

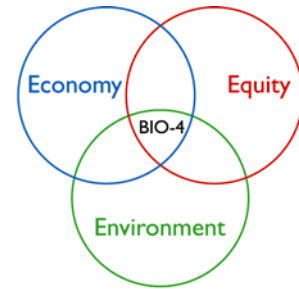
What Are the Desired Outcomes?

GOAL BIO-4

Riparian Conservation. Protect and, where possible, restore the natural structure and function of riparian systems.

Policies

BIO-4.1 Restrict Land Use in Stream Conservation Areas. A *Stream Conservation Area (SCA)* is established to protect the active channel, water quality and flood control functions, and associated fish and wildlife habitat values along streams. Development shall be set back to protect the stream and provide an upland buffer, which is important to protect significant resources that may be present and provides a transitional protection zone. Best management practices¹ shall be adhered to in all designated SCAs. Best management practices are also strongly encouraged in ephemeral streams not defined as SCAs.



Exceptions to full compliance with all SCA criteria and standards may be allowed only if the following is true:

1. A parcel falls entirely within the SCA; or
2. Development on the parcel entirely outside the SCA either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biological resources, or other environmental constraints than development within the SCA.

SCAs are designated along perennial, intermittent, and ephemeral streams as defined in the Countywide Plan Glossary. Regardless of parcel size, a site assessment is required where incursion into an SCA is proposed or where full compliance with all SCA criteria would not be met. An ephemeral stream is subject to the SCA policies if it: (a) supports riparian vegetation for a length of 100 feet or more, and/or (b) supports special-status species and/or a sensitive natural community type, such as native grasslands, regardless of the extent of riparian vegetation associated with the stream. For those ephemeral streams that do not meet these criteria, a minimum 20-foot development setback should be required.

SCAs consist of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks to the widths defined below (see Figure 2-2). The SCA encompasses any jurisdictional wetland or unvegetated other waters within the stream channel, together with the adjacent uplands, and supersedes setback standards defined for WCAs. Human-made flood control channels under tidal influence are subject to the Bayland Conservation policies. The following criteria shall be used to evaluate proposed development projects that may impact riparian areas:

¹Such as those outlined in *Start at the Source* and *Start at the Source Tools Handbook* (Bay Area Stormwater Managers Agencies Association).

City-Centered Corridor:

- ◆ For parcels more than 2 acres in size, provide a minimum 100-foot development setback on each side of the top of bank.
- ◆ For parcels between 2 and 0.5 acres in size, provide a minimum 50-foot development setback on each side of the top of bank.
- ◆ For parcels less than 0.5 acres in size, provide a minimum 20-foot development setback. The developed portion(s) of parcels (less than 0.5 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.
- ◆ Regardless of parcel size, an additional buffer may be required based on the results of a site assessment. A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, *Require Site Assessment*.



Woody riparian vegetation includes plants that have tough, fibrous stems; vines; and branches covered with bark and composed largely of cellulose and lignin. Characteristic woody riparian species include willow, alder, box elder, big-leaf maple, cottonwood, dogwood, elderberry, elk clover, thimbleberry, and California blackberry, among others. See glossary for additional information on stream characteristics and definitions.

Coastal, Inland Rural, and Baylands Corridors:

- ◆ For all parcels, provide a development setback on each side of the top of bank that is the greater of either (a) 50 feet landward from the outer edge of woody riparian vegetation associated with the stream or (b) 100 feet landward from the top of bank. An additional setback distance may be required based on the results of a site assessment. A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, *Require Site Assessment*. SCAs shall be measured as shown in Figure 2-2.

Allowable uses in SCAs in any corridor consist of the following, provided they conform to zoning and all relevant criteria and standards for SCAs:

- ◆ Existing permitted or legal nonconforming structures or improvements, their repair, and their retrofit within the existing footprint;
- ◆ Projects to improve fish and wildlife habitat;
- ◆ Driveway, road and utility crossings, if no other location is feasible;
- ◆ Water-monitoring installations;
- ◆ Passive recreation that does not significantly disturb native species;
- ◆ Necessary water supply and flood control projects that minimize impacts to stream function and to fish and wildlife habitat;
- ◆ Agricultural uses that do not result in any of the following:
 - a. The removal of woody riparian vegetation;
 - b. The installation of fencing within the SCA that prevents wildlife access to the riparian habitat within the SCA;
 - c. Animal confinement within the SCA; and
 - d. A substantial increase in sedimentation.

