

Chapter 7. Natural Environment and Resources

This section contains Larkspur's Natural Environment and Resources goals, policies, and programs. This Element satisfies State law requirements for Open Space and Conservation Elements.

The Natural Environment and Resources Element of the General Plan intends to **protect and enhance the natural environment and reduce the impact of development on natural resources**. To develop a consistent, implementable set of goals, policies, and programs for Larkspur, the following factors were considered:

- **Species and Habitat Protection.** Residents of Larkspur value native species and their habitats, which are irreplaceable components of the community fabric and are essential to maintaining ecosystem function. The City will support the preservation and restoration of habitats that support native species, especially special status species. Invasive, non-native species should be controlled, and if possible, eradicated, to prevent the loss of native species and habitat.
- **Preservation and Enhancement of Open Space Preserves.** Three designated open space preserves lie within Larkspur's Planning area, providing essential habitat for native flora and fauna and a valued recreational resource for residents of Larkspur and the entire Bay Area. Protecting and enhancing these open space areas, which include wetlands and hillsides, also protects Larkspur residents and businesses from hazards such as wildfires, landslides, and flooding. The City supports the preservation of existing open space areas, and supports public access infrastructure that does not adversely impact the natural habitat.
- **Public Access to Natural Resources.** Visual and physical public access to natural resources is highly valued by Larkspur residents. Public access may exist in the form of walking or hiking trails in designated open space preserves, paved multi-use paths adjacent to Corte Madera Creek, or public areas with views of Mount Tamalpais or the San Francisco Bay. The City will ensure that the integrity of adjacent natural habitats is protected when considering the location and design of venues for public access to natural resources.
- **Resource Consumption.** The consumption of natural resources diminishes resource supply and produces waste that must be treated, sent to a landfill, recycled, or composted. The City strives to reduce water consumption by promoting the use of water-saving appliances and fixtures and encouraging simple water-saving habits, both in this General Plan and in the Climate Action Plan. The City's Climate Action Plan also contains policies to reduce the community's production of solid waste.

The Natural Environment and Resources Element goals, policies and programs seek to address the factors listed above, as well as any other factors pertinent to City's land use decisions that impact the natural environment.

NATURAL ENVIRONMENT AND RESOURCES GOALS

Species and Habitat Protection

- ENV-1: Protect native habitats in Larkspur, particularly those providing habitat for state and federally listed special status species.
- ENV-2: Protect water resources from degradation.

Open Space

- ENV-3: Preserve and enhance designated open space areas.

Public Access

- ENV-4: Provide reasonable visual and physical public access to natural resources without adversely impacting natural habitats.

Resource Consumption

- ENV-5: Reduce water consumption.
- ENV-6: Reduce the total volume of the City's waste stream.

Species and Habitat Protection

ENV-1: Protect native habitats in Larkspur, particularly those providing habitat for state and federally listed special status species.

Policy ENV-1.1: Avoid, when feasible, or mitigate adverse impacts of development on native species.

Action Program ENV-1.1.a: Identify State and federally listed special status species in the Larkspur Planning Area and coordinate with Marin County to map their habitats, nurseries, and migration corridors, as applicable to each species.

Action Program ENV-1.1.b: Implement the California Environmental Quality Act during project review to identify and analyze potential impacts on special status species. Ensure that environmental review is coordinated with appropriate trustee agencies, e.g., U.S. Fish and Wildlife Service and the State Department of Fish and Game.

Action Program ENV-1.1.c: Use the City website and printed materials, as available, to provide information to the public regarding special status species in Larkspur and their habitats.

Action Program ENV-1.1.d: Support Marin County Open Space District and community efforts to acquire privately-owned land providing valuable habitat to native species, particularly special status species, contingent on availability of funding.

Policy ENV-1.2: Protect native plant species in Larkspur.

Action Program ENV-1.2.a: Encourage the inclusion of native or adapted plant species, the removal of non-native invasive plant species, and the retention of existing vegetation in project landscaping plans.

Action Program ENV-1.2.b: In coordination with the County of Marin and other local and state agencies, compile listings of appropriate native species to distribute to project applicants and interested community members.

Policy ENV-1.3: Support habitat restoration projects coordinated by the Marin Municipal Water District, the Ross Valley Sanitary District, the Friends of Corte Madera Creek Watershed, the Marin Audubon Society, and other public agencies and knowledgeable organizations.

Action Program ENV-1.3.a: Coordinate with Marin County and other local agencies and knowledgeable non-profit groups to prevent the spread of non-native invasive species in Larkspur.

