

## CHAPTER V: Issues, Goals and Objectives, and policies

Based on existing conditions (discussed in Chapter II), flood history (discussed in Chapter III), current plans and regulations (discussed in Chapter IV), and the results of the River Corridor Survey, County staff worked with Technical Advisory Committee and Citizens' Advisory Group members to identify issues to be addressed in the development of this plan. Those issues are summarized below. Analysis of the issues led to development of goals and objectives for the *river corridor* that this plan is intended to meet. Policies were derived from the goals and objectives.

### A. *Issues*

#### Flood-related issues

Flood-related issues can be grouped under five headings:

- Basin characteristics: issues arising as a result of the physical characteristics of the basin and, specifically, the rivers and their corridors.
- Policy and management: issues arising from current policies and management approaches.
- Flow regime: issues arising from alterations to the natural flow regime as a result of development.
- Hazards: issues related to hazardous conditions in the basin.
- Awareness: issues related to awareness of flood hazards, both on the part of the general public and within agencies responsible for making decisions that pertain to flood conditions.

#### Basin characteristics

##### Dynamic channels

The Methow, Twisp, and Chewuch Rivers are very dynamic in places. Channel locations change frequently, changing elevations within the *floodplain*. Flood heights at a given location may change in response. Flood elevations established by FEMA may no longer be accurate by the time a development proposal is submitted for permitting. Erosion also presents a hazard in such areas, as sediments are subject to reworking during floods.

*What approach should Okanogan County take to granting development permits in dynamic channel reaches?*

## Erosion hazards

In several places, erosive banks subject to undercutting during floods line the basin's rivers. Erosion of bluffs along the Methow River between the present Towns of Carlton and Twisp destroyed the Town of Silver during the flood of 1894. A number of structures located on high banks were lost during the 1948 flood when the banks collapsed. High bank sites are well out of the floodplain, but structures built on top of them are vulnerable due to erosion.

*What approach should Okanogan County take to identifying areas where erosion presents a special hazard and granting development permits in those areas?*

## Alluvial fans

Alluvial fans are subject to special flood hazards. Alluvial fan floods are less predictable, and their boundaries less well-defined, than most riverine floods. Hazards that may be encountered on fans include high-velocity flow, serious erosion and scour, deposition of sediment, debris flows, mudflows, and flash flooding, as well as inundation. Flood maps for alluvial fan areas designating them as shallow flooding areas incorrectly imply low risk. Usually the risks there are quite serious due to high velocities, debris and erosion. In addition, alluvial fan flows are subject to lateral migration and sudden relocation during the course of a flood. Fans occur at several locations in the basin, notably at Early Winters Creek.

*How should Okanogan County reduce and prevent flood hazards associated with alluvial fans?*

## Flash flooding

The combination of steep tributary streams and occasional intense storms creates the potential for flash flooding in the Methow Valley. Flash floods cause greater damage than ordinary riverine floods because of the suddenness of flooding (which may prevent evacuation), the velocity of the water, and the large amounts of debris in the water. There are no floodplain maps for the small tributaries in the Methow Valley that are at greatest risk for flash flooding. Furthermore, many small changes in a stream's watershed—not just the floodplain—can drastically increase flash flooding.

*How should Okanogan County reduce and prevent flood hazards associated with flash flooding?*

## Ice jams

Ice jams have the potential to cause flooding on Methow Valley rivers. The flooding caused by ice jams is similar to flash flooding. The formation of a jam results in a rapid rise of water at the point of the jam and upstream. Failure of the jam results in sudden flooding downstream. Damage from ice jam flooding usually exceeds that of

clear water flooding because of higher than predicted flood elevations, rapid increase in water levels upstream and downstream, and physical damage caused by ice chunks. No analysis has been done to locate areas at greatest risk from ice jam-related flooding.

*How should Okanogan County reduce and prevent flood hazards associated with ice jams?*

### Policy and management

#### “Up-and-out” building sites

As the Flood Damage Prevention ordinance is currently being interpreted, new structures for human habitation are allowed within the flood hazard boundary in the Methow Review District, as long as they are built on land higher than the *base flood elevation* (“up-and-out”). In many parts of the valley, geology and the morphology of the *river corridor* render those sites hazardous since the sediments on which the structures are built are subject to erosion during flood events.

