

RESOLUTION No. 900

A RESOLUTION ADOPTING THE CITY OF PRINEVILLE/CROOK COUNTY FLOOD MITIGATION ACTION PLAN

WHEREAS, the City of Prineville established goals for flood recovery and hazard mitigation through a public process, and

WHEREAS, the City of Prineville formally adopted these goals and used them to draft a Flood Mitigation Action Plan, and

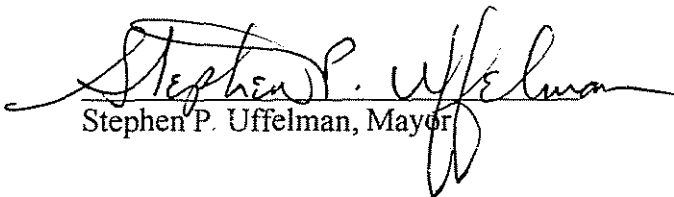
WHEREAS, the guidelines established in the Flood Mitigation Action Plan are currently being used to guide the City's continuing efforts to recover from the 1998 flood and mitigate the impacts of future flood events, and

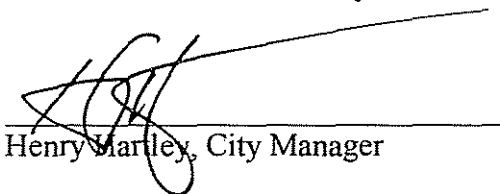
WHEREAS, the City of Prineville has a continuing commitment to the reduction and mitigation of flood hazards,

NOW, THEREFORE BE IT RESOLVED THAT THE CITY COUNCIL OF THE CITY OF PRINEVILLE, OREGON, HEREBY ADOPTS THE CITY OF PRINEVILLE/CROOK COUNTY FLOOD MITIGATION ACTION PLAN, ATTACHED HERETO AS EXHIBIT "A," AND AS MAY BE AMENDED FROM TIME TO TIME.

Approved by the City Council this 11th Day of September, 2001.

Signed by the Mayor this 11th Day of September, 2001.

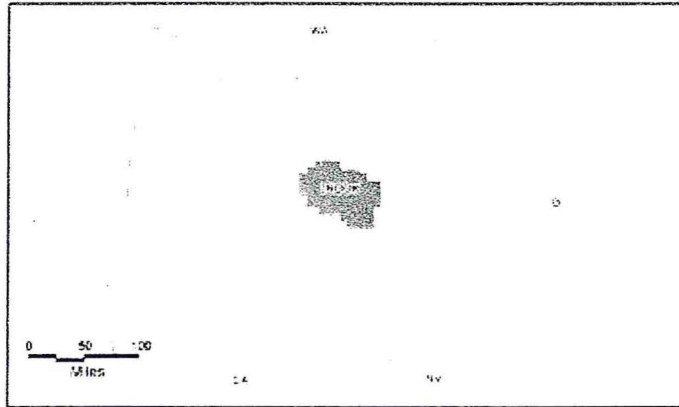

Stephen P. Uffelman, Mayor


Henry Martley, City Manager

Attachement A

Resolution 900

**CITY OF PRINEVILLE/ CROOK COUNTY
FLOOD MITIGATION ACTION PLAN**



July 30, 2001

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Crook County, Oregon

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FEMA HAZARD MITIGATION GRANT PROGRAM
CITY OF PRINEVILLE / CROOK COUNTY, OREGON

FLOOD HAZARD MITIGATION PLAN
TABLE OF CONTENTS

Purpose and Authority Page 1

Description of Flood Hazards & Risks Page 2

The Planning Process Page 5

Prineville / Crook County Flood Recovery Priorities..... Page 7

Prineville / Crook County Floodplain Management Goals..... Page 9

Recommendations for Achieving Floodplain Management Goals.....Page 10

Progress to Date on Recommended ActionsPage 15

Implementation / Future Progress.....Page 19

FEMA HAZARD MITIGATION GRANT PROGRAM
CITY OF PRINEVILLE/ CROOK COUNTY, OREGON

FLOOD MITIGATION ACTION PLAN

PURPOSE AND AUTHORITY

This planning effort was spurred by the May 1998 flood (DR 1221), and this Action Plan is intended to provide strategies for long term hazard mitigation, as well as short term flood recovery. This plan has been prepared with the intent of meeting the requirements of 44 CFR 78.5 (Flood Mitigation Plan Development). The City/County strategy for reducing flood risks is outlined in the following pages.

This document outlines floodplain management goals, actions meant to further the purposes of those goals, and measures to ensure that efforts to continue to be monitored and updated as the City and County grow and change. Recommendations contained in this report are derived from two main sources. One is the FEMA-DR-1221-OR report that was developed for the City and County by the FEMA Interagency Hazard Mitigation Team. The other is the public process that the City and County developed in order to receive direction from the community regarding flood recovery and hazard mitigation.

