

**BEFORE THE BOARD OF COUNTY COMMISSIONERS
IN AND FOR THE COUNTY OF JEFFERSON
STATE OF WASHINGTON**

IN THE MATTER OF a resolution adopting amendments)
to the narrative text and goals and policies of the Land Use)
& Rural Element of the Jefferson County Comprehensive)
Plan (the Plan) relating to drainage, flooding and storm-)
water runoff; adopting a new Appendix “G” to the Plan)
which contains a review of existing drainage, flooding and)
stormwater runoff conditions within the county and affected)
areas of adjacent jurisdictions; adopting amendments to the)
narrative text and tables of the Capital Facilities Element of)
the Plan to include a 20-year forecast of future needs and)
proposed locations and capacities of new capital facilities;)
directing the Department of Community Development to)
prepare revised copies of the Plan incorporating the)
amendments set forth in this resolution; and establishing an)
effective date; all in a manner consistent with the)
requirements of the Growth Management Act of 1990, as)
amended (Chapter 36.70A RCW) and the Final Decision)
and Order of the Western Washington Growth Management)
Hearings Board in the case of Cotton Corporation v.)
Jefferson County, No. 98-2-0017 (April 5, 1999).)

RESOLUTION NO 92-99

FINDINGS

The Jefferson County Board of Commissioners finds as follows:

1. After extensive public review and a recommendation from the Jefferson County Planning Commission (the Planning Commission), the County’s current Comprehensive Plan (the Plan) was adopted by the Board of County Commissioners (the Board) on August 28, 1998 (Resolution No. 72-98), to comply with the Growth Management Act of 1990 (Chapter 36.70A RCW) (the GMA or Act), and to facilitate the orderly and coordinated growth and development of the County. All findings, recitals and other provisions of Resolution No. 72-98 are hereby adopted and incorporated herein by this reference.

2. Following adoption, the Plan was appealed to the Western Washington Growth Management Hearings Board (Hearings Board) in Cotton Corporation vs. Jefferson County, WWGMHB No. 98-2-0017, petitioners alleging noncompliance with the GMA on a variety of grounds. In its Final Decision and Order, the Hearings Board found that “. . . overall Jefferson County’s CP is an excellent document that generally complies with the goals and requirements of the Act and provides a solid basis for management of future growth over the 20-year planning horizon and beyond.”

3. Despite finding the Plan generally consistent with the GMA, the Hearings Board concluded that the Plan failed to comply with the Act in the following two respects:
 - a. The Land Use & Rural Element of the Plan “did not comply with RCW 36.70A.070(1) in reviewing and providing guidance for drainage, flooding, and stormwater runoff . . .” (Cotton Corporation v. Jefferson County, Case No. 98-2-0017 (Final Decision and Order, April 5, 1999) at page 10); and
 - b. The Capital Facilities Element of the Plan “did not comply with the GMA because of its failure to include a 20-year projection of new or expanded capital facilities as required by RCW 36.70A.070(3)” (Cotton at page 11).
4. Under the terms of Hearings Board’s final decision and order, the Plan was remanded to the County to address the above-listed instances of noncompliance, and County was allowed 180 days to achieve compliance (Cotton at page 11).
5. This resolution represents the County’s response to the Hearings Board Final Decision and Order and is intended to bring Jefferson County into full and timely compliance with the GMA and the Hearing Board’s Final Decision and Order.
6. As set forth in the findings below, the opportunities provided for meaningful citizen participation employed in the preparation and public review of these Comprehensive Plan amendments are wholly consistent with the requirements of the GMA (§§ 36.70A.035, 36.70A.130, and 36.70A.140 RCW).
7. On September 1, 1999, and after timely and effective public notice, the Planning Commission held a public meeting to become familiar with staff’s proposed compliance strategy, to discuss the nature and scope of potential amendments to the Land Use & Rural and Capital Facilities Elements of the Plan, and to outline an appropriate schedule for the formal review and amendment process.
8. On October 6, 1999, and after timely and effective public notice, the Planning Commission held an open record hearing to accept public testimony on the following:
 - a. Proposed amendments to the narrative and goals and policies of the Land Use & Rural Element of the Plan;
 - b. Proposed amendments to the appendices to the Plan – specifically inclusion of a new Appendix “G” relating to drainage, flooding and stormwater runoff conditions; and
 - c. Proposed amendments to the narrative and tables of the Capital Facilities Element.Following the close of public testimony, the Planning Commission commenced deliberations and formulated revisions to the proposed amendments and a recommendation for the advice of the Board of County Commissioners.
9. On October 18, 1999, and after timely and effective public notice, the Board of County Commissioners held a final open record hearing to accept public testimony on the proposed Comprehensive Plan amendments and upon the Planning Commission’s recommendations, to deliberate upon the testimony received, and to take formal action to adopt, adopt with

modifications, or reject the proposed amendments and Planning Commission recommendations.

10. Following the close of public testimony on October 18, 1999 the Board deliberated upon revisions to the proposal and elected to continue its deliberations to October 20, 1999. During the Board's continued deliberations on October 20, 1999 the Board directed staff to undertake revisions to both the narrative text and goals and policies of the proposed plan amendments.
11. On Thursday, November 4, 1999, and after timely and effective public notice, the Board of County Commissioners met to review the text of the revisions prepared by staff in response to the direction given by the Board on October 20, 1999.
12. As modified by the Board of County Commissioners, the Planning Commission's report and recommendations relating to the proposed Comprehensive Plan amendments (i.e., formulated during the commission meeting of October 6, 1999 and transmitted in written form to the Board on October 13, 1999) are hereby adopted and incorporated by this reference.
13. As modified, the Board of Commissioners finds that the Planning Commission's report and recommendations regarding the Plan amendments are consistent with the statutory requirements of the GMA and the Final Decision and Order of the Hearings Board referred to above. Accordingly, the Board of Commissioners hereby approves the Plan amendments in their entirety as set forth below, including the revisions recommended by the Planning Commission and incorporating the further modifications directed by the Board.
14. The Board of Commissioners finds that the Plan amendments adopted herein have been subject to environmental review and threshold determination in compliance with the State Environmental Policy Act (SEPA) (Chapter 43.21C RCW, and Chapter 197-11 WAC) and Chapter 16.05 JCC. On September 22, 1999, the County's SEPA Responsible Official issued a determination of nonsignificance (DNS) for the legislative amendments adopted herein, which became final on October 7, 1999.
15. Consistent with the spirit and intent of the GMA, Department of Community Development staff forwarded the proposed Plan amendments to the State of Washington Department of Community Trade and Economic Development (DCTED) for review and comment prior to the adoption of this resolution (§36.70A.106). No substantive comments have thus far been received from DCTED or any other state agency.
16. This resolution has been prepared in conformance with the goals and requirements of the GMA (Chapter 36.70A RCW) and is externally consistent and compatible with the 13 state-wide planning goals contained within the GMA (§36.70A.020 RCW).
17. This resolution has also been reviewed against the requirements of the County-Wide Planning Policy for Jefferson County (CWPP) and has been found by the Board of Commissioners to be in conformance therewith.

18 Based upon the foregoing findings, the Board of Commissioners finds that adoption of the following amendments to the narrative text, goals, policies and tables and appendices of the Jefferson County Comprehensive Plan will promote the public health, safety and welfare of the citizens of Jefferson County and should be approved.

NOW THEREFORE, the Jefferson County Board of Commissioners in regular session assembled does hereby ordain as follows:

SECTION 1: INCLUSION OF A NEW APPENDIX “G” – REVIEW OF DRAINAGE, FLOODING, STORMWATER MANAGEMENT & POLLUTED DISCHARGES. A new Appendix “G” to the Jefferson County Comprehensive Plan entitled, “Review of Drainage, Flooding, Stormwater Management & Polluted Discharges” is hereby adopted and shall read as follows:

APPENDIX G

REVIEW OF DRAINAGE, FLOODING, STORMWATER MANAGEMENT ISSUES & POLLUTED DISCHARGES

Introduction & Context

On September 2, 1998, Jefferson County adopted a comprehensive plan intended to comply with the requirements of the Washington State Growth Management Act (GMA, Chapter 36.70A RCW). On October 29, 1998, the Cotton Corporation filed a petition with the Western Washington Growth Management Hearings Board (GMHB or Hearings Board) for review of various aspects of the plan (see Cotton Corporation, Inc. v. Jefferson County, WWGMHB No. 98-2-0017 (Final Decision and Order, April 5, 1999)). Among the issues raised by the petitioner was whether Jefferson County had complied with the stormwater provisions of §36.70A.070(1). The relevant sentence from that section of the statute states as follows:

“Where applicable, the land use element shall review drainage, flooding, and storm water run-off in the area and nearby jurisdictions and provide guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound.”

Petitioner Cotton contended that the comprehensive plan was devoid of the required review of drainage, flooding and stormwater run-off and specifically that the land use element contained no discussion of the above-quoted statute. In its April 5, 1999 Final Decision and Order, the Hearings Board largely agreed with the petitioner in concluding that the County was not in compliance with the statute because the “the balance of the land use element did not contain the review and guidance for corrective actions to mitigate or cleanse polluting discharges.” (Cotton at p. 7). As a result, the Hearings Board ordered Jefferson County to amend the Land Use & Rural Element of the Plan within 180 days to include a review of current drainage, flooding and stormwater run-off conditions in the county, as well as policy direction to mitigate discharges that pollute waters of the state.

