CHAPTER 4.0

WATERCOURSE DEVELOPMENT PERMIT PROCEDURES

This chapter describes the overall watercourse management goals and outlines the categories of watercourses that will be subject to the Watercourse Development Permit. A summary table of the watercourse categories and recommended setbacks is provided for each watercourse. The section also outlines the process for obtaining watercourse permits and variances, the type of developments and activities that are subject to permits, and the uses permitted within the designated setback areas. Development standards to protect and/or enhance habitat conditions and water quality are presented.

IN THIS SECTION

4.1 MANAGEMENT PLAN GOALS

The purpose of this *Management Plan* is to identify appropriate riparian corridors and development setbacks for each watercourse within the City and provide development guidelines and standards for the management of lands adjacent to watercourses that will protect and enhance watercourse functions and habitat values. Locating development away from sensitive watercourse areas and requiring implementation of measures to protect, improve and/or enhance riparian areas and water quality will enable both urban and natural areas to co-exist. Long-term goals to manage these resources include:

- Reduce and/or eliminate pollutants discharged to aquatic bodies,
- Improve water quality,
- Improve and restore natural habitat,
- Increase biodiversity,
- Lower water temperatures,
- Increase public awareness of the value of watershed quality.

The recommended setback regulations are designed to:

- Implement of the goals of the *Management Plan*, consistent with General Plan/LCP resource protection goals;
- Provide appropriate protection of watercourses based on the existing environmental, geomorphic, hydrologic and biologic characteristics found within each watercourse;
- Provide feasible implementation requirements given the urban character of many of the City's watercourses; and
- Provide simplicity of interpretation.

4.2 WATERCOURSE CATEGORIES

Watercourses differ tremendously in their overall configuration and resource characteristics. This is especially true for the Santa Cruz area due to the varied physical geography of the watersheds, the different types of watercourses, and the proximity of existing development adjacent to many of the City's watercourses. The creation of setbacks, buffer, and development standards recognizes this wide difference in the characteristics of the watercourses.

In order to determine the level of review required for the variety of watercourse types within the city, all watercourses and watercourse reaches have been categorized as either an "A", "B" or "C" watercourse. These categories are based on the quality, continuity, and enhancement potential of the riparian habitat associated with each watercourse, the potential for the watercourse to support special status species, and the ability of the habitat to be expanded based upon existing development. A description of each of the watercourse categories is presented below; the categories are identified for each watercourse on Table 4.1.

Category "A" includes watercourses and/or watercourse reaches that support high quality riparian habitat with a vegetated corridor that is continuous and with few gaps. Category "A" watercourses abut undeveloped lands or rural residential yard areas, and also allow for wildlife use in adjacent areas, with some available area for riparian vegetation to expand over time. This category generally has the known presence of special status species, or a high potential for presence due to habitat conditions. *The goals of this category include protecting and restoring existing vegetated watercourses as wildlife movement corridors through removal of invasive non-native plant species and restoration of native vegetation, as well as protection and improvement of water quality with implementation of proper erosion control and best management practices, and planting of appropriate species.*

Category "B" includes watercourses and/or watercourse reaches that are located in urban areas and that function primarily as a drainage system. This category includes watercourses with limited riparian habitat that is generally confined by adjacent land uses with limited area to expand. Issues of water quality and flow conveyance are the focus for this category. *The goals of this category include improving habitat by voluntary removal of invasive, non-native plant species and improving water quality and flow with implementation of proper erosion control and best management practices, and planting of appropriate species.*

Category "C" includes drainage channels that are concrete or man-made, and above or below ground culverts, with very low to no habitat value. The corridor is fragmented or non-existent, with little to no room for restoration without significant land acquisition or easements. The primary function of these watercourses is flow conveyance and water quality is a concern. *Category "C" watercourses are exempt from the watercourse regulations.*

4.3 SUMMARY OF RECOMMENDED SETBACKS

Table 4-1 summarizes the recommended watercourse category, *riparian corridor*, *development setback* area, and *management area* for each watercourse or watercourse reach. Refer to the aerial photos provided under separate cover or online at: www.ci.santa-cruz.ca.us (under Planning & Community Development Department) for a visual depiction of these setback recommendations. The map page(s) that correspond with each watercourse reach is also provided in Table 4-1.

TABLE 4-1. SUMMARY OF WATERCOURSE CATEGORIES & RECOMMENDED SETBACKS

Watercourse Name and Reach	Category (A, B, C)	Riparian Corridor	Development Setback	Management Area	Map Page(s)
		(In feet, measured outward from centerline of watercourse)			
Antonelli Pond	(see map)	(see map)	(see map)	(see map)	K03, K04
Arana Gulch Creek 1a	B	60	80	105	R08, R09
Arana Gulch Creek 1b	B	20	25	50	R08
Arana Gulch Creek 1c	A	100	130	155	R09, R10, R11, R12
Arana Gulch Creek 1d	B	40	60	85	R09, R10
Arana Gulch Creek 1e	A	55	75	100	R10
Arana Gulch Creek 1f	A	55	75	100	R10, R11
Arana Gulch Creek 1g	A	55	75	100	R11
Arana Gulch Creek 1h	A	55	75	100	R12
Arana Gulch Creek 2	B	10	15	40	R09
Arana Gulch Creek 3a	B	20	30	55	R09
Arana Gulch Creek 3b	B	5	5	30	R09
Arana Gulch Creek 3c	B	15	20	45	R09, R10
Arana Gulch Creek 3d	A	55	75	100	R10
Arana Gulch Creek 4a	B	10	15	40	Q09, R09
Arana Gulch Creek 4b	C	0	0	0	Q09
Arana Gulch Creek 4c	B	5	10	35	Q09, Q10
Arana Gulch Creek 4d	A	55	75	100	Q10, Q11
Arana Gulch Creek 4e	A	55	75	100	Q10
Arana Gulch Creek 5a	C	0	0	0	Q09
Arana Gulch Creek 5b	B	10	15	40	Q09
Arana Gulch Creek 5c	B	20	30	55	Q09, Q10
Arana Gulch Creek 5d	A	40	60	85	Q10
Arana Gulch Creek 5e	A	55	75	100	Q10
Arana Gulch Creek 6a	C	0	0	0	Q09
Arana Gulch Creek 6b	B	20	30	55	P09, P10
Arana Gulch Creek 6c	A	55	75	100	P10, Q10
Arana Gulch Creek Harbor	(see map)	(see map)	(see map)	(see map)	Q04, Q05, Q06
Arana Wetland	(see map)	(see map)	(see map)	(see map)	Q06, Q07, R07, R08
Arroyo de San Pedro Regaldo 1	B	10	20	45	N08
Arroyo de San Pedro Regaldo 2a	B	10	20	45	M09, N08, N09
Arroyo de San Pedro Regaldo 2b	C	0	0	0	M08, N08, N09
Arroyo de San Pedro Regaldo 3	B	40	60	85	M08, M09
Arroyo Seco 1	C	0	0	0	L02, L03
Arroyo Seco 10a	B	20	30	55	L07
Arroyo Seco 10b	B	5	10	35	L07
Arroyo Seco 2	B	15	20	45	L03