For the purposes of this document, hazard mitigation will be defined as “any action taken to eliminate or reduce the risk to human life, property, and the environment caused by a hazard.” All mitigation suggestions presented in this plan should, when appropriate, be considered by the City of Prineville and Crook County to help prevent and offset similar disaster related damages that may occur in a future flood event.

This document is not intended to supercede any existing policies and plans of the City of Prineville and Crook County. Rather, it is intended to outline general suggestions that should be incorporated into the general policies and practices of the City and County over time. For instance, this document should be revisited during the City’s next periodic review and comprehensive plan update. The Flood Mitigation Action Plan is a document that should continue to be refined over time.

DESCRIPTION OF FLOOD HAZARDS AND RISKS

The most recent flood event in the Prineville/Crook County area occurred on May 28, 1998. This was a major event, and the following narrative describes the flood and the resulting damage. This narrative is meant not only to depict what actually happened, but to impart an understanding of the nature and quantity of risks the City and County are facing.

The 1998 flood was triggered when a large storm system moved into Prineville and Crook County in central Oregon, releasing approximately 7 inches of rain over a 24-hour period. This amount of precipitation was unusually high, since rainfall in Crook County averages approximately 10.5 inches per year. The Ochoco reservoir was full at the time of the storm because of the upcoming summer irrigation season. The high rainfall, in combination with several other factors, resulted in the overtopping of the reservoir's spillway with a discharge in the range of a 50-100 year storm event. Ochoco Creek, which runs through the most heavily populated sections of Prineville and unincorporated Crook County, caused most of the damage. Other creeks, particularly McKay Creek, located in less populated areas also flooded and caused damage. A map indicating the general location of flooded areas within downtown Prineville is included in Figure 1.

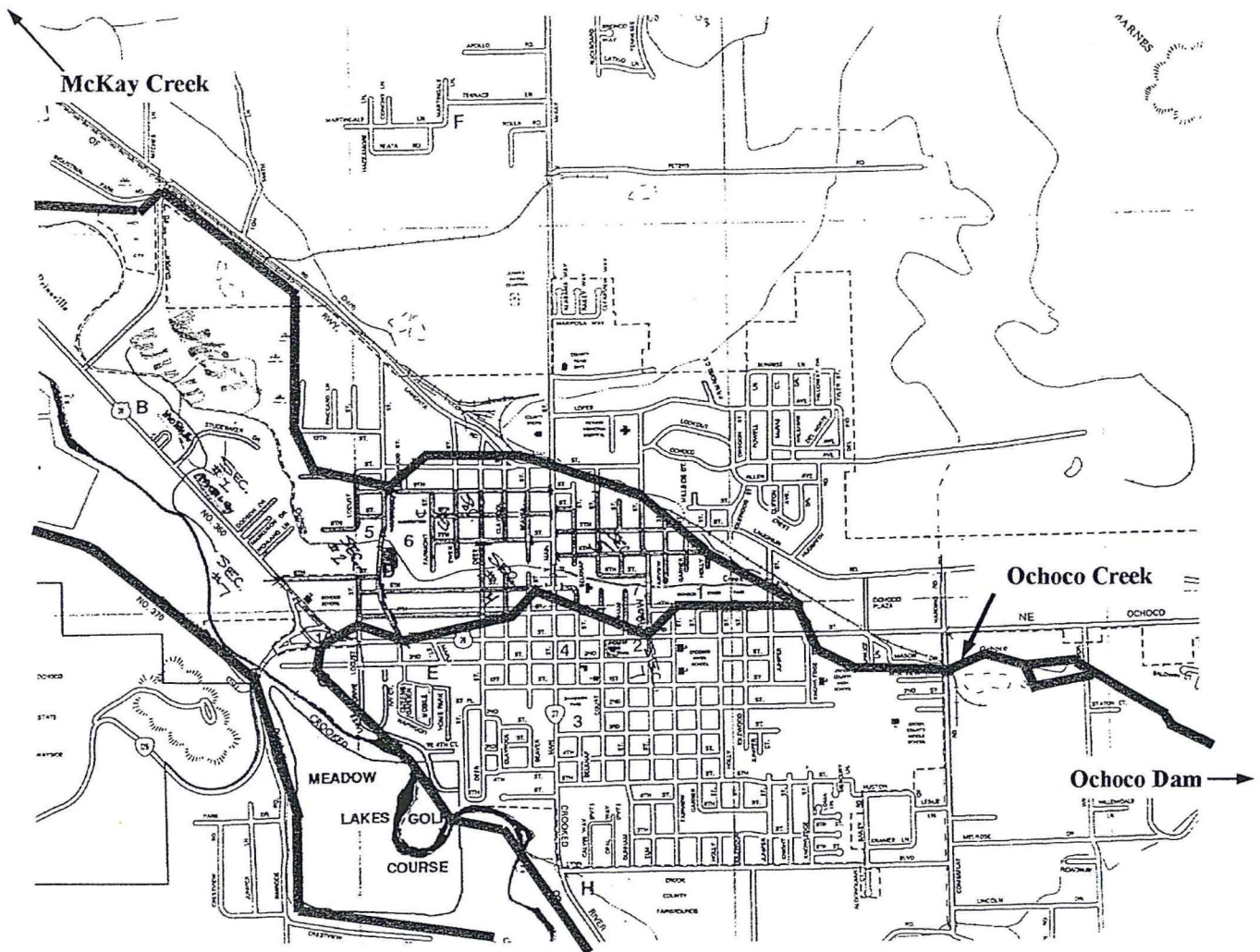
The Interagency Hazard Mitigation Team that convened after the flood estimated that more than 300 homes were impacted by the flood, and that 50 or more were destroyed. According to the Team's report, most of the damage was to housing, and those affected by the flood were mostly people with low to moderate incomes or senior citizens on fixed incomes. The preliminary damage assessment conducted by OEM and FEMA estimated that damages exceeded 10 million dollars.

