

King County Flood Hazard Management Plan Update Citizen's Committee Meeting # 2

MINUTES

JANUARY 10, 2012

MERCER ISLAND COMMUNITY AND EVENT CENTER

FACILITATOR	Tamie Kellogg, Kellogg Consulting Inc.
NOTE TAKER	Melissa Plotsky/Priscilla Kaufmann
ATTENDING	Leonard Carlson, Bob Freitag, Dave Gashler, Nicole Hagestad, Warren Halverson, Joseph Herr, John King, Molly Lawrence, James McBride, Martha Parker, Gilbert Pauley, Jeff Randall, Keith Swensen Staff: Steve Bleifuhs, John Engel, Priscilla Kaufmann, Tamie Kellogg, Brian Murray, Jeanne Stypula, Saffa Bardaro, Terry Butler
NOT ATTENDING	Susan Pelaez, Jon Scholes, Stephen Stanley, Joseph Wartman, and Brian Winslow

AGENDA TOPICS

5 MINUTES	WELCOME AND STAFF INTRODUCTIONS	STEVE BLEIFUHS
DISCUSSION	Steve Bleifuhs welcomed everyone to the meeting and emphasized how vital the Citizens Committee's work is to the Board. He emphasized that the approach toward the Plan update was to transition from the concept of flood control into one of looking at alternative strategies for reducing flood risks.	
5 MINUTES	INTRODUCTIONS AND REVIEW OF MINUTES	TAMIE KELLOGG
DISCUSSION	Tamie Kellogg facilitated a round of short introductions for the benefit of Committee members who were not at the December 13 th meeting. Tamie also reminded the Committee that the goal of the Citizens Committee was not to recreate the 2006 Plan, but to build upon the Plan by reflecting current realities and conditions and acting as a "sounding board" for Plan ideas and concepts.	
15 MINUTES	GOALS, OBJECTIVES & GUIDING PRINCIPLES	PRISCILLA KAUFMANN
DISCUSSION	<p>Priscilla explained the process for meeting the goals, objectives and guiding principles of the Flood Hazard Management Plan Update and defined each term. She then went over highlights of the 3 primary goals, 14 objectives, and 11 guiding principles.</p> <p>Priscilla also explained how the Citizens Committee should frame their approach to the goals, objectives and guiding principles as the following:</p> <ul style="list-style-type: none"> • Should the goals, objectives and guiding principles set out in the 2006 Plan direct the Update – or should they merely be used as a foundation from which to base the discussion on, while realizing that they may need to be updated to reflect current realities? • Objectives: Are we spending our money on the right actions? • Guiding Principles: Do you agree that these still reflect factual and technical statements? <p>She emphasized that the goals, objectives and guiding principles would be revisited in-depth at the end of the planning process.</p>	
QUESTIONS/COMMENTS	KING COUNTY RESPONSE	
Committee Member Comment: The comment that comes to my mind is on the first Principle: "The purpose of the Plan is to reduce risk to people and property." I believe that the term "environment" could be put in there because we are a risk to the environment as much as it is a risk to us and the biological opinion is kind of reinforcing that.	That's a good point. This is my summary so we'll go through the actual text in the plan, but good point. [Priscilla Kaufmann]	
Committee Member Comment: The only reaction I had was		

on number 9 ("Private property rights should be respected when providing flood protection.") because that's really the only one that relates to private property rights or landowners. The words "should be" – I think it could be stronger than that.	
Committee Member Comment: I would agree [regarding Principle #9] because the way it's written makes it sound as if, "We don't have to." I think the wording should be changed from "should be" to "must."	
Committee Member Question: Is it a good idea to write or email to you to help fill in thoughts? And, specifically, to whom should we address these to?	Yes. Absolutely. You can address them to me. [Priscilla Kaufmann] We would also like you to do this within the time period that we are addressing the issue. If you have issues about these items now, then send them now. Don't wait. [Tamie Kellogg]
Committee Member Comment: I'm looking at the last one where it says "adaptive management" and I hear "management for adaptation" – that clause "adaptive management" doesn't ring a bell with me. "Management for adaptation" would be something. I don't know if others have that idea also. So you're saying it's flexible, really.	I can make an attempt to explain it. It's more of looking at how we've been doing things and approaching things, assessing it and then adapting in the future -- how you do it based on the lessons learned. [Priscilla Kaufmann] Yes. When you know something different and you choose a new strategy based on the new information coming in. [Tamie Kellogg]

25 MINUTES	FLOOD HAZARD MITIGATION TOOLBOX	JEANNE STYPULA
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DISCUSSION	<p>Jeanne Stypula discussed the difference between flood hazards (inundations) and flood-related hazards (when a channel migrates across its floodplain), as well as the differences between physical and regulatory approaches to floodplain and floodway hazards and channel migration hazards. She also gave an overview of the Hazard Mapping Program, channel migration studies, and other flood hazards (including alluvial fans, landslides, lahars, and seismic hazards).</p> <p>The current needs, in terms of the flood hazard program are:</p> <ul style="list-style-type: none"> • Updated flood studies for the Upper White and Greenwater river reaches. (Zone A) • Continued checking of map accuracy in order to represent current day flood hazards. • Approximate hazard mapping for large streams (Soos, Boise and Newaukum Creeks) (Zone A) • Completed CM studies for the Cedar, Skykomish, and White rivers. • Increased technical approaches to preparing CM mapping so that it allows for improved application to the variety of physical settings. <p>Key Input Questions:</p> <ol style="list-style-type: none"> 1. How should remaining flood mapping needs be prioritized? Continue to update unmapped river areas; start updating large streams? Should large stream updates within incorporated areas be addressed by cities? 2. Should recent studies be prioritized to be revised per the newly proposed FEMA Levee Analysis and Mapping Procedures? 3. How should channel migration mapping proceed? Continue with current county methodology or review all studies and reprioritize all river reaches? 4. Should assumed boundaries to migration, (i.e. levees, arterial roads, railroads or sole access roads), continue to be considered "boundaries"? Should the "overnight line" be considered? 5. Should mapping of alluvial fans and lahars be prepared?
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QUESTIONS/COMMENTS	KING COUNTY RESPONSE
Committee Member Question: Are there state statutes or county ordinances which impose upon the government responsibility or preventing migrations or trying to lessen them,	I can answer your question I think this way: In the sense of channel migration, occurring in a river, it really is a reach length system

