

# King County Flood Hazard Management Plan Update Citizen's Committee Meeting # 7

MINUTES JULY 25, 2012

MERCER ISLAND COMMUNITY AND EVENT CENTER

FACILITATOR	Tamie Kellogg, Kellogg Consulting Inc.
NOTE TAKER	Melissa Plotsky
ATTENDING	<b>Committee Members:</b> Warren Halverson, Joe Herr, John King, Molly Lawrence, Martha Parker, Keith Swenson, Joseph Wartman, Brian Winslow. <b>King County Staff and Consultants:</b> Tom Bean, Steve Bleifuhs, John Engel, Priscilla Kaufmann, Brian Murray, Monica Walker.
NOT ATTENDING	<b>Committee Members:</b> Leonard Carlson, Bob Freitag, Dave Gashler, Nicole Hagestad, Gilbert Pauley, Jeff Randall, Jon Scholes.

## AGENDA TOPICS

5 MINUTES	WELCOME AND STAFF INTRODUCTIONS	TAMIE KELLOGG
	Tamie Kellogg welcomed meeting attendees and thanked them for participating, briefly introduced the purpose of the meeting, and had all members briefly introduce themselves.	
5 MINUTES	HOUSEKEEPING	TAMIE KELLOGG & BRIAN MURRAY
DISCUSSION	Tamie went over the July 10, 2012 meeting minutes. There were no comments or changes to meeting minutes.	
15 MINUTES	BIOENGINEERING ISSUE PAPER	BRIAN MURRAY
DISCUSSION	<p><b>Key questions:</b></p> <ol style="list-style-type: none"> <li>1. Should King County continue to employ bioengineering techniques and use large wood as a structural element of river projects given concern about recreational safety?</li> <li>2. Can bioengineering techniques and large wood be incorporated into projects and can public safety be addressed in the design and/or operations of the projects?</li> </ol>	
SUMMARY OF COMMITTEE COMMENTS	<p>The feedback on this issue paper relating to bioengineering drew the following comments from one Committee member: need to use rock at the toe; the County does not monitor well for safety resulting in the need to alter the County's Guidelines for Bank Stabilization document; not sure rip-rap is more expensive than wood; bioengineering is experimental resulting in three designs for Cedar Rapids project; wood does not increase flow resistance; wood rots and has limited lifespan; and recommends using the Stream Habitat Restoration Guidelines (SHRG) document published by WDFW in April 2012. Another Committee member, who lived on the Cedar river for over ten years, said he saw the wood in projects break loose during flood events. He agreed that bioengineering is experimental and needs more time to see what works and what does not work. Majority of committee members weighing in were supportive of updating the guidelines. Only a few Committee members provided feedback on this topic due to both a small turnout for this meeting and admitted lack of knowledge on this topic.</p>	
QUESTIONS/COMMENTS	KING COUNTY RESPONSE	
<p>There's a limit to the strength of roots in soil, even though they get stronger over time. A lot of the designs I've seen say to use rock at the toe of the slope. Do not depend on roots and soil. I have various comments on issue paper dated 7/25/12. Page one: I don't think the monitoring for safety was done very well. In the beginning of 2012, the County left hazardous eroding banks without fencing, which was partially added by the local citizens who also wrote to the county. Page two, third paragraph: The guidelines for bank stabilization projects, written in 1993 had to be altered because of pressure from recreation groups. See page 24, chapter 7 and page 27, chapter 8, where they say those configurations are no longer used.</p> <p>Yes, of course. We've been waiting for quite awhile. Page three, the fourth paragraph: On the biological approach. I'm not so sure that</p>	<p><b>[Tamie Kellogg]</b> Are you supportive of updating the guidelines, then?</p>	

frequent maintenance of rip-wrap is really true. I'm not so sure that rip-wrap is more expensive than the new approach. The new approach is so experimental that at Cedar Rapids we're now going on the third construction. If it wasn't experimental, we wouldn't have a third attempt, which will probably be successful. Page four, second paragraph: woody debris may include increased flow resistance. In other words, the water can go around the wood, where you didn't intend it to. It can happen. I'd like to see the documents admit that. Wood rots. It's not necessarily stronger after 5 years. Last fall in Wenatchee, Greg Koonce of Inter-Fluve, Inc. spoke about river engineering and he says, "the factor of safety for wood should be 2.0." He says that the lifetime of wood in a wet/dry environment is five years. He says that there should be a design justification document. He also said that what we've learned is that hydraulic engineers need to be included and that 3/4<sup>ths</sup> analysis needs to be included.