TABLE 4-1. SUMMARY OF WATERCOURSE CATEGORIES & RECOMMENDED SETBACKS

Watercourse Name and Reach	Category (A, B, C)	Riparian Corridor	Development Setback	Management Area	Map Page(s)
		(In feet, measured outward from centerline of watercourse)			
Arroyo Seco 3	A	50	70	95	L03, L04
Arroyo Seco 4	B	15	20	45	L04
Arroyo Seco 5	B	60	100	125	L04, L05, L06, L07
Arroyo Seco 6	B	40	60	85	L05, L06
Arroyo Seco 7	B	40	60	85	L05
Arroyo Seco 8	B	40	60	85	L06
Arroyo Seco 9a	B	20	50	75	L06, L07
Arroyo Seco 9b	B	5	10	35	L07
Bay Avenue Creek 1	B	5	5	30	M06
Bay Avenue Creek 2	B	20	30	55	L06, M06
Bay Avenue Creek 3	B	5	10	35	L07
Bayona Creek	B	20	30	55	L05, L06, M05
Bethany Creek 1	B	20	30	55	M03
Bethany Creek 2	B	5	5	30	M04
Branciforte Creek 1	B	30	50	75	O06, O07, O08, P08
Branciforte Creek 2	A	50	70	95	P08, P09, P10, P11, Q11, Q12
Carbonera Creek	A	50	70	95	O10, O11, P09, P10, P11, P12
Chrystal Gulch	B	10	15	40	N06
Dodero Spring Creek 1a	B	5	10	35	M06, M07
Dodero Spring Creek 1b	C	0	0	0	M07
Dodero Spring Creek 2	B	25	30	55	M07, M08
Dodero Spring Creek 3	B	10	15	40	M08
Dodero Spring Creek 4	B	25	30	55	M08
Dodero Spring Creek 5	B	10	15	40	L08, M08
Glen Canyon Creek	A	50	70	95	P11, P12
Hagemann Gulch 1	B	40	60	85	Q06, Q07
Hagemann Gulch 2	B	10	15	40	Q07
Hagemann Gulch Harbor	(see map)	(see map)	(see map)	(see map)	Q06
Jessie Street Channel	B	10	15	40	P05, P06
Jessie Street Marsh	(see map)	(see map)	(see map)	(see map)	P06
Kalkar Quarry Spring	(see map)	(see map)	(see map)	(see map)	L08, M08
Laurel Creek 1	B	20	30	55	N05
Laurel Creek 2	B	10	15	40	N05, N06
Laurel Creek 3	B	20	30	55	N06
Laurel Creek 4	B	10	15	40	M06, N06
Laurel Creek 5	C	0	0	0	M06

TABLE 4-1. SUMMARY OF WATERCOURSE CATEGORIES & RECOMMENDED SETBACKS

Watercourse Name and Reach	Category (A, B, C)	Riparian Corridor	Development Setback	Management Area	Map Page(s)
		(In feet, measured outward from centerline of watercourse)			
Laurel Creek 6	B	10	15	40	M06
Laurel Creek 7	B	20	30	55	M06, M07
Lighthouse Drainage	(see map)	(see map)	(see map)	(see map)	N02, N03
Longview Creek 1a	B	5	10	35	M06, M07
Longview Creek 1b	C	0	0	0	M07
Moore Creek 1	A	100	130	155	K02, K03
Moore Creek 2	A	100	150	175	K04, K05, K06, K07,L05
Moore Creek 3	A	100	130	155	K07, K08
Moore Creek 4	A	100	150	175	J07, K05, K06, K07
Moore Creek 5	A	70	100	125	K06, K07
Natural Bridges Creek	A	80	100	125	K02, L02, L03
Neary Lagoon	(see map)	(see map)	(see map)	(see map)	N04, N05, O04,
Ocean Villa Creek	B	50	70	95	P05, P06
Ojos de Agua 1	B	5	10	35	M06, M07
Ojos de Agua 2	C	0	0	0	M07
Ojos de Agua 3	B	5	10	35	M07
Ojos de Agua 4	C	0	0	0	M07
Pasatiempo Creek 1	C	0	0	0	O08
Pasatiempo Creek 2	C	0	0	0	O08, O09
Pasatiempo Creek 3	A	80	100	125	O09, O10
Pilkington Creek 1	B	30	40	65	P05
Pilkington Creek 2	B	10	15	40	P05
Pogonip Creek 1	C	0	0	0	N09
Pogonip Creek 2	B	40	60	85	N09
Pogonip Creek 3	A	70	100	125	M09, M10, N09
Redwood Creek	A	60	90	115	M11, N11
Salz Pond	(see map)	(see map)	(see map)	(see map)	N09
San Lorenzo River Lower	(see map)	(see map)	(see map)	(see map)	N08, O05, O06, O07, O08, P04, P05
San Lorenzo River Upper East Bank	A	120	150	175	N08, N09, N10, N11
San Lorenzo River Upper West	A	100	120	145	N08, N09, N10, N11
Tick Drainage	B	5	10	35	N09, N10
Wagner Seep 1	B	50	70	95	M08, N08
Wagner Seep 2	B	50	70	95	N08
Westlake Pond	(see map)	(see map)	(see map)	(see map)	M07
Woods Creek 1	B	20	30	55	Q05, Q06
Woods Creek 2	B	10	15	40	Q06
Woods Creek Harbor	(see map)	(see map)	(see map)	(see map)	Q05

4.4 WATERCOURSE DEVELOPMENT PERMIT PROCEDURES

4.4.1 Areas Subject to Watercourse Development Permits

Adoption of this *Management Plan* and the accompanying the Zoning Ordinance amendments establishes the requirements for obtaining a Watercourse Development Permit, and specifies uses permitted within the designated *management area*, *development setback area* and *riparian corridor*. The *management area* is the area where the watercourse regulations would apply. Any development located outside of the *management area* would not be subject to watercourse regulations.

Development projects within the *management area* would be subject to City review to assure compliance with *Management Plan* and zoning requirements, and to determine whether an activity is exempt or requires a Watercourse Development Permit. This would include review of some activities that are not always subject to building, grading, or other permits, such as landscaping, decks, fencing, paving, etc. Except for exempt projects listed below, all development projects in the *management area* would be subject to administrative review and approval of a Watercourse Development Permit by City staff (Zoning Administrator) without a public hearing unless the permit is part of larger project that requires a hearing. Generally, Watercourse Development Permits would be required for development within any zone of a Category A watercourse and for development within the riparian and development setback areas of a Category B watercourse. Development activities within Category C watercourses are exempt. It should be noted that in addition to any required City permits, property owners are responsible for obtaining any necessary state or federal permits and complying with applicable state and federal regulations. For undeveloped parcels or those applying for a Watercourse Development Permit, landowners will be required to adhere to the setback width established in this *Management Plan* for new development as a condition of project approval.

