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4.1 Police Protection

Police protection services within the Town of Corte Madera are provided by the Twin Cities Police Department, which also serves the City of Larkspur. The main Police Station is located in Larkspur at 250 Doherty Drive, with a local “public safety” office in Corte Madera at the Civic Center and a “booking room” in the Village Shopping Center.

Staffing

The Police Department has 34 sworn full-time officers, one reserve officer, plus administrative staff, totaling 45 staff members in all. There is also a volunteer youth program made up of “Police Explorers.” The Department runs three beats, with a minimum of three officers and one supervisor on at any given time.

Calls for Service and Response Times

Calls for service decreased in 2000 compared to the previous year. The Department received 19,872 calls in 2000, compared to 20,144 the previous year. In 2000, Part I crimes (serious crimes such as homicide, rape, robbery, assaults and burglaries) were at their lowest level in seven years; 575 Part I crimes were reported in 2000, compared to 665 in 1999 and a high of 792 in 1994.

The Twin Cities Police Department also received roughly 290 dispatch calls for disturbance related matters between the dates of November 1, 2000 and October 31, 2001. Of these, approximately 220 were noise-related and 65 were general disturbance complaints ranging from loud parties and music or construction noise to domestic or neighbor-to-neighbor disputes. According to the Statewide Integrated Traffic Records System (SWITRS), the Twin Cities Police Department also responded to 42 motor vehicle collisions occurred in the Town of Corte Madera between January 1, 2001 and June 30, 2001.

Response times are generally less than three minutes for priority calls (emergencies) and less than 15 minutes for non-emergency calls.

Future Police Facility Needs

In July 2000, the Twin Cities Police Authority retained EKONS Architecture & Planning to conduct a Police Facility Needs Assessment and Site Selection Study to determine the size of and site for a building to adequately house the Department in the near future. The site would be required to contain the Police building, secure and non-secure parking, and ancillary support functions. A consultant team reviewed the departmental command structure and operational philosophy to develop an understanding of the on-going functions within the department. Demographic data regarding growth rates and staffing ratios were also reviewed to develop projections for the department’s future staffing requirements. Three sites were evaluated and, based on the analysis, the site at 195 Casa Buena in Corte Madera (the privately owned Team Chevrolet) was the preferred site for

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the construction of a new Police Facility. The site has excellent freeway access and visibility at a major entry to both served communities. The existing main Police Department could then be used for other City or park uses. The precise timing for construction of a future Police facility has not yet been determined.

The location of the Town's Police Station, along with other public facilities, is shown in **Figure 4.1.1**.

4.2 Fire Protection

Fire Facilities and Program

The Corte Madera Fire Department provides fire protection services in the Town of Corte Madera. The Department uses two fire stations: Station 14, which is considered the main station, is located at 342 Tamalpais Drive (located next to the Town Hall), and Station 13 is located at 5650 Paradise Drive (across the street from the Paradise Shopping Center).

Goals and objectives for the Corte Madera Fire Department include disaster preparedness and fire prevention through community outreach (schools, businesses) and public education and/or training courses (CPR, First Aid, fire extinguisher training), maintenance (roads, station upgrades), and annual inspections (commercial occupancies, multi-family residences). In the year 2000, the Corte Madera Fire Department logged over 600 hours of community public education. Children are the main focus of fire prevention and education programs. Fire Department personnel also conduct fire inspections of every business in Corte Madera, and the Fire Department works with the Marin Municipal Water District and Fire Flow Committee to continually upgrade water lines, supply, and hydrants throughout the jurisdiction.

Staffing

The Fire Department has 21 full-time firefighters, and maintains a volunteer program of 15 individuals who provide support coverage two to three times a week. All of the volunteer staff are available for response to supplement paid staff or provide station coverage when requested. Five firefighters are on duty at any given time, with three at Station 14 and two at Station 13.

Calls for Service and Response Times

According to a Department July 2001 report, the Fire Department responded to 1,102 calls during the year 2000; Emergency Medical Service (EMS) accounted for 51 percent of the total call volume. Overall, EMS calls increased by 33% over the previous year, and actual fire-related calls amounted to only approximately 3.5% for the year. Total fire loss in 2000 was \$118,350. Since 1996, the Fire Department has been able to hold fire losses under \$300,000. The average fire loss over the last five years has amounted to \$129,590 per year.

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Target response time for fire protection services is five minutes or less 90 percent of the time, with 95% of calls responded to within four minutes.

The Fire Department also provides paramedic response and transport services to the Town using one ambulance, and has a subcontract with Ross Valley Paramedic Authority through a Joint Powers Agreement. The Corte Madera Fire Department also provides aid to the Tiburon and Larkspur Fire Departments on an as-needed basis through a mutual aid agreement.

