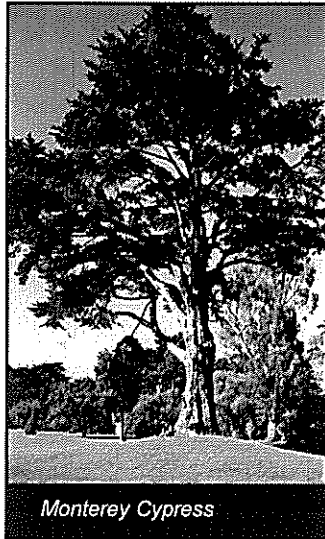


5.04.200 CONSERVATION

5.04.210 INFLUENCES OF NATURAL AND MANMADE FEATURES

5.04.211 Climate

Colma's climate is affected by marine influence. This local climate is dominated by the Pacific Ocean 98% of the time. Dominant westerly winds prevail throughout the summer with frequent fog. Winter months are usually very wet and cold. Ninety percent of the rain occurs between the months of November and April. Ground water resources are recharged at this time.



Monterey Cypress

The average rainfall varies between 20-25 inches per year. Temperatures range from lows in the 30's (degrees Fahrenheit) to highs approaching the 80's. Colma has a microclimate of its own: it is lower in elevation from surrounding urban areas, is influenced by Colma Creek drainage, and is in the shadow of San Bruno Mountain.



Big Periwinkle

There is a heavy incidence of fog and wind throughout the summer months, which limits the range of plants that can be grown in the open. Special care and selection must be given when selecting landscape plants for Colma. A representative plant list has been developed as a basic guide for landscape selection.

TABLE OS-2 PLANT LIST FOR COLMA

TREES (15 GALLON)

Acacia longifolia (numerous varieties)
Aesculus carnea/Red Horsechestnut *
Agonis flexuosa/Peppermint tree
Alnus cordata/Italian Alder
Casuarina stricta/Coast Beefwood *
Cedrus Atlantica/Atlas Cedar
Cedrus deodara/Deodar Cedar
Cupressocyparis leylandii/Leyland Cypress
Cupressus macrocarpa/Monterey Cypress
Eucalyptus (numerous varieties available)
Ficus nitida/Indian Laurel Fig *
Melaleuca (several varieties)
Metrosideros excelsus/New Zealand Christmas Tree *
Pinus eldarica
Pinus halepensis/Aleppo Pine
Pinus pinea/Italian Stone Pine
Pittosporum crassifolium
Pittosporum eugenioides
Pittosporum undulatum/Victorian Box
Pyrus calleryana/Flowering Pear *
Tilia cordata/Little Leaf Linden *
Tristania conferta/Brisbane Box
Tristania laurina *
* suitable for street trees

SHRUBS (5 GALLON)

Abelia grandiflora/Glossy Abelia
Berberis darwinii/Darwin Barberry
Carissa grandiflora 'Tuttle'/Natal Plum
Ceanothus (numerous varieties available)
Cistus/Rockrose (several varieties)
Coleonema pulchrum/Pink Breath of Heaven
Dodonaea viscosa/Hop Bush
Elaeagnus pungens/Silverberry
Escallonia (numerous varieties available)
Euryops pectinatus/Margerite Daisy
Grevillea 'Noellii'/Grevillea
Hebe (numerous varieties available)
Leptospermum scoparium "Ruby Glow"/New Zealand Tea Tree
Myrica californica/Pacific Wax Myrtle
Phormium (many varieties)
Pittosporum tenuifolium
Pittosporum tobira/Tobira ('Variegata' and 'Wheeler's Dwarf' varieties)
Plumbago capensis/Cape plumbago
Prunus laurocerasus 'Zabeliana'/Zabel Laurel
Raphiolepis indica (numerous varieties)

GROUNDCOVER / VINES

Drosanthemum floribundum/Rosea Ice Plant
Ficus pumila/Creeping Fig
Gazania
Hedera helix 'Baltica'/English Ivy
Hypericum calycinum/Aaron's Beard
Lampranthus spectabilis/Trailing Ice Plant
Trachelospermum jasminoides/Star Jasmine
Vinca minor/Dwarf Periwinkle

Note: Site specific microclimate conditions should be considered in the selection of plantings.