such as your bank issue here?

Does the government have the responsibility? [Tamie Kellogg: Does the government have a regulation that says tell them they cannot allow channel migration?]

Committee Member Comment: His question is different from what you are answering. He’s asking you: Is there a regulation that says you can’t let the channel move. Not, “can you contain it?”

Committee Member Comment: I think his question is beyond that. I know of no government obligation to contain a channel. I know of the opposite.

Committee Member Question: What is the purpose of identifying it if there is no responsibility to deal with it? [Green Sheet]

Committee Member Comment: With NFIP and how FEMA will accredit or non-accredit levees. Correct me if I’m wrong, but if communities are willing to accept a 100 Year levee, what that does is say, “We accept the risk of development in this area. And, so that’s something people really need to be aware of. As the government only has a responsibility so far. FEMA’s job is not to make people whole after a disaster. [Tamie Kellogg: This is going to be a great conversation when we get to it. For now, go ahead Jeannie.]

characteristic. Bank stabilization is sometimes very site specific. This property owner might say, “I want to protect this area of my bank right on my parcel. They can apply for permits to do that – federal, state, local permits to attempt to get permit approval to do that. Many times, though, in a channel migration setting in a river – it’s moving across its floodplain. So, right now it might be eroding right here, based on channel migration study and the characteristics of what’s happening, this channel might start working up here and run around – not only with that site specific bank stabilization project, but should there be other back channels or something else that sets this in motion. So, I don’t know if I’m quite answering your question, but yes you could attempt to get permits to do that – [Jeanne Stypula]

I believe – and I might have to call to clarify – but I do believe that in our county code we do have language that prohibits bank stabilization within our severe channel migration area. [Jeanne Stypula]

NOTE: The code does allow new bank stabilization in the severe channel migration hazard area, but only under very limited circumstances to protect public roads, private roads if the only access to the site, and primary dwelling units when there will be no impact on other properties and meets certain standards.

There is one state obligation for local jurisdictions to identify areas of channel migration – but not to restrict them. [Priscilla Kaufmann]

Committee Member Comment: The map you showed on that one foot rise – I read that thing a couple of times and you said that King County has a zero tolerance. It actually has a .01 tolerance.

I don’t actually understand what that means. Does that mean that somewhere along the river, you can come in and crunch the river down so that it will rise a foot anywhere along it – or does it apply to anyone who wants to come up and build and they can’t do something that causes the river to rise? It’s not very clear to me what that means.

That’s if you constrict it, right?

That’s how we apply zero. [Jeanne Stypula]

Both. When you do this with a mathematical procedure – you have a cross section and you can at that location squeeze it in. In flood study models to do this with the FEMA floodway, you do it all along the reach. You block out this area from flow and the only place for the water to go is somewhere else. [Jeanne Stypula]

Yes. We’re going to get into technical talk, but it’s a backwater situation, so it’s backwatering up and this one foot rise will then backwater up the system. If you make it one foot higher here and it backs up, you’re shifting that flood hazard onto the property upstream. So at King County, zero

<p>So this is what you're doing with the modeling?</p>	<p>rise – or .01 rise – the concept there is that we don't want to pass on an impact. [Jeanne Stypula]</p> <p>Yes. We assume that this zero-rise floodway is equal to the 100 Year Floodplain for the purposes of mapping. Unless you go through the modeling exercise and do this. And, we do require any floodplain development to be compliant with zero-rise, as well as with compensatory storage. [Jeanne Stypula]</p>
<p>Committee Member Question: Some time ago, some of these river banks were rip rap. As far as I know, the county isn't doing anything about maintaining them. Is there any plan to do that?</p> <p>When are you going to get the money?</p>	<p>In our 2006 Flood Plan, we have quite a variety of capital improvement projects that actually address all of these 500+ facilities in the county along 119 miles of revetments and levees that we are actively prioritizing to figure out how to fix and repair them.</p> <p>Well, we got that money in 2008 when the Flood Control District was set up.</p>
<p>Committee Member Question: There have been a lot of development going on in the Snoqualmie Valley for the past 10 or 15 years, and every time a development comes up there's no mitigation for downstream people because the flood hazard is minimal, based on somebody's analysis. This analysis as far as I know has never been done over the whole Valley. Taking into consideration all these different development and so forth going on in the valley, none of these studies has done one overall study. I was wondering when the county is going to do that?</p> <p>I think that the plan should address pulling all the pieces together into one.</p>	<p>Well, that's a long answer on how to address that. I do have a new flood study on the lower Snoqualmie that's sort of the overall picture on a site-by-site parcel basis. We do require, again, that any fill replacement be compensated and checked for zero-rise. So there are different ways that we address that. For an overall comprehensive study that you're talking about, I'm not aware of that being undertaken at this point on that scale.</p>
<p>Committee Member Comment: In terms of priorities, we're talking about doing some mapping that would trigger some codes and ordinances generally. If you do them for that reason, codes and ordinances in general only work if you have a developing area. They have no effect on built out areas, they have no effect, obviously, on an area that is never going to be built or is slowly developing. So, I would like the minutes to reflect that priority should be given to – anytime you do a mapping that is going to be a trigger for a code – that you look at developing areas to maximize it.</p> <p>Committee Member Comment: I understand that. But the zoning code has no effect at all unless there's a change of condition. So, by saying the map is going to do something, the map then triggers the code – and then the code has no effect at all in a built out area.</p>	<p>To clarify, our code exists, and then the map is the tool to implement the building standards.</p> <p>Right.</p>
<p>Committee Member Comment: In terms of what this gentleman said here, you can look at downstream effects. You can do that. And, also, frequencies are based on historic information. You can base it on scenarios. So, it's based on information that was, it's not based on information. For instance, as the watershed changes, that's not reflected. Future anticipated change is not reflected nor is future anticipated snowmelt. If you want to, you can instruct the modelers to use information that isn't totally based on historic information.</p>	