4.3 Medical Services

Hospitals

Marin General Hospital in Greenbrae and Kaiser Permanente Medical Center in San Rafael are the two primary medical service providers for Marin County. Marin General Hospital is the largest acute care hospital in the County, with a 235-bed capacity, and provides primary and secondary levels of care. Its services include a Level III trauma center and a full complement of acute care and ancillary services. Its service area covers Corte Madera, Kentfield, Larkspur, Mill Valley, and San Rafael. Marin General is an affiliate of Sutter Health.

Kaiser Permanente Medical Center in San Rafael provides hospital services, emergency services, and has Kaiser Permanente medical offices available to members. Emergency services and urgent care services are provided at 99 Montecillo Road in San Rafael. Some services are also available at 820 Las Gallinas Avenue in San Rafael. Emergency advice is available to members 24 hours per day.

Medical Support Services

Corte Madera's Fire Department provides ambulance service to the Town, and has an agreement with Ross Valley Paramedics Authority to use their ambulances if needed. They primarily transport patients to Marin General and Kaiser in San Rafael. Other independent ambulance services in the region include St. Joseph's Ambulance Service and American Medical Response.

Marin County offers a wide variety of services, public and private, to address the needs of childcare and care for the elderly, both in-home and center oriented. The Marin County Department of Health and Human Services, Division of Social Services, provides an array of services to assist those in need of in-home care. The agencies located within the Town of Corte Madera include childcare centers serving infants, toddlers, and preschoolers, and academic preschools with childcare for the infant, toddler, and preschooler.

Aegis Assisted Living of Corte Madera, located at 5555 Paradise Drive, offers opportunities for independent and assisted living for adults with studios, one and two

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bedroom apartments. They provide a unique Alzheimer’s program, “Life’s Neighborhood,” and a design-built community to meet a range of needs. Their programs stress total well-being for employees, residents and families.

4.4 Education

Public Schools

Corte Madera elementary and middle-school students are served by two school districts, Larkspur and Reed Union.

Larkspur School District includes Neil Cummins School, located at 58 Mohawk in Corte Madera, for school-aged children in kindergarten through fifth grade, and Hall Middle School in Larkspur, for sixth through eighth grade students.

Reed Union School District is located in Tiburon, and includes Reed School, grades K-2, at 1199 Tiburon Boulevard; Bel Aire School, grades 3-5, at 277 Karen Way; and, Del Mar School, grades 6-8, at 105 Avenida Miraflores. High School students from Corte Madera attend Redwood High School in Larkspur, which is part of the Tamalpais Union High School District. Enrollment at these schools is summarized in **Table 4.4.1**, while school district boundaries are shown in **Figure 4.4.1**.

Table 4.4.1 Corte Madera Public Schools

School	School District	Grades	Student Enrollment/Capacity
Neil Cummins	Larkspur	K-5	618/650
Hall	Larkspur	6-8	310/Near Capacity
Reed	Reed Union	K-2	304/360
Bel Aire	Reed Union	3-5	397/400
Del Mar	Reed Union	6-8	370/425
Redwood	Tamalpais Union	9-12	1,255/1,592

According to the Larkspur School District, while Hall Middle School is nearing capacity, the District generally has not experienced capacity issues due to generally slow and consistent growth rates in the area; a flat enrollment for the next three years has therefore been projected.

The Larkspur School District owns a school in Corte Madera, San Clemente School, which is leased to a private school. Should additional school facility space be necessary, the San Clemente School lease has growth triggers that allow the District to utilize a portion of the School with 18 months notice and the remainder with three years notice. This would allow the District to grow by 400 students, although significant renovation

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issues would arise. Larkspur School District has chosen not to implement the recent State Allocation Board increases, and their developer fees are received mostly as the result of residential remodeling building permit fees. The \$8.5 million being spent on the modernization of Neil Cummins Elementary School will ensure a facility that should be useable for the next twenty to thirty years.

The Board of Trustees adopted a Facilities master Plan for the Reed Union School District, which sets forth approximately \$68 million of needed improvements to the schools. The work will be completed in phases, and includes modernization, repairs, remodeling, replacement of heating and other systems, and ensuring buildings are up to current fire, earthquake and ADA codes.

Redwood High School has experienced some growth in recent years, and may be at or near capacity by approximately 2004.

Private Schools

There are a few private academic schools in Corte Madera serving preschool through twelfth grade students. Lycee Francais La Persouse is an International French School, leasing the San Clemente School, with an academic preschool and goes through the twelfth grade. It has a French National Curriculum with a strong English program. Enrollment tends to stay near 200 students.

There is also a Montessori School on Paradise Drive in Corte Madera. The Allaire School in Corte Madera is a Special Education Academic school. There are two private schools in both Larkspur and Tiburon, which may also serve Corte Madera school-aged children. There are also several preschools in Corte Madera providing education needs for children in the pre-Kindergarten ages.