See Action Program ENV-1.2.a

Policy ENV-1.4: Recognize the value of heritage trees to the environment and the quality of life in Larkspur.

Action Program ENV-1.4.a: Require applicants to obtain a permit for the removal of heritage trees, as defined in the City Municipal Code, and require the planting of replacement trees where they can be accommodated.

Water Resources Protection

ENV-2: Protect water resources from degradation.

Policy ENV-2.1: Avoid, when feasible, or mitigate adverse impacts of development on shoreline, wetland and riparian areas, consistent with applicable state and federal regulations.

Action Program ENV-2.1.a: Adopt a shoreline, wetland, and riparian conservation area ordinance that establishes:

- (a) Boundaries of shoreline, wetland, and riparian conservation areas;*
- (b) Incentives to reduce the extent of existing development adjacent to shoreline, wetland, and riparian areas;*
- (c) Requirements for on- and off-site mitigation for lost or disturbed wetlands, consistent with state and federal regulations, including a goal of no net loss, identification of when the mitigation should occur, and the preference of restoration as mitigation;*
- (d) Development setbacks for parcels adjacent to designated shoreline, wetland, and riparian areas.*

The following development setbacks shall apply to development adjacent to designated conservation areas:

- (1) For parcels more than two (2) acres in size, a minimum 100-foot development setback is required.*

(2) For parcels between one-quarter (0.25) and two (2) acres in size, a minimum 50-foot development setback is required.

(3) For parcels less than one-quarter (0.25) acre in size, a minimum 15-foot development setback from wetlands is required. The developed portion(s) of parcels (less than 0.25 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.

Exceptions to compliance with the conservation area setback standards may apply only in the following cases:

a. Parcel is already developed with an existing use, provided no unauthorized fill or other modifications to wetlands have occurred as part of ongoing use of the property.

b. Parcel is undeveloped and falls entirely within the conservation area.

c. Parcel is undeveloped and potential impacts on water quality, wildlife habitat, or other sensitive resources would be greater as a result of development outside the conservation area than development within the conservation area, as determined by a site assessment.

d. Shoreline, wetland, or riparian areas are avoided and a site assessment demonstrates that minimal incursion within the minimum conservation area setback distance would not result in any significant adverse direct or indirect impacts.

Action Program ENV-2.1.b: Ensure that proposed projects comply with applicable State and Federal wetland regulations.

Action Program ENV-2.1.c: When projects fall within or adjacent to shoreline, wetland, or riparian areas, require a site assessment by a qualified biological, ecological, or hydrological professional to determine potential project impacts.

Action Program ENV-2.1.d: Use the City website and printed material, when available, to provide information about local, state, and federal wetland development regulations to landowners and interested persons.

Action Program ENV-2.1.e: If removal of riparian vegetation is unavoidable for a project, require preparation and implementation of a Native Habitat Restoration Plan, to be considered during project review.

Policy ENV-2.2: Avoid, if feasible, or mitigate impacts on shoreline, wetland, and riparian areas from diking, dredging, or filling.

Action Program ENV-2.2.a: Coordinate with the Golden Gate Bridge Highway and Transportation District and other public agencies owning or managing

property within the Larkspur Planning Area to ensure that intensification or changes in land use at their properties avoids impacts on adjacent shoreline, wetland, or riparian areas. If avoidance is not feasible, ensure that such intensification or changes have minimal impacts on adjacent shoreline, wetland, or riparian areas, and that unavoidable impacts are appropriately mitigated in accordance with adopted mitigation guidelines. (See Policy ENV-2.1.a)

Action Program ENV-2.2.b: Preserve and/or enhance buffer or transition zones between shoreline/wetland areas and inland areas.

Policy ENV-2.3: Continue to designate the wetlands along Corte Madera Creek and at Piper Park, Redwood High School, and the Larkspur Ferry Terminal, and the shoreline between East Sir Francis Drake Boulevard and the Bay waters as Shoreline/Wetland Conservation areas.

Policy ENV-2.4: Prioritize the protection of water resources during consideration of land use adjacent to shoreline, wetland, and riparian areas.

Policy ENV-2.5: Reduce construction impacts on shoreline, wetland, and riparian areas.

Action Program ENV-2.5.a: Limit construction activity adjacent to shoreline, wetland, and riparian areas, when possible.

