CHAPTER 10.
SUMMARY OF RECOMMENDED ACTIONS

The recommendations for the CFHMP study area presented in this chapter are a result of the analysis approach described in Chapter 7 and discussed in Chapters 8 and 9. Based on discussions and review with the Advisory Committee, selected alternatives are primarily nonstructural. The committee decided that a combination of modified regulations; land use controls; public education; additional planning, evaluation, and data collection; and enhancement to a few existing flood control structures would be the best approaches to managing flood hazards within the study area. The results of voting by Committee members are summarized in Appendix H for each evaluated flood hazard management alternative. Flood management actions are presented by type of action and summarized Table 10-1.

REGULATORY MEASURES

Expand the Flood Overlay Zone

The County should expand the Flood Overlay Zone (FOZ) to include the entire floodplain. This designation, which should be similar to the FOZ found in the Yakima Urban Area Zoning Ordinance would reinforce requirements for new development to be constructed to NFIP standards identified in the CAO, and would increase scrutiny of floodplain development.

Expanding the FOZ would provide a means by which the County and City could review development proposals and require appropriate and consistent mitigation strategies. A County-wide FOZ would also serve to bring more consistency and clarity to existing and future land use plans and zoning regulations. The FOZ will support floodplain property disclosure by triggering project reviews for new projects or use changes within the established FOZ.

Modify Ordinances to Reduce Flood Hazards and Increase Regulatory Consistency

The following actions are recommended to increase regulatory consistency and reduce flood hazards:

- Sections 5.28.020(1)(a), 5.28.020(2), and 5.28.020(3) of the County's CAO should be revised to require all new construction and substantial improvement to be elevated or floodproofed 1 foot or more above the revised BFEs, regardless of intended land use, and provide emergency access to the structure.
- CAO Sections 5.32.010(2) and 5.36.010(2) pertaining to requirements for siting utility lines in the floodway fringe and floodway should be consolidated within Section 4.14 pertaining to siting of utilities in HRCAs. The existing sections in Chapter 5 should refer to standards set forth in Section 4.14.
- CAO Section 5.36.010(1) should be deleted. Provisions requiring evidence that surface mining will not divert flood flows, accelerate flooding, or increase threats to upstream areas should be relocated to Section 4.18.040. Surface mining in floodway fringes and floodways would change from a permitted use as described in Section 5.36.010(1) to a conditional use as described in Section 4.18.

- A new CAO Section 5.28.010(d) should be added as follows:

  (d) Critical Facilities

  Construction of new critical facilities shall, to the extent possible, be located outside the limits of the base flood plain. Construction of new critical facilities shall be permissible within the base flood plain if no feasible alternative site is available. Critical facilities constructed within the base flood plain shall have the lowest floor elevated to 3 feet or more above the level of the base flood elevation at the site. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into flood waters. Access routes elevated 2 feet or more above the base flood elevation shall be provided to all critical facilities to the extent possible.

- Add the following definition to CAO Chapter 2:

  Critical Facility means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools; nursing homes; hospitals; police, fire, and emergency response installations; and installations that produce, use, or store hazardous materials or hazardous waste.

- Revise CAO Section 5.20.010 to refer to the revised FIS and FIRMs or the best available flood information.
- The County should determine if each jurisdiction's shoreline ordinance requires mitigation similar to zero-rise methods for the area within 100 feet of the OHWM or floodway. If so, language from the shoreline ordinances should be repeated in each jurisdiction's flood hazard ordinance. If not, Yakima County CAO Section 5.28.010(a)(3) should be reproduced in each jurisdiction's ordinance.
- City jurisdictions should integrate flood hazard items included in the County's CAO that are not specified in their respective FHOs or CAOs or develop an inter-local agreement creating a FHO that applies across jurisdictional boundaries.
- Compensatory storage requirements should be added to the County's CAO. This requirement is a method of reducing the effects of filling in the floodplain. Whenever fill material is added, the area that the fill occupies is removed from the potential flood storage area. Under compensatory storage requirements, an individual placing fill in the floodplain must excavate an area of equal volume to compensate for the effects of the fill on flood storage.
- The subdivision ordinance should require written floodplain disclosure to be placed on plat maps for all newly created parcels wholly or partially in the floodplain.

The benefits of these actions include regulatory clarity, elimination of redundancy, consistent floodplain management, and a possible decrease in flood hazards if enhancements are adopted.

