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COMPLETION REPORT

Snohomish County
Coastal Zone Management Grant Project
Grant No. G0089042

Planning Division
Department of Planning and Community Development

July 1989

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SUMMARY ACCOUNT

The following summarizes work accomplished under the three elements (as revised) of Snohomish County's FY 1989 Coastal Zone Management Grant No. G0089042.

ELEMENT ONE: PUBLIC INVOLVEMENT FACILITATION FOR SNOHOMISH RIVER FLOOD CONTROL MANAGEMENT PLAN

The objective of this element was to facilitate diking district and public involvement in the formulation of the Lower Snohomish River Comprehensive Flood Control Management Plan, thus complementing the County's Public Works Department effort to prepare this plan. Primary project funding comes from the WDOE Flood Control Assistance Account Program. Plan completion is anticipated to occur in mid-1990.

Alice Shorett of Triangle Associates was subcontracted by Snohomish County to conduct a minimum of two public workshops and to direct and document proceedings. The Department of Ecology gave approval to the contract by letter dated October 4, 1989.

Public workshops were held on October 19th and December 7th, 1988. Invitees included Snohomish River diking districts, cities, environmental and other interest groups. Approximately twenty-two individuals attended the first workshop, discussing the project scope/schedule, ground rules for meetings, problems to be addressed and level of protection criteria. Twenty-one individuals attended the second workshop, continuing refinement of the level of protection criteria (including alternative solutions) and discussing environmental protection issues.

Exhibit C contains workshop agendas, meeting summaries, study objectives and draft criteria for evaluating levels of flood and environmental protection.

Completion of the above CZM-funded activities will serve as the foundation for developing a detailed flood protection strategy within the continuing planning process. An effective public participation mechanism has been established which will undoubtedly contribute to a feeling of authorship on the part of program participants.

ELEMENT TWO: SNOHOMISH RIVER WETLAND UNITS MANAGEMENT PLANS

The objective of this element was to develop site-specific management policies and plans for each of the nine wetland units previously designated by the Snohomish River Wetland

Units Preservation Management Plan (1985), and to identify related wetland preservation needs such as the establishment of protective buffers and additional land acquisition. Grant funded tasks consisted of those contained in Phase Two of the ongoing management planning process. Phase One, initiated in August, 1988, utilized funding from the Department of Natural Resources to develop management policies and plans for wetland units under County ownership, Otter Island and a portion of Ebey Island. Phase Two then considered the remaining units and related preservation needs.

Shapiro and Associates was contracted to assist County staff and the Advisory Committee in preparing both phases of the plan. The consultant initiated Phase One work tasks in August, 1988 and Phase Two tasks in late January, 1989. A request was submitted to the CZM Grants Officer on January 24, 1989 for authorization to subcontract with Shapiro and Associates, with written approval received by letter dated April 21, 1989. The total contract amount was \$36,000.

Completion of Phase Two, partially funded through the CZM program, has resulted in the preparation of individual management plans for Wetland Units I - VI and IX. Recommendations for these units range from retention in the existing wetland condition to the provision of limited public access and interpretive facilities. Several additional wetland parcels in the delta are also recommended for long-term preservation, with appropriate protective buffers being identified as well. Phase One of the study had previously established that Unit VII should serve as the primary public access and interpretive site within the designated wetland units. A carry-in boat launch, trail system, interpretive structure and wetland enhancement area are recommended for this primarily upland unit.

The Wetland Advisory Committee met approximately monthly with the consultant and county staff to provide guidance on management issues. The final product is a document entitled Snohomish River Wetlands Management Plan, dated June, 1989. This set of management recommendations and site plans will now be forwarded to the Snohomish County Executive and Council for consideration of implementing actions.

ELEMENT THREE: WETLAND PROTECTION GUIDELINES

The objective of this element was to complete formulation of county wetland protection guidelines initiated in 1987, prepare necessary SEPA documentation, and facilitate public review.

A Draft and Revised Draft Aquatic Resource Protection Program were published and circulated for public review. A series of informational meetings on the proposed Aquatic Resource Protection Program were conducted for the benefit of a variety of interest groups including the Snohomish County Agricultural Advisory Board, the annual Snohomish County

Agriculture Day luncheon, Snohomish County real estate brokers, Snohomish County utility managers, and the local chapter of Land Surveyors.

Public comments have been considered and appropriate changes made to the Draft document. A Determination of Nonsignificance was prepared and released, along with an economic analysis of anticipated program impacts. A series of public meetings were held with a wide range of interest groups. Hearings on the Draft proposal are currently under way before the Snohomish County Planning Commission. Upon conclusion of the hearings and formal Planning Commission action, the document will be forwarded to the County Council for consideration.

