Skagit Flood Risk Management Working Group
Meeting Notes
December 12, 2000

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Meeting Notes

The third meeting of the Skagit Flood Risk Management Working Group was held on Thursday, December 12, 2000 from 9:00 AM to 4:30 PM in Hearing Room "C" of the County Administration Building in Mount Vernon. A copy of the agenda is included in Attachment 1. The meeting began around 9:15 am after the attendees had an opportunity to sign in, acknowledge others and take their seats.

I. Introduction and Adoption of September Draft Meeting Notes

Valerie Lee, the facilitator, began the meeting by reviewing the suggested changes to the September meeting notes. **Lou Ellyn Jones** reviewed her revisions that included clarifications of three statements that she made in the December meeting. The group entertained a suggestion to reduce the length and detail of the meeting notes. It was decided by the group that the notes should remain at their current level of detail. **Ron Malmgren** had one minor revision to the notes as well as a clarification of the units listed on page 16. All Working Group participants approved the suggested revisions.

II. Update of Public Works Activities

Jackie Vander Veen explained that the November meeting had been cancelled because of changes in the Public Works department, namely Sky's departure. Jackie expressed her confidence that this change in the schedule would not negatively impact the group's progress. Jackie is currently the acting manager for the project and reports to Dave Brookings.

Jackie informed the group that she has been actively educating the community about flood risk. She has made presentations to a broad range of community organizations including Burlington's Citizen's Advisory Committee for School Boards; the City Councils of Mount Vernon, Burlington and La Conner; and the Skagit County Association of Realtors, among others. In addition, to increase the current level of flood awareness within the County, she has helped ensure the publication of newspaper articles and encouraged the local television stations to air the flood video on a frequent basis. **Dave Brookings** asked about feedback from citizens. **Margaret Fleek** noted that she had borrowed the County's presentation slides to conduct a series of neighborhood meetings. In total, she had spoken to aproximately 100 people. She also noted that several citizens are actively attempting to raise the level of awareness in the community.

The facilitator noted that there were a few new faces in the group and asked all participants to introduce themselves. A list of the attendees is included in Attachment 2.

Dave Brookings stated that Skagit County (the County) had lost a valuable employee when Sky Miller left. He said the County was in the process of moving forward and would begin the interview process the following week. He stressed to the group that the County is still focused on this project and that its focus has probably increased. Dave expressed his own personal enthusiasm and dedication for moving the project forward.

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The County would be meeting with the Army Corps of Engineers (Corps) and the Colonel to ensure that the project is on tract. Dave also informed the group that the County is not conducting construction projects because of Endangered Species Act (ESA) issues. **Richard Smith** asked for clarification of the ESA issues. **Dave** explained that the County was trying to be a good leader in conducting salmon enhancement projects, but that, even enhancement projects were not being approved by National Marine Fisheries Service (NMFS) because of potential impacts to sensitive species.

Dave quickly reviewed his credentials with the group. He has been with the County since 1987 and has served as the Surface Water Manager since 1995. In 1998, Dave became the Public Works Administrator. Even though he has moved to a senior management position in the Department, Dave has kept an active watch over the development process of the flood management plan. This is a large project for the County and Dave feels excited and obligated to ensure that the process continues to move forward.

III. Presentation of Information

A. Lou Ellyn Jones

Lou Ellyn Jones stated that the Fish and Wildlife Service (FWS) sent a letter to the Corps regarding the alternatives discussed by the group to date. Lou Ellyn wanted to inform the group of FWS's concerns and offered to send a copy of the FWS letter to any of the participants who would like to read it. Lou Ellyn explained that flood control actions could have an adverse impact upon fish. Lou Ellyn stated that she likes the County's approach, which is to craft a plan that is a win for flood control and a win for fish.

Lou Ellyn explained that fish have adapted to a system with a variety of natural processes. The Skagit River system previously had large floodplain storage and a large amount of vegetation along the riverbanks. In this system, the water would spread out laterally from the river during a flood causing the water to have a gentler rise. Currently, the river is channelized by the levees, causing the water to rise quickly and destructively. Any efforts that the County and the Working Group take to regain the original flood plain function will help the fish population levels because it restores their natural habitat. Setbacks and ring dikes are alternatives that would benefit fish. Non-structural alternatives, such as relocation and early warnings, are also good. Lou Ellyn noted these value statements are made in regards to fish and river function.