Adopt or Develop Flood Hazard Management Policies

The County should adopt or further develop the following flood hazard management policies:

- The County shall manage the Yakima River floodplain to protect its natural hydrologic and hydraulic function, to store and slowly release floodwaters, and to reduce flood velocities. This policy is proposed in *Plan 2015*.
- The County shall give preference to nonstructural flood management measures in future flood management decisions. If a structural alternative, such as a levee, is the only feasible option, it shall be designed to meet COE standards before receiving County approval.
- The County shall require all new flood-control projects to define maintenance responsibilities and a funding source for operations, maintenance, and repairs before acceptance by the County.
- The County should develop a flood hazard management funding policy similar to policy statements already generated as part of Capital Facilities Element of *Plan 2015. Plan 2015* policies, similar to what could be applied to a flood management program, include the following:
  - — Base the financing plan for capital facilities on realistic estimates of current local revenues and external revenues that the County can reasonably expect to receive.
  - — Capital facilities should, in general and where appropriate, be financed from the following priority array: first, from other sources (such as donations, grants, other outside sources); second, from benefited groups (such as local improvement districts, user fees, connection charges, dedicated capital reserves); third, from the general population (such as general obligation bonds, commissioners bonds, other loans, and general capital reserves); and fourth, from mitigation.
  - — Both existing and future development should pay a proportionate share of the costs of needed capital improvements.

LAND USE RECOMMENDATIONS

Modify Land Use Plans and Development Regulations

County and City land use plans and development regulations should be revised and enforced to prevent future increases in flood hazards. Actions necessary to implement long-term land use changes include the following:

- Revise land use plans by removing urban zoning designations from the floodplain near Hartford Road, Pomona, and Selah areas or limit development density through Class 2 review process by requiring residential clustering and mitigation actions consistent with the CAO.
- Enforce the requirements of Chapter 5 of the CAO to any future development either as part of a Class 2 review necessitated by the FOZ or as a condition for approval of FOZ categorical exemption.
- Monitor cumulative effects of subdivisions and buildout in the FOZ. If warranted, develop review procedures to reduce cumulative effects of such development and amend the procedures to the existing subdivision ordinance.

- County and City land use plans and development regulations should be revised to ensure that urban areas within the floodplain are dedicated to long-term open space or low-density development with structural mitigation. GR and SR zoning in the floodplain allows development of 2 units per acre and 1 unit per acre, respectively. The potential for flood damage would increase if buildout were to occur at this density.
- Monitor land use changes following adoption of the GMA comprehensive plan. Ensure that future plan amendments are consistent with overall CFHMP goals and policies.
- As part of future comprehensive plan amendments, consider adopting the CFHMP as a comprehensive plan element. GMA requirements for internal consistency will then apply to land use recommendations in both documents.

Promote Open Space in the Floodplain

Preserving and promoting open space within the floodplain is consistent with the long-term CFHMP objective of promoting floodplain uses compatible with periodic flooding. Recommended actions to enhance open space within the floodplain include the following:

- The County should continue to operate and promote the Open Space Taxation Program. A public awareness campaign should be conducted to promote the program.
- Undeveloped County-owned parcels should be designated as open space or integrated into the Yakima Greenway master plan.
- The County should apply design standards of the Greenway Master Plan during Class 2 review of developments within the floodplain.
- The County should consider extending the Greenway Overlay Zone beyond the Yakima Urban Area within conservation, recreation, and natural areas designated in the Greenway Master Plan.

PUBLIC EDUCATION AND AWARENESS RECOMMENDATIONS

Additional Flood Hazard Management Personnel

The County should hire additional flood hazard management personnel to direct the implementation of this plan and surface water management plans or projects throughout the County. Currently, the County does not have the staff to implement an effective surface water management program. A full-time staff person, working with public works and planning, could lead many of the public education and awareness recommendations described below, as well as review all structures proposed within the floodplain.

Enroll in the Community Rating System

The County should enroll in the CRS using a "short form" (FEMA 1994). The purpose of the short form is to assist a jurisdiction with at least 500 credit points to achieve a Class 9 rating

quickly and realize immediate savings on policy premiums. The full application, with additional details, may be completed at a later date to realize further savings .

The County should submit the full application to update its CRS rating following adoption of the CFHMP. Full application will provide the greatest benefit when many of the structural and nonstructural recommendations of the CFHMP have been implemented. Many of the CFHMP recommendations would receive CRS credit.

