

Chapter 6. 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: Protection of native habitats in Larkspur, particularly those providing habitat for state and federally listed special status species

ENV-2: Protection of water ~~and resources~~ riparian resources from degradation.

Open Space

ENV-3: Preservation and enhancement of designated open space areas

ENV-4: Sufficient open space to meet the health and safety needs of Larkspur residents

Public Access

ENV-~~4~~5: ~~Provide r~~Reasonable visual and physical public access to natural resources without adversely impacting natural habitats

Resource Consumption

ENV-~~5~~6: Reduced ~~water consumption~~ use of natural resources

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

Species and Habitat Protection

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

Policy ENV-1.1: Protect biological resources, including migratory birds, anadromous fish, and threatened and endangered species, that are necessary to maintain a diversity of plant and animal species. Avoid, when feasible, or mitigate adverse impacts of development on ~~native special status~~ 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: Continue to ~~Implement~~ the California Environmental Quality Act during project review, as applicable, 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: Continue to ~~s~~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~~ Protect and enhance native plant ~~species in~~ communities 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~~ provide guidelines and recommendations to project applicants, property owners, and interested community members for planting of native and drought-tolerant species.

Commented [NT1]: Recommend we narrow this. Mitigating impacts on all native species is an overreach.

Formatted: Font: Arial

Commented [LC2]: Plant protection was the aim of the first policy. This one is about providing additional plantings, etc.

Action Program ENV-1.2.c: Continue to protect trees on public lands by planting additional trees needed to maintain age and species diversity, ensuring the proper and timely pruning of trees, and removing non -native species, particularly if they are invasive.

Commented [LC3]: These programs are added to satisfy OPR Guidelines requirement to address urban woodlands

Action Program ENV-1.2.d: On private properties, encourage and, where appropriate, require actions by private property owners to protect the health of native woodlands and trees.

Action Program ENV-1.2.e: Update parking lot landscape standards to maximize tree size, cover and growth to reduce heat gain.

Action Program ENV-1.2.f: Require that the site planning, construction and maintenance of new development preserve existing healthy native trees and vegetation on site to the maximum extent feasible or otherwise apply conditions of approval to off-set loss of native trees and vegetation not able to be saved.

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: ~~Continue to r~~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. ~~Where replacement plantings is not practical or feasible, require property owners to contribute funds to support tree planting in the local streets, parks, and open spaces to off-set the loss of heritage trees.~~

Action Program ENV-1.4.b: Develop a program to allow applicants and Continue to require applicants to obtain a permit for the removal of heritage trees and require the planting of replacement trees where they can be accommodated.

Policy ENV-1.5: Endeavor to preserve and enhance wildlife habitat, including in watercourse areas, and control human use of these areas as necessary to protect them.

Commented [NT4]: This policy and program is added to satisfy OPR Guidelines.

Action Program ENV-1.5.a: Review and, to the degree feasible, condition development applications to preserve habitat valuable to wildlife.

Policy ENV-1.6: Ensure that even minor private and public projects (e.g. remodeling permits, road repairs, grading permits, tree removal permits) do not significantly affect special status species and habitat.

Action Program ENV-1.6.a: Develop a program that identifies the potential habitats in Larkspur where are known or possible. Require avoidance, or where avoidance is not feasible, prepare a list of feasible mitigation measures to address impacts to these resources that can be applied as part of the City's permit or public works project approval process. The program would be adopted after completion of a programmatic CEQA review. Subsequent individual permit applications or public works projects would be reviewed to ensure that the project or project site do not include unique conditions that are not covered by the program. If unique conditions are present, then additional environmental review would be required.

Water Resources Protection

ENV-2: Protection of water and riparian resources resources from degradation.

Policy ENV-2.1: Preserve and enhance the ecology of natural surface waterbodies, wetlands, and riparian habitat, including riparian vegetation. Prohibit further degradation and require restoration of previously-degraded riparian areas as a condition of development approval when restoration is feasible, taking into account the project's size and cumulative impacts.

~~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 ordinance addressing shoreline, stream, wetland, and riparian corridor habitats that establishes:

(a) Boundaries and definitions of shoreline, wetland, and riparian conservation areas; wetlands will be defined by the criteria used by the U. S. Army Corps of Engineers and the California Department of Fish and Wildlife; riparian conservation areas shall be defined as the streamcourse to the top of the bank as well as the band of riparian vegetation adjacent to the top of the bank; boundaries will be periodically adjusted to reflect changes resulting from sea level rise or other phenomena that result in the addition or deletion of shoreline, wetlands, streams, and/or riparian habitat;

Commented [NT5]: Note extensive edits to this policy and programs. We are recommending replacing with a more straightforward policy and set of programs to establish creek setbacks and wetlands protections without extensive detail within the element. See discussion and alternative policies in Memo.