Action Program ENV-2.5.b: When construction in or adjacent to shoreline, wetland, and riparian areas is unavoidable, require construction debris to be disposed of responsibly, in accordance with guidelines established by the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, or any successor permits promulgated in the future on a State or Federal level that regulate such activities. Require disturbed soils and creeksides to be stabilized.

Action Program ENV-2.5.c: Coordinate with the Marin County Flood Control and Water Conservation District, the Marin Municipal Water District, the Ross Valley Sanitary District, and other local agencies and organizations during their activities in or adjacent to shoreline, wetland, and riparian areas.

Action Program ENV-2.5.d: Use the City website and printed materials, when available, to provide information to the public and applicants regarding strategies to reduce soil erosion and sedimentation in shoreline, wetland, and riparian areas. Refer to materials produced by the Marin Resource Conservation District, the Marin County Community Development Agency, and other local agencies and organizations.

Policy ENV-2.6: Support efforts to restore the Ross Valley watershed by the Marin Municipal Water District, Marin County Flood Control and Water Conservation District, and other interested agencies and organizations.

Policy ENV-2.7: Encourage use of permeable materials in projects adjacent to water resources.

Action Program ENV-2.7.a: Adopt guidelines for the use of permeable materials in project landscaping and paving.

Policy ENV-2.8: Encourage on-site water infiltration on project sites and the use of low impact development techniques to reduce run-off of sediment and toxic materials, downstream erosion, and flooding.

Action Program ENV-2.8.a: Require drainage plans for projects that are designed, at a minimum, to produce no net increase in the rate and volume of peak runoff from the site compared to pre-project conditions. Encourage drainage plans that decrease the rate and volume of peak runoff compared to pre-project conditions.

Action Program ENV-2.8.b: Continue to implement slope and hillside development regulations requiring preservation of natural state.

Action Program ENV-2.8.c: Continue to encourage the use of low impact development techniques and other best practice strategies per Marin County Stormwater Pollution Prevention Program guidelines during development review, construction process, and site operation.

Policy ENV-2.9: Reduce surface water run-off from municipal facilities.

Action Program ENV-2.9.a: Include and implement Water and Wastewater programs in the City's Climate Action Plan to reduce run-off from municipal facilities.

Policy ENV-2.10: Encourage landscaping strategies that avoid or minimize reliance on chemical pesticides.

Action Program ENV-2.10.a: Use the City's website and printed material, when available, to provide information on integrated pest management, organic, physical, and biological pest control strategies to applicants and the public.

Action Program ENV-2.10.b: Adopt a phased ban on the municipal use of pesticides.

Open Space

ENV-3: Preserve and enhance designated open space areas.

Policy ENV-3.1: Work with local and regional open space agencies and interest groups to develop an open space preservation strategy.

Action Program ENV-3.1.a: Identify financing mechanisms to acquire privately held lands designated for future open space.

Action Program ENV-3.1.b: Educate school children and the general public about Larkspur's open space resources.

Action Program ENV-3.1.c: Encourage dedication of open space in conjunction with clustered development.

Policy ENV-3.2: Designate and preserve in open space the areas shown on the General Plan Land Use map, including the Baltimore Canyon Open Space Preserve, the Piedmont and Redwood Avenue areas, the Blithedale Summit Open Space Preserve, the King Mountain Open Space Preserve, the Tubb Lake watershed, and the ridge above the old quarries on the San Quentin Peninsula.

Action Program ENV-3.2.a: Rezone publicly-owned or privately dedicated open space areas to appropriate Open Space zoning districts.

Policy ENV-3.3: Ensure that Corte Madera and Southern Heights Ridges are maintained as community separators.

Policy ENV-3.4: Support the efforts of the Marin County Open Space District to acquire more open space in the Larkspur Planning Area, particularly areas with valuable habitat for native species.

Public Access

ENV-4: Provide reasonable visual and physical public access to natural resources without adversely impacting natural habitats and species.

Policy ENV-4.1: Protect visual access to the Bay and Corte Madera Creek.

Action Program ENV-4.1.a: Provide public spaces with views toward the Bay, Corte Madera Creek, and Mount Tamalpais.

Action Program ENV-4.1.b: Apply conditions of project approval that will preserve public views of the Bay, Corte Madera Creek, and Mount Tamalpais.

Policy ENV-4.2: Provide boating access to Corte Madera Creek and the Bay.

Action Program ENV-4.2.a: Maintain or improve the existing level of public access to Corte Madera Creek for the launching of small boats.

Policy ENV-4.3: Seek a balance between the recreational aspects of open space and the need to protect wildlife and fragile vegetation from intrusion by humans and domestic animals.

