

When I queried the electronic database for the word "Floodway" originally the word came up 11,001 times in 2,590 documents (many of these were duplicate documents), resulting in a 52 page document. Some of the more important references are listed in this document.

Gathered from STEVEMEM.317 (11/19/1992)

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Noel Gilbrough gave a presentation at this meeting. Noel stated the following:

"100 year flood has been revised to carry 235,000 cfs."

"Looking at two possible flood flow paths or floodways. One takes off between hospital and nursing home and goes to Samish Bay. The other takes off in the Avon Bend and goes to Padilla Bay. The floodways will be 2,500 feet wide. The floodways would operate in anything more severe than a 5 or 6 year event. This would greatly lower the effects of the smaller events. The cost just for the real estate is looking like somewhere between 1 to 2 million dollars a mile or \$2,000 to \$10,000 per acre depending if its raw land or there is a house on it. Relocation cost range from a cost of \$1,000,000 per farm to \$250,000 per house. Total cost of project is looking like somewhere between \$75,000,000 and \$100,000,000."

Gathered from HAGENMEM.910 (9/9/1993)

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Met with Evan Lewis for 2.5 hours yesterday. At beginning of meeting I felt he was trying to do anything he could to justify issuing permit to County. By end of meeting I think I have him steered in the right direction. Joe Weber, (works with Bill Spurlock in flood plain management section) joined us. Joe used to work for FEMA and had hands on knowledge of Skagit floodway designation from Fema's perspective. Joe supported me, and stated: "We have got to tackle this issue sooner or later. It just might as well be now as never. They have been filling in places that they should not have been all without permits and without complying with Federal, or their own local regulations."

Gathered from GAGES (7/26/1995)

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FEMA recognizes that the majority of overbank flow occurs over Interstate 5 in the vicinity of the George Hopper Interchange between Gages Slough and the drive-in theater and from near Edison High School to just south of Cook road. Approximately 80 percent of the total overbank flow crosses the highway in these segments. Remaining flow will pass under the interstate at openings such as Gages Slough and other drainages and road underpasses. It is FEMA's opinion that these types of areas should be kept free of fill and other obstructions or otherwise managed as floodways, so that their conveyance characteristics are maintained.

Gathered from NELSON2.V1 (8/19/1996)

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9:30 a.m.

16

July 23, 1993

16 Here it says at the top of the second page,  
17 it says, "The conventional floodway analysis was not  
18 considered appropriate due to the unpredictability and  
19 variability of flow paths between various flood events,  
20 which is complicated by the uncertainties about where  
21 the levee failures will occur, the sequence of failures  
22 and volumes of flow. Thus, only lands within and  
23 including the Skagit River levees were designated as  
24 floodways in the conventional manner."

25 If that's true, wouldn't all this area

0357

1 downriver from the Burlington Northern Bridge fall

2 within FEMA's definition?

3 A. It sounds like it would, but I don't

4 understand that.

Gathered from JOEWEB01.DOC (10/10/1996)

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CENPS-EN-HH-HF

10 Oct 1996

MEMORANDUM FOR CHIEF PM, ATTN: Forest Brooks

SUBJECT: Skagit River Levee Repairs

1) Because of the unique characteristics of the Skagit River Delta, conventional floodways were not adopted for the entire delta downstream of Sedro Wooley. In this area, for the Skagit River proper, the levees confining the channel and adjacent areas have been designated as floodways. In the vicinity of Whitmarsh Road and old the U.S. Highway 99 bridge, the most landward levees were used to establish the floodway. These are not the conventional one foot rise floodways normally used by FEMA. The purpose of these floodways is simply to preclude any encroachment which would reduce the capacity of the river channel or jeopardize the integrity of the levee system.

...

3) Kunzler is pressing that we adhere to the following National Flood Insurance Program standard:

"Require until a regulatory floodway is designated, that no new construction, substantial improvement, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base (100-year) flood more than one foot at any point in the community."

4) As long as any repairs we make to the Skagit River levees replace them in kind, we comply with the standard. If we raise the levees or add material to their riverbank or landward sides, then

in my opinion, we must conduct an analysis to comply with the standard. I think we could reasonably argue that the analysis be limited to the cumulative effects of all anticipated levee improvements, since our work only concerns levees.