The City and County are rural, even in the most populated areas. There are only about 7,255 residents in the City of Prineville, more than one-third of the entire population of Crook County (16,800 people).¹ The flooding destroyed or made uninhabitable a significant percentage of the local stock of housing, including low and moderate income housing, ranging from mobile home parks to apartments to single family homes. Public facilities and infrastructure also received damage.

Information from the 1990 census indicates that in 1990, Crook County had 3,897 owner-occupied housing units. 1990 census data also indicated that there were 588 owner-occupied households 'with any housing problems' that met HUD's low and very low income guidelines. While definition of 'any housing problems' is very broad and subjective, it does provide an indication of relatively poor dwelling conditions. The census also identified 256 owner-occupied units with inadequate living conditions. The vacancy rate in Prineville and surrounding Crook County hovers at less than 1%, and there were already a fairly high number of unsuitable units in need of demolition before the flood.

This data indicates that Prineville had a low-quality housing stock even before the flood. The low quality of the housing contributed greatly to the flood damage. Also, there are many mobile

¹1999 Center for Population Research Data



General Areas of Flood Damage

This map indicates general areas of flooding within Prineville and immediately surrounding unincorporated Crook County. The City and County do not have a GIS database, so this map is necessarily coarse in scale and indicates a rough delineation. Generally, areas outlined in red experienced flooding.

This map does not show some of the areas further outside of downtown and in rural Crook County that were affected by flooding. This includes Ochoco Creek extending from Prineville upstream to the Ochoco Dam and from Prineville downstream to McKay Creek. Flooded areas on McKay Creek are also not shown because they are well outside the bounds of this map. Areas not shown are included on the map by reference only.

and manufactured homes in the City and County, including a number of older models. Several mobile home parks were in the path of the flood, and the homes in these parks were severely damaged. Many mobile homes were a total loss.

Although the floodplain in Prineville and neighboring unincorporated Crook County is heavily developed, there have been no repetitive losses since the community joined the NFIP. Prior to the 1998 flood, there had been no flood claims made since 1978. Since flooding has very rarely occurred in the City and County, many people did not recognize the risk and consequently did not carry flood insurance. This meant that many affected people had no resources to help them address flood damages or replace belongings.

According to FEMA, global warming is occurring and flood risks are increasing throughout the United States. This means that Prineville and Crook County may receive more frequent flooding in the future and that therefore, building a disaster-resistant community is becoming more and more important. The City and County undertook the recovery efforts from the 1998 flood with the intent of combining recovery with mitigation in order to help develop disaster resistance.

THE PLANNING PROCESS

Since the flooding receded in early June of 1998, City and County citizens have been working toward recovery. In mid-July of 1998, City and County governments began to work toward developing a joint hazard mitigation / flood recovery / community development plan. Because of the severity of the damage and the major recovery needs, a fast-track community prioritization effort was begun at the end of July, continuing through most of August 1998. Through the community meeting and public hearing process, initial priorities for the community's recovery needs were identified. Some of these priorities were short term flood recovery actions, but many of them involved mitigation that would increase the area's long term potential to be more flood resistant.

Community town hall meetings have been held since the initial July and August meetings to address recovery efforts, obtain specific public input, and discuss specific recovery programs. A joint City Council / County Court hearing was held in May 2000 during the preparation of the Action Plan for the Disaster Recovery Initiative grant program. This hearing allowed for discussion and adoption of the DRI Action Plan project priorities.