**TABLE OS-3
SHOWY FLOWER SELECTIONS FOR COLMA**

TYPE OF PLANT	FLOWERING SEASON	FLOWER COLOR
Trees:		
Acacia baileyana "purpurea"	Spring	Yellow
Aesculus carnea/Red Horsechestnut	Spring	Red/Pink
Cercis occidentalis/Western Redbud	February-March	Pink/Purple
Eucalyptus ficifolia/Red Flowered Gum	Summer	Orange/Red
Magnolia (many species available)	Spring/Summer	White/Pink
Robinia ambigua "Idahoensis" & "Purple Robe"	Spring	Magenta/Purple
Shrubs:		
Abelia grandiflora	Summer/Fall	White/Pink
Abutilon hybridum/Chinese Lantern	Spring	Red/Yellow
Berberis darwinii/ Darwin's Barberry	Spring	Orange/Yellow
Ceanothus/California Lilac*	Spring	White/Blue/Purple
Escallonia laevis/Pink Escallonia	Summer	White/Pink
Fremontodendron californicum/Flannel Bush*	Spring	Yellow
Lavandula angustifolia/English Lavender	Summer	Purple
Lavatera assurgentiflora/Tree Mallow	Spring /Summer/Fall	Lavender
Plumbago auriculata/Cape Plumbago	Spring to December	Violet
Rhaphiolepis (many species available)	Spring	Red/Pink/White
Tibouchina urvilleana/Princess Flower	Spring/Summer/Fall	Lavender
Ground Covers:		
Ajuga/Carpet Bugle	Spring	Blue
Armeria maritima/Sea Thrift	All Year	Pink
Liriope muscari/Big Blue Lilly Turf	Summer	Blue/Purple
Vinca major/Big Periwinkle	Spring/Summer	Violet
Vinca minor/Dwarf Periwinkle	Spring/ Summer	Violet
Perennials:		
Matilija Poppy	Summer	White/Yellow
Agapanthus orientalis/Lily of the Nile	Summer	White/ Blue-purple
Chrysanthemum	Fall	Many colors available
Rudbeckiahirta/Daisies	Fall	Yellow/ Orange
Bulbs		
Endymion hispanicus/Spanish Bluebell	Spring	Blue/Purple
Galanthus (many species available)	Spring/Summer	Many colors available
Gladiolus (many species available)	Spring/Summer	Many colors available
Annuals		
Antirrhinum majus/Snapdragon	Winter	Pink/Red
Primula/Primrose (many species available)	Winter	Many colors available
Vines		
Hardenbergia violacea	Winter	Purple
Jasminum (many species available)	Summer	White
Solanum jasminoides/Potato Vine	All Year	White
Wisteria (many species available)	Summer	Blue/ White

* California natives



Tibouchina urvilleana



Liriope muscari



Rudbeckiahirta



Plumbago auriculata

5.04.212 Flooding

A continuing concern of Colma is the flooding that occurs along Colma Creek. The drainageway is approximately eight miles long, flowing heaviest during the rainy season from November through April. Even though the rainfall amount in Colma is not unusually high, the rainfall often occurs over a short period. As urbanization increases in the watershed, the potential for groundwater infiltration decreases. Consequent water runoff and the potential for flooding increases.

Flooding occurs in the south and north end of Town at El Camino Real and F Street, and on El Camino at the Mission Street Wye. Colma is not part of the Federal Emergency Management Agency (FEMA) flood mapping program. However, a locally-devised flood zone along Colma Creek is shown on the City's Zoning Map. An open space policy provides that on site runoff retention facilities be constructed as a part of each new development project in Colma. Adjoining communities are urged to follow this same practice when projects are considered that may influence the Colma Creek drainageway. An overall flood relief project, involving bypass culverts to be constructed along El Camino Real and Mission Road, is expected to be completed by the San Mateo County Flood District in conjunction with Caltrans and BART by the year 2000. The flood relief improvements are designed for the 50 year event.

5.04.213 Air Quality

Colma enjoys good air quality. The air quality is largely affected by climate and topography, as well as the amount and source of air pollutants in the area. The Town of Colma is part of the San Francisco Bay Air Basin defined by the State Air Resource Basin and is subject to administrative regulations of the Bay Area Quality Management District (BAQMD).

