

MARSHALL PUBLIC MEETING - 22 MARCH 1963

P 002650

OFFICE OF
SKAGIT COUNTY ENGINEER

LLOYD H. JOHNSON, P.E.
COUNTY ENGINEER

P. O. BOX 396
MOUNT VERNON, WASHINGTON 98273
206 - 336-6147

JACK C. RAFTER, I
ASSISTANT COUNTY ENGINEER

March 22, 1978

Col. Poteat, Jr.
District Engineer
Corps of Engineers
P.O. Box C-3755
Seattle, Washington 98124

Re: Lower Levee Project
Skagit County

Dear Col. Poteat:

Skagit County is very satisfied with the progress the Corps of Engineers has made on the Lower Levee Project. We visited the Corps office in Seattle on March 9, 1978, and found twenty to twenty-five individuals working on the project, including surveying (photogrammetry), hydraulic design, and they have completed field surveying of the entire basin area.

The Engineering Department has studied the Skagit River, Levee & Channel Improvements public brochure of March, 1978, and fully supports Alternative 3 of the brochure with the reservation of Alternatives 4, 5 and 6 to be considered at a later date. This would provide near 100 year protection.

We, the residents of Skagit County, have lived a considerable number of years realizing that another major flood is a certainty although the date is in question. Such a flood will endanger lives and cause untold property damage.

Skagit County's flood plain zoning is making inroads toward protecting our valley, but we are still in a very vulnerable position. The Corps' proposals to protect the urban areas of Skagit County are justified and long overdue.

Following six years of study, the Lower Levee Project was approved by Congress in 1966. Today, twelve years later, we are beginning to see the reality of that study and are looking forward to construction about 1980. We are hopeful that no additional damage will occur prior to the construction.

The Board of County Commissioners passed an Agreement for local cooperation on March 21, 1978 which provides for all the necessary right-of-way, utility relocation and road restoration and the maintenance thereof for this project.

P 002651

Col. Poteat, Jr.
Corps of Engineers
March 22, 1978.
Page 2

The Dike Districts, together with the other residents of Skagit County, are looking forward to an early completion of the Lower Levee Project.

Respectfully,



LLOYD H. JOHNSON, P. E.
Skagit County Engineer

LHJ/mb

P 002652

City of

**MOUNT
VERNON**

JACK D. MILLER, MAYOR
RICHARD M. WHITE, CLERK TREASURER
KENNETH J. EVANS, CITY ATTORNEY
JACK PITTIS, CITY ENGINEER

TELEPHONE 336-6565
POST OFFICE BOX 809

Washington

98273

March 21, 1978

Mr. Forest Brooks, Study Manager
Seattle District, Corps. of Engineers
P. O. Box C-3755
Seattle, Washington 98124

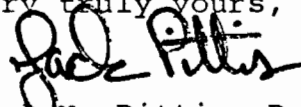
Dear Mr. Brooks:

The City of Mount Vernon is very interested in the levee and channel improvement study being conducted by the Corps of Engineers in Skagit County. Our interest, as can be expected, is primarily directed to the protection of the retail sales areas and commercial areas in the River-bend or Riverside shopping centers, the Downtown area and the West side of the City of Mount Vernon.

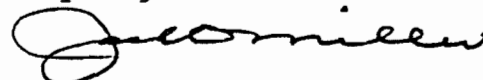
At a minimum, the urban area of the City of Mount Vernon should be provided with assurance that it is protected against a 100 year flood. It is understood that to accomplish this, it will be necessary that the river channel or levees of the Skagit River be improved through the City of Mount Vernon.

Having reviewed the alternatives published in the Skagit River Levee and Channel Improvements public brochure dated March, 1978, we would recommend that alternative 3-Levee and Channel Improvements and Urban Levees would adequately provide a 100 year flood protection we seek for the urban area of Mount Vernon. We also concur that some of the area between the dike should be utilized for recreational opportunities and possible future parks. It is important for us to continue to recognize the historical, scenic and recreational aspects of the Skagit River as well as retaining a practical outlook of solving the potential flooding dangers associated with the River.

Very truly yours,



Jack N. Pittis, P.E.
City Engineer



Jack D. Miller
Mayor

JND:cc

P 002653

CITY OF BURLINGTON
BURLINGTON, WASHINGTON 98233

OFFICE OF THE
MAYOR
Raymond C.

March 22, 1978

Corps of Engineers

Gentlemen:

The Burlington City Council and I express our thanks and appreciation for the Skagit River Levee and Channel Improvement study and the information provided.

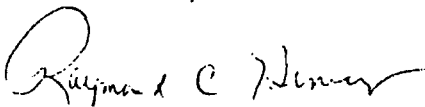
Referring to draft No. 1, dated March 1978, we urge that, as a minimum, the Corps recommend to the Federal Congress the adoption of Alternate 3. We actually hope that the final conclusions will justify Alternate 4 and possibly Alternate 6.

Should the study not recommend Alternates 4 or 6 we hope they will be retained in a status which would permit prompt reconsideration if circumstances change.

The lower Skagit River Delta has been developed into a very valuable piece of real estate, providing a most attractive environment in which to live. Neglecting to provide reasonable protection for this investment, and this environment, could only be considered gross negligence.

With reference to the alternates requiring adjustments to the river environment upstream, it seems the gain in protection for the environment downstream, when considering the comparative value, fully justifies the adjustments. We need only remind ourselves that Skagit County is valued, for tax purposes, over one billion dollars, a large part of which is subject to flood damage, and that the City of Burlington is valued, for tax purposes, over fifty-five million dollars all of which is subject to flood damage.

Thank you,



Raymond C. Henery
Mayor

RCH:bd

P 002654

Public Meeting Speakers

1	Shaght Co Comm. chairman	Howard Miller
2	Burlington supervisor	Arnold Hanson
3	S Reg. Plng Council	Jan C Munn
4	MT Venn	Harold Christian
5	Shaght Co. Eng	Lloyd H Johnson
6	PNW WA	George Ayres
7 (25)	Shaght Conservation Dist	Robert J Mulbert
8	W Environmental Council	Ruth F Weines
9	SCANP	Craig Martin
10	Rexville Grange (ex)	Hennetta Pearson
11	res. - N Fork	Gary Jones
12	res - W MT Venn	Zell A Young
13 (23 29)	res - Burlington	Lawrence Boettcher
14 (27)	res - East of SW	Sophie Nebel
15	res - Nookachampo	Larry J Huxley
16	res - N Fork	Allen H Does
17 (30)	SC Farm Bureau	Richard Smith
18	Port	Cleff Magira
19	res - M V	Helen Day
20	res S Fork	Mrs Joe Zoller
21	res - Bear Wash Road	John F Roosen
22	res - Sedro Woolley	Grace L Jones
23	National Weather Service	Chauncey T Bessie
24	res - Dawington	Chuck Trepke
25	res - N Fork	Emmie Summers
26	State Representative	Vrooman
27 (28)	res - Burlington	Erin Hamtzee
28		
29 (31)		

Public Meeting Questions

- Edro Woolley include 100 year protection to Sedro Woolley
- JEC need careful cost-benefit analysis
need adequate consideration of fishery
- enrietta * Why cant mouth of river be dredged?
? Lawson
- Hary * Have we seriously considered removing
Jones jetty between Mc Glin's & Goat Islands
- Zell Young You should remove all the existing dikes
We will excavate and this year at the ...
- ony Kungler * Won't the urban levees increase flooding
in the Nookachamps valley?
* Will the Dam Bypass handle 40% of the
runoff from the Sauk River? $F = \frac{1}{100} \frac{1}{100}$
- Richard Smith * What right-of-way will be necessary?
- Islen Day * Why isn't there a better flood warning system?
- Leva Soler ↑ Why cant you clean out the river with
a dredge after a flood?
- Ann Roosen * Does deepening a channel 2' have the same
effect as raising a levee 2'? No
* Where does all the silt go? settle ...
- Trace Jones * What assurances do we have that dikes will
be hard core? Permit number ...
- Archie Toepke * Would a dam be built in the Sauk
Not under state consideration ...

Miss
Suzette Semler * What Recreation will you have
Trails can be where they are involved ()

Rep Vrooman * Can you coordinate with State Legislature
Will send you report next ()
We will take you at the same time ()

v. Boettcher ↑ What will be problem in Nookshamps?

Richard Smith * Will funds be available? ()

Miss Knutzen * Will the dike be tied to Burlington Hill?
It would be ()

1 COLONEL POTEAT: Good evening ladies and gentlemen. I am Colonel
2 John Poteat, the Seattle District Engineer for the Army Corps of
3 Engineers, and let me welcome you to our Public Meeting on the Skagit
4 River Levee and Channel Improvement Project. ^{Now,} This evening we will be con-
5 centrating on that project which Congress authorized in 1966 and possible
6 modifications to that project.

7 I am not too much of a stranger to your flood problems. In my
8 previous position in Washington, D.C. in the Office of the Chief of
9 Engineers I was Assistant Director of Civil Works for the Pacific Area
10 and in that capacity I had an opportunity to make a number of contacts
11 with your Congressman, Mr. Meeds, concerning your flood problems. More
12 recently I have had meetings and tours of the area with Congressman Meeds
13 and additionally with representatives from both Senator Jackson's office
14 and Senator Magnuson's office. The Seattle District is currently
15 performing what we call ^{of} Advance ^{of} Engineering and ^{of} Design studies of the
16 Skagit Levee and Channel Improvement Project. In other words, this
17 project was authorized, after an exhaustive study, it was authorized in
18 1966 by the Congress and we are now in the post-authorization design and
19 engineering, or as we call it, the advanced engineering and design
20 stage. We are currently evaluating whether the project which was
21 authorized by Congress in 1966 should be constructed as authorized or
22 whether it should be modified to meet new ~~of~~, greater ^{of} changed needs.
23 During this meeting we want to hear your views on that subject. First,
24 let me take a moment to make a few introductions and to make a few
25 announcements.

22 mar 78

1 I would like to introduce the members of my staff who are here with
2 me tonight - take a good look at these people and at a break or at the end
3 of the meeting you may want to talk to one or more of them depending upon
4 the nature of your question. Chief of our Planning Branch is Dwain
5 Hogan. Vern Cook, Vern is in the Design Branch of our Engineering Division
6 and is the Project Manager for this project in its advanced engineering.
7 The Study Manager, Forest Brooks, Forest will be talking to you in a little
8 more detail. He's from the Planning Branch and this is
9 transitioning out of Forest's hand, out of the planning stage over into
10 the advance engineering so we have ^{kinda} dual project managers ^{here} at the
11 moment. Mary Thomas ^{may disappeared someone there's many} is in the back [^] Mary is the Chief of our Public
12 Affairs Office. Ginger McNamara is the Court Reporter who is recording
13 the meeting here tonight. We have several others, Jesse Amador, Don
14 Soderland, Bill Riley and ^{I see} Karen Mettling ^{all three too.} They are the ones that go to
15 all the trouble of putting this thing on. ~~and~~ They're the real brains
16 of the outfit. We certainly appreciate the effort that they have gone to

17 We also have a number of your elected officials up here ^{that's} ~~and~~ ~~is~~ ~~is~~
18 a pleasure for me to see them again. I will take just a moment to
19 introduce the the group. We do have State Representative Jerry L. Vrooman,
20 ^{Vrooman I think, is that reasonably close? OK.} It is certainly nice to have you here this evening. We have the whole
21 Board of County Commissioners lead by their Chairman, Howard Miller.
22 Howard stand up - probably a lot of you don't know Howard as the
23 Chairman of the Board of County Commissioners but rather as that
24 devastating steelhead fisherman - I think that's his real claim to fame
25 around here. Jerry Mansfield, ^{Jerry} and Bud ^{Norse} ^{it's} good to see all three

Norris 3
How you doing Bud,
good to see you

1 of you this evening. We also have Mr. Harvey C. Nichols from
2 Sedro Woolley a member of the City Council, ^{Mr. Nichols, ~~that's~~ great,}
^{it's} good to see you. Mr.
3 Arnold M. Hanson from the city of Burlington, City Supervisor, ^{OK Sir,} Mr.
4 Clifford T. Magin from the Port of Skagit County. ^{Sp} Gentlemen we are
5 certainly glad to see all of you here.

6 **Now** When you came into the room members of my staff encouraged you to
7 fill out an Attendance Card - one of these little things (holding up
8 card).. If you have not filled out a card, if you ~~could~~ please raise
9 your hand a member of the staff will get one to you and if you have some
10 and haven't turned them in please do likewise, ^{OK.} We need this information
11 really for our meeting record and also to put you on a mailing list
12 so when additional information comes out on this project we can put the ^{old}
13 address label on and see that you get it.

14 Also at the registration table were copies of tonight's agenda.
15 Again, if you need a copy of the agenda raise your hand. Lastly we
16 have ^a ~~the~~ public brochure. This I think will be a particularly handy
17 reference for you to take with you. Again, if you need one of the
18 brochures raise your hand and we will pass that out, ^{OK.} The brochure was mailed
19 last week to all the persons or agencies known to have an interest in
20 the project and ^{you see} here again is where the mailing list comes in. In
21 this brochure you will find background information on the authorized
22 project and explanations of possible alternatives flood damage
23 reduction measures which could be implemented. If you have any comments
24 on the material, or any corrections you wish to bring to our attention,
25 you can turn them in to us tonight or simply use the last page inside

1 the back cover of the brochure for your comments, tear it off, fold it
2 so that our address is on the outside, staple and mail it. We will pick
3 up the postage. If you need additional space, just add more pages to
4 this but be sure you fold it so that our address is on the outside.

5 If some of you have specific concerns that we do not answer in the
6 meeting tonight and you wish to discuss them with us, my staff and I
7 are at your disposal and we will remain as long afterwards as you would
8 like. ~~If~~ ^{If} it its not convenient for you to talk with us this evening, or if
9 you have friends that have questions and they weren't able to make it
10 tonight, Forest Brooks will remain in the area tomorrow to discuss our
11 studies and I believe Forest, you will be at the Skagit County Engineer's
12 Office ~~on~~ ^{11 NO, from} the 2d floor here from 8 until 11 and then from Noon until
13 2:00 p.m. Could I have you turn the lights down - ~~OK,~~ good.

14 We are here then this evening to give you a brief review of
15 this project and to get your input. As most of you are aware, the Corps
16 of Engineers has underway this advanced engineering and design studies
17 ~~on~~ ^{what's} officially termed the Skagit River Levee and Channel
18 Improvement Project. As I said earlier it was authorized by the Congress
19 in 1966 and involves levee raising and strengthening and channel
20 improvement in the Skagit River downstream of the Burlington Northern
21 Bridge at Mt. Vernon. Now that's a pretty key point to remember. This
22 is essentially the authorized project ^{the authorized project is essentially} from the Burlington Northern
23 ~~Railroad~~ ^{ok} Bridge downstream. In the mid-1960's, this project was seen
24 as part of a comprehensive flood control plan which also included sub-
25 stantial upstream storage and the Avon Bypass. The purpose of our present

1 study is to review the project as authorized and determine whether any
2 modifications should be made to it before the design is completed and the
3 construction plans and specifications are prepared. At the meeting
4 tonight, we will inform the public about the status and the progress of
5 these studies and provide a means for public input. We will be discussing
6 the background of previous flood control planning for the basin, the
7 currently authorized project in more detail and alternative flood damage
8 reduction measures that are being considered. Some conditions have
9 changed since the project was originally authorized, I am sure, ~~and~~ We
10 want to determine what these changes are and the present desires of the
11 people to adjust this project to accommodate these changes.