Lou Ellyn then addressed the bypass alternative. The bypass could have potential benefits if there are year-round flows in the area. However, the bypass has a high potential for impacts to the eelgrass beds in Padilla Bay. She suggested that the group bring in an expert, such as Rom Tom from Battel, to discuss and review the impacts of increased silt levels on eelgrass. Lou Ellyn also cautioned that the bypass could act as a flume sending the juvenile salmonids out to the estuary before they could acclimate to that environment. The Department of Ecology (Ecology) is looking at minimum flows in the Skagit. A bypass would remove water from the river, thus impacting minimum flows. The bypass may solve the flood problem, but it is less of an incentive for fish than

levee setbacks. Additionally, the creation of a bypass may encourage people to build in the floodplain.

Lou Ellyn addressed the potential creation of a storage area in the Nookachamps. She noted that the storage would require the construction of another levee that will further restrict the river. The frequent low floods of the area, which would be prevented by the new levee, create important habitat areas for fish.

Questions

Jackie Vander Veen asked about bull trout and how the FWS would analyze a project on the Skagit with respect to concerns under the ESA for bull trout. **Lou Ellyn** replied that benefits to salmon are benefits to bull trout because the habitat requirements are similar, though bull trout are more exacting in some requirements. Also, adult bull trout eat other fish, including salmonids. She further explained that bull trout use the higher areas of the Skagit for breeding and the lower stretches for migration. Anadromous bull trout carry genes up the watershed to isolated populations of bull trout, allowing for an increase in genetic diversity. However, the levee system can flush these anadromous fish out of the river system.

Bull trout, a native char, spawn from August to November. Bull trout and the Dolly Varden are treated as one because they are identical in appearance. Bull trout need very cold and clean water and are more sensitive to these parameters than other salmon. Bull trout egg incubation in the gravel is normally 100-145 days and juveniles remain in the gravel after hatching so that their time in the gravel from egg incubation to emergence may surpass 200 days. As a result, they are more sensitive to siltation, which can smother the eggs. The anadromous bull trout move downstream to the ocean as juveniles. Other bull trout utilize all parts of the river system. Lou Ellyn informed the group that currently there are a large number of individuals from the FWS who are trying to identify where bull trout are found. Among these is Jeff Chan who is a bull trout expert at FWS.

Dave Brookings asked if the letter from FWS was an official position of FWS or if it was a response to the brainstorming activities of the Working Group. Dave noted that the FWS was a part of the planning process for flood control. Under the Fish and Wildlife Coordination Act, FWS is required to take part in the planning process. This coordination is an appendix to any environmental impact statement (EIS). **Lou Ellyn** clarified that the report required under the Coordination Act is an independent review of the EIS. This report can influence whether or not Congress authorizes a project. FWS writes planning aid letters, such as the one written to the Corps, throughout the EIS process to assist with this coordination. These letters are the standpoint of FWS. The Corps in turn provides funding to the agency for these coordination efforts.

There was a brief discussion regarding the length of the levee system in the Skagit River and how quickly bull trout are able to move through the levee system. It was estimated that a third of the river is diked. **Lou Ellyn** stated that she could not estimate the length of time it takes bull trout to travel the leveed section because they like to take refuge and

rest while traveling. She also pointed out that the estuary at the mouth of the river is important habitat; but because it is diked off, the fish cannot get to it.

The facilitator asked Lou Ellyn to review the ESA process including the jurisdictions of NMFS and FWS. **Lou Ellyn** responded that NMFS is in charge of the Puget Sound Chinook and FWS has jurisdiction over bull trout and bald eagles. Under the ESA, any time a federal agency conducts a project or a project is funded with federal money, NMFS and FWS must be consulted regarding potential adverse impacts to threatened or endangered species. This is called a Section 7 consultation.

Ed Capasso asked how the Skagit levee system impacted bull trout and how winter flooding impacts spawning. **Lou Ellyn** responded that she knew of studies regarding the impacts of levee systems on salmonids, but not specifically in regards to bull trout. She would also have to research the impacts of winter flooding on spawning activities. Lou Ellyn informed the group that there is a Recovery Team for bull trout composed of individuals from throughout the agency. The team is studying what recovery actually means for the bull trout.