ELEMENT FOUR: DRAINAGE PROCEDURES MANUAL

The objective of this element was to provide the development community with a procedures manual that graphically describes alternative methods for addressing drainage impacts and development options associated with construction around streams and wetlands. To be both timely and effective, the manual could only be prepared upon County Council adoption of the wetland/stream protection guidelines. Since continuing agency and public review of the proposed guidelines significantly delayed adoption, preparation of the procedures manual was determined to be neither appropriate nor feasible. Therefore, on March 10, 1989 a request was submitted to the Grants Officer for an amendment to the grant contract allowing transfer of funds from Element Four to Element Three. The transfer was justified due to the fact that additional resources were needed to ensure formal revision and consideration of the protection guidelines being developed under Element Three.

The request for a contract amendment was approved on June 30, 1989, with an effective date of May 1, 1989. All funds previously in Element Four were subsequently expended within the revised Element Three budget.

List of Documents Prepared

Element One:

- Two public workshop summaries, including study objectives and draft evaluation criteria

Element Two:

- Report entitled Snohomish River Wetlands Management Plan

Element Three:

- Revised Draft Snohomish County Aquatic Resource Protection Program

EXHIBIT A

ABSTRACT

TITLE: Snohomish River Wetlands Management Plan: Final Report

AUTHOR: Shapiro and Associates, Inc.
The Smith Tower, Suite 1400
506 Second Avenue
Seattle, Washington 98104

SUBJECT: The Management Plan recommends management policies and actions for designated wetland units in the Snohomish River delta and identifies supportive preservation needs

DATE: June, 1989

DEPARTMENT AND PARTICIPATING LOCALITIES: The Washington Department of Ecology entered into a grant agreement with Snohomish County as authorized by Section 306 of the Coastal Zone Management Act of 1972

SOURCE OF COPIES: Snohomish County Planning Division
Fifth Floor County Administration Building
Everett, Washington 98201
(206) 259-9313

WDOE PROJECT NUMBER: G0089042

SERIES NUMBER: N/A

NUMBER OF PAGES: 90

ABSTRACT NARRATIVE:

The purpose of the Management Plan is to identify effective site-specific management policies and plans for each of the nine wetland units previously designated by Snohomish County and to identify related wetland preservation needs such as the establishment of protective buffers and additional land acquisitions. Establishment of management policies and site improvements is intended to ensure coordination among all affected jurisdictions and to facilitate appropriate uses of each county-owned site.

Shapiro and Associates, with oversight by county staff and a twenty-five member advisory committee, prepared the Management Plan in two phases. Phase One addressed management needs of wetland units previously acquired by Snohomish County, while Phase Two concentrated on the balance of the designated units and supportive preservation needs.

The Plan applies a wetland evaluation methodology, evaluating

nine distinct wetland functions, to each of the designated wetland units. Among seven potential management roles, each unit is then identified for one or more long-term roles. These range from limited public access to habitat preservation and enhancement. Consistent with the overall management objectives, individual strategies are presented for each unit. Site plans for the four units identified to receive physical improvements incorporate the relevant management strategies. Seven additional wetland areas are recommended for preservation, along with linear buffers to be established through conservation easements or similar mechanisms.

EXHIBIT B

ABSTRACT

TITLE: Snohomish County Aquatic Resource Protection Program
Revised Draft

AUTHOR: Snohomish County Planning Division
Department of Planning and Community Development
Fifth Floor, County Administration Building
Everett, Washington 98201

SUBJECT: The Program proposes county policies and regulations
necessary to ensure an adequate level of protection
for existing aquatic resources of the county

DATE: April, 1989

DEPARTMENT AND PARTICIPATING LOCALITIES: The Washington
Department of Ecology entered into a grant agree-
ment with Snohomish County as authorized by Section
306 of the Coastal Zone Management Act of 1972

SOURCE OF COPIES: Snohomish County Planning Division
Fifth Floor County Administration Building
Everett, Washington 98201
(206) 259-9313

WDOE PROJECT NUMBER: G0089042

SERIES NUMBER: Second Draft

NUMBER OF PAGES: 190

ABSTRACT NARRATIVE:

The proposed Aquatic Resource Protection Program is intended to
establish county policies and implementing regulations which
ensure the protection of aquatic resources, and consists of
four primary components:

1. Aquatic Resource Policy Document
2. Title 24, Grading and Drainage Ordinance
3. Title 30, Aquatic Resource Protection Ordinance (including
technical appendices)
4. Code amendments to various land use ordinances.