This appendix is incorporated by reference within the Land Use & Rural Element of the Jefferson County Comprehensive Plan. In combination with the stormwater goals and policies contained in that element, this appendix represents Jefferson County's response to the Hearings Board Final Decision and Order. This appendix, coupled with the addition of stormwater goals and policies in the Land Use & Rural Element, have the following objectives:

- To review and consider known flooding, drainage and stormwater run-off problems county-wide (i.e., based on existing studies and available data); and
- To identify goals, policies and implementing steps to be taken by the county to mitigate or cleanse polluted discharges to waters of the state.

Existing Regulatory & Institutional Framework

Flood Hazard Areas

Federal Framework

National Flood Insurance & Flood Disaster Protection Acts

In an effort to alleviate flood damage and expenditures of government funds, the federal government adopted the National Flood Insurance Act of 1968 and subsequently the Flood Disaster Protection Act of 1973 (42 U.S.C. §4001 et seq.). Federal programs have been established under the authority of these laws in an attempt to control flood losses and disaster assistance costs that have continued to rise despite decades of flood management efforts.

Under the federal program, flood hazard areas are identified through the Flood Insurance Rate Maps (FIRM) produced by the Federal Emergency Management Agency (FEMA). The FIRM maps identify the base or 100-year floodplain, which is the area expected to be covered by flood waters at least once in a 100 year period, or having a one percent chance of occurrence in any given year. These maps are used as the basis for the National Flood Insurance Program (NFIP) (created in 1968). The NFIP provides the public an opportunity to obtain insurance coverage to cover damages to property and personal possessions resulting from flooding. However, insurance coverage is only available in local jurisdictions that have adopted and enforce floodplain management regulations meeting FEMA standards. Jefferson County participates in the NFIP, and has adopted a floodplain management ordinance meeting federal standards (Jefferson County Flood Damage Prevention Ordinance, No 18-1120-95).

Jurisdictions that apply more stringent flood management standards than those required by the NFIP may be eligible for reduced insurance rates for property owners through the NFIP's Community Rating System (CRS). Insurance premium discounts for affected property owners can range from 5 to 45 percent, and are offered in jurisdictions which undertake some or all of the eighteen public information and floodplain management activities described in the CRS Coordinator's Manual. Currently, Jefferson County does not participate in the CRS program.

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain

management activities that exceed the minimum NFIP standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS:

- Reduce flood losses;
- Facilitate accurate insurance rating; and
- Promote the awareness of flood insurance.

The National Flood Insurance Reform Act of 1994 codified the Community Rating System in the NFIP.

Finally, FEMA administers the Hazard Mitigation Grant Program (HMGP) that provides federal funds for mitigation projects that help communities respond to disaster damages and helps to reduce future damages by at least as much as the mitigation project would cost.

State Framework

Flood Plain Management Act

Under the Washington State Flood Plain Management Act, the Washington State Department of Ecology (DOE or Ecology) is the agency responsible for coordinating the flood plain management regulation aspects of the NFIP (see Chapter 86.16 RCW).

Washington State's Flood Control Assistance Account Program (FCAAP) is administered by the DOE, and provides funds for local flood hazard management planning efforts. Typically these plans are more specific plans than a comprehensive land use plan and pertain only to watershed-based flood hazard management. These grants may be used to prepare flood management hazard plans that enable a community to become eligible for FEMA's Community Rating System (CRS), thereby lowering insurance rates for property owners in floodplain areas.

Recently, DOE awarded an FCAAP grant to the County to prepare a Comprehensive Flood Management Plan for the Big Quilcene River. In July 1998, the Lower Big Quilcene River Comprehensive Flood Hazard Management Plan was formally adopted by Jefferson County.

Local Framework

Flood Damage Prevention Ordinance

The Jefferson County Flood Damage Prevention Ordinance (Ordinance No. 18-1120-95) was first adopted in 1989 and subsequently revised in 1995. The central purpose of the regulation is to reduce the risk to public health and safety from development occurring within floodplains. All proposed development that requires an application for a "triggering permit" is reviewed under the Jefferson County Critical Areas Ordinance (Ordinance No. 05-0509-94). Areas designated as "frequently flooded" are identified through information found in the FIRM and FEMA maps. The ordinance regulates development activities within frequently flooded areas, and substantially restricts development in floodways.

Local Flood Boards

In addition to local regulations, local “flood boards” have been established for the Dosewallips River, Big and Little Quilcene Rivers, and the Duckabush River. These flood boards were formed to provide local citizen input into decisions regarding county floodplain management. The Quilcene Flood Board played a central role in developing the Lower Big Quilcene River Comprehensive Flood Hazard Management Plan mentioned above.

Surface/Stormwater & Water Quality Management

Federal Framework

Clean Water Act

Federal requirements governing drainage and stormwater are contained principally in the Federal Water Pollution Control Act of 1972, which was amended in 1977 by the Clean Water Act and again in 1987 by the Water Quality Act. Collectively, these laws are referred to as the federal Clean Water Act (33 U.S.C. § 1251 et seq.). The objective of this Act is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters” by eliminating all pollutant discharges into navigable waters and achieving “fishable and swimmable conditions.” Key objectives and requirements of the Act relating to drainage and stormwater include the following:

- Prohibiting discharges of toxic pollutants;
- Developing the technologies needed to eliminate polluting discharges; and
- Implementing programs to control nonpoint source pollution.

The U.S. Environmental Protection Agency (EPA) has the responsibility to develop, administer and enforce the regulations necessary to implement the Act. In our state, this authority and responsibility has been delegated to the Department of Ecology.

At the core of the Clean Water Act is a system of permits called the National Pollutant Discharge Elimination System (NPDES). Two types of NPDES permits are established under the Act for stormwater discharges:

- One for construction projects (i.e., any clearing, grading, or excavating activities) that will disturb five (5) acres or more of land; and
- A second for publicly owned or operated stormwater systems for municipalities exceeding 100,000 in population (Jefferson County lies well outside the current permit threshold).

A total of 9 NPDES “stormwater general” permits have been issued for Jefferson County.

Endangered Species Act

Although it does not directly pertain to drainage and stormwater runoff, the federal Endangered Species Act (ESA) (16 U.S.C. §1531 et seq.) also has the potential to significantly affect both state and local regulation of drainage and stormwater runoff in Jefferson County. The ESA protects listed species by prohibiting activities that harm the species or its habitat. Rules issued by the National Marine Fisheries Service (NMFS) under the ESA (i.e., Section 4(d) rules) may prohibit activities that adversely affect listed species. Alternatively, the NMFS can allow specified activities under Section 4(d) if such activities adhere to a reliable, protective conservation plan approved by NMFS. Examples of activities that could be prohibited under Section 4(d) of the ESA include the following:

- Land use or water activities that adversely affect habitat;
- Discharges of pollutants into waters that support salmon stocks; or
- Destruction or alteration of salmon habitat.

In February of 1998, NMFS listed Hood Canal summer-run chum salmon as a threatened species under the ESA. The listing took effect on May 24, 1999. NMFS has not yet designated final critical habitat for summer chum, although summer chum spawn in streams draining to Discovery and Dungeness Bay and along Hood Canal. These ESA listings could profoundly impact the county's regulation and enforcement of drainage and stormwater controls. Moreover, the listings underscore the need for the county to preserve and protect the functions and values of the county's natural drainage system, reduce or eliminate polluted discharges, implement best management practices for development, and continue to adhere to the controlled growth principles of the GMA.

State Framework

Water Pollution Control Act

Because Washington's NPDES program has been "delegated" to the state by the federal government, the Department of Ecology has the primary responsibility under the Washington State Pollution Control Act (Chapter 90.48 RCW) for regulating water quality in this state. DOE also administers the state waste discharge program, establishes effluent treatment and limitation requirements, as well as standards for water quality for "waters of the state." Ecology is currently monitoring a total of 32 "industrial general" NPDES permits in Jefferson County (i.e., 6 for boatyards, 16 for industrial activities, and 9 for stormwater discharges).

Water Quality Standards for Surface Waters

Chapter 173-201A of the Washington State Administrative Code (WAC) establishes the water quality standards for the state. The standards are established based on present and potential surface water uses and upon "natural water quality potential and limitations" (see WAC 173-201A-010). Under WAC 173-201A-130 and 140, DOE assigns each water body a classification indicating the beneficial uses it is expected to support. Water quality parameters are defined for each classification. Tested waters that meet the parameters for their classification are assumed to support the identified uses. The testing parameters differ depending on the water type (fresh or marine) and class of a particular water body.

Washington State recognizes five classes of water bodies. The classes include AA (extraordinary quality), A (excellent), B (good), C (fair, marine waters only), and lake class. In Jefferson County, Class AA waters include areas where extraordinary water quality would be expected, such as most of Port Townsend Bay and the Big Quilcene River. Table G-1 on the following page identifies a number of major water bodies in Jefferson County and their state classification.