(b) Incentives to reduce the extent of existing development adjacent to shoreline, wetland, and riparian areas;

(c) Requirements and clear mitigation criteria for on- and off-site mitigation for ~~loss of~~ 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) Identification of City staff to be responsible for overseeing implementation of the Ordinance, including determination of the level of analysis required for avoiding wetlands, the adequacy of mitigations, and waivers; this staff will constitute the Review Authority for the Ordinance;

(e) Development setbacks for parcels adjacent to and within ~~to~~ designated shoreline, wetland, and riparian areas

The following development setbacks shall apply to development adjacent to and within 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 will be finalized in the Wetland Conservation Area Ordinance and may will apply only into the following cases (unless modified in the final Ordinance):

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

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

iii. Parcel is undeveloped and the area outside the setback is too small to allow reasonable development of the parcel.

iv. 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.

v. 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.

(f) Uses that may be allowed within setbacks; and

(g) Waiver criteria for stream setbacks to accommodate specific site constraints such as encroachments of parking areas, access roads, bridges, structures, and other uses may be conditionally permitted by the Review Authority where the following findings are first made:

1. The proposed use, structure or encroachment cannot be feasibly located outside the Conservation Area or such location would have a more adverse effect on the stream environment; and

2. Measures are included that provide adequate protection of wildlife habitat, water quality and in-stream habitat, and capacity for flood management; or

3. The strict application of these limitations would result in a taking of the property without just compensation.

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

~~Action Program ENV-2.1.b: When projects fall within areas covered by the Conservation Area Ordinance, 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 and ways to avoid impacts or, if avoidance is not feasible, to identify potential mitigation measures to reduce any significant ecological impacts. Riparian corridor restoration should be considered when mitigation is warranted.~~

~~Action Program ENV-2.1.c: Until such time as the Conservation Area Ordinance is adopted, proposed project applications will be reviewed by City staff to determine the known or possible presence of wetlands, streams, riparian habitat, and/or shoreline habitat in the area proposed for development. If any of these sensitive resources could be impacted by a project proposal, then the project and site will be reviewed as described in Action Program ENV-2.1.b. .~~

Action Program ENV-2.1.d: Use the City website, MarinMap, 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.~~

Commented [NT6]: The previous programs requiring mitigation would suffice.

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.

Action Program ENV-2.2.c: Future projects constructed to address flooding from sea level rise will be designed and constructed to protect and expand wetlands to the degree feasible.

(Also see policies under Goal 4 of the Health & Safety Element that address flooding caused by sea level rise.)

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~~ development projects contiguous to, and/or within, shoreline, wetland, and riparian areas or required setbacks for those areas.

Policy ENV-2.5: Minimize the effects of pollution in stormwater runoff in Larkspur and its effective watersheds. Retain and restore where feasible the natural hydrological characteristics of watersheds in ReduceLarkspur. Reduce construction impacts on shoreline, wetland, and riparian areas.

Action Program ENV-2.5.a: ~~Limit construction activity adjacent to~~within shoreline, wetland, and riparian areas, and the setbacks for these areas, when possible.

Formatted: Font: Arial

Formatted: Font: Arial

Action Program ENV-2.5.b: When construction in or ~~adjacent~~within required setbacks 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 to enhance water quality and reduce peak stormwater runoff in the Ross Valley watershed.

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

Action Program ENV-2.7.a: ~~Adopt~~Implement 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, including ~~requiring~~ preservation of natural state conditions in steep hillside areas.

Action Program ENV-2.8.c: Continue to ~~encourage~~ require the use of low impact development techniques and other best management practices ~~strategies to~~ 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 and herbicides.

Commented [NT7]: Not all pesticides and herbicides are considered as "banned". Working with DPW on language that reflect current best practices.

Open Space

ENV-3: Preservation and enhancement of 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 open space and parkland 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, Piper Park, 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.

Action Program ENV-3.2.b: Apply Open Residential land use densities (up to 0.2 unit per gross acre) to existing legally created and privately held properties located within open space areas, and not previously dedicated for open space purposes. Adopt requirements for master plan approval to assure adequate emergency, utilities, fire safety, environmental protection, and protection of surrounding open space resources in conjunction with any private development within open space areas.