All program components are interrelated, either substantively
or procedurally, and when considered together, comprise the
provisions necessary to ensure an adequate level of protection
for existing aquatic resources in the county.

The Aquatic Resource Policy Document provides both general and
specific policies pertaining to the preservation and protection
of streams and wetlands. These policies provide the basis for

ordinance implementation and will be incorporated into the county's comprehensive land use plan. The policy document also includes a discussion of the importance of aquatic resources in Snohomish County and their current susceptibility to environmental impact.

Proposed Title 24, Grading and Drainage Ordinance, is a compilation of existing Chapter 17.04, SCC and Title 24, SCC provisions. The existing grading and drainage control regulations have been integrated into a single title with the addition of provisions pertaining to clearing in critical areas. Generally, development proposals requiring the review and approval of drainage plans will also be subject to the provisions of proposed Title 30, Aquatic Resource Protection Ordinance.

Proposed Title 30, Aquatic Resource Protection Ordinance, is a new ordinance containing aquatic resource preservation and protection regulations including definitions, aquatic systems (streams and wetlands) identification and classification procedures (as technical appendices), preservation thresholds, buffer requirements, proposed project review and permitting procedures, mitigation provisions, and variance procedures.

A variety of amendments to existing land use ordinances are proposed which will allow increased project design flexibility when aquatic systems are present on a project site. The amendments generally allow additional project design flexibility without decreasing overall project development potential. An expanded use of the lot size averaging and Planned Residential Development concepts is proposed, together with the potential for increased building heights and decreased landscaping requirements when aquatic systems are preserved on a project site. Ordinance enforcement provisions specific to aquatic resource protection are also proposed.

EXHIBIT C

SNOHOMISH RIVER FLOOD CONTROL PLAN

WORKSHOP #1
October 19, 1988
7:00 PM

Executive Conference Room
Third Floor, County Administration Building

AGENDA

- 7:00 Introduction and Welcoming Remarks
- 7:20 Overview of the Comprehensive Flood Control
Management Plan: DOE's Perspective
- 7:30 Project Schedule and Overview
- 7:45 Ground Rules for Meetings
- 8:00 Problem Identification Statement: Goals for the
Flood Control Plan
- 8:20 Discussion: Level of Protection

11/21/88

MEETING SUMMARY
SNOHOMISH RIVER COMPREHENSIVE FLOOD CONTROL MANAGEMENT PLAN
Workshop #1
October 19, 1988
7:00pm to 9:00pm
Snohomish County Administration Building,
Executive Conference Room, Third Floor
Everett, Washington

The meeting opened with introductions by members of the task group. John Engel, Snohomish County Public Works Department, welcomed the participants. Lisa Randlette, representing the Washington Department of Ecology, provided an overview of the law and regulation that are the basis for the preparation of the comprehensive flood control management plan. John Engel reviewed the project schedule and overview, using viewfoils attached to this summary. The hydraulic analysis and computer model will be developed as the workshops for the task group are held (December, January, March, May). Open houses will be held at two points in the study and a public meeting toward the end of the study.

Draft Ground Rules and Study Objectives

There was a discussion about the draft ground rules and study objectives. As part of this discussion, the group talked about the definition of consensus. Several definitions were suggested.

1. More than a majority by quite a bit and if objection, a description of the viewpoint so total picture is given to the decision makers.
2. Absolute agreement of all participants.
3. No one feels strongly enough against to make a major objection.

It was agreed, by consensus, that the third definition would serve the work group.

A goal will be to build consensus on major recommendations so groups are not polarized in public hearings. Participants will be reporting back to their organizations and bringing issues in to the task group discussions.

Since the process will use consensus, the importance of participants' committing to being present at the meetings was pointed out. An alternate could attend to fill in a participant, but continuity of the individual will be

important. Additional changes to the draft ground rules were suggested. Revise title "Communication during workshop process." and add phrase "Communication with press will be handled through the County."

The task group wants to reserve the option of re-visiting the objectives. With this proviso, the group agreed to use the ground rules and study objectives.

It was noted that meeting scheduling should attempt to coordinate, not conflict with other scheduled public meetings.

Level of Protection

There was a discussion about dike heights and flood frequency which led to requests for information about the county's method for measuring dike heights. Snohomish County uses mean sea level as base and the dike heights are measured accordingly. For example, with a dike height of ten feet and a flood height of nine feet, there would be one foot freeboard.