12 In order to help us proceed, let me explain the pattern of tonight's
13 meeting. First, Forest Brooks, the Skagit Study Manager, will explain
14 the process by which the Corps of Engineers builds water resource projects
15 and how this project, this particular Skagit project, fits into this
16 model. He will then detail what project Congress specifically authorized.
17 He will then touch on the Skagit flooding problems and past flood control
18 measures in the basin. He will explain the old Comprehensive Basin Flood
19 Control Plan and then explain what possibly can be done about future
20 flooding. This will involve a description of possible modifications of
21 the authorized project. He will then outline our present studies and
22 our plans for future work. At that point, we will listen to those of you
23 who wish to make a formal comment. Finally, we will open up the meeting
24 for a general discussion and then you can ask questions on what we
25 presented tonight or on any comments made from the floor. I might add

[Handwritten signature]

1 let's take a break at the end of two hours, at 9:30, if we need
2 additional time and then we will finish up after that break, if that's
3 required.

4 So, I ~~will~~ now introduce the Study Manager for the Skagit Levee and
5 Channel Improvement Project, Forest Brooks, who will take over the meeting
6 and proceed with the discussion from here.

7 MR. BROOKS. Thank you, Colonel. I am pleased that we have such a
8 good turnout tonight. It shows that we have a great interest in flood
9 control in the Skagit River Basin. I am now going to take about 20
10 minutes to explain how the Corps of Engineers goes about building water
11 resource projects. The project which we are here discussing tonight,
12 and other possible flood damage reduction measures which we are currently
13 considering as possible modifications to the authorized project.

14 First, I am going to explain the usual Corps process by which it
15 plans, designs and builds major water resource projects. This Corps
16 process can ^{be} generally be broken down into three basic phases. These are
17 general investigation studies, advanced engineering and design studies,
18 and actual construction.

19 In the first phase - the general investigation studies - people
20 as their congressional representatives for help in resolving local, urban
21 and regional water resource problems. Congress then directs the Corps
22 of Engineers to investigate a certain problem or problems, and make
23 recommendations as to the Federal interest in implementing any possible
24 measures which could alleviate these problems. For the Skagit River
25 Levee and Channel Improvement Project, Congress authorized such a study in

1 1960. This study was completed in 1965 and the Corps recommended that
2 the Levee and Channel Improvement Project be constructed. In the Flood
3 Control Act of 1966, Congress authorized the Corps of Engineers to
4 proceed with the project. However, Congress did not fund the second phase
5 of the project until Fiscal Year 1977.

6 The second phase of a Corps of Engineers' project involves advance
7 engineering and design studies. These studies, during this phase, the
8 Corps reviews the authorized project to determine whether there are any
9 changes in the needs of the area and the desires of the people and the
10 local officials since the first phase of the studies. Then, either the
11 formulation of the authorized project is affirmed or it is reformulated
12 to meet new or greater needs. This phase of the Corps of Engineers
13 studies usually lasts two or three years and, during this phase,
14 detailed design work is begun, and plans and specifications are usually
15 prepared for the first construction contract. On the Skagit Levee and
16 Channel Improvement Project, Congress first funded this phase in Fiscal
17 Year 1977. Presently, we are scheduled to submit a report in 1979 that
18 will either reaffirm the authorized project or propose modifications
19 that are desired ^{and} justified.

20 The third phase of a Corps of Engineers project is the actual
21 construction. This can take one to several years depending upon the
22 scope of a project. We expect that the first construction on this project
23 probably on the downstream portion, will occur in the summer of 1980.
24 Construction on upper portions of the project would continue through
25 1981 and 1982, if required. At that time, we would turn the completed

1 project over to Skagit County to operate and maintain in the future
2 or to the Diking District depending on the exact local agreement which
3 we enter into with them.

4 Now, I would like to explain the project which Congress authorized
5 in 1966. It included raising and strengthening the existing levee system
6 from the mouth of the North and South Forks upstream to the Burlington
7 Northern Railroad Bridge, and also improving the hydraulic capacity of
8 the North Fork and Freshwater Slough channels through excavation.

9 Levee improvements on the west side of the river involved increasing
10 top widths and flattening slide slopes for about four miles. Levee
11 raising would be required to provide freeboard at five locations. A
12 sandbag closure would be provided during flood periods at the approach
13 to the west end of the State Highway bridge in Mt. Vernon.

14 Levee improvements on the east side of the river would consist
15 of increasing the top width and side slopes for about three miles at
16 the Mt. Vernon bend, for two and one-half miles between Mt. Vernon
17 and Conway and for one and one-half miles south of Milltown. Sandbagging
18 would be required during flows of 120,000 cubic feet per second to provide
19 two to three feet of freeboard for a thousand foot long section south
20 of the State Highway Bridgt in Mt. Vernon.

21 In regards to the levees around Fir Island, the levee along the
22 North Fork would require widening throughout most of its length below
23 the junctions of the North Fork and the main river. Minor raising to
24 provide two feet of freeboard would be required at many locations along
25 the four miles of levee upstream of the North Fork bridge. The levee

1 along the South Fork would require widening for six miles from the bend
2 of the North Fork to the head of Freshwater Slough. Intermittent
3 raising of two and one-half miles of levee would be required to provide
4 freeboard.

5 Channel improvements would be undertaken on the North Fork and
6 Freshwater Slough channels. About two miles of channel would be improved
7 on the North Fork, and about a mile of channel on Freshwater Slough.
8 In general, channel excavation would straighten and enlarge the channel
9 on the North Fork in two separate locations. The levees would be rebuilt
10 on the new banks of the channel, where necessary. Along Freshwater Slough
11 the channel would be widened on the south side to retain the existing low
12 flow channel and to provide overbank area to pass floodflows. The exist-
13 ing levee along the south bank would be relocated next to the new channel.

14 This concludes my summary of the authorized levee and channel
15 improvement project. Currently, the Washington Congressional Delegation
16 is proposing legislation which would amend the authority for this project.
17 This legislation in effect would provide authority for the Corps of
18 Engineers to improve and extend the levee system upstream of the
19 Burlington Northern bridge. Levees between Burlington and Sedro Woolley
20 have previously been authorized by Congress, but this authorization is
21 part of the Avon Bypass. It would be much more convenient for all the
22 levees downstream of Sedro Woolley to be part of the same authorization.
23 The proposed legislation would also provide that recreation could be
24 considered as a project purpose which would allow the addition of specific
25 recreation features to the project, if desired by the local sponsor, and

1 provide for a 50/50 Federal/non-Federal cost sharing on these recreation
2 features. At the present time we do not know when this legislation will be
3 passed. Of course, any construction we undertake would be contingent upon
4 the final plan being engineeringly feasible, economically justified, and
5 environmentally acceptable.

6 The Skagit valley has a long history of flooding. Floodflows have been
7 recorded here since 1908. However, the historical record indicates some
8 very extreme floods occurred in the 1800's. The Skagit River basin is
9 shown in the screen on the right. The screen on the left shows a schematic
10 representation of the relative magnitudes of the floods that have been
11 recorded or those that have left some physical evidence. This chart shows
12 that even the flood of 1951, which caused considerable damage in the Skagit
13 basin, is smaller than the floods earlier in the ~~century~~^{century} and is dwarfed by
14 the floods of 1856 and 1815.

15 In the leveed areas below Sedro Woolley, the maximum safe channel
16 capacity with two feet of freeboard, is 84,000 cubic feet per second. Now,
17 freeboard is a factor of safety in the design of the levee. It is the
18 height of the ~~top of the~~ levee above the water surface of the design river-
19 flow sort of like a factor of safety. During the period of record since
20 1908, the 84,000 cubic feet per second flow has been exceeded 19 times
21 during the winter flood season. The most recent flood causing major
22 damage occurred in February 1951 and had a peak discharge of 150,000 cubic
23 feet per second at Sedro Woolley and 144,000 cubic feet per second at Mt.
24 Vernon. Under the present situation, with storage at Ross and Upper Baker,
25 a 25-year flood would produce a similar discharge. The 1951 flood remained

1 near its peak for six hours at Mt. Vernon which contributed significantly
2 to the severity of the flood damages experienced. During this flood,
3 dikes failed because they lacked sufficient height and width to withstand
4 saturation.

5 For comparison, the recent December 1975 flood had a peak discharge
6 of 130,000 cubic feet per second at Mt. Vernon, and the 100-year flood is
7 currently estimated to be about 215,000 cubic feet per second at Sedro
8 Woolley, but, due to overflow into the Samish Basin, the 100-year discharge
9 at Mt. Vernon would probably be much less than that, ~~110,000~~ in the
10 range of 160,000 to 190,000 cubic feet per second.

11 Thus, we can see that the Skagit River valley does indeed have a flood
12 problem. However, many people rightfully ask "Don't we have enough flood
13 control dams in the basin?" "We already have five dams upstream." And,
14 indeed the Skagit basin is fortunate to have five major dams. However,
15 only two of these dams - Ross on the Skagit River and Upper Baker on the
16 Baker River - provide significant flood control storage. Gorge and Diablo,
17 on the Skagit River, and Lower Baker Dam, on the Baker River, have little
18 available storage and are operated for power generation. Approximately
19 44 percent of the drainage basin lies upstream of Ross and Upper Baker
20 and is thus regulated by flood control dams. This is shown in yellow
21 on the chart on your right (pointing to chart). During the 1975 flood,
22 the discharges from Ross and Upper Baker, contributing to the flood peak
23 of 122,000 cubic feet per second at Concrete, were only 5,000 and 10,000
24 cubic feet per second, respectively. This is shown in yellow on the
25 chart to your left here. The total amount of 15,000 cubic feet per second

1 amounted to 12 percent of the flood at Concrete. The Sauk River peaked at
2 65,000 cubic feet per second, and the inflow on the Skagit River below
3 Ross Dam and above Concrete was 42,000 cubic feet per second. Thus,
4 approximately 56 percent of the basin above Concrete which is unregulated,
5 contributed 88 percent of the flood at Concrete. This is demonstrated
6 by the two charts we have up now.

7 In December 1975, the Skagit River flood damages totaled about \$3.2
8 million. These damages would have been much greater without the
9 successful flood fighting effort on the diking system along the lower
10 Skagit River. It is estimated the damages which were prevented by the
11 flood fight amounted to about \$8.7 million, and the 1975 flood had a
12 recurrence interval of only about ten years. Since the 100-year flood is
13 estimated to be about 215,000 cubic feet per second at Sedro Woolley, we
14 can see that, even with all the existing dams in the basin, substantial
15 amounts of flooding can and definitely will occur in the future.

16 Now, I will take a minute to explain to you - you have heard me use
17 the term several times - what a 100-year flood really is. I know us
18 engineers, use the term quite often and I think a lot of the people get
19 confused about what the actual meaning is. There are various engineering
20 explanations of the term. However, I have heard Colonel Poteat here quite
21 often use an analogy which I think is very good. He likens it to the
22 throwing of dice. In other words, when you throw dice you know that a
23 certain percentage of the time you are going to throw a seven. Well,
24 flooding is much the same way; every time you have a flood, it is like
25 throwing a pair of dice: For each flood you roll the dice and you get a

1 flood of a certain size. One time we might have a two-year flood, another
2 time a 20-year flood, or a 50-year flood, or a 100-year flood. Now,
3 what does the 100-year flood really mean? It means that statistically
4 speaking you have the likelihood of getting that particular floodflow
5 during a 100-year period or you have a one percent chance of getting that
6 floodflow in any particular year. Likewise the chances of getting a 25-
7 year flood would be four percent ~~in any one particular year~~ or the chances
8 of ^{getting} a 5-year flood would be 20 percent, in any given year.

9 Skagit County and the Corps of Engineers have considered in the past a
10 comprehensive flood control plan to guide the planning of water resource
11 projects in the Skagit basin. This has consisted primarily of three parts.

12 The first part of the comprehensive plan involved obtaining
13 additional flood control storage at the existing Upper Baker project. Last
14 year Congress authorized the reservation of 74,000 acre-feet of storage in
15 the Upper Baker Reservoir for flood control. Currently, the Corps of
16 Engineers is negotiating the power loss agreement with Puget Sound Power
17 and Light for this storage and the flood control storage was available
18 during this current winter.

19 The second part of the basin plan involved the construction of the Levee
20 and Channel Improvement project which is the subject of the meeting here
21 tonight.

22 In the past the third part of the comprehensive plan contemplated
23 additional flood control storage on the ^{sauk} ~~Sauk~~ River or the construction
24 of the Avon Bypass project or both. Skagit County has consistently
25 maintained that, flood control improvements, in addition to the Levee and

1 Channel Improvements project are needed. If, for some reason, upstream
2 storage and flood control diversion are not possible or feasible, the
3 County has indicated that other measures should be used to obtain a
4 substantial amount of additional flood protection for the urban areas
5 along the Skagit River, hopefully including Mt. Vernon, Burlington,
6 and Sedro Woolley.

7 This leads us now to a discussion of what can really be done to stop
8 flooding in the Skagit River valley. We have many options. These, of
9 course include "doing nothing." We can ignore the problem, but it just
10 won't go away; we can also institute flood plain regulations - these
11 restrict development and reduce future flood damages; we can create addi-
12 tional flood control storage on one or more tributaries of the Skagit
13 River; we can divert floodflows away from the urban areas either to the
14 Samish River or down the Avon or Joe Leary Bypasses; we can protect
15 selected areas with high levee systems; we could, of course, flood proof
16 all of the buildings in the flood plain; or, of course, there is always
17 the option that we could move everyone out. However, that option does not
18 seem to be very feasible for this area. There is too much development
19 that has already occurred in the flood plain that needs protection.

20 Now, "doing nothing" to prevent flood damages is and has been
21 completely unacceptable to county and city officials and to the public
22 in general in the Skagit delta. Skagit County has already implemented
23 substantial amounts of flood plain regulations and is trying to control
24 the establishment of future development in the flood plain. These
25 regulations should greatly reduce future flood susceptible to development

1 and consequently the damages that result from that. However, these
2 regulations do little or nothing to control flooding or reduce damages to
3 existing structures. Flood proofing is feasible for only certain types
4 of structures in certain areas, it will not be possible for many of the
5 structures in the flood plain.

6 We have already discussed that additional upstream storage could be
7 used in the Skagit basin to provide high degrees of flood protection for
8 large areas of land. However, in recent years environmental and other
9 concerns have come forward to state the case for maintaining the Skagit
10 River and its tributaries in their present state. If we decide that up-
11 stream storage is not wanted, then some other means must be found to
12 provide greater flood damage reduction.

13 The diversion of floodflows below Sedro Woolley would provide increased
14 protection to the urban and delta areas. However, this by itself, ~~alone~~,
15 ~~it~~ does not provide a complete solution to flooding in the urban areas.
16 The only apparent way to do that is to add levee systems at the cities.
17 Since different degrees of protection can be provided by different
18 combinations of storage, diversion, and levees, various combinations of
19 these are being considered in addition to the Levee and Channel
20 Improvement project. We are now evaluating whether any of these
21 combinations appear to be feasible and should be studied in more detail
22 and ultimately recommended in lieu of the authorized project. We also
23 want to assure ourselves that any work we accomplish now will not prevent
24 future measures from being effective.

25 Now, I am going to go into the alternatives as they ~~appear~~ in our
appeared

1 Public Brochure. These are more conceptual alternatives than detailed
2 design alternatives. We are trying to determine whether any of these
3 appear to be feasible and desired by the local community so that we can
4 pursue them in more detail. The cost estimates shown for each of these
5 alternatives, in the brochure, are not based on detailed studies but are
6 only^m preliminary engineering estimates of the range of costs for
7 implementing such an alternative. As our study progresses, some
8 alternatives may be dropped due to engineering, economic or environmental
9 reasons, suggestions of ~~the~~ city or county officials, or the general
10 public. We also may add some alternatives based on the comments we
11 hear tonight, or we may modify some of them to be more nearly what we
12 think the public is ~~asking~~^{asking} us for or what is feasible to construct.