◆◆ 15-Minute Break ◆◆

Stephen Pierce elaborated on the hydrograph that Lou Ellyn drew on the board during her talk. The hydrograph depicts how levees influence the rate at which a river rises during a flood. When a river is lined with levees, the river corridor acts like a pipe and the rise and fall of the water level is very steep and unnatural. Stephen informed the group that the Corps is beginning to soften levees by burying stumps. This will give the juvenile salmon refuges. **Chuck Bennett** inquired how burying stumps impacts the structural integrity of the levees. **Stephen** explained that the stumps are not buried in the levees but at the base of the levees. **The facilitator** requested that the discussion regarding design specifics be conducted during the afternoon session.

B. Dick Gersib
How to Approach a Problem

Dick Gersib began his presentation by stating that he was not proposing a solution to the Working Group. Ecology's purpose for presentations, such as his, was to provide groups with concepts and lessons learned. He said his presentation would discuss how these lessons learned could be applied to the group's work. The overall theme of his presentation was to look at how the group's work can fit into the larger salmon recovery framework.

Dick explained that it is important to look at the larger system and not just one specific issue when addressing problems, such as species recovery and flood management. If the larger system is not examined, only the symptoms will be treated, not the problem. The analogy of treating the symptom, not the problem, can be related to structural fixes and process fixes. In the past most fixes have been structural and, therefore, eventually need to be maintained. However, process fixes are self-maintaining. NMFS is using a process-based fix by establishing the 4(d) Rule, which focuses on the process instead of

specific habitat areas. The 4(d) rule establishes the rules under which all work must be conducted in order to prevent species takings. For example, it requires that, before conducting any recovery actions, the impacts of these actions to fish must be evaluated. Dick noted that his talk will focus on these fish restoration programs because in the past restoration programs have often been detrimental to fish populations.

Ecology is using a decision-making tool that examines the causes and effects of a problem. By taking this approach, Ecology has narrowed the causes for salmon recovery problems to five core elements. Of these core elements the movement of water through a system is the main driving factor. Changes in water movement will result in changes to all of the other factors. Dick reiterated that these core problems have to be addressed instead of the symptoms to create a truly viable solution. He stressed that the Working Group should try to address the core problems of flooding.

Dick noted that the salmon problem is so severe that if nothing is done immediately all of the fish will be lost. Both short-term and long-term solutions must be used to aid salmon recovery. To develop these solutions, one must first realize that systems are constantly changing and cannot be managed as static. Additionally, one must recognize that within a system there will be sections that are more sensitive to change or disturbance. It is important to identify these sensitive areas.

Dick provided the group with an example of this process or system approach to problem solving. He was a part of the River Basin Characterization Team (the Team), which was a diverse group of individuals that was trying to understand the Snohomish River basin as a whole. The Team's work was in support of a local government's salmon recovery activities. The goal of the Team was to look at the river basin's history and future. Although the river basin cannot be returned to its condition 120 years ago, this information can help determine the aspects that can be restored. The future must be examined to determine how development will occur and impact the system, not only in the flood plain but also above it.

For the Recovery Development Plan for water quality, the Team identified areas with no natural problems for water quality, small changes in water quality, significant quality changes and pre-existing problems. The areas with no natural water quality problems were periodically monitored for water quality. In the areas with small changes, monitoring stations were established to monitor base flow. Areas with significant changes required preservation activities including the identification of sensitive areas where water flow needed to be improved and maintained. Areas with pre-existing problems were targeted for retrofitting activities, which is the current focus of the local government.

Retrofitting, which will be done over the next 30 to 40 years, involves looking towards the future and targeting efforts to the areas where the most benefits can be made. Dick stressed that it is important to remember that different areas have different values. He went on to explain that the recovery of the fish required a network of refugia. To maintain/restore this network, the Team identified and protected areas with good habitat

and a strong fish population, examined the distribution of refugia to determine if it was adequate, and developed refugia areas where needed. Once this refugia network is in place, it must be expanded.

Ed Capasso inquired as to the criteria for judging if a recovery effort is successful. **Dick** explained that Ecology believes that it should not be telling Snohomish how to manage its fish. Instead, Ecology thinks that the locals know best. The situation about which he was talking was one where the locals needed help. The local fisheries agreed that the approach developed by the Team made sense and decided to use it.