Citizen Participation

The City and County have made significant efforts to involve the public in the flood recovery effort and in the identification of community needs. Public involvement is an ongoing priority. Before the process of identifying community priorities began, the entire community was informed of the effort and the need for public input. An extensive mailing list was created, with notice of community meetings going out to people who had attended any previous meetings, City and County staff, and approximately 500 people whose homes were inspected after the flooding. A series of Town Hall meetings was held to obtain initial public input, and two public hearings were held. Public hearings were announced in the Legal Notices section of the *Central Oregonian*, the Prineville newspaper. Information about the hearings was also provided on the front page of the paper. Public hearings held on the flood recovery effort were in compliance with Oregon Public Meetings law, and the meeting notice format provided by the State was used.

Two public hearings were held in August 1998. These hearings were in addition to the Citizen task force, and the numerous public meetings and hearings that were held on the prioritization of flood recovery efforts. The public hearings focused on obtaining citizen input on community needs. Notice of the meetings was sent out in accordance with State and Federal standards. The first hearing, on Monday, August 17, 1998, focused on obtaining citizen comment on community priorities for grant funding. Following the first hearing, a proposal was developed to seek CDBG emergency funding for the following priorities: housing repair, acquisition, public infrastructure, demolition, and flood risk reduction technical assistance. At the second hearing on Monday, August 24, 1998, comments were sought on the grant proposal. Modifications were made to the proposal in response to citizen comments.

Since the initial meetings in 1998, additional meetings have been held on an as-needed basis to receive public comment or inform the public about recovery assistance. In 1999, meetings were held on the HMGP acquisition program on the CDBG-funded flood repair program. As part of the development of the Action Plan, the community flood recovery priorities were refined and

projects were identified. A joint City Council / County Court hearing was held on May 9, 2000 to discuss the project prioritization and to adopt an earlier version of the Action Plan as part of the Disaster Recovery Initiative application process. Additional recommendations have been incorporated into the Action Plan since that time. At these past and all future flood public meetings or hearings, citizens have the opportunity to comment on flood recovery efforts.

Identified Community Priorities

The City and County conducted a major community involvement effort in July and August of 1998, immediately after the flooding. The purpose of the community process was to identify community priorities for flood recovery. In addition to those identified community priorities, FEMA's Interagency Hazard Mitigation Team (IHMT) and the Riparian Service Team (RST) have also developed recommendations for potential flood mitigation measures for Prineville and Crook County. Work has begun on a number of these recovery priorities and will be discussed later in this document.

PRINEVILLE / CROOK COUNTY FLOOD RECOVERY PRIORITIES

Prineville is an older city, and substantial portions of the downtown and its residential neighborhoods are located within the floodplain. Within unincorporated Crook County, there are also a number of older residential areas located within the floodplain. Not surprisingly, these areas generally received the most flood impacts. Comprehensive damage lists of public and private damage have been prepared and are included as Appendix A.

Through a series of public meetings held in the summer of 1998, right after the flood, five general recovery priorities were identified to address the significant flood damages in the community. Of the five priorities, one served primarily short term recovery needs. The remaining four priorities served short term needs, but are also long-term mitigation efforts geared toward improving the City's preparedness for future flood events. Some work has progressed on these priorities through other funding mechanisms, including FEMA's Hazard Mitigation Grant Program and OECDD's Community Development Block Grant emergency funding program. Work has begun or been completed on a number of these recovery priorities, but significant activity remains, due to the severity of the flood damage.

While the following five priorities were developed as part of the flood recovery program, they are germane to the flood mitigation plan because four of the five priorities also have mitigation components.

Community Flood Recovery Priorities

1. *Housing Rehabilitation.* Because the greatest crisis in the community is housing, the first priority is home repair and elevation. The vacancy rate in Prineville and surrounding Crook County has remained at less than 1% for several years. Before the flood, there was already a fairly high number of unsuitable units in need of demolition or substantial rehabilitation. The loss of housing units due to the flood, on top of the low vacancy rate and the amount of unsuitable units, has created a housing crisis. Because of this crisis, it is essential that salvageable homes be repaired and elevated to maintain the current level of housing stock.
2. *Acquisition.* Another priority for the flood recovery is acquisition. Some homes are located in extremely high flood risk areas. To repair these homes or to demolish and rebuild in the same location would not be prudent. The City has developed an extensive list of potential properties eligible for acquisition. This list was used in the FEMA Hazard Mitigation Grant Program (HMGP) application. However, there may be other properties that prove to be worth investigating for potential acquisition that have not been included on the list.
3. *Public Infrastructure.* Certain residential areas in and around the City were served by wells as their only source of domestic water. A number of these wells are now contaminated due to the flood and are unsuitable for use. These areas lack safe drinking water. Public infrastructure such as water or sewer services may need to be connected to some of these areas.