13 I also want to indicate, in case any of you are wondering, that we
14 have not done any recent detailed studies of the Sauk River Dam. We
15 have merely updated some information which was contained in the 1970 Puget
16 Sound and Adjacent Waters Report. We have included it here, as we have
17 included the Avon Bypass, to give you an idea of the amount of flood
18 protection which could be obtained by various combinations of measures and
19 a range of costs that could be attached to these measures.

20 I will now go through the six alternative flood damage reduction
21 measures which were shown in the Public Brochure. The chart which is on
22 the right screen shows the 100-year flood plain of the Skagit River. On
23 that screen we will be showing sketches of where the various alternative
24 measures are located. The left screen will show the cost and the degree
25 of protection provided by the various alternatives.

1 The first alternative would be to continue existing conditions. This
2 is what we consider our "do nothing" alternative. Under this
3 alternative, no new action would be taken for flood damage reduction.
4 Development on the flood plain would be restricted through existing
5 zoning. Flood proofing of future structures would be required as part
6 of the Flood Insurance Program. This program would also indemnify
7 property owners against losses. Undeveloped lands in the flood plain could
8 be preserved for agriculture, for parks or for open spaces. No new
9 dams, levees, channel modifications, or diversion structures would be
10 built for flood damage reduction purposes. However, the existing levee
11 system and the upstream flood control storage would be maintained. The
12 existing flood warning system would provide forecasts of floods and give
13 emergency information to flood plain residents. Under this alternative,
14 the river would remain partially controlled by the existing structural
15 flood protection measures; however, existing average annual damages of
16 about \$4½ million, based on 1977 prices and conditions, would continue.

17 The second alternative would involve raising and strengthening the
18 existing levee system from the mouth of the North and South Forks upstream
19 to the Burlington Northern Railroad bridge, and improving the hydraulic
20 capacity of the North Fork and Freshwater Sloughs so that the safe
21 channel capacity downstream from the Burlington Northern Railroad bridge
22 would be 120,000 cubic feet per second. This is the project which
23 Congress authorized in 1966. We would provide two feet of freeboard on ^{it}
24 ~~that~~ and development of the flood plain would continue to be restricted
25 through existing zoning. Future structures would still be required

1 to be flood proofed as part of the Flood Insurance Program. Undeveloped
2 lands could be used for parks and open space or agriculture. The
3 existing flood warning system would continue to provide emergency
4 information to flood plain residents.

5 At the time that this project was authorized in 1966, the cost of
6 this project was estimated at about \$6 million. However, due to inflation,
7 the current estimate for the authorized project is ^{about} \$15.6 million of which
8 \$15.1 million is the Federal cost and about \$600,000 is the non-Federal
9 cost. Under this alternative the safe channel capacity would be
10 increased from 84,000 to 120,000 cubic feet per second with two feet of
11 freeboard. The 120,000 cubic feet per second flow has a recurrence
12 interval of about 11 years.

13 Alternative three would include the improvements described by alterna-
14 tive two, the Levee and Channel Improvement project, and, in addition,
15 would provide a higher degree of flood protection to the urban area of
16 Burlington and Mt. Vernon by means of a levee system. Three feet of
17 freeboard would be used on these higher levees. Drainage outlets and
18 pumping stations would be provided as necessary. Flood plain management
19 would continue to be required for those areas lying outside the high
20 levees. This would include the zoning, flood proofing and flood warning
21 system which is in existence today. The undeveloped lands could be used
22 for parks, agriculture and open space. The preliminary cost estimate for
23 this alternative, which is not based on detailed studies, ranges from \$30
24 to \$60 million, of which \$27 to \$53 million would be a Federal cost and \$3
25 to \$7 million would be non-Federal cost. This alternative provides about

1 5,200 acres of urban land a high degree of flood protection, about 100
2 years with the rest of the flood plain being provided the same protection,
3 as under the Levee and Channel Improvement project, which is about 11
4 years.

5 Alternative four would include the improvements described under
6 alternative two and in addition, upstream flood control storage of 134,000
7 acre feet on the Sauk River and a high levee system at the cities. This
8 high levee would have three feet of freeboard and it would be about two
9 feet lower than the alternative three levees at the cities. Drainage
10 outlets and pumping stations would be provided as necessary. Flood Plain
11 Management, including zoning and flood insurance program, the flood
12 warning system would continue to be required for the flood plain that
13 would not be protected by the high levees. The preliminary estimate for
14 the cost of this alternative ranges from about \$178 to about \$230
15 million, ^{dollars} of which \$175 to \$225 million would be a Federal cost and \$3 to
16 \$6 million would probably be a non-Federal cost. This alternative would
17 also provide the 5,200 acres of urban land about a 100-year flood
18 protection. It would also provide the rest of the flood plain protection
19 that would lie somewhere between 11 and 20 years.

20 Alternative five would include the improvements described in alterna-
21 tive two, the Levee and Channel Improvement project, and in addition,
22 the Avon Bypass and the high levees at the cities. The existing levee
23 system would be extended to Sedro Woolley, and the Bypass channel would
24 have a capacity of 60,000 cubic feet per second. The high levee at the
25 cities would have a 3-foot freeboard and would be about 3½ to 5½ feet lower

1 than the levee for alternative three. Drainage outlets and pumping
2 stations would be developed as required for the levee. Flood Plain
3 Management, including the zoning and flood insurance program, would
4 continue to be required for the area that would not be protected by the
5 higher levees. The preliminary cost estimate for this alternative
6 ranges from \$85 to \$110 million, of which \$70 to \$90 million would be
7 Federal costs and \$15 to \$20 million would be non-Federal costs. Under
8 this alternative, 5,200 acres of urban land protected by the high levees
9 would receive about a 100-year protection with the rest of the flood
10 plain receiving a lower level of protection which would be about 60 year
11 protection.

12 Alternative six would include the Levee and Channel Improvement
13 Project, the Avon Bypass and the Sauk River Dam. This has been the plan
14 that has been in the past, called the Skagit River Basin plan. The
15 existing levee system would be extended to Sedro Woolley and the Bypass
16 channel, like alternative five, would have a capacity of about 60,000
17 cubic feet per second. This would provide about a 100-year flood
18 protection to the whole entire Skagit River delta from flood flows from
19 the Skagit River. Since it would provide such protection many of the
20 requirements of the flood insurance program and the flood plain zoning
21 would no longer be required for much of the delta. The implementation cost
22 for this alternative ranges from about \$215 to \$270 million. ~~the~~ Federal
23 cost would be in the range of \$200 to \$250 million with the non-Federal
24 cost being about \$14 to \$20 million. Under this alternative, the 63,000
25 acres of land downstream of Sedro Woolley would be provided a high level
26 of protection which would be about 100 years.

1 Now that I have gone through the alternatives, I would like to say a
2 few words about the local cost sharing requirements on any plan the Corps
3 of Engineers might build here. All the alternatives we have discussed
4 are potentially eligible for Federal financial assistance through the Corps
5 of Engineers. However, Federal participation in implementing any plan
6 would be contingent upon the local governmental agency providing the items
7 of local cooperation. These generally include all lands, easements, and
8 rights-of-way necessary for the construction of the project; providing
9 alterations and relocations of buildings, transportation facilities, and
10 utilities; holding the United States free from damages due to the con-
11 struction work; and maintaining and operating the project after completion.
12 There are also some other requirements which sometimes are included depend-
13 ing upon the project involved. The local agency might be required to
14 prevent obstruction or encroachment along the project right-of-ways,
15 levees, floodwalls, channels, or ponding areas that would be detrimental
16 to the operation of the project. If any specific recreation features were
17 included in the project, the local sponsoring agency would have to
18 provide one-half of the separable recreation costs. If there were fish
19 and wildlife enhancement features combined with the project, the local
20 agency would have to provide one quarter of the cost of these fish and
21 wildlife enhancement features. Also, if the project involved combinations
22 of structural and nonstructural measures Federal participation in the
23 structural measures might be contingent upon the completion of zoning or
24 other nonstructural activities by local governmental groups.

25 Now, I want to talk where we are in ~~the~~ study and what's going to happen
about ^{BUY}

1 next. We are currently in the second year of our advanced engineering
2 and design phase of the project. We have already completed most of the
3 field surveys needed for the study and much of the foundation exploration
4 for the authorized levee. We are currently reviewing the basin hydrology
5 and hydraulics and hope to complete these aspects of our studies this
6 spring. At the present time, we are initiating flood damage appraisals
7 which will be used to determine the monetary benefits that result from the
8 project. We are looking at the engineering analysis of various measures
9 and environmental assessments of the project area and the effects that
10 various alternatives could have on the environment. After the public
11 meeting tonight, we will evaluate the public input, modify the
12 alternatives as appropriate, and continue our studies on those alternative
13 which appear to be most beneficial. We would plan to have public work-
14 shops later this summer and fall to explain the progress of our studies
15 and to ask for further public input. We expect that the final plan
16 that will be recommended for construction, hopefully will be developed
17 by the end of the year. Our report is currently scheduled for submission
18 to our higher authority in the spring of 1979.

19 Part of the reason for preparing the public brochure and holding this
20 meeting tonight was to provide you, the public, a means to comment on
21 this Corps of Engineers study, to correct any errors in the public
22 brochure, and to suggest changes or modifications to the authorized
23 project. If you do not wish to make your comments here tonight, please
24 feel free to write them on the last page in the public brochure. You
25 can then tear out, or cut out the page, and mail it to us. If that

1 doesn't give you enough space, then you can just add additional pieces
2 of paper and staple them together, making sure that our address appears
3 on the outside. In this process we are not soliciting votes for or
4 against any alternative, but we do ^{provide you -} invite you to ^{present} ~~provide~~ comments or
5 information that could have a bearing on the outcome of our study.
6 Your input to us is essential so that our evaluation will be complete.
7 If you wish to discuss the study at any time, please feel free to write
8 me at the address on the public brochure or telephone me at the number
9 noted there. Also, if some of you wish to discuss things and can't
10 stay after the meeting to talk with Colonel Poteat or myself, or any of
11 the other members we have here, I ~~will~~ be upstairs in Lloyd Johnson's
12 office, the Skagit County Engineer, tomorrow from 8 to 11 a.m. and from ^{then}
13 Noon to 2 ~~pm~~. As I have said Colonel Poteat and I and all the staff
14 will remain as late as we have to tonight to talk to you and answer
15 your questions individually, after the meeting, if we don't satisfy
16 you during the meeting.

17 Before I continue, I would like to clarify one item that appeared
18 in our public brochure. On page 17, in regards to the proposed wild and
19 scenic river designation for the Skagit, we ~~have~~ been asked by several
20 groups to correct our brochure to indicate that the Secretary of
21 Agriculture has not yet made a determination as to the effect of the
22 nuclear plant on the proposed status of the Skagit River. We will do
23 this when we publish the brochure again.

24 Now, if anyone has any specific questions on what I just presented
25 I will take them now. I am not asking for comments or statements yet.

1 just if you have a question or didn't understand either one of the
2 viewgraphs or something that I said.

3 I don't see any of those so in that case I think that wraps up my
4 portion of the meeting and I will turn it back to you, Colonel.

5 COLONEL POTEAT. Thank you, Forest. Now, ladies and gentlemen this
6 is basically your meeting. We wanted to bring you up-to-date by
7 presenting some information to you, but now we want to record your
8 comments and then after that answer any questions that you have. For
9 those of you who indicated on the attendance cards that you would like
10 to speak we have a couple of microphones in the back. I would like for
11 you to speak into the microphone - feel free to come up here or use the
12 one nearest to you. It is essential that we get the comments in the mike
13 since we are trying to record this. When you speak would you please give
14 your name, the organization you represent, if any, and if you do
15 represent an organization and are speaking in their behalf so state,
16 that ^{is that} your position ~~which~~ is that of the full organization.

17 Also, to expedite the meeting, I will ask those of you who have formal
18 written comments to submit tonight, to turn them in to us and then
19 summarize the significant items in your comments for the people in
20 attendance. Of course, the record will have the full text of your
21 written comments. We will take the speakers who wish to make formal
22 comments in the following order: first the elected officials, Federal,
23 state and local, next representatives of Federal, state and local agencies,
24 third persons representing organized groups and then individuals.
25 Following the formal comments, as I said earlier, we will open the floor

1 to general questions and to a general discussion on the issues raised
2 tonight. What I am going to do is I am going to call the speaker and
3 then I will alert the next speaker so ^{that his neighbor can wake him up so that} he can collect his thoughts. The
4 first card that I have is Representative Vrooman. ^{so far tho}

5 STATE REPRESENTATIVE VROOMAN. I will pass at this time.

6 COLONEL POTEAT. Then Chairman of the County Commissioners, Mr.
7 Howard Miller, will be our first speaker and Mr. Miller will be followed
8 by Mr. Hanson of the city of Burlington.

9 HOWARD A. MILLER. ^{Does this microphone work?} I am Howard Miller, Chairman of the Board of
10 County Commissioners and would like to speak in behalf of the Board of
11 Commissioners. We would like to express our appreciation to the Corps
12 of Engineers for holding this hearing tonight. We are pleased with the
13 progress of the study to date. Past floods have caused widespread
14 damage in the valley lands and urban areas of Skagit County. We know
15 that of the major floods, such as occurred in the years past, would
16 today be a real tragedy, causing extensive damage to property, endangering
17 the lives of our citizens in the flood plain. Flood protection is
18 urgently needed to protect the Skagit valley and urban areas containing
19 cities and towns in Skagit County. The development in the urban areas
20 of Skagit County, together with the sophisticated farming developments of
21 Skagit County are in no way compatible with flooding in the area. We
22 have reviewed the alternatives presented in the brochure and strongly
23 support alternative three for early construction, with minimum measure
24 providing flood protection for the lower valley and the urban areas
25 up to and including Sedro Woolley. However, we ~~would~~ like alternatives

1 four, five and six to be maintained as options for possible future
2 additional flood protection measures if they are needed. The Skagit
3 County will provide local, necessary cooperations for any flood
4 protection measures. We want to work very closely with the Corps and
5 assist in any way, if you need help, to expedite the completion of these
6 levees. Thank you. (SEE EXHIBIT 1 & 1a)

7 COLONEL POTEAT. ^{Thank you very much.} Mr. Hanson will be our next speaker, to be followed
8 by Mr. Ian S. Munce, *I believe is the correct pronunciation.*

9 ARNOLD M. HANSON. My name is Arnold Hanson. I am the City Supervisor
10 for the city of Burlington and I am speaking for the city of Burlington.
11 I would like to read into the record a letter addressed to the Corps
12 from the Mayor of the city of Burlington. It reads as follows:

13 "The Burlington City Council and I express our thanks and appreciation
14 for the Skagit River Levee and Channel Improvement study and the
15 information provided.

16 Referring to draft No. 1, dated March 1978, we urge that, as a
17 minimum, the Corps recommend to the Federal Congress the adoption of
18 Alternate Three. We actually hope that the final conclusions will
19 justify Alternate Four and possibly Alternate 6.

20 Should the study not recommend Alternates 4 or 6 we hope they will
21 be retained in a status which would permit prompt reconsideration if
22 circumstances change.

23 The lower Skagit River Delta has been developed into a very valuable
24 piece of real estate, providing a most attractive environment in which
25 to live. Neglecting to provide reasonable protection for this investment,
26 and this environment, could only be considered gross negligence.