4.5 Libraries

There is one library within the town of Corte Madera. It is a branch of the Marin County Free Library system. The branch was opened in 1928. The Library's current building on Meadowsweet Drive was built in 1971. The Corte Madera Regional Library is nearly 10,000 square feet and sits on a 2.7 acre parcel of land. There are no identified plans for expansion. There are plans for expanding the parking lot; however, this activity has not yet been funded.

The Library is open 56 hours a week, six days a week, and boasts a wide variety of children and adult programs. The Library lends books, magazines, and audio-visual materials, and is staffed by County employees and a number of volunteers. Support organizations include the Friends of the Marin County Library and the Friends of the Corte Madera Library. The Marin County Library and the San Rafael Library jointly administer the "Marin Literacy Program," which trains volunteer tutors and matches them with adults who are learning to read. A weekly toddler storytime and pre-school storytime are also provided. Other activities include a summer reading program for

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children and one for teens, and a book club for adults. The building offers a meeting room for use by the public. The Library is fully automated with free Internet access for the public.

4.6 Town Government

The Town of Corte Madera, incorporated in 1916, offers a wide range of services to its residents. The Town operates through election of five Town Council members, who in turn appoint a Town Manager. The Council also appoints citizens to a number of commissions and committees, including:

- Planning Commission,
- Flood Control Commission,
- Parks and Recreation Commission, and
- Committees have also been established for Town Beautification and Transportation.

Town Hall is the center for government offices, and is located at 300 Tamalpais Drive. The Town Council Chambers is located in the Hall.

The Town government is organized into several departments:

- *Administrative Services:* This Department focuses on provision of general administration services to the Town, and includes the functions of Finance (receipt and disbursement of funds) and the Town Attorney (the latter is a contracted position). This Department is also chiefly responsible for implementing goals and objectives established by the Council.
- *Public Works:* Primary duties include performing maintenance on public streets, sidewalks, storm drains, street lights, traffic signals, parks, trees and public landscaping areas. This Department may also include a number of contracted work tasks. The Department also includes a corporation yard, used for storage of vehicles and equipment, at 81 Lucky Drive.
- *Environmental Services (including the functions of planning and building):* Primary responsibility for protecting and enhancing the physical and environmental character of the Town through implementation of the General Plan, including environmental and development review. The Department also provides inspection services for new construction.

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- *Emergency Services (includes Fire):* Coordinates emergency response programs for the community, and provides basic fire protection and emergency medical response.
- *Twin Cities Police Department:* Provides police protection services to the Corte Madera and Larkspur communities.
- *Recreation and Leisure Services:* Primary duties include management of parks and recreation programs, plans for the acquisition, development and implementation of facilities or programs, and assists community organizations in providing leisure activities.

4.7 Water Supply, Treatment and Distribution

Water Supply

The Town of Corte Madera obtains its water supply from the Marin Municipal Water District, which serves central and southern Marin County. The District is able to provide 75 percent of water usage from reservoirs on Mt. Tamalpais and west Marin County. Average annual use for the Marin Municipal Water District is 28,622 acre-feet, or 8,784 million gallons. Most of the water is from rainfall. Several watersheds on Mt. Tamalpais drain into Lagunitas Creek and its tributaries, which in turn flow into a series of reservoirs. The District 21,250 acres of watersheds lands, most of which is accessible to the public.

The District operates seven reservoirs with a total storage capacity of 79,566 acre-feet (25,927 million gallons). One acre-foot is 325,851 gallons, and generally is considered capable of supplying three households with water for one year. Five of the District's reservoirs are on Mt. Tamalpais and two are in west Marin County. The capacity of the five reservoirs on Mt. Tamalpais corresponds to the average annual runoff from rainfall; the two reservoirs in west Marin County comprise more than forty percent of the District's storage capacity and provide fifteen percent annual consumption.

The District began importing water from the Russian River in the mid-1970s to supplement their supplies, and in 1992 a bond measure was approved to incrementally increase the quantity of water from the Russian River to improve the reliability of this water source. Water from the Russian River originates at Lake Mendocino in Mendocino County and flows 55 miles down the Russian River to the Wohler Pump Station near Santa Rosa. The flow is augmented by releases from Warm Springs Dam, the contractual source of the District's water. The Marin Municipal Water District obtains 6,800 acre-feet annually from the Russian River, as well as 10,000 acre-feet from average annual stream releases. Marin County planning projections indicate that the Marin water sources, along with Russian River water, will provide a sufficient supply for at least the first few decades of the 21st century.

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In an effort to conserve water, the Marin Municipal Water District substitutes recycled water for potable water where possible, and manages the demand for water by encouraging efficient water usage through conservation programs. Since the early 1980s, up to two million gallons of water a day are recycled and distributed in a separate pipeline system to more than 250 customers in northern San Rafael. Recycled water is used for irrigation, toilet flushing, and other non-drinking purposes. MMWD was the first water supplier in California to use recycled water for car washes, air-conditioning cooling towers, and commercial laundries. The recycled water is wastewater that has been treated by the Las Gallina Valley Sanitary District. The water is filtered and further treated at the recycled water treatment plant. The District also encourages customers to install water-saving devices to achieve water efficiency without negatively affecting lifestyle. Installation of water-efficient toilets, faucets and showerheads, automated irrigation systems, and low water-use landscaping are suggested examples of water conservation.

