...LIC PUBLIC MEETING — 22 MARCH 19...

OFFICE OF

SKAGIT COUNTY ENGINEER

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

LLOYD H. JOHNSON, P.E.
COUNTY ENGINEER

JACK C. RAFTER, I
ASSISTANT COUNTY ENGI

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.

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

City of MOUNT VERNON Washington

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

TELEPHONE 336-6585
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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 Riverbend 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 Cit of Mount Vernon.

Having reviewed the alternatives published in the Skagit River Levee an Channel Improvements public brochure dated March, 1978, we would recomm that alternative 3-Levee and Channel Improvements and Urban Levees woul adequately provide a 100 year flood protection we seek for the urban ar 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 retainin a practical outlook of solving the potential flooding dangers associate with the River.

Very truly yours,

Jack Pittis

Jack N. Pittis, P.E.
City Engineer

Jack D. Miller
Mayor

JNP:cc

P 002653

CITY OF BURLINGTON
BURLINGTON, WASHINGTON 98233

OFFICE OF THE MAYOR
Raymond C. Henery

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

No.	Affiliation	Name
1	Skagit Co Comm., chairman	Howard Miller
2	Burlington supervisor	Arnold Hanson
3	S Reg. Plng Council	Alan C Munce
4	Mt Vernon	Harold Christiansen
5	Skagit Co. Eng	Lloyd H Johnson
6	PNWWA	George Dynes
7 (25)	Skagit Conservation Dist	Robert J Hulbert
8	W Environmental Council	Ruth F Weiner
9	SCANP	Craig Martin
10	Rexville Grange (ex)	Henrietta Pearson
11	res. - N Fork	Gary Jones
12	res - W Mt Vernon	Zell A Young
13 (23) (29)	res - Burlington	Lawrence Boettcher
14 (27)	res - east of SW	Sophie Neble
15	res - Nookachamps	Larry J Hunzler
16	res - N Fork	Allen H Doss
17 (30)	SC Farm Bureau	Richard Smith
18	Port	Cliff Magira
19	res - MV	Helen Day
20	res S Fork	Mrs Joe Soler
21	res - Beaver Marsh Road	John F Rooaen
22	res - Sedro Woolley	Grace L Jones
23	National Weather Service	Chauncey T Beach
24	res - Darrington	Chuck Toepke
26	res - N Fork	Eunice Summers
28	State Representative	Vrooman
31	res - Burlington	Einar Mauritzen

Public Meeting Questions

Sedro Woolley		include 100 year protection to Sedro Woolley
VEC		need careful cost-benefit analysis need adequate consideration of fishery
Henrietta Pearson	*	Why cant mouth of river be dredged?
Gary Jones	*	Have we seriously considered removing jetty between McGlins & Goat Islands
Zell Young		You should remove all the existing dikes We will evaluate and tell you at the [illegible]
Tony Kunzler	*	Won't the urban levees increase flooding in the Nookachamps valley?
	⊛	Will the Avon Bypass handle 40% of the runoff from the Sauk River? [illegible]
Richard Smith	*	What right-of-way will be necessary?
Helen Day	*	Why isn't there a better flood warning system?
Lara Soler	↑	Why cant you clean out the river with a dredge after a flood?
John Roozen	⊛	Does deepening a channel 2' have the same effect as raising a levee 2'? No [illegible]
	⊛	Where does all the silt go? settle [illegible]
Grace Jones	⊛	What assurances do we have that dikes will be hard core? Patent answer was [illegible]
Charles Toepke	⊛	Would a Dam be built in the Sauk Not under active consideration [illegible]

P 002656

unnie
~~[illegible]~~ Summer ⊛ What Recreation will you have
Trails can be where they are [illegible] ([illegible]

[illegible] Rep Vrooman ⊛ Can you coordinate with State legislature
Will send you [illegible] ([illegible])

We will tell you at the [illegible]
v. Boettcher ↑ What will be problem in Nookachamps?

ichard Smith ⊛ Will funds be available? Yes ([illegible]

[illegible] Knutzen ⊛ Will the dike be tied to Burlington Hill?
It would be ([illegible])

COLONEL POTEAT: Good evening ladies and gentlemen. I am Colonel John Poteat, the Seattle District Engineer for the Army Corps of Engineers, and let me welcome you to our Public Meeting on the Skagit River Levee and Channel Improvement Project. This evening we will be concentrating on that project which Congress authorized in 1966 and possible modifications to that project.