Committee Member Comment: [Re: Question 1] I think this requires studying maps. I think the answer cannot be answered here by us with no maps available of what's being developed and what's already developed.

Well, that's one thing, but air views or maps to see where there are buildings and with information as to requested permits. Without understanding that, I don't see how we can answer this question.

That reminds me that as we go through each one of these, since this is a discussion of overall what's in the flood risk reduction toolbox to help set the stage for some of the more detailed issue papers and action plan updates in future meetings, one of the questions here is not just, "Do you have an initial reaction?" but "What additional information would you like to be able to provide a more informed response?" Your point is well taken. [Brian Murray]

If there is additional information you need on a topic to make a decision on something, just let us know. [Tamie Kellogg]

To clarify, would it help if you had a graphic that showed where we have all the recent flood studies, where we have all the recent channel migration studies, and what's not done? Is that the kind of information you'd like to see? [Jeanne Stypula]

NOTE: Much of this information is on-line through King County's I-MAP system at <http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx> With this on-line tool you can use aerial photos for the base map, which will show the existing buildings, you can then overlay flood and channel migration hazards as well as other hazard and land use information. There is also the ability to search for permits on-line by permit number of parcel number at [http://info.kingcounty.gov/property/permits/PermitGlance/\(S\(t1vrdbv5iafviozo2xpwjg\)\)/default.aspx](http://info.kingcounty.gov/property/permits/PermitGlance/(S(t1vrdbv5iafviozo2xpwjg))/default.aspx) Since permit applications are not static, there is no mapping application to show pending permit applications since it would change daily. However maps could be prepared that showed permit activity in the past, such as by year or decade.

Committee Member Comment: [Re: Question 2] One of my first reactions is that we've just seen the first draft of FEMA's conceptual idea of what they think they're going to do. I'm afraid we're a long ways away from what they're actually going to propose. I guess my gut reaction would be, if you look at what you've done and you look at what they've proposed, if you don't gain a whole lot from spending hundreds of thousands of dollars for another study, I don't think you'd do it. If it looks like, yes, this is really going to benefit us, then you'd put it into the mix and figure out where to best put your money.

Committee Member Comment: It seems to me that some of those are really focused on levee analysis and procedures, rather than getting to the root cause of trying to mitigate risk. I think that prioritizing all your mapping based on total risk rather than on some new analysis technique or something you could do or in an unmapped area. An unmapped area may not have any risk to it or minimal risk, compared to other places.

Committee Member Comment: [Re: Question 5] Given the recent history of Mount Rainier and Mount St. Helens, how do

I should maybe clarify that. USGS actually has mapped lahars. It's not mapped to

you prepare a map for something like that – and who’s going to give a rat’s ass whether we have a map of them if something big happens? I just don’t think that’s where we should be spending money.	sufficient detail to develop some sort of regulation or zoning code related to it. So part of our issue is -- is that something we should pursue or not? It’s pretty important to the people in Orting. [Jeanne Stypula]
Committee Member Comment: I think that the current maps that the USGS has are adequate for the purposes that they are doing. When you talk about translating that into a zoning ordinance, you’re talking about something that has kind of a remote chance of occurring – less than maybe a 1% chance. Also, how do you mitigate for a lahar? Usually, it’s evacuation. You don’t need the detailed mapping for evacuation.	Putting it in context, Pierce County does regulate lahars in the Upper White river – and they do have an evacuation warning system, although there aren’t any horns actually up there. But they do, in their code, prohibit larger sized buildings such as community centers, churches in those lahar areas. [Jeanne Stypula]
Committee Member Comment: I think someone said this before, but I wouldn’t bother with remapping the Green until we know what FEMA’s new levee policy is going to be. And, I think it’s going to be awhile.	