Table G-1 Specific Water Quality Classifications for Selected Fresh & Marine Waters in Jefferson County

Water Body	State Water Quality Classification
Big Quilcene River & Tributaries	AA
Clearwater River	A
Dosewallips River & Tributaries	AA
Duckabush River & Tributaries	AA
Hoh River & Tributaries	AA
Queets River & Tributaries	AA
Quillayute River	AA
Quinault River & Tributaries	AA
Coastal Waters of Jefferson County	AA
Hood Canal	AA
Port Townsend Bay (west of line between Pt. Hudson & Kala Pt.)	A
Port Townsend Bay (east of line between Pt. Hudson & Kala Pt.)	AA
Puget Sound through Admiralty Inlet & South	AA

(Source: WAC §§173-201A-130 and 173-201A-140)

Consistent with §303(d) of the federal Clean Water Act, DOE monitors the waters of Jefferson County to ensure compliance with the standards adopted in WAC 173-201A. Every two years DOE prepares a list of waterbody segments that are not expected to meet the water quality standards after implementation of “technology-based controls” (i.e., for point sources of pollution) or best management practices (BMPs) (i.e., for nonpoint sources of pollution). Once a waterbody segment is placed on the §303(d) list, DOE typically works with local government and interested parties to develop an adequate management plan to remedy the water quality problem.

Puget Sound Water Quality Protection Act

In 1985, the state legislature established the Puget Sound Water Quality Authority (Chapter 90.70 RCW, now repealed). The primary mission of the Authority (now superceded by the Puget Sound Action Team, see Chapter 90.71 RCW, the Puget Sound Water Quality Protection Act) is to restore, protect, and preserve the environmental condition of the Sound. In fulfilling its charge to improve the waters of the Sound, the Authority employed six key tools:

- Formulating and coordinating policy and management goals through watershed management plans, primarily by adopting and promoting a Puget Sound Water Quality Management Plan;
- Identifying sources of funding available for local water quality management, public involvement, and educational programs;
- Targeting technical assistance to local governments;
- Coordinating inter-agency programs to monitor water quality in the Sound;
- Developing research priorities and hosting forums through which to share research findings; and
- Reporting and educating local governments and the public about water quality issues, especially through the biennial “State of the Sound” report.

Of these tools, the first, the Puget Sound Plan, is the vehicle for incorporating a management system for the Sound. The plan specifies among other things, guidelines, standards, and timetables for protection and clean up activities and the establishment of priorities for major clean up investments and nonpoint source management (see RCW 90.70.060).

State law requires every agency and local government, in conducting its planning, regulatory and appeals functions to incorporate the provisions of the Puget Sound Plan, including the guidelines, standards, and timetables contained in the Plan (see RCW 90.70.070(1)). Although compliance is conditioned on the “availability of appropriate funds or funding sources,” it is clear that local governments are required to make a good faith effort to develop and implement a stormwater management program that is consistent with the Puget Sound Plan. Under the Puget Sound Plan, local jurisdictions, at a minimum, are required to adopt an ordinance to control runoff from new development and redevelopment, to maintain both public and private stormwater facilities, and to adopt either DOE’s Stormwater Management Manual for the Puget Sound Basin or one that is “substantially equivalent” to the DOE manual for the construction of new drainage facilities. Local governments were required to comply with the “basic” requirements of the Puget Sound Plan by 1995. Table G-2, on the following page, briefly describes the elements of basic stormwater management programs under the Puget Sound Plan and the county’s compliance status.

**Table G-2
1994 Puget Sound Water Quality Management Plan Basic Program**

Plan Element	Basic Program Requirements	County Compliance Status
SW – 1.1 Minimum Requirements for Basic Stormwater Programs	Adopt ordinances that include: <ul style="list-style-type: none"> • Control of off-site water quality & quantity • Use of best management practices (BMPs) • Effective treatment of the “design storm” • Preference for the use of infiltration • Protection of stream channels, aquatic habitat & wetlands • Erosion and sediment control • Local enforcement 	The county has adopted ordinances that include thresholds & minimum requirements that meet or exceed those in the DOE technical manual for new or redevelopment. Basic requirements are met by the Jefferson County Storm Water Control Ordinance (No. 10-1104-96 and the Jefferson County Flood Damage Prevention Ordinance (No. 18-1120-95).
SW – 1.2 Operation & Maintenance Programs (O&M)	Maintain records of public & private systems. Adopt ordinances consistent with DOE’s Model Operation & Maintenance Ordinance.	Jefferson County does not own or operate any stormwater management facilities as such, though it does maintain approach culverts & cross-culverts along county roads. The county has a partial inventory of these culverts, & maintains records on all private stormwater facilities. The county does not have a specific O&M ordinance, though it is in the process of developing a model stormwater maintenance agreement which will be required as a condition of approval for all private facilities.
SW – 1.3 Technical Manuals	Adopt DOE’s <u>Stormwater Management Manual for the Puget Sound Basin</u> or its equivalent.	The county has adopted the DOE Manual.
SW – 1.4 Education Programs	Include education programs to inform citizens & businesses about stormwater and its effects on water quality, flooding, habitat, & discourage dumping of wastes.	The county has participated in public education activities, including the following: <ul style="list-style-type: none"> • The Water Watchers program coordinated by the WSU Cooperative Extension and • Use of DOE photo ready brochures on various stormwater issues available to development applicants at the county Permit Center.
SW – 1.5 Growth Management Planning & Interlocal Coordination	Incorporate the local stormwater program into its GMA comprehensive plan.	The provisions of this section of the Land Use & Rural Element of the Plan are intended to meet this requirement.
SW – 1.6 Compliance Monitoring	Ecology shall monitor compliance with these requirements.	County staff have met with DOE staff to assist in their monitoring efforts.

Watershed Action Plans

Under the authority of Chapters 90.70 RCW and 400-12 WAC, the state has also established criteria and procedures for ranking watersheds and for developing and implementing “action plans” for watersheds in need of corrective and/or preventive actions. The purpose of these action plans is to reduce pollutant loading from nonpoint sources, prevent new sources from being created, enhance water quality and protect beneficial uses. The watershed planning process established under WAC 400-12 encourages collaborative problem solving among a diversity of local, state, tribal, and federal interests, recognizing that political constituency building is necessary for implementation. Jefferson County has developed a number of watershed action plans under this scheme, as discussed under the “local framework” section, below.

Local Framework

Jefferson County Storm Water Management Ordinance

As noted in Table G-2 above, the Jefferson County Board of Commissioners have formally adopted a County stormwater management ordinance to comply with the Puget Sound Water Quality Management Plan (as amended) and to meet the applicable goals and requirements of the GMA. Consistent with the Puget Sound Plan, the county’s ordinance includes provisions relating to the following:

- Control of off-site source water quality and quantity (as related to quality) impacts;
- Use of best management practices (BMPs) for source control and treatment;
- Use of the Stormwater Management Manual for the Puget Sound Basin (The Technical Manual) and best management practices (BMPs) for the effective treatment of the storm size and frequency (design storm) for proposed development;
- Use of infiltration (i.e., downward movement of water from the surface to the subsoils), with appropriate precautions, as the first consideration in storm water management;
- Protection of stream channels and wetlands; and
- Erosion and sediment control for new development and redevelopment projects.

Jefferson County’s Storm Water Management Ordinance (No. 10-1104-96) formally adopts and incorporates by reference the Department of Ecology Stormwater Management Manual for the Puget Sound Basin (current edition) as the storm water manual, adopts thresholds for determining development requirements, and provides a means of regulating land disturbing activities on private and public land and resulting stormwater runoff. The Ordinance defines “stormwater” as “[t]hat portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels or pipes into a defined surface water channel, or a constructed infiltration facility.”

Jefferson County On-Site Sewage Code (J.C.C. Chapter 8.15)

In addition to the Storm Water Management Ordinance, the Jefferson County Environmental Health Division also administers an “Onsite Sewage Code” (Jefferson County Code Chapter 8.15) which regulates the design, construction and maintenance of onsite septic systems. The code is

designed to protect the public health and safety by requiring standards that will adequately treat human sewage prior to recharge into ground water or discharge into surface waters.

Jefferson County is unique in Washington State in that it requires all landowners that have received a permit for an alternative septic system since 1991 to complete a contract with the Jefferson County Public Utility District regarding septic system inspection and maintenance. Revisions to this Code are now underway which would require operations and maintenance agreements for all septic systems.

Jefferson County Watershed Action Plans

Jefferson County has participated in watershed planning for nearly ten years through state and federal programs. Jefferson County contributed staff time and other in-kind resources in the development of nonpoint pollution early watershed action plans through WAC 400-12.

The following WAC 400-12 plans have been developed in Jefferson County:

- Quilcene/Dabob Bay Watershed Action Plan (June 1991);
- Ludlow Watershed Action Plan (November 1993); and
- Discovery Bay Watershed Action Plan (March 1995).

Each of these plans assessed the potential for nonpoint pollution sources to affect freshwater and marine water quality. Each plan contained action items to be implemented that would mitigate impacts from nonpoint water quality pollution.