*Should Okanogan County continue to grant development permits for “up-and-out” sites, regardless of hazard?*

#### Riparian vegetation management

Riparian vegetation, which plays an important role in flood attenuation and is a major component of riparian habitat, has been removed or altered in many places. Shoreline vegetation is often removed in violation of County ordinances intended to protect the *riparian zone*. The County lacks staff to adequately monitor the provisions of regulations designed to protect riparian vegetation. Prior to a project proponent’s application for a permit, the County has no mechanism for enforcing its regulations or alerting landowners regarding those regulations. In addition, vegetation is often cleared from sites used for camping or other recreational use. Since no development permit is sought, County staff often are not aware of a landowner’s intentions in advance. In other cases, vegetation has been removed in conjunction with agricultural use.

*How can Okanogan County act to protect riparian vegetation and preserve the values associated with it?*

#### Exemptions for single family residences

Single-family residences are exempt from many provisions intended to maintain the integrity of the shoreline environment. Residential development is increasingly common along the Methow Valley’s rivers. The *cumulative effects* represent a threat to the functional characteristics of the *river corridors*.

*How can Okanogan County prevent or mitigate the cumulative effects associated with single-family residential development?*

## Management of Forest Service lands

Much of the land in the basin is managed by the Forest Service for multiple use. Effects of grazing and timber management activities on *river corridors* in areas under County jurisdiction may not be taken into account in developing plans for Forest lands.

*How can Okanogan County best protect lands under its jurisdiction from the effects of management activities on Forest Service lands?*

## Flow regime

### Channel constraint

The natural relationship between the Methow basin's rivers and their floodplains has been compromised in a number of places. *Riprap*, dikes, and bulkheads used to control flooding and erosion have constrained the channel, resulting in localized increases in water velocity and erosive power and in destruction of habitat values. While the impact of each encroachment is usually small, the *cumulative effects* are significant.

*What should be Okanogan County's policy with regard to existing and proposed channel constraints?*

### Upland management

Much of the basin's upland area is managed for multiple uses, including timber harvest and grazing. Both uses can dramatically affect runoff rates, influencing the frequency and severity of flooding and changing in-channel and near-channel conditions that affect riparian vegetation, fish, and other wildlife.

*How can Okanogan County best protect its river corridors from the effects of management activities in upland areas?*

### Emergency actions

County and state regulations allow landowners to protect their property from imminent flood damage without going through the usual permitting process. Bank protection measures taken during emergencies may have long-term effects on channel dynamics and habitat quality.

*How can Okanogan County work with landowners to ensure the protection of their property during emergencies without compromising river corridor values and County policies intended to protect those values?*

## Hazards

### Vulnerable structures

Although new structures for human habitation may not be built within the 100-year floodplain in the Methow River District, vulnerable structures do currently exist. Some may have been built before adoption of the 1979 zoning ordinance, which disallowed structures for human habitation in areas inundated by the 100-year flood. In addition, FEMA issued new flood hazard boundary maps for the area above Weeman Bridge in 1994. Some structures built outside the floodplain prior to 1994 may now be within the flood hazard boundary. Non-residential structures, and structures outside the Methow River District, may also be at risk.

*Where structures exist in the floodplain, how should the County protect the health, safety, and welfare of the owners and occupants? In each case, is it practical to reduce the vulnerability of the structure? What about the downstream risks posed by the structure?*

### Large woody debris

Organic debris entrained by high water can pose a risk to bridges and road embankments. During the 1948 flood, woody debris caused substantial damage to bridges in the Methow Valley. Woody debris is also an important structural component of the river and *riparian zone*. Its presence is essential to the survival and recovery of native fish stocks. The removal of wood from the rivers following past floods has had a dramatic effect on habitat quality, and contributed to the decline of fisheries in the basin.