25 MINUTES	MANAGEMENT OF LAND USES	PRISCILLA KAUFMANN
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DISCUSSION	<p>Priscilla Kaufmann addressed issues regarding the regulatory and non-regulatory approaches to county floodplain management, including: NFIP requirements, state standards, and the Bi-Op requirements for the Puget Sound. She also discussed issues facing city adoption of the 2006 Flood Hazard Management Plan and enforcement options.</p> <p>Key Input Questions:</p> <ol style="list-style-type: none"> 1. The 2006 Flood Plan requires local jurisdictions to adopt the minimum standards under the National Flood Plan Insurance Program (NFIP) and encourages adoption of higher standards recommended by FEMA Region 10. Should the Flood Plan require standards that are higher than the minimum NFIP? 2. Should the use of Flood District funding cost-shares be tied to jurisdictions’ regulatory and land use programs?
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QUESTIONS/COMMENTS	KING COUNTY RESPONSE
Committee Member Comment: In terms of use, large lot subdivisions tend to increase impermeability. They tend to end up in actually having more discharge than smaller lot subdivisions. So, there’s a great body of research saying that as you create large lot subdivisions, you also create a larger network of roads, a larger network of mega-homes, a larger network of impermeable land. Dr. Lynn Robinson just finished a paper on that and it’s fact, not just policy.	
<p>Committee Member Comment: Are you saying that the 2006 Plan allowed cities to beg out of it, if they didn’t want to adhere to it?</p> <p>I would say that as a minimum, we need to include the cities in the King County Plan. I don’t think we can let the cities sit out and do what they want to do.</p> <p>[Tamie Kellogg: You’re saying that if they’re included in the Plan, ensure they adopt the Plan?]</p> <p>Exactly. If they want money, they should adopt the Plan. They should make it a State regulation.</p>	<p>The cities are technically included in the Plan now. They haven’t taken the step to officially adopt it, other than the City of Kent. [Priscilla Kaufmann]</p> <p>They’re included currently.</p> <p>It’s already a State regulation.</p>
Committee Member Comment: I was really surprised that Kent was the only city that has adopted the Plan. That hurts for those of us who worked on it! Are the others just not bothering because they don’t think there’s an impact on them – or is there sound resistance?	A number of the communities have prepared their own plans. I think they think they see the County plan as being too big, too broad, too general. If they prepare their own plan, they can give it more detail.

	<p>That's what I'm speculating. I know that a lot of them have their own plans. As far as resistance, during the process we heard resistance from some of the communities because they said, "We don't want to adopt some of your standards like the requirement for compensatory storage, or the zero-rise standard." They said that they did not have the political will in their communities to adopt those standards. They said they wouldn't be able to adopt a plan if there were those requirements. [Priscilla Kaufmann]</p>
<p>Committee Member Comment I think we had multiple clients for this package and multiple clients when we're talking about whatever we're doing here. My first reaction to the first part is to say, I'd be very interested in knowing why your clients or partners aren't working with you on this. And, if they have a different perspective, maybe they should have a different perspective. How you can ask them for a higher minimum requirement is beyond me, when they apparently aren't accepting a lot of what's already going on.</p> <p>My second point would be, that I'd be really suspect of diverting resources of the County to each of the cities. The reason I'd be suspect of doing that, is that I supported money for the levies of the County to do the County work, but I don't want them to divert it over here to the city, while I'm being taxed by the city over here. And, all of a sudden, everyone is doing a lot of things, but none of them are closely intertwined. If you're going to do anything like provide funding, you better tighten up the partnership and not the overlapping of government agencies and groups, because as a client out there with my farm, I have the Indians coming to me and I have the County coming to me, I have the City coming to me, and I'm saying, "Gee, help me out, shouldn't someone be doing this kind of together?" My last point is simply that I would be suspect of supporting some activities unless you could do it on a really joint basis on a project or something like that.</p>	
<p>Committee Member Comment: So, I have so many comments that it's painful, but number one: Those who know me in the room because I've been doing a lot of floodplain stuff for the business community will know that the main reason there's tremendous resistance to all of this is the impact it has on economic development. Kent will resist adopting more stringent flood hazard standards when the County goes about re-mapping the Valley and suddenly the Green River Valley and the industrial district is subject to all of these regulations. And, suddenly, what has been the corridor's largest industrial district in the United States turns into a no man's land because businesses run – and they run from all of these regulations. So, there is another side to this story. And, I want to be sure that we understand the other side of the story to the extent that the flood plan wants to talk about adopting more restrictive standards – I think that's really relevant, but let the local jurisdictions decide. I'm also sort of surprised by the reference to the Bi-Op as a "standard" at this point, because it is not. I understand that King County has made tremendous efforts to try and implement the biological opinion, but it is not something that actually applies to the County as of right now. FEMA thinks it does.</p>	

<p>Another Committee Member Commenter: We're not trying to show that we're trying to implement the Bi-oOp, we're showing that we are in compliance with the Bi-Op.</p>	
<p>Original Committee Member Commenter: I think that if the County wants to do that in unincorporated areas, I think that's terrific. I don't think it's appropriate to use this vehicle to push that upon all of the other governments.</p>	
<p>Committee Member Question: What happens when these municipalities have standards which are less than the County standards and less than FEMA standards and there is a loss – that is, an insured loss. Does FEMA come back and subrogate against the municipality for payment of the losses they've had to pay, which could involve construction which has been below the FEMA standard or the County standard. Does anyone have any experience with that?</p>	<p>I might just say that if the community or city is a member of NFIP, they have to adopt the minimum federal standards for building codes, regulations, and floodplains. If a community chooses not to be a community in the NFIP, they're not adopting the federal standards, so then if there's some damage, there's no reason or mechanism for FEMA to come back to them. [Jeanne Stypula]</p>
<p>Committee Member Comment: If you're talking about a watershed, you're talking about a system. So you take one element – compensatory storage – so the County adopts compensatory storage ordinances, which means it holds water, which means that water doesn't go downstream as fast. So, you have all these cities along that watershed that are along that river. And, let's say that they don't have compensatory storage. So, someone down here can actually be flooded because they did not really store water that would have been taken away from flooding someone downstream. So, when you deal with a system, there's a definite relationship. When you're talking about a lawsuit, FEMA doesn't have those requirements. FEMA can't take any action. But, someone here was flooded and because we're getting pretty good with GIS mapping and so forth, they can actually point the finger at this large development up here that they're not including compensatory storage that released the water that flooded them. Then they can sue that person. That person, I'm sure, can then say, "Well, I wasn't required to do that because the City didn't adopt this Plan." Then they go to the City because the City should have adopted it, when they didn't adopt it. That link is getting easier and easier to prove. That's why I think we really have to give a lot of importance and consideration to having all the links of the chain working off of the same playbook.</p>	