1 With reference to the alternates requiring adjustments to the river
2 environment upstream, it seems the gain in protection for the environment
3 downstream, when considering the comparative value, fully justifies the
4 adjustments. We need only remind ourselves that Skagit County is
5 valued, for tax purposes, over \$1 billion, ^{dollars} a large part of which is
6 subject to flood damage, and that the city of Burlington is valued, for
7 tax purposes, over \$55 million, ^{dollars} all of which is subject to flood damage.

8 Thank you. (SEE EXHIBIT 2)

9 COLONEL POTEAT. Thank you very much. Our next speaker is Mr. Ian
10 S. Munce, ^{Mr Munce is that pretty close?} Skagit Regional Planning Council, to be followed by Mr. Harold
11 E. Christenson.

(A)

12 IAN S. MUNCE. As Colonel Poteat said I am a member of the staff of
13 the Regional Planning Council. The Regional Council has as members the
14 cities of Anacortes, Burlington, Concrete, ^{La} Connor, Lyman, Mt. Vernon
15 and Sedro Woolley. We also have as members Skagit County and the
16 special districts are the PUD #1, the Snohomish Tribal Community and the
17 Port of Anacortes. At its March 16th meeting the Regional Planning
18 Council reviewed the alternatives set out in the brochure, and
19 essentially followed the recommendation you have already heard from the
20 County Commissioners of supporting alternative three for early con-
21 struction as the minimum measure for providing flood protection for the
22 lower valley and the urban areas up to the city of Sedro Woolley. We
23 would also like to see alternatives four, five and six maintained as
24 options for possible future additional flood protection measures. I
25 would like to add that we have one addition that we are going to be

1 considering at our next Regional Meeting and I would like to read into
2 record a letter from the Mayor of ^{the city of} Sedro Woolley. He would like me to
3 add this evening, ^{That} while ^I support the position taken by the Regional
4 Planning Council, I urge the Corps to amend alternative three to include
5 an urban levee that will provide 100-year flood protection to the
6 southern part of Sedro Woolley. We will be looking at that alternative
7 at our next meeting. Thank you." (SEE EXHIBIT 3)

8 COLONEL POTEAT. Thank you very much. Mr. Harold E. Christenson,
9 city of Mt. Vernon to be followed by Mr. Lloyd H. Johnson, County
10 Engineer.

11 HAROLD E. CHRISTENSON. ^{I believe, I'll} first, I will apologize for the fact that
12 this meeting night happens to coincide with our regular City Council
13 Meeting so we wouldn't have the dignitaries here. I ^{will} just briefly
14 summarize a letter that's directed to Mr. Brooks and it just so states
15 that the city of Mt. Vernon is concerned about 100-year flood
16 protection and that we believe that a minimum of the alternative three, ^{would}
17 should be considered. I thank you very kindly. (SEE EXHIBIT 4)

18 COLONEL POTEAT. Thank you very much, sir. Mr. Lloyd Johnson, ^{to}
19 ~~be followed by~~ Mr. George M. Dynes.

20 LLOYD H. JOHNSON. Thank you, Colonel. I am Lloyd Johnson, County
21 Engineer and I will just make a couple of comments, I have submitted a
22 written recommendation. But, the people here have had so many studies
23 they are beginning to wonder when something is going to happen and I
24 was overjoyed by going to the Corps of Engineers office on April 9th
25 and viewing the 20 some odd people in the various departments and the

- lets see whose
next on
deck
that

1 thoroughness with which you are going into the project. I want to
2 assure everyone here that in behalf of the Corps and myself that everyone
3 is serious about this thing. We are looking at alternates for local
4 financing and we are ready to do our part. The Board of County
5 Commissioners have supplied the Corps with their agreement for
6 participation for the local interests and I am happy to report that the
7 project looks good to all of us at this point and I support also,
8 alternative three, with the other ~~four~~, five ~~and~~ six ^{seven, four, five and six} being available
9 at a later date. (SEE EXHIBIT 5) ^{and seven being — ~~five~~ four}
^{five and six rather}

10 COLONEL POTEAT. Thank you very much, Lloyd. Mr. George M. Dynes,
11 Pacific Northwest Waterways Association, to be followed by Mr. Robert
12 J. Hulbert, Skagit Conservation District.

(6)

13 GEORGE M. DYNES. Colonel Poteat and members of the Corps. My name
14 is George Dynes. I am the Chairman of the Flood Control Committee of
15 the Pacific Northwest Waterways which is the four northwest states. Now,
16 our association has ^{supported} ~~been in support of~~ the Skagit River levee system
17 and the flood protection over many years. Personally, myself, ~~and I~~ I'd
18 like to see alternate three with the extension of those levees to Sedro
19 Woolley. It doesn't make sense to me to stop the levees at Burlington
20 and leave the upper area to Sedro Woolley unprotected. Now, this is
21 something new when this came out and I haven't actually had a good chance
22 to look at it, ^{for} ~~the~~ the additional protection in Burlington and Mt.
23 Vernon for the 100-year flood. It's a good alternate, I believe, but I
24 don't think its very practical, for the simple reason that ^{dollar} sign sits up
25 there. We figured if we could get \$15 or \$16 million out of Congress to
^{dollars}

1 do the lower levees with an additional, maybe \$5 or \$6 million for up to
2 Sedro Woolley we would be doing pretty well for the first way around.
3 Of course, on the long pull, I would like to see an additional dam on the
4 Sauk and I think that especially the people here in Skagit valley ^{have} got
5 to take a good long look at this wild river deal because if we ever get
6 that in I think your Sauk Dam will go down the drain pretty fast. Thank
7 you.

8 COLONEL POTEAT. Thank you very much. Mr Robert J. Hulbert to be
9 followed by Mr. Peter R. Walker, Skagit County Flood Control Council.

⑦
10 ROBERT J. HULBERT. My name is Bob Hulbert. I am the Chairman of the
11 Board of Supervisors for the Skagit Conservation District. Colonel
12 Poteat and gentlemen, for a number of years the Skagit Conservation
13 District has urged increased flood protection for the Skagit Valley and
14 we welcome the opportunity to comment on the alternatives presented by
15 the Corps tonight and very much welcome their awareness of the dangers
16 to life and property which seem most obvious to many of us here in
17 Skagit County. We think a glance at your page 2 of your brochure will
18 prove the point. Our present control system was taxed to its utmost in
19 December 1975 however a glance at the chart shows that at least six times
20 between 1908 and 1951, the system had to cope with larger amounts of
21 water always unsuccessfully. Briefly since 1951 this community has been
22 very lucky. I liked your analogy about rolling dice, Colonel, and I
23 think for about 40 years here we have rolled dice very well. To tempt
24 faith further, however, without a major effort to improve protection
25 of all concerned it seems to us, to those of us who have responsibilities
26 to the community for its protection to be the height of folly.

1 Gentlemen, a 100-year flood in the Skagit would mean people would die,
2 between 1897 and 1921, however, a span of less than 25 years the Skagit
3 experienced four such floods closely approaching the 100-year frequency
4 size. Rather than comment on specific alternatives we would like to make
5 some points which have been a long term policy of the Conservation
6 District. We feel that the lower levees from the mouth of the river to
7 Sedro Woolley should be improved and the channel improved as proposed by
8 the Corps. This, we agree, with the rest of the people here testifying
9 so far as a minimum flood step. We are somewhat unfamiliar with the 100-
10 year flood protection levees for Burlington and Mt. Vernon proposed in some
11 of the alternatives, but feel that economic development in these areas
12 warrant such 100-year flood protection. ^{We'd} ~~We would~~ like to take another
13 look at this. We feel this is an area which needs more specific study
14 and explanation to the community. In addition, we feel that the
15 Corps should be authorized to investigate the possibility of some type of a
16 flood control structure on the Sauk River, where nearly one-half of our
17 flood problems come from in certain situations. We think serious
18 discussion and debate in this area is entirely premature, however, until
19 such a study is made. We don't support a ^{multipurpose high-} high multipurpose dam, but
20 support a study of some type of a free flowing emergency flood control
21 structure or gate which could hold back critical peak flows and not impair
22 the Sauk River Fishery or have other serious adverse environmental
23 consequences. We reiterate our position and that of the Flood Control
24 Council and Congressman Meeds that the classification of the Skagit River
25 under the Wild and Scenic Rivers Act not preclude the alternative, if the

1 river is to be included in the system. We feel the Corps, is part of a
2 ~~study~~ ^{study} to achieve long term flood protection, should be given resources to
3 upgrade the Avon Bypass proposal, modify it, change it and at least more
4 thoroughly explain it to the community in light of today's economic cost
5 figures and so forth. We think some of the cost figures that you have shown
6 in these alternatives which you call preliminary estimates, are so
7 preliminary, so hard for us to understand, and too removed from present
8 day economics to be of little value in arriving at decisions on these
9 proposals. Throughout the discussion of these alternatives in the brochure
10 it seems to be taken for granted that increased flood protection will
11 adversely affect preservation of our farmland ~~and~~, recreation and wildlife
12 and many other environmental qualities much treasured by the people within
13 our community and many who visit us from other areas. The Skagit
14 Conservation District feels that this theme certainly need not, or will
15 not be borne out in fact. For example, Skagit County has led the state
16 in open space implementation, large minimum lot sizes in the agricultural
17 zone and rigid zoning to protect our unique farmland. We reject the
18 premise that people need to die in floods to protect us from urban or
19 industrial encroachment of our farmland. In addition, nothing could be
20 more disastrous for today's viable agriculture in our community than a
21 serious flood. The last serious flood in 1921 we raised oats for the horses
22 to pull the streetcars ~~in~~ ⁱⁿ Seattle. A serious 100-year flood now would be
23 a calamity for agriculture from which a viable agriculture would probably
24 not survive. The same with our fisheries. Surely, with today's
25 technology we can have adequate flood protection and restoration of our

1 historic fisheries. These are the present views of the Skagit
2 Conservation District Board of Supervisors with regard to the Corps
3 future plan to develop flood control on the Skagit. Let's get on with
4 the first steps as expeditiously as possible. Thank you.

5 COLONEL POTEAT. Thank you very much, sir. Mr. Peter R. Walker
6 of Skagit County Flood Control Council is our next speaker to be followed
7 by Ms. Ruth Weiner, Huxley College and I think ~~she is~~ representing the
8 Washington Environmental Council.

9 PETER R. WALKER. My name is Pete Walker and I am the Chairman of
10 the Skagit County Flood Control Council. I would like to read into the
11 record a statement prepared by the Officers and Board of Directors of
12 the Skagit County Flood Control Council and it reads as follows:

13 "Gentlemen:

14 The Skagit County Flood Control Council is of the opinion that the
15 Skagit Valley is vulnerable to severe flooding from the Skagit River and
16 that the existing flood protection is inadequate. The Council feels that
17 flooding of this nature disastrous proportion is eminent, that flooding
18 of this nature will place an economic burden of grave consequence on all of
19 Skagit County.

20 Therefore, the Skagit County Flood Control Council agrees that the
21 Lower Levee and Channel Improvement Project proposed by the Army Corps of
22 Engineers is of supreme importance and pledges its support, expertise,
23 assistance and cooperation to the construction of this necessary,
24 additional flood protection.

25 That Alternative ³ as outlined in the Public Brochure dated March 1978,

1 Draft I, is the minimum protection acceptable at this time. That a
2 continuing effort to bring about those proposals which afford the greatest
3 long-range protection for the Skagit flood plain for example, further
4 study for additional upstream storage on the Sauk River with a flood
5 gate and further study of the Avon Bypass, should be pursued.

6 Sincerely,

7 The Officers and Board of Directors of
8 the Skagit County Flood Control Council"

9 Thank you. (SEE EXHIBIT 6)

10 COLONEL POTEAT. Thank you very much. Ms. Ruth F. Weiner to be
11 followed by Mr. Craig W. Martin^{Mr. Martin} representing Skagitonians Concerned
12 about Nuclear Power.

13 RUTH F. WEINER. Thank you very much, Colonel Poteat for having the
14 public hearing and for permitting us to appear here. I am here
15 representing the Washington Environmental Council which is a statewide
16 organization of a number of environmental groups and first of all I would
17 like to say it is very nice to see that perhaps for once we can have the
18 best of all possible worlds which is to say flood protection for the
19 downstream communities and the Wild and Scenic Rivers proposal as it was
20 proposed by the Administration in a message to Congress and by the Forest
21 Service. Alternative two would do that, so would alternative three.
22 Neither one would have the slightest effect on the wild and scenic
23 river proposal as it exists. I would like to remind the Corps and go on
24 the record as saying the initial Wild and Scenic River proposal would have
25 included the Skagit down to its mouth, down to Mt. Vernon, and the Avon,
the compromise that was made was to permit possible construction of the

1 Avon Bypass if it proved to be economically advantageous to do so. One
2 of the things that is missing in the short brochure is an adequate cost
3 benefit analysis and I would like to urge you, the numbers for alternatives
4 four, five and six are staggering and on the surface of it alternatives
5 four, five and six are not so much to protect existing structures and exist-
6 ing users as to allow for future development, residential and possibly
7 industrial development in the flood plain. I would urge a very, very
8 careful cost benefit analysis of these things - are we really simply
9 allowing land development in Skagit valley, is that what we are going?
10 Finally, I would like to say we haven't had the document for a very long
11 time, but it is difficult to see from what is in this document whether
12 adequate consideration has been given to protection of the fishery
13 resource, again especially in discussions of alternatives four, five and
14 six. There is very little discussion of that in the document. Thank you
15 very much.

16 COLONEL POTEAT. Thank you very much. Our next speaker Mr. Craig W.
17 Martin and to be followed by Ms. Henrietta L. Pearson.

18 ^{SCANP,}
CRAIG W. MARTIN. My name is Craig Martin and SCANP at this time
19 does not wish to make any comments. I will make some comments in
20 writing perhaps later, but from your brochure I find it very hard to come
21 to any conclusions, partly because of the lack of detail that's in that
22 brochure. Thank you very much.

23 COLONEL POTEAT. ~~Thank you, Mr. Martin.~~ Thank you, Mr. Martin. Our next speaker is
24 Henrietta L. Pearson and ~~after that~~ Mr. Gary T. Jones ^{on deck.}

25 HENRIETTA L. PEARSON. Mrs. Oliver Pearson, Past Master of the Rexville
^{lets see, who do we have after Ms. Pearson}

1 Grange. The U.S. was founded on hard work and it seems to me that now
2 too much emphasis is put on recreation and environment. We do not want
3 the Avon Bypass and would ask why the mouth of the river cannot be dredged.
4 The word "easements" I noticed as a local responsibility and would caution
5 anyone to look carefully at a request for an easement. Personally, I
6 consider it a dirty word.