Projects subject to approval of other City permits would also be subject to environmental review. During the environmental review process, site-specific review of sensitive habitat and species would be undertaken, if applicable, based on known and potential habitat areas identified on Table 2-2 of the *Management Plan*, and additional protective measures may be recommended. Although site visits were made to as many individual properties as possible during preparation of the *Management Plan*, the *Management Plan* focuses on creek segments and reaches. There may be some limited, very rare circumstances in which an identified setback is recommended to be increased based on the outcome of the environmental review.

The *Management Plan* also maps known wetland areas. For wetlands and other unique areas of ponding water, the *Management Plan* recommends further site-specific biotic review (as currently required), since detailed analysis or wetland delineations were not conducted as part of the preparation of this *Management Plan*. Parcels that may require site-specific biotic review (shown by a green and yellow dot on the aerial photo maps), are parcels near ponds or known wetlands where appropriate setbacks would be determined through further study. The biotic review would only be required if the ponds would potentially be impacted (depending on the location of the development on the parcel in relation to the location of the pond or wetland).

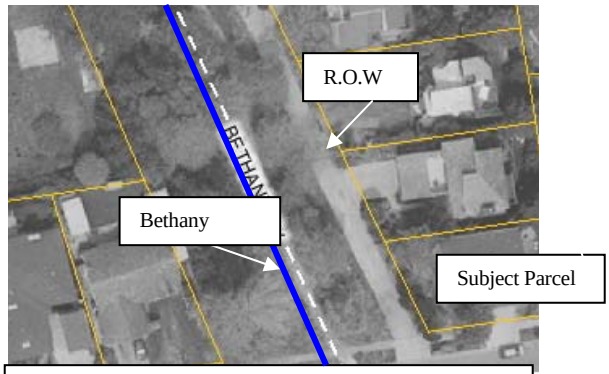
4.4.2 Types of Projects

4.4.2.1 Emergency Projects. When an emergency measure is necessary to protect life and property from imminent danger, or to restore, repair, or maintain public works, utilities, or services during and immediately following a disaster or serious accident, a Watercourse Development Permit or Watercourse Variance may be issued, provided that within three days of the disaster or discovery the Planning Director is notified and a preliminary application is filed containing the nature of the disaster and the type and location of work to be performed, and that within 30 days a completed application for the necessary permits is filed. It should be noted that permits may be required by other agencies.

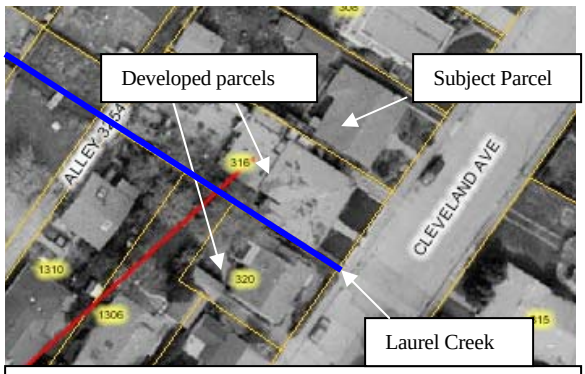
4.4.2.2 Exempt Projects. Certain types of projects would be eligible for an exemption. The intent of an exemption is to allow certain types of development when the resource clearly would not be impacted and the goals of the *Management Plan* would be supported. In any case where it is not clear whether a project would be eligible for an exemption under these guidelines, the determination would be made by the Zoning Administrator, based on the goals herein. Exempt projects are outlined in Table 4.2. The example below illustrates one of the exemptions.

Exemption Example: Any development on a parcel that either:

1. *has an established road right-of-way between the subject parcel and the watercourse (where the development would occur) – see Example 1; or*
2. *has a separate parcel with legal development that is located between the subject parcel and the watercourse (where the development would occur) – see Example 2.*



Ex. 1. ROW between development and watercourse



Ex. 2. Developed parcel between subject parcel & watercourse

4.4.2.3 Projects Subject to a Watercourse Development Permit. Projects that are not eligible for an exemption but are listed as allowable uses on Table 4.3 would be subject to administrative review and approval as a Watercourse Development Permit, provided that the project complies with the appropriate Watercourse Development Standards (discussed in Section 4.5). Any other use or project determined by the Zoning Administrator to be of the same general character as those listed in Table 4.3, and which will not impair the goals of the *riparian corridor* or *development setback* area, may be allowed by a Watercourse Development Permit. Generally, new development would not be allowed in the *riparian corridor*, where the watercourse most directly functions to convey the flow of water, filter storm water, and support natural habitat, except for specified activities outlined on Table 4.3. New development within the *development*

setback area, which serves as a buffer between new development and the watercourse, generally would be limited to landscaping and limited pervious surfaces. New development would be allowed in the area between the *management area* boundary and the *development setback* area.

4.4.2.4 Prohibitions. The following are prohibited:

- Obstructions are not allowed within any watercourse.
- Channel redirection and hardening are not allowed within any Category "A" watercourse unless other measures prove to be infeasible.

4.4.3 Periodic Plan Review

The *Management Plan* would be reviewed by the Planning Commission in five years to evaluate how successful implementation of the *Management Plan* has been and to determine what, if any, components of the *Management Plan* may need to be modified to assure continuing adequate protection of watercourse and wetland resources. Any modifications would require a public hearing. At this time, if a watercourse has been restored to such an extent that it may be upgraded to a different category, it would be evaluated through the public hearing process. (Voluntary improvement and restoration of watercourses, especially Category "B" and possibly "C" watercourses, are encouraged, as further described in section 4.5.5 below.)

TABLE 4-2. PROJECTS EXEMPT FROM WATERCOURSE DEVELOPMENT PERMITS

Development and Structural Improvements

- Any development on a "C" Category watercourse.
- Development projects within a Category B watercourse located outside of the designated *riparian corridor* and *development setback* area (in the remaining *management area*).
- Any development adjacent to a closed culverted section of a watercourse.
- Any development that has an established road right-of-way between the subject parcel and the watercourse or has a separate legally developed parcel located between the subject parcel and the watercourse.
- Interior remodeling of an existing legal structure within the existing structure footprint.
- Repair and maintenance of existing legal structures.
- Demolition of existing structures outside the *riparian corridor*, in accordance with City demolition regulations, provided that no mechanized machinery is utilized and no disturbance occurs within the *riparian corridor*.
- Reconstruction of a damaged nonconforming structure where nonconformance only relates to watercourse setbacks provided the applicable watercourse development standards are implemented.