Action Program ENV-4.3.a: Consider an ordinance to provide a buffer zone between natural habitats and human use areas (such as paths), and clearly mark the boundaries. Place restrictions on access to these sensitive areas by pets. The ordinance will identify the purpose of the buffer zone, specify its size and nature, and call for protection and enhancement of biological resources, particularly wetlands, riparian areas, and creeks or streams.

Policy ENV-4.4: Provide trail access to natural resources consistent with Circulation Element policies and programs.

Resource Consumption

ENV-5: Reduce water consumption in Larkspur.

Policy ENV-5.1: Support local and regional efforts to reduce water consumption.

Policy ENV-5.2: Apply water conservation development standards for residential, commercial, and civic development, reconstructions, and remodels.

Action Program ENV-5.2.a: Include and implement Water and Wastewater programs in the City's Climate Action Plan to promote efficiency in water use, consumer conservation, greywater use, rainwater catchment systems, and other applicable actions.

Action Program ENV-5.2.b: Through the permitting process, require new and replacement public and private landscaping to use drought tolerant plantings and water conserving landscape techniques consistent with state (e.g.,

CALGreen code), regional (MMWD), and local (local CALGreen code implementation) regulations.

Action Program ENV-5.2.c: Through the permitting process, require the installation of water-conserving plumbing fixtures in new buildings and when existing fixtures are replaced consistent with state (e.g., CALGreen code), regional (MMWD), and local (local CALGreen code implementation) regulations.

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ENV-6: Reduce the total volume of the City's waste stream.

Policy ENV-6.1: Support efforts by the Marin Sanitary District to recycle paper, cardboard, glass, metal, plastics, motor oil, electronics, and construction materials, and programs to compost and/or generate energy from food and yard waste.

Policy ENV-6.2: Promote waste reduction strategies for residential, commercial, and civic sectors.

Action Program ENV-6.2.a: Include and implement Green Purchasing, Waste Reduction, Recycling, and Zero Waste programs in the City's Climate Action Plan.

Action Program ENV-6.2.b: Consider adoption of a plastic bag and polystyrene ban ordinance.

NATURAL ENVIRONMENT AND RESOURCES BACKGROUND

SHORELINE, WETLAND, CREEK, AND RIPARIAN HABITATS AND SPECIES

Shoreline- San Francisco Bay

Larkspur only has about one-half mile of direct Bay frontage, from the Larkspur Landing pedestrian bridge to the eastern end of Remillard Park. The Land Use and Circulation Map designates shoreline areas as either Open Space or Parkland. There is little potential for development of shoreline areas, which provide a valuable buffer between the Bay waters and development and infrastructure further inland. The Bay frontage beyond Remillard Park is outside the City Limits and consists of a small beach where wind surfers launch their craft, and San Quentin Prison. (See discussion of windsurfing launch site in Chapter 5, Community Facilities and Services).

In general, access to the Bay from Larkspur is difficult. The shoreline is rocky and narrow, and it is unsafe to stop a car along busy Sir Francis Drake Boulevard, which parallels the Bay front. The City maintains a paved multi-use path from the Cape Marin development to Remillard Park that provides access to views of the Bay and the hills beyond.

The wave action from ferries approaching the Larkspur Ferry Terminal has the potential to cause some shoreline erosion. However, ferries reduce their speeds as they approach and leave the terminal, mitigating the potential problem.

Wetlands

The federal Clean Water Act (1977) defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." Types of wetlands include marshes, bogs, and swamps. Marshes are the dominant wetland type in Larkspur. Most of Larkspur's marsh areas are classified as estuarine, or tidal, marshes, because the waters have some access to the Bay. The wetlands along the southeasterly boundary of Redwood High School, at the College of Marin, and at Remillard Park are classified as palustrine, or nontidal wetlands - cut off from tidal action.

Corte Madera Creek, although substantially channelized, once flowed through a wide valley of tidal wetlands. Before urbanization, these wetlands extended from Magnolia Avenue on the south to Sir Francis Drake Boulevard on the north (with the exception of Bon Air Hill). The Creek's natural character has been greatly altered by flood control projects and by private development. All that remains of the wetlands is a narrow fringe along segments of Corte Madera Creek, and small areas preserved at the College of Marin, Piper Park, Redwood High School District, the Larkspur Ferry Terminal, and Remillard Park.