A discussion about a number of possible criteria for "level of protection" generated the following list:

- o A predictable future standard. This is desired by districts behind the dikes so planning can be undertaken.
- o A standard that meets requirements of Corps of Engineers, state, for project funding.
- o Either different criteria or method of accommodating the tidal influences in lower reaches and tidal - influenced dikes.
- o A method to take into account drainage from tributaries.
- o A concept to achieve in design is if some dikes overtop during a certain flood event then all dikes will overtop.
- o Integrity of the structure (dike) influences the level as well as the height.

There was preliminary consensus that within the flood plain, there will always be flooding and dikes will not be built to withstand all flooding.

The end product of the study should provide useful data that can be applied as a standard for decisions. Fish and

wildlife components will be added to the agenda for future sessions.

The next meeting is scheduled for Wednesday evening, 6:30PM, December 7, 1988, Executive Conference Room, Third Floor, Snohomish County Administration Building.

Information Requested

1. Copy of the Washington State flood control guidelines and any applicable federal flood guidelines.
2. Meeting viewfoils
3. Thirty-five year record of flooding in lower Snohomish - year and floods and frequency chart illustrating the historical record.
4. Definition of 100 year flood, 10 year flood, 5 year flood. These should be defined in terms of elevation at a gauge and water volume.
5. Existing dike heights and how measurements for heights are calculated.
6. History of the dike building and design standards for various sections (ex: Soil Conservation Service).

It was suggested that information be provided in three hole punch format, notebooks, and each set of meeting materials be provided with a tab.

Meeting Attendees

Dennis Gregoire	Port of Everett
Pearl Maddy	City of Everett
Mike Corcoran	City of Marysville
Steve Cottrell	City of Snohomish
Ward Lawler	Coordinated Diking Council
Everett Alexander	Diking District #1
Don Nilsson	Diking District #2
Debra Bickford	Diking District #6
Leonard Tuengel	Drainage District #13
Don Thomas	Marshland Flood Control District
Tim Stocker	Agriculture at Large Representative
Lorena Havens	Friends of the Snohomish River Delta
Delbert Franz	Hydrologic Consultant
Terry Williams	The Tulalip Tribes
Curt Howard	Snohomish Wetlands Alliance

Also in attendance:

Lisa Randlette	Washington State Dept. of Ecology
Larry Adamson	Snohomish County Planning Division

Doug Beyerlein
Bill Derry
John Engel
Sky Miller

Snohomish County Public Works
Snohomish County Public Works
Snohomish County Public Works
Snohomish County Public Works

Alice Shorett

Triangle Associates

com1:snofac:summl114

- GROUND RULES AND STUDY OBJECTIVES -

SNOHOMISH RIVER
COMPREHENSIVE FLOOD CONTROL MANAGEMENT PLAN

A. STUDY OBJECTIVES

A set of realistic, achievable recommendations that:

- o Coordinates flood control work amongst affected parties and develops equitable flood protection for the Snohomish River Basin
- o Provides direction for flood control projects and defines county policies for permitting and project decisions
- o Balances needs to protect fish and wildlife resources
- o Defines flood control alternatives to reduce flood damages
- o Meets requirements of Coordinated Flood Protection Act (State of Washington)

B. GROUND RULES

MEETING CONTENT

- o Meetings will be task oriented with specific agendas.
- o Participants will fully explore issues, recognizing time limitations and size of workshop groups.
- o Participants commit to search for opportunities and creative solutions.
- o All participants in the workshops will bring with them the purposes and goals of their organizations.
- o All parties recognize the legitimacy of the goals of others and assure that their own goals will also be respected.

- o Participants will enter into a dialogue that includes listening carefully, asking questions, educating others regarding individual needs. The atmosphere will be problem solving, rather than stating positions.

COMMUNICATION DURING PROCESS

- o All of the individuals who are participating in the workshop group accept the responsibility to keep their associates and constituency groups informed of the progress of the discussions and to seek advice and comments.
- o Communications with news media concerning these discussions will not be solicited by workshop members. Everyone will be mindful of the impacts their private and public statements have on the climate of this effort. No participant will attribute suggestions, comments or ideas of another participant to the news media.

CONSENSUS

- o Commitment to attempt to reach agreement among all participants.
- o Where agreement is not reached, issues will be identified and positions noted.

INFORMATION SHARING

- o Participants will seek to identify relevant information and provide it to the workshop group.