Regional air quality conditions are monitored continually and analyzed annually by the BAQMD. The nearest operating air quality monitoring station in the project vicinity is located in San Francisco. Government standards for carbon monoxide, ozone, nitrogen oxide and sulfur dioxide have not been exceeded in recent years.

The major sources of air pollution in Colma are vehicular traffic and natural gas and fuel oil combustion for space, water heating and cooking.

The influence of I-280 and local vehicular traffic have a constant effect on the air quality, but the prevailing northwesterly winds disperse the air pollutants.

The location of Colma west of San Bruno Mountain also has an effect on local air quality. The mountain protects Colma from the influences of pollutants along the U.S. 101 corridor. Upslope and downslope air movements on the west slopes of the mountain help disperse air pollutants along the I-280 corridor.

As future developments take place in Colma, it is anticipated that they will be similar in nature to what already exists. Industries that produce concentrated amounts of air pollution are not planned in Colma. As vehicular traffic increases in the Bay Area, Colma can mitigate the potential for pollutant concentrations by making timely circulation improvements to facilitate the flow of traffic along major thoroughfares.

5.04.214 Groundwater

Colma is within the Colma Creek watershed, which is part of the San Mateo Basin, a major groundwater basin. This watershed drains into the San Francisco Bay by way of Colma Creek.

Groundwater is an important water source in Colma with many of the cemeteries depending on groundwater for irrigation. The groundwater aquifer that these cemeteries depend on extends through South San Francisco and northern San Bruno. The trough is estimated to be two miles wide by nine miles long, lying between San Bruno Mountain and the Santa Cruz Mountains. Most of the wells tapping the aquifer are in the order of 200-600 feet deep and produce 100-600 gallons per minute. The mineral, chemical and physical constituents found in the groundwater generally fall below the California Domestic Water Quality maximum contaminant levels.

5.04.215 Public Water Supply

Although the local groundwater is an important water resource for irrigation purposes, Colma's potable source is supplied by the San Francisco Water Company through the Cal Water Service Company. The majority of this water is from the Hetch Hetchy Reservoir. This water supply is considered high quality because of its softness and low quantity of dissolved solids (TDS). The majority of the inorganic and organic compounds found in the water can be removed by standard methods of water treatment.

Based on the expected increase in population in the region, the demand for water is expected to increase moderately to the year 2000. Therefore, water conservation is becoming more essential. Colma imposes a very small demand on Hetch Hetchy resources. An important General Plan goal is to plan for a resident population in Colma not exceeding 1,500 by the year 2005.

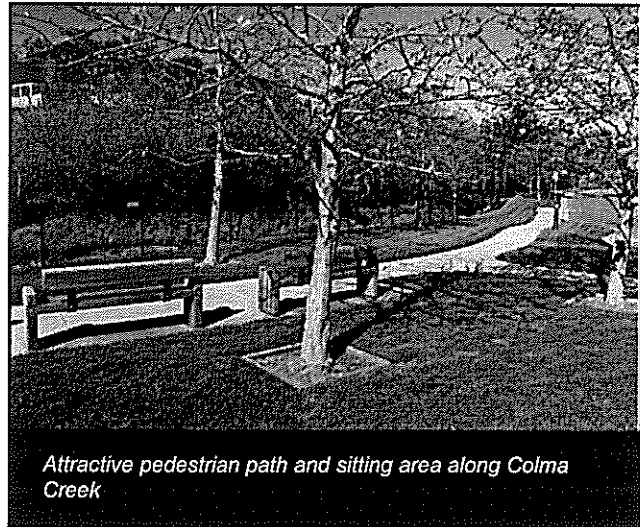
5.04.216 Soil and Mineral Resources

Colma occupies a wide drainage basin centered on Colma Creek. The geologic formation of the area is known as the Colma formation. It consists of friable, well sorted, fine to medium grained sand and local gravel, sandy silt and clay. The formation is weakly to moderately consolidated and is well drained. An alluvial strip, consisting of unconsolidated permeable sand and gravel, exists along Colma Creek.