Water Treatment and Distribution

Three drinking-water treatment plants, with a total capacity of 82 million gallons, and one treatment plant for recycled water allow the District to process up to 61 million gallons per day. The pipeline system pumping units can deliver up to 38,000 gallons per minute. Because of Marin County's hilly terrain, about ninety percent of the water must be pumped at least once before it reaches the tap. One hundred forty-six storage tanks are used for drinking water with 890 miles of pipeline. Pipes range in size from the ¾ inch pipe connecting water meters to the District's main, to the 37-inch transmission pipes that carry source water to the treatment plants. Using techniques to control corrosion, giving newer pipelines a life span of more than 100 years, has extended pipeline life. Pipeline is replaced as needed through the District's capital improvement program, basing priority on facility condition. About 25,000 feet of pipeline is replaced per year, at an average cost of \$130 per foot.

Water-quality testing is done weekly, on a rotating basis, at 258 water-sample sites (including samples from reservoirs, tributary streams, and treatment plants) with an annual total of 120,000 tests. Surface water from the Mt. Tamalpais watershed is protected naturally from many kinds of contamination, but the water still requires treatment to remove viruses, bacteria, and other naturally occurring pathogens. Water treatment begins in the reservoirs, where the water is seasonally aerated to maintain a proper oxygen balance. The water then goes to the Bon Tempe Treatment Plant on Mt. Tamalpais or the San Geronimo Treatment Plant in Woodacre, where suspended matter is removed in clarifiers, microscopic particles are removed in deep-bed multi-media filters, and bacteria and pathogens are inactivated by disinfectants. The water is further treated to control corrosion. Fluoride has also been added since 1972.

Water imported from the Russian River is naturally filtered in the deep sand and gravel below the riverbed and requires no further clarification. This water enters the District's system at the Ignacio treatment facility, where water quality is monitored. Final treatment is similar to the above mentioned reservoir plants.

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In 1995, the Marin Municipal Water District joined the partnership for Safe Water, a voluntary program sponsored by the U.S. Environmental Protection Agency and the American Water Works Association, committing them to conduct structured self-assessments of treatment processes followed by third-party expert evaluations.

The majority of residences in Corte Madera receive water service from the Ross Valley gravity system. The system is fed by water from the San Geronimo treatment Plant via the Fairfax Transmission Line and from the Ross Reservoir. Several transmission lines wind their way through Ross Valley to Greenbrae and Corte Madera. This system is used to serve all properties up to an elevation of about 200 feet. The system also provides capacity for pumps to take water and boost it to elevations of about 500 feet to systems serving higher elevations in the Madera Park and Mariner Highlands areas of Corte Madera.

The District's Capital Improvement Program mainly involves the renovation of existing facilities with some construction of new potable and recycled water facilities. The projects are prioritized to support and enhance the District's service capabilities. Rehabilitation is performed only on facilities that have ended their useful lives or are in an advanced state of deterioration, or subject to improvements by another utility or government entity. System Improvements are typically projects that are related to the development of a water supply and its delivery system, and are constructed on an "as needed" basis.

4.8 Wastewater Conveyance and Treatment

Sanitary District No. 2 of Marin County, who is a member of the Central Marin Sanitation Agency (CMSA), provides wastewater services in Corte Madera. The CMSA, formed in 1979, is a public joint powers agency of Ross Valley Sanitary District, San Rafael Sanitation District, Sanitary District No. 2, and the City of Larkspur. The CMSA Subregional Wastewater Treatment Plant, located on Bay muds off of I-580 in San Rafael, treats sewage from member Districts via delivery (conveyance) from several remote pump stations.

The Treatment Plant is capable of processing 125 million gallons of sewage per day during peak rainfall periods, but has average flows of less than 10 million gallons per day. The Treatment Plant is controlled by a supervisory control and data acquisition system, which is linked both to the plant and to the remote pump stations. CMSA staff automatically control operations and monitor performance to ensure compliance with State wastewater discharge limits. Some of the treated wastewater is recycled and used for washdown and irrigation at the plant site. The Treatment Plant also produces clean effluent, treated to an advanced secondary treatment level, which is then discharged into the depths of the San Francisco Bay.

