

# ARROYO MANAGEMENT PLAN (ALAMEDA COUNTY); A PLAN FOR IMPLEMENTING ACCESS AND RESTORING RIPARIAN HABITATS<sup>1</sup>

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*Abstract: Innovative techniques for restoring riparian habitats are of little value without a community endorsed plan for their implementation. A flood control district commissioned the Arroyo Management Plan in order to determine how it might provide public access and improve habitat along its current and future channels in a fast-growing area of Northern California. The Plan, prepared by landscape architects involving local communities and agencies, emphasizes the goals and action items that local agencies need to implement in order for the public to regain the use of their streams and arroyos. The paper discusses the Plan and how it is being implemented.*

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This paper summarizes an adopted plan for the implementation of public access and riparian habitat restoration along flood control rights-of-way. Even though the plan was sponsored by a flood control district, a major plan recommendation is for the involvement and cooperation of all the relevant agencies in the service area in implementing the policies of the plan. In addition to constructing, operating and maintaining recreation and habitat improvements, and accepting liability for these uses, these agencies, particularly the cities, in their role as planning and zoning administrators, can use the plan to guide development adjacent to current and future flood control channels.

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## Introduction and Background

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The Arroyo Management Plan is a master plan for public recreational access and riparian habitat restoration along the flood control channels and arroyos in Zone 7 of the Alameda County Flood Control and Water Conservation District of northern California, U.S.A. The Zone generally encompasses the cities of Dublin, Pleasanton, and Livermore and surrounding area within eastern Alameda county, an area of approximately 160 square kilometers. Like many areas in the San Francisco Bay Region influx of new industries and consequent development pressures are changing these once small communities into sprawling cities which are quickly encroaching onto the open land.

As an agency which interacts with the many city, county, and recreation agencies in the area, Zone 7 saw an opportunity to utilize its legal mandate for rights-of-way along stream channels in a manner which not only fulfills its primary goal of flood control but also provides the public with the added benefit of a recreation and open space system in this urbanizing area. The plan envisions non-motorized travel or recreation along, within, or across natural arroyos or modified channels. Typical uses and benefits expected include walking, hiking, jogging, bicycling, equestrian use, picnicking, nature study, general play, transportation and urban relief.

Two fundamental considerations guided formulation of the plan: 1) at no time is the primary concern of Zone 7 with flood control and water conservation superseded by provisions for public access; and 2) Zone 7 only acts as a coordination agency, not an implementation agency. Responsibility for implementation and maintenance of the access lies with the existing agencies which are already responsible for other recreation and open space systems.

The Arroyo Management Plan (Watson, 1985) is the product of a thorough planning process beginning in August 1984. It included data collection such as (1) site reconnaissance; (2) review of all relevant plans and agency roles; meetings and interviews with nearly 20 agencies; and (3) interviews with 18 other flood control districts and related agencies involving administrative structure, liability, security, design standards, development and maintenance issues related to recreational uses. The Plan involved 1) data interpretation of drainage improvements, land uses, transportation and a trail feasibility inventory which resulted in a list of constraints and opportunities and a discussion of benefits of natural arroyos; and 2) discussion of implementation ideas with options and scenarios, and funding sources.

The above data were presented in graphic and synoptic form at a public evening meeting in Pleasanton. Comments from attendees were received and noted. This input, along with additional agency comments, became the basis for the final draft plan. This draft was presented at a second public meeting in Livermore. After minor revisions, the final plan was presented to the Zone 7 Board and adopted in concept in May 1985.

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<sup>1</sup> Presented at the California Riparian Systems Conference; September 22-24, 1988; Davis, California.

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The complete Arroyo Management Plan is in two parts: the Arroyo Management Plan, a 23-page summary document (the basis of this paper); and the Initial Progress (Background) Report. The summary document contains the essence of the Plan. The 68-page Background report contains the detailed supporting data which were developed during the planning process.