SNOHOMISH RIVER FLOOD CONTROL PLAN
Workshop Participants

SNOHOMISH RIVER DIKING DISTRICTS:

Ward Lawler	Coordinated Diking Council
Barney Bagwell	Diking District #1
Don Nilsson	Diking District #2
Debra Bickford	Diking District #6
Leonard Tuengel	Drainage District #13
Don Thomas	Marshland Flood Control District
Dan Bartelheimer	French Slough Flood Control District

SNOHOMISH VALLEY CITIES:

Kelly Robinson	City of Snohomish
Mike Corcoran	City of Marysville
Pearl Maddy	City of Everett

ENVIRONMENTAL ORGANIZATIONS:

Sally Van Niel	Washington Environmental Council
Lorena Havens	Friends of the Snohomish River Delta
Curt Howard	Snohomish Wetlands Alliance

OTHER ORGANIZATIONS:

Terry Williams	The Tulalip Tribes
Phil Bannon	Port of Everett
Jean Olson	P.U.D. No. 1
Tim Stocker	Agriculture at Large

DEFINITION OF LEVEL OF PROTECTION

The largest flood (expressed as return interval, such as a 5-year event) which results in a water surface elevation which does not overtop the levee or the stream bank.

[DEF_LOP]

DRAFT CRITERIA FOR LEVEL OF PROTECTION

- o All Snohomish River levee systems should be built to overtop equally for the same flood event.
- o Levee systems may be constructed with additional protection of up to one foot in the vicinity of structures, such as houses, located immediately adjacent to the levee. The additional one foot of protection shall be permitted within 50 FT upstream and 50 FT downstream of the structure.
- o The level of protection provided by the levee system should be feasible to build based on anticipated limits of funding by jurisdictions including diking districts, county, state and federal governments.
- o Levee improvements to be made, or new levees to be built must consider the impacts, such as increased flooding, in other parts of the valley.

Note: Criteria related to fish and wildlife habitat and other environmental issues are being developed.

SNOHOMISH RIVER FLOOD CONTROL PLAN

SCHEDULE

WORKSHOP #1	OCTOBER 19, 1988
WORKSHOP #2 AND OPEN HOUSE	DECEMBER
WORKSHOP #3	JANUARY 1989
WORKSHOP #4 AND OPEN HOUSE	MARCH
WORKSHOP #5	MAY

SNOHOMISH RIVER FLOOD CONTROL PLAN

SCHEDULE (con't)