BIO-4.2 **Comply with SCA Regulations.** Implement established setback criteria for protection of SCAs through established discretionary permit review processes and/or through adoption of new ordinances. Environmental review shall be required where incursion into an SCA is proposed and a discretionary permit is required.

In determining whether allowable uses are compatible with SCA regulations, development applications shall not be permitted if the project does any of the following:

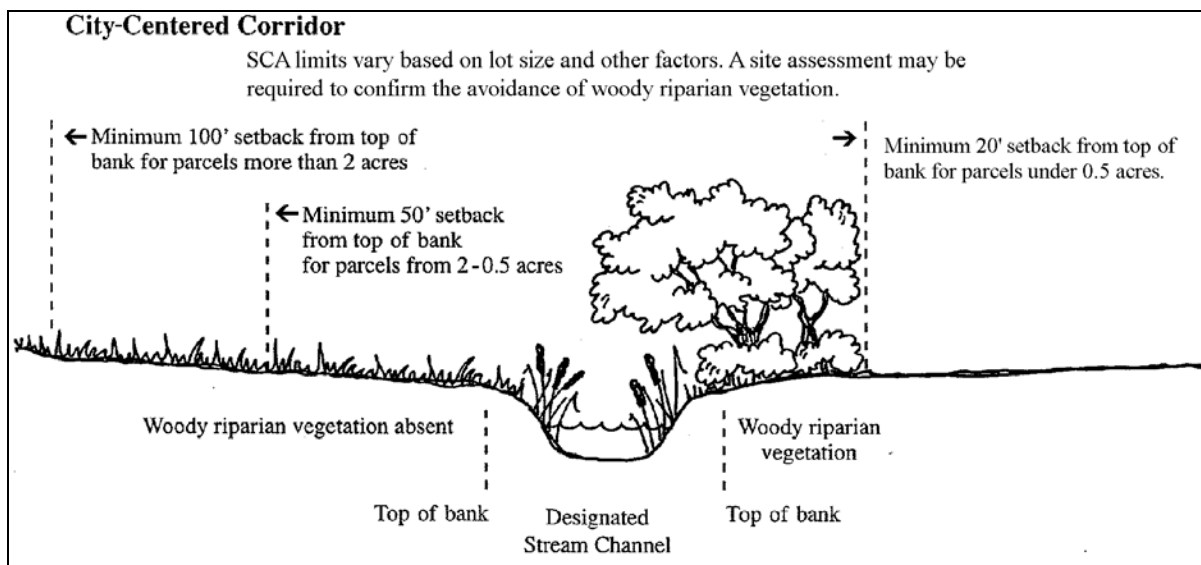
- ◆ Adversely alters hydraulic capacity;
- ◆ Causes a net loss in habitat acreage, value, or function;
- ◆ Degrades water quality.

BIO-4.3 **Manage SCAs Effectively.** Review proposed land divisions in SCAs to allow management of a stream by one property owner to the extent possible.

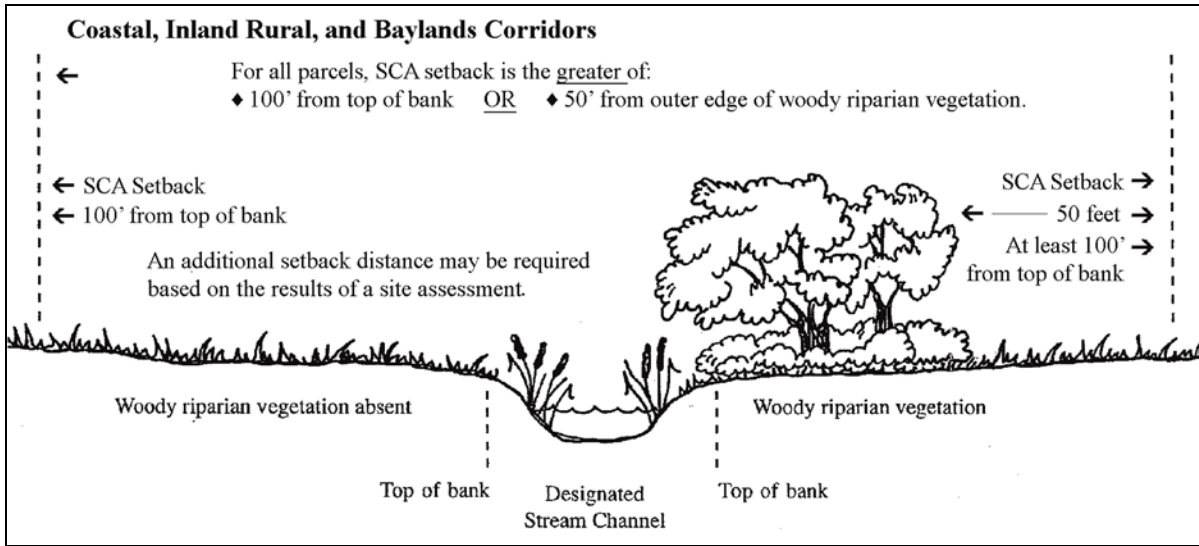
BIO-4.4 **Promote Natural Stream Channel Function.** Retain and, where possible, restore the hydraulic capacity and natural functions of stream channels in SCAs. Discourage