The State Division of Mines and Geology has not classified or designated any areas in Colma as containing regionally significant mineral resources. However, Colma sand is a well known construction resource. CALCO, operator of the Hillside Landfill, is presently reclaiming a historic sand pit from which material was mined for utility trench backfill. Any new proposal for mineral resource extraction in an open space district would require a General Plan amendment, a Zoning Code amendment, a Use Permit and an approved Reclamation Plan.

5.04.217 Vegetation

Colma's natural vegetative habitat is scrub, although some riparian areas would be expected along Colma Creek. Because of agricultural practices, memorial parks and



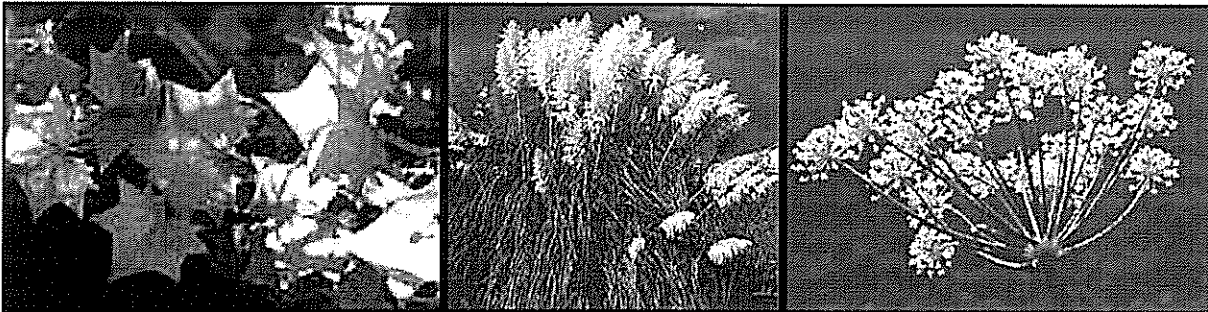
Attractive pedestrian path and sitting area along Colma Creek

urbanization, this habitat has been removed. The vegetative cover of Colma now consists primarily of introduced ornamental and native plant materials.

5.04.217.1 Riparian Vegetation. Riparian vegetation, largely willow and alder, is limited to the banks along open section areas of Colma Creek. These areas are located behind the commercial district west of Mission Road, from the Cypress Lawn Cemetery offices to Collins Avenue west of City Hall, from Serramonte Boulevard north about 800 feet, and in front of Woodlawn and Greenlawn adjacent to El Camino Real. The remaining portions of the creek in Colma run through conduit.

The areas of Colma Creek that are open deserve recognition for their riparian and open space value. Riparian vegetation supports a variety of wildlife and enhances the natural setting of the Town. Sections of open creek at road crossings, in particular, should be preserved.

5.04.217.2 Biological Pollution from Pest Plants. Pest plants are non-native species that spread into surrounding ecosystems, displacing native plants. The pest plants do this either because they are more aggressive in their growth habits, because they put out more seed that lasts longer in the soil, or because there is nothing to eat them, compete with them, or disease them. This process can have profound effects on the native ecosystem: as native plants are killed off, the animals that depend on those



Some of the pest plants found in Colma (Left to Right): Cape Ivy, Pampas Grass, and Fennel. Although many pest plants can be quite attractive, ultimately they grow out of control and destroy native ecosystems.

plants also disappear. Often the invading pest plant is not a food source and may support no life, or worse, contain potent alkaloids that are toxic to native animals or fish.