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

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

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

How you doing Bud, good to see you

of you this evening. We also have Mr. Harvey C. Nichols from Sedro Woolley a member of the City Council, mr. nichols great, good to see you. Mr. Arnold M. Hanson from the city of Burlington, City Supervisor, ok sir, Mr. Clifford T. Magin from the Port of Skagit County, so Gentlemen we are certainly glad to see all of you here.

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

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

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

If some of you have specific concerns that we do not answer in the meeting tonight and you wish to discuss them with us, my staff and I are at your disposal and we will remain as long afterwards as you would like. If it its not convenient for you to talk with us this evening, or if you have friends that have questions and they weren't able to make it tonight, Forest Brooks will remain in the area tomorrow to discuss our studies and I believe Forest, you will be at the Skagit County Engineer's Office on the 2d floor here from, 8 until 11 and then from Noon, from 11 until 2:00 p.m. Could I have you turn the lights down - good. OK,

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Now, I want to talk where we are in ~~the~~ our study and what's going to happen about

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

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

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

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

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

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

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

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

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

to general questions and to a general discussion on the issues raised tonight. What I am going to do is I am going to call the speaker and then I will alert the next speaker so he can collect his thoughts. The first card that I have is Representative Vrooman.

STATE REPRESENTATIVE VROOMAN. I will pass at this time.

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

(1)

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

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

COLONEL POTEAT. Thank you very much. Mr. Hanson will be our next speaker, to be followed by Mr. Ian S. Munce, I belive is the correct pronunciation.

(2)

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

"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 Three. We actually hope that the final conclusions will justify Alternate Four 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 $1 billion dollars, a large part of which is subject to flood damage, and that the city of Burlington is valued, for tax purposes, over $55 million dollars all of which is subject to flood damage. Thank you." (SEE EXHIBIT 2)

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

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

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

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

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

COLONEL POTEAT. Thank you very much, sir. Mr. Lloyd Johnson, ~~be followed by~~ Mr. George M. Dynes. - lets see whose next on deck there

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

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

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

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

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

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

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

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

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

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

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

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

"Gentlemen:

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

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

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

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

Sincerely,

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

Thank you. (SEE EXHIBIT 6)

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

RUTH F. WEINER. Thank you very much, Colonel Poteat for having the public hearing and for permitting us to appear here. I am here representing the Washington Environmental Council which is a statewide organization of a number of environmental groups and first of all I would like to say it is very nice to see that perhaps for once we can have the best of all possible worlds which is to say flood protection for the downstream communities and the Wild and Scenic Rivers proposal as it was proposed by the Administration in a message to Congress and by the Forest Service. Alternative two would do that, so would alternative three. Neither one would have the slightest effect on the wild and scenic river proposal as it exists. I would like to remind the Corps and go on the record as saying the initial Wild and Scenic River proposal would have 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

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

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

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

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

ok, our next -

lets see, who do we have after Ms. Pearson

(10) HENRIETTA L. PEARSON. Mrs. Oliver Pearson, Past Master of the Rexville

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

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

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

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

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

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

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

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

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

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

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

COLONEL POTEAT. (Laughing) That's right.

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

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

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

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

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

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

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

My request that the Dike 12 be extended to near Sedro Woolley may avoid a future disaster caused by human error. I will begin by quoting from our incomparable historian Ray Jordan about the "Great Jam".

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

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

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

I have a statement obtained from Norm Wallace of Burlington. This is the flood of February 10 to 11, 1951. Norm Wallace tells of a log jam in front of the turntable pier of the Mt. Vernon-Burlington Northern bridge. He stated the jam extended to either side of the pier the width of the pier. The water level below the bridge was two planks lower than above the bridge. The pier measures 35 feet. This measures to at least a jam of 80' to 90' with the difference in water elevation at 30 inches.

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

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

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

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

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

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

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

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

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

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

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

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

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

Now if you can sort these out ~~cause~~ I got them mixed up - would you

^ after

like this.