alteration of the bed or banks of the stream, including filling, grading, excavating, and installation of storm drains and culverts. When feasible, replace impervious surfaces with pervious surfaces. Protect and enhance fish habitat, including through retention of large woody debris, except in cases where removal is essential to protect against property damage or prevent safety hazards. In no case shall alterations that create barriers to fish migration be allowed on streams mapped as historically supporting salmonids. Alteration of natural channels within SCAs for flood control should be designed and constructed in a manner that retains and protects the riparian vegetation, allows for sufficient capacity and natural channel migration, and allows for reestablishment of woody trees and shrubs without compromising the flood flow capacity where avoidance of existing riparian vegetation is not possible.

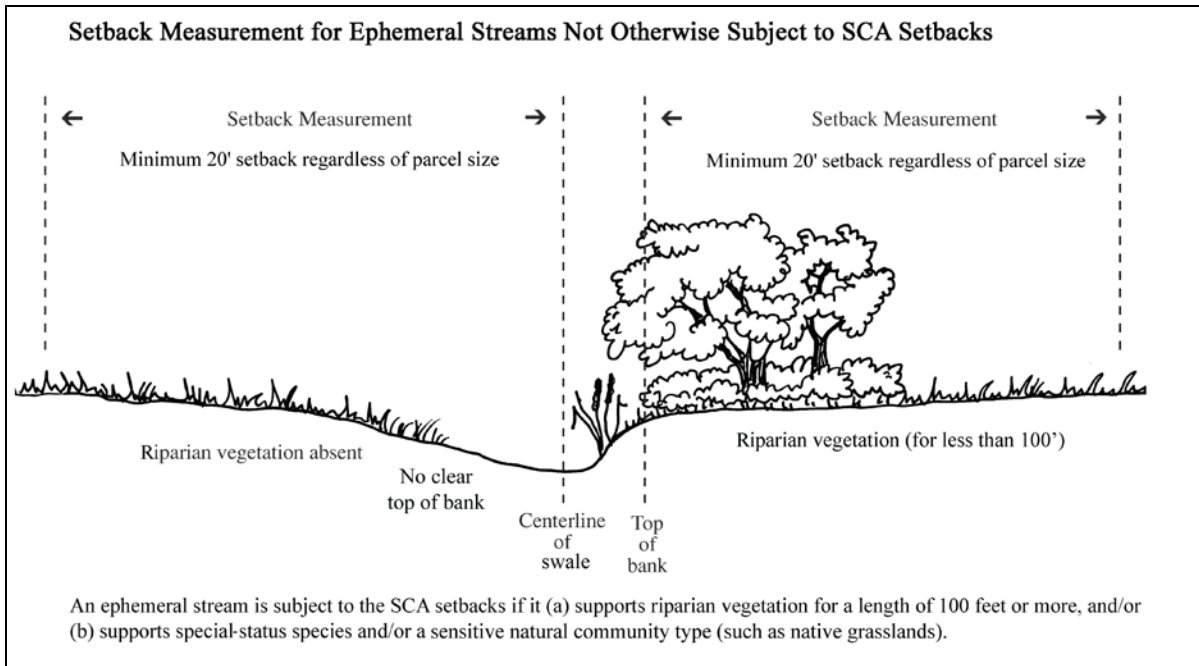
Figure 2-2
Typical Cross-Section of a Stream Conservation Zone



- ◆ Minimum setback distance of 100 feet from top of bank for parcels more than 2 acres.
- ◆ Minimum setback distance of 50 feet from top of bank for parcels between 2 and 0.5 acres.
- ◆ Minimum setback distance of 20 feet from top of bank for parcels less than 0.5 acres.
- ◆ A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, *Require Site Assessment*.
- ◆ Regardless of parcel size, a site assessment is required where incursion into an SCA is proposed and where full compliance with all SCA criteria would not be met.