It's part of a video of a conference. I made notes as I watched this video. On your resources you gave us the ISPG published by WDFW. I suggest you use SHRG, also published by WDFW because it has a brand new safety appendix. It came out this year. I understand that it was written by someone at Inter-Fluve, Inc. I also want to make a comment on page 4, third paragraph: I thought it was really good. Those are my comments on your position paper on river management.

**[Tamie Kellogg]** Do you have a reference for that document?

I think this is a fairly scientific area. I'd defer to the people who really understand this. It's not for a property owner. We trust what you're doing.

I just had a question for clarification. So, the disadvantages to bio-engineered stabilizations are principally from a recreational domain?

**[Brian Murray]** I think that the life expectancy of wood and the potential for rotting, I think part of that is that wood is in the water year-round. In a sense, there's the potential to trade one type of maintenance for another. One of the main issues that we are running into, though, is the recreational impacts. You've got relatively urban river systems and there are a lot of people using them. Those people have varying levels of expertise with water use and are also used to fairly simple river systems that don't have a lot of complexity to them. Where we are manipulating them and changing them, there is area for some risk. That's one of the things we are really trying to address in order to reduce that potential problem. We don't want to solve one public safety problem and create another. We're really hoping to better understand recreational use in designing our programs.

Having lived on the Cedar for over ten years and experiencing a number of floods, the wood doesn't stay in place. We'll find the log with the chain on it in a pile somewhere. Whatever you're doing to put a lot of that in place, in a big flood event with other material moving, the water hits those things and they just become a part of the bigger raft of logs going down river. They don't seem to work well in some situations. I've seen them break loose a lot.

A 24-inch diameter cottonwood with its root wad weighs approximately one ton. When that bumps into something, it can cause a lot of damage.

The term bioengineering is something that means a lot of different things to different people. I think that some of Martha's comments are right on that there is a fair amount of engineering that goes into these structures. So, we have certain things like guidelines that are there, but they're not cookie cutter guidelines. You can't just pull them out of a book and stick them in the ground. You have to do a lot of thinking and analysis. But, bioengineering can be a few other things. One way it's used, is when you're incorporating vegetation into a bank stabilization project, where you want the plants to be integral with your stabilization technique. That's different from putting large wood in the river, which you may be putting in for habitat features, which may or not be part of your structure. You may put wood in your structure, but then you have the problem of how to anchor the wood.

<p>All these comments are good ones, in that we don't necessarily want to put wood in and cause more problems. Now, I work in other rivers, where we have more flexibility. And, we're okay with some woody debris because we view it as being a natural part of the system. For instance, in the Skykomish, where we have a much broader flood plain, a lot of room for the river to move around, and the river was moving all of the time anyway. We could live with some of that stuff there.</p>	
<p>I think that the one question I heard is "should we update the procedures?" And, I think, yes, by all means. I pretty much agree with Martha. King County has done a lot and I love that King County is a leader in this. But, it is experimental. When you do anything that is experimental, there's an increased chance that it's not going to work. While we didn't get into specifics here, but what I think it comes down to is that you experiment where it's safe to experiment and you don't experiment when the risk is too high. I think that's the intent. But, I think it does need to be very clearly understood that there is not a good, sound engineering consensus that this works. We're still proving it. And, we're going to prove it because we're going to find things that don't work. And, you find out things that don't work because you go for ten years and discover that it doesn't work. So you say, "Oh, that didn't work" and try something else.</p>	