Exterior Improvements

- Exterior treatments such as painting, roofing, surface treatments, window replacement, that do not increase the density or intensity of land use, or increase surface coverage.
- Exterior safety lighting in the *development setback area*, including low-level walkway, motion detector security, driveway, and entry lighting, that is hooded & directed downward, away from the watercourse.
- Open style fencing (e.g. wire strand or split rail) that permits the free passage of wildlife, limited to the outer edge of the *riparian corridor*.
- Installation of pervious surfaces (outside of the *riparian corridor*), including at-grade decks, patios, and walkways, when the total square footage is less than 25 percent of the *development setback area*, provided that the pervious surfaces meet those requirements specified in the Watercourse Development Standards.

Landscaping and Vegetation Removal

- Landscaping with non-native vegetation within the *development setback area* provided non-invasive species are used.
- Minor vegetation removal of invasive or exotic plant species, except removal of mature eucalyptus trees in known Monarch butterfly habitat areas.
- Thinning of riparian vegetation within a flood or high fire hazard area when required by the City Fire Department for public safety with review and approval of a fire-vegetation management plan or when required by the City Public Works Department for flood protection maintenance with review and approval of a maintenance plan.
- Removal of tree(s) that are hazardous or likely to have an adverse effect upon the structural integrity of a building, utility, or public right of way, or a tree with that has the physical condition such as disease or infestation which warrants alteration or removal, in accordance with the City's Heritage Tree Ordinance and with a plan prepared by a qualified professional .
- Removal of impervious surfaces outside of the *riparian corridor*.
- Mowing and grazing on public lands, consistent with an adopted Parks or Fire Management Plan.

Roads, Public Facilities and Utilities

- Road maintenance of existing legal public roads, private roads and driveways (no expansion or improvements).
- Construction of public trails and bridges on public lands, consistent with an adopted Parks Master Plan or Management Plan, including the location and siting of trails and bridges.
- Maintenance of non-structural and structural storm water Best Management Practices (BMPs).
- Installation and improvements to non-structural BMPs within the *development setback* area.
- Repair, maintenance, or minor alteration of existing public utility, drainage, flood control, and water storage and provision facilities, including pumps and other appurtenant structures where there is no or negligible expansion of use.

Others

- Projects that concurrently are reviewed and approved by another authorizing permitting agency (CDFG, NOAA, USFWS or ACOE) for maintenance, flood protection, restoration or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment, provided proof of permit approval is submitted to the Planning Director.
- Removal of fish passage barriers and installation of in-stream aquatic habitat enhancement structures, in accordance with a plan for said activities prepared by a qualified professional and approved by the City Planning Director.
- Interpretative signage designed to provide information about the value and protection of the resource that is limited to the outer edge of the *riparian corridor*, and must meet other City sign regulations.
- Installation of new and maintenance of existing water flow gauges.
- Water quality testing.
- Continued operation and maintenance of existing cemetery plots.

TABLE 4-3. ALLOWABLE USES AND ACTIVITIES WITH A WATERCOURSE DEVELOPMENT PERMIT

Allowable uses and activities in the *riparian corridor* include:

- Watercourse and wetland restoration, major removal of invasive and/or exotic vegetation where appropriate, minor removal of mature eucalyptus trees in known Monarch butterfly habit areas, removal of non-hazardous trees, (i.e. invasive species and/or for habitat or fire management) in accordance with the City's Heritage Tree Ordinance and a plan prepared by a qualified professional, and removal of impervious surfaces in the riparian corridor..
- Demolition of existing structures inside the *riparian corridor*, in accordance with City demolition regulations.
- Installation of and improvements to storm water BMPs provided that removal of riparian vegetation is avoided whenever possible.
- Channel bank protection and the repair of existing channel bank protection structures. Soft" measures (e.g., landscaping with appropriate native plants that will provide bank stabilization) rather than hardened structures should be used where possible.
- Improvements to existing roads, trails, and crossings, including replacement of existing bridge footings and abutments, as well as consideration of new footings, when studies prepared by qualified professionals demonstrate that the existing or new bridge footings and abutments will not substantially decrease biological values, cause an increase in floodwater surface elevations, redirect flow, or cause erosion to an extent greater than the existing structure, except for uses on public lands that are consistent with an adopted Parks Master Plan or Management Plan. The goal of the replacement and/or improvements would be to reduce the hydrologic and geomorphic impacts of the existing roads and bridge structures with the new structures, consistent with the City's floodplain management regulations.
- Property line fences that provide adequate room for flow conveyance and wildlife movement.
- Incidental public works facilities, including but not limited to, the installation of new, replacement of existing, or improvements to existing buried cables, pipes, and culverts, or inspection of piers and improvements to existing intake and outfall lines, when special studies prepared by qualified professionals have demonstrate that there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects.
- Channel maintenance, including, but not limited to vegetation management and removal of downed trees, in accordance with a channel maintenance plan prepared by a qualified professional and approved by the City.
- Flood protection when no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing legal development, when special studies prepared by qualified professionals demonstrate that the flood protection use shall not diminish creek capacity, percolation rates, and/or habitat values, if applicable. Channel redirection or hardening may be permitted only if less intrusive flood control/bank stabilization designs have been considered and have been found to be infeasible, including, but not limited to integrated bank repair structures, vegetation, vegetative erosion control, and soil bioengineering.
- Under channel borings at sufficient depth when special studies prepared by qualified professionals have been submitted and approved by the City's Planning Director that demonstrate that the under channel borings will result in no adverse impact to the watercourse, *riparian corridor*, or the *development setback* area.

Allowable Uses and activities in the *development setback* area include:

- All uses allowed in the *riparian corridor*.
- Upper floor additions to existing legal structures (where permitted by the Zoning Ordinance) within the existing footprint area.
- Retaining walls.
- Solid fencing that meets the City fencing regulations.
- Kennels and animal containment areas that comply with storm water BMPS.

Allowable Uses and activities in the remaining *management* area include:

- All other development projects within Category A watercourses allowed by the Municipal Code located in the remaining *management area* (outside of the designated *riparian corridor* and *development setback area*).

NOTE: Some allowable uses and activities may also require approval from the California Department of Fish and Game, the U.S. Army Corps of Engineers, and/or the National Marine Fisheries Service.

4.5 WATERCOURSE DEVELOPMENT STANDARDS

Allowable projects or activities would be required to comply with the applicable Watercourse Development Standards. Management Guidelines also are identified that property owners would be encouraged to implement. The standards address the issues identified below and are further described in this section. Table 4.4 summarizes required standards and recommended guidelines.

- Use of permeable paving;
- Drainage and water quality protection;
- Use of suitable plant materials;
- Use of appropriate lighting;
- Habitat enhancement;
- Construction Best Management Practices;
- Management in High Fire Hazard Areas; and
- Erosion control and bank protection measures.

4.5.1 Use of Permeable Paving Materials

A development site is a mixture of pervious (undisturbed soils that allow surface water to percolate into the soil) and impervious (roofs, pavement, etc.) area. Impervious areas can cause increased flow in channels, resulting in erosion of pervious areas. Utilizing permeable paving materials strives to restore natural infiltration into the soil allows for natural cleansing and restoration of groundwater reservoirs.