Joseph T. Weber, Jr.  
Program Manager, Flood Plain  
Management Services

Gathered from BOOK.2 (10/12/1996)

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[Decade by decade, the death and property toll is rising largely because more development is taking place on flood plains.]"Flooding has been made much worse by years of inattention to floodway management, inability to curb development along the river valleys, and the accelerated logging of watersheds, according to more than a dozen experts interviewed by the Post-Intelligencer during the three weeks since the record floods hit. All parties who use the rivers are partly to blame for the chronic flood damage, experts said. And lessons from past floods went ignored. Floods are, in fact, inevitable in this climate, advocates of tougher development controls say." Angelo Bruscas, P-I Reporter, Seattle Post-Intelligencer, 12/27/90

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FLOODWAYS

[If anything we're not being as restrictive as we should be.]"The County, through court action, has had to become more restrictive in enforcing floodway regulation since January of 1976. If anything we're not being as restrictive as we should be." Paul Shelver, Skagit County Zoning Administrator, Skagit Valley Herald, 7/20/79.

"Gages Slough, the meandering body of water which wanders through the Burlington area, also has historically acted as a floodway during high Skagit River flows." Jerry Smith, Washington State Department of Game, Skagit Valley Herald, 4/22/83

"Another key effective flow area is the Gages Slough which is a floodwater conveyance system consisting of lower ground throughout the city and into the county." Charles L. Steele, Chief, Natural and Technical Hazards Division, Federal Emergency Management Agency, Letter dated 6/10/83

"Gages Slough obviously carried the flood flow before and it would again. Local citizens have a false sense of security because local officials are denying there's any hazard associated with development around Gages Slough ." Bill Spurlock, Chief of Flood Plain Management Services, U.S. Army Corps of Engineers, Skagit Valley Herald, 3/15/84

"If your question is whether development in the floodplain has already raised the flood waters over one foot in the floodplain, the answer is YES, . All you have to do is look at the freeway or the existing levees." Forest Brooks, Corps of Engineers, Skagit County Flood Control Committee, 10/7/96

Gathered from FSHSTYPT.doc (3/3/1997)

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-DRAFT-  
SKAGIT FISHERIES INVESTIGATION FEASIBILITY STUDY  
Prepared by the U.S. Army Corps of Engineers  
Seattle District

Flood storage from upstream dams is capable of containing 220,000 acre feet of water during flood events. Rose Reservoir, owned by the City of Seattle, contributes 120,000 acre feet to flood storage. The upper Baker Reservoir provides 16,000 acre feet of storage as compensation for lost capacity during the time of dam construction. In addition, upper Baker Reservoir can store an additional 84,000 acre feet of flood waters if compensated for lost revenues by the U.S. Army Corps of Engineers. Floodplain management by Skagit County has established a 15-year frequency floodway where development will be controlled by special building and health regulations.

Gathered from APR16B (6/18/1998)

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Testimony of Bob Boudinot (vSkagit46, 4/16/97)

25 Q Well, if it had a uniform flow, you would understand

1 that it wouldn't take into account the effects of any  
2 structures in the floodway; is that correct?

3 A But it did take into account the freeway because there  
4 was a three foot drop in elevation across the freeway,  
5 so --

6 Q It took into account the freeway. Why would it take  
7 into account the freeway and not the levees then, can  
8 you explain that?

9 A No, I can't.

10 Q The City of Burlington supported that because they, like  
11 the City of Mount Vernon, because they thought the Army  
12 Corps of Engineers' standards were too high in their  
13 areas they wished to develop, right?

14 A At the time we were more concerned about the floodway  
15 concept. I mean, the elevations we weren't -- in the  
16 City of Burlington, we being the City of Burlington, we  
17 had no way of knowing whether a new study would have  
18 lower elevations or higher elevations, but there was a  
19 concern about proscribing a floodway through Burlington,  
20 and so that was Burlington's concern.