Perform a Detailed Flood Audit of Floodplain Structures

The County should perform a detailed flood audit to provide information on specific flood hazards for structures within the floodplain and floodway. The flood audit would provide residents with information on actions to take prior to, during, and after a flood that are specific to their location and residence. The audit could also address specific public structures.

The program could be similar to the COE's flood audits and include the following activities:

- **Field Reconnaissance:** A field reconnaissance is performed to collect elevation data and record structural characteristics of each specific structure.
- **Nonstructural Evaluation Computer Program:** A nonstructural evaluation computer program, developed by the COE, uses the data collected in the field and predictions of floodwater elevations to evaluate costs and benefits of a variety of nonstructural flood reduction measures.
- **Mailing to Floodplain Residents:** A packet of materials is mailed to each resident describing actions to take prior to, during, and after a flood; evacuation routes; areas of floodwater inundation; neighborhood homes below flood warning levels; and recommended nonstructural measures to floodproof their home.

Upon identifying high risk structures, the County should pursue funding through the Reigle Community Development and Regulatory Improvement Act, Robert T. Stafford Disaster Relief and Emergency Assistance Act, and Flood Control Assistance Account Program to provide cost-sharing to floodplain residents for floodproofing, elevation, and relocation of previously flood-damaged structures on a voluntary basis.

A few structures were identified as part of this CFHMP to be at high risk to flooding. These structures include the City of Union Gap's pump station, Yakima Greenway facilities, and the Elks golf course. It is recommended that the City of Union Gap raise the electrical box at their pump station to a minimum of one foot above the February 1996 flood elevation. While it is inevitable that Yakima Greenway facilities and the Elks golf course will experience flood damage due to their location, the following are recommended to minimize flood impact:

- Floodproof repetitively damaged structures by moving them to a higher elevation or installing flood walls or sealants
- Rebuild Greenway pathways to higher design standards, such as using more erosion-resistant embankment protection

- The owner should establish a maintenance budget to provide funding for the repair of inevitable future flood damage to Yakima Greenway pathways and the Elks Golf Course
- Establish flood response teams to remove temporary structures when a flood event is imminent
- Educate Greenway users about flooding by installing interpretive signs near damaged sites describing floodplains, floodways, effective floodplain management, and how various actions can aggravate flooding and flood damage.

Disseminate Floodplain Information

The County should acquire from FEMA and make available floodproofing references and fact sheets to citizens. Floodproofing materials could be distributed with flood information brochures to libraries, fire departments, chambers of commerce, and city offices throughout the County. Educational material distribution will increase property owners' knowledge of preventative flood-control measures.

Floodplain information should also be disseminated through other methods. The County should perform direct mailings to floodplain residents or publish a newspaper announcement prior to flood season. The direct mailing or newspaper announcement could include maps showing areas of predicted inundation; actions to take prior to, during, and after a flood; evacuation routes; information on the NFIP; information on the Open Space Taxation Program; and County contacts to acquire additional information.

Provide Guidance on Private Bank Protection Projects

Erosion of private property and agricultural land was identified as a flood-related issue in this CFHMP. To address this issue, the County should provide guidance for implementing private bank protection projects. Residents should continue to fund and implement bank protection projects as needed for their property. During project review, the County should support bioengineering methods to address the hydraulic nature of Yakima River bank erosion and follow established bank protection guidelines (e.g., King County 1993). In addition, the County should adopt and enforce design standards, such as onsite detention, to limit or mitigate increased erosion resulting from new development.

PLANNING, EVALUATION, AND DATA COLLECTION RECOMMENDATIONS

Develop Long-term Gravel Management Plan

To provide a reliable source of gravel while maintaining the natural function of the Yakima River floodplain, it is recommended that DNR act as a lead agency with support from the County to develop a workable gravel management plan. Gravel reclamation plans should be distributed to local agencies and interested parties. Comments on proposed plans should be discussed and issues resolved. If there is sufficient interest, a surface mining advisory committee could be formed. RCW 36.70A.020 codifies the goal of encouraging the involvement of citizens in planning processes and coordinating between communities and jurisdictions to reconcile conflicts. The surface mining advisory committee could be an efficient way to address

this planning issue. The committee is not required to do so, but would provide a means of obtaining public acceptance and interjurisdictional coordination in developing countywide gravel management goals and policies. If additional information is required, the committee should recommend additional studies to determine flood protection benefits associated with gravel extraction. The goal of the committee should be to produce a long-term gravel management plan.