4. *Clearance, Demolition, and Removal.* There are other homes that have been condemned or abandoned because the owners do not have the funds for demolition. These abandoned homes have already become a blight on surrounding neighborhoods, and they present a health hazard because they attract rodents and animals, provide an environment for the growth of mold, mildew, and other fungi, and attract vandalism or other criminal activity. Windows have already been broken on many of the abandoned homes. Removal or demolition is a pressing need for which there are few sources of funding. No structures that are subject to clearance, demolition, or removal are currently occupied.
5. *Flood Risk Reduction.* Insufficient revenue is available for adequate assessment of the flooding event, planning for flood risk reduction efforts, and completion of mitigation projects. An assessment is a major need in order to prioritize flood risk reduction activities. In addition, mitigation projects are needed to reduce future flood risks. Mitigation may include such projects as property acquisition; foundation elevation; retrofitting or rebuilding of bridges, crossings, and infrastructure; streambank work; engineering solutions; and other qualifying mitigation activities.

The above flood recovery priorities were set prior to completion of the report and recommendations prepared by the FEMA Interagency Hazard Mitigation Team and the Riparian Service Team. The actions recommended in these two reports are discussed in the section entitled *Recommendations for Achieving Floodplain Management Goals*. The flood recovery priorities and other citizen input were used by the City and County to develop floodplain management goals that are very straightforward. The goals are set out in the next section.

PRINEVILLE / CROOK COUNTY FLOODPLAIN MANAGEMENT GOALS

The City of Prineville and Crook County have two main goals for the management of floodplains within the City and County. These have been identified through a lengthy public process and read as follows:

- Goal 1:** To reduce the risk of floods in Prineville and Crook County
- Goal 2:** To maintain and, where feasible, improve the health and functioning of the floodplains in Prineville and Crook County.

In addition, public input was strong on the subject of Ochoco Creek and its multi-purpose uses as an irrigation ditch and creek. This input led the City and County to define an additional goal that is specific to the Ochoco Creek floodplain:

- Goal 3:** To maintain the function of Ochoco Creek as an irrigation ditch and to provide such measures as necessary to protect the creek and its floodplain from events and other factors that have the potential to damage the ability of Ochoco Creek to continue to provide irrigation.

Many recommendations have been developed for how the City and County can proceed to meet these goals. These recommendations have come from a variety of sources, with the majority emerging from the Interagency Hazard Mitigation Team report and from the public input process.

RECOMMENDATIONS ON ACHIEVING THE FLOODPLAIN MANAGEMENT GOALS

Many recommendations from a number of sources have been made to the City and County. The following narrative breaks the recommendations down in to categories based on the type of recommendation, rather than by the source of the recommendation. The categories of recommendations are:

- Flood Mitigation – Housing
- Flood Mitigation – Public Infrastructure
- Regulatory Mitigation
- Multi-objective Mitigation
- Engineering / Infrastructure Solutions
- Intergovernmental Coordination

Flood Mitigation – Housing

- *Foundation elevation.*
Some foundation elevation has occurred with CDBG funds. However, the role that foundation elevation will play in future efforts is uncertain. Many homes along the creek are currently substandard, making them expensive or difficult to elevate. Additionally, foundation elevation is considered a significant repair, which requires that these homes be brought up to current building code standards. Often, this combination of expenses may lead to a sum greater than the house value. In Prineville, this has been true in many of the floodplain areas, which contained mobile home parks and small affordable homes. While there are a number of drawbacks to foundation elevation, this mitigation measure may be the most cost-effective measure in certain areas and will remain in the mix of potential mitigation measures.
- *Acquisition.*
Another priority for flood mitigation is acquisition. Some homes are located in extremely high flood risk areas. To repair these homes or to demolish and rebuild in the same location would not be prudent. The City has developed an extensive list of potential properties eligible for acquisition. However, there may be other properties that prove to be worth investigating for potential acquisition that have not been included on the list.

Flood Rehabilitation – Public Infrastructure

- *Floodproofing / retrofitting water and sewer treatment plants and other public facilities.*
While the water and sewage treatment plants were only slightly affected by this flood, other public facilities were deeply impacted, including roads and bridges. To minimize the impacts of a flood event, it is important to keep basic public utilities, such as water and sewage, running. Therefore, the vulnerability of these necessary utilities should be assessed and steps taken to ensure that these facilities are floodproofed.

- *Create a maintenance schedule for culverts and storm drains.*
Engineered structures currently exist to help pass stormwater through the City. Making sure these facilities are in good working order will help to mitigate the effects of future flood events. The Prineville/Crook County area receives little rain on an annual basis, making it unlikely that storm drains and culverts will need cleaning or other maintenance on an annual basis. A schedule could be established for annual inspection to identify when cleaning and maintenance should be provided.