Commented [NT8]: This maintains right for residential development, but precludes any subdivision of remnant private parcels existing in Blithedale Summit Open Space Preserve. This will allow the City to rezone a swath of MCOSD land from Residential Master Plan (RMP) to Open Space, while maintaining existing standards of review.

Action Program ENV-3.2.c: Transfer remnant city-owned parcels to the Marin County Open Space District (MCOSD) where such parcels are located within open space areas managed by MCOSD and transfer is practical and feasible.

Commented [NT9]: Suggestion to consolidate ownership of open space parcels under MCOSD.

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.

Policy ENV-3.5: Where feasible, support efforts to maintain open space that includes Native American historic, cultural, or sacred sites, that are listed or may be eligible for listing in the California Register of Historic Resources pursuant to Section 5024.1

Commented [NT10]: Added to comply with OPR Guidelines

(Also see policies related to protection of archaeological and tribal cultural resources under Goal CHAR-4 in the Community Character Element.)

Goal ENV-4: Sufficient open space to meet the health and safety needs of Larkspur residents

Commented [NT11]: Goal and policies Added to comply with OPR Guidelines

Policy ENV-4.1: Avoid developing open space that contains hazards, including earthquake fault zones, unstable slopes or soils, flood plains, sea level rise, and areas required for the protection and enhancement of air quality.

Action Program ENV-4.1.a: Implement the policies and action programs addressing environmental hazards listed under Goals SAF-3 (natural hazards), SAF-4 (flood hazards), SAF-5 (seismic and geologic hazards), and SAF-6 (fire hazards).

Policy ENV-4.2: Work to protect to protect air quality.

Action Program ENV-4.2.a: Cooperate with the Bay Area Air Quality Management District in implementing the regional Clean Air Plan.

(See policies and action programs aimed at protecting air quality under Goal SAF-9 in the Health & Safety Element.)

Policy ENV-4.3: Work to reduce greenhouse gas emissions.

Action Program ENV-4.3.a: Continue to implement the City's Climate Action Plan.

(See policies and action programs aimed at reducing greenhouse gas emissions under Goal SAF 10 in the Health & Safety Element.)

Public Access

ENV-45: Provide reasonable visual and physical public access to natural resources without adversely impacting natural habitats and species

Policy ENV-45.1: 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-45.2: 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~~ watercraft.

Policy ENV-45.3: ~~Seek a balance between the recreational aspects of open space and the need to~~ Protect publicly-owned open space areas in their natural state consistent with public access as appropriate, while protecting wildlife and fragile vegetation from intrusion by humans and domestic animals.

Action Program ENV-5.3.a: Secure access to open space through review of development proposals where appropriate and legal.

Commented [NT13]: This policy and 3 programs establish consistency with OPR Guidelines for providing open space for recreational use (balance with protecting the natural environment).

Action Program ENV-45.3.ab: Consider guidelines or 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-45.4: Encourage public access to publically-owned open space and shorelines where appropriate in a manner compatible with the preservation and enhancement of the natural environment.

Action Program ENV-45.4.a: Provide trail access to natural resources consistent with Circulation Element policies and programs.

Action Program ENV-45.4.b: Secure access to open space through review of development proposals where appropriate and legal.

(The Community Facilities and Services Element of this General Plan contains policies to maintain and use open space in Larkspur to provide parks, trails, and recreational facilities for the use of Larkspur residents as well as non-residents; see policies under Goals FAC-1 and FAC-5 in that Element.)

Resource Consumption

ENV-56: Reduced use of natural resources water consumption in Larkspur.

Policy ENV-56.1: Support local and regional efforts to reduce water consumption.

Policy ENV-56.2: Apply water conservation development standards for residential, commercial, and civic development, reconstructions, and remodels.

Action Program ENV-56.2.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-56.2.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-~~56.2.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.

(Also see Natural Environment & Resources Element Policy 5.1 regarding water conservation.)

■ ■ ■

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

Policy ENV-~~56.36.4~~: 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-~~56.46.2~~: Promote waste reduction strategies for residential, commercial, and civic sectors.

Action Program ENV-~~56.46.2.a~~: Include and implement Green Purchasing, Waste Reduction, Recycling, and Zero Waste programs in the City's Climate Action Plan.

Action Program ENV-~~56.46.2.b~~: Consider adoption—Continue to implement regulations to restrict the use of plastic bags and consider of a plastic bag and a polystyrene ban ordinance.

