U.S. Department of Homeland Security
Region X
130 228th Street, SW
Bothell, WA 98021-9796

FEMA

March 27, 2008

Don Munks, Chair
Skagit County Commissioners
1800 Continental Place Suite 100
Mount Vernon, Washington 98273-5625

Dear Commissioner Munks:

This letter is to provide you and your staff with an update on the status of the ongoing Flood Insurance Study (FIS) for the Skagit River being conducted by the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA).

In January 2008, our study contractor, the U.S. Army Corps of Engineers (USACE), notified us that there were problems with the FLO-2D hydraulic model with respect to calculating flow over and through bridges and road embankments and that this was affecting 1-percent annual chance (base) flood elevations in some locations. In summary, the FLO-2D model was treating roads and bridges as levees so that they blocked water from flowing to the adjacent "grid" until the road and/or bridge was overtopped. Fixing this component could result in significant decreases in base flood elevations (just upstream of the roads) in some key locations including through downtown Burlington. Identifying the specific coding error and correcting the model will delay our release of the Preliminary Flood Insurance Study (FIS).

The USACE is now re-running the Skagit River hydraulic analysis using the latest version of FLO-2D, version 2007.06. In addition to correcting how roads are treated, this version also includes improved computations at bridges and at the confluence of two streams. These additional two changes will not significantly change the overall results, but may require additional calibration. These modeling issues indicate that the draft maps issued to communities last Spring may no longer be representative of the 1-percent chance flood hazard. We estimate that new maps based on the results of the revised modeling will be released to the public later this summer.

After consulting with the USACE, FLO-2D Software Inc. and our National Service Provider (NSP), Michael Baker Jr., we determined that this problem was isolated to the version of FLO-2D being used by USACE for the Skagit County FIS. To ensure that the corrections made to the latest version of the FLO-2D model have not altered its status as an approved computer model for use in flood hazard mapping (pursuant to 44CFR 65.6(a)(6) of the National Flood Insurance Program (NFIP) regulations), Region X directed our NSP to work with FLO-2D Software, Inc. to obtain all necessary documentation required to verify that the corrected model still meets our standards.. Information on the corrected version of FLO-2D, v.2007.06, can now be found online at http://www.fema.gov/plan/prevent/fhm/en_hydra.shtm. All computer models referenced on

cc: 3 cls & PW
Dan Berentson

this web site meet the requirements of 44CFR 65.6(a)(6). FLO-2D, v.2007.06, should be used by all parties seeking to evaluate FEMA mapping for the Skagit River FIS.

As noted on FEMA's web site, v.2006.01 of FLO-2D is still approved for use by FEMA. Regardless of the version used, it is up to the user to carefully review the results to ensure that they adequately represent the study reach and that they are reasonable and consistent. The FLO-2D software is an engineering tool that should be used with sound engineering judgment.

In our ongoing efforts to provide the best technical product that reflects the flood hazard, we also wanted to inform you that the USACE recently discovered the historic data necessary to convert the data for the Skagit River near Concrete for water years 1924-1944 to unregulated conditions. These data were found in some of the preliminary analysis that was done by the USACE in their early 1960's study of the Skagit River. We plan to utilize these data to better define the unregulated flow frequency estimates for the Skagit River near Concrete.

Our primary objective throughout this study remains the most accurate flood risk assessment possible, preservation of life and property, and wise floodplain management programs. As new data becomes available, or as issues are addressed, we will revise our maps as warranted. If you have any additional questions, please contact me directly at (425) 487-4767.

Sincerely,

Ryan Ike, Chief
Risk Analysis Branch

cc: Ric Boge, Skagit County Surface Water Manager
Chuck Steele, WA Dept of Ecology
Ted Perkins, USACE Seattle District

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