COLONEL POTEAT. Sure. (laughter)

MR. BOETTCHER. See I got those free, courtesy of Hinton Oldsmobile. (clapp
COLONEL POTEAT. OK, Thank you very much.
(~~CLIPPING~~) Thank you much, sir. (SEE EXHIBIT 7)
MR. BOETTCHER.
COLONEL POTEAT. Thank you very much. I guess we ought to have a hand for Hinton Oldsmobile here tonight. Thank you very much, sir. You know, we have to keep our sense of humor in these things too and I am reminded of a meeting we had about a year or so ago in, guess this was around Bangor Association with the Trident Base and it was along about election time, oh-a a couple of months before election, I guess. This gentleman got up and introduced himself, lets say Jack Smith. He said you know I ought to really be honest with you people. He said the only reason I am up here tonight is I am running for Congress for the Sixth District and I've got to address the League of Women Voters in this auditorium tomorrow night so I thought I would just come up and check out the accoustics and see how the place is. He talked for a few minutes and then sat down. Thank you very much. Ms. Sophie Neble, is next to be followed by Mr. Larry J. Kunzler.
I believe I have it pronounced pretty close,

(14) SOPHIE NEBLE. I am Sophie Neble and I live five miles east of Sedro Woolley and I guess I am in a forgotten area out there because the diking stops at Woolley, the people up above are less worthy so we don't want to protect them just let them take care of themselves. They have all these problems down river. I remember in 19 - well lets say about 28 years ago there was a lady at LaConnor, her name was Mrs. Armstrong and they were complaining because the river was filling up, the bed was filling up and the river was getting up above the land below [redacted] around it and she

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

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

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

COLONEL POTEAT. We'll arresss that in just a minute.

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

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

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

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

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

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

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

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

of you or anyone else has any specific questions in that area some detailed technical questions on real estate, Bob is the expert so he will be around too. We have gone through our cards now let me see for a moment if anyone else wants to make a statement. All right sir. Let me get you to state your name since we don't have your card.

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

COLONEL POTEAT. Is there anyone else that would like to make a prepared statement. Yes ma'am.

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

COLONEL POTEAT. Anyone else wish to make a statement. I believe this lady in the back wants to make a presentation and then I will get back to the questions.

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

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

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

past winter, should we have needed it. That then raised the flood protection in the valley to about a minimum of five years. When I say five years, again, I am talking about a flood with a frequency of five years, that is in any one year it has one chance out of five of occurring. I believe I am correct, I believe that in December of 1975 by accident, the Upper Baker reservoir was low and we did get some flood protection there so it was just by accident that the Upper Baker reservoir was working in the December 1975 flood otherwise that flood would have been a little greater than it actually was. OK, so that brings us up till today. The authorized project which we are embarked upon in the advanced engineering and design stage in Fiscal Year 1977, this current Fiscal Year 1978 and Fiscal Year 1979 will provide for levees and channel improvement roughly from the Burlington Northern Railroad bridge down to the mouth of the Skagit River. These, will be let's call them rural levees, that will increase the protection for that area to about a minimum of 11 years - how does that sound to you? About eleven years. It will provide some protection for Mt. Vernon. There does remain a very serious problem of urban flooding in part of Mt. Vernon, Burlington and perhaps Sedro Woolley, but the authorized project ends at roughly I-5 of the Burlington Northern Railroad bridge. Since there remains the upstream problem, since there is a substantial amount of sentiment that there should be urban protection, since the risk of loss is quite high in the urban areas and since it is a little difficult for us to plan the downstream project without doing some engineering on the upstream area, we are really doing the advanced engineering and design or a good portion of it for an expanded project at this time. Looking at urban flood protection for Mt. Vernon, Burlington

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

Congress, to study additional increments. We have no such study mandate, study authority, at the moment. That's kind of a quick summary. We already have a couple of questions floating around on the floor, lets see if my brain ~~thrusts~~ trust up here want to tackle that a little bit. There was a very good question here about "Will the construction of the levees ursurp valley storage so do speak and increase the flood levels downstream?" Now, who wants to tackle that? ~~Mr. Hogan~~, Chief of Planning for that operation

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 Dwain. I'm not sure that's even on. This is Dwain Hogan who is chief of Planning Branch.