*What should be the County's policy with regard to woody debris in the river corridor?*

## Awareness

### Level of awareness of flood hazards

Rivers in the Methow River basin flood infrequently. Population in the area has grown rapidly since the last flood; many residents are unaware of the rivers' destructive potential. Newcomers often have little sense of the dangers of locating in flood-prone areas. Even people who have witnessed flooding in the Methow Valley are often unprepared, or unaware of the risks inherent in their own situations. In 1974, the Department of Housing and Urban Development's Federal Insurance Administration prepared a Congressional report on flood hazards in the United States. A major conclusion of the report was that many people in high flood risk areas are seriously uninformed about the risk of flooding to which they are exposed; or that they are grossly overoptimistic about the chances that their property will not be flooded; or else that they expect public help to bail them out when the inevitable flood disaster strikes.

*How can the County increase the level of awareness of flood hazards?*

Lack of understanding of cumulative effects

Few people understand the effects of their actions on the structure and function of the river system. While the impact of individual actions may be slight, the *cumulative effects* of development and use throughout the *river corridor* have had and are continuing to have a deleterious impact on the river's ability to handle flooding, as well as on habitat values and aesthetic characteristics.

*How can the County improve understanding (on the part of the general public and staff) of the Methow basin's rivers as components of a system?*

Other issues associated with the river corridor and its use

- The future of existing platted lots in the floodplain: where undeveloped lots in the floodplain are unbuildable under current regulations, the County must ensure that the owners are not being denied reasonable use of their land.
- Economic development: both the condition of the *river corridor* and restrictions on development in the floodplain affect economic development in the Methow Valley.
- Water supply: the condition of the *river corridor* affects groundwater levels, and so may also affect water supply. Groundwater is a source of water for domestic use, stock watering, and irrigation. Irrigation water is diverted from the basin's rivers and creeks, as well.
- Property rights: landowners are increasingly concerned with the effect of land-use regulations on their ability to use and develop their land.
- Landscape character: *river corridors* within the Methow basin are vital components of the landscape, and make a large contribution to people's sense of place.
- Recreational uses in the *river corridor*: the natural character of the river corridor makes it attractive for recreationists. Public access to the river is becoming an issue as more and more land is developed.
- Degradation of fish habitat: confinement of river channels, riparian vegetation removal, and removal of woody debris from the *river corridor* all have negative effects on fish habitat.
- Obstructions to fish passage: when water levels are lowered, either because the water table drops as a result of vegetation clearing, or because of diversions for irrigation, some stream reaches are dewatered, and may present barriers to fish movement. In addition, diversion structures can obstruct passage or allow fish to become stranded in irrigation ditches.
- Fragmentation and loss of *river corridor* values: the river corridor has value to wildlife as a linear feature that allows them to move from one area to another while staying within reach of water and using riparian vegetation for food and cover. Land development has broken the corridor up in many places, restricting animal movement and reducing the habitat value of the corridor.

- Aesthetics: the beauty of the Methow Valley has drawn many people to the area, both as residents and as visitors. The quality of the *river corridors* contributes to the aesthetics of the place.
- Health: permeable sediments and reliance in most places on septic systems combine to make ground and surface water contamination an issue in the Methow River basin.

#### Concerns related to issues

- Impact on people's lives of this plan
- Social costs associated with the existing situation
- Local values

### B. Survey Results

The results of the river corridor survey are summarized in Appendix D.3. (A copy of the survey is included, and the survey methodology described, as well.) Those results helped guide the development of goals, objectives, and policies, as well as the evaluation of options and the development of the program recommendations (Chapter VI). Some of the most significant findings are discussed in this section. In most cases, there was significant variation in responses between river reaches, suggesting that planning should address the differing needs of people in various parts of the basin.

#### Current use of river corridors

The most commonly reported uses of the *river corridor* are for aesthetic appreciation (66% of those responding), wildlife observation (57%), and fishing (56%). Other popular uses are camping (43%) and boating (38%). Agricultural uses were less commonly reported, but are important to the overall economy of the Methow Valley.

#### Desirable uses of river corridors

A substantial majority of respondents favor natural/wildlife areas (73%) or trails (71%) in the river corridor. Passive recreation (58%), viewpoints (55%), single-family residences (53%), and parks/active recreation (46%) also received substantial support. Condominiums, multiple-family residences, mining, and commercial and industrial uses all rated very low, with 12% or fewer of respondents considering them appropriate.