60 MINUTES	SAMMAMISH RIVER, ISSAQUAH CREEK, AND CEDAR RIVER STRATEGY AND ACTION PLAN	JOHN ENGEL
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<b>DISCUSSION</b>	<p><b>Key question:</b> Has King County adequately identified the flooding and erosion hazards on the Sammamish River, Issaquah Creek, and Cedar River and developed a reasonable strategy and set of actions to address those hazards?</p>
<b>SUMMARY OF COMMITTEE COMMENTS</b>	<p>Committee members asked for clarification about city and county coordination and were told the cities generally implement the projects within their jurisdiction while the Flood District helps with funding. Questions were asked about whether dredging would be an option to consider for the Cedar River given the concerns from state agencies over the impacts to habitat. A Committee member wanted verification that the County was actually going to do work on the Lake Sammamish weir and whether maintaining weirs are covered under the Flood Plan. Will the Plan include the Pacific Fish Management Council recommendation to have 80 trees per mile of river in Western Washington, as well as clarify that hydraulic project approvals have to be issued by Washington Department of Fish and Wildlife before the County can do work?</p>
<b>QUESTIONS/COMMENTS</b>	<b>KING COUNTY RESPONSE</b>
<p>What was the purpose of all that reshaping the river near City Hall? The bank really changed.</p>	<p><b>[Brian Murray]</b> It was largely for habitat reasons. The City of Redmond was trying to make a more sinuous channel in order to have some side channel habitat areas for salmon, so that they can get some refuge as the adult salmon are coming back in the fall. The idea is to increase the connections to cold groundwater sources throughout the Sammamish, in order to create pockets of refuge from warm water for returning salmon. They're trying the best they can, with the room they have, to create that kind of environment.</p>
<p>A few meetings back, we were discussing the interaction between cities and counties. You didn't say it, but I'm assuming that the work that the City of Issaquah is doing is being coordinated with counties so that we're not fighting each other. Is that fair?</p>	<p><b>[John Engel]</b> Yes, I think that's pretty fair. We probably have less interaction with the City of Issaquah.</p> <p><b>[Brian Murray]</b> The projects that John described like the bank stabilization, that was a city implemented project that was a cost share. The basic idea is that within the city, the public works folks both know how to do the project and also how to get the permits much easier, since they're right down the hall. So, we play a supporting funding role, instead of an implementing role for that project.</p>
<p>I'm wondering about the sediment removal. And, what happened on the White River, where apparently some state agencies, WDFW, and the Department of Ecology stopped sediment removal at the Pacific and Auburn areas. So, how are we ever going to get sediment removal in these places?</p>	<p><b>[John Engel]</b> That's a pretty fair question. The way I'd try and answer that is that the lower Cedar River was straightened and dredged when they built it. So, I think there is some recognition that there is a need to do that among the</p>

	regulatory agencies. Now, that doesn't mean they are going to let us do it without significant mitigation. So when they did that the first time, they had to go upstream and build some spawning channels. So, we're anticipating similar requirements this time around.
Were you aware that just east of Issaquah that the State Department of Natural Resources is doing significant dredging and moving sediment on Issaquah Creek? It's a significant job. I stopped by because I was interested in what they were doing.	<b>[Priscilla Kaufmann]</b> They are replacing a culvert to make it more fish friendly.
In terms of weirs, just to clarify where we are with the situation on Lake Sammamish. If you could, I have seen on television where the City Council of Bellevue thought there was \$3 million contributed to help with situation on Issaquah Creek. Most recently, I think that Mr. Isaacson on the City Council talked about it and said he would do a lot of work there. My question really has to do with how much are you going to be spending there and is maintenance of weirs normally part of the flood control plan?	<b>[John Engel]</b> The short answer is, yes, we are responsible for the weir. We are budgeting for next year, for the transition zone maintenance and sediment removal, about \$450,000. That's the removal costs and the permitting costs and maybe some mitigation costs.
The document here doesn't seem to mention the relations between the County and the requirement by the Pacific Fish Management Council to have 80 trees per mile of river in Western Washington. The National Marine Fisheries Service is part of that. I keep wondering when or how or if we are going to find out the ultimate goal. I know that <i>is</i> the ultimate goal for ecological reasons. I would like to see this mentioned in the document and also the relation between King County and WDFW in that the hydraulic project approvals have to be issued by WDFW before the County can do work. It seems like there is a lot hidden and I'd like to get the public more informed.	