25 MINUTES	RIVER CHANNEL MAINTENANCE	TERRY BUTLER
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DISCUSSION	<p>Terry Butler explained basic elements of sediment management, including channel monitoring, management actions, and current programs; as well as described the natural and constructed factors affecting sediment in rivers He also gave a detailed overview of sediment management efforts in King County, including channel monitoring, actions and ongoing studies.</p> <p>Key Input Questions:</p> <ol style="list-style-type: none"> 1. What are your comments on the approach we are taking to sediment management?
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QUESTIONS/COMMENTS	KING COUNTY RESPONSE
<p>Committee Member Comment: It's a Catch-22 system, because if you don't dredge the river, you're going to have a floodplain that takes all of the sediment out of all the surrounding properties and puts it in the river channel, which causes more flooding. If you dredge the river, and get rid of all the sediments, you wouldn't have floods, you wouldn't have to worry about it. You're not going to do that, I know that, so I'm just saying that if we dredged the rivers like we used to do it,</p>	

<p>50 years ago, you wouldn't have floods.</p>	
<p>Committee Member Question: Are the words "sediment management actions" euphemisms for dredging?</p>	<p>It could be. As I mentioned, sediment management actions can include a set of different actions such as levee setback and floodplain reconnection, raising houses or buying adverse structures and removing them, and in can also include gravel removal which includes dredging. All of these different actions can be considered if it's demonstrated to decrease flood hazard risk. [Terry Butler]</p>
<p>Committee Member Comment: Looking at Priscilla's definition of hazard and risk, it seems to me that the sediment falls into the definition of a hazard as it increases the risk of flooding.</p>	<p>Yes. Extraction of gravel would be reducing a hazard. If there are any houses along or any structures that get flooded because of sediments accumulating and increasing flooding, a flood risk reduction approach to that is means to buy out those structures and remove it. [Terry Butler]</p>
<p>Committee Member Question: With respect to levees, have you people done any cost-benefit analysis of the differential between removal of sediment between levees versus raising levees to accommodate the reduced freeboard?</p> <p>Are you aware of any studies that examine the cost-benefit of dredging versus raising the levees?</p> <p>I put in a steel post for keeping livestock -- a t-post, very close to the river, 35 years ago. And, now it's only about so high. But, the differential between the top of the bank and the bottom of the river hasn't changed. So, the sediment of the river has increased as well as the bank.</p>	<p>That is what should be included in one of those steps that says to evaluate the alternatives. [Terry Butler]</p> <p>I know of one that is in progress. Also -- the lower Cedar River was dredged in 1998, and the permitting process included an EIS and the EIS requires the consideration of alternatives, so I have to assume, although I can't recall specifically, that such a comparison was made. [Terry Butler]</p>
<p>Committee Member Comment: I would like to introduce the topic of climate change here. What's happening is the frost level is getting higher. So, the glaciers are releasing more sediment. The land that used to hold sediment stationary is thawing and more sediment is being released. And, so we have a probable greater budget than we have now.</p> <p>In terms of what you can do with sediment, you either spread the levee out, spread the river out so that the sediment spreads or you can confine it and that speeds it up to take it down, or you can take it out, or you can hold it in the upper watershed. I don't know of any other ways to do it. It appears that we're not holding it up in the higher watershed, in the future, less than we are now, so it's working its way downstream. I think that the committee that's looking at this is going to come up with some policies of tactical mining. It's extremely expensive to remove all the sediment of the entire river, you want to use natural forces to do it. I think this is a very big deal that the plan should look at. And, I think that some of the work with the committee you're on should be incorporated in here. And, my main point is that climate change is changing many things, but it's certainly changing the sediment. It's putting additional stresses on the forest that will create more dense sediment release. So there are some definite things that are happening in terms of sediment</p>	<p>Available information suggests that what you've said would be true. [Terry Butler]</p>