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## Summary

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The primary products of the Arroyo Management Plan are: a) policies and action items outlining agency responsibilities for development, operation, maintenance and security of arroyo trails; b) a set of typical design standards or cross sections (in a format for grant submittals); and c) an overall master plan map showing the location of trails (not included here).

In general there is both a strong overall demand for and very localized opposition to public access along the arroyos. Local general plans consistently call for natural appearing and accessible arroyos. An existing arroyo trail is popular and receives steady use.

Public access along the arroyos was critically reviewed by adjacent landowners. Predictably, some expressed concern about security and privacy. The Plan addresses these concerns by suggesting design standards which provide adequate buffers for privacy and keeps clear of areas in which a trail would be intrusive.

Zone 7 does not have to change its organizational structure to provide public access and opportunities for habitat restoration. The Plan recommends that Zone 7 not engage in the construction, operation and maintenance of recreational trails and habitat improvements along the arroyos, but rather encourage local cities and park districts to undertake these activities along the arroyos as they have elsewhere.

Zone 7 may incur additional costs caused by less convenient maintenance procedures. Such costs, however, can be justified in the face of the rapid urbanization of the Zone 7 area. Failure now to permit and to plan for multiple use of existing (and proposed) flood control channels can only result in even more costly and disruptive attempts to carve out recreation and open space systems later from thoroughly developed land.

The primary responsibility of Zone 7 for flood control and water conservation need not be compromised by inclusion of trails into the same rights of way. Examples from the Santa Clara Valley Water District amply prove that accessible channels can fulfill both recreation and flood control needs. The Arroyo Management Plan presents a unique opportunity to the District and the surrounding community to develop an integrated and economically feasible recreational open space system.

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## Administrative Recommendations

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Based upon the findings of this study, it is recommended that the Zone 7 Board of Directors encourage and promote additional recreational use of the Zone 7 rights-of-way by allowing access along selected arroyos to the extent compatible with the primary responsibilities of flood control and water conservation. The following policies were recommended for adoption:

### Policy A

This policy would permit trail uses along selected existing Zone 7 channels and support dedication of additional rights-of-way widths along selected future flood control projects shown in this Plan to provide adequate space for identified trail uses. It would allow and encourage arroyo trail uses where other agencies will construct, operate and maintain trail improvements, and the particular agency will accept liability for these uses. These Action Items were recommended:

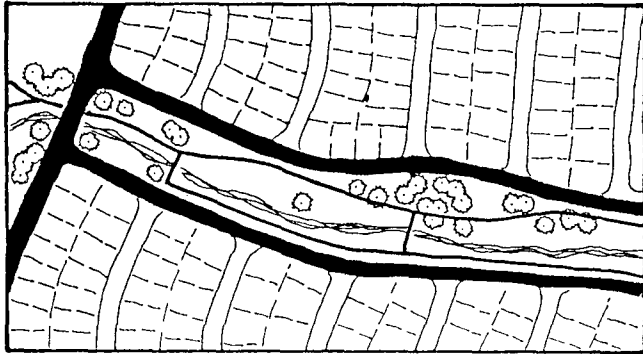
1. Request the City Councils of Pleasanton and Livermore, the Alameda County Board of Supervisors, and the East Bay Regional and Livermore Area Park District Boards to approve resolutions that would: a) support the Arroyo Management Plan; b) express cooperation with Zone 7 in applications to funding sources, and; c) support funding for project implementation within their own jurisdictional areas from outside sources for which Zone 7 is not eligible.
2. Request that law enforcement agencies patrol trails within their respective jurisdictions.
3. Preparation of long term legal instruments with the cities and park districts which assigns responsibility for implementing trail improvements on Zone 7 lands or easements.
4. Cooperation with and support of city or park district efforts to obtain manpower or funding for trail or facility construction, operation and maintenance.
5. Review and approve designs for trail improvements.