Although pervious paving materials can be greatly beneficial, there are some limitations to its application. Permeable paving materials must have sufficient infiltration capacity and void space to allow entry of runoff into the underlying soil or base coarse materials, storage in the voids, and slow release to the subsoil. It is not appropriate, for example, in soils with low permeability or high shrink-swell potential (i.e., tight clay, as determined by a geotechnical report). Also, systems such as reinforced grass paving can primarily be used for low traffic volume areas, though improvements in technology have allowed greater flexibility, such as use for fire lanes. All of the systems above are more effective when used in conjunction with swales (shallow trenches that hold water and allow it to infiltrate).

STANDARD 1: *Permeable paving materials must be considered, where feasible. The following types of permeable paving materials shall be acceptable for use in meeting the intent of the Watercourse Development Standards. Other permeable materials may be utilized upon review and approval by the City's Planning Director*

- *Porous concrete and porous asphalt materials (porous nature must be demonstrated by manufacturer specifications prior to approval of use).*
- *Paving strips.*
- *Bark.*
- *Cobblestone, natural stone, or brick laid on a bed of sand. These can either be backfilled with gravel, or planted with a groundcover. The spacing must be adequate to allow for infiltration.*
- *Precast pavers, ungrouted stone, or open block pavers (i.e., turf block) laid on a bed of sand. The open block pavers can be either backfilled with gravel, or planted with a groundcover. The spacing must be adequate to allow for infiltration.*
- *Granular materials, such as decomposed granite or gravel.*

TABLE 4-4. SUMMARY OF WATERCOURSE DEVELOPMENT STANDARDS AND GUIDELINES

Development Standard	REQUIRED	RECOMMENDED
USE OF PERMEABLE PAVING	1. Use permeable paving materials (see list in *Management Plan*). 2. Construct pedestrian walkways or patios with loose aggregate, wooden decks or well-spaced paving stones within the *development setback area*.	▪ Retain permeable vegetated zones such as overflow parking or emergency access lanes, where possible. ▪ Encourage use of permeable paving for parking areas.
DRAINAGE AND WATER QUALITY	3. Direct drainage from impervious surfaces into City-approved drainage system, utilizing a method that facilitates filtration of pollutants whenever possible (i.e. drainage swales, French drains). 4. Implement water quality BMPS, as appropriate, including application of native or other appropriate erosion-control hydroseed to exposed soils to prevent erosion.	▪ Plant riparian vegetation to facilitate filtration of pollutants from runoff. ▪ Encourage implementation of measures to decrease non-point source pollutants, such as limiting use of fertilizers and pesticides (see list in Plan).
LANDSCAPING	5. Plant only native riparian and wetland species within *riparian corridor* (see list on Table 4.5). 6. Prohibit use of non-native invasive species (see list on Table 4.6).	▪ Avoid using non-native plants in *development setback* area, and encourage planting of native plants.
USE OF APPROPRIATE LIGHTING	7. Prohibit lighting in *riparian corridor*, except for lighting on public lands and facilities for safety and security, consistent with an adopted Management Plan 8. Limit exterior lighting in the *development setback* area to low-level walkway, motion detector security, driveway, or entry lighting. 9. Design lighting to be hooded and directed downward, away from the watercourse.	
HABITAT ENHANCEMENT	10. Avoid mowing or removal of riparian vegetation. 11. For Category A watercourses require the following: plant variety of native plants; avoid clearing dense riparian understory; remove and control spread of non-native species; and avoid planting non-native species. 12. Pre-construction bird nesting surveys adjacent to identified habitat areas.	▪ For Category A and B watercourses encourage the following: use organic compost; remove weeds by hand; and use integrated pest management. ▪ For Category B watercourses encourage the following: plant variety of native plants; avoid clearing dense riparian understory; remove and control spread of non-native species; and avoid planting non-native species. ▪ Consider other enhancement measures specified for certain watercourse reaches (See Table 3.4 in Chapter 3.0).
CONSTRUCTION BEST MANAGEMENT PRACTICES	13. Implement Best Management Practices (BMPs) during construction to protect water quality in adjacent watercourse in accordance with City requirements.	
HIGH FIRE HAZARD AREAS	14.. Protect riparian vegetation within the *riparian corridor* and d*evelopment setback area*. Prohibit planting of combustible vegetation in high fire hazard areas (see list on Table 4-7). 15. Require design of new development with fire-resistant or retardant features and landscaping. Increase development setback if necessary to protect structures without removal of riparian vegetation.	
EROSION CONTROL AND BANK STABILIZATION	16. Apply native or other appropriate erosion-control hydroseed mix on exposed soils and slopes and use biotechnical bank stabilization to the maximum extent feasible. Use bio-engineered structures (e.g. rootwads, cribwalls, instream woody debris) or natural materials for needed bank stabilization, when possible (see Plan text for further details).	▪ Expand native woody riparian vegetation to stabilize eroded channels. ▪ Property owners should implement measures to treat small erosion problems using revegetation and biotechnical slope protection measures when possible.

STANDARD 2: *Pedestrian surfaces, such as walkways or patios, shall be constructed with loose aggregate, wooden decks with adequate spacing between, or well-spaced paving stone within the development setback area.*

Guidelines: Where possible, retain permeable vegetated zones, such as overflow parking or emergency access lanes, and encourage use of permeable paving for parking areas. For example, utilize permeable pavers laid on sand or block reinforced turf.

4.5.2 Drainage and Water Quality Protection

Good water quality in the City's watercourses is necessary to support fish, amphibian, and other aquatic species both within the local watercourses as well as within the greater Monterey Bay. Water quality protection measures shall be used, as appropriate, to decrease the amount of runoff from impervious surfaces flowing directly into waterways, increase the amount of runoff being infiltrated into the ground, and reduce the amount of contaminants and organics entering the system.

STANDARD 3: *Drainage from impervious surfaces shall be directed into a City-approved drainage system consistent with the City's urban runoff program and the City's Drainage Control Ordinance (i.e., use of drainage swales, filter swales, small detention basins, percolation pits, and French drains). Percolation of storm runoff on-site through vegetated swales, percolation pits, retention basins, permeable paving materials, or other similar methods to slow and clean runoff prior to direct discharge into the creek corridor, shall be encouraged, where appropriate hydrologic conditions exist. Direct impermeable connections shall be discouraged.*

STANDARD 4: *The following measures shall be implemented, as appropriate, to protect the water quality of watercourses and wetlands:*

- *Apply native or other appropriate erosion-control hydroseed mix at all locations with exposed soil and slopes greater than 5% to prevent soil erosion, reduce water pollution, and help preserve the existing landscape character.*
- *Implement BMPs, including erosion control, for storm water runoff during project design and construction, as described in greater detail in the Department of Public Works Best Management Practices Manual.*
- *Initiate bank stabilization projects that will minimize channel erosion when a project entails work on a bank (see Bank Protection and Erosion Control standards), which may require a Watercourse Development Permit.*

Guidelines: The following measures are encouraged to be implemented, as appropriate, to protect the water quality of watercourses and wetlands:

- Plant riparian vegetation in a manner to facilitate filtration of pollutants from storm runoff.
- Encourage property owners to implement measures to decrease non-point source pollution, including:
  - Eliminate car washing on private driveways, especially near storm drains.