15 MINUTES	LEEVE CERTIFICATION AND ACCREDITATION	BRIAN MURRAY
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<b>DISCUSSION</b>	<p><b>Key Questions:</b></p> <ol style="list-style-type: none"> <li>1. Under what circumstances should the District consider taking on the long-term operations and maintenance responsibilities necessary to achieve levee certification and FEMA levee accreditation? What benefits and costs should be included in making this determination?</li> <li>2. Under what circumstances, should the District consider taking on a larger role than operations and maintenance for certification efforts?</li> <li>3. How should the District determine the appropriate level of service for levee systems in different parts of King County? Which of the three approaches described in the issue paper are most appropriate? Are other approaches preferable? Should the approach vary by basin? What analyses should be included to inform decision-making regarding the most appropriate level of service (e.g. engineering design standards for safety, cost effectiveness, feasibility, opportunity costs, short-term versus long-term actions)?</li> </ol>
<b>SUMMARY OF COMMITTEE COMMENTS</b>	<p>One Committee member stated strongly that the insurance industry is ignoring FEMA's mapping that shows areas behind certified and accredited levees are not at risk by mapping those areas out of the floodplain. The insurance industry uses a two-tiered system using the 100-year and 500-year flood elevations and then making sure the levee is constructed to US Army Corps of Engineers standards. Considering a levee as "accredited" by FEMA is not adequate and the private commercial insurance industry does not recognize any of the levees in King County. The recent revisions to the National Flood Insurance Program includes a lot of requirements of agreement on what the standard should be and public outreach to people behind accredited levees. Previously the Boeing Company did not consider flood events that might exceed the 100-year flood because they were confident Howard Hanson could provide the protection. Now they have to rethink that assumption. There is a fair bit of consensus in the professional community that is reflected the American Society of Civil Engineers' Policy Statement 529 that certification is something professional engineers don't have a lot of confidence in. The King County Flood Control District should only take on the operation and maintenance of structures they have some confidence will meet a specific performance rather than insurance standard. As for "performance-based standards," they can offer some benefits in savings in engineering and construction, but there needs to be the recognition that the savings come with a tolerance for some impacts and damages. In the context of flood engineering, there are regional scale problems that require consensus among all the stakeholders, which is different from an individual property owner or business taking on the risk for their own building, as in earthquake performance-based engineering. It is hard for Boeing to make a decision about certification and accreditation because the question is presented as an "either/or" scenario (accreditation or not accreditation) rather than debating a specific levee design standard. When was King County informed that they needed to provide the documentation that the levees on the Green River were certified by a professional engineer?</p>
<b>QUESTIONS/COMMENTS</b>	<b>KING COUNTY RESPONSE</b>

<p>I'm going to point out something that I'm seeing across the country. Increasingly, we are ignoring FEMA's claims because they are saying something is fine and we go out there and it's not. With this whole certification thing, FEMA has basically washed their hands of things and if some engineer or some contractor goes out there and says that things are good, then it's good. And that's bullshit. But that's the reality. So, with us, we're dealing with industry and we're increasingly ignoring them [FEMA] because they are losing any validity that they had. When I look at this, I think you need to go to these higher levels. I no longer trust insurance based. I can't. At the same time, industry needs it. We have industry there where if we don't get to these upper levels, industry is going to leave.</p> <p>We use a two-tier system. We look at a 100-year and we look at a 500-year. That's what we're looking for as far as water surface elevation. Our starting point is Corps of Engineers standards. We can have deviations as long as we think they are soundly defensible. But, if it's certified, it scares the heck out of me.</p>	<p><b>[Brian Murray]</b> I'm curious, what do you advise the clients of the businesses you work with? Do you look at a 500-year or a 200-year or a 100-year?</p>
<p>The Bothell one or 205?</p>	
<p>Neither one of them. Right now, I don't credit any one of them. I don't trust either finding.</p>	<p><b>[Brian Murray]</b> The North Creek one that is mentioned in your issue paper in Bothell is privately certified. My understanding is that FEMA has bought off on it.</p>
<p>I think that if King County wants to have industry within King County, they are going to have to go to those higher levels. That's just reality.</p> <p>You have to keep the public informed. The public has got to know. Otherwise, they'll forget. My people were going out and people are saying "oh we're safe" when they weren't.</p>	<p><b>[Brian Murray]</b> What about the outreach piece?</p>
<p>I would start with the new statute. The new NFIP bill that was passed last month. There's a lot in there related to mapping. Things like, there's an F02, where the Corps and FEMA get together and actually reach an agreement about what the standard should be. There's a lot of stuff about requiring mapping and residual risk. There's a lot of stuff about public notice requirements.</p> <p>In the final version that was adopted? Not in the version I read. But, okay.</p> <p>That was the ultimate compromise, right? But there is a movement afoot to try and make them aware. What is the actual physical delta between 100- event and a 500- year event? And, I know that the answer to this is probably very specific, but it is a cost question, right?</p>	<p><b>[Brian Murray]</b> The residual risk part got excised.</p> <p><b>[Brian Murray]</b> There was a requirement that the insurance would change to an actuarial –</p> <p><b>[Tom]</b> It is very site specific, but we're talking about on the Green is about between 2 and 3 foot elevation instead of 500 vs. 100.</p>
<p>What does that do to the cost of the project?</p>	<p><b>[Tom]</b> That's a very big question and we will get to it.</p>
<p>Who does the levee certification and accreditation today? Is it the City and the King County or is it the Army Corps of Engineers?</p>	<p><b>[Brian Murray]</b> That's a very good question. The current federal regulations say that there are basically two parties who can do the certification, the stamping of the packet. One is the Army Corps of Engineers and the second is a private engineer. The Corps has basically said that they are not in the business of doing certification of their own volition. If folks want them to do the certification, they're willing to do so if you pay for it, but they encourage you to work with a private contractor. That's the certification piece. Accreditation is an action by FEMA. For certification and accreditation, it needs to be officially done by the NFIP community, a local government with land use authority. So, a flood district does not have land use authority. In this model we'd be working with and supporting maybe the City of Kent or the City of Tukwila -- a flood plain jurisdiction that is seeking to have a levee be certified and accredited. For example, Kent is looking for us to sign onto the O&amp;M piece, the overall package that their private engineer has stamped and that they, as a city, are sending</p>