Gathered from MAR07A

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Testimony of Dave Brookings 3/7/97

3 Q Now, another thing you said in your deposition, of interest,  
4 was you felt down right uncomfortable with leaving a couple  
5 of thousand yards of excavated material on the riverside of  
6 the levees in the floodway. You recall making that statement  
7 in your deposition in July of 1993?

8 A Could we turn to that page?  
9 Q Sure. Page 52. I'm going to put starting at page 51 on the  
10 screen. And I'll ask you if I asked you these questions and  
11 obtained these answer.  
12 QUESTION: I want you to search your own  
13 views on this over time and tell me whether  
14 you feel thoroughly comfortable with the  
15 notion that the installation of such a  
16 keyway is really only maintenance.  
17 ANSWER: I feel comfortable with the thought  
18 that it is a maintenance activity. I feel  
19 less comfortable and in fact I feel  
20 downright uncomfortable with how the  
21 material is used, **the excavation material is**  
22 **placed on the levee.** In other words, when  
23 they bring in 2,000 cubic yards, they have  
24 to excavate 2,000 cubic yards and I feel  
25 uncomfortable with the policy that the

1 material is left within the **floodway** and  
2 that is where I've raised some questions.  
3 Did you give those answers to those questions on July  
4 1st 1993 under oath?  
5 A Yes, I have stated this many times.

Gathered from WG alter items.doc (10/31/2000)

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#### SUMMARY OF WORKING GROUP ALTERNATIVE BRAINSTORMING SESSION

There are large categories that the items fall into that are similar or related in the type of protection they provide. They are;  
do nothing

**higher levees**, such as raise the Francis Road for 10 to 15 year protection and provide outlet for Nookachamps Creek.

**set back levees**, where levees are moved back 500 feet, 1000 feet or some increment that provides more over back flow. Examples are 500 foot set back levees for Diking District 12 and 17.

**overtopping levees**, where levees are identified as preferred overtopping, and purposely left lower or some other design. The levee would either be hardened for overtopping and/or given shallow back slopes to prevent catastrophic failure.

**floodway bypass, floodway** across big bend such that flow is returned to the river.

**floodway outlet**, Avon bypass type outlet where flow is permanently diverted from the river.

Another **floodway** outlet would be across Fir Island adjacent to Dry Slough where there are no buildings (West side). Each of these options would require a controlled inlet but the outlet would be optional. The **floodway** could be defined and limited by dug channel and dike or to permit land use, bermed **floodway** with minimal excavation.

**sand plug levee**, rather than a low section for over topping or a gated structure for a tidal sea gate, a hardened section of the levee would be built to with stand flow velocities and a weak section would be built into the levee.

**ring dike levee**, possibly Conway, Burlington, Mt Vernon and West Mt Vernon

Gathered from RE: **Floodway** maps (skagit river brief.doc) (1/3/2001)

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## Updating the FIRMs

Mission: Revise the Flood Insurance Rate Maps (FIRMs) for the Lower Skagit River based on the topographic and hydraulic data developed by the Corps as part of their Feasibility Study.

Background: Current FIRMs are somewhat dated -- became effective in 1985, but based on mid-1970s data.

Purpose: Update the FIRMs to provide Lower Skagit communities with the most accurate flood hazard information for use in floodplain development decisions in order to reduce future economic losses caused by impending flood events.

## Data Discrepancies Due to Levee Analysis

The Corps' feasibility study on the Lower Skagit includes levees (moreover levee failure at certain points) in its analysis in order to design flood control solutions. FEMA's floodplain mapping program does not include levees in the hydraulic modeling, unless the levees provide 100-year flood protection and are certified by the Corps.

## Two Elements to the FIRM

1. Base Flood Elevations (BFEs) – The lowest floor of new structures must be built to this 100-year flood elevation. BFEs throughout the Lower Skagit Delta may likely increase.
2. **Floodway** – Portion of the floodplain to be kept free of encroachments in order to maintain conveyance and pass the base flood discharge. There are two options to delineating the **floodway** on the Lower Skagit:

Standard conveyance **floodway** – Normal method of delineating a **floodway** based on equal-loss conveyance method (99% of **floodways** mapped by FEMA are done this way). Very restrictive - development is not generally allowed in these areas.