Lessons Learned

It is important to understand the linkages of an ecosystem. A sound approach should include the identification of an ecological process and establish a context. For example, the Working Group should try to understand the floodplain system as part of the larger landscape. Dick encouraged the group to build upon the extensive work of others on the Skagit.

Dick noted that the scale of the problem should fit the scale of the assessment. The water quality level of the Snohomish was a result of a variety of influences across the watershed, not just one point. Therefore, the Team had to assess the system as a whole and then work its way down to the individual streams.

In conclusion, Dick noted that salmon recovery requires a focus on landscape recovery rather than single species recovery. This approach required an examination of the process, not the structure. Structural solutions can be different for different species, which causes conflicts within recovery. The process is what created the habitat/structure for an array of fish species; therefore, corrections/improvements to the process are good for all species. Dick noted that the Working Group is tasked with building its way out of the flood problem. He stressed that if the group uses structure-based fixes, those fixes should be built in light of the process so that it can maintain the system.

Questions

Margaret Fleek asked how long it took for the water quality project to be completed. **Dick** replied that it took six months for the modeling and three for the assessment. He noted that the modeling effort was not validated by a sediment study because such a study would have taken five to six years to complete. He also noted that many aspects of the modeling and data collection, such as identification of trajectory, were analyzed in parallel to move the assessment along faster. Dick stressed that it is critical for species recovery efforts to begin as soon as possible. Therefore, models need to be developed at an efficient rate then corrected later as the system is better understood. Dick stated that the value in modeling is that different sub-basins can be compared, allowing for the more critical sub-basins to be addressed first.

Ed Capasso inquired as to whether Growth Management Act (GMA) building predictions and the ranking of negative impacts to Chinook were incorporated into the water quality analysis. **Dick** responded that the only development items that could not be

predicted were logging activities and the construction of logging roads. All other development predictions were incorporated into the assessment. The local technical team had to make the decisions regarding which issues facing the Chinook were most important because they understood the various constraints better than Ecology.

C. Patrick Massey

Patrick Massey informed the group that the Federal Emergency Management Agency (FEMA) is currently changing its flood insurance rate maps (FIRMs) that regulate development activities. The original FIRMs, adopted in 1985, were based on mid-century data, making them very old and not as reliable. In its attempt to update these maps, FEMA has to be able to sell the new maps.

For the purposes of the FIRMs, FEMA does not recognize any levees unless they provide protection from a100-year flood and are certified by the Corps. FEMA also does not recognize levees that are in the planning stages. Pat explained that FIRMs usually have two zones: a floodway and flood fringe. The floodway is where construction cannot occur and is a smaller portion of the floodplain. The flood fringe is the portion of the floodplain where construction can occur as long as the lower floor is above a certain height. On the Skagit there is no floodway below Sedro Woolley because one was never established. There are two ways in which a floodway can be put on the new FIRMs. The first method is to establish a standard conveyance floodway in which no construction can occur. The second method is to have the floodway conveyance account for corridors that move water at a faster rate. Cities including Mount Vernon and Burlington will have to select how they want the floodway to be established. Patrick noted that the base flood elevations (BFEs) are going to increase as a result of these new maps.

Questions

Chuck Bennett asked how the new insurance rates will be implemented in regards to existing structures and what would be the new standards for building on fill. **Pat Massey** explained that existing structures would maintain their previous rates; however, owners will have to prove that these buildings are under the grandfather clause. He also clarified that construction can occur in the flood fringe although it may not be wise. Additionally, cities may want to protect their floodways and may not allow filling activities to occur in these areas.

There was a discussion regarding the level of political influence involved in the design of the new FIRMs. **Dave Burdick** noted that for the FIRM project to be approved it has to go through a public opinion process. **Bob Boudinot** stated that when FEMA originally started the flood insurance program, a political situation arose that resulted in the locals telling FEMA to leave. Bob thinks that scenario is unlikely to be repeated because FEMA is now mandated to alter its maps.

Richard Smith questioned whether the new maps would display the correct amount of water that spills over dikes during a flood because FEMA is not accounting for all of the

dikes. **Pat Massey** responded that they would not know that until the modeling results are completed. **Bob Boudinot** added that, without all of the dikes included in the model it would be assumed that flooding occurs anywhere along the river, which is not true. **Leonard Halverson** noted that by not accounting for the impacts of all dikes during a flood, FEMA was doing a disservice to the people up river because the presence of dikes causes their properties to flood. **Pat** responded that the Corps model would provide FEMA with information that is more accurate than what was used for the previous FIRMs.

