surpass AB939 waste stream reduction goals.





Strategy

Increase Recycling. Request that all commercial and industrial uses increase their recycling efforts to help the city achieve its recycling goals.

► **Policy 5-39: Residential Recycling**

Streamline the residential curbside recycling program in the next decade. Include all city-wide residential zoning districts in the curbside recycling program.

Strategies

1. **Coordination with Los Altos Garbage Company.** Work closely with the Los Altos Garbage Company to develop and implement efficient and effective recycling methods.
2. **E-Waste Recycling Program.** Continue /make permanent the e-waste recycling program.
3. **Curbside Recycling of yard waste.** Include vegetable; fruit and other appropriate food items, as well as, recycling of non-reusable batteries as the City of Palo Alto does.

► **Policy 5-40: On-site Garbage Area Dedication**

Modify existing, and require for new developments, on-site waste facility requirements for all multi-family residential, commercial and industrial land uses to have 50% of their garbage area dedicated to recycling and no more than 50% garbage.

Strategy

Ordinance Revisions. Revise existing ordinances relative to on-site waste facility requirements for all multi-family residential, commercial and industrial zoning districts to require that a minimum of 50% of garbage area be dedicated to recycling.

► **Policy 5-41: Public Education**

Promote the existing public education program regarding the reduction of solid waste disposal and recycling.

Strategy

Recycling Program Information. Use the local television channel, the Cupertino Scene, the Internet and other available media to provide information to the residents about the objectives of the City's recycling program.

► **Policy 5-42: City Recycling**

Encourage City staff to recycle at all City facilities.

Strategies

1. **Recycling Opportunities.** Provide collection bins and increase the number of existing recycling bins at strategically located areas to facilitate disposal of recyclable materials, including all City parks.



2. **Schools and Institutions.** Partner with schools/institutions in Cupertino to ensure that they understand and are adhering to the City's recycling goals and providing adequate recycling opportunities to staff and students.

▶ **Policy 5-43: Re-distribution of Reusable Materials**

Through public education, encourage residents and businesses to re-distribute reusable materials, e.g., garage sales, materials exchange.

Strategies

1. **Dissemination of Recycling Information.** Disseminate information to both businesses and residents regarding the benefits of recycling and further reducing the solid waste stream.
2. **Use of the Internet.** Set up a web site for the benefit of the public where the availability of recyclable materials can be posted and exchanges can be conducted.

▶ **Policy 5-44: Reuse of Building Materials**

Encourage the recycling and reuse of building materials, including recycling materials generated by the demolition and remodeling of buildings.



Recycled building materials used in Cupertino Library reconstruction

Strategies:

1. **Post Demolition and Remodeling Projects.** Encourage contractors to post demolition and remodeling projects on the Internet announcing the availability of potential reusable materials.
2. **Public and Private Projects.** Require contractors working on City projects to use recycled building materials and sustainably harvested wood products to the maximum extent possible and encourage them to do the same on private projects.

WASTEWATER

Wastewater collection and treatment are provided to the City of Cupertino by the Cupertino Sanitary District and the City of Sunnyvale. The majority of the City is served by the Cupertino Sewer District, while the City of Sunnyvale serves only a small portion of the Cupertino Urban Service area within the San Jose Rancho Rinconada area, which is located adjoining Lawrence Expressway on the east side of the City.



ADEQUATE SEWER CAPACITY

▶ **Policy 5-45: Coordination with the Cupertino Sanitary District**

Provide input into District's Master Plan preparation process to ensure that issues relevant to Cupertino's land use policies are addressed, and work closely with the District on the implementation of the General Plan.



The Cupertino Sanitary District came into being in 1957. In 1964 it prepared its first Master Plan. Presently the District is in the process of preparing its second Master Plan, a process that will take approximately two years. The Cupertino Sanitary District collects and transports waste water collected in Cupertino to the San Jose/Santa Clara Water Pollution Control Plant located in North San Jose, from which it has purchased 8.6 millions gallons per day (mgp). Presently, the District is only using 5.1 mgp. Therefore, there are 3.5 mgp available to the District to accommodate future growth.

The District maintains approximately one million feet of sewer lines. A recent inspection of approximately 100,000 feet of sewer lines revealed that the system is in good condition. However, although the physical conditions of the infrastructure appear to be good, there are some problems with the carrying capacity of a number of lines in the system. The lines located at the Town Center, south of Wolfe Road and south of I 280 on Wolfe Road, Stelling Road and Foothill Blvd. are running either at capacity or over capacity. In order to accommodate the effluent from major developments, this problem will have to be corrected. The District expects that private developers will defray the cost of upgrading the affected sewer lines. To transport wastewater collected in Cupertino to the Plant, the Sanitary District must use lines traversing the Cities of Santa Clara and San Jose. Consequently, Cupertino's effluent generated by future growth may impact these lines. Therefore, the potential impacts on these lines must be considered.

The City of Sunnyvale provides wastewater treatment service for two blocks of Cupertino's commercial properties along

east Stevens Creek Boulevard. This service area also includes unincorporated single-family residential properties within the Cupertino Urban Service area. The City of Sunnyvale Wastewater Treatment Plant has a daily treatment capacity of 29 mgd of which approximately 15 mgd are being utilized. The City of Sunnyvale can continue to provide treatment capacity for future growth in its Cupertino service area. However, the trunk service mains and other portions of the sewer main system would probably have to be upgraded by the developers, if large office users are allowed in the Cupertino service area. But it is unlikely that the Stevens Creek Conceptual Plan would be amended to allow office uses in this area because of the need to maintain compatibility with adjoining single-family residential uses.

► **Policy 5-46: Sunnyvale Treatment Plant**

Consider the impacts on the Sunnyvale sanitary sewer system if significant office uses are proposed in the east Stevens Creek Boulevard area.

► **Policy 5-47: Vallco Parkway**

Recognize that new high discharge users in the Vallco area and the Stevens Creek Boulevard and Blaney Avenue area will require private developers to pay for the upgrading of tributary lines.

Strategy

Cost Estimates. Develop preliminary cost estimates for the upgrading of the sewer tributary lines to discuss with prospective developers.



RESOURCES

We'd like to thank Julie Philips, Director, CCC Statewide Energy Management Program and Pat Cornely on her staff, from De Anza College for their assistance and the information they have provided.

The following resources were used as reference for this section:

- PG&E, www.pge.com (search under “sustainable” and check-out the rebates!)
- California Department of Energy:
 - www.energy.ca.gov
 - www.californiaenergyefficiency.com
 - www.consumerenergycenter.org/rebate
 - database of current rebate and incentive programs.
- U.S. Department of Energy, www.eere.energy.gov/buildings/highperformance, www.sustainable.doe.gov/management/geninfo
- US Green Building Council, www.usgbc.org. Visit this site for information on the LEEDS (Leadership in Energy & Environmental Design) standard and certification process for “Green Buildings and products”.
- Sacramento Municipal Energy District, www.smud.org, go to the Green Power section of site.
- Sunset Magazine, *Sunset: New Western Garden Book* and www.sunset.com
- Bay Area Alliance for Sustainable Communities, www.bayareaalliance.org
- Sustainable San Mateo County www.sustainablemateo.org
- Northern California Solar Energy Association, www.noricalsolar.org
- City of Santa Monica, www.ci.santamonica.ca.us/environment
- City of Portland Oregon, Office of Sustainable Development, www.sustainableportland.org
- De Anza College, www.energymanagement.deanza.edu