### Policy B

This policy would support and encourage city and county policies which would facilitate the construction and maintenance of public access trails along flood control rights-of-way. These action items were recommended:

1. Request that cities institute Conditions for development on all developers of subdivisions adjacent to the arroyos, e.g., circulation patterns of parallel, loop, and cul-de-sac streets as per Santa Clara Valley Water District's (see Fig. 1) creative creekside street design brochure.

## PARALLEL STREETS



Maximum homeowner privacy and security

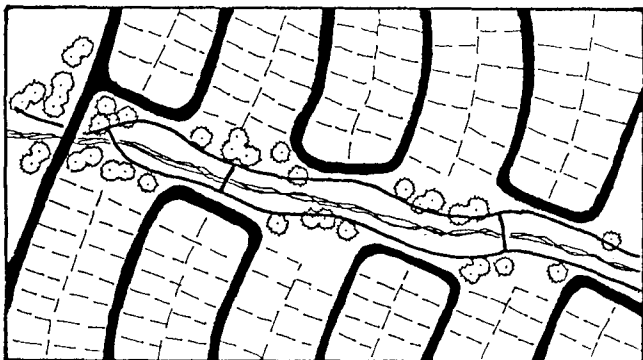
Passing motorists can enjoy the beauty of linear open space

Motorists have more access to linear open space when it is a public park

No backyards or frontyards or sidewalks fronting creeks

May reduce flood protection maintenance costs

## LOOP STREETS



Minimize number of homes exposed directly to creeks

Liberal access to open space by neighborhood residents and motorists

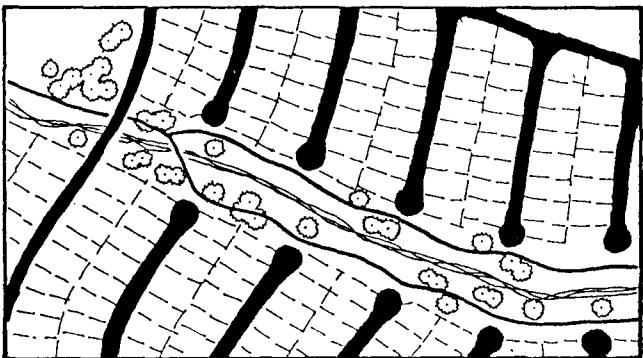
Staggered loops give more visual open space than cul-de-sacs

Pedestrian oriented

Minimum fencing along linear open space compared to old "backyard facing creek" plan

Maximum lot yield with curving loops

## CUL-DE-SAC STREETS



Homeowners prefer over other street types

Pedestrian oriented

Maximum use of linear open space by residents

Allows good physical and visual access to linear open space

**Figure 1** — Street Design. The appropriate layout of streets adjacent to arroyos can accommodate and encourage access onto flood control channel trail systems while safeguarding the privacy of adjacent residents. Originally shown in a brochure produced by the Santa Clara Valley Water District these alternative designs all provide frequent and easy access from nearby streets while enhancing the surrounding neighborhood.

**Figure 1**— Street Design.

2. Request that cities consider incentive zoning where developers would receive a density bonus for contributing to trail development.
3. Request that cities update approved Bicycle Plans in order to qualify for Metropolitan Transportation Commission gas tax funds and Transportation Development Act Federal funds for bicycle trails.
4. Request that appropriate agencies incorporate trails/parks (trailhead) development and maintenance in their work programs as necessary for project facilitation including purchase of additional supplies and equipment for free labor work crews.
5. Encourage cities to implement land use and water management techniques and use of materials which improve groundwater recharge, reduce channel maintenance expenses and adverse environmental impacts (Background Report contains brief descriptions of techniques).

### Policy C

This policy would strengthen communication and coordination between Zone 7, other relevant agencies, and developers affected by the Plan. This Action Item was recommended:

Sponsor the creation of a quarterly convening Coordinating Council to provide a consistent forum for the exchange of information between Zone 7, other agencies, and developers; an earlier and more active role for Zone 7 in planning and design of channel and stormwater systems; and discussion of the implementation of the Arroyo Management Plan.