Dave Brookings asked how Ron Malmgren's time will be divided between FEMA's work and the County's Feasibility Study (FS). It was explained that the FIRMs and the FS were two different projects and that the FIRMs work would not detract from the FS. **Pat Massey** also noted that FEMA has not even officially started the FIRM update.

The facilitator asked if probable failure was taken into account by FEMA. **Pat Massey** replied that it was not as only dikes that protect for a 100-year flood event are considered. He informed the group that FEMA takes this approach because in the past it got into trouble when making assumptions about failure rates. FEMA bases these maps on a 100-year flood event. If a dike does not protect for a 100-year event, it will either break or be overtopped during a flood of that magnitude.

Bob Boudinot asked if the rates ever changed because of previous claims. **Pat** responded that there is some shifting of rates. **Bob** noted that FEMA pays a lot of premiums for losses incurred during minor flood events. He noted that better flood protection should reduce these premiums.

There was some brief discussion regarding the standards that FEMA uses for developing its maps and the possibility of altering the national standards.

Corey Schmidt asked if FEMA could alter the FIRMs based on a topographical feature that happens to be dikes. **Dave Burdick** asked if the levees could be viewed as altering the risk zone and water depths without being considered as a means for flood protection.

Pat Massey informed the group that in the January/February timeframe there would be meetings regarding the establishment of a floodway. However, no schedule had been created for these meetings.

Lou Ellyn Jones asked about the status of a Section 7 consultation for the development of these maps. **Pat Massey** responded that NMFS does not consider this to be a federal action that requires consultation. For construction Section 7 consultations will be held, but not for the maps.

◆◆ Lunch ◆◆

IV. Update of Corps Activities and Review of Alternatives

Stephen Pierce provided the group with an overview of the Corps activities to date. In 1993 the Corps finished its reconnaissance study, which provided the basis for the current funding. The current schedule shows that the Corps will be finished with the EIS and FS in 2003. The project will go for authorization and appropriation under the Water Resources Development Act in 2004. The design of the plan will occur in 2004 and 2005. Construction is slated to begin in 2006.

Stephen explained that the goal of an FS is to capture the possible alternatives. The final solution might be a mix of these alternatives. A short list is created from the alternatives by removing those alternatives that are too expensive, have adverse effects or create no benefit.

Larry Wasserman asked about the scope of the FS. **Stephen** replied that it was to generate 100-year flood protection for the communities downstream of Sedro Woolley. This is based on the reconnaissance report. **Ron Malmgren** clarified that for the reconnaissance study, the urban areas were given the 100-year flood protection and the rural areas were targeted to flood, but less frequently.

There was a discussion regarding the City of Standwood being a separate project from the Comprehensive Flood Hazard Management Plan. The Corps representatives also discussed the Corps' new risk-based approach. The Cedar River project was the first risk-based project for the Corps. This risk-based approach attempts to maximize the benefits and involves a highly sophisticated economic analysis. **Ron Malmgren** stated that the Corps needs a short list of alternatives to pursue this risk-based analysis.

Stephen Pierce explained that once the Corps has a short list, a variety of analyses would be conducted including hydraulics, civil, soils, economics, real estate and costs of construction. **Larry Wasserman** and **Dave Burdick** inquired when the Corps would perform fish and environmental studies. **Stephen** replied that the fish and environmental studies were included as part of the design elements. Both mitigation and restoration efforts will be included in the short list. **Larry Wasserman** raised a concern that the fish studies alone would take 2 to 3 years and should be done as a companion to the civil work.

Stephen Pierce informed the group that currently the Corps is working to capture the alternatives.

The facilitator noted that she wanted to lay the foundation for the day's discussion. She emphasized that there should be no limits to what the group discusses because they need to seriously consider and examine the full range of ideas. The facilitator also stressed that the list the group creates during this meeting is not a complete or final list.

Stephen Pierce added that the purpose of the Corps' work since the previous meeting was to get an idea how the various alternatives help with flood management. He

explained that he was going to go through the various alternatives starting with those that provide the most benefit for the dollar.

The group entered a brief discussion on whether or not the model should account for the flood fight effort at Mount Vernon. **Dave Burdick** stressed that the group should consider not including the flood fight effort in the model, or at least consider the consequences of the effort failing. **Ron Malmgren** stated that the model currently includes the flood fighting effort as a success in Mount Vernon.