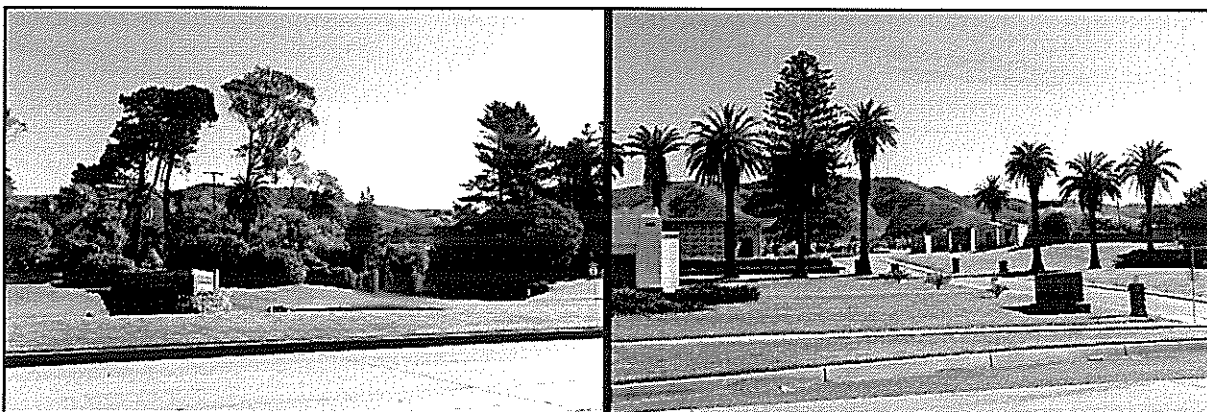
Invading pest plants in Colma include German Ivy (*Senecio mikanoides*), Cape Ivy (*Senecio angulatus*), Pampas Grass (*Cortaderia jubata*), Fennel (*Foeniculum*), Scotch Broom (*Cytisus scoparius*), and Gorse (*Ulex europaea*). Property owners should eliminate any of these plants where they occur. Eradication can be quite difficult, however, since many of these plants break when pulled, and segments that fall to the ground will take root and grow again. Typically pest plants must be dug out and carefully disposed of, starting at the outer edge of the infestation. In some cases chemical control can be effective. Property owners should contact the Town Planning Department for information on eradication methods.

5.04.217.3 Tree Masses. The vegetation type that is most clearly recognized in Colma are the

tree masses that exist throughout the Town. The majority of these trees were planted by the cemetery owners to act as buffers, windbreaks and for aesthetic purposes. They chose pine, cypress, acacia, and eucalyptus because of their availability and compatibility with Colma's microclimate. Many of these plantings have naturalized to Colma's environment. Tree masses are particularly prominent in the memorial parks in Colma.

Aesthetically, they play a major role in determining the charming picturesque quality of the Town. They also provide a support system for wildlife nesting and feeding purposes.

It is important to the Town of Colma to protect tree masses when possible. Consequently, the Town has adopted a tree cutting and removal ordinance. This ordinance has set up guidelines and regulations to protect both trees and views. When trees are removed they must be replaced with new trees that will grow to a similar size and form. Where appropriate, the Town seeks



Existing tree massing along El Camino Real plays a critical role in creating the "park-like" character of Colma.

to have new trees planted that will achieve substantial height, and in groupings which will perpetuate the large massings associated with the Colma setting.

5.02.217.4 Street Trees. Street trees can improve Colma's image and provide a link between cemetery/open space and developed areas, especially where new development occurs. Street trees help define the boundaries of streets and can also act as a moderator to Colma's windy climate. Street trees are an important element of landscape plans and are required as a condition of private development. Street trees should be spaced 20-30 feet apart, depending on the mature size of the species selected.

5.04.217.5 Project Landscaping. Project landscaping has been required as a part of development projects that have taken place in Colma. Project landscaping results in designed and built open spaces within the commercial areas and along the scenic roadways of the Town.

Project landscaping plays an important role in linking existing open space areas. Landscaping tends to soften the effects of structures and thereby bring harmony and consistency to the urban design of Colma. Landscaping has been successful in softening architectural elements and buffering incompatible land uses. This is particularly important where the serenity of cemetery properties must be buffered from roads and urban land uses. Introduced landscaping is one of the principle devices that can be used to create scenic roadways and entry gateways. Scenic roadways accentuate the green expanses of the memorial parks. Entry gateways call attention to the Town boundaries and welcome visitors to Colma.

Colma's varied topography creates a variety of unique microclimate conditions that can vary throughout the Town. Special care should be taken to insure that plant species used in project landscaping are suitable to each site's specific microclimate. Sun, soil, and particularly wind conditions should be considered in the landscape design and plant selection.