(Also see Natural Environment & Resources Policies 6.1 and 6.2 that address solid waste reduction.)

Policy ENV-56.5: Increase energy efficiency and conservation in City buildings, equipment and operations. Promote energy and water conservation and building upgrades to the community.

Action Program ENV-56.5.a: Require new development to minimize impacts on the environment, including use of energy and water-efficient design features and materials consistent with local building codes and Water District regulations. Strive to achieve sustainable development that, through on-site conservation and renewable energy generation or off-site offsets, has no increased demand on energy providers.

- (See Land Use Policy 11.5 that promotes energy efficient and Land Use Policy 12.5 that promotes green building programs and green building practices.)

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.

Sea Level Rise

As discussed in more detail in the Health & Safety Element of this General Plan, many Larkspur wetlands, as well as the shoreline and streams entering the bay, will be at risk from sea level rise (SLR). The rise in sea level caused by climate change will change the location, extent, and ecosystem functions of all the wetland types described above. The County's 2017 Marin Shoreline Sea Level Rise Vulnerability Assessment states that by 2030, 132 acres, seven percent of Larkspur, could be exposed to tidal flooding. Ten percent of the community could be impacted by an additional 100-year storm surge. About another 100 acres could be exposed to storm surge by 2050. By 2100, nearly twenty percent of the community could expect tidal flooding, and 30 percent, or 544 acres, could be exposed with an additional 100-year storm surge. Many of the areas that would be flooded first are the low-lying areas east of Highway 101, along Corte Madera Creek, and along other creeks in the City. Much of the City's wetlands will be adversely affected by SLR. Plants and wildlife dependent on these wetlands will also be displaced or adversely affected. SLR will cause increased salinity of Corte Madera Creek, and brackish water habitats can impact habitat suitability for existing species. Corte Madera channel could fill with saltwater nearly eight miles inland. On average, up to one half of a mile upstream could be under tidal influence. This could shift existing freshwater habitat to brackish habitat

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

Many estuaries feature marine wetlands and marshes. Wetlands and marshes also occur in other locations along the shoreline. Overlaying the SLR scenarios on habitat data layers reveals that approximately, 6,500 acres of wetlands and 15,500 acres of marshlands along Richardson's Bay, San Francisco Bay, San Pablo Bay, and up the Petaluma River and several creeks could be impacted to varying degrees across all of the scenarios. Key sensitivities include drowning, erosion, and increased salinity. As tidewaters move into marshlands, high marsh, or areas with infrequent saturation could become saturated more often and shift to low marsh, and eventually mudflats, and lastly open water. This could have devastating impacts on natural and recreational resources.

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.

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.

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.

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 Ridgeway rail	Endangered	Endangered
San Francisco common yellowthroat	None	Species of special concern
Coho salmon -- central California coast	Endangered	Endangered
Conservancy fairy shrimp	Endangered	None
North American green sturgeon	Threatened	None
Marin western flax	Threatened	Threatened
Salt marsh harvest mouse	Endangered	Endangered
San Bruno elfin butterfly	Endangered	None
Showy rancheria clover	Endangered	None
Central coast s Steelhead trout	Threatened	None
Tidewater goby	Endangered	Species of special concern
Western snowy plover	Threatened	Species of special concern
Western pond turtle	None	Species of special concern

Source: U.S. Department of the Interior, Fish and Wildlife Service and California Department of Fish and Game, 2011. [and Bon Air Bridge Replacement Project Initial Study, ICF, 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. MCSTOPPP 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. MCSTOPPP 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

Commented [NT14]: These are the most recent comparisons. Has not been updated by Marin Audubon Society.

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 man-made 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.

The District adopted an Urban Water Management Plan (UWMP) in June 2016. The Plan addresses 1) existing water supplies and transmission system; 2) projected water demand for the next 25 years; 3) projected water supplies for the next 25 years, the

reliability of the system, and plans for water supply projects; 4) current and planned water conservation activities; 5) a water shortage contingency analysis; and 6) a comparison of water supply and water demand over the next 25 years under different hydrological assumptions, including a normal year, a single dry years, and multiple dry years.