Stephen Pierce focused the discussion on the results of the Corps' work from the previous September meeting's brainstorming efforts. The levee setback was alternative number three. The levees would be set back using one of two methods: moving them 1,000 ft back or moving them 500 ft back and digging down 10 ft to increase the capacity of water that can be held.

Ron Malmgren noted that if the levees are set back 1,000 ft, vegetation could be planted inside of the levee system. **Jackie Vander Veen** and **Chuck Bennett** inquired as to how much vegetation could be added before the conveyance of the water would be impacted because conveyance is the goal. **Ron** replied that there is a give and take between achieving the benefits from vegetation and conveyance. The answer to their question depends on how much conveyance was needed. **Larry Wasserman** added that the Working Group was not generating a wish list. He stated that they needed to look at the alternatives with either fish or conveyance as the goal. **Ron** asked Larry not to think of the alternatives solely in term of impacts but also as what he would like to see happen in regards to benefits to fish.

Dave Brookings stressed that it was important for the group to be presented with the modeling results before a meeting allowing the participants to properly examine and review the data. Everyone agreed that the distribution of information prior to a meeting is the best approach for making the meetings as productive as possible.

Lou Ellyn Jones asked if setting back the levee on one side but not another would make a difference. **Ron Malmgren** replied that it is one option to consider and that the Corps would have to change the modeling card to examine that option more fully.

Ed Capasso inquired as to how the Corps accounts for impacts to facilities, such as the water treatment plant for Anacortes. **Ron** replied that the Corps has the ability to protect certain structures, which is also taken into account in the modeling effort.

Ron Malmgren informed the group that if they are only doing setbacks then it has to be along the entire system. At a later point the Corps can mix and match other flood management options. The group entered into a discussion regarding the modeling efforts and its ability to act as a screen for various alternatives that the group might consider. **Dave Brookings** suggested developing a matrix of all of the variables for the Working Group to use. Dave believed this might provide a tool to aid the group in thinking about the causes and effects of flood management.

Dave Brookings asked Ron what he considered to be the alternative that makes the most sense. **Ron** replied that it would be the bypass, although it was cost prohibitive. **Fred Buckenmeyer** asked which one was the most beneficial for the cost. **Ron** stated that it would be establishing ring dikes around the urban areas and letting the rural areas flood. **Fred** noted that the City has the funds to construct ring dikes around the West Mount Vernon Bridge.

The facilitator asked Ron to revisit the original options list that the Working Group developed during the July meeting. She asked Ron to give the volume of water for which each option would account during a flood event. This would allow the group to select a mixture of options to achieve 100-year flood management. **Ron Malmgren** explained that the river is a dynamic system and that the creation of one option will influence the other options. Therefore, two options cannot be added together to produce a five-foot decrease in the river level. **The facilitator** noted that this created a challenge for the group. She suggested that the group design the alternatives proactively to achieve benefits for flooding and fish.

Dave Brookings noted that the real challenge is to educate the public and the participants regarding the modeling results and what they mean. He stressed that the group needed to know the other variables, such as cost, environmental impacts and benefits, in order to make informed decisions.

The group also discussed the bypass. **Fred Buckenmeyer** noted that he did not remember the bypass as being a stand-alone solution. **Stephen Pierce** replied that the bypass would also require setbacks in order for it to work. **Corey Schmidt** and **Lou Ellyn Jones** raised the eelgrass issue. **Ron Malmgren** informed the group that even without the bypass water would be going to the bay. If the river were to flood tomorrow the dikes would fail and the water would flow to the bay carrying all of the contaminants from people's backyards.

There was a brief discussion as to whether or not setbacks can be put through downtown Mount Vernon. **Corey Schmidt** asked if the setbacks had to be the same throughout the system or if they could vary. **Ron Malmgren** responded that there could be a variety of different setbacks throughout the system.

Dave Burdick asked if the setbacks would do anything at all because of the constraints of the bridge on the river. **Ron** explained that they would have to look at how to widen the bridge corridor to make setbacks work.

The facilitator redirected the group to a discussion of how to work through the process in order to develop alternatives. She noted that the group has four or five more meetings to develop a list of alternatives for the Corps to consider for analysis. She drafted a list of variables that should be considered by the Working Group.