This is an excellent example of Project Landscaping at the Metro Colma Movie Theater

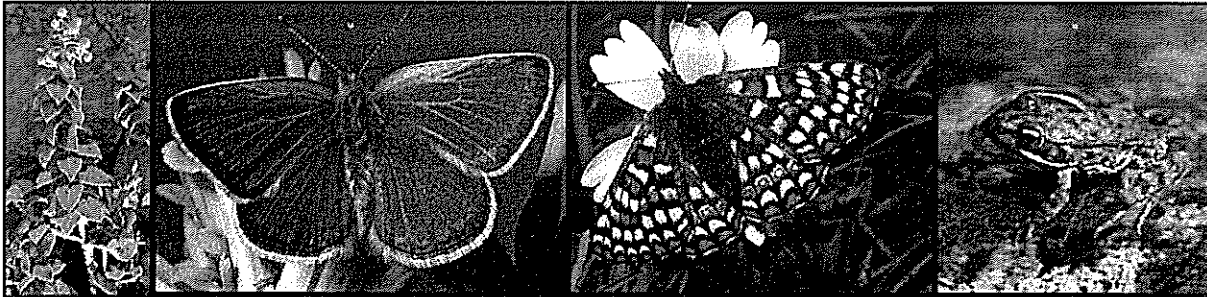
5.04.218 Wildlife Species

Colma has a diversified wildlife population consisting of small animals. The Bay Area is located along the Pacific Flyway, so migratory birds are attracted to the open spaces of San Bruno Mountain and to the memorial parks and cemetery irrigation ponds in Colma. It is not uncommon to view wild ducks and geese along with domestic fowl in the various cemetery lakes along El Camino Real in Colma. Other bird species seen in the area include vultures, hawks, owls and a variety of songbirds. Small animals common to the Colma area are snakes, lizards, gophers, squirrels, frogs, mice and rabbits.

5.04.219 Endangered, Threatened and Sensitive Species

Open space land in Colma is characterized as disturbed due to agricultural practices and normal cemetery landscape maintenance. No areas of undisturbed native habitat exist. However, there are areas adjacent to Colma where threatened and endangered species are found and there are areas within Colma where man-made environments may favor the presence of sensitive species.

Colma abuts San Bruno Mountain State and County Park, known for its colonies of federally-listed endangered butterflies. Both the Mission Blue and San Bruno Elfin butterflies are found on the mountain east and south of the Town limits. The mountain is also home to the Callipe Silverspot, a federally proposed endangered butterfly and the Bay Checkerspot, a federally-



Endangered and Threatened Species (Left to Right): San Bruno Mountain Manzanita, Mission Blue Butterfly, Bay Checkerspot Butterfly, and Red Legged Frog.

listed threatened butterfly. With regard to plant species, two subspecies of Manzanita found on the mountain, San Bruno Mountain Manzanita and Pacific Manzanita, are listed by the State of California as threatened. The California Native Plant Society has identified rare plant species on the mountain, including Coast Rock Cress, Franciscan Wallflower, San Francisco Campion and the sunflower-like *Helianthella Castanea*.

Colma's tall trees and tree masses are potential nesting sites for sensitive raptors protected by the Migratory Bird Treaty Act. A biological investigation should be done whenever tree removal would occur during nesting season (generally February through July) so that active nests can be protected. Ornamental ponds within some of Colma's cemeteries may be potential habitat for the federally listed threatened Red-legged frog. Conditions favoring this species include ponds at least two feet deep with moving water and borders of dense, shrubby or emergent riparian vegetation. Although the state and federally-listed

endangered San Francisco garter snake seeks the Red-legged frog as a food source, there are currently no known populations of the snake in Colma. A biological investigation for presence of the frog should be done whenever development would alter a pond as described above. The garter snake may have once been found along Colma Creek when it was a natural creek, but the current culverted and gunitied condition of the creek is not suitable habitat.