### Policy D

This policy would provide the public with information on the values of a well-planned flood control right-of-way that includes access improvements. These Action Items were recommended:

1. Publicize the plan widely, in a concise format, to build support and educate community organizations and land developers.
2. Print brochures illustrating preferable creekside street designs (see Santa Clara District example) for planning department distribution.
3. Provide brochures which promote land use and water management techniques, and construction materials which reduce or delay storm runoff.
4. Distribute trail maps to interested public agencies and trail related organizations. Update the maps as segments are completed. Show potential trail development outside of Zone 7 to show its completion.

### Policy E

This policy would promote construction and maintenance techniques that recognize the public benefits derived from public access in naturalized settings. Encourage trail improvements that harmonize with the surrounding natural and man-made environment. These Action Items were recommended:

1. Modify or discontinue use of herbicides and pesticides along trail segments to be compatible with public access and riparian vegetation.
2. Restrict Zone 7 maintenance to property line fences and flood control channels. Permit other agencies, through legal instruments, to maintain riparian vegetation and trail improvements above the 15 year flood plain.
3. Permit bottom growth of reeds and cattails to occur between sediment removal operations To the extent feasible without creating a flood hazard. (Allow overexcavation at the time of silt removal to retain adequate flow capacity.)
4. Analyze the suitability of using excavated sediment for bermed channels (see Fig. 2, Option B), and man-made recreation landforms.
5. Accept dedication of channels with a maintenance road on only one side for heavy equipment access. (The trail within the channel can provide secondary access for lighter flood control maintenance vehicles.)
6. Minimize adverse impacts of trails or channel modification on existing or potential riparian habitats. Protect topsoil and existing trees.
7. Provide adequate space for new riparian habitats to be developed where substantial land-altering construction is needed to create or relocate a channel for flood flows,

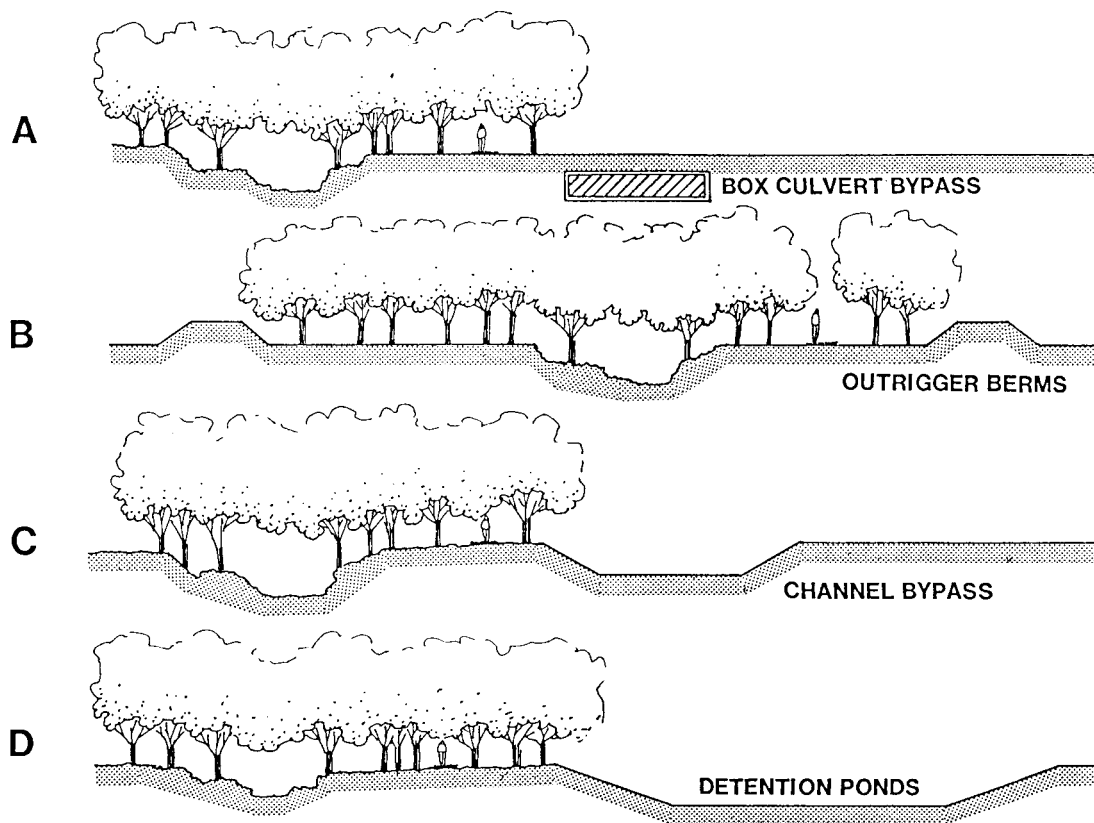
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## Design Standards