Dungeness-Quilcene Water Resource Management Plan

Though a pilot project under the 1990 “Chelan Agreement,” rather than a watershed action plan under WAC 400-12, the Dungeness-Quilcene Water Resource Management Plan (the DQ Plan) represents the most comprehensive water resource planning document prepared to date for Jefferson County. Representatives of state, local and tribal governments, and agricultural, business, environmental, fisheries, and recreational interests participated through caucuses to gather and evaluate information which led to the final DQ Plan, dated June 30, 1994.

The DQ Plan provides regional strategies and recommendations to address a number of issues for both the Dungeness and Quilcene watersheds (encompassing portions of DOE’s Water Resource Inventory Areas (WRIAs) 17 and 18).^{*} Issues addressed include water use, management, conservation, and related habitat issues for both the Dungeness and the Quilcene river watersheds. A special recommendation for the region was to conduct a comprehensive hydrogeologic investigation of the quantity and quality of surface and ground water. A work plan for a five-year study was developed by the United States Geological Survey for the DQ project. An accompanying recommendation included continuing water quality and quantity data monitoring and management which is recognized as essential for ongoing water resource and land use planning efforts.

^{*} Different scales have proven appropriate for different watershed planning efforts. One of the first attempts to establish distinct watershed boundaries can be traced to DOE’s efforts in the 1960s to delineate 62 “Water Resource Inventory Areas” (WRIAs). The state legislature elevated the concept of WRIAs through the Water Resources Act of 1971, which called for a watershed approach to examining issues of water rights allocations, and which prompted DOE to promulgate its WRIAs through regulation (see Chapters 90.54 RCW and 173-500 WAC). DOE continues to employ these WRIAs as the conceptual foundation for examining impacts on water resources through a geographic perspective.

Other watersheds in Jefferson County have not had the benefit of pilot planning efforts, and will require coordination with other counties. Jefferson County watersheds in the Skokomish-Dosewallips watershed (WRIA 16) along Hood Canal (including the Dosewallips and Duckabush Rivers in Jefferson County), should be planned under a cooperative process with Mason County serving as lead agency. Jefferson County intends to participate in this process as an initiating government. The county intends to work cooperatively with Clallam and Grays Harbor counties to develop watershed planning units for the western portion of the County, where the Soleduck-Hoh (WRIA 20) and the Queets-Quinault (WRIA 21) will be addressed. The watershed planning process will require new coordination and organizational efforts across both watershed and jurisdictional boundaries.

Finally, in 1998 the State Legislature passed House Bill 2514, The Watershed Management Act, to set a framework for addressing the state's water resource and water quality issues, as well as to provide for salmon habitat needs. Although watershed planning is optional under the statute, Jefferson County has recently received a \$242,000 grant to address water quantity and quality, habitat and instream flows in the Quilcene-Snow watershed (WRIA 17). As its name indicates, WRIA 17 includes the Big and Little Quilcene rivers and a portion of Hood Canal, as well the Discovery Bay and Snow Creek watersheds located in northeast Jefferson County. The map on the following page depicts the approximate location and extent of all WRIsAs affecting Jefferson County.

INSERT JEFFERSON COUNTY WRIA_s MAP

Review of Drainage, Flooding, Stormwater & Existing Polluted Discharges

Drainage - Overview

Jefferson County comprises 1,808 square miles, with Olympic National Park and Olympic National Forest bisecting the County into western and eastern portions. The eastern portion of Jefferson County drains into Hood Canal, Admiralty Inlet and the Strait of Juan de Fuca, and is home to 96 percent of the county's population.

Jefferson County's natural drainage system contains all or a portion of a number of significant rivers, including the Duckabush, Dosewallips, and Quilcene rivers in eastern Jefferson County and the Bogachiel, Hoh, Queets and Quinault rivers in western Jefferson County. A large number of smaller streams and rivers also contribute to draining the county's landmass (i.e., many with flows less than 50 cubic feet per second). A total of five major watersheds or "Water Resource Inventory Areas" (WRIAs) lie wholly or partially within Jefferson County, including the following:

- Skokomish Dosewallips (WRIA 16, which includes a portion of southeast Jefferson County);
- Quilcene-Snow (WRIA 17, which includes most of east Jefferson County);
- Elwha-Dungeness (WRIA 18, which includes a small portion of north-central Jefferson County which lies wholly within the National Forest Service Boundary);
- Soleduck-Hoh (WRIA 20, which includes a significant portion of northwest Jefferson County); and
- Queets-Quinault (WRIA 21, which includes southwest Jefferson County).

Data developed by the Jefferson County Integrated Data Management System (IDMS) indicate that approximately 367 linear miles of rivers and streams lie within Jefferson County, as well as approximately 14 miles of lake shoreline. Wetlands are also an important component of the county's natural drainage system. Approximately 116 square miles, or about 6.4 percent, of that portion of eastern Jefferson County lying east of the U.S. Forest Service boundary have been designated as wetlands. The map on the following page depicts the approximate location and extent of known wetlands in eastern Jefferson County. No reliable geographic information system data regarding wetlands exist for western Jefferson County. In the eastern portion of the county the geology of the landmass tends to consist of shallow soils overlying densely compacted glacial till often resulting in perched water tables and shallow horizontal ground water flow. The topography of the land is such that there are comparatively few areas of serious flooding, even during periods of high rainfall and heavy run-off.

Because much of the east county lies in the rain shadow of the Olympic Mountains, low instream flows are chronic during the summer months in many streams (i.e., WRIAs 16 and 17). These low summer flows contribute to high water temperatures and depleted oxygen levels in many rivers and streams in the eastern portion of the county. Consequently, salmonid habitat in these streams is highly susceptible to degradation caused by poor land use practices. In the Quilcene River area, and other parts of both the east and west county, flooding causes problems such as erosion, loss of habitat, and possible ground water contamination.

INSERT WETLANDS MAP

INSERT FLOOD HAZARD AREAS MAP

Flooding

As noted above, Jefferson County has defined flood hazard areas to include those lands that have been identified as likely to flood at least once every 100 years (i.e, subject to a one percent (1%) chance of flooding in any given year). Areas of higher elevation surrounding designated flood hazard areas may also be at risk if development substantially increases stormwater run-off, thereby raising the potential for flooding by modifying the land's existing drainage patterns and stormwater storage capabilities. Known flood hazard areas occupy approximately 6.7 square miles or 2.2% of the county's total land base lying east of the U.S. Forest Service Boundary (4,263 of 194,700 total acres). No reliable geographic information system data exist for western Jefferson County.

The map on the preceding page depicts the approximate location and extent of known flood hazard areas in eastern Jefferson County. The Flood Hazard Area Map reveals that in eastern Jefferson County, designated riparian flood hazard areas occur principally along Snow, Leland and Chimacum Creeks, and the Dosewallips, Duckabush and Big and Little Quilcene Rivers. In western Jefferson County, riparian flood hazard areas occur primarily along portions of the Hoh, Queets, Quinault, and Clearwater Rivers.

Significant areas of flood hazard potential are also identified along Jefferson County's marine shorelines. These marine flood hazard areas are subject to hazards associated with the effects of wind and water loading caused by storm surges, as well as flood levels in stream outflows coupled with high tides. These areas are typically low-bank, or at the base of steep bluffs eroded by past wind and wave action. Areas of Brinnon, Quilcene, Port Ludlow and Port Townsend typify these areas of coastal flood hazard.

In addition to the riparian and coastal flood hazards identified above, many areas of the County are characterized by shallow soils with perched water tables which experience recurrent localized drainage problems during periods of wet weather. Examples of these areas include the wetlands and peat bogs along Chimacum and Snow Creeks.

The hydraulic capacity of the natural drainage system in several areas of Jefferson County is particularly inadequate to convey flows, resulting in recurrent flooding during periods of heavy rainfall. Areas with significant stormwater run-off, drainage, or flooding problems include the following:

- The lower reaches of the Duckabush and Dosewallips rivers in WRIA 16;
- The Big Quilcene river lying east of Quilcene in WRIA 17;
- Snow Creek from Crocker Lake to Discovery Bay in WRIA 17;
- Chimacum Creek, along both Center and Beaver Valleys, as well as portions of Chimacum Creek flowing through the Tri-Area Subarea to Port Townsend Bay in WRIA 17;
- Leland Creek in WRIA 17;
- Portions of the Hoh River in WRIA 20; and
- Portions of the Clearwater, Queets and Quinault rivers in WRIA 21.

The most severe recurrent flooding episodes occur along the lower reaches of the Dosewallips and Big Quilcene rivers, where unstable channel conditions have resulted in an increasing frequency of over bank flows, channel blockages, adverse impacts to fish habitat and damage to shellfish beds.

Along the Dosewallips River at Brinnon, routine channel changes have eroded platted lots in the Lazy C development. Additionally, aggradation along the lower Dosewallips has the potential to result in frequent overland flows and possibly radical channel changes. Along the lower reaches of the Big Quilcene River, dikes have confined the river. This has led to the aggradation of the bed, which is now at a higher elevation than the surrounding area. Annual high water flows often cause the river to top the dikes. This has had adverse impacts on local residents and shellfish and fish resources.