- Limit use of residential fertilizers and pesticides, particularly within the *riparian corridor*, consistent with Integrated Pest Management (IPM) principles.
- Convert ornamental landscaping to native vegetation that requires less fertilizer and watering, consistent with IPM principles.
- Properly dispose of household and small business wastes in City-supplied garbage and recycling containers, and at the City landfill.
- Maintain an operational and updated septic system (for properties not part of the City sewer system).

- Encourage alternative parking area designs to include items such as permeable parking areas and vegetated swales rather than curbs to filter and control runoff.

4.5.3 Use of Suitable Plant Materials

Native vegetation within a riparian corridor supports food and shelter for fish, aquatic insects, and other wildlife. Overhanging vegetation is important, too, because it drops insects into the water and provides shade which keeps the water cool for aquatic species. Streamside plants also filter out sediments and pollution and plant roots help stabilize the bank and hold the soil together, preventing erosion. Healthy watercourses need banks with undisturbed native vegetation.

Table 4-5 provides a list of some suitable plant species. These plants provide low maintenance, attractive landscaping, as well as habitat for native wildlife. Native plants often require less water and are more resilient to insects and disease than many non-native ornamentals. When planted properly, native plants can also help prevent soil erosion. Local native plant nurseries should be able to assist in determining which plants are best suited for a particular area. Additional information regarding revegetation can be found in Appendix C, Revegetation Guidelines.

Table 4-6 provides a list of non-native invasive plant species that are not allowed to be planted and are also recommended for removal. Removal of mature eucalyptus trees, as defined by the Heritage Tree Ordinance, is not encouraged in known Monarch butterfly habitat due to importance of protection of this habitat. Areas identified to date include known roosts at Natural Bridges, Moore Creek just north of Hwy 1, upper Arroyo Seco Creek, lower end of Pilkington Gulch, Wagner Seep, lower Branciforte Creek, and the drainage along Depot Park. (*A Plague of Plants: Controlling Santa Cruz County's Invasive Plants* is a helpful resource guide for some undesirable plant species. A copy can be obtained through: Wildlands Restoration Team, P.O. Box 7333, SC, CA 95061-7333, (831)662-WILD, or www.wildwork.org.)

STANDARD 5: *Only native riparian and wetland plant species are allowed to be planted in the designated riparian corridor (see Table 4-5).*

STANDARD 6: *The planting of non-native, invasive plant species is not allowed (see Table 4-6).*

Guidelines: Avoid using non-native plants in *development setback* area. Planting of native vegetation is encouraged in *development setback* area; however, both native and non-native (non-invasive) plant species are allowed in the *development setback* area and the remainder of the *management area*.

TABLE 4-5. PRINCIPAL PLANT SPECIES SUITABLE FOR RIPARIAN AND WETLAND REVEGETATION

Common Name	Scientific Name
Coast Live Oak Riparian Woodland	
Coast live oak	*Quercus agrifolia*
Hazel nut	*Corylus cornuta*
California rose	*Rosa californica*
Blue blossom	*Ceanothus thyrsiflorus*
Coffee berry	*Rhamnus californica*
Flowering Currant	*Ribes californicum*
Sticky monkey flower	*Mimulus aurantiacus*
California blackberry	*Rubus ursinus*
Bracken Fern	*Pteridium aquilinum*
Wood fern	*Dryopteris arguta*
Mugwort	*Artemisia californica*
Willow and Mixed Riparian Woodland	
Willow	*Salix* spp.
Black Cottonwood	*Populus tricocharpa.*
Mule Fat	*Baccharis salcifolius*
California rose	*Rosa californica*
Flowering Currant	*Ribes californicum*
California blackberry	*Rubus ursinus*
Freshwater Marsh	
Cattail	*Typha* spp.
Bulrush/Tule	*Scirpus* spp.
Bog Rush	*Juncus patens*
Brown-headed Rush	*Juncus pynocephalus*
Water smartweed	*Polygonum* spp.
Brackish/Salt Water Marsh	
Pickleweed	*Salicornia virginica*
Salt Grass	*Distichlis spicata*
Alkali Heath	*Frankenia grandiflora*
Jaumea	*Jaumea carnosa*
Upland Grassland	
Purple Needlegrass	*Nassella pulchra*
Blue Wildrye	*Elymus glaucus*
California Brome	*Bromus carinatus*
California poppy	*Eshscholzia californica*
Blue-eyed grass	*Sisyrinchium bellum*
Bi-colored Lupine	*Lupinus bicolor*
Common Yarrow	*Achillea millefolium*
Meadow Barley *	*Hordeum brachyantherum*
California Oatgrass	*Danthonia californica*
Eucalyptus and Monterey Pine Tree Groves	
Coast live oak	*Quercus agrifolia*
Blue blossom	*Ceanothus thyrsiflorus*
Coffee berry	*Rhamnus californica*
Sticky monkey flower	*Mimulus aurantiacus*
California blackberry	*Rubus ursinus*
Bracken Fern	*Pteridium aquilinum*
Mugwort	*Artemisia californica*
Toyon	*Heteromeles arbutifolia*

Source: Biotic Resources Group, 2001; * Note: Meadow barley is suitable for moist and seasonally wet areas.

TABLE 4-6. INVASIVE SPECIES PROHIBITED FROM USE AND RECOMMENDED FOR REMOVAL

Common Name	Scientific Name
Trees	
Acacia (all types)	*Acacia* spp.
Eucalyptus (all types)**	*Eucalyptus* spp.
Tree-of-Heaven	*Ailanthus altissima*
Shrubs	
French Broom	*Genista monspessulanus*
Scotch Broom	*Cytisus scoparius*
Spanish Broom	*Spartium junceum*
Cotoneaster	*Cotoneaster sp.*
Pyracantha	*Pyracantha sp.*
Perennial sweet pea	*Lathyrus latifolius*
English holly	*Ilex aquifolium*
Other Perennials and Annuals	
Iceplant or Seafig	*Carpobrotus* sp. and *Mesembryanthemum* sp.
Periwinkle	*Vinca major* and *Vinca minor*
English ivy and Algerian Ivy	*Hedera helix* and *Hedera* sp
Cape ivy	*Delaireia odorata*
Honeysuckle	*Lonicera* sp.
Pampas grass	*Cortederia selloana* and C. *jubata*
Morning glory	*Calystegia* sp., *Convolulus* sp. and *Ipomea* sp.
Vetch	*Vicia* sp.
Himalayan blackberry	*Rubus procerus* or *R. discolor*
Sticky Ageratina (Mexican Eupatory)	*Ageratina adenophora*

** Removal of mature eucalyptus trees, as defined by the Heritage Tree Ordinance, is not encouraged in known Monarch butterfly habitat due to importance of protection of this habitat.