5.04.220 PUBLIC RECREATION AND COMMUNITY OPEN SPACE

5.04.221 Regional Recreation

Colma is located on the San Francisco Peninsula within close proximity to many outdoor recreational opportunities. San Bruno Mountain State and County Park borders Colma's eastern boundary. This park offers excellent hiking opportunities and outstanding views of San Francisco and the Central Bay Area. The San Francisco Bay and Pacific Ocean are easily accessible by car, and offer outstanding scenic and natural outdoor recreational opportunities. The Town will

**TABLE OS-4
PUBLIC PARK FACILITIES**

FACILITY	DESCRIPTION	ACREAGE
Sterling Park Community Center 427 F Street	multi-purpose meeting hall, basketball half-court, bocci ball court, children's play area, public bulletin board	0.33
Bark Park 427 D Street	dog exercise park	0.11
Lunch Park 680 Serramonte Boulevard	auto row employee picnic area: picnic tables and landscape	0.06
	TOTAL	0.50

support trail access at selected locations along the Town's eastern border.

5.04.222 Public Recreation and Community Meeting Facilities

Colma has acquired most of its resident population through annexations in the Sterling Park area at the north edge corner of Town. Residents have historically enjoyed park and recreational facilities provided by San Mateo County or Daly City. Until recently, available recreational facilities in Colma were limited to the privately owned and operated Cypress Hills Golf Course and Driving Range. It is anticipated that the owner will sell most, if not all, of the property to local cemeteries and the golf course and driving range use will be eliminated.

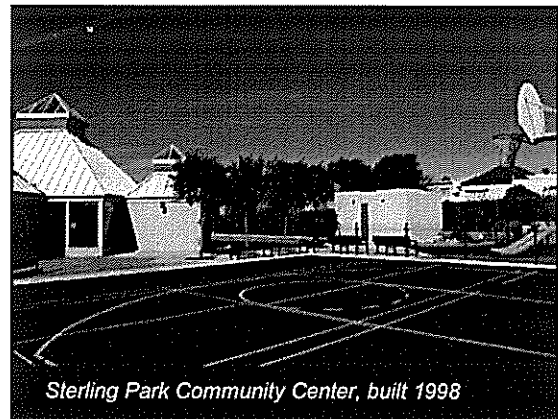
Beginning in the late 1980's, the Town began an active process of acquiring and improving public recreation properties in Colma. Publicly owned, improved recreation and community meeting facilities currently include the facilities listed in Table OS-4.

5.04.223 Future Park and Recreational Opportunities

Given the present population in Colma and the Town's potential for modest population increase, it is desirable to plan for additional local park and recreation areas for the future.

5.04.223.1 Expand Sterling Park Community Center. The Town should consider expanding the Sterling Park Community Center onto nearby vacant/underdeveloped sites. Additional amenities could include basketball or volleyball courts, or if area permits, a community swimming pool. If the expansion site is not immediately adjacent to the existing community center, the Town should investigate obtaining an easement to provide access between the sites.

5.04.223.2 Community Garden. The opportunity exists to improve an approximately 1.35 acre Town-owned property located across Colma creek from the Town-owned Senior Housing complex to create a community garden and sitting area. A footbridge should be constructed across the creek to provide access for pedestrians and maintenance vehicles. The community garden should be informal in nature, with meandering pathways, clustered trees, and small seating areas and an area for gardening.



5.04.223.3 Historical Park. The Town should acquire approximately 0.50 acres for a picnic park in combination with a permanent home for the historic Colma Train Station, which was acquired by the Town when the station building was displaced by the BART extension to Colma. It is anticipated that the Train Station will be refurbished and additional building space constructed to house the Colma Historical Association museum and offices. A vintage caboose or railcar may also be acquired for the park as part of the historic train station theme.

5.04.223.4 Community Playfields. Consideration should be given to acquisition of land for an outdoor playfield. An area of 2.5 acres would be large enough to accommodate a multi-purpose community playfield.

5.04.223.5 Pedestrian Trails and Walkways. The Town should encourage the provision of pedestrian trails and walkways where opportunities arise. A trailhead providing access to San Bruno Mountain Park from Hillside Boulevard should be required as part of the Hillside Landfill reclamation. Walkways along the open sections of Colma Creek should be encouraged to provide access and enjoyment. A pedestrian path should be considered along the San Francisco Water Company right-of-way between Serramonte Boulevard and Collins Avenue. Furthermore, the Town should maintain its sidewalk policy, which requires new development projects to provide sidewalks as a condition of the Use Permit.

5.04.223.6 Bicycle Trails. For information on bicycle trails, refer to Section 5.03.400 of the Circulation Element.