7 COLONEL POTEAT. Mr. Gary T. Jones to be followed by Mr. Zell A.
8 Young.

9 GARY T. JONES. My only comment, as a resident of the lower North
10 Fork portion of the Skagit River, is whether the Corps has seriously
11 considered removing the jetty which moves from McGlins Island
12 out to Goat Island and appears to block the mouth of the river. I feel
13 that this is an alternative which the Corps might well consider in
14 attempting to increase the flow on the North Fork. (CLAPPING)

15 COLONEL POTEAT. Thank you very much. Mr. Zell A. Young to be
16 followed by Mr. Lawrence Boettcher..

17 ZELL A. YOUNG. Thank you. I have lived all my life here in
18 Skagit valley. As a child I was raised in Mt. Vernon and I swam in the
19 river and today if I stuck my toes in the river I would turn blue to the
20 top of my head. I boated on it - high waters - high waters - those were
21 interesting. I would get out and boat and logs came down the river. ~~It's~~
22 rather digressing from the thing, but I am quite well aware of that river.
23 One thing my place of business is right adjacent to the dike there at *west*
24 Mt. Vernon. In 1975 the water was up there lapping right close to the top
25 of that dike and I could see eight or ten feet of water on my property as

1 it came through, which is what I am leading up to because there was a
2 big break at that point back in 1916, I believe it was, it was two years
3 prior to my birth - rushed through there and my Dad came up from work
4 and found that he was caught by this stream of water going through that
5 dike and couldn't get across and my Uncle had to come down from upstream
6 go way out around so he wouldn't be caught in the current pick him up in
7 a row boat and take him back way out around and get him to the other side
8 because Dad's family was living in a house right adjacent to this break.
9 Yes, I know what a break in a dike will do and the damage it can do, but
10 consider, you've given all these alternatives, all the way from one to
11 six, No. 1 is the "do nothing" I suggest and I may be tarred and feathered
12 for it, but I suggest there is another alternative that you haven't
13 come up with which is take a bulldozer and remove the existing dikes all
14 the way from one end to the other because as long as we have dikes and
15 the water goes up wherever the break comes you have a great deal of
16 damage done all at once, let the water ooze out through wherever it wants
17 to as nature intended it and we would not have this problem and we would
18 not have this escalating constant increase in costs of protecting ourselves
19 against this tremendous that we mankind has created by building up these
20 dikes in the first place. Now, I have heard the old timers ^{talk about} ~~talk of~~ this.
21 They started out with dikes just in the sloughs and the low swells where the
22 water oozed in across the farmland because it interfered with farming, but
23 then along came a little higher flood in the spring and washed these things
24 out so let's build them a little higher and we did and extended them
25 farther and then ~~I think it was~~ ^{in 1914} or something of that sort, they had
_{the longer I think}

1 a large flood which came along and just washed out the dikes from one
2 end to the other -- ah ha -- they condemned land all the way down across
3 at least from Diking District #1 and built dikes considerably higher and
4 we are building ~~them~~ higher and one of these days we are going to be
5 like the Mississippi River, the bottom of that river is going to be
6 higher than our land outside and I say that sooner or later we have to
7 draw a line and stop the things. So, I am suggesting a return to the old
8 ways and bulldoze those dikes flat and let's go back to the system
9 we had. People even build their houses up on, as they did in pioneer
10 days, three feet off the ground, they didn't get wet. That's my story.

11 (CLAPPING)

12 COLONEL POTEAT. Thank you very much, sir. Mr. Boettcher to be
13 followed by Ms. Sophie Neble, *I believe it is.*

14 LAWRENCE BOETTCHER. I'll have to disagree with the last speaker
15 because I will have to say that this could be a project that the engineers
16 could be proud of because its unique in that it can be diked successfully.
17 Now, I have some photocopies here of some things that I have excerpted
18 from, now this is 15 minutes are you going to stay with me that long?

19 COLONEL POTEAT. Yes, sir, I'll stay with you.

20 MR. BOETTCHER. If I butter you up a little bit first?

21 COLONEL POTEAT. (Laughing) That's right.

22 MR. BOETTCHER. They had a good copier I knew down at the Assessors
23 Office and they made some copies for me there and so I called them
24 yesterday morning and they said sure we'll make some for you and when I
25 got down there they said "No, we can't do that" so then I thought golly I'll

1 even pay for these so I was going up to the college to the pay one, but
2 the Library was closed so I tell you I stopped down at Hinton Oldsmobile
3 now and the secretary stopped her work and made my photo copies and
4 wouldn't even accept a tip, see so -- My name is Lawrence Boettcher. I
5 live at 2010 East Rio Vista, Burlington. I am a farmer. Mr. Walker
6 asked me to ^{- ah. Mr Walker asked me to} promote the end of the dike to Sedro Woolley ~~and this~~ is why
7 I prepared this statement.

8 The purpose of my presentation is to persuade the Army Corps of
9 Engineers to include the extension of the present dike to near Sedro
10 Woolley in their flood control project.

11 I will attempt to separate the causes of disastrous flooding into
12 three categories.

13 No. 1 would be precipitation in the form of rainfall and snowpack.

14 No. 2 would be the rare instance of large earth and mud slides which
15 I will try to illustrate.

16 No. 3 is ~~the~~ human error, which is the only factor over which we have
17 control, but is the most difficult to combat. This Army Corps of
18 Engineers project is designed to correct some of the human errors at a
19 terrific cost.

20 My request that the Dike be extended to near Sedro Woolley may avoid
21 a future disaster caused by human error. I will begin by quoting from
22 our incomparable historian Ray Jordan about the "Great Jam".

23 When D. E. Kimble settled on his homestead just below the present site
24 of Mt. Vernon, in 1869, he was at the end of the river in a manner of
25 speaking.

1 For a mile and a half above him the river was choked with a
2 fantastic tangle of uprooted trees three to eight feet in diameter lying
3 in criss crossed tiers five to ten deep. On top of this, in places,
4 a new forest was growing, supported by the river sediment which had
5 collected in the mass below.

6 More specifically, as to the location, the old history states that
7 the jam began at the lower boundary of the Kimble claim and extended
8 upriver about one-half mile to a point opposite the present Kimble
9 residence. The upper part was considerably longer, beginning about one-
10 half mile above the upper end of the lower jam and reaching upstream (past
11 Mt. Vernon) over a mile. You may question my concern over the log jams.
12 The log jams are still with us.

13 I have a statement obtained from Norm Wallace of Burlington. This
14 is the flood of February 10 to 11, 19~~4~~51. Norm Wallace tells of a log
15 jam in front of the turntable pier of the Mt. Vernon-Burlington Northern
16 bridge. He stated the jam extended to either side of the pier the width
17 of the pier. The water level below the bridge was two planks lower than
18 above the bridge. The pier measures 35 feet. This measures to at least
19 a jam of 80' to 90' with the difference in water elevation at 30 inches.

20 Since 1951 the channel has been widened the width of one span
21 between the piers.

22 Where is the log jam now? It is neatly stacked along the river
23 banks and pushed into waste and marginal land. This is from the 1975
24 flood and probably much debris is so located because of human error.

25 During the summer of 1977, I planned to burn some of this river debris.

1 I went to the Department of Natural Resources in Sedro Woolley. They had
2 no objection but I was required to obtain permission from Fire Chief
3 Ted Banta of Burlington. Mr. Banta inspected and gave permission, a 4 x 4
4 fire, one fire only on each occasion and smoke regulations. I began to
5 burn one pile. The Department of Natural Resources cancelled all fire
6 permits. Mr. Banta cancelled mine.

7 In a recent call to the Air Pollution Authority, Mr. Tony Ridgeway
8 informed me that they would have granted me a 14 day variance with free
9 inspection of my burning. When it rained I again obtained a permit, but
10 then the burning was slow, painful and incomplete. The log jams are still
11 with us.

12 Now this is February 3, 1971 - now a lot of people witnessed this.
13 These are the headlines "Devastation - Dramatic Story told of
14 Gigantic Grandy Creek Avalanche" I have some excerpts. This is a
15 description of the results of an earth slide. The slide had suddenly filled
16 the upper end of the lake and water had to go. It formed a tidal wave and
17 slopped out of the lower end of the lake, much as the water in a bathtub
18 would if a man were to cannonball into one end of the tub. (Laughter)
19 Well, this is out of the newspaper - I take a bath too sometimes.

20 The water rushed into Grandy Creek, but the old creekbed couldn't
21 handle it. Between the slide area and Highway 20, the creek went out of
22 its bed and cut into the road badly. Ditches along the road were eroded.
23 The creek ran down the road itself for a long distance and crossed the
24 road. At Highway 20 it went out on the main state highway and covered it
25 with water. Washouts on Grandy Creek were impassable.

1 Then here is another excerpt - It is estimated there is three million
2 feet of timber, much of it virgin, in the slide. Now I go back to
3 Ray Jordan - Ray Jordan attributes the 1815 flood to a landslide
4 choking the outlet of Baker Valley causing an immense lake fully 80'
5 deep. When the dam burst it caused a flood.

6 I interviewed Mr. Ragnar Arntzen of 1894 LaFayette Road, Burlington.
7 Mr. Arntzen, age 84, has been a resident of this area since 1911. That's
8 the extension of the dike to Sedro Woolley. When Mr. Arntzen arrived in
9 Skagit County, he worked for a man that told him about the 1909 flood.
10 The Skagit washed out the Burlington Northern railroad track from
11 Burlington to the District Line Road. The Skagit River was 13 miles wide
12 from the Nookochamps to the Edison Flats. The floods of 1917 and 1921
13 suspended service on the Puget Sound and Baker River railway. That's a
14 defunct railway.

15 Here's the flood of 1951 - about 3,000 feet towards Sedro Woolley
16 from the District Line Road, the water covered the railroad tracks. Since
17 1951, the Burlington Northern has raised the road bed 1-1/2 to 2 feet.
18 If water reaches the top of the present dike I am quite sure it will
19 again flow across the railroad.

20 In 1951, the water flowing over the railroad badly eroded the highway,
21 that's 20. At that time Mr. Arntzen owned 30 acres of land. He
22 estimated his cost of repairing fences and burning the driftwood at
23 \$1,000.

24 Now, this is July 11, 1972. Now, this shows the causes of human
25 error. Skagit Valley Herald its the farmland edition. The headlines read

1 Seepage causing great concern - hundreds of acres reported flooded. My
2 own experience, the spring of 1972, it was time to plant crops. I was
3 aware of a record snowpack in the mountains. My curiosity and concern
4 prodded me to obtain information. I called Skagit County Engineers. Did I
5 get the right year? I called Skagit County Engineers, which is the
6 County Commissioner's office for information on snow depth and water content
7 They replied, ~~that~~ they had no information, suggested the Department of
8 Natural Resources, Sedro Woolley. I called the Department of Natural
9 Resources. They also replied they had no information and suggested I call
10 United States Forest Service at Lyman who were in charge of measuring the
11 snowpack. I called the Forest Service at Lyman, a secretary answered
12 and I requested information. She replied that the snow was deep but
13 they were not allowed to release the information. (LAUGHTER) Well, that's
14 the truth, only nuts like me find that stuff out so you guys have got to
15 be careful. Now, this article contains some fiction, and it reads "Flood
16 waters isolated cattle near Hamilton" by feature writer Florence Anderson
17 December 12, 1975. This story intimates that adequate warnings were not
18 given. I had cattle that could have been marooned by high water. The
19 evening of December ^{second} ~~12~~, the water was rising. I called the County
20 Engineer's office for river reports. They were somewhat alarming so I
21 examined the location of my cattle and they were safe. I verified that, the
22 County Engineers office remained open all night for information and hourly
23 reports were forwarded to the local radio station. At dawn of December ^{third} ~~12~~,
24 the waters were still not so high as to be unmanageable.

25 Now if you can sort these out ~~again~~ I got them mixed up - would you
^ after

1 like this.

2 COLONEL POTEAT. Sure. (laughter)

3 MR. BOETTCHER. See I got those free, courtesy of Hinton Oldsmobile. (clapping)
COLONEL POTEAT. OK, THANK YOU VERY MUCH.

4 (~~CLAPPING~~) Thank you much, sir. (SEE EXHIBIT 7)

MR. BOETTCHER.

5 COLONEL POTEAT. Thank you very much. I guess we ought to have a hand
6 for Hinton Oldsmobile here ^{tonight.} Thank you very much, ^{sir.} You know, we have to

7 keep our sense of humor in these things too and I am reminded of a meeting

8 we had about a year or so ago in, guess this was around Bangor Association

9 with the Trident Base and it was along about election time, ^{oh-a} a couple of

10 months before election, I guess. This gentleman got up and introduced

11 himself, lets say Jack Smith. He said you know I ought to really be honest

12 with you people: He said the only reason I am up here tonight is I am

13 running for Congress for the Sixth District and I've got to address the

14 League of Women Voters in this auditorium tomorrow night so I thought I

15 would just come up and check out the accoustics and see how the place is.

16 He talked for a few minutes and then sat down. Thank you very much. Ms.

17 ^{I believe I have it pronounced pretty close,}
Sophie Neble, is next to be followed by Mr. Larry J. Kunzler.

18 SOPHIE NEBLE. I am Sophie Neble and I live five miles east of Sedro

19 Woolley and I guess I am in a forgotten area out there because the diking

20 stops at Woolley, the people up above are less worthy so we don't want

21 to protect them just let them take care of themselves. They have all these

22 problems down river. I remember in 19 - well lets say about 28 years ago

23 there was a lady at LaConnor, her name was Mrs. Armstrong and they were

24 complaining because the river was filling up, the bed was filling up and

25 the river was getting up above the land below ~~it~~ around it and she

14

1 suggested; she says well, you know in order to keep this filling of our
2 channel here lets riprap the river up above where its getting all that
3 silt and bringing it down here so all of our farms from up east of Sedro
4 Woolley and beyond where its not diked and where it's not riprapped they
5 are all winding up down in Stanwood and where else so maybe I am going to
6 have to move my house down there. Further, about 50 years ago there was
7 an area in there, that's the Eutopia District where I am living, its
8 called Eutopia, had the Eutopia School there and there were about 1,000
9 acres of land washed out by that river so that's why the river beds are
10 so full around LaConnor and Stanwood, but this man's barn, everything
11 washed out - it wasn't just his farm that wound up down there but his
12 cattle too. He was lucky that he didn't wind up down there but everybody
13 there had a safe house someplace up on the higher grounds so they were safe.
14 But, just like I say in my area there, even last winter we had high
15 water and its surprising how much soil or bank erosion can happen in a
16 very short period of time, takes the logs, piles them up on sandbars,
17 diverts the river, the river just goes this way all the way and every time
18 it gets out of its normal channel it just takes more logs and so on.
19 There's also a Federal dike in my area that was built in 19, in the 30s
20 by WPA, originally I think it was like two or three miles long, well, its
21 about a quarter of a mile now and the river it heading right for it so if
22 that river doesn't change its channel, or do something, its going to wash
23 out that last bit of dike that the WPA built and I think we should protect
24 that. That's something great you don't have WPA dikes any where that I
25 know of. I guess that's about it. Thank you. (CLAPPING)

1 COLONEL POTEAT. Thank you very much. We will have to save that WPA
2 dike as a historical monument I ^{guess} ~~think~~. Our next speaker Mr. Larry J.
3 Kunzler to be followed by Mr. Allen H. Doss.

4 LARRY J. KUNZLER. Colonel, I've got more questions ^{colonel.} than I do a ^{real}
5 statement. I am a young, aspiring farmer in Skagit Valley and so long
6 as the Lord lets me breathe air I plan on living here the rest of my
7 life. I have heard a lot of real estate agents stand up and they are
8 all in favor of Alternative Three, but won't Alternative Three by raising
9 the lower levees won't that tend to slow the water down a little bit
10 and back it up in the area such as where my farm is located in the
11 Kookachamp Valley which becomes the middle of the Skagit River during
12 a flood. Won't it tend to do that sir?

13 COLONEL POTEAT. We'll address that in just a minute.

14 MR. KUNZLER. The other question was - will the Avon Bypass handle the
15 40% of the runoff from the Sauk River, if the Avon Bypass went through?
16 Thank you, sir.

17 COLONEL POTEAT. We'll come back and take a look at those questions in
18 just a minute. Our last speaker is ^{Mr.} Allen H. Doss, or at least the last
19 speaker for whom I have a card. We'll listen to Mr. Doss and then we will
20 see if anybody else wants to make a prepared remark.