Regulatory Mitigation

- *Examine building codes.*
A high level of damage occurred to those buildings constructed prior to the adoption of floodplain management measures required by the National Flood Insurance Program. In many cases, retrofits could be implemented to mitigate flood damage. Building codes should reflect these practices to ensure that properties in the floodplain are protected from flood damage. Some building code updates to be considered might include installing backflow valves for all structures in the floodplain; elevating utilities and appliances, such as furnaces, washers, and dryers, above the base flood elevation; and requiring manufactured homes in the floodplain to be designed around soil conditions and potential for flooding.
- *Create a floodplain zone.*
One key way to mitigate the effects of future flood events is to limit or prohibit further development in known flood hazard areas. This could be accomplished with zoning. The City and County could add a floodplain zone or floodplain overlay zone to their zoning codes. A floodplain zone may include restrictions on development that prohibits the construction of new structures, or that does not allow further division of parcels.

Multi-objective Mitigation

- *Stream study / assessment.*
A flood mitigation assessment is an important tool to study the flooding event and determine which mitigation measures would prove most effective in preventing future flooding events. This study would provide a foundation for future mitigation efforts and would allow for better prioritization and coordination of future mitigation measures.
- *Conduct a comprehensive watershed analysis.*
The current condition of riparian areas and watersheds above Ochoco Reservoir, including the Ochoco Creek, Crooked River, and McKay Creek watersheds should be evaluated. Development and clearing in a watershed basin can increase both the peak rate and volume of runoff reaching rivers and streams. This can increase the depth and extent of flooding downstream. It can also intensify erosion, especially during small to moderate size flooding events. A comprehensive watershed analysis would estimate the downstream effects of increased runoff rates and volumes.

- *Create greenways or setbacks from river.*
This is a long-term action that would provide for better management of flooding events. Riparian vegetation along the banks would slow the water when it does go overbank and dissipate energy from higher velocities and erosion. A vegetated corridor would also add to the stability of the creek. Steps should be taken to ensure that the corridor is vegetated and stabilized by planting woody species. The greenway or setback could be accomplished through a vegetated conservation easement, through stream protection zoning, or through property acquisition. This long term action could be achieved in tandem with the acquisition mitigation action.
- *Enhance wetland and / or retention/detention areas.*
Wetland and retention/detention areas are capable of retaining water, which is useful in flood mitigation. Enhancing or maintaining these areas would assist in flood mitigation efforts.
- *Use diversions and ditches to flood fields above town to reduce downstream damage.* In the May 28, 1998 flood, approximately 550 cfs were removed from the creek and spilled out onto adjacent farming fields before the creek reached town, reducing the flow by approximately 21%. Although this diversion was random, the City and County could seek to establish a system of diversions and ditches above town in these farmland areas. The diversions and ditches could handle flood flows as well as irrigation flows and could potentially mitigate flooding impacts downstream in urban areas. A diversion system could be accomplished through purchase of structures and farmland for water storage, or through the purchase of easements for storage.
- *Educate the public about flooding.*
There are many residences that directly impact the area's creeks and floodplains. Ochoco Creek in particular is heavily developed within Prineville city limits. Educating property owners about the impacts of their actions on the floodplain and stream corridor could help mitigate future flood events. Some examples of education programs are teaching residents about the impacts of dumping yard waste in the stream channel or providing education about and incentives for replacing noxious plant species with species that will increase the flood storage capacity of the floodplain. Another education program could be an NFIP / floodplain awareness campaign, to educate people about flood risks and the value of flood insurance.

Engineering/ infrastructure solutions

- *Evaluate the use of bioengineering as a means to mitigate erosion.*
Bioengineering techniques are those that increase the strength and structure of the soil with a combination of biological and mechanical elements. In certain areas where erosion cannot be deterred through land use management, bioengineering should be explored to prevent further erosion. Typically, erosion begets erosion, as streams often do not have a chance to stabilize once they are damaged. Bioengineering of streambanks may include such techniques as brush mattresses, willow wattles, and vertical bundles.