Special Conveyance Corridor – An administrative **floodway** where a corridor(s), usually comprising faster and deeper moving floodwaters, is kept open to maintain conveyance. Less restrictive - development may be allowed based on certain conditions.

Gathered from RE: Skagit Valley Herald (10/13/2001)

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Date: Oct 13, 2001, 06:48:20 AM  
To: Scuderi, Michael R NWS <Michael.R.Scuderi@NWS02.usace.army.mil>; Massey, Patrick <Patrick.Massey@fema.gov>;  
CC: Cook, Carl <Carl.Cook@fema.gov>;  
Folder: corp project

FEMA defines **floodway** as:

“ . . .the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.”[1] (Emphasis added.)

Skagit County, Burlington and Mt. Vernon almost to the letter adopted this standard in their local flood ordinances. In the early 1980's FEMA designated the channel of the river and its levees as the floodway in the Skagit River. As such the levees were not suppose to be raised or widened at any point within that floodway.

On June 19, 1981 the Mt. Vernon City Building Official wrote to FEMA and asked:

"If the designated floodway included all of our existing dikes, would we be able to maintain the dikes, repair the dikes or increase the dikes as needed or would we be precluded from doing so by including them in the designation.?"[2] (Emphasis added.)

On July 17, 1981 FEMA responded:

". . .if a floodway is designated in the future and the dikes are included in that zone, you would be able to maintain and repair the dikes to their present profile elevations. Raising the dikes is another matter. Hydraulic studies of the river have shown that increasing the height of the dikes would cause an increase in flood levels upstream."[3] (Emphasis added.)

On March 24, 1982 FEMA wrote to the Mayor of Burlington and stated:

". . .we have decided to build on and refine your thoughts regarding density criteria, in conjunction with establishing a minimum floodway that will encompass the channel and overbank areas including levees."[4] (Emphasis added.)

On August 22, 1983 FEMA stated the following:

"Despite the fact that the FEMA has not designated a regulatory floodway, it is still recognized that there is a need for development to be regulated in order that flood hazards are not significantly increased. Section 60.3C of the CFR is designated for areas where 100 year flood elevations have been established but no regulatory floodway identified. The City of Burlington and Skagit County will be required to adopt ordinances which comply with the requirements of Section 60.3C in order to maintain participation in the NFIP. Part of this requirement will be to ensure that no new construction, substantial improvements, or other development (including fill) is permitted within Zones A1-A30 on the FIRM, unless it is demonstrated that the cumulative effect of proposed development, when combined with all other development, will not increase the water-surface elevations of the base flood more than 1.0 foot at any point within the community. . ."[5] (Emphasis added.)

On February 1, 1984 FEMA again wrote to the Mayor of Burlington and stated the following:

"Thus, only lands within and including the Skagit River levees were designated as floodways in the conventional manner."[6] (Emphasis added.)

In the mid-1980's FEMA began an internal search for policy guidelines on floodway issues. Across the state of Washington some communities were put on probation for filling within the floodway. FEMA's Region X Bothell Office requested guidance of the Federal Insurance Administrator, Jeffrey Bragg in Washington, D.C. in order to "assure uniform interpretations throughout the Regional Offices and States."[7] Specifically, the Region X office wanted to know:

1. Step-Backwater Analysis: Must they require a step-backwater analysis to assure modifications are produced with the same sophistication as the original study?
2. No Rise: Does "no rise" always and literally mean no rise?

3. Intermediate Cross Sections: Must new intermediate cross sections be surveyed at the site and provide for a "no rise" certification, the rise being calculated as the difference between pre- and post-development conditions at these sections?

4. Cumulative Effect: Does the community have to require that the developer provide and analysis of not only his site, but include any potential additional development that can occur in the same reach?

On August 7, 1985 the Director of FEMA responded:[8]

"1. Hydraulic Modeling for Fill in Floodway. Floodway fills violate the encroachment standard of Part 60.3(d)(3) of the NFIP. . . Any floodway revision requires use of a hydraulic model which, at a minimum, is as sophisticated as the original model employed to determine the floodway. Thus, if a step-backwater model was used to determine the floodway, the same model should be used for any revision analysis.