Source: Biotic Resources Group, 2001

4.5.4 Appropriate Lighting

Exterior lights that are directed toward riparian habitats can result in disruption to nesting species and affect overall habitat use.

STANDARD 7: *Prohibit lighting in riparian corridor, except for lighting on public lands and facilities for safety and security, consistent with an adopted Management Plan.*

STANDARD 8: *Limited exterior safety lighting in the development setback area shall be allowed. Examples of safety lighting include: low-level walkway lighting; motion detector security lighting, driveway lighting, entry lighting.*

STANDARD 9: *Lighting shall be hooded and directed downward and away from the watercourse/wetland.*

4.5.5 Habitat Enhancement

Potential enhancement and/or restoration measures are also described for each watercourse and are summarized in Chapter 3.0. These measures include planting riparian vegetation and removal of invasive, non-native plant species. Opportunities to enhance wildlife habitat include preserving snags (i.e., dead trees, when they do not pose a public safety hazard) and installing bird and bat nest boxes to improve nesting sites, planting riparian trees and shrubs to improve habitat structure and diversity, maintaining vegetative cover over the water to benefit aquatic resources, and preserving large woody debris in the channel to benefit aquatic resources (including steelhead). In some areas bank erosion repair measures or removal of trash and debris also have been identified.

Voluntary improvement and restoration of watercourses, especially Category "B" and possibly "C" watercourses, are encouraged. This would be accomplished primarily through distribution of brochures and educational material that will be prepared and provided upon adoption of the *Management Plan* to the public. The brochures/educational materials will explain what one could do to improve a watercourse, and activities/materials to avoid adjacent to a watercourse. It should be noted that the City's Construction BMP Manual provides information about what activities and/or materials to avoid adjacent to watercourses, which is attached to building permits.

STANDARD 10: *Avoid mowing, clearing, or stripping riparian vegetation. To be an effective filter, the riparian corridor must be sufficiently wide, and the shrubs, vines, and grasses of the understory, not just the trees, must be present.*

STANDARD 11: *The following measures are* ***required for Category A watercourses*** *to enhance the riparian habitat of watercourses and wetland areas:*

- *Expand and enhance riparian vegetation to meet designated riparian corridor width. Plant a variety of appropriate native riparian species including ground covers, shrubs, trees, and native flowering plants to attract beneficial insects, such as ladybugs, lacewings, and parasitic wasps. Riparian vegetation should be planted in such a manner to facilitate filtration of pollutants from storm runoff.*
- *Avoid clearing dense native understory vegetation to create open areas.*
- *Avoid planting non-native plants.*
- *Remove or control the spread of non-native, invasive species.*
- *Within landscaped areas, use Integrated Pest Management (IPM) methods that encourage the use of non-chemical methods for weed removal; least-toxic pesticides are used as a last resort. If alternative pest management techniques do not work, use the least-toxic chemical available (City of Santa Cruz, 2000).*

  [For more information on IPM principles and pest management, refer to the UC Statewide IPM Program website at: http://www.ipm.ucdavis.edu].

STANDARD12: *Require that a pre-construction nesting survey be conducted by a qualified wildlife biologist if construction, including tree removal, is scheduled to begin between March and late July adjacent to bird habitat areas identified on Table 2-2 of the Management Plan, to determine if nesting birds are in the vicinity of the construction sites. If nesting raptors are found, construction may need to be delayed until late-August or after the wildlife biologist has determined the nest is no longer in use or unless a suitable construction buffer zone can be identified by the biologist.*

Guideline: The following measures are encouraged to be implemented for Category B watercourses to enhance the riparian habitat of watercourses and wetland areas:

- Expand and enhance riparian vegetation to meet designated riparian corridor width. Plant a variety of appropriate native riparian species including ground covers, shrubs, trees, and native flowering plants to attract beneficial insects, such as ladybugs, lacewings, and parasitic wasps. Riparian vegetation should be planted in such a manner to facilitate filtration of pollutants from storm runoff.
- Avoid clearing dense native understory vegetation to create open areas.
- Avoid planting non-native plants.
- Remove or control the spread of non-native, invasive species.
- Use organic compost as a natural slow-release fertilizer (outside of riparian corridor).
- Remove weeds by hand or use mulch or weed cloth to suppress weeds.
- Within landscaped areas, use Integrated Pest Management (IPM) methods that encourage the use of non-chemical methods for weed removal; least-toxic pesticides are used as a last resort. If alternative pest management techniques do not work, use the least-toxic chemical available (City of Santa Cruz, 2000). [For more information on IPM principles and pest management, refer to the UC Statewide IPM Program website at: http://www.ipm.ucdavis.edu].

Guideline: Consider other enhancement measures specified for certain watercourse reaches (see Table 3.4 in Chapter 3.0).

4.5.6 Construction Best Management Practices

For construction projects, refer to the Department of Public Works *Construction Work Best Management Practices Manual* (Chapter 4 of the Best Management Practices Manual for the City's Storm Water Management Program, December 2003), which is included as Appendix D of this *Management Plan*. For project design, refer to *Development and Remodeling Projects Best Management Practices* (Chapter 6 of the Best Management Practices Manual for the City's Storm Water Management Program, June 29, 2004), which is included in Appendix E.

STANDARD 13: *Implement Best Management Practices (BMPs) during construction to protect water quality in adjacent watercourses in accordance with City requirements (see Appendix D).*

4.5.7 Management in High Fire Hazard Areas

Certain areas within the City are within high fire hazard areas. Within these areas, fires can be a serious hazard due to type of vegetation, vegetation build-up, and topographic conditions in relation to adjacent urban development. Property owners need to be aware that riparian vegetation within the *riparian corridor* and *development setback* area is protected under this *Management Plan*. Table 4-7 provides a list of combustible vegetation that should not be planted within high fire hazard areas.

STANDARD 14: *Protect riparian vegetation within the riparian corridor and development setback area. Prohibit planting of combustible vegetation in high fire hazard areas. Thinning of riparian vegetation may be allowed on a limited basis upon review and approval of plans by the City's Planning Director and the Fire Department.*

STANDARD 15: *New development within high fire hazard areas that offers inadequate distance for fire protection will be responsible for fire prevention activities such as visible house numbering, use of fire-resistant and fire-retardant building and landscape materials, in addition to responsible management. Increased setbacks may also be required in these areas where fire protection standards are inadequate to separate the structures from wildfire hazards, rather than clearing of vegetation*

TABLE 4-7. COMBUSTIBLE VEGETATION IN THE CITY OF SANTA CRUZ

Very Combustible These species have a high oil content and will burn rapidly, producing an intense heat.	**Less Combustible** These species have a lower oil content, but are easily ignited; will burn rapidly and produce a high heat.
Black sage	Bush poppy
California yerba santa	California blackberry
Chamise	California wild rose
Coastal sagebrush	Canyon gooseberry
Coffeeberry	Chaparral pea
Coyote brush	Creambush
Huckleberry	Elderberry
Manzanita	
Mountain mahogany	
Poison oak	
Red-berried buckthorn	
Scotch broom	
Scrub Oak	
Sticky Monkeyflower	
Toyon	

Source: City of Santa Cruz General Plan and LCP, 1994

4.5.8 Bank Protection and Erosion Control

For streambank work that involves structural bank protection or stabilization, a plan shall be developed by a qualified hydrologist, engineer, or erosion control specialist. Typically, these plans are subject to review and approval by the CDFG pursuant to a Streambed Alteration Agreement. The plan shall specify actions to protect the streambank as well as an evaluation that the proposed actions will prevent adverse effects on adjacent properties (e.g., cause downstream erosion).