#### The Methow River as a scenic resource

Seventy-nine percent of respondents agreed with the statement "The Methow River is a scenic resource and should be preserved in a natural state for future generations to enjoy." Sixteen percent disagreed and five percent registered no opinion. Several people commented that the question was too broadly worded.

## Structures in the floodplain

Seventy-four percent of respondents believe existing structures in the floodplain should be allowed to remain, but only 25 percent favor allowing new structures to be built in flood-prone areas.

### *C. Goals of This Plan*

Goals are broad statements of direction. Four river-corridor management goals have been developed for the Methow River basin.

#### Reduce flood-related hazards and damages

Provide a basin-wide strategy for flood hazard reduction that balances engineering, economic, environmental and social factors in recommending options for reducing flood damage in the Methow Valley.

#### Sustain natural processes

Minimize the environmental impacts of flood hazard management. Maintain and improve the health of the Methow, Chewuch and Twisp River corridors to support their natural functions, including flood attenuation, water quality protection, aquifer recharge, and fisheries and wildlife habitat support (including *endangered species* protection). To the extent practical, maintain or restore the full range of hydrologic characteristics of the natural watershed.

#### Reduce the long-term costs of flood control and floodplain management

Provide for cost:benefit analysis of flood-hazard reduction options, including analysis of the full range of social costs (including financial and psychological costs and costs in lost values) associated with all alternatives. Minimize economic impacts (including maintenance costs) to the extent consistent with a balanced approach to flood hazard management.

#### Maintain the character of the Methow Valley and the variety of uses supported by the river corridor

Minimize the social impacts of flood hazard management; support appropriate use of the floodplain. Maintain the scenic quality of the Methow Valley by maintaining the valley's *river corridors* as amenities, preserving the aesthetic qualities of the river and tributary corridors, and providing for preservation of open space. Maintain existing recreational uses of the *river corridors*, and provide for improvement of recreational opportunities where consistent with flood hazard reduction and natural resource preservation goals. Maintain water supply and provide for appropriate stormwater management.



#### D. Objectives

Objectives are more specific than goals. They provide direction in accomplishing the purposes laid out by the goals. The objectives listed below state how the four goals above will be met. In this multi-objective plan, most objectives will help meet more than one goal.

- Identify and address factors that increase the destructive force of flood waters.
- Identify a corridor with the capacity to convey the 100-year flood while supporting a variety of objectives on those reaches of the Methow, Chewuch, and Twisp Rivers, and Early Winters Creek, outside the National Forest.
- Find and fill gaps in Okanogan County regulatory structure to improve consistency in floodplain management activities and support the goals and objectives of this plan.
- Coordinate floodplain management activities with the activities of other entities.
- Prevent new development in hazardous areas or ensure that it is built in such a way that on-site and downstream risk is minimized *and* that the builder is aware of and accountable for effects.
- Protect or alter existing development in hazardous areas to make it less susceptible to damage.
- Address the needs of landowners with unbuildable or at-risk parcels/lots.
- Protect infrastructure, using means that support environmental and recreational values within the *river corridor*.
- To the extent practical, eliminate the need for emergency measures by employing a combination of planning and structural and non-structural flood hazard reduction measures.
- Improve awareness of flood hazards, and of the relationship between the state of the *river corridor* and flooding.
- Take advantage of flood-control benefits of natural stream systems.
- Retain the dynamism of the watershed as a system—allow flexibility for vegetation and wildlife communities as well as morphology.
- Identify ecologically critical and sensitive areas within the *river corridor*, and provide for their protection, restoration, or enhancement where practical.

- Stabilize soil and stream banks; reduce erosion and sedimentation throughout the basin to the extent practical.
- Preserve and protect riparian vegetation and wildlife habitat.
- Retrofit existing projects and/or change maintenance practices to protect or enhance riparian habitat.
- Where the benefits of maintaining existing flood control improvements do not outweigh their costs, retrofit projects to make them less susceptible to damage or implement some other type of solution at the site.
- Provide for analysis of all proposals in terms of effects on people's lives as well as in purely financial terms.
- Provide for analysis of all proposals in terms of effects on the entire range of *river corridor functions and values*.
- Plan for public participation in ongoing *river corridor* management.
- Plan for implementation of plan recommendations; develop means to fund needed solutions.