2. No Rise in Flood Level. Part 60.3(d)(3) of the NFIP regulations states that the community shall "Prohibit encroachments. . . within the adopted regulatory floodway that would result in any increase in flood levels within the community during the occurrence of the base flood discharge." . . . Technically, no obstruction, regardless of size, can be placed within the floodway without obstructing flow and causing some increase in water surface elevation. . . .The effect of a single encroachment placed within the floodway of a moderately sized stream, may often be insignificant and difficult to measure with conventional hydraulic models. Yet, as the number of such encroachments increase, these effects accumulate and become significant. . . .under Part 60.3(d)(3) it is assumed that there can be no cumulative effects because the permissible rise is zero. (Emphasis added.)

3. Intermediate Cross Sections. In order to determine the effect a proposed encroachment in the floodway will have on the flood elevation, the appellant must incorporate in the hydraulic model a new cross section(s) at the site of the proposed construction. . . . If the post-encroachment flood elevation is greater than the pre-encroachment flood elevation, the proposed development should be denied. (Emphasis added.)

4. Cumulative Effects. Where a community has adopted a regulatory floodway . . . and the net effect of a proposed floodway encroachment and compensatory action is demonstrated to be zero, analysis of the effect of similar development in the floodway is generally not required since a zero rise would also have to be demonstrated in each similar, subsequent case.

The purpose of prohibiting encroachment into the floodway which would result in any increase in flood levels is to prevent actions by one property owner from causing increased damages to his or her upstream neighbors due to increased flood levels. . . .We must emphasize that once a floodway is designated an allowance for an increase in flood stages of up to one foot has already been provided.

In conclusion, nothing which offers any resistance to the flow of flood waters may be placed within a regulatory floodway unless compensatory action is taken to restore the lost conveyance."

As previously stated FEMA as part of their administration of the National Flood Insurance Program ("NFIP") designated "...lands within and including the Skagit River levees ..." as floodways. Further, FEMA required Skagit County and the cities of Burlington and Mt. Vernon to comply with and incorporate within their local flood plain ordinances, the following language:



(10) Require until a regulatory **floodway** is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.[2] (Emphasis added.)

[1] Mt. Vernon City Code 15.36.030(12)

[2] 6/19/81 letter to FEMA from Ron Maynock

[3] 7/17/81 letter to Ron Maynock from FEMA.

[4] 3/24/82 letter to Ray Henery from FEMA.

[5] 8/22/83 letter to Larry Kunzler from FEMA.

[6] 2/1/84 letter to Ray Henery from FEMA.

[7] 6/19/85 memorandum to Jeffrey Bragg from William Mayer.

[8] 8/7/85 memorandum to William Mayer from Jeffrey Bragg.

Gathered from RE: Skagit Valley Herald (10/15/2001)

=====  
From: Massey, Patrick <Patrick.Massey@fema.gov>  
Date: Oct 15, 2001, 09:08:14 AM

Anyway, if a development has occurred between the levees this would be an NFIP compliance issue. Have the levees been raised or widened since the communities joined the NFIP and the FIRMs were published in 1985? If so, this would be a violation of d3. You state that "millions of tons of fill have been dumped into the **floodway** of the Skagit River". Were these fills used to improve the levees, or simply return them to their previous condition following flood damages? If the fill/rock was used to repair levees to their pre-flood condition, then this is not a violation of d3.

Gages Slough Special Flood Risk Zone

Gages Slough is a unique flood zone. Frankly, I would have ripped a **floodway** through it 20 years ago, but I wasn't around. Instead we developed special development standards for this area with Burlington. Admittedly, Burlington has done a poor job of enforcing these special standards.

Certainly FEMA bears some responsibility for the increased flood damage potential in the Skagit Valley.

...

FEMA is trying to do our part to help. We are working with the Corps to turn the data they developed in their feasibility study into a Flood Insurance Study -- hopefully, these new maps will better reflect the true flood risk to the Delta. Secondly, we will be working with the local communities to develop some kind of floodway for the new maps. The form this floodway will take is anyone's guess, since it will be up to the communities to agree upon the methodology that we (ie Corps) uses to delineated the floodway. Remember, communities need to meet 60.3(d)(2) when delineating the floodway. It is not FEMA's call to tell communities how they will develop their floodways.