- ♦ For all parcels, minimum setback distance is 50 feet from outer edge of woody riparian vegetation but no less than 100 feet from top of bank, unless an exception is allowed because parcel falls entirely within SCA, or development outside SCA is either infeasible or would have greater impacts.
- ♦ An additional setback distance may be required, based on the results of a site assessment, if such an assessment is determined to be necessary.
- ♦ Regardless of parcel size, a site assessment is required where incursion into an SCA is proposed and where full compliance with all SCA criteria would not be met.



- ♦ For all parcels, regardless of corridor, minimum setback distance is 20 feet.
- ♦ A site assessment is required where incursion into the setback is proposed.

- BIO-4.5** **Restore and Stabilize Stream Channels.** Pursue stream restoration and appropriate channel redesign where sufficient right-of-way exists that includes the following: a hydraulic design, a channel plan form, a composite channel cross-section that incorporates low flow and bankfull channels, removal and control of invasive exotic plant species, and biotechnical bank stabilization methods to promote quick establishment of riparian trees and other native vegetation.
- BIO-4.6** **Control Exotic Vegetation.** Remove and replace invasive exotic plants with native plants as part of stream restoration projects and as a condition of site-specific development approval in an SCA, and include monitoring to prevent reestablishment.
- BIO-4.7** **Protect Riparian Vegetation.** Retain riparian vegetation for stabilization of streambanks and floodplains, moderating water temperatures, trapping and filtering sediments and other water pollutants, providing wildlife habitat, and aesthetic reasons.
- BIO-4.8** **Reclaim Damaged Portions of SCAs.** Restore damaged portions of SCAs to their natural state wherever possible, and reestablish as quickly as possible any herbaceous and woody vegetation that must be removed within an SCA, replicating the structure and species composition of indigenous native riparian vegetation.
- BIO-4.9** **Restore Culverted Streams.** Replace storm drains and culverts in SCAs with natural drainage and flood control channels wherever feasible. Reopening and restoring culverted reaches of natural drainages should be considered part of review of development applications on parcels containing historic natural drainages where sufficient land area is available to accommodate both the reopened drainage and project objectives. Detailed hydrologic analysis may be required to address possible erosion and flooding implications of reopening the culverted reach, and to make appropriate design recommendations. Incentives should be provided to landowners in restoring culverted, channelized, or degraded stream segments. Where culverts interfere with fish migration but replacement is not possible, modify culverts to allow unobstructed fish passage.
- BIO-4.10** **Promote Interagency Cooperation.** Work in close cooperation with flood control districts, water districts, and wildlife agencies in the design and choice of materials for construction and alterations within SCAs.
- BIO-4.11** **Promote Riparian Protection.** Support agencies, organizations, and programs in Marin County that protect, enhance, and restore riparian areas.
- BIO-4.12** **Support and Provide Riparian Education Efforts.** Educate the public and County staff about the values, functions, and importance of riparian areas. Landowner education regarding the sensitivity of riparian corridors will be provided as part of the Natural Resource Information Program called for in Program BIO-1.c. An emphasis will be placed on public outreach to owners of developed properties encompassing or adjacent to SCAs where minimum setback distances are not provided. Information on regulations protecting riparian corridors should be available, together with general methods to minimize disturbance and improve habitat values. An updated list of regulatory agencies and their contact information should be maintained as part of the Natural Resource Information Program.
- BIO-4.13** **Provide Appropriate Access in SCAs.** Ensure that public access to publicly owned land within SCAs respects the environment, and prohibit access if it will degrade or destroy riparian habitat. Acquire public lands adjacent to streams where possible to make resources

more accessible and usable for passive recreation, and to protect and enhance streamside habitat.