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### Existing Flood Control Channels

Although existing channels vary, they are all fenced to preclude public access, have uniform side slopes, lack overstory vegetation, and are designed for maintenance efficiency. The net result is a sterile, uninviting, and visually meager environment. In order to become suitable for public access the channels need to be open and attractive with as rich a variety of natural elements as possible. Obviously, those channels which have vestiges of the natural riparian environment come the closest to these standards, but all the flood control channel configurations have potential to be readapted to create a viable and exciting open space system.



**Figure 2**– Riparian preservation options.

**Flood Control Channels Designed for a Public Trail System**

**Recommended New or Adapted Flood Control Channels**

Trails along flood control channels can be developed by: a) restricting maintenance vehicles to one side of the channel; b) preserving any existing riparian habitat; c) reintroducing riparian habitat above the 15 year flood plain where it has been destroyed; d) permitting bottom growth and shrubs below the 15 year flood plain; e) opening the bottom of the channel to equestrian use; f) establishing a paved trail in lieu of the second maintenance road; and g) providing adequate access points (fig. 3).

These changes would involve no radical reconfiguration of the existing channels, or additional width to the right-of-way. The right-of-way would remain fenced in order to protect the privacy of adjacent landowners.

**Recommended New Channel Construction Where Additional Lands are Available**

In certain cases, especially those where future rights-of-way will be established, Zone 7 may wish to choose for park and recreation purposes, in conjunction with other appropriate agencies, to vary its standard right-of-way (fig. 4). This would allow more leeway in the construction of the channel to include non-uniform variable side slopes, additional trail opportunities, meandering streambeds, and larger areas where riparian habitats can be preserved and/or re-established (see below). This additional right-of-way would require a greater degree of coordination between concerned agencies. The result of implementing this new type of channel construction would not only be a more varied, attractive, and natural-appearing trail system, but a significant park and open space system which could incorporate a wider range of facilities and activities.