Creeks and Riparian Areas

Creeks, streams, and rivers are characterized by intermittent or continually running water. Streams originate as outlets of ponds or lakes, or from springs, seepage, or seasonal runoff. The quality of water in rivers, streams, creeks, ponds, and other surface bodies can be affected by erosion, sedimentation, and surface runoff. Naturally occurring processes, such as erosion, can be accelerated by human actions. Excessive grading, removal of vegetation, and construction adjacent to stream banks can hasten the natural erosion process, resulting in the rapid loss of soil from the land and high levels of sediment in surface water bodies. The sediment in rapidly moving water undercuts stream banks, while slower moving waters deposit silt.

Riparian areas are defined by the U.S. Environmental Protection Agency as vegetated ecosystems adjacent to or upland of stream channels and corridors.¹ Key riparian corridors in Larkspur exist along the Corte Madera Creek and the Larkspur Creek (also known as Arroyo Holon). Despite the disturbances to its original channel and impacts from flood control and private development, the creek remains a valuable habitat for native flora and fauna.

Plant and Animal Species

A variety of vegetation grows in Larkspur's shoreline, wetland, and riparian areas. Pickleweed (genus *Salicornia*) and cordgrass (genus *Spartina*) are commonly found in wetland areas, while alkali heath, saltgrass, and other salt-tolerant plants may also be found. Larkspur's shoreline, wetland, and riparian areas also provide nest sites and food sources for a diversity of animals, including small invertebrates (worms, mollusks, crabs, and others), small vertebrates (the endangered salt marsh harvest mouse, California vole, and others) and large vertebrates such as the great blue heron.² Fish graze the wetlands at high tide.

The wetlands of the San Francisco Bay and the waters of Corte Madera Creek provide an important over-wintering habitat for migratory species of the Pacific Flyway. In the fall, migrating waterfowl and shorebirds by the hundreds of thousands arrive from the north to rest and feed. Some resume their flights southward to Mexico and Central and South America. The shorebirds return in the spring, though the northward migration is not as populous as many birds choose to return through the Central Valley.

Riparian plant species found upland of Corte Madera Creek include the Marin knotweed, an extremely rare, endangered, and unprotected species that is endemic to only four counties in California, including Marin.³ Corte Madera Creek is one of only two remaining locations where the knotweed has been known to exist.⁴ Other riparian plant species include California blackberry, creek dogwood, rush, sedges, and horsetail.

¹ U.S. EPA. "Management Resources for wetlands." <http://www.epa.gov/owow/NPS/MMGI/Chapter7/ch7-1.html#Wetlands>. 2010.

² Creekside Supplemental Environmental Report, September 1987.

³ U.S. Fish and Wildlife Service Environmental Conservation Online System. 2011.

⁴ Creekside Supplemental Environmental Report, September 1987.

Invasive Species

Native California cordgrass (*Spartina foliosa*) populations in the Bay Area are threatened by several species of invasive cordgrass whose aggressive growth threatens native fish, waterfowl, and shellfish habitats and clogs flood channels. One of the most prevalent communities of the invasive *Spartina* species is located in Corte Madera Creek and the surrounding areas, including Hal C. Brown Park at Creekside, Piper Park, the Corte Madera Marsh Reserve, and areas around the Larkspur ferry terminal. The California Coastal Conservancy initiated the Invasive *Spartina* Project in 2000 to address the rapid spread of the invasive species.⁵

Special Status Species

Several special status species have been found in or near Corte Madera Creek in Larkspur over the years, including the California clapper rail, the California black rail, the salt marsh harvest mouse, and Steelhead trout. The California clapper rail and salt marsh harvest mouse are listed as endangered by both the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The California black rail is listed as threatened by the California Department of Fish and Game and as a species of concern by the U.S. Fish and Wildlife Service. Other special status species, including those with habitat in shoreline, marsh, and riparian areas, are listed in Figure 6-1 below.

Figure 6-1. Special Status Species in the Larkspur Planning Area⁶

Species	Federal Designation	State Designation
California black rail	Species of concern	Threatened
California clapper rail	Endangered	Endangered
Coho salmon - central California coast	Endangered	Endangered
Conservancy fairy shrimp	Endangered	None
Marin western flax	Threatened	Threatened
Salt marsh harvest mouse	Endangered	Endangered
San Bruno elfin butterfly	Endangered	None
Showy rancheria clover	Endangered	None
Steelhead trout	Threatened	None
Tidewater goby	Endangered	Species of special concern
Western snowy plover	Threatened	Species of special concern

Source: U.S. Department of the Interior, Fish and Wildlife Service and California Department of Fish and Game, 2011.