The majority of the District's water supply comes from a network of seven local, rain-fed reservoirs. Total reservoir storage operated by the District is 25.9 billion gallons or 79,566 acre-feet per year (AFY), but the District estimates that operational yield of the reservoirs is about 20,000 AFY. This supply is supplemented with water imported from the Russian River and purchased from the Sonoma County Water Agency (SCWA). The District has contracted with SCWA for this source of water since 1975; this contract allows the District to take deliveries of up to 14,300 AFY. Projections are consistent with SCWA's UWMP. To treat this supply, the District operates three water treatment plants, including the Bon Tempe Treatment Plant, the San Geronimo Treatment Plant, and the Ignacio treatment facility. There are five wastewater treatment plants within the area that collectively treat roughly 17,000 AFY. Of this amount, just over 2,000 AFY is recycled for non-potable purposes such as landscape irrigation. MMWD's recycled water system consists of nearly 25 miles of pipeline and delivers about 520 AFY through 342 service connections.

Based on UWMP analysis on supply and demand over the next 25 years, the District will have sufficient supplies to meet the demands during normal and dry water years, including a three-year drought. This is attributed to the measures already implemented by the District to increase storage and SCWA supply, as well as the District's aggressive conservation measures and the District's Dry Year Water Use Reduction Program.

The District also prepared a Draft Water Resources Plan 2040 to evaluate resiliency in the face of a variety of threats to water resources in its service area and to identify options to enhance resiliency for its customers.¹¹ The only reliability threats that resulted in supply shortfalls in MMWD's system were simulated droughts that are longer and drier than historical hydrology.

A total of 40 resiliency options were developed that could improve the District's resiliency and ability to meet demands in times of potential supply shortages caused by variable hydrology or system disruption. The 40 options included a variety of approaches, including water use efficiency, reuse, expanded SCWA facilities, expanded storage, water purchases and groundwater, desalination, and emerging options. Because no single option could address all potential reliability threats, options were combined into multi-option "alternatives" with specific emphases to better address resiliency needs. Five alternatives were developed, organized along the following themes: Expand Existing Programs, Minimize Infrastructure, Dry Year Actions, Maximize Reuse, and Maximize Resiliency.

¹¹ RMC, Water Resources Plan 2040 for the Marin Municipal Water District – Public Draft, January 2016. Available at: <https://www.marinwater.org/217/Water-Supply-Planning>

Each of the five alternatives was simulated in computer model to determine its ability to improve the District's water supply availability and reliability under each reliability threat. A "No Action" alternative, representing current baseline operations, was also simulated under each reliability threat to provide a baseline for comparing the five alternatives. The alternatives were analyzed against nine metrics, including average annual deficit, maximum monthly deficit, and total system storage, to determine the effectiveness of each alternative. Deficits were observed under the No Action alternative for the Six-Year Severe Drought condition. These deficits were eliminated by three of the proposed alternatives: Dry Year Actions, Maximize Reuse, and Maximize Resiliency. In addition, all alternatives increased storage under climate change as compared with the No Action alternative.

This analysis demonstrated that the District's current supply portfolio is sufficient to meet demands in each of the reliability threats modeled except the Six-Year Severe Drought. It should be noted that the probability of the Six-Year Severe Drought occurring is low. Should this type of drought occur, shortages would not be expected until the fifth year of the drought, which provides time to re-assess and move forward implementation of resiliency options after the drought starts. Further, use of supplies in emergency storage, combined with mandatory conservation/rationing, would allow the District to manage supplies through the Six-Year Severe Drought condition without shortfalls.

Because the District's current supply portfolio is sufficient to meet demands under the majority of conditions evaluated, there is no immediate need to invest in infrastructure to secure additional resiliency at this time. However, to continue strengthening the District's water supply resiliency, the Plan recommended that the District expand its existing water efficiency programs. This could involve implementing the Expand Existing Programs alternative, which would increase water conservation, expand watershed management, and explore opportunities associated with in-lieu groundwater transfers. 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.¹² 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).¹³ 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.¹⁴

¹² MMWD, 2011.

¹³ MMWD, 2007, Urban Water Management Plan.

¹⁴ MMWD, 2009, Annual Water Production Report.

~~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 2025.¹⁵ 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.¹⁶~~

~~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 and transported to a suitable composting. In 2014, Marin Sanitary Service (in partnership with CMSA) launched the “Food 2 Energy” program to convert into a renewable energy source. The program takes food waste from local restaurants and grocery stores and converts the material into a bio-gas through Anaerobic Digestion. The power generated is used at CMSA to pump water, run filters, and clean Marin’s waste water before it goes into the bay. ~~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.

¹⁵ MMWD, 2007, Urban Water Management Plan.

¹⁶ MMWD, 2007, Water Conservation Master Plan.

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. ⁴⁷

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.

⁴⁷ ~~Marin Sanitary Service, 2008.~~