

MEETING NOTES
Channel Migration Zone Citizen Advisory Committee
Wednesday, December 3rd, 2008
6:30 – 8:30 p.m.
Pierce County Central Maintenance Facility
4812 196th St. E., Spanaway

CAC Members Present

Thomas Magnan
Hal Michael
Jeff Barney
Kathy Hatcher
Jerry Harnish
Valerie Wilson

Ted Hill
Betty Zenkner
Mike Fenimore
Shelly Butterfield
Karen Willard

Staff and Speakers

Harold Smelt, PC SWM
Hans Hunger, PC SWM
Melissa Paulson, PC SWM
Dennis Dixon, PC SWM

Excused

Don Hawkins

Introductions and Announcements

The only public comment received between the November and December meetings was an observation that Pierce County's management of CMZs will have to be consistent with any new regulations imposed at the Federal level. A handout outlining some key "thinking points" for today's discussion was distributed ("12-03-08 Background Information").

November Flooding and Channel Migration Events – Hans Hunger, PC SWM

Hans gave a brief presentation on the recent flooding and channel migration experienced during the November 12th/13th storm event. In all Pierce County river systems, the peak instream flows experienced in this storm were lower than the flows seen in the December 2006 storm event (which was a 100-year, or 1%, flood). Although flooding was confined to the rivers and was not highly visible in the media, the storm resulted in approximately \$4.5 million damage to the levee systems. Damage to the levees included scour of rock from the levee faces and toes (requiring reinforcement), as well as full "blow-out" of stretches of some levees (requiring reconstruction).

Channel migration was most apparent along the Upper Nisqually where the river is unconfined and in areas where setback levees have recently been constructed. A number of homes (including properties owned by some members of the CMZ CAC) were impacted by channel migration in this event, and many roadways and bridges continue to be at risk. At both the Soldiers' Home and Ford setback levees, the Puyallup River has expanded to take up much of the newly available floodplain. In these areas, damage to private property and public infrastructure (including the levee systems) was minimized because the river is allowed a greater migration width. Based on these observations, a river system that can be allowed to migrate with no people, property or public infrastructure at risk is the most preferable and cost effective.



Where levees are necessary or not politically viable to remove, setback levees appear to offer less risk and cheaper long term maintenance.

Hans's full presentation is available on the CMZ CAC website: www.piercecountywa.org/cmz.

Evaluation of CMZ Mapping “Policy Calls”

To make the most effective use of the interests and time available, the group agreed to set aside the technical details of the CMZ studies (e.g., reach length, application of geomorphologic analytical tools, etc.) and focus discussion on the “policy calls” made by Pierce County that pertain to mapping of channel migration hazard areas. CAC members interested in taking a close look at the technical aspects of the mapping process are encouraged to do so on their own time. Pierce County staff will provide support to those efforts as appropriate.

The three major policy issues identified by Pierce County staff as needing evaluation by the CAC relate to: 1) The Historic Channel Occupancy Tract, or HCOT; 2) Tiered levels of risk; and 3) Permanency of manmade structures. For each topic, the general question for the CAC to answer is, “Was this decision reasonable, and if not, what issues need to be addressed to make it reasonable?” Specific questions are identified below.

To prepare for the CAC's final report to Council, Melissa encouraged the group to consider using the following as a discussion approach: a) define and clarify; b) frame the question; c) evaluate pros/advantages; d) evaluate cons/disadvantages; e) develop recommendations to address cons/disadvantages; f) identify other needs/issues.

Historic Channel Occupancy Tract (HCOT) – The HCOT is defined as the area where the active river has been observed during the period of photographic record (i.e., using whatever aerial photos are available to us, where have we seen the river to be?). The HCOT is used to calculate the base width of the river channel (“where the river is coming from”), which is then used to map channel migration hazard areas (“where the river could move to”). Geographic areas located within the HCOT are generally mapped as “severe” hazard areas.