PUBLIC MEETING

JUNE, 1989

PUBLIC MEETING

AUGUST

FINAL DRAFT PLAN

OCTOBER

**COUNTY COUNCIL
REVIEW AND HEARINGS**

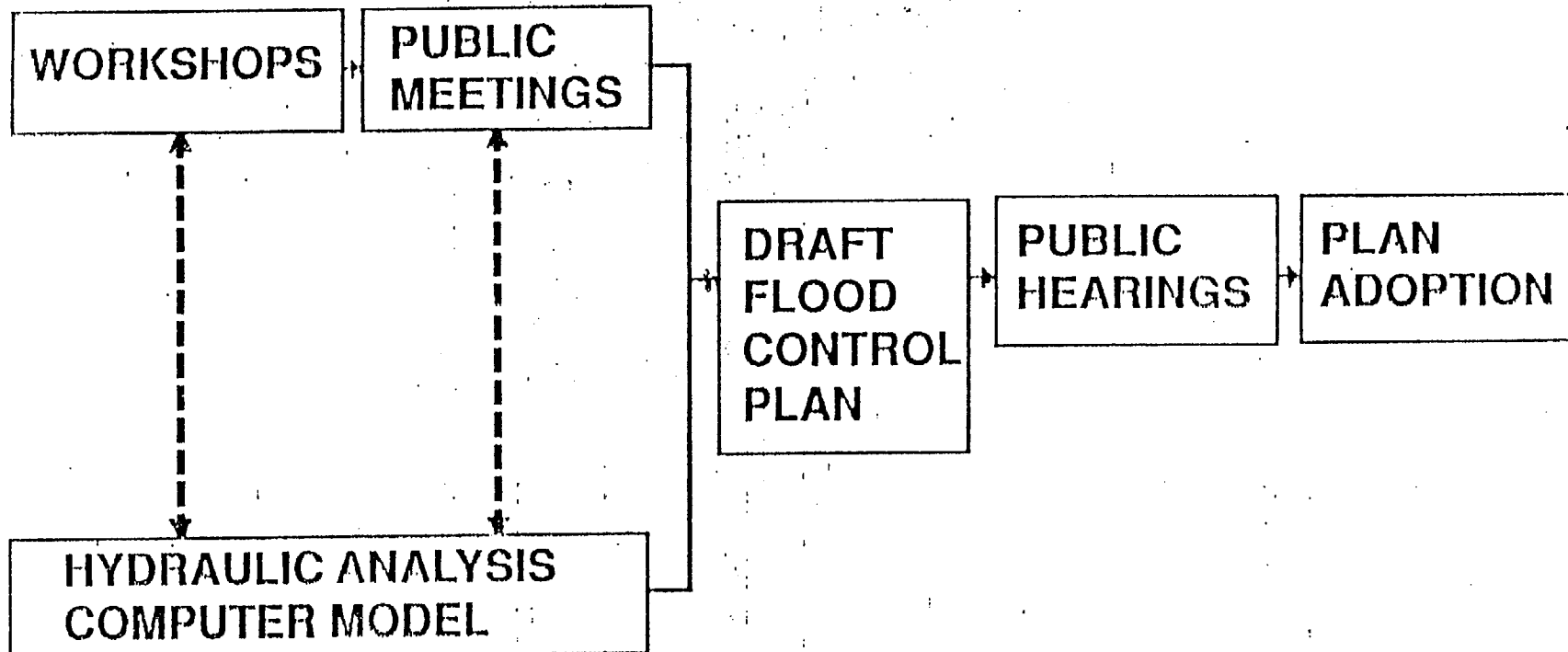
**OCTOBER/
NOVEMBER**

COUNCIL ADOPTS PLAN

DECEMBER, 1989

SNOHOMISH RIVER FLOOD CONTROL PLAN

PROJECT OVERVIEW



SNOHOMISH RIVER FLOOD CONTROL PLAN

Problem Identification Statement

What are effective ways to manage the flood protection system for the Snohomish River, providing for equitable flood protection and enhancing the fish and wildlife characteristics of the Snohomish River valley?

SNOHOMISH RIVER FLOOD CONTROL PLAN

WORKSHOP #2
December 7, 1988
6:30 - 9:00 PM

Executive Conference Room
Third Floor, County Administration Building

AGENDA

SUBJECT	ACTION
6:30 Summary of Workshop # 1 and Status of Computer Model	Adoption of Meeting Summary
6:45 Environmental Concerns	Discussion and Initial List of Issues
7:10 Flood Frequency Analysis and River Hydraulics	Presentation and Discussion
7:30 Criteria for Level of Protection	Initial Consensus on Criteria
8:45 Future Meetings	Discussion and Schedule
9:00 Adjourn	

DRAFT ENVIRONMENTAL ISSUES

- o Effects of Dikes upon Wetlands
- o Dike Heights
- o Tidal Influences
- o Riparian Habitat
- o Dike Maintenance Practices - Vegetation Clearing and Herbicide Use
- o Costs to Rebuild Dikes
- o Urban Development Pressure in the Floodplain
- o Elevation of Manure Lagoons
- o Coordination with the Soil Conservation Service

[ENV_CONC]

MEETING SUMMARY
SNOHOMISH RIVER FLOOD CONTROL PLAN

WORKSHOP #2
December 7, 1988
6:30 - 9:10 PM

Executive Conference Room
Third Floor, County Administration Building

The workshop opened at 6:30 PM with a review of the written summary from Workshop #1 with the suggestion that future notes provide a more detailed description of discussion and list the questions that were asked. Omissions that should be reflected in the first workshop included a discussion of equity. A further clarification was requested of the consensus definition, that it will not be a voting process, but an opportunity to meet the interests of all groups involved in this effort. With these notations, the Workshop #1 Summary was accepted by the group.

John Engel reported on the status of the computer model and provided an overview of the Snohomish County Flood Control Plan. One person indicated that a more appropriate title might be a "dike integration plan."

Environmental Concerns

There was a discussion about a list of environmental concerns that resulted from earlier workshops. The topics and discussion follow.

o Effects of Dikes Upon Wetlands

The concern is the closing of wetlands and loss of habitat for wildlife. A number of "wetlands" definitions were offered related to the timing of what was and is a wetland.

o Riparian Habitat & Dike Maintenance

The concern is the need for vegetative cover and the cooling effect for wildlife habitat and need for dikes simultaneously. It was noted that there are benefits provided by different types of vegetation offering differing opportunities for wildlife habitat and dike stability. The alternatives for vegetation should be reviewed in light of opportunities for both habitat and dike stability.

o Dike Maintenance Practices - Vegetation Clearing and Herbicide Use

There is concern related to the possible water quality impacts of herbicides used for dike maintenance versus other vegetation clearing methods. There was a request for information about current practices.

o Costs to Rebuild Dikes

The concern was balancing the costs and benefits of rebuilding a dike versus the habitat. Another issue related to the costs is the "sunk" economic costs that have been put into the dikes historically over time.

o Urban Development Pressure in the Floodplain

There was a discussion related to the various types of flood way zoning in the Snohomish flood plain. In the City of Everett it was noted, most flood plain is in the "flood fringe" where development is not allowed. Snohomish County has a category called "density fringe." There was a request for information regarding the County's flood hazard ordinance.