	<p>on to FEMA. It's not the most clear and clean system, but it is what it is.</p>
<p>Currently you don't have a very significant role so if you decide on these papers and what have you, you probably have to do another proposal in terms of head counts and budgets. Could you do a pilot -- something small -- somewhere to see where it works and how it works?</p> <p>We have a facility in Tukwila where we train customer pilots. If we have a challenge with respect to a levee being wiped out [muffled], we'll probably move that facility. Not to scare you, that's just an observation, because we can't afford to lose it. If we want that facility there, because the economics from the City's point of view, they want companies in the valley and they [Boeing] support the same industry and industries that are a substantial base to the economy and the US economy.</p>	<p><b>[Brian Murray]</b> Question – and this relates to what John brought up -- does Boeing look at a higher flow event than a 100-year?</p>
<p>We didn't even consider that until a few years ago. We never looked at it as we didn't have to worry about it. We should have, but we never did – until it became a viable scenario. The reason we never did was because Howard Hanson was always here and most of us haven't seen the Green activated. We've never seen it flood, so who cares? Except for when the dam may not be there. We could not afford to lose those facilities to water because it would impact our clients dramatically. The only alternative action was to move. We could not afford to put walls around the place. It would impact our bottom line and everyone else in valley has the same concerns. When look at these two questions, we have to look in that context.</p>	
<p>To respond much more directly to the first two questions and then I'm going to make a comment about the third. It seems to me that there is a fair bit of consensus in the professional community – and I think that one of the other references made here is to the American Society of Civil Engineers' Policy Statement 529 that represents the view of a lot of the membership that certification is something we don't have a lot of confidence in. That was already discussed tonight. I think it's almost an arbitrary standard and I don't think we should take on long-term maintenance and operations to meet this arbitrary standard. Under what circumstances should the District take on this O&amp;M role, I think we should decide what is an appropriate standard that you really feel comfortable getting behind. I think that should guide how you would take on O&amp;M obligations. And, then, I just want to say one thing and clarify performance based goals and maybe provide some context. In addition to being more rigorous and quantitative, one of the big benefits of performance-based goals is that they are often much cheaper. This came out of earthquake engineering, where we traditionally work with a 500-year, instead of a 100-year standard. It's a relatively high standard for something that happens infrequently. It's very expensive for the private community to build for a 500-year earthquake. So, the owners started to say, "We can live with a little bit of damage, if can have a lower design standard, but it's very expensive for us to build to a 500-year standard" That gave rise to this idea of performance-based engineering. In the context of floods, it might be that we could have one or two feet of water in a basin for two or three days. And, if people can live with that, then we can go with a lower return interval for the flood protection system. That's really one of the other benefits. I think that it's very similar to Number Two, it's just that it's really much more of a cost-benefit kind of analysis. I know it's a confusing concept and it's very technical, but I just wanted to provide the context that it was actually driven by private owners who wanted more cost effective choices.</p> <p>Yes. The thing that makes that more difficult in the context of flood engineering, is that it involves regional scale problems that require some type of consensus among stakeholders in that zone. On the earthquake engineering zone, Boeing may say that for their manufacturing facilities, they need to be able to repair the damage within two days and design for an earthquake level that will allow us to meet that performance standard. Here you are now working with the community and trying to get people with different, competing</p>	<p><b>[Brian Murray]</b> That relates to the comment that Bob Freitag made at the last meeting about designing resilient communities. Basically, the analysis would be that you may decide that you're willing to live with one or two feet of water for X amount of time in a developed area, because you understand that the impacts would cost less than the cost of building something to contain it. It's more of a conscious decision where you weigh those pros and cons and transparently present it to folks so that they understand that, yes, we are going to get wet under these circumstances, in this area and for this amount of time, because it's more tolerable than the cost of doing the fix.</p>