⁵ Marin County Department of Agriculture - Weights and Measures. 2011.

⁶ Note: This list is not exhaustive. Species listed have either been found in Larkspur or whose habitat range, as defined by the State or the Federal government, includes Marin County. Refer to the State Department of Fish and Game or the U.S. Fish and Wildlife Service, Department of the Interior, for complete information about special status species protected under the California Endangered Species Act and the Federal Endangered Species Act.

Water Pollution Sources and Regulation

Sources of water pollution can be distinguished in two categories: point-source pollution, and non-point source pollution. Point-source pollution can be traced to a single discrete conveyance, such as a pipe. Non-point source pollution cannot be traced to a single source; instead, contaminants are carried by rain, irrigation water, snowmelt, or other water sources and enters waterways as surface runoff. Surface runoff carries contaminants such as oil and grease from driveways, parking lots, and streets, sediment from construction sites, litter, animal waste, pesticides, lead from auto exhausts, and yard waste.

Preventing water pollution protects public health and the integrity of watersheds, and enhances their ability to recharge ground water and accommodate stormwater flows. The federal Clean Water Act (1977) established a national water pollutant permitting system called the National Pollutant Discharge Elimination System (NPDES), which requires point-sources of water pollution to obtain a permit to discharge water from a point source into navigable waters. The Clean Water Act also established water quality standards for all surface waters.

The Marin County Stormwater Pollution Prevention Program (MCSTOPP) was formed by Marin's cities, towns and unincorporated areas to prevent water pollution. MCSTOPP holds a General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems (Small MS4 Permit), which requires all municipalities in the County to comply with a Storm Water Management Program. MCSTOPP created guidelines for reducing water pollution from new and redevelopment projects, which the City refers to during development review, the construction process, and site operation. MCSTOPP also provides information to municipalities and the public about stormwater regulations and best management practices for creek and wetland management, capital improvement projects, and other relevant public and private activities related to water pollution.

Groundwater Recharge and Stormwater Management

[To be added after environmental analysis is complete. Alternatively: discuss in Health and Safety Element, and only include reference here.]

OPEN SPACE HABITATS AND SPECIES

Open space land is defined as "any parcel of land or water which is essentially unimproved and devoted to an open space use" for the purposes of: (1) preservation of natural resources; (2) managed production of resources; (3) outdoor recreation; and (4) public health and safety.⁷ In Larkspur, the primary purposes of open space lands are resource preservation, outdoor recreation, public health and safety, and community separation.

⁷ California Government Code §65560(b).

Preservation and enhancement of the biological diversity of plants and animals within the urban environment is important in an area with significant ecological resources. Larkspur's open space lands are diverse and include hillsides and ridges, riparian (streams and river areas), wetland, and shoreline areas, and segments of an abandoned railroad right-of-way.

The Land Use and Circulation Plan designates Open Space, Shoreline/Wetland Conservation, Parkland, and Water areas. Most of these areas are in public ownership or are required to remain in open space as conditions of development approval. However, except for parkland areas, the underlying zoning, in some cases, still suggests potential for development (e.g., the Blithedale Summit Open Space Preserve is zoned RMP, Residential Master Plan). In areas where the potential for development has been eliminated, the zoning should reflect a commitment to keeping the land open.

Hillsides and Ridges

Corte Madera Ridge, forming the City's south and western boundary, and *Southern Heights Ridge*, forming the City's northern boundary, define Larkspur's urban form and separate it from other communities (ridge names are USGS nomenclature). Corte Madera Ridge in particular, with Big and Little King Mountains standing out in the foreground, is a defining symbol of the community. Part of Corte Madera Ridge lies within the Blithedale Summit Open Space Preserve, which is one of three open space districts owned and managed by the Marin County Open Space District (MCOSD), that are located in the City's Planning Area. The 108 acre King Mountain Open Space Preserve, encompassing Big and Little King Mountains, provides trail connections to neighboring open space preserves. The Baltimore Canyon Open Space Preserve encompasses 193 acres in the southeast portion of Larkspur's Planning Area and contains the headwaters of the Larkspur Creek.