STANDARD 16: *Erosion control measures shall be employed, especially when a project entails work on a bank, to protect the water quality and reduce the amount of fine sediment entering watercourses and wetlands, as well as minimize adverse impacts to riparian and wetland habitats. Channel bank protection and the repair of existing bank repair structures are to use the concepts of biotechnical bank stabilization to the maximum extent feasible. The following measures shall be implemented to control erosion and protect the integrity of watercourse banks, when applicable:*

- *Apply native or other appropriate erosion-control hydroseed mix at all locations with exposed soil and slopes greater than 5% to prevent soil erosion, reduce water pollution, and help preserve the existing landscape character.*
- *Use bio-engineered structures (e.g., rootwads, cribwalls, instream woody debris) or natural materials (e.g., rock slope protection) for banks needing more direct bank stabilization when possible. Materials and colors should be natural in character and indigenous to the region. Rock slope protection areas should also incorporate planting areas to further stabilize and soften the appearance of the rock face. Concrete slab slope protection should be avoided.*
- *Use erosion control blankets in areas requiring more direct soil stabilization when possible. Erosion control fabrics and logs should be installed using biodegradable materials and selected for appropriateness. Certain erosion control fabrics should be avoided due to mesh size/materials known to cause mortality to wildlife species (e.g., small mesh size).*
- *If hard surfaces are used (i.e., rip-rap, gabions, retaining walls or revetments) and riparian vegetation is removed, require revegetation of adjacent disturbed areas within the riparian corridor. Guidelines for revegetation and maintaining and monitoring the revegetation are presented in Appendix H.*
- *Other erosion control and water pollution prevention practices can be utilized as well, as recommended by a qualified professional experienced in riparian restoration and enhancement and approved by the City's Planning Director.*

Guideline: Expand and enhance native woody riparian vegetation to meet designated riparian corridor width. Riparian vegetation will help stabilize eroded channels.

Guideline: Property owners shall implement measures to treat small erosion problems using revegetation and biotechnical slope protection measures when possible.

4.6 PROJECTS SUBJECT TO A WATERCOURSE VARIANCE

Projects that do not comply with the development setbacks or projects requesting exceptions to the Watercourse Development Standards would be subject to Planning Commission review and approval as a Watercourse Variance at a public hearing. Lesser setbacks would be permitted only in unique or extraordinary circumstances. One example would be if application of the minimum setback standards would render the parcel physically unusable for a principal permitted use as allowed in the City's Zoning Ordinance. In allowing a reduction in the minimum setbacks, they should be reduced only to the point at which a principal permitted use (as modified as much as is practical from a design standpoint) can be accommodated. A watercourse variance is not encouraged nor is it a situation that is expected to arise often. However, there may be limited situations in which a variance may be requested based on more site-specific data than is available or included in this *Management Plan*. A variance process is therefore included, consistent with other provisions of the City's Zoning Ordinance.

Zoning Ordinance modifications or variances to required development standards that are not related to watercourse protection (street setbacks, height limits, parking requirements, etc.) should be considered first to offset increased watercourse protection or enhancement. Protection of watercourse setback areas should take priority over other development standards.

Where there is a conflict between general development standards and watercourse and/or public access protection, the standards that are most protective of watercourse habitat and public access should be favored. When considering a variance that reduces total buffer size, setback reductions should be made first to the *development setback area*. In general, variances that permit additional uses within the designated *riparian corridor* and especially the watercourse bed and banks should be avoided.

4.6.1 Special Studies Required for a Watercourse Variance

Additional information needed to evaluate requests for a Watercourse Variance may include the following, depending on the type, scale, and location of the proposed project:

- Site-specific **Biologic and Hydrologic Studies** prepared by qualified professionals submitted by the applicant that justify from a biologic, hydrologic, and geomorphic standpoint the narrower setback or other exceptions to the Watercourse Development Standards requested. The studies must demonstrate that requested setbacks and exceptions to the Watercourse Development Standards would still:

    - Provide adequate area to contain storm water flows and provide water quality improvements; and
    - Protect existing biological values of the watercourse corridor such as shade provision, water temperature maintenance, nutrient filtering, wildlife movement corridors, unimpeded fish movement, and wildlife habitat; and
    - Maintain opportunities for restoration and enhancement, if the area lends itself to restoration or enhancement (contiguous to other habitat, able to sustain riparian area, etc); and
    - No special status plant or wildlife species are present within that portion of the setback area requested to be disturbed or narrowed

- A **Vegetation Management Plan** that identifies native and non-native trees and shrubs to be removed. The plan should show the location, limits, and square footage of the proposed vegetation management, the specific size (diameter at breast height, and tree height), the species of native and non-native trees and shrubs to be managed, their condition and health, and the reason for their removal. The Vegetation Management Plan should also discuss the proposed method of removal (cutting, mowing, spraying) and should include a Planting Plan.

- An **Erosion Control Plan** (prepared in accordance with the requirements contained in Section 24.14.060, subsection (4) of the Municipal Code).

- A **Restoration and Enhancement Plan**, prepared by a qualified professional for restoration or enhancement of the proposed narrower setback, including riparian vegetation and fisheries enhancement, and a Statement that the applicant has committed

to implement the Plan. The Restoration Plan shall also describe how the replanted vegetation shall be monitored.

4.6.2 Project Components to be Included in Requests for a Watercourse Variance

Project features that improve watercourse conditions, provide public open space opportunities or contribute to other watershed-wide benefits should be considered when granting exceptions that will allow reasonable use of the parcel yet provide needed watercourse protection. Project components to be considered (as determined to be feasible or appropriate for the given project) when granting exceptions to the required setback include:

- Habitat restoration using native plant materials.
- The reduced setback maintains to the greatest extent feasible the width of the riparian corridor and development setback area.
- Erosion control and bank stabilization.
- Retrofitting existing parking areas adjacent to watercourses. using permeable materials, incorporating storm water quality management facilities, and berming to direct surface flows away from the watercourse.
- Passive park and open space dedication.
- Trail construction, consistent with General Plan/LCP goals and policies.
- Removal of fish passage barriers.