## *E. Policies*

### General

- Flood hazard management should be undertaken in the context of the various legally existing uses in the basin, including agriculture, residential and commercial development, habitat, water supply, open space, recreational use, and timber and range management.
- Okanogan County should support the goals and objectives of the Washington State Flood Damage Reduction Plan (see Appendix E.4).
- The County should encourage establishment and maintenance of greenways in river and creek corridors as a means of reducing flood-related hazards and sustaining natural processes.
- Flood control activities should be consistent with the intent of the Growth Management Critical Areas Regulations and any other goals related to use or management of environmentally sensitive areas that are adopted by the County.

- Land use and related regulations and zoning should recognize the natural dynamics associated with the Methow basin's floodplains, *meander belts*, alluvial fans, and riparian habitat zones.
- *River corridor* planning should account for the long-term costs and benefits of any proposed action, regulation, or policy.
- Landowners should be accountable for the effects (including *cumulative effects*) of their actions in *river corridors*—including effects on public resources and on other people's property.

#### Reducing vulnerability

- New structures for human habitation should not be allowed within the *floodplain boundary* (as mapped by FEMA) in the Methow River basin.
- The County should plan for *amelioration* of risk to residents of flood-prone areas. Means other than protection of existing structures on existing sites should be considered (e.g., relocation; acquisition and demolition).
- *Critical facilities* should be located outside the limits of the mapped 100-year floodplain. Existing critical facilities should have top priority for relocation or risk management activities.

#### Flood damage reduction

- New development in river and creek corridors should utilize design, construction, and maintenance techniques that ensure the development will not diminish *corridor functions and values*. Analysis should consider upstream and downstream impacts, long-term effectiveness, and cumulative maintenance costs.
- Landscape changes that have the potential to increase flood severity and frequency should be avoided. Such changes include, but are not limited to, those that result in significant changes in sediment delivery, snowmelt, or runoff rates. Where avoidance is not possible, the County should encourage the use of appropriate measures to prevent increased flood hazards.
- Mitigation should be required for impacts to river and creek corridor resources. *Cumulative effects* should be evaluated in assessing the impact of any proposed change in corridors.
- Any new development within the mapped 100-year floodplain should cause no increase in *Base flood elevation* of the Methow River or its tributaries.
- Okanogan County should encourage solutions that limit vulnerability to flood hazards through better land use, construction standards, and other non-structural measures.

Where structural solutions are warranted, the County should encourage designs that support *corridor functions and values*.

- Requirements for upland development should minimize changes in runoff patterns that increase potential for flood damage.

#### Cooperative planning

- Flood hazard management should be undertaken in the context of an ongoing, systematic, and comprehensive approach to basin management.
- Okanogan County should work cooperatively with community groups, citizens, and other agencies in the Methow River basin to plan on a watershed basis, and should encourage other agencies to support the policies of this plan.
- Flood hazard management planning and implementation should be coordinated among County departments, as well as with community groups, individuals, and other local, state, federal and tribal agencies with jurisdiction in the basin.

#### Implementation

- The County should be prepared for flood-related disaster. Disaster mitigation preparedness should include project planning and assessment sufficient to allow timely application for disaster-related funding.
- Planning should be the basis for community action and investment.
- Okanogan County should identify funding sources and seek funds to pay for implementation of the elements of this plan.
- Any damage to existing flood control facilities should be assessed relative to the goals and objectives of this plan, and repair/maintenance planned accordingly.
- This Multi-Objective River Corridor Plan for the Methow Basin should be reviewed and updated as necessary to reflect current conditions in the basin and results of research, inventory, and monitoring; and to maintain consistency with applicable laws, regulations, and programs.
- Okanogan County should support *adaptive management* in the *river corridors* of the Methow basin. Adaptive management involves assessing and responding to change in the environment.

## Outreach

- Outreach should be a major component of the County's *river corridor* management efforts in the Methow basin. The County should develop a diversified education and involvement program designed to support the goals of this plan.
- Outreach should focus on helping people learn to make good decisions, not tell them how to think.
- Education efforts should be targeted, so resources are used efficiently.
- The Office of Planning and Development should develop partnerships for the purpose of planning for the future of the basin in the context of all users' goals and objectives.