OK, get the mic a little bit.

MR. HOGAN. We are taking a look at that in detail under certain conditions it could affect the water surface profile upstream of the project. Under most conditions I wouldn't expect it to but we are evaluating that and we'll be able to give you the answers to that, whether it will and how much and under what conditions in our summer workshops. One of the advantages of extending the levees upstream toward Burlington would be elimination ~~of~~ this effect.

COLONEL POTEAT. That's a very key question and one that gets extensive examination in the advanced engineering and design. The goal is to have enough channel capacity even though, lets say even though you do build levees and you don't have any flooding out to the side of those ~~your~~ levees like you did in the past but to have enough channel capacity, you see that you do not back up water upstream. That's the goal and of course, we are looking at the design and the precise layout to see if we can achieve that. Yes --- Follow up on that?

(21)

JOHN F. ROOSEN. John Roosen. I live on Beaver ~~Mark~~ Marsh Road. I would like to ask one of the engineers for a definition purposes, if it would be safe to say that if any given channel or waterway was deepened 2' would that have the same effect as raising a levee 2'?

COLONEL POTEAT. Who wants to take that?

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

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

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

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

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

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

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

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

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

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

COLONEL POTEAT. Anyone else.

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

COLONEL POTEAT. What do you mean hard core?

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

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

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

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

Ask Ernie to crawl out from under the chair

COLONEL POTEAT. This is what we hire these two guys for - is to prevent things you talked about.

this guy for,

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

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

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

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

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

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

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

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

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

MS. JONES. (Shook her head yes.)

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

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

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

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

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

MS. JONES. (Shook her head yes.)

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

(23)

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

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

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

as we can get right now, but we certainly hope that we will be able to improve it. ~~Thank you~~. Thats about all.

COLONEL POTEAT. Thank you very much. I see I am a little delinquent on our break and I apologize to you for that. Why don't we take ~~or~~ five minutes ~~ten~~ for a little stretch break or something like that, then we will reconvene here and finish up any questi

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

Hey don't walk away Forest, alright? Will the Avon Bypass pretty well take care of the

MR. BROOKS. I think the question asked pertaining to the Avon Bypass and what percent of the Sauk River could be carried by the Avon Bypass. Obviously it would be determined by what the final design size of the Avon Bypass was but in our previous studies of the Avon Bypass it was pretty well decided that the most feasible project was about a 60,000 cubic feet per second channel capacity on the Avon Bypass which would encoupled with the levee and channel improvement project give us about 180,000 cubic feet per second downstream of Sedro Woolley in the channel capacity. I think we can get some sort of comparison on what could happen is that the flow from the Sauk River in the 75 flood which 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.

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

COLONEL POTEAT. What about the tide thing - who wants to handle that? the degree

MR. HOGAN. The design of the channel, the lower portion of the channel would take into consideration the high tides that would be expected to occur during the storm so the upper portion, or the lower portion, of the diking system would be high to accommodate this. This is a standard type of thing that we get involved in, in dikes in the vicinity of the mouths of rivers. It isn't anything new or outstanding to us. Really isn't anything highly romantic about it to talk about it will be considered and included in the design.

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

MR. HOGAN. The most feasbile site probably the lower Sauk, but I don't want anybody to get excited because there hasn't been a great deal of study involved. There have been some damsites identified and the potential for them has been estimated. No recent activity or studies has been made. When were the last studies? (mid 60s) In the mid 60s was the last time this was looked at.

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

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

(25) MR. HULBERT. I would like the Colonel or you to comment more about

Bob Hulbert,

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

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

there is very little, very, very small pool in that and it is usually just for flood control and it will go up ~~1e50~~ 150 feet from 10 or 20 up another 150 feet during the flood and then we let it out in a week or two. It sure creates a muddy scar on the side of the mountain for a few days until the rains come and washes it off but that would be the type of thing that would be looked at, a dry dam that would provide fish passage. It would be a single purpose flood control structure. That would cost a handfull of change and I am just not sure that there would be the flood control benefits that would justify that. I don't know, but it would be, its chancy. Now we are not looking at the Sauk, we will not look at the Sauk, unless the Congress passes some study resolution for us to look at that but, you know, it is a difficult problem. You saw the old column up there the amount of water coming out of the stretches that are regulated that was very small just a couple of little yellow slabs ~~on~~ up top. Its all that unregulated stuff you see that gives us the problem, that's the Sauk problem but I don't know how to handle that. That's more confusing than anything else, probably but that's the situation. You're next.