Within Corte Madera, sewage is conveyed mostly through a series of 6-, 8- and 10-inch clay pipes in City streets and related easements to larger collection systems, leading

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toward a series of pump stations located throughout the Town. The Paradise Pump Station is the main sewer pump station in Sanitary District No. 2, and operates at or near capacity during periods of heavy rain due to high levels of inflow and infiltration. All wastewater flow within the District affects the Paradise Drive Pump Station. Any increase in demand for wastewater services could cause a significant impact on the overall pump station system. According to Tom Rose, technical engineer at CMSA, Sanitary District No. 2 is contemplating building a supplemental unit either next to their existing facility (at San Clemente and Paradise Drive) or at another location. The District owns the property adjoining the Paradise Pump Station.

CMSA and Marin Municipal Water District are considering a reclamation plant where reclaimed wastewater will be used for non-potable uses such as irrigation of pastureland, parks, schools, and industrial complexes.

4.9 Storm Drainage and Flooding

Introduction

The factors that affect flooding in the bayside area of Corte Madera are fluvial hydrology, precipitation, tides, sea level rise, sedimentation, and land subsidence. There are steep hills rising to the summit of Mount Tamalpais south and west of Corte Madera, which contribute to the flooding problem whenever there is severe rain. Tidal influences are exacerbated during the winter when prolonged high winds and low barometric pressure can raise the water level along the Pacific Coast and north of Paradise Drive, including the Marina Village, the Mariner Cove subdivisions, Marin Estates, and the Paradise Shopping Center. San Clemente Creek is a tidal slough that drains runoff from these developments and the surrounding hillside into the San Francisco Bay.

Flooding in Corte Madera is generally the result of two phenomena:

- Storm runoff originating within Corte Madera and flooding lowlands due to inadequate drainage channels and pipes necessary to transport this water into the San Francisco Bay (sheet flooding), and
- High water in the San Francisco Bay that, in turn, pushes saltwater into the stream channels and inundates all lands below the tide level that are not leveed. The elevation of the water surface in the Bay is largely dependent upon the tide and wind and wave effects.

Tidal lands that once functioned as natural “ponding” areas have been filled in and developed. The storm runoff that naturally would have drained to these areas must now be conveyed to lagoons and channels and then to the San Francisco Bay.

Unfortunately, when the tidal lands were “filled in,” the fill was not placed sufficiently high enough to protect the development from flooding during high tides.

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Since the 1980s, several engineering studies have been published addressing flooding issues in Corte Madera. The results of the studies are consistent in that they report the bayside area of Corte Madera is at risk of flooding from extremely high tides and high tides combined with storm runoff.

Historical Conditions

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Study for Corte Madera (1977), all floods of any consequence in Corte Madera have occurred in the low areas that have been reclaimed from the San Francisco Bay's marsh and tidal lands (see **Figure 2.2.1 (Pre-Development Shoreline)**, and **Figure 4.9.1**). Generally speaking, these reclaimed areas encompass everything in and east of the Madera Gardens and the lands north of Paradise Drive. These areas constitute one-half of the present Town area.

Severe flooding has occurred in this area since its development in the 1950s. Since then, flooding has occurred in 1956, 1961, 1962, 1968, 1974, 1981, 1982, 1983, 1987, 1988, and 1989. The worst flooding occurred in January 1982, during a peak tide, when San Clemente Drive was closed due to floodwaters covering the entire roadway. Floodwaters also covered parts of Paradise Drive and flooded stores in the Paradise Shopping Center. For several days, until the water receded, residents had to drive east on Paradise Drive to Trestle Glen, then to Tiburon Boulevard, to access Highway 101.

In the mid-1980s, Corte Madera partnered with the U.S. Army Corps of Engineers (Corps of Engineers) to study the possibility of a "permanent" solution to certain types of flooding in the area. The project identified to resolve the flooding problem is now known as the Tidal Barrier Project. This project, selected from various alternative solutions, consists of an offshore tidal barrier with a lock, pumps, and tidal exchange gate. The tidal barrier project is still in the study phase and has not progressed for several years, due to opposition from local environmental groups, lack of funding, and difficulty in attaining land suitable to relocate the required 18 acres of wetland habitat for environmental mitigation.

Existing Conditions

At present, the bayside streets of Corte Madera flood at certain places during extremely high tides, including those created by a "storm surge," or when high tides combine with storm driven waves, rainwater runoff, or both. When tides are high, the floodwater cannot drain into the San Francisco Bay, and can result in water going into yards and garages. Tides contribute to flooding primarily when high tides coincide with meteorological conditions (atmospheric pressure, winds, storm surge) that tend to increase tidal levels. Waves, induced primarily by winds, can reach elevations greater than basic tidal levels and thereby exacerbate the flooding. It is estimated that in San Clemente Creek, maximum wave elevations typically exceed the basic water elevation by 2 to 2.5 feet.