- BIO-4.14** **Reduce Road Impacts in SCAs.** Locate new roads and roadfill slopes outside SCAs, except at stream crossings, and consolidate new road crossings wherever possible to minimize disturbance in the SCA. Require spoil from road construction to be deposited outside the SCA, and take special care to stabilize soil surfaces.
- BIO-4.15** **Reduce Wet Weather Impacts.** Ensure that development work adjacent to and potentially affecting SCAs is not done during the wet weather or when water is flowing through streams, except for emergency repairs, and that disturbed soils are stabilized and replanted, and areas where woody vegetation has been removed are replanted with suitable species before the beginning of the rainy season.
- BIO-4.16** **Regulate Channel and Flow Alteration.** Allow alteration of stream channels or reduction in flow volumes only after completion of environmental review, commitment to appropriate mitigation measures, and issuance of appropriate permits by jurisdictional agencies based on determination of adequate flows necessary to protect fish habitats, water quality, riparian vegetation, natural dynamics of stream functions, groundwater recharge areas, and downstream users.
- BIO-4.17** **Continue Collaboration with the Marin Resource Conservation District.** Continue to collaborate with, support, and participate in programs provided by the Marin Resource Conservation District and the Natural Resource Conservation Service to encourage agricultural operators who conduct farm or ranch activities within a Streamside Conservation Area to minimize sedimentation and erosion to enhance habitat values.
- BIO-4.18** **Promote the Use of Permeable Surfaces When Hardscapes Are Unavoidable in the SCA and WCA.** Permeable surfaces rather than impermeable surfaces shall be required wherever feasible in the SCA and WCA.
- BIO-4.19** **Maintain Channel Stability.** Applicants for development projects may be required to prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff. This assessment should be required where evidence that significant current or impending channel instability is present, such as documented channel bed incision, lateral erosion of banks (e.g., sloughing or landsliding), tree collapse due to streambank undermining and/or soil loss, or severe in-channel sedimentation, as determined by the County.

Characteristics pertinent to channel stability would include hillslope erosion, bank erosion, excessive bed scour or sediment deposition, bed slope adjustments, lateral channel migration or bifurcation, channel capacity, and the condition of riparian vegetation. The hydraulic and/or geomorphic assessment shall include on-site channel or drainageway segments over which the applicant has control or access. In the event that project development would result in or further exacerbate existing channel instabilities, the applicant could either propose his/her own channel stabilization program subject to County approval or defer to the mitigations generated during the required environmental review for the project, which could include maintenance of peak flows at pre- and post-project levels, or less. Proposed stabilization measures shall anticipate project-related changes to the drainageway flow regime.

All project improvements should be designed to minimize flood hydrograph peak flow or flood volume increases into drainage courses. To this end, design features such as porous pavement, pavers, maximizing overall permeability, drainage infiltration, disconnected impervious surfaces, swales, bioretention, green roofs, etc., should be integrated into projects as appropriate.

For projects subject to discretionary review, the applicant may be required, as appropriate, to submit a pre-and post-project hydrology and hydraulic report detailing the amount of new impervious surface area and accompanying surface runoff from all improvement areas, including driveways – with a goal of zero increase in runoff (no net increase in peak off-site runoff). The applicant may be required to participate in a peak stormwater runoff management program developed pursuant to new Program BIO-4.20.

BIO-4.20 Minimize Runoff. In order to decrease stormwater runoff, the feasibility of developing a peak stormwater management program shall be evaluated to provide mitigation opportunities such as removal of impervious surface or increased stormwater detention in the watershed.

Why is this important?

Riparian habitats are irreplaceable, vital biological systems that provide critical functions for water purification, flood control, fish and wildlife movement, and native habitat. However, large portions of existing riparian systems have been eliminated by past stream channelization, agricultural expansion, and urban development.

Environment: Preserving and restoring riparian habitats is essential to maintaining habitat connectivity and improving degraded conditions for fish and wildlife species. Adequate setbacks and limitations on uses within designated Stream Conservation Areas are needed to minimize disturbance to sensitive resources and to maintain and improve wildlife habitat, flood protection, and water purification.

Economy: Maintaining healthy waterways and natural habitat areas is critical to the economic health and vitality of the county. Protecting and restoring native vegetation along riparian corridors minimizes potential erosion, downstream sedimentation, and water quality degradation. Directing development out of floodways reduces potential costly flood damage and loss.