Another issue under urban development is a concern about the "double edged sword" as the value of lands increases, it causes pressure to develop. However, it was pointed out that the assessed value for diking district taxes is based on historical rates. For example, in some assessments there is a proportionate share - properties have set percentages of an annual budget. There was a request for information about how diking district assessments are set.

o Fish and Wildlife Effects

A monitoring program could follow the effects of dikes on fish and wildlife. It was suggested that individuals who wish to add additional items to refine the environmental issues do so in writing. The environmental issues list will be refined into a list of draft criteria for review at the next workshop session.

Flood Frequency Analysis and River Hydraulics

Doug Beyerlein, Snohomish County Public Works Department, made a presentation about the flood frequency analysis and river hydraulics part of the study. First, Beyerlein explained how to determine the flood size. The U.S. Geological Survey measures the height at their station.

They take the information and measure the flow velocity. Then, a rating curve of the stage versus the discharge (flow) is determined. The result, is a determination of discharge for any stage. Beyerlein explained that the USGS and Corps of Engineers have come up with different numbers for flood size because they use different assumptions.

Second, Beyerlein described how engineers determine flood frequency. The purpose is to determine how likely a certain size flood is going to happen. The method is to use historic flood records and rank floods by size, using statistics to create a flood frequency curve. The result is to determine the return interval or frequency for any size flood.

The third step, as explained by Beyerlein, is to select dike heights. The purpose is to know if the dike will be overtopped by a flood. The method is to measure the top of the dike elevation relative to mean sea level, compute flood height by computer model and add freeboard to dike height. The result is to compare dike elevation with the flood elevation.

Criteria For Level of Protection

The discussion opened with the question, how is flood defined? Several definitions were put forth:

1. For flood frequency analysis, a "flood" is the largest flow in that year. A "water year" has a cycle of October 1 thorough September 30, unlike a calendar year.
2. Another definition is when the river leaves its normal channel banks.
3. A third definition is when there is a flood stage where preparations begin to fight a flood.

It was requested that, if possible, historical activities such as road building, clear cutting and large developments be reviewed in relation to major flood events. An issue to deal with in the future is the impacts of major developments such as one proposed at Snoqualmie Ridge (500-3,000 acres) on downstream flooding.

A tentative definition for purposes of the study was agreed to by consensus. "Level of Protection Definition" is the largest flood which does not overtop the levee on a stream bank.

It was suggested that members of the workshop group have the opportunity to understand the dikes by visiting them at some point in the study. If a flood situation could be observed safely, the group might be provided such opportunity.

A discussion ensued related to Draft Criteria for Level of Protection. The draft list was read by John Engel. As the discussion began, the question was raised, are all the dikes at the same level now? What would happen in the interim as the dikes are being brought up to the same level? It was suggested that the criteria should address when improvements can be made (equity) in the interim.

A statement was made that the Coordinating Diking Council understands the purpose of this study would be to bring dike heights to an equal basis. Those districts needing to build to standard would be able to build to that level. The Coordinating Diking Council's goal is to bring all levels to a standard level of protection for a 5 year plus 1 foot flood event. Thus, districts would be eligible for Corps of Engineers rehabilitation funds under Public Law 99.

It was noted that if the Corps of Engineers would change the standard or provide a different source of funds, then alternatives could be explored.

It was suggested that another topic be added to the criteria list related to the amount of damage and differential impacts on how much damage can be withstood by different areas behind the dikes. It was suggested that tidal influences be taken into account in the criteria. Questions asked: Will the model be able to take into account the Corps of Engineers recommended flood frequency levels?

A suggestion for the next workshop:
Use aerial photographs and mark on mylar the dike areas that can take water. The concept is that every place can take water except a few. Those could be visually indicated on the map.

A last point on the criteria list was suggested that the words "and enhancing" be added to "while preserving fish and wildlife habitat." The discussion revolved around how incentives for fish and wildlife need to be in the flood control plan. Alternative suggested language was "and/or enhance." Here, the concept was that in some cases enhancement was possible and it could be viewed on a case-by-case basis.

There was not consensus on this point but the group agreed to take it back for review.