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Ponding of rainwater occurs in various places on streets and driveways where the areas are lower than the nearest storm drains. Another contributing factor to the impact and frequency of tidal/rainwater flooding is that the bayside developments of Mariner Cove and Marina Village are experiencing subsidence from being built on five to ten feet of fill over San Francisco Bay mud. The 10-foot to 110-foot thick mud is sinking faster than predicted when the developments were built 40 to 50 years ago. Therefore, certain areas have subsided to elevations that are expected to flood during the 100-year and more frequent storms. Groundwater seepage can also damage property in the bayside area, since many residents do not have sump pumps to remove water from behind their houses. The seepage occurs when the ground is saturated and groundwater enters the structures through foundations.

Potential damage to the bayside area from tidal/rainwater flooding includes property damage to yards, out-structures, foundations, garages, interiors of houses, streets, curbs, and other public infrastructures. Flooded streets can cause other types of problems, such as economic losses to businesses in nearby areas, and even loss of life indirectly due to the inability of emergency vehicles to access flooded areas. Thus far, street flooding has been localized and temporary.

Corte Madera is divided into 10 separate watersheds (shown on **Figure 4.9.2**), which drain via local pump stations and/or the storm drainage network to San Clemente Creek, Corte Madera Creek, or directly to the adjacent wetlands of the San Francisco Bay. A brief description of the respective watersheds and drainage/flood control facilities is provided below. The description is not intended to be complete in terms of identifying all improvements within the respective watersheds, but to highlight some of the prominent features.

Watersheds No. 1, No. 2, and No. 3

All drainage from Watershed No. 1 flows to Lagoon 1. Water from streets is piped to Lagoon 1, and also to the Low Canal, which drains to Lagoon 1. An upland area to the south also drains to Lagoon 1 and water is collected in pipes for discharge to Low Canal. Water is pumped from Lagoon 1 to the High Canal. All drainage from Watershed No. 2, and a small area of higher ground, flows to Marquart Lagoon (formally, Lagoon 2) through pipes. Water from Marquart Lagoon is also pumped to the High Canal. All drainage from Watershed No. 3 drains to High Canal, which drains through the tide gates to Corte Madera Creek and the San Francisco Bay.

There have been many improvements to Watersheds No. 1, No. 2, and No. 3 since the 1977 FEMA study. These watersheds were all improved by the installation of the High Canal Pump Station, with 100-year return period design criteria. Previously, a 25-year return period for pipe and canal systems, and a 50-year return period for pumping systems were used. Watershed No. 1 was further improved by the installation of a storm drainage system on Council Crest Drive.

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Pump Station at Lagoon No. 1.

Some of the improvements in Watershed No. 2, include dredging Marquart Lagoon and installing an automatic tide gate at that location. Some of the improvements in Watershed No. 3, include replacing the Pepper Street grate and drainage improvements at Branch Avenue, Corte Madera Avenue, Grove Avenue, and Bluerock Court to Lakeside.

Watersheds No. 4, No. 5, and No. 6

The Paradise/San Clemente bayside area is located within Watershed No. 4, which drains an area of approximately 318 acres and receives runoff from the adjacent commercial and residential development along 0.6 miles of Highway 101. Historically, the Paradise/San Clemente Drive area in Watershed No. 4 drained through two 48-inch reinforced concrete pipe (RCP) culverts along San Clemente Drive into Shorebird Marsh. Since the 1970 Storm Drainage Plan, prepared by Yoder-Trotter-Orlob, improvements to the watershed network have subdivided Watershed No. 4 into north and south subwatersheds. Both watersheds drain into the Shorebird Marsh and water is then pumped into the East Side Outfall Channel (ESOC) of the San Francisco Bay from the Shorebird Marsh Pump Station.

The storm drains in the bayside area are burdened by lack of gradient in the relatively flat region along San Clemente Drive. Storm water moves through this system only when water backs up and creates sufficient “head” to cause water to flow into Shorebird Marsh. Additionally, the storm drainage system is not very hydraulically efficient. To alleviate frequent winter flooding problems in this area, Corte Madera constructed the Marina

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Village Retention Pond, located in Watershed No. 5, in the seasonal wetland immediately north of Marina Village. Runoff can be pumped into Shorebird Marsh at a rate that does not exceed the capacity of the pipes or the Shorebird Marsh Pump Station. During storm events in excess of 50-year storms, storm runoff from Marina Village will also enter the retention ponds through a weir on the east side of the pond.

Runoff in the south subwatershed of Watershed No. 4 is diverted through two 48-inch RCPs into the Marina Village Retention Pond, and pumped north into a 30-inch force main from the Marina Village Pump Station to Shorebird Marsh. Runoff in the north subwatershed flows by gravity directly north into Shorebird Marsh via the two 48-inch RCPs.

Watershed No. 6 drains an area of approximately 480 acres and receives runoff from U.S. Highway 101, the southern bayside facing hills of Corte Madera, and commercial and residential developments. Runoff from Watershed No. 6 is collected by the storm drainage network and diverted to the San Clemente Pump Station or directly to San Clemente Creek. Runoff flows from the upper watersheds, which incorporates the southern portion of the lower Paradise/San Clemente Drive area and travels via overland flow and an extensive drainage system into the historical drainage of San Clemente Creek. This historical drainage channel was obstructed with the construction of Paradise Drive, requiring Corte Madera to construct the San Clemente Pump Station to convey water from Watershed 6 into San Clemente Creek.