Obtain Accurate Floodplain Maps

Flood Insurance Rate Maps (FIRMs) are critical to the management of floodplains. Floodplain maps must reflect flood hazards to be used effectively. The extent of the 100-year floodplain and associated hazards has long been debated in Yakima County. Several areas on the FIRMs do not reflect flood hazards observed in historical floods. The following are recommended to better assess flood hazards for appropriate management of the floodplain:

- The County and other local jurisdictions should adopt the 1995 preliminary revised floodplain maps on an interim basis. The maps should be used to enforce floodplain hazard ordinances for new development. Adopting the revised maps would eliminate many of the inaccuracies in the 1985 maps.
- The County should pursue updating their maps through the following actions:
    1. Compile high water elevations from the February 9, 1996, flood. The COE surveyed high water elevations throughout the floodplain (Weber, J., 19 June 1996, personal communication), which should be used to verify the hydraulic model used to define regulatory floodplain boundaries.
    2. Obtain accurate topographic data throughout the floodplain, especially in areas of suspected inaccuracy, such as the Gordon Lake levee, downstream of the SR 24 bridge, and East Selah.
    3. Submit certification forms and supporting data to FEMA to obtain a Map Revision following FEMA guidelines (FEMA 1990).
    4. Request that FEMA produce maps based on future-conditions hydrology. As flooding worsens as a result of watershed development, floodplains need to reflect these conditions.
    5. Request that FEMA produce a digital floodplain map that combines all jurisdictions and reflects recent data
- The County's CAO should be enforced based on best available data, such as data obtained from recent floods. Development, floodproofing, and elevation building standards should be based on high water observed during the February 1996 flood.
- The County should integrate areas of rapid channel migration into their flood hazard maps. Development should be limited in these areas as it is in floodways.

Expand the CFHMP to Include Entire County

The following are recommended to address flooding issues outside the study area, to provide consistent floodplain management across the county, and to integrate the diversity of opinions relating to river management:

- The County should expand the CFHMP to include the entire County, as funding becomes available.
- The County should expand CFHMP planning to other areas of the County on a watershed basis. Comprehensive planning should concentrate on high-damage areas such as Ahtanum, Bachelor, Wide Hollow, and Wenas Creeks, and the Upper Naches and Lower Valley
- The County should continue CFHMP Advisory Committee meetings on an ad hoc basis and maintain a forum for coordination between cities and the Yakama Indian Nation since surface water does not follow jurisdictional or political boundaries but flows within natural watersheds. Funding arrangements should recognize the cross-jurisdictional nature of the natural watersheds. Officials should meet regularly to discuss flooding and surface water issues, funding options, and the progress of the implemented program.
- The County should review other plans, such as the Yakima River Watershed Management Plan currently being prepared by the Yakima River Watershed Council, for consistency with the CFHMP. The County should participate in other river management planning processes, and invite personnel from other river interest groups to future CFHMP Advisory Committee meetings.
- The County should adopt the CFHMP as part of *Plan 2015* to ensure consistency of land use recommendations and provide goals and policies to direct future flood hazard management decisions.
- The County should adopt the Comprehensive Stormwater Management Plan to reduce localized flooding in the Yakima Urban Areas.

Gather and Maintain Flood Hazard Data

The County does not have a system of collecting and archiving flood hazard data. These basic data are critical for planning and for determining program effectiveness over the long term. The following data management recommendations address several identified flood issues:

- The County should develop a high water elevation database to evaluate changes in river channels and trends in high water elevation. The database could include flood elevations over time at a specific location, historical aerial photographs, changes in surveyed river cross-sections, and a historical record of flood damage areas.
- The County should continue to use their GIS system for flood hazard management. This could include obtaining from FEMA the best available digital flood hazard map and flood damage data to identify high risk areas; assembling a GIS database documenting closed and damaged roads from

historical flood events for use in establishing a priority for mitigation of flood damage to roads; and continuing the use of GIS as a permit review tool.

- The County should continue to update and maintain the flood control facility inventory database that was developed as part of this CFHMP.

Consolidate Flood Facility Maintenance Requirements

The County should consolidate maintenance requirements following the steps listed below and described in Chapter 8:

1. Update the 1955 Operation and Maintenance Manual
2. Clearly define vegetation maintenance requirements
3. Combine maintenance requirements into one document
4. Standardize County inspection forms
5. Annually update the flood control works inventory.