Equity: Protecting and restoring riparian corridors provide an opportunity to link urban and natural areas to benefit human beings as well as native plants and wildlife. This expands the network of open space lands, areas for healthy recreation and exercise, an appreciation of natural systems, and aesthetic benefits.

How will results be achieved?

Implementing Programs

BIO-4.a Adopt Expanded SCA Ordinance. Adopt a new SCA ordinance that would implement the SCA standards for parcels traversed by or adjacent to a mapped anadromous fish stream and tributary. Such an ordinance could, by way of example, require compliance with the incorporation of best management practices into the proposed project and could consider modest additions to existing buildings that would not result in significant impact to riparian resources, such as additions that do not exceed 500 square feet of total floor area and that do not increase the existing horizontal encroachment into the SCA, provided a site assessment first confirms the absence of adverse impacts to riparian habitats. As part of the new ordinance, consider including additional incentives, such as reduced fees or other

similar incentives, to reduce the extent of existing development within an SCA or improve conditions that may be impacting sensitive resources.

- BIO-4.b** ***Reevaluate SCA Boundaries.*** Beginning with the City-Centered Corridor and smaller parcels, conduct a comprehensive study to reevaluate standards used to protect SCAs and regulate development adjacent to streams. The study shall consider available data on stream protection and management standards, their effectiveness, and the effectiveness of the current standards used in Marin County, including the 50- and 100-foot setback distances (plus additional setbacks from the edge of riparian vegetation where applicable). The study shall consider stream functions on a watershed-level basis, and include input from professionals such as a fluvial geomorphologist, hydrologist, wildlife biologist, and vegetation ecologist, together with resource agencies and interested members of the public. Each SCA should encompass all woody riparian vegetation and be of sufficient width to filter sediments and other pollutants before they enter the stream channel. Careful study may be needed to distinguish woody riparian vegetation from other types of woodland or forest vegetation in some areas.
- BIO-4.c** ***Prepare County Stream Map.*** Use the County GIS to map perennial, intermittent, and, where feasible, ephemeral streams subject to SCA policies. Use the resulting mapping in conjunction with USGS maps and the “ephemeral stream” definition to confirm SCAs on parcels proposed for development. Add to and update the map on an ongoing basis as additional streams are surveyed.
- BIO-4.d** ***Establish Functional Criteria for Land Uses in SCAs.*** Develop detailed criteria for protection of riparian functions, and identify methods for their use in evaluating proposed development.
- BIO-4.e** ***Identify Proposals Within SCAs.*** Determine whether a proposed development falls wholly or partially within an SCA, through agency review by County staff, and as necessary by a qualified professional, of discretionary application materials and site inspection.
- BIO-4.f** ***Identify Potential Impacts to Riparian Systems.*** At the time of a development application, evaluate potential impacts on riparian vegetation and aquatic habitat, and incorporate measures to protect riparian systems into the project design and construction. Retain and minimize disturbance to woody and herbaceous riparian vegetation in SCAs and adjacent areas. (Tree growth may be cleared from the stream channel where removal is essential to protect against property damage or prevent safety hazards.)
- BIO-4.g** ***Require Site Assessment*** Require development applications to include the submittal of a site assessment prepared by a qualified professional where incursions into the SCA are proposed, or adverse impacts to riparian resources may otherwise occur. Unless waived, the qualified professional shall be hired by Marin County. The site assessment shall be paid for by the applicant and considered in determining whether any adverse direct or indirect impacts on riparian resources would occur as a result of the proposed development, whether SCA criteria and standards are being met, and to identify measures necessary to mitigate any significant impacts. The site assessment may also serve as a basis for the County to apply restrictions in addition to those required by State and federal regulations.
- BIO-4.h** ***Comply with SCA Criteria and Standards.*** All development permit applications shall be reviewed for conformity with these SCA policies, criteria, and standards and in accordance with the California Environmental Quality Act. Proposals that do not conform to SCA

policies, and cannot be modified or mitigated to conform, shall be denied. If a proposal involves the creation of a new parcel that is wholly or partially in an SCA, the land division shall be designed to ensure that no development occurs within the SCA.