21 ALLEN H. DOSS. I am Allen Doss and I live down there on the lower
22 Skagit below the North Fork. I notice that on this brochure here
23 especially on Plan No. 2 and No. 3 it refers to raising the dikes and so
24 forth and I also notice that most of your measurements and so forth are up
25 here at Mt. Vernon. Now, in ~~19~~ 75 or the last time that the river came up
26 we went on the dike down there where we was at about three o'clock in the.

1 afternoon and the river was supposed to crest up here at Mt. Vernon
2 3' higher than what it was down there. So, being a long time resident and
3 what not we stayed with it so we had 6" of dike at 3 o'clock in the
4 afternoon. According to the statistics there was no way in Gods green
5 earth that that river wasn't going to go over, so then some of us who had
6 been down there started asking questions "Where is the tide?" And,
7 strangely enough when the river crested 3' higher here at Mt. Vernon or 30
8 some inches whatever it was, I don't remember, than what it was at 3 o'clock
9 that afternoon, that the time that the river was cresting our river down
10 there had actually dropped a foot. Now, where does the tide stop affecting
11 all of this and where are you going to build your dikes? According to
12 that our dikes have got to be just maintain this 75 flood has got to be
13 at least 4' higher. The next thing that enters my mind is if you are going
14 to widen the river, what good is it going to do if you've got a 14' tide
15 out there. You can widen it all you want. Hell, you can blow the dikes
16 out down there and the water won't even run out when the tide is high
17 after they are filled in. We found that in 51, so this is the thing where
18 are you going to build or how high are you going to build them? For Lord's
19 sake. (clapping)

20 COLONEL POTEAT. We did get one other card, Mr. Richard Smith.

(17) 21 RICHARD SMITH. I would like to speak as a representative of the
22 Skagit County Farm Bureau. I would like to say that the Skagit County Farm
23 Bureau would like to thank the Corps of Engineers for the study that they
24 have done on this project and as a representative of the Farm Bureau I
25 would like to say the Farm Bureau certainly supports the proposed channel

1 improvement that you are suggesting. Like everyone else the Alternative
2 Three looks attractive. I question whether, in fact, we would ever get
3 the dollars to accomplish it and I would certainly as an individual,
4 would suggest that we proceed with Alternative Two on our lower channel
5 improvement. As an individual too, I would like to say that I sympathize
6 with Zell. In the old days, you know the old timers would say this is the
7 way the Skagit valley was formed was the annual floods our silt deposits,
8 and one thing and another, but unfortunately even if we didn't live in
9 the Skagit valley the floods that we occasionally get in June or the high
10 rivers that we get in June would be devastating to our agriculture even if
11 there ~~wer~~^{were} no homes on the lower valley. So, I don't think that's a viable
12 alternative in our present day. As a Dike Commissioner also, I would
13 like to say that we are concerned with the easements that are going to be
14 necessary in the individual areas. We have right-of-ways for our dikes at
15 this time and, of course, those right-of-ways were obtained maybe 60 years
16 ago and, of course, over the consequence of the years the dikes have been
17 altered and realigned and I know its a concern to all Dike Commissioners
18 the question of ~~what~~ what right-of-way is it going to be necessary for
19 us to obtain and just the problem of obtaining those right-of-ways or
20 knowing what we need to obtain. ~~and~~ I think this is one of the biggest
21 that the Dike Commissioners have at this time. Thank you.

22 COLONEL POTEAT. Great, thank you very much. That's one of the first
23 real estate questions that has come up on the easements and I forgot to
24 introduce Mr. Bob Frye here, ^{Bob wave your hand,} Bob is from our Real Estate Division and is a
25 real expert in that area of easements and ~~other~~ real estate matters so if any

1 of you or anyone else has any specific questions in that area some
2 detailed technical questions on real estate, Bob ^{is} the expert so he will
3 be around too. We have gone through our cards now let me see for a
4 moment if anyone else wants to make a statement. ^{All right} ~~right~~ sir.

5 Let me get you to state your name since we don't have your card.

6 (18) CLIFFORD T. MAGIN. I am Cliff Magin. I am Port Commissioner and I am
7 also a Soil Conservation District Supervisor. As ^a ~~the~~ Port Commissioner
8 I have submitted a letter, resolution that the Port adopted concerning
9 flood control and I won't take up the time of the audience with reading
10 that, but merely call attention to it. I appreciate the opportunity to
11 speak this evening and now what I have to say, I would like to say as a
12 private citizen. First off, I support everything that has been said here
13 in the way of flood control. The Soil Conservation presentation, the
14 Flood Control Committee presentation. I have lived here for about 23 years
15 and in the 23 years I have been here I have experienced what I call two
16 near misses one in 1955 and one in 1975. During that time, during each of
17 those periods we had something in the order of 100,000 cubic feet per
18 second of water flow in the Skagit. A 100-year flood flow would double
19 that and a 100-year flood flow would wipe out everything we have - houses,
20 our half billion dollar farm industry and so forth. The cost of a 100-year
21 flood frequency control is high, it's \$2 or \$3 hundred million dollars so
22 it doesn't compare with the investment of the agricultural industry has
23 in this area, let alone the residences and so I would urge you to look to
24 the long term and not be concerned with 10 or 15-year flood frequency
25 control. Thank you. (SEE EXHIBIT 8 - LETTER MARCH 22 & RESOLUTION AND
26 EXHIBIT 9 LETTER MARCH 24)

1 COLONEL POTEAT. ^{OK,} Is there anyone else that would like to make a
2 prepared statement. Yes mam.

3 HELEN DAY. I am Helen Day, and I live in Mt. Vernon, <sup>Helen Day, D-A-Y
& I'm a resident
of Mt. Vernon</sup>
4 intrigued by the statements made earlier about the warning system on the
5 river there was a statement made in the Skagit Valley paper just before
6 Christmas, that no one, no governmental agency, has really prepared to be
7 responsible for giving warnings on the river. I happen to know that some
8 of the people that live up above Hamilton that were referred to and I know
9 that they were given information that the river was going to crest and start
10 receding and about that time it started going up and they called everyone
11 they could and they seemed to never be able to get the information. Now
12 if the people in this room, so many of them have spoken, about the concern
13 for floods and the dangers. Now, I don't know that any lives were ever
14 lost I never heard any stories from the earlier days that any lives were
15 lost and some have a great deal of concern about that and if there is concern
16 why our county and out other officials, State and Federal, haven't set up
17 a better warning system and I happen to have done some reading on Mt. Baker
18 and there could be a very sudden flooding from that and it seems that that
19 is important that we do have some kind of reliable warning system for this
20 valley. Thank you. (CLAPPING)

21 COLONEL POTEAT. ^{OK,} Anyone else wish to make a ~~statement~~ ^{- OK - let me give one other} I believe this
22 lady in the back wants to make a presentation and then I will get back to
23 the questions.

24 CLARA C. SOLER. I am Mrs. Joe Soler and I lived along the south
25 Skagit River for all my life and years ago they used to always dredge the

1 river and I used to see the dredger out there cleaning out every time
2 there was a flood, afterwards they went to clean it out and why can't
3 they do that today? Get a dredger and clean out right by the jetty
4 then that would keep the tide low so the tide wouldn't back up that far.
5 That's all I have to say. Thank you.

6 COLONEL POTEAT. Now, do we have any others that want to make a
7 prepared pitch here or some kind of a comment? Let me take just a minute
8 now and summarize where we stand. If you will just bear with me a moment.
9 I want to tell you how I understand the situation. I feel from what I have
10 gathered in the almost two years that I have been out here and in the year
11 or so in Washington, D.C. that I worked on this. I feel, my friends that
12 you've got a real serious flood problem here with substantial risk of
13 major property damage and significant loss of life. It is the most
14 serious flood threat in the Seattle District, most of Washington, Idaho and
15 Montana. Let me go back a year or so. In the lower, well, in the valley,
16 lets say, from Sedro Woolley downstream there are existing levees and these
17 have been here for a while. We estimate that up until a few years ago these
18 levees provided a minimum of about three years protection. ~~there is~~ ^{Gotta} check
19 and see if my guys are awake over here, about three years of protection.
20 Some areas have a little higher, but as a minimum its about three years.
21 Now, in the fall of 1976, October 1976, the Upper Baker project was
22 authorized, no it wasn't October 76 it was ^{of} May ~~1977~~ ^{may of 77}, the Upper Baker project
23 was authorized. This allowed us to increase the flood storage in the
24 Upper Baker project from 16,000 acre-feet up to about 74,000 acre-feet.
25 That was authorized in May ^{of} 1977 and we had that project in operation this

1 past winter, should we have needed it. That then raised the flood
2 protection in the valley to about a minimum of five years. When I say
3 five years, again, I am talking about a flood with a frequency of five years,
4 that is in any one year it has one chance out of five of occurring. I
5 believe I ^{am} correct, I believe that in December ~~19~~^{of} 75 by accident, the
6 Upper Baker reservoir was low and we did get some flood protection there
7 so it was just by accident that the Upper Baker reservoir was working in
8 the December 1975 flood otherwise that flood would have been a little
9 greater than it actually was. ^{of \$150} That brings us up till today. The authorized
10 project which we are embarked upon in the advanced engineering and design
11 stage in Fiscal Year 1977, this current Fiscal Year ~~19~~78 and Fiscal Year
12 ~~19~~79 will provide for levees and channel improvement roughly from the
13 Burlington Northern Railroad bridge down to the mouth of the Skagit River.
14 These, ^{will be} let's call them rural levees, that will increase the protection
15 for that area to about a minimum of 11 years - how does that sound to you?
16 About eleven years. It will provide some protection for Mt. Vernon
17 There does remain a very serious problem of urban flooding in part of
18 Mt. Vernon, Burlington and perhaps Sedro Woolley, but the authorized
19 project ends at roughly I-5 of the Burlington Northern Railroad bridge.
20 Since there remains the upstream problem, since there is a substantial
21 amount of sentiment that there should be urban protection, since the
22 risk of loss is quite high in the urban areas and since it is a little
23 difficult for us to plan the downstream project without doing some
24 engineering on the upstream area, we are really doing the advanced
25 engineering and design or a good portion of it for an expanded project,
26 at this time. Looking at urban flood protection for Mt. Vernon, Burlington

1 and considering it also to Sedro Woolley. As a reflection of that interest
2 that problem, your interests, we have been asked to provide draft
3 legislation to your representatives in Congress to amend the present
4 project. That is, to expand its extent up to Sedro Woolley to allow for
5 the inclusion under that same project umbrella the urban levees and the
6 urban levees that we are looking at is a level of flood protection of about
7 100 years. Another small amendment there to allow the consideration of
8 recreation as a project purpose perhaps to consider some trails on some
9 of the urban levees. Let's say for a moment that we are successful that is
10 that, you through your representatives, are successful in getting this
11 amended authorization. We will start construction on the first phase of
12 that, the way we are headed now, we will start construction on the first
13 phase of that, in two years, in the spring about two years from now, the
14 spring or early summer of 1980 and that will be complete in Fiscal Year
15 1981. Following that by a year, will be a start of construction on the
16 urban levees and that would be completed in Fiscal Year 1982. When its
17 all done then, you would have in the bottom line, protection of a minimum
18 of about eleven years in the rural areas below Mt. Vernon and the way we
19 are headed at the moment, 100-year protection for the urban areas of
20 Mt. Vernon, Burlington and Sedro Woolley. ^{OK,} Now that is kind of how we come
21 up incrementally. Again you would end up with about eleven years, a
22 minimum of eleven years in the rural levees below ^{essentially} Mt. Vernon to the
23 mouth and for the urban levees you would end up with about 100 years, but
24 that's the best that can be done with the levee ^{scheme and that's} I guess if anything
25 else is to be done we would have to be given authority, directed by the

1 Congress, to study additional increments. We have no such study mandate,
 2 study authority, at the moment. That's kind of a quick summary. We
 3 already have a couple of questions floating around on the floor, lets
 4 see if my brain ~~trusts~~ ^{trust} up here want to tackle that a little bit. There
 5 was a very good question here about "Will the construction of the levees
 6 ursurp valley storage so do speak and increase the flood levels downstream?"
 7 Now, who wants to tackle that? ^{OK, get the} ~~Mr. Hogan~~, Chief of Planning ^{now} ~~for that operation~~
 8 MR. HOGAN. We are taking a look at that in detail under certain
 9 conditions it could affect the water surface profile upstream of the
 10 project. Under most conditions I wouldn't expect it to but we are evaluating
 11 that and we'll be able to give you the answers to that, whether it will
 12 and how much and under what conditions in our summer workshops. One
 13 of the advantages of extending the levees upstream toward Burlington would
 14 be elimination ^{of this} ~~of~~ ^{effect.}
 15 COLONEL POTEAT. That's a very key question and one that gets
 16 extensive examination in the advanced engineering and design. The goal is
 17 to have enough channel capacity even though, lets say even though you
 18 do build levees and you don't have any flooding out to the side of those
 19 levees like you did in the past but to have enough channel capacity you
 20 see that you do not back up water upstream. That's the goal and of course,
 21 we are looking at the design and the precise layout to see if we can
 22 achieve that. Yes --- ^{Follow up on that?}
 23 JOHN F. ROOSEN. John Roosen. I live Beaver ^{on} ~~Mark~~ ^{March} Road. I would
 24 like to ask one of the engineers for a definition purposes, if it would be
 25 safe to say that if any given channel or waterway was deepened 2' would
 26 that have the same effect as raising a levee 2'?

Mr. Hogan. I'll
 Talk about that
 a little bit. Now,
 we're taking a look
 at that in detail
 Colonel Poteat:
 Are you on?
 Why don't you
 come up here
 Duain. I'm not
 sure that's even on
 This is Duain
 Hogan who is
 chief of ^{of} Planning
 Branch.

(21)

1 COLONEL POTEAT. Who wants to take that?

2 MR. ROOSEN. For definition purposes - would it be the same?

3 MR. HOGAN. If you want a one word answer - no.

4 COLONEL POTEAT. Dwain come on up and elaborate that. While Dwain
5 is coming up here and collecting his thoughts we get this quite
6 frequently. In other words "Why can't you just deepen the channel
7 capacity?" Now, let me give you two thoughts that I have and then let
8 Dwain hit me again. Deepening is one devil of an expensive job, not
9 because it costs a lot of money to deepen it, but because just about as
10 fast as you do it you know, it fills back in, the aggradation of
11 the channel fills back in and it is a very expensive maintenance undertaking.
12 That's the first thing, the second thing it does bad things to the
13 spawning beds and so the fish people raise some eyebrows on that.
14 Now, let me give you equal time, Dwain.

15 MR. HOGAN. Normally during a high flow the river bed itself will
16 pick up material and transport the material and effectively deepens the
17 stream. So, when you see a rise in water surface of one foot, the
18 bottom of the stream in many areas has deepened that much and possibly more.
19 This is one of those processes that take place during a flood and then as
20 the flood passes the material, or bedload that the stream has, drops
21 back out after the high flow is over you go back out there and the
22 streambed appears that it has just kind of moved around and shifted a
23 little bit, but as an example there were some bedload studies done on the
24 Green River which flows through Seattle area and they determined that 98%
25 of the material that moved in the stream moved during about 2% of the time

1 during high flows and this is what happens during those high flows, it
2 simply picks up the material thats lying on the bed and moves it out.
3 Do you have any other questions?

4 MR. ROOZEN. I am not quite finished yet. The way I understand it
5 just to get into a little deeper in this siltation problem, the Skagit
6 River drops 3,000 feet from its source of origin to the mouth now correct
7 me if I am wrong.