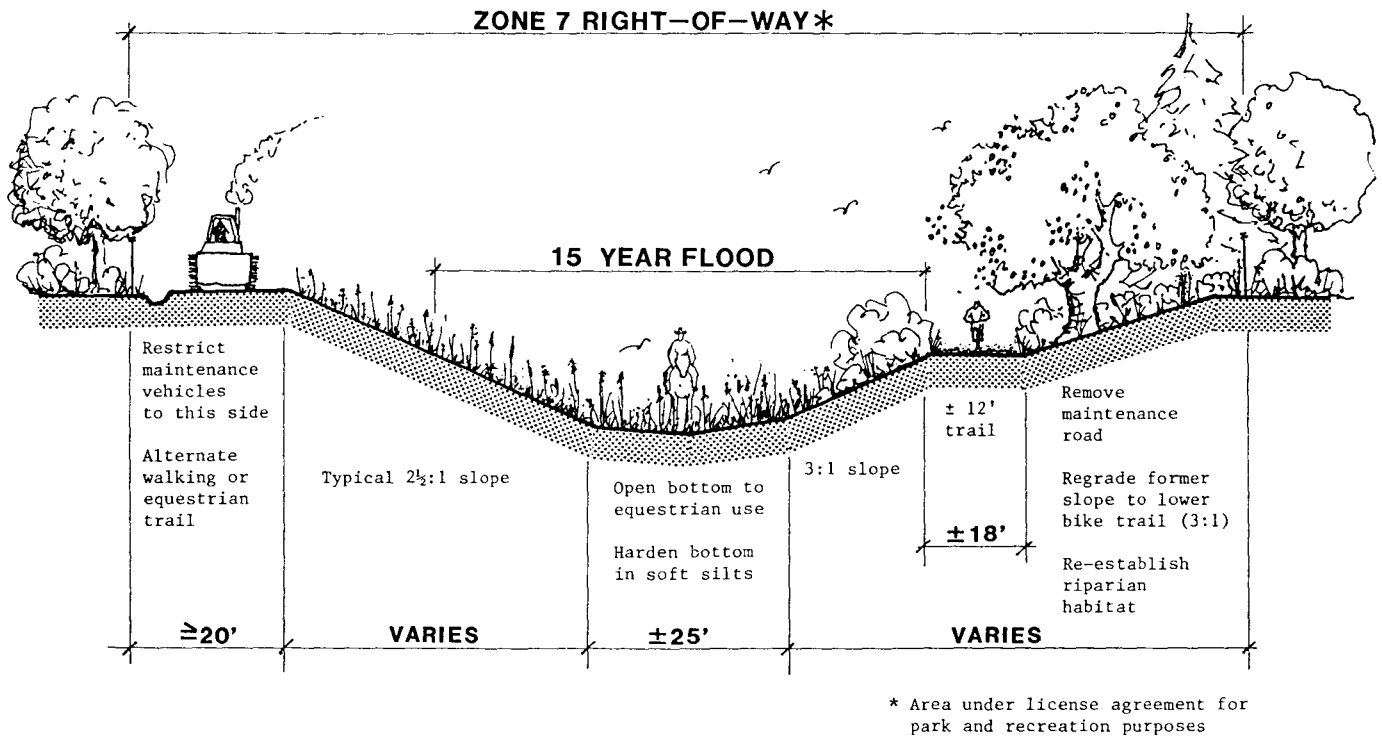


Figure 3- Recommended new or reconstructed ultimate channel.