The CAC was asked to address two specific questions: 1) Is Pierce County's definition of the HCOT reasonable? 2) Is Pierce County's use of the HCOT for mapping channel migration hazards reasonable? After much discussion, the group reached consensus that both the definition and use of the HCOT is reasonable. Advantages of this approach include cost efficiencies, defensibility of data and inclusivity of historic channel movement. Concerns raised about this approach include variability in the time range of the data, incomplete information and possible underestimation of the true movement of the river over time. The discussion is reflected more fully on page 5 of these notes.

Tiered Levels of Risk – Pierce County chose to map three CMZ hazard areas, based on a three levels of risk of channel migration: Severe, Moderate and Low. “Severe” hazard areas are defined as the distance the channel could travel from HCOT boundary over 5 years at a steady migration rate (10 years for South Prairie Creek). “Moderate” hazard areas are defined as the



distance the channel could travel from HCOT boundary over 15 years at a steady migration rate (20 years for South Prairie Creek). “Low” hazard areas are defined as the distance the channel could migrate in 50 years. Pierce County currently regulates only the “Severe” CMZ hazard areas.

The CAC was asked to address two specific questions: 1) Was Pierce County’s decision to make a distinction between the levels of risk (severe/moderate/low) reasonable? 2) Are the migration intervals (5 years, 15 years, 50 years) reasonable? In the interest of time, discussion on this topic was tabled until the next meeting. A related question about Pierce County’s decision to regulate only the Severe hazard areas will be addressed at a future meeting.

Permanency of Manmade Structures – During the mapping process, Pierce County chose to hold no manmade structures permanent, meaning that CMZ hazard areas were mapped with the assumption that levees present no hard and fast (or “permanent”) barrier to channel migration. Similarly, no roads, bridges or other infrastructure were held permanent, either. This decision has implications for mapping, as the lines delineating hazard areas may extend beyond levees or into roadways. This decision also has implications for regulation, it recognizes that the ability to rebuild a structure in the same location after being damaged by channel migration is not always a Pierce County decision and is typically by approval of the State Department of Fish and Wildlife official..

The CAC was asked to address two specific questions: 1) Was Pierce County’s decision to hold no manmade structures (specifically levees) permanent when mapping CMZ hazard areas reasonable? 2) If it was not reasonable, under what conditions should a structure be considered permanent (i.e., what criteria should apply)? The CAC began discussion of, but did not resolve, these questions. A major advantage of the current approach is that it uses science to dictate where the river wants to go and allows us to assess the “true” migration risk. Concerns about this approach are primarily related to wanting the mapping to reflect the level of protection provided by individual sections of existing levee systems (based on maintenance records), assuming that they continue to be maintained in perpetuity. The discussion is reflected more fully on page 5 of these notes. In the interest of time, resolution of these questions will be continued until the next meeting.

Assignments

All Members: Continue to review materials and ask questions as needed

Don: 1) Work with PC staff on development of next month’s meeting agenda; 2) Work with PC staff (pre-1/7/09) and CAC members (on 1/7/09) to schedule additional meetings as necessary

PC Staff: 1) Distribute meeting materials (agendas, notes, etc.) more than one week prior to the meeting date; 2) Provide information on King County’s approach to CMZ management; 3) Work with Chair to determine whether additional meetings will be necessary to complete the work plan (any additional meetings to be scheduled after January 7th); 4) Collect and distribute levee maintenance costs, sorted by river system (may not be available in time for the next meeting)



Parking Lot for Future Meetings

Assessed Value of CMZ Affected Property - There was a request to do a quick analysis of the value of all the property affected by the regulated CMZ. The intent of the request was to discover whether public purchase of all that property would be a cost effect long term strategy.