Variables to be considered:

1. Hydraulics
2. Economics
3. Environmental Impacts
4. Legal Issues
5. Politics

The facilitator noted that the politics variable could be left for the end of the process, while the substantive variables should be addressed first. She asked the group how they want to move through the process.

Larry Wasserman suggested that the Working Group look at variables as they move down the river from Sedro Woolley. When you hit a constraint, find the alternative that fixes it then move down the river to the next constraint. At each problem point there will be a variety of possible solutions that will allow you to move down the river. **Ron Malmgren** expressed that he thought Larry's suggestion was doable. **Larry** added that the other alternative was to state when something could not be done, such as not being able to move levees back more than 1,000 ft.

Stephen Pierce noted that the bridges had not yet been addressed in the design of the alternatives. The Corps will have more information on the bridges once they have started the structural work. **Larry Wasserman** stated that the bridges have to be dealt with one way or another.

Will Roozen stated only 130,000 to 150,000 c.f.s. can get through the railroad bridge at Burlington. He stressed that that particular constraint needs to be addressed. **Ron** replied that the bridges are going to be widened in the levee setback scenario. **Dave Burdick** asked how wide the bridges should be made for a flood to pass through them. **Ron** stated that he could not say exactly, but he estimated that 160,000 c.f.s. could be accommodated if the bridges were widened.

Bob Boudinot expressed frustration at not having exact numbers for how the various options will help with flood management. **The facilitator** asked Ron Malmgren if it were possible to have an interactive model that would provide the group with volumes during the meetings. **Ron** explained that it was too difficult to do that because too many variables have to be adjusted for each scenario. **The facilitator** suggested that the group develop various alternatives that were a combination of options for the Corps to analyze.

Ron Malmgren expressed his belief that the bypass would not be approved due to environmental concerns. **Dave Brookings** retorted that things have changed, making the bypass more attractive. As a result the bypass has to be considered as an alternative. He also stated that for any alternative to be approved, it should have benefits beyond flood management. Setbacks would have high mitigation requirements because regulations prevent construction activities along the river.

Leonard Halverson asked everyone to think about the bypass as a ditch that serves as an overflow area for floodwater. He noted that floodwater goes out to the bay naturally during a flood. **Will Roozen** suggested having the bypass be a ditch with water running out to the bay all year long.

The facilitator noted that many participants want the bypass to be kept on the board for consideration and further examination. She also noted that for an EIS the Corps would need to have a range of alternatives to evaluate; therefore, it would be beneficial for the group to work through all of the alternatives. The facilitator also noted that many resource agencies have real concerns regarding the bypass and setbacks. She suggested that instead of critiquing each option individually that the group develops 4 or 5 alternatives that contain a mixture of options.

Larry Wasserman informed the group that he would not reject the bypass outright because he does not know the specifics of it. He also agreed that negative alternatives should not necessarily be taken off the table until they can be further examined. Larry agreed that the group should develop two or three alternatives that contain two or three flood management options each. These alternatives will provide the group with a starting point for developing a stronger flood management plan.

Dave Brookings suggested that the County and some other individuals from the group get together with the Corps to develop additional alternatives for analysis. **Ron Malmgren** noted that he has a general feel for which options are liked by the group and was comfortable with developing additional alternatives with the help of the County.

The facilitator had the group break into smaller groups and asked each to develop two alternatives that are a combination of three or four flood management options. She also noted that before the next meeting Dave Brookings, Ron Malmgren and Jackie Vander Veen would meet to come up with an additional alternative for analysis.

V. Results from Brainstorming Session

The Working Group broke into three subgroups. Each group developed one alternative for the Corps to analyze further. **Leonard Halverson** and **Will Roozen** explained that their group was comfortable with the bypass as it was drawn on the map from the previous meeting.

It was requested that at the next meeting the group have sandwiches to allow the participants to mingle and brainstorm during the lunch break. Additionally, **Ed Capasso**

requested that the participants be given another set of maps that display the revised alternatives.

The Working Group participants agreed that they were comfortable having the County and the Corps develop additional alternatives for consideration and analysis. Leonard Halverson, Ed Capasso and Chuck Bennett volunteered to assist the County and Corps with the creation of additional alternatives. The group expressed that at this stage of the process they would rather be inclusive than exclusive.