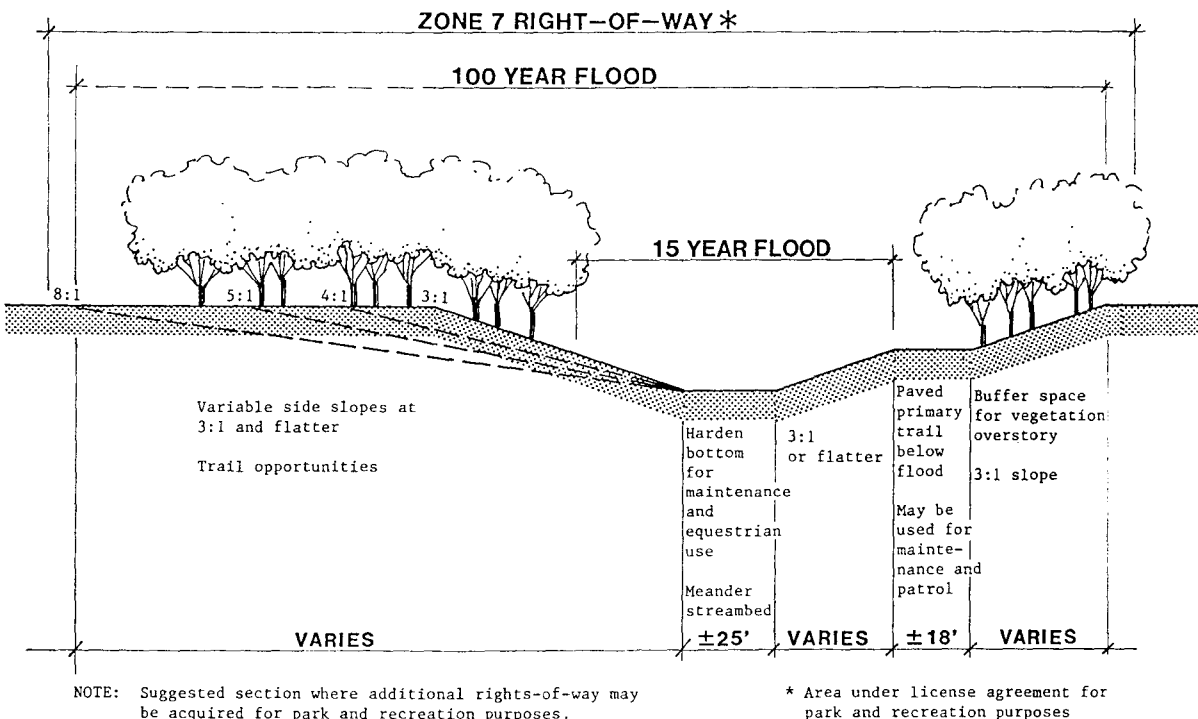


Figure 4- Recommended new channel construction.

## Riparian Woodland Preservation Options

In future development of flood control channels consideration should also be given to methods which can preserve existing riparian habitats while accommodating increased water runoff (fig. 2). As illustrated in the cross sections these are: a) box culvert bypass, h) outrigger berms, c) channel bypass, and d) detention ponds. These options have the double advantage of providing public access and preserving ecologically valuable habitat.

## Facilities Standards

The Plan lists eight items. Of those, two specifically address revegetation and habitat restoration:

- “e) Revegetation should be directed by the Alameda County Flood Control District 'Revegetation Manual' (Harvey and Stanley Associates, 1983). The District should disallow last minute plant replacements under landscape maintenance guarantee conditions and include native or native-like wildflowers in their standard hydroseed mix.”
- “h) The most natural-appearing flood control channels will: Vary side slopes; Have natural surfaces (earth, boulders); Support an overstory of native or naturalized trees and an understory of riparian plant materials; Have a variable width gravel bottom, allowed to support islands, aquatic plants, sand bars; Vary the vertical alignment of trails; and Minimize use of fences, signs, trash cans or other street furniture.”

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## Epilogue

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Largely because of budget constraints and maintenance priorities no channels have been retrofitted to the configurations recommended in the plan. According to one of the Plan's early advocates, the current Zone 7 Board lacks a majority of directors who are interested in seeing a more active implementation of the Plan. Perhaps as growth continues, there will be a renewed interest in utilizing the channels as a means of gaining open space.

Three years after its adoption, however, the Plan is being used. The East Bay Regional Park District Board

adopted a resolution of support in 1985. The City of Pleasanton Planning Department, uses the Plan to guide development adjacent to the channels. The street design options have been particularly useful. The Livermore planning staff uses the Plan as a reference document. The author was recently contacted by the City of Livermore regarding an additional study for an urbanizing section of Arroyo Las Positas. The staffs of the City of Pleasanton and Zone 7 exchange information regularly relating to proposed developments along arroyos. While no formal Coordinating Committee has yet been established, the creation of such a group is still possible, given the explosive growth of the region. Perhaps the additional exposure of the plan through these proceedings will bring it to the attention of other decision makers of the region who can see to its implementation.

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## Acknowledgments

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We thank Bill Owen, landscape architect, and Maria Vermiglio, planner, for their data contributions to the original plan. We also thank Margaret Tracy, Zone 7 Director, and the Zone 7 staff for their support.

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