- Identify and replace inadequately designed and poorly sited bridges.*
 Several private and public bridges were damaged or failed during the 1998 flood. This was attributed to a combination of high volumes of debris in the waterway and high water flow, along with poor siting or inadequate design of foundations and midspan pilings, which served to catch the debris and inadvertently create additional flood storage.
- Re-engineer existing diversion structures and culverts to pass debris.*
 Several irrigation structures and culverts were unable to handle the volumes of floodwaters and debris associated with the 1998 flood. This resulted in additional inadvertent flood storage capacity. If these culverts and diversion structures were re-engineered to allow for greater capacity, then flooding impacts associated with irrigation structures and culvert failure would be mitigated.
- Streambank work / bank stabilization for both flood risk reduction and habitat improvement.*
 The failure of the dam on the Breese property, combined with the energy of the high streamflows and redistribution of bedload behind the dam channel, caused significant erosion of the streambank and terrace, widening of the stream channel, and formation of new gravel bars. Riparian trees, shrubs, and herbaceous species are essential along the stream bank because of the stability their roots provide, as well as wildlife and fish habitat. Riparian vegetation is a potential bank stabilizer and it should be encouraged to prevent erosion and provide stability for the stream bank. The best method to establish riparian vegetation is to preserve a greenway or setback to protect the riparian vegetation corridor. Riparian vegetation also helps to slow the water down in flooding events, dissipating energy and protecting property from higher velocities and erosion.
- Engineering solutions for flood mitigation.*
 A broad array of engineering and bioengineering solutions exists to mitigate flooding impacts. First, existing diversion structures can be re-engineered to pass debris, allowing for quick, easy removal of the stoplog frames during flood events. Bioengineering stabilization techniques could be applied in conjunction with a vegetated buffer zone and in areas where significant erosion has already occurred. Erosion causes increased silt loads, resulting in water quality problems and fish and wildlife habitat degradation. In areas where erosion is severe, streambanks do not have a chance to stabilize once they are damaged. Therefore, bioengineering techniques may be highly effective to stabilize channel streams while also pursuing conservation easements along the stream channel.

Intergovernmental Coordination

- Intergovernmental Coordination.*
 Watersheds do not follow jurisdictional boundaries. Actions taken by the City of Prineville could affect the drainage basin through increased flooding or erosion. Therefore, floodplain and flood mitigation programs should be coordinated with other agencies, including Crook County's Emergency Management Operations and Ochoco Irrigation District, among others.

- *Intergovernmental agreements.*
In order to ensure coordination, the City and County, along with other applicable agencies, may want to enter into agreements to ensure that goals are consistent, including ensuring the flood hazard regulations and policies of one jurisdiction are consistent with others; ensuring standards, assessments, and priorities for maintenance and capital improvement projects are consistent; and providing for equitable distribution of costs to implement flood hazard reduction efforts that will provide benefits throughout the watershed.
- *Coordinate with Ochoco Irrigation District regarding irrigation diversion structures.*
Several irrigation diversion structures were damaged during the flood because the stoplogs were not removed. The stoplogs cause debris to build up, which leads to overflow. Damage occurred from the impact pressure of the debris on the structure and from the additional flood storage these structures provided. The jurisdictions could coordinate a flood warning system to alert property owners to remove the stoplogs from irrigation diversion structures on their property when flood events are beginning. This could be done with a phone tree or other warning system. In addition, a member of the emergency management team could be designated to remove stoplogs from publicly owned diversion structures.

PROGRESS TO DATE ON RECOMMENDED ACTIONS

The City and County have received funding through FEMA's Public Assistance program, FEMA's Hazard Mitigation Grant Program (HMGP), and the Oregon Economic and Community Development Department's (OECDD) Community Development Block Grant (CDBG) Emergency Funding program. Funding has also been secured through HUD's Disaster Recovery Initiative (DRI). Progress on many of the planned activities is scheduled to occur in 2001 with DRI funds.

Updated Flood Ordinance

As a result of the flood, the City of Prineville updated its flood ordinance. The updated flood ordinance was passed in the summer of 1999. The revised ordinance provides additional, more stringent standards that are designed to encourage sound floodplain management, reduce flood risks, and potentially allow property owners to obtain flood insurance at a better rate. These standards were approved by the State Floodplain Manager.

Specifically, the standards found in the floodplain ordinance, Ordinance 939, are designed to:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money on costly flood control projects;
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) To minimize prolonged business interruptions;
- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets, and bridges located in areas of special flood hazard;
- (6) To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and
- (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

In order to accomplish its purposes, this ordinance includes methods and provisions for:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

- Controlling the alteration of natural floodplains stream channels, and natural protective barriers which help accommodate or channel flood waters;
- Controlling filling, grading, dredging, and other development which may increase flood damage;
- Helping maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; and
- Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.

Housing Rehabilitation

The City of Prineville and Crook County jointly received a grant award of \$772,250 from the Oregon Economic and Community Development Department's (OECDD) CDBG Emergency Funding program. OECDD limited the use of these funds to housing rehabilitation. Because the use of the CDBG Emergency Funding was very limited by the terms of the grant award, it is possible that there are additional rehabilitation needs. However, the major needs in this priority have been addressed. All homes which were eligible for rehabilitation with the CDBG funding have been rehabilitated. More than \$350,000 of grant funds remained. An amendment to the grant was approved in order to allow the City and County to use the remainder of the funds as a match for the HUD Disaster Recovery Initiative (DRI) funding.