Enhance Flood Warning and Emergency Response

The following actions are recommended to improve the level of flood preparedness in the Yakima Valley:

Short-term

- Formalize procedures for dispatching field teams and volunteers to critical locations along rivers and creeks to manually collect real-time river information
- Obtain and compile from the BOR time delays in flood peaks between locations along the Yakima River for various flood magnitudes
- Based on the county-wide road closure/damage database, develop an emergency response plan that includes maps displaying road closures and emergency routes at various river stages
- Continue to communicate to the public the policy on sandbag distribution during flood events.

Long-term

- Develop flood inundation maps for distribution to the public
- Install real-time, automatic gauging stations within the upper watershed of tributary creeks
- Create an automatic telephone notification system, such as a Community Alert Network (CAN), for use at the EOC.

Promote Fish Habitat Enhancement

Maintaining river channel complexity can enhance floodplain storage and channel conveyance and therefore reduce flood damage as well as enhance fish habitat. Opportunities are available in the Yakima Valley to enhance fish habitat as well as increase floodplain function to convey flood waters. The following are recommended to promote fish habitat enhancement:

- The County, WDFW, and the Yakama Indian Nation should identify and list specific fish habitat enhancement areas (a "wish list") that are consistent with comprehensive floodplain management and that could be quickly acted upon as funding becomes available.
- The County should submit a letter of intent for participation in the COE 1135 program to obtain funding for fish habitat restoration along the COE levee project. WDFW and the Yakama Indian Nation should act as the lead agencies in identifying enhancement opportunities, with the County providing a support role. Prior to submitting a letter of intent, the County, the Yakama Indian Nation, and WDFW should agree on who will provide the 25 percent matching funds.
- The County should incorporate fish habitat enhancements or mitigation into future flood hazard management projects by using backwater channels, riparian planting, and placement of large woody debris.

ENHANCEMENTS TO FLOOD CONTROL STRUCTURES AND ROADS

Flood control structures and roads within the Yakima River floodplain experience various degrees of flood damage. Mitigation measures were developed to reduce the potential for continued damage or the risk of future flooding. Mitigation measures are presented by structure.

East Riverbank Levee downstream of SR 24

Diking District No. 1 wishes to provide additional flood protection to landowners along the eastern side of the Yakima River downstream of SR 24. An existing riverbank levee provides protection not displayed in current FEMA floodplain maps; however, the levee is poorly constructed and exhibits structural problems that could lead to a channel avulsion during the next significant flood event. To address this issue a two-phased alternative is proposed.

During the first phase, it is recommended that the levee be strengthened to provide protection to existing gravel operations by replacing poorly graded fill with compacted, well-graded fill, flattening the eastern embankment levee slopes, and controlling seepage with cutoff trenches or an impervious core. Restoration should extend downstream as necessary to protect existing gravel operations. The levee top elevation should not be raised since it would further constrict flood flows within the regulated floodway and would be inconsistent with Section 5.36.010 (1) of the CAO.

During the second phase, it is recommended that a portion of the floodplain behind the existing east bank levee be restored. Following gravel extraction, the levee and gravel ponds should be modified to allow conveyance of flood flows behind the levee. Reclaiming the floodplain could involve producing a hydraulic link between the Yakima River and gravel ponds by lowering a section of the levee to take advantage of the interconnecting and egress channels between adjacent gravel ponds (Figure 10-1). This would reduce flood damage on the west bank, increase floodplain storage, enhance fisheries habitat, and increase the conveyance area for an already constricted floodway. The amount of flood flows conveyed behind the existing levee would be determined during the design process by obtaining detailed topographic data and performing a hydraulic analysis. Design flows behind the levee would be selected to limit the

impact of flooding on property near Riverside Road. If needed, a setback levee could be integrated into the design to protect property near Riverside Road. (Diking District No. 1 is currently opposed to the second phase of this project.)

Beech Street Gravel Pit Levee

The Yakima Beech Street pit is separated from the Yakima River by a riverbank levee. The levee is part of the COE-authorized levee system and provides 100-year flood protection. A levee breach or failure during a significant flood event could cause flood damage to existing gravel pit equipment, and possibly cause a sudden and drastic channel migration, which could direct floodwaters into areas that previously experienced minimal flooding. During the November 1990 and February 1996 floods, County crews observed excessive levee erosion and were concerned that a levee might fail or be breached.

The existing levee requires stabilization. The COE placed fill in the eroded levee section, but levee erosion is likely to occur again in the next flood event. Installation of spur dikes and additional bank protection is recommended to reduce the Yakima River's erosive energy along this levee.