Pump Station at San Clemente Creek.

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The San Clemente Pump Station is located at the southern tip of the Paradise/San Clemente Drive area and consists of three pump/motor units having a nominal capacity of 51 cfs each (total pumping capacity is 153 cfs). The station was designed to handle the flows associated with the 100-year storm and has a standby emergency generator system.

Runoff within Watersheds No. 4 and No. 6 is typical of the San Francisco Bay area drainage systems with storm events producing high flows, and late spring and summer flows representing urban runoff or irrigation return water. Overall storm drainage facilities are designed according to environmental and economic feasibility (i.e., the Marsh Village project for the 50-year storm and the Shorebird Marsh Pump Station for 120 cfs discharge). Overall, the existing storm drainage infrastructure is capable of handling flows associated with the 25-year storm.

Currently, there are five flood control and storm drainage projects under consideration that affect Watersheds No. 4, No. 5, and No. 6. The respective projects are described below:

1. Levee Repair at Shorebird Pump Station – This is a maintenance project that will prevent tidal water leaking through the levee due to differential settlement between the earthen levee and the concrete pump station. Herzog Geotechnical has developed a plan for the repair, which will include installing a sheet pile cutoff wall at the station. It is expected the project will be designed and put out to bid in the spring/summer of 2002.
2. Shorebird Marsh Study – This project involves conducting a survey of Shorebird Marsh and the Eastside Outfall Channel to determine existing flood control storage capacity. An evaluation will be made to determine if normal operations can be modified to provide environmental enhancement along with additional scouring of the outfall channel. The study should be completed by the end of April 2002.
3. Tidal Protection Project – This project will provide basic flood protection for properties in the Marina Village and Mariner Cove subdivisions. Corte Madera has entered into a cost-sharing agreement with the Corps of Engineers to complete a Feasibility Study to determine the extent of the problem and to identify a solution. The time frame for completing the feasibility study is not firmly established.
4. Meadowsweet Drive Drainage North – This project is to upgrade the storm drainage facilities on Meadowsweet Drive between Conow Street and Hawthorne Drive, and includes an overlay of the road. The work is substantially complete.

4.0 PUBLIC FACILITIES AND SERVICES

5. San Clemente Pump Station Maintenance – This project will correct misalignment in the discharge manifold due to settlement and will upgrade the cathodic protection system for the station. The realignment portion of the work has been completed.

Watersheds No. 7, No. 8, No. 9, and No. 10

Since the 1977 FEMA study, the improvements to Watershed No. 7, include replacing existing storm drain lines at 287 and 323 Golden Hind and installing new tide gates. A storm drain and tide gate have been installed at 5164 Paradise Drive, within Watershed No. 8. The Lucky Drive Drainage Project, Phase 1, has been completed for Watershed No. 9. This included both the Larkspur and the Corte Madera Pump Stations and the surface drainage improvements appurtenant to them, however, the Levee Improvements (Phase 2) have not been completed. A 200 kW standby generator has been ordered for the Lucky Drive Pump Station (Black Kettle).

It is expected the Corps of Engineers' Yard Pump Station, also within Watershed No. 9, will be upgraded in the next fiscal year. However, it has been determined that much of the curb ponding on Lucky Drive was a result of inadequacies and poor maintenance of the storm drain lines leading to the station. Drainage from Watershed No. 10 is collected in a system of pipes that discharge through the old Northwestern Pacific Railroad levee to a marsh in Larkspur. Water from the marsh is pumped to Corte Madera Creek and the San Francisco Bay. Much of the area in Watershed No. 10 is high ground, and some of the high area is in Larkspur. Some improvements have been made to the Redwood Marsh channel, within Watershed No. 10, however, the overall effectiveness of these improvements has not been determined.

In addition, there have been several projects to upgrade the informal (substandard) drainage systems in all 10 watersheds, but roughly 25 percent of the informal drainage has been upgraded.

Regulatory Provisions

As a participant in the National Flood Insurance Program (NFIP), Corte Madera is required to adhere to floodplain management policies that represent sound land use practices. FEMA, through the Federal Insurance Administration, administers the NFIP. FEMA produces Flood Insurance Rate Maps (FIRMs) for the communities participating in the NFIP, which identify flood hazard areas and restrict development in these areas. FEMA has not performed a detailed study to update the FIRMs published in 1977.

Issues of floor preparedness are addressed in Section 8.0 of this Report.