8 MR. HOGAN. I am not sure about that one on the topography I know that
9 Ross Reservoir is up around 1,600, I don't know what the highest point in
10 the reservoir is.

11 MR. ROOZEN. Anyway it doesn't really need to be exact. I also under-
12 stand that 2,700 feet of that is to Concrete. Now that might also be a
13 little bit wrong, but as long as Mother Nature continues to carry water
14 down out of the hills and its up hill up here there is going to be silt
15 coming down. Now, it just seems to me, although I do agree with all the
16 comments that have been given here this evening, about this third option
17 that we are looking at that as long as we have silt coming down out of
18 those hills we are going to be building dikes from now until eternity
19 because in the last 300' of drop at Concrete the water is slowing down
20 where is the silt going?

21 MR. HOGAN. One of the tricks in designing a river channel is to
22 make it self-maintaining so that the stream velocities are sufficient
23 to carry the material on out so that the channel does not aggrade.

24 MR. ROOZEN. Okay, I guess that answers most of my questions. I will
25 probably think of another. Thank you very much.

1 COLONEL POTEAT. Anyone else.

2 GRACE L. JONES. My name is Grace Jones. What assurance are we going
3 to have that these dikes and levees will be hard core?

4 COLONEL POTEAT. What do you mean hard core?

5 MS. JONES. I worked at the EPA Library ^{in doing} the flood of 1975. My son
6 lived in the flood area outside the dike. My only remaining piece of
7 property in Skagit County is behind the Burlington dike, in fact the
8 Burlington dike comes this way and down this way and when I signed for that
9 I was told that it was a hard core dike, that it would not be like these
10 old ones that would melt. So EPA people knew that I came from up here so
11 they asked me "Grace what's going on up there?" and I said "Well I am not
12 worried about my property because its behind a hard core dike." I signed
13 for it because I wanted to protect the city of Burlington, and of course,
14 ~~we~~ I said my son ^{I said} is outside that dike, but if the dike broke it would
15 relieve the pressure there ^{and I said there are} ~~our~~ dikes downstream that are not hard core,
16 ~~we~~ ^{we} were told were not hard core and if those break that relieves the
17 pressure on him so I am not worried. They said "Grace there are no hard
18 core dikes in Skagit County." Now when we signed for that dike they said it
19 would be put in scientifically so that it could not melt, once it had gone
20 through a flood and was wetted through it would be like, almost like
21 concrete, almost like cement. Now, is that true? Have we any of those
22 dikes that are scientifically designed - if we haven't we are living in a
23 dream world because those levees could melt.

24 COLONEL POTEAT. We don't have any dikes at all up here so I couldn't
25 the Corps of Engineers has no dikes in the Skagit Valley. Now hard core

1 I think I understand you to be talking about the material ^{from} which they
2 are made. We have a pretty good track record in that area but some of the
3 things that we are interested in is the type of material, its gradation,
4 its compaction, we are interested in the proper levee width, we are
5 interested in the proper slope, not too steep and generally we put a shell
6 a free draining shell on the outside. We also put riprap to prevent
7 erosion now speaking generally coming from the outside in the large rock,
8 the riprap is necessary to prevent erosion. Coming on into the dike
9 its important to have on the outside some draining material that's on too
10 steep a slope so that when the dike does get saturated and the water drops
11 water lets say, the ~~pour~~ ^{PORE} pressure we call it in the trade, the pour
12 pressure doesn't cause a shear failure in the face of the dike so that's
13 a function of the slope of the dike, the shear strength of the material
14 and the draining shell ~~from~~ ^{on} the outside. That's the dike itself. We also
15 are very concerned about the strength and the permeability of the foundation
16 of the dike and that sometimes the limitation on how high you can build a
17 dike, otherwise you will get a blow out underneath the dike and the
18 foundation. Now that's kind of a general view of some of these concerns
19 but let me ask Vern, who is responsible for the design here, what you are
20 doing to make sure you've got hard core ~~in~~ Vern.

21 MR. COOK. Well, we just happen to have, what I call a real flood
22 control expert in the audience that came up from the Corps today and I
23 will ask Ernie Sabo to come up from our Foundations & Materials Branch.
24 Ernie would you come up for a few minutes?

25 COLONEL POTEAT. ^{Ask Ernie to crawl out from under the chair} This is what we hire [^] these two guys for - is to
26 prevent things you talk ^{ed} about. [^] ^{this guy for,}

1 MR. COOK. Ernie is the Flood Engineer, when the high waters come up
2 Ernie is the designated individual that does come up here and coordinate
3 flood control with the county, sandbagging efforts and he had a little
4 of that in 75. I would like to let Ernie talk a bit and then maybe I
5 can fill in afterwards.

6 MR. SABO. We have just completed our exploration up here this last
7 week end. We drilled about 200 holes up here to determine what the
8 materials are in all of the levees from ~~Burling~~^{Burlington} all the way down to the
9 mouth. We are in the process now of analyzing what these materials are and
10 what the problems will be and what we have to do to design an adequate
11 dike. We did find a lot of places where we have sands and gravels beneath
12 the dikes and also many of the dikes are built just out of the river sands.
13 We have a lot of seepage under the dikes and through the dikes especially
14 in the big bend upstream of here between here and Burlington. In response
15 to the ~~ladies~~^{lady's} question, where she was asking about the hard core up
16 around the Burlington area, those dikes up there appear not to have too
17 much seepage as we experienced in 75 and the railroad embankment, the
18 Burlington Railroad embankment did have quite a bit of seepage in 75
19 which is build probably out of gravel and since that time the Diking
20 District has repaired that by putting a impervious material on the face
21 of the dike which will not leak now. Does that answer your question ~~man~~^{man?}

22 MS. JONES. Yes, This dike is built on the stone revetment that was
23 put in by the U.S. Army, ~~land~~^{land} back in 1948. When they built that dike on that
24 ~~land~~, but it was supposed to be a hard core dike and I am told that it is
25 17' high. Well, if that breaks what's going to happen to that poor little

1 mobile home court ~~down there~~? What is going to happen to the city of
2 Burlington? We thought when we signed it, or I thought that it was a
3 hard core dike and it had been scientifically engineered but there has
4 been seepage through that dike on my property.

5 MR. SABO. There will be seepage through any dike unless it was built
6 out of concrete or something.

7 MS. JONES. It was supposed to be built so that each year it would get
8 harder and harder.

9 MR. SABO. Like I say we will be analyzing these.

10 MS. JONES. That's already been analyzed where they took the dirt out.

11 MR. SABO. That's just what we got through doing last week. Thank you.

12 MS. JONES. (Shook her head yes.)

13 MR. COOK. We will get your name individually and we will have either
14 Ernie when he comes back up have a look at that specific dike and maybe
15 we can give you some more detailed information.

16 MR. BOETTCHER. I was talking to that crew of yours running that
17 decrepit drilling rig and they were just cursing it from one end down
18 to the other because they couldn't drill the dike in that vicinity.
19 They said that was the only good dike they had encountered. Does that
20 answer the question?

21 MR. COOK. Well, it helps. I ^{will try to} ~~will further~~ address myself to that general
22 question about what type of design we will be using here. If you can
23 visualize a cross section and in your mind, something about 12' wide as
24 far as a top width goes, something you can drive along in a car very
25 nicely. The slopes will be about one vertical to two horizontal, more flat

1 than steep. Hopefully it will be sodded on the riverside and in most
2 cases it would be the gravel or pervious material fronted by armor
3 rock where required to prevent erosion and a weighted or buried toe
4 because when the streams do start to flow or erode you have to have
5 some protection of the toe itself. That will be the general design
6 that's used throughout the levee system that we are contemplating. Now
7 in those areas, Ernie mentioned, the big bend and then something in
8 west Mt. Vernon, our drill exploration data shows that it is very open
9 material, easily transports a great deal of water very rapidly under
10 the levees, in other words gravel, boulders or something like that and in
11 those areas some special treatment will have to be considered and usually
12 we use two different types (1) you either put a pervious material and
13 make the levee wider in the rear part so that the water coming in from
14 the river, goes under the levee or through the lower portion of the
15 levee, has further to go before it can surface because most levees will
16 fail from the landward side, will flow through and blow out behind. We
17 did some studies on our Snohomish about two years ago and we found just a
18 couple of levees that failed from overtopping. Most levees will fail
19 because they have too much water absorption inside, they become like
20 jelly, eroding holes, transporting materials out the back side. The
21 danger point of a levee is the rear part of the levee as you might suspect
22 erosion on the front cause sloughin during the drawdown period but
23 most of the levees fail -- out the back. Where there are roadways to be
24 relocated or levees too close to the road we would simply raise the road
25 up and put it on top of the berm where it is necessary. The key is to
26 have a long travel path for the water so that it will go through but
27 slow enough and far enough away so that it won't blow up the levee.
28 That's what the design effort will be on all the levees in the Skagit.

1 There won't be concrete cores although there are some alternatives
2 very expensive, to put concrete cores in. In some rare cases you can
3 drive sheet piling down to try to deepen this path where the water can
4 go down underneath. Those are very expensive and it takes a great deal
5 of benefits to justify very long reaches of that as you might suspect.

6 MS. JONES. (Shook her head yes.)

7 COLONEL POTEAT. There was one other question here about a warning
8 system and I think we have a gentleman from the Weather Bureau here. If
9 he is still here and if I can persuade him maybe to comment on that a little
10 further. ^{hey, great} I hate to put you on the spot but I think you know far more
11 about this weather warning than I do.

23

12 CHAUNCEY T. BEACH. I am Chauncey Beach from the Weather Service
13 Forecast Office in Seattle. Also the Washington River District Office.
14 Northwest Washington, including the Skagit basin has been rather service
15 responsibility for warning services for about 20 years now. We also have
16 responsibility for basins throughout the state now and that probably
17 answers best why we don't have a very sophisticated warning system for any
18 basins. While we do try to provide the best kind of service we can with
19 what we have. We do have cooperators such as the Corps, the utility
20 companies such as Seattle City Light, Puget Sound Power & Light and other
21 Federal agencies such as the U.S. Geological Survey who provide us with
22 river gages, which we telemeter. We telemeter the USGS gage known as the
23 Riverside Gage which is on the Pier of the old 99 Highway Bridge, almost
24 outside of Mt. Vernon. We also telemeter the Tellamark River
25 Gage at the Dalles near Concrete and we have in the Skagit Valley a few real
26 time precipitation gages. Now what I mean by telemetering and what I mean

1 real time data is that we are able to get readings, obtain data on river
2 stages by making periodic calls, by telephone, or in some cases by radio
3 to individual river gages which brings us up-to-date as to what the rate of
4 rise or rate of fall, ^{hopefully,} after the flood, what the river is actually doing in
5 real time fashion. At 9:00 tonight we could have called up anyone of those
6 gages and had river stage read to us. Now, based on that input which we
7 provide, after collecting data, to the River Forecast Center in Portland
8 which is also part of the National Weather Service, they provide us with
9 forecasts for each of the river basins, including the Skagit. Now, those
10 forecasts are based on specific river gages. For example, the one forecast
11 point upstream is at Concrete, another forecast point downstream is
12 Mt. Vernon. We try to keep abreast of what the river is doing by
13 examining the rainfall intensity patterns which is a meteorologist job and of
14 which we are a part. What we can't do very well is make river forecasts
15 until we know how much water ^{we've got} ~~we have~~ on the ground. We make quantitative
16 precipitation forecasts based on a meteorological situation and these are
17 strictly educated guesses. Meaning to say that this intensity that we
18 think we are going to get is what we call our quantitative precipitation
19 forecasts. From that, until we have a definite pattern of intensity and
20 how much water ^{we've got} ~~we have~~ on the ground we have to base our river forecasts
21 on that quantitative precipitation forecast and that presents a real
22 problem. The 1977 flood we forecast for Concrete major floods of 33 feet,
23 flood stage at Concrete is 29. Now that was our initial forecast. We
24 had a handicap - we had ^{no} ~~not~~ measurement of precipitation in the upper
25 Sauk nor in the Cascade basin at all. We knew approximately what the amount

1 or regulation we could get from the Seattle City Light and Puget Sound
2 Power & Light in both their projects. If we had to we could go back through
3 the Colonel's office and say hey we think ^{we've got} ~~we have~~ a real problem up in the
4 upper basin and it is going to give us a real problem in the lower basin
5 would you ask Puget Power to regulate it as much as they possibly can
6 and the Seattle City Light to regulate it as much as they possibly can
7 up to the point of destroying their structures and this will take place.
8 You talked about 1975 where we had a big flood two years ago. We finally
9 had much colder air come on shore and it was ^{evident} ~~estimated~~ at Quillayute
10 Station out near LaPush, the Weather Service Station out there, but before
11 that cold air arrived to shut off all precipitation or change it to snow
12 in the upper basins above Concrete, Puget Power was getting to the point
13 where they were going to release they were going to open more gates
14 because they were getting a serious problem and we already had a major
15 flood on our hands in the lower valley. ^{well,} ~~it~~ was up to us to convince
16 Puget Power that really we now did have in fact cold air in the vicinity
17 which we expected to shut this off and we gave them a time table and
18 they did shut down when we asked them to do it they did ^{hold it OFF.} Now, to provide
19 information to the Skagit valley, we transmit our forecast and warnings
20 to Lloyd Johnson's office and, we ask Lloyd to participate with us in
21 issuing warnings which he thinks are appropriate as we think ^{they're} ~~they are~~
22 appropriate. We try our best to get that information out to broadcasting
23 media such as radio and television stations in Seattle to local radio
24 and television stations if any, in the immediate basins. Lloyd has his
25 other outlets that he makes up here and this is about as sophisticated

1 as we can get right now, but we certainly hope that we will be able to
2 improve it. ~~Thank you.~~ That's about all.

3 COLONEL POTEAT. Thank you very much. I see I am a little delinquent
4 on our break and I apologize to you for that. Why don't we take ^{oh maybe} five ~~or~~
5 ~~ten~~ ^{minutes} for a little stretch break or something ^{will that,} then we will reconvene ^{here and}
6 ~~at 1010 hours.~~ ^{finish up any quest}

7 COLONEL POTEAT. (Reconvened the meeting at 1010 hours) I have a couple
8 of outstanding questions that were asked earlier and one of them had to do
9 with the "Will the Avon Bypass, if it were built will that pretty well take
10 care of ^{the} ~~Sauk~~ ^{problem.} I am going to ask Forest to give you a quick
11 overview of that and then if you have any follow-up questions maybe what
12 we ought to do is get your name and then we will do a little bit ^{more}
13 arithmetic on this and furnish it to you individually. ^{Let's just leave the}
14 ~~lights on.~~ ^{I think you}

15 MR. BROOKS. I think the question asked pertaining to the Avon ^{can set}
16 Bypass and what percent of the Sauk River could be carried by the Avon ^{this}
17 Bypass. Obviously it would be determined by what the final design size ^{reasonable}
18 of the Avon Bypass was but in our previous studies of the Avon Bypass it ^{well.}
19 was pretty well decided that the most feasible project was about a 60,000
20 cubic feet per second channel capacity on the Avon Bypass which would
21 encoupled with the levee and channel improvement project give us about
22 180,000 cubic feet per second downstream of Sedro Woolley in the channel
23 capacity. I think we can get some sort of comparison on what could
24 happen is that the flow from the Sauk River ⁱⁿ of the 75 flood which
25 comprised about 54% of the 75 flood at Concrete was 65,000 cubic feet per
second, so the Avon Bypass by itself is approximately the size of the 75
flood from the Sauk River. I don't know whether that really answers the

Let's - couple of questions already outstanding - we'll see if anybody else has anything they want to go over.