Next Meeting

Wednesday, January 7th, 6:30-8:30 p.m. at the CMF (*Objective: Wrap up mapping discussion*)



CAC Discussion of Pierce County CMZ Mapping Policy Decisions

Historic Channel Occupation Tract (HCOT) - 1) *Is Pierce County's definition of the HCOT reasonable?* 2) *Is Pierce County's use of the HCOT for mapping channel migration hazards reasonable?*

Define:

Historic photographs (not maps, LiDAR, soil samples, etc)
Look for water-carrying channels only (not abandoned oxbows, etc.)
Used as starting point for mapping Severe hazard areas

Pros:

Best known/available data (concrete record)
Cheaper than alternatives
Backwards-looking
[Aerial photos produce a river base-width that is] Smaller than other approaches
Information is defensible
Long range/current time period

Cons:

Timeframe not long enough past (might not be enough information to determine trends)
Seasonal variability might skew our image of where the river is
Photos were not taken for CMZ purpose (does this produce variability?)
May underestimate where river is because of trees, side channels, etc.
Does not take into account manmade structures that may change the river (*although the Mid Puyallup has been leveed since the photographic record began in 1931)
Ignores channels elevation changes because aerial photos are not 3-D
What is the correlation between photos and size/patterns at river source?
Does not include impacts of urbanization on river systems (changes in land use, increased runoff, etc.)

What are the Alternatives?

King County: $CMZ = 1 \frac{1}{2}$ times the Meander Bend width
Lots of additional study
Alternative: "Where is river TODAY?" which would yield a much narrower starting point
Can the river always continue to (re)occupy the HCOT?
Pierce County's use of the HCOT was consistent with State method – what are these? Do we need to know more?

Additional info can improve this process (old drawings, photos, today only a snapshot)
Should we have done it differently? → No
Both [the definition and the use of HCOT are] reasonable as starting point but not perfect



Structural Impermanency - 1) Was Pierce County's decision to hold no manmade structures (specifically levees) permanent when mapping CMZ hazard areas reasonable? 2) If it was not reasonable, under what conditions should a structure be considered permanent (i.e., what criteria should apply)?

Define:

"Holding permanent" = rebuilding in-place regardless of damage (i.e., do not abandon)

Pierce County held no structures permanent

Let science dictate where river wants to go

Criteria:

Alternative sites to rebuild?

Historic value

Cultural value

Length of time in existence

Expectation by public

Existing infrastructure

History of repeat damage/losses

Feasibility of rebuilding -- Amount of damage and possible changes in regulatory setting may impact ability to replace

Affordability? Balance between managing expectations & actual implementation (new vs. existing)

What about impact of fixed structures (e.g., bridges, levees) on downstream areas?

It's not possible to perfectly prevent damage (flooding, channel migration)

"Partial control" (or marginal impact) as function of levee (e.g., "it won't prevent it, but may slow it down")

Need to acknowledge the money already spent on levee construction and maintenance

Should hold at least some manmade structures permanent, including levees and roads

"Hold fixed" = will stop migration

It's unreasonable to assume that levees will never fail

Need to consider effectiveness/performance of levee over past X years

Can existence of levees play into the S/M/L risk designations?

[Pierce County should] Acknowledge the good work being done to control river (and where they need "to admit defeat")

How do you rate levees for stability, etc., to modify S/M/L ratings? Is this just maintenance activities/costs vs. time? Who else will look at this? Assessor-Treasurer? Banks?

Pressure to downgrade some areas from Severe to Moderate (related to equity)

What about people with no levee between them and the river?

Some areas are higher risk (repeat damage) than others; balance is random/unpredictable

[Because of regulations, etc., Pierce County has] Lost ability to control and keep river clean (gravel, tree removal, etc.)

Need to conduct cost benefit analysis of acquisition program (paying fair market prices for properties) vs. maintenance of levees? (*This is what Pierce County does on a project-by-project basis), along with analysis of other economic impacts)



Need to consider differences between concept of “levee certification” and a levee’s “level of service”

How is Pierce County’s decision consistent with State guidance? -- State allows for structures to be held permanent if they are “significant”

DRAFT