<p>interests to come to a consensus on what is an acceptable level of water they might take on in their community. That is a tougher prospect.</p>	
<p>The part that doesn't work about this dialog for me is that you're not working in environment where Boeing or the region can make a decision. You're working under a National Flood Insurance program. It would be great if everyone could agree to a standard. The flipside is that they're going to be subject to a whole raft of additional regulations that make that not possible. I like the idea of it very much. I'm a little weirded out by the fact that this is characterized by an either/or discussion. I could see choosing a certification standard, an accreditation standard, and choosing to get a few feet wet.</p>	<p><b>[Brian Murray]</b> I think that in this context, it would be if Boeing and all of the businesses that depend on Boeing require a higher level of protection for our facilities or we'll need to move somewhere else that is safer, then it has massive implications for other businesses that rely on Boeing and for the regional economic economy, as well.</p>
<p>The original Flood Plan was adopted 2006. And, you guys got the letter from FEMA in 2004 or 2005 that you needed documentation for accreditation?</p> <p>It was just before Katrina that the memo came out. Someone made a decision, right, when you did the original Flood Plan not to have certification and accreditation language added. Why was that?</p> <p>But somewhere in the middle of the Flood Plan process, they told you that it wasn't.</p> <p>But the certification question never came up until probably the 2006 Committee. We didn't even think about it, because we knew we had problems. And, we knew that they were probably going to be de-accredited. And, we all accepted that. I think it was almost kind of a given in 2006 that, yeah, that's what the County does. We knew they were in trouble with the whole goal of this thing in many ways. One of the goals with getting a funding mechanism was to get us back up to a level we needed to be at.</p>	<p><b>[Brian Murray]</b> I don't know.</p> <p><b>[Brian Murray]</b> To my knowledge, at the time that everything was recognized as accredited. So, it was not really an issue.</p> <p><b>[Brian Murray]</b> I think that when you look across the country, when FEMA started going around and asking us to do that, most other communities also did provisionally accredit levees and just said, "We'll just keep it at this status while we promise to work on things."</p> <p><b>[Tom]</b> I'd like to jump in on this because I can offer a little bit of history on flood mapping countywide. We've dealt with the levee accreditation issue long before the correspondence that you mentioned, whenever it came out in the mid-2000s. We've been mapping since basically our 1993 Plan. And, we said in 1993 that we needed a program with mapping because FEMA wasn't doing it fast enough and we really needed a better idea of the flood hazards, so that we could help people design and build their structures not to be damaged. We've been doing that work for a long time for that reason. When we did the Raging River, it has levees that were previously mapped as accredited. When we did the Tolt River, it has levees that were previously mapped as accredited. When we did the South Fork Snoqualmie, it has levees that were previously mapped as accredited. North Fork Snoqualmie, same story. Everywhere we've gone, this has been the same issue. So, when we started talking about the Green River Map Update, we knew it had to be done, the old maps were poorly made. We knew this was going to be huge.</p>

60 MINUTES	GREEN RIVER STRATEGY AND ACTION PLAN	TOM
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DISCUSSION	<p><b>Key question:</b> Has King County adequately identified the flooding and erosion hazards on the Green River and developed a reasonable strategy and set of actions to address those hazards?</p>
SUMMARY OF COMMITTEE COMMENTS	<p>The Committee sought clarification on the release rates for the Howard Hanson Dam and the required design standard for the levees. They asked what the probability was that these levees will meet the conditions contained in the Motion that has been adopted related to the District taking on the role of Operations and Maintenance. Further clarification was asked about how risk-based maintenance compared to the Operations and Maintenance standards required for accreditation. One Committee member asked if King County and the City of Kent were on the same page on this issue or at odds. It was pointed out that the agreement for Howard Hanson dam was to put wood and gravel in the river downstream of the dam for a period of 50 years, and asked this be reflected in the minutes. Will the Plan recommend seeking accreditation for all the levees on the Green River? A Committee member stated that between the FEMA mapping and the Biological Opinion for the National Flood Insurance Program, a lot of the industries on the Green River have contingency plans to move to other locations, which is not a better environmental decision. Finally, clarification was asked about plans for</p>