Recently, the Department of Ecology awarded a grant to the County to prepare a Comprehensive Flood Management Plan for the Big Quilcene River. In July 1998, the Lower Big Quilcene River Comprehensive Flood Hazard Management Plan was formally adopted by Jefferson County. The Capital Facilities Element of the Jefferson County Comprehensive Plan anticipates that significant facilities and projects will be required in order to implement this Flood Management Plan (i.e., approximately 2.24 million dollars over the first six years in both capacity and non-capacity projects).

Stormwater

Presently, the county lacks a comprehensive countywide surface water management plan that identifies specific needs, requirements, and projects. As noted in Table G-2, above, the county neither owns nor operates stormwater management facilities with the exception of stormwater collection and conveyance systems designed to control runoff from County roads (i.e., approach culverts and cross-culverts). A partial inventory of county approach culverts and cross-culverts has been completed by the Department of Public Works.

Though the county does not own or operate facilities, throughout the county there exist private stormwater management facilities designed to serve private development projects. Often, these facilities were developed as a condition of development approval (e.g., historically under the authority of the state Subdivision Act, Chapter 58.17 RCW and more recently under the authority of the Stormwater Management Manual for the Puget Sound Basin). These private systems include collection, conveyance, and detention facilities, and are typically operated and maintained by private parties or homeowner associations.

As explained in the Capital Facilities Element of this plan, the county has not adopted quantified level of service standards for stormwater management facilities and instead relies on the development specific standards contained in DOE's Technical Manual. In subsequent iterations of the Capital Facilities Element of this plan, the county may seek to develop quantified level of service options for stormwater management/flood control facilities.

Finally, it should be noted that the County's 1999 budget allocates approximately \$34,000 for the preparation of an outline and scope of services for a Comprehensive Surface Water Management Plan. It is anticipated that development of this plan will begin in earnest during the year 2000.

Existing Polluted Discharges

Development, agriculture, industry, and timber harvesting have adversely affected the quality and quantity of surface waters of Jefferson County. In Jefferson County, the Department of Ecology has listed the water bodies identified in Table G-3 as “water quality impaired” under Section 303(d) of the federal Clean Water Act.

**Table G-3
Water Bodies with “Water Quality Impaired Segments” in Jefferson County
(1998 303 (d) List)**

Water Resource Inventory Area (WRIA)	Name of Water Body with One or More Impaired Segments	Water Quality Concern
WRIA 17 (Quilcene-Snow)	Big Quicene River	<ul style="list-style-type: none"> • Fish Habitat • In-stream Flow
	Little Quilcene River	<ul style="list-style-type: none"> • Temperature
	Dabob and Quilcene Bays	<ul style="list-style-type: none"> • Fecal Coliform
	Chimacum Creek	<ul style="list-style-type: none"> • Temperature • Fecal Coliform
	Leland Creek	<ul style="list-style-type: none"> • Temperature
	Tarboo Creek	<ul style="list-style-type: none"> • Temperature
	Thorndyke Creek	<ul style="list-style-type: none"> • Temperature
	WRIA 16 (Skokomish-Dosewallips)	Hood Canal (south @ Dosewallips)
Hood Canal (south @ Duckabush)		<ul style="list-style-type: none"> • Fecal Coliform
WRIA 18 (Elwa-Dungeness)	(all lands within Jefferson County are in USFS jurisdiction)	N/A
WRIA 20 (Soleduck-Hoh)	Alder Creek	<ul style="list-style-type: none"> • Temperature
	Anderson Creek	<ul style="list-style-type: none"> • Temperature
	Bogacheil River	<ul style="list-style-type: none"> • Temperature • Dissolved Oxygen
WRIA 21 (Queets-Quinalt)	Kalaloch Creek	<ul style="list-style-type: none"> • Temperature

The table suggests that most of the listings relate to the cumulative effects of forest practices and water withdrawals (i.e., listings for temperature, habitat, and in-stream flow) rather than “existing polluting discharges” (i.e., fecal coliform, PCBs, etc. The detailed drainage information set forth in the following section reinforces the conclusion that many of the activities contributing to these 303(d) listings are outside of Jefferson County’s authority or ability to control, including the following:

- Logging practices on state and private lands managed by the Washington State Department of Natural Resources;
- Logging practices on federal lands managed by the United States Department of Agriculture Forest Service;

- Water withdrawals permitted by the state under state law; and
- Farming practices regulated by DOE and the state Department of Agriculture.

Whatever the principle reasons for these 303(d) listings, Jefferson County is committed to fully cooperating with the Department of Ecology in developing watershed management plans to reduce or eliminate the sources of water quality impairment.

Water Quality Concerns for Sub-Watersheds, Marine Waters & Lakes in WRIAs 16 & 17

This section provides more detailed information and an evaluation of the water quality issues affecting selected “sub-watersheds” and marine waters located in WRIAs 16 and 17 of east Jefferson County. More detailed information and issue identification has been completed for these areas because they include the most developed and populated areas of the county and also include critical habitats for salmonid species recently listed under the federal Endangered Species Act. As depicted by Table G-4, the sub-watershed areas assessed in this section include most of the land in east Jefferson County, as well as portions of Clallam and Mason counties.

**Table G-4
Acreages in Selected Sub-Watersheds in Eastern Jefferson County
(Water Resource Inventory Areas (WRIAs) 16 & 17)**

Sub-Watershed Name & Location	Total Acreage	Acreage in Jefferson County	Acreage in Clallam County	Acreage in Mason County
Dosewallips River (WRIA 16)	74,412	74,412	N/A*	0**
Duckabush River (WRIA 16)	49,970	49,970	N/A	0
Chimacum Creek (WRIA 17)	22,347	22,347	0	N/A
Salmon Creek (WRIA 17)	15,150	6,879	8,271	N/A
Snow Creek (WRIA 17)	14,395	9,274	5,121	N/A
Little Quilcene River (WRIA 17)	22,512	14,386	8,126	N/A
Big Quilcene River (WRIA 17)	44,786	44,589	197	N/A

(Source: Jefferson County IDMS, 1999).

* N/A indicates that no portion of the WRIA lies within the jurisdiction.

** 0 indicates that no portion of the specific watershed lies within the jurisdiction, though the WRIA does include portions of the jurisdiction.

Dosewallips River Sub-Watershed (WRIA 16)

The Dosewallips River flows into the Hood Canal from the Olympic Mountains. The Dosewallips has a sub-watershed area of approximately 74,412 acres (approximately 116 square miles) and an average annual discharge of 446 cubic feet per second at river mile 7.1.

The largest landowners in this sub-watershed are the Olympic National Park (47,231 acres) and the Olympic National Forest (22,028 acres), which, together, comprise 93% of the total land area. A significant portion of the National Forest land is protected as wilderness area. The remaining 7% of the National Forest land is divided between privately held forestlands, rural residential, park land and commercial uses. There are 34 acres of commercial zoning in the sub-watershed, which is concentrated along the lower reaches of the river at the community of Brinnon. The predominant residential zoning density in this sub-watershed (678 acres) is one residence per 20 acres.

The Department of Ecology recently completed a water quality Needs Assessment for the Eastern Olympic Water Quality Management Area (DOE publication WQ-98-20, June 1998), which identified water quality issues for a number of water bodies in WRIAs 16 and 17. The principal water quality issues identified in the needs assessment for the Dosewallips River included the following:

- A lack of large woody debris and side channels (i.e., fish habitat);
- Adverse effects from flood control activities (i.e., changing flow velocities and resulting in aggradation of the riverbed);
- Adverse effects from forest practices (i.e., sedimentation and temperature rise from vegetation removal); and
- A potential for fecal coliform contamination from failing septic systems and small farms.

Duckabush River Sub-Watershed (WRIA 16)

The Duckabush River runs along the southern boundary of Jefferson County with Mason County. The sub-watershed comprises approximately 49,970 acres (about 78 square miles). The annual average discharge is 411 cubic feet per second at river mile 4.9.

Land use in the Duckabush River sub-watershed is similar to that of the Dosewallips River sub-watershed. Approximately 28,875 acres are within Olympic National Park and 15,681 acres are within Olympic National Forest, together comprising 89% of the total land area. The remaining area is zoned for privately held forestlands (3,725 acres), rural residential land use (1,414 acres), and parks (134 acres). There is no commercial or industrial-zoned land in the Duckabush River sub-watershed. The predominant residential zoning density in this sub-watershed (863 acres) is one residence per five acres.

The water quality issues identified by the DOE needs assessment for the Duckabush River were identical to those identified for the Dosewallips River.

Salmon Creek Sub-Watershed (WRIA 17)

Salmon Creek flows from the north slopes of Mount Zion into Discovery Bay at the eastern edge of the Strait of Juan de Fuca, adjacent to Snow Creek. This sub-watershed comprises a total of approximately 15,150 acres (nearly 24 square miles).

Land use within this sub-watershed is primarily Olympic National Forest (9,230 acres) and privately held forest lands (5,052 acres). There is a mixture of agriculture (219 acres) and rural residential (613 acres) land uses in the lower reaches of the sub-watershed, with approximately 10 acres of land zoned for commercial uses located at the mouths of Snow and Salmon creeks along the marine shoreline of Discovery Bay. The predominant residential zoning density (593 acres) is one residence per 20 acres.

Landslides from road building and land clearing on steep slopes are a significant problem in this sub-watershed. Salmon stocks in the creek have been impacted by siltation from forest practices, channelization and agricultural activities.