1 question but I think that is a pretty good comparison to use. If you
2 were to build the levee and channel improvement project and the Avon
3 Bypass project the 180,000 cubic feet per second channel capacity would
4 be approximately a 60-year flood protection for the entire Skagit delta
5 downstream of Sedro Woolley.

6 COLONEL POTEAT. What about the tide ^{thing} - who wants to handle that? ^{the degree}
~~The degree to which we consider tide~~
7 MR. HOGAN. The design of the channel, the lower portion of the
8 channel would take into consideration the high tides that would be
9 expected to occur during the storm so the upper portion, or the lower
10 portion, of the diking system would be high to accommodate this. This is
11 a standard type of thing that we get involved in, in dikes in the vicinity
12 of the mouths of rivers. It ~~isn't~~ ^{isn't} anything new or outstanding to us. Really
13 isn't anything highly romantic about it to talk about it will be considered
14 and included in the design.

24

15 CHARLES A TOEPKE. Chuck Toepke, Darrington. I am interested mostly
16 in the Sauk River. I have some property up there and if this dam did go
17 in where would it go it what do they consider the lower Sauk?

18 MR. HOGAN. The most feasible site probably the lower Sauk, but I
19 don't want anybody to get excited because there hasn't been a great deal
20 of study involved. There have been some dam sites identified and the
21 potential for them has been estimated. No recent activity or studies has
22 been made. ^{when were the last studies? (mid 60s)} In the mid 60s ~~this~~ was the last time this was looked at.

23 MR. TOEPKE. So probably be in the mid 80s then before -

24 MR. HOGAN. Before its looked at again. Bob —

25

25 MR. HULBERT. I would like the Colonel or you [^] to comment more about
Bob Hulbut,

1 the Sauk River flood control. Colonel you went up there with Congressman
2 Meeds and General Peel and one question immediately comes to ~~my~~ mind if
3 you haven't really done hardly any studies where do you come up with
4 \$150 million ^{dollar} costs. What are your experiences with free flowing flood
5 gate type structures on a similar situation. In other words where you just
6 drop a board - would you give us a little bit more background?

7 COLONEL POTEAT. Bob, as you correctly point out I can't give you
8 much detail. We looked at that back in the 60s, we identified a couple
9 of sites up there that would be suitable for a dam, a couple of different
10 sizes of reservoirs and they backed up to the vicinity of Darrington,
11 not into Darrington, a little downstream of Darrington, the upstream part
12 of it. That hasn't been looked at in detail and that's why I think we didn't
13 give a figure but we gave a bracket, a range of prices. We just kind of
14 updated the quickie studies from the 60s into a bracket. Now, I should be
15 honest with you, a dam on the Sauk, lets say that we are going to look
16 at that seriously - the crystal ball tells me that the ~~entrance~~ ^{interest} would be
17 in a so called dry dam on the Sauk. That is a dam that would be used only
18 the gates would be closed and it would be used only for floods there
19 wouldn't be a lake behind it, except for a few weeks during the flood. The
20 river would go on its merry way under the dam through a conduit, the fish
21 would go upstream, hopefully through the conduit. There is some thought
22 that maybe they wouldn't do that which you would have to have a fish
23 collection and hauling thing which is no big deal we do that a lot of
24 rivers below a dam we collect fish and haul them around the dam and dump
25 them in up above. Mud Mountain Dam down near Enumclaw is sort of a dry dam

1 there is very little, very, very small pool in that and it is usually just
2 for flood control and it will go up ¹⁵⁰ ~~1250~~ feet from 10 or 20 up another
3 150 feet during the flood and then we let it out in a week or two. It sure
4 creates a muddy scar on the side of the mountain for a few days until the
5 rains come and washes it off but that would be the type of thing that
6 would be looked at, a dry dam that would provide fish passage. It would
7 be a single purpose flood control structure. That would cost a handfull of
8 change and I am just not sure that there would be the flood control
9 benefits that would justify that. I don't know, but it would be, its
10 chancey. Now we are not looking at the Sauk, we will not look at the
11 Sauk, unless the Congress passes some study resolution for us to look at
12 that but ^{you know,} it is a difficult problem. You saw the old column up there the
13 amount of water coming out of the stretches that are regulated that was very
14 small just a couple of little yellow slabs ^{up} top. Its all that unregulated
15 stuff you see that gives us the problem, that's the Sauk problem but I don't
16 know how to handle that. That's more confusing than anything else ^{probably} but
17 that's the situation. You are next.

18 ^{Eunice} ~~MAYETTA~~ SUMMERS. I am ^{Eunice} ~~Mayetta~~ Summers and I was really interested
19 in what this recreation you are going to have - if you are going to do that
20 we should defend ourselves. We are down on ^{FIR} ~~Fry~~ Island and right now we
21 have to contend with the duck hunters ^{that} on the ~~Bay~~ ^{that} there and now if we
22 have hondas, and fisherman, what all, we won't have any ^{bait eggs} fences. We have a
23 problem with that, you know cutting wires now. ^{Cows and}

24 COLONEL POTEAT. Well let me just talk on this to you folks. Again
25 the tea leaves as I get the message is that there is some interest in

1 including recreation, a considerable interest, in including recreation
2 as a project purpose. Now, this means that in the final design of this
3 project we could look at the inclusion of recreation. We don't have to
4 decide to do that, ultimately make the decision to include recreation
5 but it would at least allow us to look at it, ^{OK?} This recreation could be
6 put in on a 50-50 cost sharing basis and the local sponsors would operate
7 and maintain the recreation facilities. Trails are generally what we are
8 talking about. Now, the tea leaves I get the feeling that there is some
9 sentiment that it might be a pretty good idea, some trails on the urban
10 levees, Mt. Vernon up to Sedro Woolley, but then out of the woodwork
11 I hear that some of the farmers for the reasons ^{you've} ~~you~~ articulated quite well
12 are not really interested in a whole bunch of trails on the levees down-
13 stream. Well, the inclusion of recreation, doesn't have anything to do
14 with flood protection so the flood protection levees could go with or
15 without recreation but there was some sentiment that gee maybe we ought to
16 look at it anyway. If we did look at it and decide that it was a good
17 idea we couldn't put it in unless it was an authorized project purpose.

18 MS. SUMMERS. It all wouldn't be included if they did it up river.
19 Then it could be just where they wanted it - in town.

20 COLONEL POTEAT. It doesn't have to be all the way it could be a
21 certain stretch and I get some kind of off the wall comments that
22 it might sell, it might fly up in the urban levees around the towns but,
23 the landowners down below might say I don't mind you putting a flood contro
24 levee here but I am not all that keen about giving an easement for
25 flood control levee if you are going to put a recreation trail on there.
16 I have a habit of just calling it like it is and that's the way I read the

1 tea leaves ^{now} and ^{then} if anybody wants to stand up and elaborate on that I
2 would be ---
3 MS. NEBLE. I am Sophie Neble again and I am against any recreation
4 in agricultural areas because when the city people come out there they
5 can't open the gates they have to push through the fence and if they
6 open the gate they never close it and if the cattle get out and hurts them
7 then the farmer is being sued so if they want recreation on those dikes,
8 that's fine, but keep it, in the city limits.

(27)

9 COLONEL POTEAT. Some of the guys I work with around here are going
10 to say see Colonel I told you so.

11 MS. NEBLE. They are right, but keep them out of agriculture. I
12 have that all my life, back in Pennsylvania around the coal mines, the city
13 people come out there, they can't take an apple off a tree they've got to
14 shake the whole tree down (LAUGHTER) and then they have to stand there and
15 see how many apples it takes to hit that trunk. So that's what I mean,
16 keep recreation out of agricultural areas it never works. (clapping)

17 COLONEL POTEAT. So you would be an advocate of recreation in one-half
18 but not in the other half.

19 MS. NEBLE. Keep them away from the farmers.

(28)

20 STATE REPRESENTATIVE VROOMAN. I have been in discussion with this
21 project of course, with the County Commissioners and they have greatly
22 commended you on your coordination ^{na} with him but I would like to point out
23 to you that as a member of the State Legislature I would urge for that
24 same coordination with us because the Federal Government and the State
25 Government are right in the middle of the Salmon enhancement programs
16 for millions of dollars and whatever information you can pass on to us in

1 either the House Natural Resources Committee or the Senate Natural
2 Resources Committee will be greatly appreciated.

OK. Good.

3 COLONEL POTEAT. I think we have your name and we will just give it
4 to you direct that way that will be a double barrel thing we can give you
5 the information direct and in addition, all of this stuff that is reviewed
6 as a matter of course by the state and the governor and so forth,
7 but we will have it covered two bases that way the official way and then
8 to you direct. *Alright - Who else?*

(29)

9 MR. BOETTCHER. You haven't made any mention of the storage capacity
10 that flows up the Nookachamp River and have you any figures on that 1' 2'
11 3' above now I mean the problem will be terrific in that area but if the
12 dikes are high why the water is going to run that direction I am sure.
Colonel Poteat. VEEN COOK volunteered to - oh - you going to slough it off on Duain.

13 MR. HOGAN. I mentioned earlier that we were making detailed
14 hydraulic studies to determine if there is any backwater effect. Frankly
15 I don't expect there to be any but we'll be able to give you the answers
16 to that this summer ^{at} ~~in~~ the workshops.

17 MR. BOETTCHER. (Shook his head yes.)
Colonel Poteat. alright.

(30)

18 MR. SMITH. Richard Smith with just a question - you are, I presume
19 going ahead with the study for Alternative three - is it fair to ask the
20 question if you have a gut feeling of the acceptability of these funds.

21 COLONEL POTEAT. I forgot to mention we have my good friend Joe
22 Auburg in the back and Joe almost fell out of the chair there when that
23 came up but Joe is the Chief of the Western Planning Branch in the Office
24 of the Chief of Engineers and when I was back there Joe and I used to work
25 some cases jointly and Joe is out for a meeting today, he came out from
26 Washington last night, and just to keep Joe from getting in trouble down

1 on the streets of Seattle tonight I said come on up here to this public
2 meeting in Mt. Vernon and I am glad Joe did come because he's the guy that
3 has to help us work this problem on the East Coast, ^{House} authorization
4 problems and the financial problems but for ballpark figure we are talking
5 the authorized project below the Burlington Northern bridge about \$15.1
6 million ^{dollars} Federal money. To expand it on up to ^{the vicinity of} Sedro Woolley we are talking
7 about another \$12 or \$12.5 ~~million~~ something like that. I am optimistic that
8 if we get the amended authorization to expand the project I am optimistic
9 that we would be able to get the funding - thanks Joe - Joe was going
10 like this (shaking his head yes), that's a good sign. ^{Yes sir -} George you will have
11 ^{to help} and Howard and all of you you know - continued team work - I am optimistic.

12 ^{Yes sir -} EINER C. KNUTZEN. My name is Einer Knutzen. I live in the Burlington
13 area. I farm about 1,500 acres of land in the Burlington-Edison area
14 and tonight's the first night I have seen this and by the picture I am
15 wondering if you are proposing the dike to hit the Burlington Hill? - can
16 I look at this right? I have a farm now where your dikes start. ^{We} get
17 flooded in that ^{Sterling} area quite often and at one time we tried to get into
18 District 12 and go on up toward Sedro Woolley with it but some way or
19 another it fell through and I can't help but be a little concerned that
20 right now the best possibility for a flood on the south side of the Skagit
21 River is coming through that Sterling area going across the railroad
22 track we have had to sandbag that track every time we get a high river and
23 several hundred acres under water before of course it gets to that
24 river but I am wondering if you are going to dike from the Burlington
25 Hill to where the dike ends now and the way it looks on the picture that's

^{I'd never -}

1 the way it looks and I am wondering.

2 COLONEL POTEAT. Lets put that to the brain ^{Trust} trusts over here - ~~uh~~ -
3 ~~He doesn't look very smart, But he sure is.~~

4 MR. COOK. ^{does he} The alternatives that were considered we had to pick
5 ~~Found~~ Fooled him, Fooled him again.

6 some place to tie it off that was reasonable and we looked at several places

7 to come up with some reasonable estimate of costs but as shown in the

8 brochure we went back to the Sterling Hill and looped back over to the

9 Burlington Hill for any backwater ^{feedback} ~~feedback~~ so that's what is shown on the

10 brochure. As a matter of fact where it will actually be tied off or

11 whether it will go straight up to Sedro Woolley will be dependent upon

12 of course, cost, benefits backwater profiles that you heard ^{alluded to} ~~a little bit~~

13 earlier. We are having some computer model tests run on backwater and

14 water surface profiles. It all has to be tied in so that it doesn't

15 affect others adversely but what is done is supported in good measure by

16 the benefits for the costs made. But directly its over the Sterling

17 Hill and back to Burlington as you see it on that presently and that's

18 what the estimate is based on. You are right as the water rises up there

19 it does get close to those tracks I guess our estimates show about 140,000

20 150,000 c.f.s: it starts to tip over the tracks and go down in the

21 Samish Valley and if the water continued to rise more and more water

22 would go down the Samish and more and more water would be shifted down ~~down~~

23 the ^{main} Skagit and start to split and that's about all we know about it

24 now and you know that for sure - you've been there.

25 MR. NUTZEN. I would just like to say that in 21 I was about ten

years old at that time and we came right down the main street of

Burlington and the water did come from that Sterling area. Of course it

1 it broke some dikes up there and now ^{we've got} ~~we have~~ good dikes as far as they
2 go in my opinion it would go around the end of the dike and so forth
3 and get on Highway 20 and come back to the slough which really would create
4 a problem for all the lower Skagit and ^{we've} ~~we have~~ come close to that a lot of
5 times and I think that's the weakest spot right now in the whole system
6 and could effect everything north of the river and also can get over in
7 the Samish River which it certainly did in 21 and we could have that very
8 easily.

9 COLONEL POTEAT. Incidentally I should mention that ^{we'll} ~~we will~~ probably
10 have another meeting and/or some kind of workshop in this area in about
11 three or four months to catch you up on the results of the analysis
12 of our foundation data and we should be a little more precise on our
13 economics and our levee alignment and those kinds of things and we will
14 announce this to everyone who is on our mailing list, plus got added on
15 as a result of the meeting here tonight. We will suspect if its a public
16 meeting we will have a brochure out this brochure updated for that public
17 meeting. In addition to the information and views that you have given
18 us here tonight I want to remind you that if you have any further
19 comments, by the 10th of April we would like your comments so these can
20 be incorporated into - lets put it this way we would like the comments from
21 you by about the 10th of April if we are to insure that they are incorp-
22 orated in the next edition of this brochure. As I explained earlier
23 the last sheet inside this brochure provides space for these comments,
24 just cut that off put your comments, fold it, keep the address on the
25 outside and mail it in. Any other questions or comments? ~~if you have~~
~~found~~

well, if you would

1 and if you would like to talk to either myself or any member of the
2 staff after the meeting we will remain for as long as you care to talk
3 with us and again ~~we~~ **Forest** Brooks will be in Lloyd Johnson's office here on
4 the second floor tomorrow ~~from~~ 8 to 11 and ~~from~~ Noon to about 2 p.m.
5 I do want to tell you it has been a pleasure for me to get up here and
6 see some old friends and I appreciate very much your coming out. I
7 enjoy meeting you and I enjoy getting your views. I realize its been
8 a long evening for you but it has been very helpful to us and I hope in some
9 measure we have been helpful to you in sharing some of this information.
10 So I guess if I had a gaval I could adjourn the meeting. Thank you
11 very much. (The meeting adjourned at 10:30 p.m.)

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