There was consensus that the "Draft Criteria for Level of Protection" could be used by Snohomish County to proceed and fine tune the language as the workshop group reviews specific alternatives. Additional criteria will be developed related to interim building while dikes are brought to standard and equity of differential damage.

It was suggested that there be an opportunity to have the Tulalip Tribe explain how they fit into the permitting process and the opportunities.

The meeting adjourned at 9:10 PM.

Next Workshop dates:

Wednesday, January 25, 6:30 PM - 9 PM
Open House 4:30 PM

Wednesday, March 8, 6:30 PM - 9 PM

Information Requests

1. Value of Properties located behind dikes
2. Map of historical location of wetlands (from Corps and County reports)
3. Vegetation clearing methods currently used by dike owners
4. Diking districts' methods of assessment (from Ward Lawler)
5. Flood Hazard Ordinance, Snohomish County, section about floodplain on Snohomish River and brief explanation

Meeting Attendees

Pearl Maddy	City of Everett
Mike Corcoran	City of Marysville
Ward Lawler	Coordinated Diking Council
Everett Alexander	Diking District #1
Don Nilsson	Diking District #2
Debra Bickford	Diking District #6
Leonard Tuengel	Drainage District #13
Don Thomas	Marshland Flood Control District
Tim Stocker	Agriculture at Large Representative
Lorena Havens	Friends of the Snohomish River Delta
Terry Williams	The Tulalip Tribes
Curt Howard	
Roy Metzgar	Snohomish County P.U.D.
Sally Van Niel	Washington Environmental Council

Others in attendance

Lisa Randelette	Washington State Department of Ecology
Larry Adamson	Snohomish County Planning Division
Doug Beyerlein	Snohomish County Public Works
Bill Derry	Snohomish County Public Works
John Engel	Snohomish County Public Works
Sky Miller	Snohomish County Public Works
Alice Shorett	Triangle Associates

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CRITERIA FOR LEVEL OF PROTECTION

[DEFINITION OF LEVEL OF PROTECTION: The largest flood or tide which does not overtop the levee or streambank]

CRITERIA

INTENT

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| o | All Snohomish River levee systems should be built to overtop equally for the same flood event. | Equity of flood protection |
| o | Levee systems may be constructed with additional protection of up to one foot in the vicinity of structures, such as houses, located immediately adjacent to the levee. The additional one foot of protection shall be permitted within 50 FT upstream and 50 FT downstream of the structure. | Protect structures located on or immediately adjacent to stream banks from the direct force of water overtopping the levees. |
| o | The level of protection provided by the levee system should be feasible to build based on anticipated limits of funding by jurisdictions including diking districts, county, state and federal governments. | Public expenditures of funds must be reasonably justified based on costs and benefits derived. |
| o | Levee improvements to be made, or new levees to be built must consider the impacts, such as increased flooding or increased damages, in other parts of the valley. | Future levee improvements cannot be unilateral but must be coordinated for the entire Snohomish Valley. Effects of one district on another must be resolved. |

DRAFT CRITERIA FOR ENVIRONMENTAL PROTECTION
(2-21-89)

INTRODUCTION

The intent of these criteria is to provide guidance to plan alternatives with respect to environmental resources effected by flood control activities in the Snohomish River valley. They will be used to help define plan alternatives related to levee heights, levee maintenance, design and construction standards, and the overall scope of flood protection in the Snohomish flood plain. These criteria are based on the draft presented at the January 25th workshop and discussions at previous workshops.

Based on these discussions, there appears to be a preliminary consensus that the existing fish and wildlife habitat be preserved and that flood control activities occur within the framework of "no net loss" of habitat. This is the policy of the Fisheries Department when issuing Hydraulic Project Approvals. We also had an understanding that as a general policy, it will be the intent of the groups (i.e. the Diking Districts, Fisheries Dept., the Tulalip Tribes, and others) to work with each other in implementing habitat management practices, and enhance existing habitat if possible on a case by case basis.

CRITERIA

- o All levees should have the same height relative to the water surface. The hydraulic analysis should take into consideration tidal differences.
- o Vegetation clearing on levees, rather than herbicide use should be the goal during dike maintenance.
- o When levees need to be rebuilt, serious consideration should be given to diking structures that would protect nursery areas. If the cost is not too prohibitive, preferred modifications should protect or enhance nursery areas.
- o Development should be prohibited in the flood plain. Agricultural activity should be allowed.
- o Monitoring should be carried out to ensure that dike maintenance does not degrade fish and wildlife habitat.

- o Opportunities should be investigated which would provide satisfactory flood protection and enhance or increase fish and wildlife habitat.