Snow Creek Sub-Watershed (WRIA 17)

Snow Creek flows from the northeast and east slopes of Mount Zion into Discovery Bay at the eastern edge of the Strait of Juan de Fuca. This sub-watershed comprises approximately 14,395 acres (about 22.5 square miles).

Land use within the Snow Creek Sub-watershed is similar to the Salmon Creek Sub-watershed, with additional rural residential land use in the lower watershed. Olympic National Forest comprises 5,502 acres (38% of the watershed), and privately held forestlands comprise 7,280 (51% of the watershed). Rural residential uses comprise 1,120 acres of the Snow Creek Sub-watershed, with 191 acres of land zoned primarily for agricultural uses. There are approximately 10 acres of land zoned for commercial use located at the mouths of Snow and Salmon creeks along the shoreline of Discovery Bay. The predominant residential zoning density in this sub-watershed (650 acres) is one residence per 20 acres.

As is the case in the Salmon Creek sub-watershed, siltation from forest practices, channelization and agricultural activities have negatively impacted water quality and salmon habitat in the Snow Creek sub-watershed.

Chimacum Creek Sub-Watershed (WRIA 17)

Chimacum Creek drains into Port Townsend Bay at the northwestern portion of Admiralty Inlet, approximately 5 miles south of the City of Port Townsend. The Chimacum Creek sub-watershed encompasses approximately 22,347 acres (about 35 square miles), draining the majority of the Quimper Peninsula.

The upper Chimacum Creek sub-watershed is dominated by agricultural, forestry, and rural residential land uses. Overall, there are 3,046 acres zoned primarily for agricultural use in the Chimacum Creek sub-watershed, representing about 14% of the total land area (note: there are 5

active dairies in this sub-watershed). Toward its lower reaches, Chimacum Creek flows through areas zoned primarily for residential and commercial land uses. Rural residential zoning is found on approximately 8,528 acres (38% of the sub-watershed). A total of 152 acres of land is zoned commercial in this sub-watershed (0.7% of the total). The predominant residential zoning density (4,112 acres) is one residence per 20 acres.

The lower reaches of the Chimacum Creek sub-watershed are influenced by residential and commercial land use in the Tri-Area (Irondale, Port Hadlock, Chimacum). At the time of this writing, Jefferson County is in the process of studying the Tri-Area to evaluate its potential as a designated Urban Growth Area. If approved as an Urban Growth Area (UGA), growth will be directed to the Tri-Area to protect rural residential areas from urban sprawl. UGA designation would require the provision of drainage and stormwater facilities at an urban level of service standard which could assist in mitigating potential adverse stormwater run-off and water quality impacts to Chimacum Creek.

Chimacum Creek experiences a number of water quality problems related mainly to agricultural practices, including the following:

- Channelization;
- Lack of cover;
- Low dissolved oxygen levels;
- Elevated fecal coliform levels;
- Sedimentation;
- High nutrient levels;
- Temperature increases; and
- Invasive reed canary grass.

Of DOE's ambient water quality monitoring stations located in the Eastern Olympic Water Quality Management Area (i.e. WRIs 13, 14 and 16-19), fecal coliform criteria were exceeded most frequently at the Chimacum station. Chronic fecal coliform contamination occurred during both wet and dry seasons. Temperature and dissolved oxygen violations coincided with low flow periods.

Little Quilcene River Sub-Watershed (WRIA 17)

The Little Quilcene River sub-watershed drains into Quilcene Bay near the Big Quilcene River. The sub-watershed comprises 22,512 acres (about 35 square miles) in the northeastern corner of the Olympic Mountains and adjacent lowlands.

Land use in the Little Quilcene sub-watershed is less protected than many other Hood Canal rivers. None of the watershed is located within Olympic National Park, although major portions of the sub-watershed are located within the Olympic National Forest. Approximately 9,872 acres (44% of the total sub-watershed) is within the Olympic National Forest, and another 8,224 acres (36% of the total land) is zoned as privately held forestland. Some 3,840 acres of land are zoned for rural residential uses, 180 acres are zoned primarily for agricultural use, and five (5) acres are zoned for commercial use. The predominant residential zoning density in this sub-watershed (2,263 acres) is one residence per 20 acres.

This sub-watershed has depressed fish stocks, insufficient flow during the dry season, and flooding during the wet season. The Washington State Department of Fish and Wildlife has expressed concern about the effects that dikes and other constrictions (e.g. road cross-culverts), as well as the lack of large woody debris have had on fish habitat.

Big Quilcene River Sub-Watershed & Quilcene & Dabob Bays (WRIA 17)

The Big Quilcene River drains into Quilcene Bay, located in the northwest portion of Hood Canal. The Big Quilcene River has a sub-watershed area of approximately 44,786 acres (about 70 square miles). Eighty-five percent (85%) of the sub-watershed is under federal ownership in national forest management. The Buckhorn Wilderness Area occupies about 30% of this sub-watershed.

The rural community of Quilcene is located in and adjacent to the 100-year floodplain of the Big Quilcene River. As of 1996, Quilcene had 1,308 residents. Rural residential zoning occupies approximately 4% of the sub-watershed. Commercial zoning occupies a total of 48 acres (0.1% of the sub-watershed). There are 22 acres of light industrial zoned land located just outside and to the south of the core of the community. The predominant residential zoning density in this sub-watershed (979 acres) is one residence per five acres.

The Big Quilcene River has water quality issues nearly identical to those identified for the Little Quilcene River. Channel constrictions have adversely affected channel stability, have exacerbated flooding and have degraded fish and shellfish habitat in the marine waters of Quilcene and Dabob Bays. Additionally, DOE has expressed concern that the comparatively high density of septic systems in the town of Quilcene may adversely effect water quality.

Tarboo & Thorndyke Creek Sub-Watersheds (WRIA 17)

Tarboo and Thorndyke Creeks are located on peninsulas draining into Quilcene/Dabob Bay. Tarboo Creek begins about 5 miles north of the head of Tarboo Bay and 4 miles south of Discovery Bay. The mapped stream begins at about 600 ft. elevation. One branch begins about 1/4 mile from, and perhaps 30 ft. lower than Tarboo Lake, which has no mapped inlet or outlet.

The main stem of Thorndyke Creek begins at Sandy Shore Lake (1/2 mile south of Highway 104, about 3 miles southeast of the Chimacum/Quilcene West-Valley Road off ramp) and flows mostly south for 6+ miles. Perennial and intermittent tributaries add another 7+ miles of stream length.

The land uses in the Thorndyke Creek and Tarboo Creek sub-watersheds have not been analyzed in detail. The majority of the land use is within commercial forestry, rural forestry, and inholding forestry land use zones. There are no forestlands under federal ownership in these two sub-watersheds. The predominant residential zoning density within these sub-watersheds is one dwelling unit per twenty acres.

DOE ambient water quality monitoring data for Tarboo Creek, as well as anecdotal information for Thorndyke Creek, suggest that water quality in these water bodies has been impaired by forest practices (i.e., siltation, lack of vegetative cover).

Discovery Bay (WRIA 17)

In recent years there have been serious, unexplained declines in herring, shrimp, crab, coho, chum, auklets, and eelgrass in Discovery Bay. While tightline stormwater drains from bluffs may be preventing erosion, there is a possibility that some are acting as conduits for nonpoint source pollution to the Diamond Point shoreline. Area residents have also expressed concern over a proposal to place an Atlantic Salmon net pen in the Bay.

Port Townsend Bay (WRIA 17)

The chief water quality concerns for this marine water body are posed by stormwater runoff from the City of Port Townsend, and effluent discharges from the Port Townsend Paper Company kraft mill.

The City of Port Townsend is attempting to finalize a Stormwater Management Plan, with financial assistance from the Department of Ecology. While significant progress has been made in treating stormwater and protecting wetlands, stormwater from the oldest, most urbanized part of the city flows into Port Townsend Bay untreated and unmonitored.

The Port Townsend Paper Company and kraft mill, which includes a de-ink facility and a sanitary wastewater treatment plant, is located in unincorporated Jefferson County adjacent to the city limits. The mill has a primary clarifier and an aerated stabilization basin. The facility's average discharge is about 14 million gallons per day. No bleaching is used, so no chlorinated organic materials are discharged. The most recent water quality violation for the facility was a penalty in 1993 for exceeding state standards for biological oxygen demand. An order was issued by DOE in 1997 to evaluate the sewer line between the main pump station and the primary clarifier, after effluent from a break in the sewer line entered Port Townsend Bay.

Lake Leland (WRIA 17)

Lake Leland is rich in dissolved nutrients and seasonally deficient in dissolved oxygen (i.e., eutrophic). The lake is infested with *Egeria densa* (Brazilian Elodea), and DOE is helping to fund an aquatic vegetation management plan to control this weed.

Summary of the Key Drainage, Flooding, Stormwater Runoff & Water Quality Issues Facing Jefferson County

The foregoing review and analysis of existing conditions as well as a review of published studies and reports pertaining to Jefferson County reveals the following:

1. Existing water quality information for Jefferson County's watersheds is somewhat limited, particularly regarding water quality criteria other than fecal coliform levels. The collection

of additional data would be beneficial to the county in assessing overall watershed health (e.g., data regarding fisheries habitat, erosion and sedimentation rates, septic system failures, and wetlands, etc.).