Species and Habitats

Larkspur's open space preserves are characterized by shaded canyons and open, wind-blown hillsides. Woodlands (oaks, madrone, bay, buckeye, and redwoods) are interspersed with dense stands of chaparral (chamise, chaparral oak, manzanita, bush monkeyflower, coyote brush, and toyon) and annual grasslands. There are both native and introduced grasses.⁸

The vegetation is home to many species of wildlife, from western fence lizards and gopher snakes to deer, fox, bobcat, and coyote. Trees in the woodlands provide nesting and perching sites for numerous native bird species, including jays, red-tailed hawks, great horned owls, and others. The California Department of Fish and Game lists the California spotted owl as a Bird Species of Special Concern. Repeated petitions for protection of the California spotted owl through the U.S. Endangered Species Act were

⁸ King Mountain Estates Draft Environmental Impact Report, April 5, 1989

denied by the U.S. Fish and Wildlife Service, citing insufficient evidence for the species' decline.⁹

The Marin County Audubon Society counted between 66 and 83 different species of birds in the Larkspur Planning Area during its annual December bird counts between 1999 and 2009.¹⁰

Development in Open Space

Most of the land on the slopes of Corte Madera Ridge that is not in the open space preserve is developed with single and multiple-family housing. One property, owned by the Tiscornia family, abuts the King Mountain Open Space Preserve and is designated Low Density Residential. The steeply sloped site is minimally developed with historic buildings, often used for public events, and a private home. Preferred development of these types of sites may include clustering buildings in close groupings to retain the steep open hillsides, natural spaces, or historic structures. Other strategies to develop sites with steep slopes include common access points, shared driveways, and the pooling of small yard spaces to create more usable natural space and other amenities than is possible with traditional setbacks and access requirements.

Both the publicly and privately-owned lands on Corte Madera Ridge are easily accessible from several residential neighborhoods and are used by hikers and joggers. Southern Heights Ridge separates Larkspur from San Rafael. West of Highway 101, the south-facing hillside has been developed with the single-family homes of the Greenbrae neighborhood. Although landscaping is extensive, the area cannot be defined as open space except to the extent that it is an important visual backdrop to the community.

Southern Heights Ridge continues east across Highway 101 where it forms the spine of the San Quentin Peninsula. The ridge drops off steeply into the old rock quarry, above two multi-family housing developments. The top of the ridge (about 20 acres within Larkspur) was set aside as open space as a condition of development approval for the multi-family housing developments. The ridge is dominated by grasses and is highly visible local landmark.

In addition to the designated open space preserves within Larkspur, the community greatly benefits from its proximity to Mount Tamalpais State Park and Marin Municipal Water District watershed lands, which are open to public use.

PUBLIC ACCESS TO NATURAL RESOURCES

Larkspur has sought to retain the recreational aspects of the creekside environment by establishing bike and pedestrian paths along some segments. (See Chapter 4, Circulation, for a map of bicycle and pedestrian paths in Larkspur.) The City recognizes

⁹ U.S. Fish and Wildlife Service, 2006.

¹⁰ Marin Audubon Society. "Historical Data by Species and Area Maps." <http://www.marinaudubon.org/christmas-bird-count-history.php>. 2011.

that creekside improvements may encourage human intrusion into areas of Corte Madera Creek that sustain important habitat for wildlife. Therefore, the provision of recreation facilities in areas with critical ecological resources is balanced with sensitivity to protecting wildlife habitat, wildlife species, and native riparian vegetation.

Members of the Marin Rowing Club regularly use the Corte Madera Creek, with dock and launching areas located on a City-owned parcel adjacent to the Creek, immediately west of the Highway 101 Greenbrae interchange. The City and the Marin Rowing Club recorded a Joint Powers Agreement whereby in return for using City land for its launching docks, the club will allow the public to take rowing classes and use the dock on weekends. (See also Chapter 5, Community Facilities and Services, page 5-X, regarding this Joint Powers Agreement.)

PARKS

Larkspur's parks are discussed in Chapter 5, Community Facilities and Services. However, three City parks are unique in that they serve more than recreational purposes. Piper Park, Remillard Park, and Miwok Park each contain protected wetlands and natural areas. The wetlands at Piper and Remillard Parks are discussed above.

Miwok Park on the slopes of the San Quentin Peninsula contains a manmade reservoir, Tubb Lake, which has become a valuable biological resource for the community. The City should monitor Tubb Lake for dredging needs. The dam should also be assessed regularly for stability. Development surrounding Miwok Park, including the approved mixed-use development at 2000 Larkspur Landing Circle and the single-family development at Drake's Cove, both contain access points to Miwok Park. The City holds a public access easement through Drake's Cove to retain public access to the park.