- BIO-4.i** ***Replace Vegetation in SCAs.*** When removal of *native* riparian vegetation is unavoidable in an SCA, and mitigation is required, require establishment of native trees, shrubs, and ground covers within a period of five years at a rate sufficient to replicate, after a period of five years, the appropriate density and structure of vegetation removed. Require replacement and enhancement planting to be monitored and maintained until successful establishment provides for a minimum replacement or enhancement ratio of 2:1.
- BIO-4.j** ***Continue Funding Fencing of Sensitive Stream Areas.*** Encourage continued funding in conjunction with the Marin Resource Conservation District, the Natural Resource and Conservation Service, and other relevant agencies, to pay the cost of fencing sensitive streamside areas (on both public lands and private property) that could be impacted by cattle grazing.
- BIO-4.k** ***Locate Trails Appropriately.*** Situate trails at adequate distances from streams to protect riparian and aquatic habitat and wildlife corridors. Trails may occasionally diverge close to the top of bank to provide visual access and opportunities for interpretive displays on the environmental sensitivity of creek habitats. (See policies and programs in the Trails Section of this Element.)
- BIO-4.l** ***Monitor Stream Conservation Areas.*** Establish a system of monitoring SCAs, which may include mapping fenced streams and stream restoration areas to ensure the protection of vegetation, soils, water quality, and wildlife habitat along streams.
- BIO-4.m** ***Encourage Conservation Plans Within the Stream Conservation Area.*** Continue to collaborate with the Marin Resource Conservation District to encourage and support the continued implementation of the Marin Coastal Watersheds Permit Coordination Program, especially the preparation of management and conservation plans where appropriate for agricultural activities within the Stream Conservation Areas.
- BIO-4.n** ***Provide Information to Reduce Soil Erosion and Sedimentation.*** Provide information and fact sheets on programs offered by the Marin Resource Conservation District at the Community Development Agency front counter to landowners and applicants who submit development proposals within the Streamside Conservation Area in the Stemple, Walker, and Lagunitas creek watersheds.
- BIO-4.o** ***Consider Culvert Restoration.*** As part of the expanded SCA ordinance, consider additional policy language to encourage reopening culverted reaches and restoring channelized reaches of natural drainages. This may include adjustments in minimum standard setback distances where site constraints prevent complete compliance along the restored or enhanced channel reach. A detailed analysis may be required to demonstrate restoration feasibility and address possible effects on erosion and flooding potential. Incentives may be available to landowners to encourage restoration and enhancement efforts.
- BIO-4.p** ***Implement NPDES Phase II.*** Continue to implement NPDES Phase II permit requirements relating to peak flow controls to ensure that project related and cumulative impacts to peak flows are minimized or avoided through conditions on project approval as required by the ordinances.

- BIO-4.q** ***Develop Standards Promoting Use of Permeable Materials.*** Review existing permit requirements for development in SCAs and WCAs, and recommend additional standards for project review and corrective measures as needed to protect SCAs and WCAs from inappropriate ministerial and discretionary development. Develop additional standards for requiring the use of best management practices, including measures such as the use of permeable materials in the SCA and WCA. A checklist of Best Management Practices should be made available to applicants.
- BIO-4.r** ***Review Septic System Setbacks in SCA and WCA.*** Review existing septic requirements within SCAs and WCAs, and revise requirements as necessary to provide monitoring and to protect SCAs and WCAs from impacts associated with septic systems. Consider adopting larger setback standards applied to new development for septic systems and their associated leachfields.
- BIO-4.s** ***Continue Collaboration with the Marin Resource Conservation District and Agricultural Commissioner.*** Continue to collaborate with, support, and participate in programs provided by the Marin Resource Conservation District, the Natural Resource Conservation Service, and the Agricultural Commissioner's Office to encourage agricultural operators who conduct farm or ranch activities within a Streamside Conservation Area to minimize pesticide use and activities that cause sedimentation and erosion, to enhance habitat values.
- BIO-4.t** **Collaborate with Groups to Address Implementation of Protections to SCAs and WCAs.** Collaborate with local, regional, State, and federal organizations (Marin Organic, MALT, SPAWN, Marin Audubon, RCD, Fish and Game, RWQCB, Sierra Club, Farm Bureau, Trout Unlimited, and affected property owners) to address long term habitat protection and develop funding mechanisms to address the issue.
- BIO-4.u** **Investigate Tax Delinquent Properties.** Investigate conversion of tax delinquent properties in SCAs into public ownership.