<p>mobilization that should be looked at here and that makes this a very big deal.</p>	
<p>Committee Member Question: I'd like to ask a question about PH's and is that why dredging was abandoned a long time ago – because of the nastiness that's underneath? (Salmon habitat contamination coming from runoff, pesticides from lawn runoff, etc.) My second question is after the bar is scalped, what happens to the leftover gravel? Can it be used later to create a more natural revetment? What else can be done with it?</p>	<p>I would say that the movement away from dredging had more to do with the effects on salmon spawning and impacts on spawning. Contamination issues would just add to that. [Brian Murray]</p> <p>Sediment extraction can be used if it's substrate composition. [Terry Butler]</p>
<p>Committee Member Comment: I think you have a tremendous human relations task about dredging. I think the general public and property owners feel that it's a no-no, that it's not going to be done anywhere. And, I think that can be a problem in the bureaucracy and a lot of organizations, where one thing is condemned so badly that it's not used where it could be meaningfully and purposefully used. With that thought, I would just attach to it that in the Upper Snoqualmie around Kimball Creek where we have a 40-acre farm, with three or four floods that come through it over the last few years, tremendous amounts – the farm and the wetlands that we have had been pretty well destroyed in a lot of ways. We've probably lost five or ten acres. The point is, that I think in certain situations, where you may have streams or unique situations in rivers, you should use dredging. And the reason you should use it is that it will improve habitat and decrease flooding. It will help out habitat because you will clear out a lot of the muck and everything that comes up really, really high. And, you'll have the same bird population and the same everything else. You can improve the flow of the creeks so that fish will come again because they aren't going up them now. In terms of people downstream the Snoqualmie River, the reservoir is no longer there because of the fill in of all the sediment. I think there really is a good, thoughtful use of dredging. If you take a look at the applications that are maybe mutually beneficial in a variety of different directions. And, I think there are several of those and I would support more dredging.</p>	
<p>Committee Member Question: As far as these studies on sediment, is this information secret – or can the public view them online?</p> <p>My problem is in section 4.3.1 Sediment Management – there's nothing here about economic losses. Up until the 1990s, the lower white river was mined for gravel and then it was stopped. What's the result? A lot of flooding in the town of Pacific. So, it's not just the things we've been talking about, it's actions that have happened in the last ten or twenty years that are causing some of the problems that people have. And, I do think the County should own up to it.</p>	<p>There are several links to completed sediment studies online that you can access. [Terry Butler]</p>
<p>Committee Member Comment: I've heard several speakers talk about the benefits of dredging. Taking all the sediment out of the river would not work. Rivers are in hydraulic and dynamic equilibrium, so you take out the sediment which actually uses energy. If you took it all out, suddenly you'd have rivers that have a lot of energy and you'll have channel migration. It has to get rid of the same amount of energy whether you take the sediment out or not. When you do these things, you have to be very careful because there could be a whole bunch of unintended consequences that are hard to model.</p>	

<p>Committee Member Comment: One thing I see in other parts of the country is high flow channels and low flow channels so that you can go ahead and do scalping without impacting the channel, but you do get out that sediment that occurs during a high flow. I'm throwing that out as something that it may be that it doesn't work well here. We don't have some of those dramatic fluctuations you have in the more arid parts of the country, so maybe we can't do that here. It's not something I see used much in the western side of the state.</p>	<p>Agreed. I haven't seen it. What comes to mind is the possibility of a levee setback project... [Terry Butler]</p>
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25 MINUTES	FLOOD PROTECTION FACILITIES	BRIAN MURRAY
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DISCUSSION	<p>Brian Murray gave an overview of structural approaches to floodplain management and explained the different contexts of flood risk reduction strategies. He also went over the multiple lessons that have been learned from recent King County projects and how they guide current and future projects.</p> <p>Key Input Questions:</p> <ol style="list-style-type: none"> 1. When should we pursue structural versus non-structural solutions? 2. In light of the 'lessons learned' regarding levee setbacks, what other changes are advisable to improve capital project design and delivery? 3. In constrained, urbanized environments, when should we pursue acquisitions necessary to rebuild levees and when should we consider alternatives such as floodwalls? <p><i>CLARIFICATION: Slide #52 on 'lessons learned' included a bullet on Recreational Safety. For clarity it has been amended on the powerpoint posted to the website to say 'Recreational Safety Outreach'. There is no question as to whether King County will continue with recreational safety actions and policies such as the placed wood public rule adopted in 2010; the issue paper will look at documented progress since 2006 and solicit input on possible additional actions.</i></p>
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QUESTIONS/COMMENTS	KING COUNTY RESPONSE
<p>Committee Member Comment: I have to object. There weren't two floods on the Cedar River at Cedar Rapids. The first failure of the project started at only 2000 CFS – that is not a flood. The 100-Year for the Cedar is over 10,000 CFS. This means that the design was radically wrong.</p> <p>So the coming project is going to spend more money. This will be the third attempt. It would have been a lot better if we would have designed it correctly in the first place.</p>	<p>Point well taken. I'll say it again, they were not adequately designed and it did mobilize at very low flows. [Brian Murray]</p>
<p>Committee Member Comment: I guess I would say that I would look at the levees differently depending upon what your goal is. If you're talking about levees that you don't plan to certify and accredit for flood mapping purposes, then you've got one set of goals and if you have levees that don't plan to certify or accredit for other purposes, then you have another set of goals. I would also like to see the accreditation recognized in the Plan as a relevant standard for some of the levees in the Valley.</p>	
<p>Committee Member Comment: I think with structural solutions, such as artificial levees, you're essentially taking a high frequency, but low consequence event and converting those into low frequency, high consequence events. What we learned from New Orleans is that the structural solutions like the eye-walls can be problematic, but there were dozens of miles of eye-wall systems that actually performed quite well and if you have an organized environment where development encroached upon the rivers, provided that they are properly designed, they can be solutions. So, I think structural solutions can be vital. A lot of the problems in New Orleans occurred when you had structural solutions abutting non-structural</p>	