In the long term, floodplain function should be restored at the gravel pit. This could be accomplished by allowing flood flows to enter the abandoned gravel pit in a controlled manner and be transported downstream through interconnecting and egress channels. This could be accomplished through subsurface flow or by placing culverts through the levee. This would increase floodwater conveyance capacity and floodplain storage, reduce flood water elevations, enhance fish habitat, and limit the potential for sudden channel avulsions (Figure 10-2).

East Selah Gravel Pit Levee

The East Selah gravel pit, adjacent to I-82 south of Harrison Road, was protected by a riverbank levee along the west perimeter of the property prior to the February 9, 1996, flood. During that flood event, the levee failed and the river channel shifted through the gravel pit. The gravel pit was inundated, stockpiled gravel was recaptured by the river, channel degradation and aggradation occurred, and part of two lanes of southbound I-82 was lost to bank erosion just upstream of the pit. Following the February 1996 flood, gravel pit levees were rebuilt with additional spur dikes and embankments to protect the levee and I-82.

In the short term, the effectiveness of recently installed spur dikes should be monitored during flood events to ensure that they are protecting I-82 and the East Selah pit levee. Following gravel extraction, long-term modifications should include a levee designed to overtop during large flows. The existing levee constricts the floodway and directs flood waters to the opposite bank. Long-term gravel pit restoration should enhance some of the floodway function. An overflow channel should be constructed within the gravel excavation area to provide conveyance of flood waters; this would increase floodway conveyance capacity and floodplain storage, reduce flood water elevations on the west bank, enhance fish habitat, and limit the potential for a sudden channel avulsion.

Gordon Lake Levee

The Gordon Lake levee extends along the right bank of the Naches River between I-82 and the Burlington Northern Railroad grade near the confluence of the Naches and Yakima Rivers. The revised Flood Insurance Study (FEMA 1995) identified elevations at the levee's east end to be below freeboard standards. As a result, the 100-year floodplain boundary extends downstream of Gordon Lake, across North First Street, and downstream along the west side of I-82. The levee contains floods up to and including the 100-year event, but has less than 3 feet of freeboard for events greater than the 50-year (FEMA 1995). Since levee elevations are below FEMA standards, floodplain boundaries in this area were determined as if weir flow would occur through the underpass of SR 12.

The existing levee should be raised to FEMA standards based on water surface elevations observed during the February 9, 1996, flood. The levee would have minimal environmental impact and would allow removal of a portion of the regulatory floodplain. The regulatory floodplain would then better reflect existing flood hazard conditions, since flood events have historically produced minimal flooding downstream of Gordon Lake.

KOA Campground Levee

The KOA levee performed well during the February 1996 flood event. Damage was minimal given the severity of the flood event and location of the levee. Based on the performance of the levee during that event, it is recommended that the COE strengthen the damaged section of levee by adding additional riprap and plant willows to provide additional bank protection. In addition, the spur dikes should be inspected during low flow and repaired as needed.

Roads within the CFHMP Study Area

Numerous County, State, and Federal roads suffer damage during flood events accounting for a significant portion of flood repair costs. Many of the repetitively damaged roads are outside the study area; however, recommendations for roads within the study area include the following:

I-82 at Selah Interchange—Obtain detailed topographic data in this area to define flow paths and examine the feasibility of raising the highway shoulder to direct floodwaters toward the main channel.

I-82 at Union Gap Interchange—Obtain detailed topographic data in this area to define flowpaths and river hydraulics and examine the feasibility of raising the highway or railroad grades, or increasing the conveyance capacity of Ahtanum Creek near the mouth to direct floodwaters away from the freeway.

I-82 South of Union Gap—Obtain detailed topographic data in this area to define flowpaths and river hydraulics to examine the feasibility of redirecting flood flows from the east side of the freeway near the I-82 bridge to the main channel through the existing highway culvert.

SR 823 near Elks Golf Course, SR 12 near 16th Avenue, and Thorp Road— Install additional bank protection using bioengineering techniques.

SR 24 East of Yakima River—Evaluate raising SR 24 above the 100-year flood level during the expansion to four lanes.

FUNDING RECOMMENDATION

The County should develop a county-wide flood control district, or flood control districts for high priority watersheds, initially funded through regular levies with additional funding from service charges, as needed. The establishment of a flood control district will dedicate a source of revenue to implement the recommendations in this plan. Once a dedicated source of revenue has been established, additional service charges or outside funding can supplement additional improvements or programs if the community desires. In addition, the County should continue to actively pursue outside funding in the form of federal and state grants and loans (see Table 9-2).