In sum, all of us care about the Skagit River, and the natural environment -- but as you know, we are dealing with several generations of bad land-use decisions, coupled with a muddled and complex political environment.

Gathered from FW: 89% Compliance progress report for Skagit County (7/10/2002)

-----Original Message-----  
From: Best, Marty (EMD) [mailto:M.Best@EMD.WA.GOV] Sent: Wednesday, July 10, 2002 6:59 AM  
To: D'Acci, Tim  
Cc: BillDowe  
Subject: FW: 89% Compliance progress report for Skagit County

From my perspective it appears that they have a seriously non-compliant ordinance as it deals with RV and floodway issues and it also appears that it will not be resolved until some time in September. They have had since December 26, 2001 to resolve the ordinance issue. Additionally they also appear to have multiple enforcement issues that have not been resolved yet.

Gathered from SCPW review of work by others (9/6/2002)

From: DonDixon </O=SKAGIT/OU=ADMIN/CN=RECIPIENTS/CN=DDIXON>  
Date: Sep 06, 2002, 02:45:48 PM  
To: DaveBrookings <daveb@co.skagit.wa.us>;  
CC: ChalMartin <chalm@co.skagit.wa.us>; Dan Berentson <danb@co.skagit.wa.us>;  
LornaEllestad <lornae@co.skagit.wa.us>;  
Folder: SKAGIT E-MAILS\DANS EMAILS\Don Dixon  
Subject: SCPW review of work by others

14.34.200 of SC Code reads: "Building and development nears streams without a designated floodway shall comply with the requirements of 44 CFR 60.3(b)(3) and (4) and (c)(10) of the National Flood Insurance Program regulations and SCC 14.24. " This in essence limits the change in the water surface elevation in a 100 year event to 1 ft or less.

Gathered from RE: Draft of Work Session with County Oct. 22 2002le.doc) (11/8/2002)

SCD-Skagit County Work Session  
RE: Swinomish By-pass Channel  
October 22, 2002

The flood project includes a saltwater intrusion study that is looking at the impacts of a floodway with an open stream going out to Padilla Bay.

...  
Design: Everyone needs to remember that the proposed configuration of the floodway is only at the 10% design stage. This means that "everything" about the conceptual design could and most likely will change. This is why the Environmental studies are being completed first. The floodway, which would be built south of Highway 20 at Twin Bridges, is planned to be a 2000' wide channel with drainage ditches on the inside outside. This is One reason it would take so much land is if a low flow channel was included as a part of the project. Another reason the floodway needs to be that wide is to accommodate the amount of water and residue generated by a 50 or 100-year flood and to keep the water velocity down. The capacity of the river when the dikes are full is 153,000 CFS of water. A 100-year flood would be about another 85,000 CFS for a total of 233,000 CFS of water remember that this is an estimate. The floodway will be water is engineered so that it will run about five to 8 feet deep over the 2000' area. If the channel were narrower, the water velocity would be high resulting in much more erosion and damage and silt being dumped into the bay.

Gathered from Skagit FEMA Maps.doc (12/12/2002)

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DEPARTMENT OF ECOLOGY  
Northwest Regional Office

December 11, 2002  
TO: File  
FROM: Charles L. Steele  
Floodplain Management Specialist  
SUBJECT: Skagit County Meeting to discuss Revision to FEMA Maps

Current FEMA Maps. The current effective FEMA maps are dated September 29, 1989; however, only 2 of the 35 panels in this map series have that date (Sedro-Woolley area), and the remainder have the original date of the Skagit County map series, which is January 3, 1985. This map series shows the entire Skagit Delta, which is 11 by 19 miles in size, as a Special Flood Hazard Area (minus hills, etc.). The delineations were derived by assuming a channel capacity of 110,000 cfs (of the 240,000 cfs base flood discharge), and splitting the remaining 130,000 into two flow paths at Burlington. The split occurs just downstream of I-5, with 86,000 cfs flowing northwesterly to Samish Bay and Padilla Bay, and the remaining 44,000 cfs flowing southwesterly to Skagit Bay. The essence of this delineation is that the risk is averaged over all of the Delta by showing flood hazard area throughout the Delta, with the understanding that wherever there is a levee break or overtopping, there will be higher flood depths than what is depicted on the maps (which actually happened on Fir Island in the November 1990 floods).