<p>solutions, because there is a contrast in the erosion resistance. Things need to be very much considered in a system context.</p>	
<p>Committee Member Comment: I want to introduce a third element here. I spent my summer in the Netherland looking at what they do. They generally have two levees. They have a system where you have a structural system and then at a certain frequency it can overflow. The overflow is designed to absorb the energy so it then overflows to maybe a setback levee. And, there may be some uses in that interim that can be flooded once every 50 years, but you don't have to keep the 100-Year levee right there at that point. There are also areas that they're thinking of where they're combining floodplain management with structural levees so you take care of your most frequent events with those extreme events. And, this is really the medium resiliency. They are not failsafe but they are allowed to fail. The water is then distributed evenly; it then flows to a community that is elevated to take the flows from those extreme events. I think there is a third alternative that may be applicable in some areas, where there's less adverse impact.</p>	
<p>Committee Member Question: Who owns the rivers?</p>	<p>A committee member provided a web search during the meeting and stated that the State owns the river bed. Several entities can own the river via parcel ownership (counties, cities, private people and utilities, to name a few), and a state permit is required for activities that impact the bed of the river.</p>
<p>Committee Member Comment: On the Green River, another alternative to risk-based analysis is performance-based analysis. It's a subtle difference, but it is an important difference. With performance-based, you can work with the community to define what they can put up with in terms of flood water – for how long, how deep it can be, what are the impacts on human losses, capital losses, and so forth. Once that's defined, you then work backwards to then define what would the design be for the levee system. So, it's different from working with a 100-Year versus a 200-Year flood event. It's very much based on what a community can accept and tolerate.</p>	
<p>Committee Member Comment: You're saying that if you have a FEMA approved levee that the areas behind those levees are no longer assumed to be in the floodplain? That seems absolutely shocking.</p>	<p>I just have to say that's not a federal issue that won't be resolved via this plan. With NFIP they put in a 100-Year level of protection as something that could be certified and accredited so that the area behind a levee would not be subject to the insurance requirements or the federal regulatory requirements. The Green River levees were never formally certified or accredited, but they were considered to be accredited for the purposes of NFIP. [Brian Murray]</p>
<p>Committee Member Comment: I want the County to remember the plan by the Corps of Engineers and the City of Tacoma Water Utilities to place tons of gravel and large woody debris in the upper part of the Green River. They're sharing this responsibility. This program started in 1994 and is scheduled to go for 50 years. And, this plan is never mentioned in discussion on the Green River. I do believe that as time goes on, we'll find plenty of gravel in the Green River for salmon.</p>	

<p>Committee Member Comment: First off, Arnold v. Monday states that the State owns the river, that the underlying bedrock belongs to the State. It has been revisited and established again and again and again. Just so you know.</p>	
<p>25 MINUTES FLOOD HAZARD EDUCATION AND FLOOD PREPAREDNESS, FLOOD WARNING, AND EMERGENCY RESPONSE SAFFA BARDARO</p>	
<p>DISCUSSION</p>	<p>Saffa Bardaro went over current and past public outreach and education efforts, explained the need to reach all the differing river stakeholders, and explained the challenges to meeting the diverse communication goals. She also provided an update on the status of communication and marketing studies currently underway and those planned for the future.</p> <p>Key Questions for Citizens Committee:</p> <ol style="list-style-type: none"> 1. What other ways can we do outreach to the public?
<p>QUESTIONS/COMMENTS</p>	<p>KING COUNTY RESPONSE</p>
<p>Committee Member Comment: As far as resources go, are you considering apps for phones? It's so easy to do one now, we've got the State of Washington app, we've got one for all of the passes. It makes sense to have something for what's going on in the rivers.</p>	<p>Absolutely. That's something on my wish list – and app and a FaceBook page. Hopefully, those will be coming very soon. [Saffa Bardaro]</p>
<p>Committee Member Comment: One of the easier things to do is to take maybe one or two success stories – big success stories. It's always easy to dwell on the negative, but when we have a positive and a big win, if you try to do something in every one of the communities that you have those in and try to get it into the media – because you're selling a product in that sooner or later you'll have to come back to the taxpayer and say, "See, my product is really good" – and that's a good way to do it. People like to be successful and like to see big successes.</p>	<p>We try to do that. We try to not only do that ourselves, but we have a lot of really, really happy customers in our Flood Elevation Program and we're in the process of developing a video and doing a media event around that, to let people tell the story themselves. Excellent input. [Saffa Bardaro]</p>
<p>Committee Member Comment: In post-Katrina surveys, it was discovered that one of the reasons people did not evacuate was because they had animals and they couldn't figure out what to do with their animals and they didn't want to leave them behind. So a non-conventional partnership might be with pet-related organizations to see if they could potentially house pets, etc.</p>	<p>That's a great idea. We talked a lot about that when we were doing our outreach planning and key messages were "What are you going to do with your pet?" [Saffa Bardaro]</p>
<p>Committee Member Question: The State has a Twitter account, do you have one?</p>	<p>We have King County News. There's King County Alerts and King County News. King County News is just the everyday stuff and King County Alerts is specifically for emergency events. So, we do have those two. But we do not have one that is specifically for rivers. We've debated whether or not to separate it out and the current thinking is to keep it as just solid King County information so that people know where to go. The same question arises in establishing a Facebook page. Would we do one that's King County Rivers and it's year round information about River safety and projects and flooding? I'd love to hear your input. [Saffa Bardaro]</p>
<p>Committee Member Comment: There's an app for tsunami evacuation, where it tells you where to go, tells you where you are, and tells you where the closest route is and how you can get there. My question was, who looks at apps when you are</p>	<p>Yes. And, one of the segments of the population that we're trying to reach are the "Young & Invincibles" who don't necessarily feel they need to prepare – so that might be</p>