2. Fecal coliform contamination, temperature increase and sedimentation are the most prevalent water quality concerns in the county's watersheds.
3. Headwaters and stream reaches in the upper portions of the county's watersheds are largely in forestlands (both private and public) and generally meet state water quality standards for fecal coliform, but may be impacted by temperature increases and sedimentation related to forest practices.
4. Extensive logging on steep slopes in the county's watersheds has increased the sediment loading in a number of creeks and rivers. In turn, these increases in sedimentation have tended to exacerbate flooding and impact to fish habitat (particularly in the lower portions of watersheds in eastern Jefferson County).
5. Areas with chronic water quality problems (i.e., mainly fecal coliform and temperature increases) exist in the middle reaches of the Chimacum Creek watershed, which flows through existing agricultural and residential areas. Poor agricultural practices and on-site sewage disposal systems appear to be the primary sources of fecal coliform contamination.
6. Several of the river floodplains in eastern Jefferson County experience recurrent winter flooding which introduces a number of nonpoint pollutants into the water column (i.e., discharges of fecal coliform caused by inundation of septic drainfields and pastures, pollution from inundated roadways, etc.).
7. Commercial shellfish activities along Quilcene and Dabob Bays are sensitive to changes in water quality, including fecal coliform contamination, sedimentation and temperature increase.
8. While essentially in compliance with the "stormwater basic" program required of jurisdictions under the Puget Sound Water Quality Management Plan, the county could take additional steps more fully implement the Puget Sound Water Quality Management, which could include the following:
 - Adoption of a comprehensive surface/stormwater management plan;
 - Adoption of an operation and maintenance ordinance for stormwater facilities;
 - Implementation of additional public education efforts regarding nonpoint source pollution and stormwater management;
 - Completion of a more thorough inventory of county owned and operated facilities (i.e., cross-culverts and approach culverts); and
 - Adoption of a clearing and grading ordinance to provide a permit trigger for compliance with stormwater standards at the time of lot clearing.

9. Though Jefferson County has adopted a Flood Damage Prevention Ordinance which largely prohibits development within floodways and requires flood-proofing of structures in floodplains, the county could take additional steps to reduce flood losses, facilitate more accurate insurance ratings, and promote the awareness of flood insurance (i.e., through the Community Rating System or “CRS.”)
10. Due to Jefferson County’s patchwork quilt of land ownership, it does not have the land use authority to control many of the factors that affect stormwater, drainage, flooding and water quality of waters of the state. Timber harvesting on much of the forest lands in Jefferson County are under the authority of state (Department of Natural Resources) and federal (USDA Forest Service) agencies. Likewise, farming activities are regulated by the State Department of Agriculture and Department of Ecology (for implementing compliance with the Clean Water Act). Jefferson County also does not have authority over water withdrawals, which can have an effect on flooding and water quality.

Selected References

Lower Big Quilcene River Comprehensive Flood Hazard Management Plan, Jefferson County Department of Public Works (March 1998).

The Hood Canal Watershed: A Demographic and Economic Profile, Rhine and Doane (June 1995).

Watershed Approach to Water Quality Management – Needs Assessment for the Eastern Olympic Water Quality Management Area (Final Draft), Department of Ecology (April 1998).

Puget Sound Water Quality Authority Management Plan, Puget Sound Water Quality Authority (May 1994).

Ludlow Watershed Action Plan, Ludlow Watershed Management Committee (November 1993).

Quilcene/Dabob Bays Watershed Action Plan, Quilcene/Dabob Bays Watershed Management Committee (June 1991).

Ludlow Watershed Characterization and Water Quality Assessment, Ludlow Watershed Management Committee (December 1991).

Dungeness-Quilcene Water Resources Management Plan, Jamestown S’Klallam Tribe (June 1994).

Proposal to National Marine Fisheries Service: Jefferson County Response to the Endangered Species Act Listing of Hood Canal Summer Chum Salmon (Working Draft), Jefferson County (June 1999).

SECTION 2: INCLUSION OF ADDITIONAL NARRATIVE TEXT WITHIN THE LAND USE & RURAL ELEMENT. Chapter 3, “Land Use & Rural Element,” of the Jefferson County Comprehensive Plan is hereby amended to include a new narrative section entitled, “Review of Surface Water Conditions and Existing Polluted Discharges” to be inserted on page 3-35 immediately following the existing narrative section entitled, “Comprehensive Plan Land Use Map.” The new narrative section shall read as follows:

REVIEW OF SURFACE WATER CONDITIONS & EXISTING POLLUTED DISCHARGES

The GMA requires that the land use element of each comprehensive plan include a review of drainage, flooding and stormwater runoff within the affected planning area and nearby jurisdictions. (RCW 36.70A.070(1)). The language of the statute reflects the fact that drainage, flooding, and storm water runoff issues are watershed basin concerns not confined by political or planning boundaries.

In addition to containing a “review,” the land use element must provide guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound. (RCW 36.70A.070(1)). Jefferson County has conducted this required review which is set forth in Appendix G to this Plan and incorporated within the Land Use and Rural Element by this reference.

Before highlighting the significant issues identified through this review, it should be observed that Jefferson County’s patchwork quilt of land ownership tends to reduce the county’s overall authority and ability to control many of the factors affecting stormwater, drainage, flooding and water quality. Timber harvesting on much of the forestland in the county is under the authority of State Department of Natural Resources and the United States Department of Agriculture Forest Service. Farming activities are largely regulated by the State Departments of Agriculture and Ecology (i.e., for federal Clean Water Act compliance). Similarly, Jefferson County does not have authority over water withdrawals, which can substantially effect instream flows, and therefore, water quality. In sum, effective surface water management requires that these issues be addressed comprehensively. Thus, interjurisdictional coordination, cooperation and planning must be a component in Jefferson County’s efforts to improve surface water quality.

The county’s review and analysis of drainage, flooding, stormwater runoff and water quality conditions and regulations revealed the following concerns warranting policy guidance within this element:

1. Existing water quality information for Jefferson County’s watersheds is somewhat limited, particularly regarding water quality criteria other than fecal coliform levels. The collection of additional data would be beneficial to the county in assessing overall watershed health (e.g., data regarding fisheries habitat, erosion and sedimentation rates, septic system failures, and wetlands, etc.).
2. Fecal coliform contamination, temperature increase and sedimentation are the primary water quality problems observed in the county’s watersheds.

3. Headwaters and stream reaches in the upper portions of the county’s watersheds are largely in forestlands (both private and public) and generally meet state water quality standards for fecal coliform, but may be impacted by temperature increases and sedimentation related to forest practices.
4. Extensive logging on steep slopes in the county’s watersheds has increased the sediment loading in a number of creeks and rivers. In turn, these increases in sedimentation have tended to exacerbate flooding and impact to fish habitat (particularly in the lower portions of watersheds in eastern Jefferson County).
5. Areas with chronic water quality problems (i.e., mainly fecal coliform and temperature increases) exist in the middle reaches of the Chimacum Creek watershed, which flows through existing agricultural and residential areas. Poor agricultural practices and on-site sewage disposal systems appear to be the primary sources of fecal coliform contamination.
6. Several of the river floodplains in eastern Jefferson County experience recurrent winter flooding which introduces a number of nonpoint pollutants into the water column (i.e., discharges of fecal coliform caused by inundation of septic drainfields and pastures, pollution from inundated roadways, etc.).
7. Commercial shellfish activities along Quilcene and Dabob Bays are sensitive to changes in water quality, including fecal coliform contamination, sedimentation and temperature increase.
8. While essentially in compliance with the “stormwater basic” program required of jurisdictions under the Puget Sound Water Quality Management Plan, the county could take additional steps more fully implement the Puget Sound Water Quality Management Plan, including the following:
 - Adoption of a comprehensive surface/stormwater management plan;
 - Adoption of an operation and maintenance ordinance for stormwater facilities;
 - Implementation of additional public education efforts regarding nonpoint source pollution and stormwater management;
 - Completion of a more thorough inventory of county owned and operated facilities (i.e., cross-culverts and approach culverts); and
 - Adoption of a clearing and grading ordinance to provide a permit trigger for compliance with stormwater standards at the time of lot clearing.
9. Though Jefferson County has adopted a Flood Damage Prevention Ordinance which largely prohibits development within floodways and requires flood-proofing of structures in floodplains, the county could take additional steps to reduce flood losses, facilitate more accurate insurance ratings, and promote the awareness of flood insurance (i.e., through the Community Rating System or “CRS” discussed in Appendix G).

SECTION 3: INCLUSION OF A NEW GOAL AND POLICY SECTION WITHIN THE LAND USE & RURAL ELEMENT. Chapter 3, “Land Use & Rural Element” of the Jefferson County Comprehensive Plan is hereby amended to include a new goal and policy section entitled “Drainage, Flooding, Stormwater Management & Polluted Discharges” to be inserted on page 3-93 immediately following existing policy LNP 25.2. The new goal and policy section shall read as follows:

DRAINAGE, FLOODING, STORMWATER MANAGEMENT & POLLUTED DISCHARGES

GOAL:

LNG 26.0 To manage stormwater to improve drainage, control stormwater quality and quantity, protect shellfish beds, fish habitat and other natural resources and to reduce nonpoint sources of pollution.