Property Acquisition

Through a total Hazard Mitigation Grant Program award of \$397,011, the City was able to start a property acquisition program. With HMGP funds, the City acquired Parkside Mobile Home Park, which was one of the most damaged properties. Part of the Parkside acquisition included the purchase of a duplex and a number of rental mobile homes located within the park. OECDD granted approval to use the remainder of the Emergency Funding grant for property acquisition. This, combined with the remainder of the HMGP funds, allowed the purchase of four additional properties: two properties on Studebaker Drive, both of which were severely damaged by the flood, and two properties adjacent to Parkside Mobile Home Park. All of these properties have been cleared of structures and revegetated. Property acquisition remains a primary method of mitigation for Prineville and Crook County. Additional acquisition is desired in the floodplain, but requires the identification of willing sellers. In addition, the City and County need outside sources of funding to make purchases. Some of the Disaster Recovery Initiative funds have been identified for property acquisition, which will allow purchase of at least one additional property. There is still quite a bit of property in the floodplain that could be purchased, if the property owners are willing sellers. Action on this priority will be on-going, as funds become available.

Public Infrastructure

There has been no action on this activity to date, because no funding has been available. There are a number of public infrastructure and facility projects needed as a result of the flood. For example, there may be a need to connect public water service to areas presently served by wells, where the wells were contaminated by flooding. Any action of this type must be carefully considered to ensure that it does not encourage more development in the floodplain than would otherwise occur. There is also other public infrastructure and facility damage that did not receive repair funds through FEMA's Public Assistance program. Some actions under this priority will be met with DRI funding and should be completed within the next three years. The first priority for public infrastructure funded with DRI money will be the storm sewer line repair under Fifth Street. A request for proposal for engineering firms to design the storm sewer repairs was advertised by the City in July 2001, and it is anticipated that work on this activity will begin before the end of the year.

Clearance, Demolition, and Removal

Numerous homes were severely damaged during the flooding, and some property owners had no way to pay for demolition of these structures. For this reason, the County abated a number of abandoned flood-damaged homes. Seventy-five percent of the cost of the abatement was reimbursed through the Public Assistance program. The remaining 25% of the cost of abatement was provided by the County through dump fees. Major needs in this priority have been addressed.

Flood Risk Reduction

There have been no funds available for flood risk reduction activities, other than the property acquisition program, foundation elevation program, and preparation of this Flood Mitigation Action Plan.

Under the flood risk reduction priority, there is a major need for an adequate hydraulic assessment and study of the flood event and stream corridors, including planning for flood risk reduction and prioritizing mitigation measures. There is also a need for additional mitigation projects and programs, beyond what has already been funded. Mitigation measures may include property acquisition; retrofitting or rebuilding of bridges, crossings, and infrastructure; streambank work; engineering solutions; other activities identified in this Action Plan, and any other qualifying mitigation activities.

Some actions under this priority will be met with DRI funding and should be completed within the next three years. The first priority for flood risk reduction funded with DRI money will be stream bank and floodplain restoration work in Low and Moderate Income Census tracts that were impacted by the 1998 flood. A request for proposals for the

IMPLEMENTATION/ FUTURE PROGRESS

The program and project recommendations are intended to address significant flood control problems and issues along Prineville and Crook County's major rivers, including Ochoco Creek and Crooked River. Given the limitations of resources, new financing mechanisms would have to be established in order to support any significant expansion of efforts in Prineville and Crook County.

Given the magnitude of the total identified need for new programs and projects, the development of new funding sources is likely to occur on an incremental basis, with funding remaining relatively close to current levels during the short-term. In accordance with the goals of this plan, the following are general priorities for initial implementation of the programs and projects identified in the plan.

- ***Prevent New, At-risk Development***
Assuming that increases in funding will occur incrementally, it will take many years to address even the highest priority needs. In the interim, it is essential that the inventory of problems and project needs do not expand. Therefore, a top priority should be suggestions intended to prevent new development and protect existing development in flood hazard areas. Considerations should include flood plain modeling and mapping and channel migration studies.
- ***Seek Funding for High-Priority Capital Projects***
Funding to begin implementing high priority capital projects is a critical need. However, current levels of funding are not adequate to implement more than a handful of projects. Given comparable levels of funding in the future, the City and County's first priority should be preventing new development in hazardous areas and meeting its commitments to maintain existing river and creek facilities. However, this does not reduce the critical need for new capital projects. Prineville and Crook County should continue to aggressively pursue federal and state grant assistance. Locating City and County or other funds to meet the local match requirements should also be a high priority. Additionally, the Capital Improvement Plan should be used to address some of the high priority capital projects. As projects come up for repair or replacement under the plan, the new standards should be met and mitigation efforts should be worked into the routine upgrading or replacement of capital facilities.
- ***Future Commitment***
This plan is a commitment to the future of Prineville and Crook County. Yet, as new information is learned and conditions change, it will be necessary to amend this plan. Consequently, this plan should be updated and amended periodically or as conditions warrant.