<p>evacuating and they told me that there's actually a body of the population who are actually tweeting while they are falling down from an earthquake – it's that much a part of our life now. I think there are some opportunities there that we didn't have back in the day.</p>	<p>the way to go. [Saffa Bardaro]</p>
<p>Committee Member Question: There's a very high percentage of Russian-speaking and Ukrainian people in the public housing units. Is there much translated into Russian?</p>	<p>One of our videos is. Not print material because we do this cost analysis and print is expensive but we've got the video up there and I'd love to share it with you if you have a network in that community. [Saffa Bardaro]</p>
<p>Is there a possibility of putting a URL on the printed material? You know, see this video in Russian...</p>	<p>Absolutely. [Saffa Bardaro]</p>
<p>Committee Member Comment: You had a number up there of how many people out there thought they were prepared. It's like 60% or 70%. The problem I run into consistently with our engineers is that we're going to go out and talk to some industrial plant and ask, "Do you understand your risk"? And my engineer is thinking six feet of water in the building. The plant manager I'm sitting across from says, "Oh yes, we're prepared." He's thinking of some street flooding. So there's this big separation of you're prepared but what are you prepared for?</p>	<p>That's a good point. In the actual survey results we measured things like, "What does that mean to you?" It informed us that in our next outreach effort, maybe we need to do things like give away free radios, because that's one of the number one things we told people to do. So it does help to really define "What does that mean to you?" [Saffa Bardaro]</p>
<p>Committee Member Question: What type of coordination do you have for helping people evacuate?</p> <p>I'm thinking of physically driving someone out of the area. What happens is that there are dips in the roads and all of a sudden you can't drive out. Of course, there homes are high and dry for awhile. What I'm asking is what have you done or what do you plan to do to be able to coordinate with the rescuer?</p> <p>So, do you inform people in your literature and outreach?</p>	<p>We do not. That would be the American Red Cross. We are starting to build a partnership with them in terms of communication outreach. We'll get calls in the Flood Warning Center from people who want to help and want to know where to go. We then refer them to the American Red Cross. It's not something that we would manage, but we could facilitate. [Saffa Bardaro]</p> <p>Let me ask you this: If I had a Facebook page, where people could post something that says, "I live at 230th and whatever and I can help somebody evacuate..." – do you use Facebook? ["No."] So then, I'm not sure what to do next and that is something... [Saffa Bardaro]</p> <p>I just want to clarify that we have our King County Warning Center and there's also a King County Emergency Communications Center and they're coordinating fire departments, police departments, the Red Cross, etc. When those types of 911 calls where someone is in their house and they're cut off and can't get out, people will use dispatch to get first responder-type help. [Jeanne Stypula]</p> <p>Yes. I'm more of an information broker, but the networks exist for other types of information and help. [Saffa Bardaro]</p> <p>Yes. The Flood Warning Center is listed in the literature. That's what we promote. [Saffa Bardaro]</p> <p>In our Flood Warning Center, we're</p>

	<p>providing information about the rivers and where we think it's going to flood. We provide information in our Emergency Communications Center so they can inform and coordinate the first-responders who handle the evacuations and rescues. [Saffa Bardaro]</p>
<p>Committee Member Comment: Sometimes the Council has meetings in the community on hot topics. If you were given a few minutes at those kinds of meetings, maybe that would help.</p> <p>I read the Green River study, why didn't you have any people representing commercial interests on that panel? On the lower Green, they're going to lose the most.</p>	<p>The intent of that external advisory panel was technical – to explore issues with the damn not working. We wanted engineers and scientists to let us know whether the projects we were pursuing were still appropriate, in light of the context. [Brian Murray]</p> <p>In talking about the Plan update and what sort of performance or risk-based approach we wanted to take, we are agreeing that that is a big part of the community. [Brian Murray]</p>

15 MINUTES	GENERAL PUBLIC COMMENTS/PREPARATION FOR NEXT MEETING	TAMIE KELLOGG/BRIAN MURRAY
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DISCUSSION	Tamie Kellogg and Brian Murray went over the schedule for upcoming meetings and support materials, and the decision was made to keep the rest of the meetings at the current location.
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QUESTIONS/COMMENTS	KING COUNTY RESPONSE
<p>General Public Question: I'm sitting here thinking about this whole thing. I've done a lot of mapping and maps can be very dangerous. What I see are a lot of 20th century methods being used in the 21st century. The world is not static. It a very dynamic world. I'm talking about time, space, flow, weather, climate change, population changes, economic changes and the cost-benefits of using specific techniques. The equilibrium of river systems is just one small example of the dynamic equilibrium of the world. I think there's really an opportunity for this committee to open the doors on the thinking, on the tools that they are using because we live in Seattle. This is the software capitol of the world. The methods of planning and modeling that have been used up until now are, like I said, very static. In putting something on paper that will be used for five years, you're creating something that can't change. But we have so many tools available in the world now that don't work that way and in concurrence with that, if we don't recognize that the world does not stay the same for 5 years – and it's definitely not staying the same with climate change – this committee could be the last committee that does this, because it could be the venue for creating tools and capabilities that evolve with the reality of the world. I really hope that opens the door for people to think about the economic conditions that could be the level, in some way. Is Boeing in Kent valley willing to find it? Is there somebody we could talk to at Microsoft? Or is someone at the University willing to write grants to create much more dynamic tools? Again, those are all just examples and I'd really like people to start thinking more dynamically.</p>	