POLICIES:

LNP 26.1 Require new development and redevelopment to comply with the standards of the latest edition of the Department of Ecology’s Stormwater Manual for the Puget Sound Basin.

LNP 26.2 Encourage the preservation of natural drainage systems.

LNP 26.3 Periodically review, revise and update the Jefferson County Storm Water Management Ordinance to incorporate current best management practices (BMPs) and to ensure consistency with the Puget Sound Water Quality Plan, as may be amended.

LNP 26.4 As a condition of project approval, require operation and maintenance agreements for all privately operated stormwater facilities as a means of ensuring long-term compliance with the standards and requirements of the Jefferson County Storm Water Management Ordinance and the Puget Sound Water Quality Plan.

LNP 26.5 Develop and implement an operation and maintenance program for public and private stormwater control facilities. Ensure that the program includes provisions for ongoing monitoring and inspection of stormwater facilities, as well as effective compliance and enforcement measures.

LNP 26.6 Consider adopting stormwater system development charges (as authorized by RCW 36.94) that may be assessed against new development in order to provide an adequate funding source for stormwater facility development, operation and maintenance, and monitoring and enforcement.

GOAL:

LNG 27.0 **Protect life and property from flood hazards and retain the flood storage capacity of rivers and streams.**

POLICIES:

LNP 27.1 Minimize hazards to life and property within designated flood hazard areas by giving priority to the following uses: forestry; agriculture; public recreation; and water dependent uses. Ensure that other development allowed in flood hazard areas is of low density and intensity and constructed to avoid damage from floods.

LNP 27.2 Maintain the storage and transmission capacity of floodplains by prohibiting the filling of wetlands and discouraging filling elsewhere in floodplains.

LNP 27.3 Prohibit encroachment in floodways except for the purpose of stabilizing channels against erosion in order to protect public roads and bridges, existing public or private structures or assist in habitat enhancement efforts.

LNP 27.4 Periodically review, and if necessary, update the Jefferson County Flood Damage Prevention Ordinance to reflect changes in federal, state and local legislation.

LNP 27.5 Give preference to nonstructural flood control measures over structural improvements.

LNP 27.6 Give preference to the protection of existing development over the protection of undeveloped lands.

LNP 27.7 Ensure that zoning and development regulations reflect the natural constraints of floodplains, meander zones, riparian habitat areas, wetlands, and other critical areas.

LNP 27.8 Participate in the National Flood Insurance Program’s “Community Rating System” (CRS) to obtain reductions in Flood Insurance Rates for county residents.

LNP 27.9 Collaborate with FEMA as a Cooperating Technical Community and enter into Mapping Activity Agreements in order to update and maintain accurate flood hazard area data and maps.

GOAL:

LNG 28.0 To improve the base of information on the uses, existing conditions, and vulnerability of surface waters in the county.

POLICIES:

- LNP 28.1** Establish a local water resource data collection program in order to acquire, store, retrieve, and evaluate water resource information collected locally or by other agencies.
- LNP 28.2** Establish and maintain long-term ambient water quality monitoring sites to facilitate the collection of reliable water quality data.
- LNP 28.3** Focus water resource data collection efforts upon suspected water quality problem areas where little or no current data exist.

GOAL:

LNG 29.0 To protect and enhance the water quality of surface waters in Jefferson County.

POLICIES:

- LNP 29.1** Work to improve water quality in areas with identified problems.
- LNP 29.2** Ensure that county water quality programs are designed to complement related programs developed and implemented by other local as well as state and federal agencies. For ease of administration and enforcement, reference related programs implemented by other agencies within relevant county plans and regulations.
- LNP 29.3** Fully implement the Puget Sound Water Quality Management Plan in order to protect shellfish beds, fish habitat, and other natural resources, prevent contamination of sediments from urban runoff, and achieve standards for water and sediment quality by reducing, and eventually eliminating, polluted discharges from stormwater throughout Jefferson County.
- LNP 29.4** Adopt and implement agricultural best management practices (BMPs) to control and reduce harmful discharges to surface waters.
- LNP 29.5** Require that animal feeding and watering operations, retention and storage ponds, feed lot storage and manure storage facilities be located to prevent contamination to water bodies.

LNP 29.6 Implement the action items recommended in the Quilcene-Dabob, Discovery Bay, and Ludlow watershed action plans.

LNP 29.7 In coordination with adjacent jurisdictions, develop, adopt and implement watershed and basin plans to reduce nonpoint sources pollution.

SECTION 4: INCLUSION OF ADDITIONAL NARRATIVE TEXT AND TABLE WITHIN THE CAPITAL FACILITIES ELEMENT. Chapter 12, “Capital Facilities Element” of the Jefferson County Comprehensive Plan is hereby amended to include the following narrative text and tables in a new section entitled, “20-Year Capital Facilities Projections” to be inserted on page 12-14 following the existing narrative which accompanies Table 12-9. The new narrative text and tables shall read as follows:

20-YEAR CAPITAL FACILITIES PROJECTIONS

In response to the Western Washington Growth Management Hearings Board (WWGMHB) Amended Final Decision & Order, Case No. 98-2-0017, this section includes 20-year forecasts of future facilities needs, as well as proposed locations and capacities of these facilities, as required under RCW 36.70A.070(3).

As a preface, it should be noted that Jefferson County did include several 20-year capital facilities projections using different Level of Service Standards and financial analyses within the documents supporting the initial adoption of this Comprehensive Plan (August 28, 1998) (see page 12-2, “Support Documents”). This data was updated in early 1998 in anticipation that it would be necessary for subsequent updates of the Comprehensive Plan, but intentionally omitted from the text of the CFE because it was erroneously believed that only a six-year Capital Improvement Plan (CIP) was required under the GMA. This section includes more up to date facilities forecasts based upon the Levels of Service adopted in this element.

Using the Level of Service (LOS) standards adopted under CFP 1.1 of the CFE and the Population Growth Assumptions in Table 12-2, Table 12-10, "Summary Twenty Year Infrastructure Needs and Capacity Projection 1998-2018" calculates facility needs based on population and the LOS standards contained in the CFE (in accordance with 36.70A.020(12)(b) and indicates the capacity (reserve/deficit) for the various facilities (in accordance with 36.70A.020(12)(c) after the completion of the projects contained in the 6 Year Capital Facilities Plan of the CFE in accordance with 36.70A.020(12)(d). Table 12-10 uses the same formulas described under Question #1 on page 12-4 of the CFE to calculate the "Need/Capacity" for each six-year period (2003, 2009, and 2015) and for 2018. Table 10-12 also contains the 2003 fiscal year "Capacity Status" that includes additional capacities generated through the six-year CIP contained in the CFE. The additional capacity is added to the "Existing Inventory" to calculate the remaining years "Need/Capacity" quantities.

With regard to the location of projected capacity-related facilities, Jefferson County is in the process of developing the siting analysis for a proposed new Justice Facility. The county has narrowed the potential location of this future facility to three possible sites, with a site situated in southwest portion of the City of Port Townsend currently identified as “preferred.” Although

considerable additional work remains before finalizing the location for this non-essential public facility, the potential location(s) have been defined. Any potential new "capacity" projects, such as a community center, would be located in proximity to the County's principal population centers (e.g., the Tri-Area, Quilcene, or Brinnon). All other "capacity" projects are anticipated to involve expansions to existing facilities and will therefore not require a complex site selection and acquisition process.

[RESERVED FOR TABLE 12-10]

SECTION 5: TRANSMITTAL TO DCTED. The Clerk of the Board of County Commissioners shall transmit a copy of this Resolution to the State Department of Community, Trade and Economic Development (DCTED) within ten (10) days of adoption of this resolution.

SECTION 6: PREPARATION OF REVISED COMPREHENSIVE PLAN COPIES. Copies of a Revised Jefferson County Comprehensive Plan, incorporating the changes to the plan narrative, goals and policies, tables and appendices set forth in this resolution shall be prepared by Jefferson County Department of Community Development staff and shall be available for public inspection within sixty (60) days of the adoption of this resolution.

SECTION 7: EFFECTIVE DATE. The amendments set forth in this resolution shall take effect and be in force 5 days following the publication of notice of adoption of this resolution in the manner provided by law.

SECTION 8: SEVERABILITY. In the event any one or more of the provisions of this resolution shall for any reason be held to be invalid, such invalidity shall not affect or invalidate any other provision of this resolution, but this resolution shall be construed and enforced as if such invalid provision had not been contained therein; PROVIDED, that any provision which shall for any reason be held by reason of its extent to be invalid shall be deemed to be in effect to the extent permitted by law.

Adopted by the Board of Commissioners for Jefferson County, Washington, at a regular meeting thereof, held this 4th day of November 1999.

BOARD OF COMMISSIONERS
JEFFERSON COUNTY, WASHINGTON

Dan Harpole, Chairman

Glen Huntingford, Member

Richard Wojt, Member

ATTEST:

Lorna Delaney
Clerk of the Board

APPROVED AS TO FORM:

Juelanne Dalzell
Jefferson County Prosecuting Attorney