...  
Schedule. Skagit County officials were very concerned about keeping a strict schedule for this effort, because of the close relationship between it and the flood control project that is being studied. Although Corps officials indicated at this meeting that they did not think elevations would be dramatically higher, where elevations do go higher and/or floodways appear on the maps, these effects could dramatically alter the need for a flood control project, as perceived by those who would be affected. The resultant timeframes were not totally clear from this meeting, but in general, they would look something like those below:

...  
FEMA Lead, Other. The group was told that Carl Cook would be FEMA's lead for this project, and will coordinate throughout with Messrs. Dahlstedt, Martin, Brookings, and Dixon. It is presumed that the lead person for the County will be Dave Brookings, though that was not discussed at the meeting. Although increased elevations could be controversial as they were in

the early-1980s draft maps, the most potentially contentious issue will be floodways, whether or not to produce them (they were not in the original studies), and how to do them; i.e., is a break to be assumed for a particular levee resulting in a floodway, will all of the flow paths be run with floodways (which could produce floodways through urbanized areas), etc?

The County ended the meeting emphasizing the need to assure that slippage in the timeframes does not occur. The next meeting will be held in late-March, where County and City staff will be invited to view the flood elevations on draft maps prepared by Tetra Tech and reviewed by the Corps. At this meeting, floodway alternatives will be discussed and decided.

Gathered from Public Participation 12-16-02.doc (12/16/2002)

December 16, 2002

Public Participation Plan Direction for 2003

In regard to FEMA, we need to jumpstart community dialogue about the significance of designating floodways. This was an extremely unpopular topic in the 1980s, but since significant development has taken place in commercially zoned areas of Skagit County, maybe there is a better attitude in regard to protection.

Also, if the proposed path of the Swinomish Diversion Channel is the direction that water would flow in a 100-year flood, why shouldn't it be designated a flood plain as soon as possible?

If that area was found to be the best place to designate a flood way, the designation would help make a future diversion channel more palatable, if building in the floodway remained restricted after it's completion. This would answer the objection of agriculture, aside from the farmland taken up. If it was a "dry channel" even that objection could be reduced.

...

Strategy:

Since the City of Burlington, along with Dike District 12, are the two entities that have the issue of flooding on their radar screen, we should go there first. Take the Diversion Channel alternative off the table, and see if we can come to concurrence on a plan for the three-bridge corridor and a short-term plan for flood protection and emergency evacuation that they can buy into. They already have a plan in progress that we can partner with, that makes for a great place to start.

Also, make sure we take any mention of a County-wide bond issue off the table. We haven't chosen an alternative yet anyway, and currently have no plans to hold an election. Commissioner Anderson's concern about the bypass not doing enough for upriver is a legitimate one, if they are being asked to pay for it.

Gathered from Flood Phase Thoughts, 1-7-03.doc (1/9/2003)

Downstream from the three-bridge corridor, possible components of a "Phase 1" solution could be a flood wall in downtown Mount Vernon and a designated floodway that allows overtopping into areas that FEMA concurs with. These areas would be basically where the Corps' hydrology studies determine where the water will go in a major flood event.

...

Providing additional incremental flood protection as financially and environmentally feasible to dovetail with FEMA floodway makes sense.

Gathered from SkagitFISReport.doc (2/18/2003)

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#### 4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program (NFIP) and Executive Order (EO) 11988 encourages governmental agencies to adopt sound floodplain management programs. Therefore, this flood study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries and the 100-year floodway to assist the county in developing floodplain management measures.

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#### 4.2 Floodway

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP and EO 11988, a floodway is used as a tool to assist communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The floodway for the Skagit River in this study is computed based on equal conveyance reduction from each side of the floodplain. The floodway was computed at cross sections using the HEC-RAS model. The floodway results are presented in Table 5.

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 6.