RESOURCE CONSUMPTION

Water Resources

The Marin Municipal Water District (MMWD) is a special purpose district with the responsibility for providing water services throughout southern Marin County, including Larkspur. The District obtains 75% of its drinking water supply from seven reservoirs located throughout Marin and 25% through the transfer of water from the Sonoma County Water Agency (SCWA). Two of Larkspur's distribution lines come from Kentfield and run through Larkspur along Magnolia Avenue. The third comes from Kentfield along Sir Francis Drake Boulevard through Larkspur and on to San Rafael. There have been restrictions placed on new water connections in the past due to drought conditions, but there is currently no moratorium on new hook-ups.

MMWD plans for long-term supplies based on the build-out of the general plans of cities it serves. In 2010, MMWD's operational yield (the amount of water that can be supplied in all but the driest years) was 28,400 acre-feet annually (afa), while the average annual

use within the district between 2000 and 2010 was 29,302 afa.¹¹ The drop in yield reflects the below-average rainfall experienced in the County (and the State) from 2004 and 2009, though the County experienced above average rainfall in the Winter of 2010. MMWD projects a growing supply deficit over the next fifteen years, mainly due to reduced pipeline capacity for the districts that supply water from the Russian River (including SCWA and North Marin Water District).¹² Additionally, in 2009 SCWA announced that it would be reducing service between 30% and 50% as a result of reduced rainfall and storage in the Russian River, though this is likely subject to change depending on the average rainfall and amount of water in the reservoirs.¹³

Without implementation of new conservation programs, MMWD projects that the annual deficit in water supplies will grow from 4,200 afa in 2010 to 6,700 afa by 2025. ¹⁴ This scenario would constitute a “serious water supply deficit” and could impact MMWD’s ability to serve new housing developments. However, in 2007 the MMWD Board of Directors approved a \$44 million conservation program to help mitigate the impacts of reduced water supply, and in 2010 the District was exceeding its water conservation goals. ¹⁵

In 1981, MMWD partnered with the Las Gallinas Valley Sanitary District to develop a water recycling plant that now provides over 650 acre-feet per year of recycled water for irrigation and other non-potable industrial and commercial uses to 323 service connections. MMWD is also exploring desalination of ocean water as a long-term source of potable water. MMWD built a pilot desalination plant in 2005 in Richardson Bay in San Rafael, and in August of 2009 the Board of Directors approved a permanent plant in the same location with the initial capacity to deliver 5 million gallons per day (mgd) and the potential to expand to 15 mgd. In 2010, MMWD District customers voted in favor of a measure that limited the Board’s desalination efforts to study and planning. The measure also requires voter approval for construction and financing of a desalination plant.

The quality of water delivered by the MMWD is considered excellent. All district water supplies meet current Environmental Protection Agency and State of California health standards after treatment.

Garbage, Recycling, and Compost Collection

Garbage service in Larkspur is provided by Marin Sanitary Service (MSS). Garbage is hauled to the Redwood Landfill in Novato after newspaper, cardboard, glass, and metal have been removed for recycling at MSS’s recycling facility in San Rafael. Curbside garbage, recycling, and yard/food waste collection is provided regularly by MSS. Food waste collection services was introduced to residential customers in 2011, with service to commercial customers beginning in 2012. Food and yard waste is collected weekly

¹¹ MMWD, 2011.

¹² MMWD. 2007. Urban Water Management Plan.

¹³ MMWD. 2009. Annual Water Production Report.

¹⁴ MMWD. 2007. Urban Water Management Plan.

¹⁵ MMWD. 2007. Water Conservation Master Plan.

and transported to the Northern Recycling Compost facility located in Zamora, CA, approximately 90 miles from MSS headquarters in San Rafael. Electronics and hazardous materials recycling and disposal is provided at MSS' Marin Household Hazardous Waste facility, also located in San Rafael.

MSS uses dual-sort recycling containers, which separate paper and glass, aluminum, and plastic, in order to prevent contamination of paper waste. Waste audits conducted by MSS estimate that food waste and contaminated paper constituted the largest source of landfill waste. As a result of MSS's aggressive recycling programs, 62 percent of the County's waste stream is now diverted from landfill. MSS achieved early compliance with State legislation requiring 25 percent diversion by 1995 and 50 percent diversion by 2000.¹⁶

Wood and brush are also separated from the garbage collected, and reduced to woodchips and sawdust. The woodchips are transferred to a co-generation plant and burned to produce energy. Sawdust and sand are mixed to produce topsoil.

¹⁶ Marin Sanitary Service, 2008.