	river mile 41 to 44 at Flaming Geyser Park of which there is nothing proposed in that location.
QUESTIONS/COMMENTS	KING COUNTY RESPONSE
<p>I'm confused by this. Does this mean that the Army Corps of Engineers was telling you that these are the amounts of water that they'll let over in these flood events? And, originally, they said they'd let over 12,000 in any of the events?</p>	<p><b>[Tom]</b> First of all, I should be clear that these are FEMA documents I'm pulling from, with the exception of the last one, which is our study contractor, relying on advice from the Army Corps of Engineers that they got directly and personally by the same person who produced this FEMA study. So, the Army Corps is not saying directly, "We're going to release that much more water." But, what they have said is that they will only have so much capacity. The volume is a finite amount. This is what they say we should plan for as a total. It's what they also expect to see come in below their release.</p>
<p>I'm confused about the delta. I heard you say that you would meet FEMA for certification standards when you did the initial construction. But, then you shift over to O&amp;M where we are getting our behinds kicked maintaining accreditation standards. When you ask us about which of the levee maintenance standards we want, can we do both?</p> <p>But, then, in order to meet the certification, you need to sign the O&amp;M agreement, right?</p> <p>It doesn't clear it for me when you are going to decide to accredit. It looks like you basically are looking for accreditation wording.</p>	<p><b>[Tom]</b> When it comes to the upfront design standards, we've always looked at to the Corps guidelines for levee construction and we've always done our best to satisfy those with stable levee construction, because no one wants to spend a lot of money building something that is going to fail. That's always been our approach and it remains our approach. It's not a new proposal. So, the levee could be certified. We haven't been taking that step for a number of reasons, one is that we don't really particularly support the binary Federal strategy, which would then tell people behind the levee that they can quit buying insurance. As Brad's question up front indicated, that's never really a good position with insurance.</p> <p><b>[Tom]</b> That's really an issue where somebody else is doing the design and we're looking at it, saying it doesn't meet the standard we would have liked and, even so, we're being asked to sign off on with them to promise that we will operate and maintain the facility that they built, even though it doesn't meet our standards. We'll watch as folks behind are basically mapped out of the risk, despite the fact that residual risks will continue there in a fairly significant way.</p> <p><b>[Brian Murray]</b> Basically, what the motion says, that's already been adopted, is that we are only willing to sign onto that O&amp;M if the facility is built consistent with our 500-design flow (and the 100-year for certification) and consistent with Corps levee performance standards, not the FEMA insurance guidelines. The FEMA guidelines are not levee design documents. We would want to see it built to meet those requirements and to achieve the three goals of the Plan, which are risk reduction, to support habitat and minimize long-term costs.</p> <p><b>[Brian Murray]</b> That's the question. The motion is about the grounds that the District will sign onto that O&amp;M role, as one piece of a city's accreditation effort, under certain conditions.</p>
<p>What is probability that you are going to meet those conditions?</p>	<p><b>[Brian Murray]</b> The levees that we are looking at are not just built to meet the 100-year requirement, but to exceed them and are designed to provide for a 500-year capacity. As</p>

	<p>Tom said, you don't get to accreditation until you've got a system. It's not just one link in the chain, you have to have the whole chain. So, you need to get to that level of protection with the whole system before you can get certified or accredited. In the short term, you've got challenges whether you're designing for a 100-year or a 500-year event if you want to tie into higher ground somewhere in a valley that has none. The only thing you can tie into are bridge abutments and railway embankments and FEMA and the Federal Highways have said, explicitly, no, it's not designed for that. That is one of our bigger challenges.</p>
<p>One of your criteria is funds availability. Are maintenance funds a part of it? Does money come with it?</p>	<p><b>[Brian Murray]</b> We're signing on to maintain a facility. To me, the money part is in the language of the motion, as it is now is that it has to be risk-based maintenance.</p>
<p>How does risk-based maintenance compare to the O&amp;M standard of accreditation?</p>	<p><b>[Brian Murray]</b> Generally speaking, repairs need to restore the channel alignment to its as-built condition.</p> <p><b>[Tom]</b> It is important to remember that the O&amp;M requirements for any certified levee are being set at time of certification by the documents prepared by the consultant doing the certification. They might say to repair every dent or they may say to look at it every five years. It's not going to be that silly, but there could be some variation in what they say in the document. In response to the Board motion, one of the cities has been preparing documents that say "risk-based decision by the County in the County's maintenance process."</p> <p><b>[Brian Murray]</b> The Federal requirements do not say what the O&amp;M manual requirements should be, just that you should have one.</p>
<p>Kent is doing one over here and you are doing yours. Are we in alignment? Or, are we right now coming into a situation where we're in conflict because they're trying hard to just get accreditation. It seems to me that is exactly the problem that we're talking about: trying to get accreditation when you don't have levee that's all that good. Are we on the same page – or are we on different pages right now?</p>	<p><b>[Tom]</b> The best answer is that in Kent you're looking at 12 miles of facility and there are places where their ideas and ours are pretty well aligned and there are other places where we are really divergent.</p>
<p>I just want to have the documentation show the 50 year program by the Corps of Engineers and Corps Water Utilities to put wood and gravel in the river, just below Howard Hanson dam. It started in 1994 and they've got over 30 years to go. I just want to see that it's mentioned so that everyone is aware of it.</p>	
<p>Fundamentally, what I'm hearing about the overarching strategy and the policy decision to be is that you want to get the levees on the Green both accredited and meeting a higher standard.</p>	<p><b>[Brian Murray]</b> The thing that we're proposing with the strategy that Tom described is to rebuild and rehabilitate facilities that we know are crumbling in a lot of locations, in order to meet the 500-year standard. So far, the Board has been willing to take on the O&amp;M piece of the accreditation effort, only in certain circumstances.</p>
<p>So, basically what you're saying is that we've got a whole bunch of pieces of the levee that are going to need certification and accreditation. But, they're not necessarily going to be accredited.</p>	<p><b>[Brian Murray]</b> And a jurisdiction could go and seek that certification.</p>
<p>As the County thinks about these issues, I hope they are thinking about what it means to drive the industrial district out of the industrial district. The irony of the consequences of the map and the BiOp is that</p>	