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4.10 Solid Waste Collection and Recycling

Solid Waste Collection

Mill Valley Refuse Service provides waste collection service in Corte Madera, and is one of seven privately owned waste haulers in Marin County. Redwood Landfill, located in Novato, is used for more than 95 percent of Marin County's (including the Town of Corte Madera's) waste disposal. In July 1995, Redwood Landfill was issued a new Solid Waste Facility permit, which extended the landfill site life to the year 2039. The landfill has projected capacity to meet service needs for Corte Madera for the next several decades. Both Mill Valley Refuse and the Redwood Landfill meet applicable federal, State and local laws related to handling and disposal of solid waste.

Recycling

The California Integrated Waste Management Act of 1989 (AB939) requires each city and county to divert 50 percent of its waste stream from landfill disposal by the year 2000. Diversion may include reducing the total amount of waste generated through source reduction, recycling, composting, and transformation programs. (AB 939 defines waste generation as waste disposed, plus waste diverted through source reduction, recycling, composting, and transformation.) In 1990 Marin's eleven cities signed a Memorandum of Understanding to jointly prepare and implement a single Source Reduction and Recycling (SSR) Element.

In early 1992 each city, except Ross, adopted this SRR Element as its planning guide for the remainder of the decade. The SRR Element recommends that existing recycling services continue and expand, especially for multi-family complexes and businesses, greater emphasis be placed on source reduction, and yard waste composting services be established countywide. The program has achieved compliance with requirements of AB 939, which required diversion of at least 50 percent of a communities' waste stream by 2000. The Town of Corte Madera diverted 56.1 percent of its waste stream by the year 2000, while Marin County as a whole diverted 63.0 percent. To ensure that each city will meet the diversion mandates, the SRR Element describes a monitoring and evaluation program for the source reduction, recycling, composting, transformation, and education programs.

Curbside recycling programs are offered to residential accounts throughout Marin County. Both commercial and residential waste in Corte Madera is collected in 20-yard packer trucks. Corte Madera has been reducing solid waste generation for several years through the following source reduction activities: use of cloth diapers through diaper services; donations of goods to thrift shops and second-hand stores; use of refillable bottles in restaurants and taverns; donations of food to food banks; and tire retreading.

Marin Recycling and Resource Recovery Association operates the Marin Recycling Center where much of the material collected by curbside recycling is processed. MRRRA operates a curbside recycling program for all residences in Corte Madera.

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Service includes weekly curbside collection of newspaper, cardboard, container glass, ferrous, aluminum, HDPE plastic and PETE plastic.

Other recycling activities in Corte Madera include multi-family recycling, buyback centers, and recovery of materials at the MRRRC, commercial recycling, residential wood recycling, and commercial wood recycling.

Composting activity in Corte Madera accounts for a small amount of diversion, including material from debris box collection that is processed at the MRRRC, and some brush chipping by local tree services. The Town parks and grounds department composts a portion of yard wastes from public parks and fields. A portion of the woody material delivered to the MRRRC is chipped and used for fuel.

4.11 Energy and Communication Systems

Electrical and Gas Systems

Pacific Gas and Electric (PG&E) provides electrical and natural gas to the Town of Corte Madera. With the Town approaching buildout, PG&E does not anticipate difficulties in maintaining this service. Of note is the ongoing concern in California relative to availability and pricing of gas and electric services. The situation resulted in a series of rolling blackouts in 2001, wherein the California Independent System Operator, managers of California's power grid, temporarily cut power service to PG&E customers in response to energy demands that exceeded available supplies. Further, in September 2001, PG&E filed for reorganization in U.S. Bankruptcy Court. PG&E, the State of California and other agencies continue to work toward resolution of these energy issues. PG&E states that it intends to "continue the normal delivery of gas, electricity and customer services during the Chapter 11 process" (per pge.com informational web page).

Telephone and Telecommunications

Pacific Bell provides local telephone service to the Town, while cable television service is provided through AT&T Broadband. Both providers have the ability to maintain these services to meet the need of Town residents and businesses in the future.

Both the Town and Marin County have experienced a dramatic increase in demand for telecommunications products and services in the last decade as this industry has emerged to provide a new form of customer phone and related services. In response, Marin County adopted a Telecommunications Facility Policy Plan, which focuses on land use compatibility, mitigation of visual impacts of new facilities and safety. The Town of Corte Madera adopted a Wireless Communications Facility Ordinance (No. 866) in July 2001. The Ordinance established development standards regulating the design, placement and construction of wireless communication facilities in the Town. It places particular emphasis on the appearance (visibility) of such facilities, seeking screening of new facilities or design compatibility with existing structures on the project site. The

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Ordinance requires Planning Commission approval of a conditional use permit before wireless communication facilities may be installed.

The State Public Utilities Commission, who maintains that local jurisdictions cannot prohibit or otherwise unduly restrict utilities, such as cellular phone installations, regulates telecommunications. The Town's Wireless Communications Facility Ordinance was prepared consistent with federal and State laws.