~~NAYETTA~~ Eunice SUMMERS. I am ~~Hayetta~~ Eunice Summers and I was really interested in what this recreation you are going to have - if you are going to do that we should defend ourselves. We are down on ~~Fry~~ Fir Island and right now we have to contend with the duck hunters, that ~~[illegible]~~ on the ~~Bay there~~ bait eggs and now if we have hondas, and fisherman, what all, we won't have any fences. We have a problem with that, you know cutting wires now. cows and

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

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

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

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

tea leaves now and then if anybody wants to stand up and elaborate on that I would be ---

MS Neble — Colonel Poteat. How about — let me persuade you to go over to that microphone over there

MS. NEBLE. I am Sophie Neble again and I am against any recreation in agricultural areas because when the city people come out there they can't open the gates they have to push through the fence and if they open the gate they never close it and if the cattle get out and hurts them then the farmer is being sued so if they want recreation on those dikes, that's fine, but keep it in the city limits.

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

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

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

MS. NEBLE. Keep them away from the farmers.

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

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

OK. Good.

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

(29) MR. BOETTCHER. You haven't made any mention of the storage capacity that flows up the Nookachamp River and have you any figures on that 1' 2' 3' above now I mean the problem will be terrific in that area but if the dikes are high why the water is going to run that direction I am sure.

Colonel Poteat. VERN COOK volunteered to — oh - you going to slough it off on Drain.

MR. HOGAN. I mentioned earlier that we were making detailed hydraulic studies to determine if there is any backwater effect. Frankly I dont expect there to be any but we'll be able to give you the answers to that this summer at the workshops.

MR. BOETTCHER. (Shook his head yes.)

Colonel Poteat. alright.

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

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

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

(31) EINER C. KNUTZEN. My name is Einer Knutzen. I live in the Burlington area. I farm about 1,500 acres of land in the Burlington-Edison area and tonight's the first night I have seen this and by the picture I am wondering if you are proposing the dike to hit the Burlington Hill? - can I look at this right? I have a farm now where your dikes start. We get flooded in that Sterling area quite often and at one time we tried to get into District 12 and go on up toward Sedro Woolley with it but some way or another it fell through and I can't help but be a little concerned that right now the best possibility for a flood on the south side of the Skagit River is coming through that Sterling area going across the railroad track we have had to sandbag that track every time we get a high river and several hundred acres under water before of course it gets to that river but I am wondering if you are going to dike from the Burlington Hill to where the dike ends now and the way it looks on the picture that's I'd never -

the way it looks and I am wondering.

COLONEL POTEAT. Lets put that to the brain ~~thrusts~~ Trust over here — huh — He doesn't look very smart, But he sure is. does he

MR. COOK. The alternatives that were considered we had to pick ~~Fooled~~ Fooled him, Fooled him again. some place to tie it off that was reasonable and we looked at several places to come up with some reasonable estimate of costs but as shown in the brochure we went back to the Sterling Hill and looped back over to the Burlington Hill for any backwater ~~feedback~~ feedback so that's what is shown on the brochure. As a matter of fact where it will actually be tied off or whether it will go straight up to Sedro Woolley will be dependent upon of course, cost, benefits backwater profiles that you heard ~~a little bit~~ alluded To earlier. We are having some computer model tests run on backwater and water surface profiles. It all has to be tied in so that it doesn't affect others adversely but what is done is supported in good measure by the benefits for the costs made. But directly its over the Sterling Hill and back to Burlington as you see it on that presently and that's what the estimate is based on. You are right as the water rises up there it does get close to those tracks I guess our estimates show about 140,000 150,000 c.f.s: it starts to tip over the tracks and go down in the Samish Valley and if the water continued to rise more and more water would go down the Samish and more and more water would be shifted down [redacted] the main Skagit and start to split and that's about all we know about it now and you know that for sure - you've been there.

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

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

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

well, if you would

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