<p>if this happens all the big industries down there have said they will just move. And that they have contingency plans to be somewhere else already. From an environmental perspective, moving this industrial district from the valley to Issaquah or from the valley to some hilltop is not a better environmental proposition.</p>	
<p>I heard there was a creek coming into the Green from the west side that didn't have a lot of development. Could it be used for storage during high water? I don't remember the name of creek.</p>	<p><b>[Tamie Kellogg]</b> We'll put it down in the notes that you can get back to Tom with that information.</p>
<p>What's the plan for miles 41 to 44?  That would be Flaming Geyser Park.</p>	<p><b>[Tom]</b> Can you help me with location?  <b>[Tom]</b> We don't have anything planned in that area at all.</p>

**5 MINUTES GENERAL PUBLIC COMMENTS**

QUESTIONS/COMMENTS	KING COUNTY RESPONSE
<p><b>[Public Comment]</b> My name is Rick Mozzer and this is Bob Marshall and we're from Marina Point. I'm the President of the Board of Directors. We have 150 homes on the levee, on the trail and on the river down there. Some of what you've said has been helpful, because we were very concerned about the accreditation and the cost just to us. I know there's a much bigger issue, but it finally gets down to my house and your house. For example, this past year, we bought flood insurance from FEMA just for the structure. Everyone had to buy their own insurance. It cost us \$109,000 – that's about \$700 a door that we had to pay for a special assessment, which is tough to take. That's not being listed on the flood plain. I don't want to even think about what it would be if we were listed in the flood plain. I know that the City of Kent is doing a lot to try and get things accredited. If you just to consider that and consider what we have in terms of wanting to be able to buy and sell houses and be able to afford flood insurance, even \$700 is a lot, but I've heard some hellacious quotes if we were to be in the flood plain, per door, just to insure our community. People wouldn't live there. We'd have a heck of a time. If I could ask a specific question: there are places along the levee -- we are just downstream from the golf course, from River Bend. We like really like the way they did that and the way they put the levee on top. The City of Kent has got some plan that we keep seeing to put a huge pile of dirt behind the existing levee that would just about take away any of the property. It would be 20 feet high and sure it would stop the water, but is it worth it? I know you had said that your idea was more to do the sloping. Why are we getting one thing from Kent and another from here on the style of the levee.</p> <p>RM: Have you looked at how close that would be to the back doors of some of those homes?</p> <p>What I agree with is the public education part of it because there was one thing I had read about the proposal that was saying that the way we'll prove it to everybody that they are still in the flood plain is that we'll charge them for it.</p>	<p><b>[Tom]</b> I want to say that's one of the places where we are closest to the City in terms of design ideas. What they're talking about is the essentially doing the landward part of the larger fix that we might talk about in that same area. They're not talking about getting down to the toe of the slope and actually making sure that the river stops moving your way. That would be part of our project in that same area. They're talking about at least getting far enough away with the upper bank so that we could build stable slope between the levee top that they build and the stable toe that we build.</p> <p><b>[Tom]</b> We have. We recognize that it's very close. That's true. The truth of the matter is that when you start talking about what it takes to have a stable slope – I think we can all agree that we all want stable levees between us and the river. We don't want that levee to fail, just when we need it. So, if we need stability and if stability requires a three-foot horizontal slope for every foot of vertical gain, then it's going to be a long way from the river channel by the time that you get up to the top of that levee crest, which is a good 20-feet above the river channel.</p>