U.S. Department of Homeland Security
FEMA Region IX
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Oakland, CA 94607

FEMA

IN REPLY REFER TO: COMMENT RES

April 17, 2017

Ms. Deborah Schank
Community Development Department
California Building Division
City of Newport Beach
100 Civic Center Drive
Newport Beach, California 92660

Case No: 12-09-1324S
Community: City of Newport Beach,
Community No: 060227

RE: California Coastal Analysis and Mapping Project / Open Pacific Coast Study

Dear Ms. Schank:

This letter is in reply to a comment letter dated November 22, 2016 from Mr. Samir Ghosn, P.E. regarding the Preliminary Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for the City of Newport Beach, dated August 15, 2016. Mr. Ghosn submitted comments regarding changes to the coastal floodplain mapping in the vicinity of Newport Bay and the Newport coast.

We were pleased to receive your letter and appreciate your engagement with the process of quantifying and mapping flood risk in your community. We have responded to your individual comments below and would like to schedule a follow-up meeting at your earliest convenience to discuss your proposed study and map changes.

Newport Bay

Comment 1:

For the seawalls along Newport Peninsula and Balboa Islands in Newport Bay, our topographic data do not show seawall crest elevations that are higher than the Base Flood Elevation (BFE), which was mapped to 7.88 ft. North American Vertical Datum of 1988 (NAVD 88). We noted that the Everest 2011 assessment includes surveyed crest elevations for the publicly owned Balboa Island seawall. These survey data represent new information which did not come to light during our discovery process. These, and other surveyed data, can be submitted to FEMA for inclusion on the maps provided they meet FEMA's specifications. Details on these specifications are provided at the end of the letter.

Comment 2:

The bathtub approach was used to map the 7.88 ft. NAVD 88 BFE throughout Newport Bay because it provides a conservative, yet realistic estimate of flooding. The BFE was determined based on a tide frequency analysis of the Newport Bay Entrance tide gage (NOAA Station #9410580), which is located in the inlet between the Pacific Ocean and Newport Bay. For the tide frequency analysis,

FEMA utilized 37 annual maxima water levels from the Newport Bay gage and completed an L-Moment method analysis on them to determine the best-fit frequency distribution. The results for this analysis give a 1%-annual-chance stillwater elevation (1% SWEL) of 7.88 ft. NAVD 88, which was the elevation used to map 1%-annual-chance event floodplain in Newport Bay.

The use of the bathtub approach represents an assumption that peak water levels would be of sufficient duration to be realized within the whole of Newport Bay. This method also does not analyze the contributions of wave effects to flooding within the Bay. Mapping the 1% SWEL throughout the bay, without considering wave effects, is considered to be a somewhat conservative and balanced approach to mapping risk within the Bay. This approach is deemed to be both accurate and appropriate for the purposes of administering the National Flood Insurance Program. Further details on this methodology are described in Section 3.4 of Intermediate Data Submittal #2: Offshore Waves and Water Levels.

Your proposed detailed hydrodynamic modeling study, if formally submitted to FEMA for consideration, should also include wave analyses in Newport Bay in order to be an improvement on the existing FEMA analysis and mapping. The wave analyses should include one dimensional transect based overland wave, wave runup, and wave overtopping analyses, where applicable. This detailed study of Newport Bay should be submitted as an official appeal to the Preliminary FIRM. Information on appeal submission and requirements is included below.

Newport Coast

Comment 1:

For the open coast along Newport Beach, you are correct that the large difference in Base Flood Elevations (BFEs) between adjacent transects is due to differing runup slopes and the sensitivity of the wave runup analysis to beach slope. Breaks between runup mapping zones were chosen based on a number of factors such as shoreline orientation, shore type, and presence or absence of structures. The break between Transects 19 and 20 along Balboa Peninsula was chosen based on topographic changes alongshore and differing beach features present in our topographic dataset. Transect 19 has a low beach slope and consistent elevations along the beach. Transect 20, however, has a steep foreshore berm with lower beach elevations behind it and a number of discontinuous berm features alongshore. Wave runup results and mapping reflect these differences.

Comment 2:

All wave runup formulations are empirically based on laboratory and/or field data. These conditions inevitably differ from the conditions present at the location of interest. Direct simulation of wave runup for each transect may offer additional insights but this is not feasible for the 50 year hourly hindcast. Thus the challenge becomes to determine which of the empirical methods is most applicable for the area, given the range of conditions over the 50 year hindcast period. Ultimately the Stockdon method was found to be appropriate for use along these transects in that there was not an alternative formulation which was more correct to apply.

Comment 3:

Regional ocean scale wave hindcast modeling for the FEMA study was completed by Oceanweather Inc. and then passed to Scripps Institute of Oceanography (SIO). SIO provided FEMA with the offshore wave data translated to the nearshore. The Stockdon Method names the deepwater

equivalent wave height as one of the input variables. The true deepwater wave height is a related, but different, physical quantity to the equivalent deepwater wave height. It would be incorrect to use the true deepwater wave height within this equation which requires the equivalent deep water wave height.

Comment 4:
This connection between the BFE and historical records of flooding is a relevant point of interest which we look forward to discussing further with you.

Comment 5:
The method of projecting the Total Water Level (TWL) to the backshore was used in areas where the Dynamic Water Level (DWL2%) exceeded the foreshore runup crest. Overtopping using the Cox-Machemehl Method on the foreshore crest underpredicted the extent of overtopping that would occur in those conditions. Therefore the study engineer made a judgment call based on the topographic dataset used in the study as to where overtopping would likely occur in a 1%-annual-chance event.

The open coast wave runup and overtopping methodology for this study was established through an extensive vetting and review process. Although there are other methods that could be used to map wave runup and overtopping, those methods are not necessarily better than the methods developed for the FEMA study. There is a judgment call on the part of the study engineers to determine the best available data and results used to map the floodplain along the open coast.

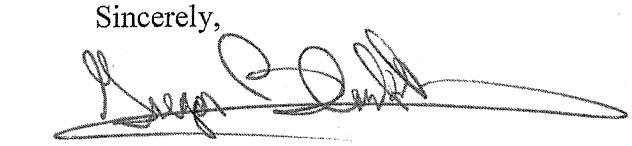
FEMA looks forward to working with you further to determine the best course of action. Generally for the scale of map changes you are proposing, submitting an official appeal is the most efficient process to address these changes. We would be pleased to talk with you about this potential course of action. For more information on submitting an official appeal, please review FEMA's Criteria for Appeals of Flood Insurance Rate Maps here: https://www.fema.gov/media-library-data/5270aa93d5b892c8420248bc8f40a1ee/FIRM+Appeals+(EAP)+Criteria.pdf

Please note that the use of any alternative modeling approaches in the appeal must be approved by FEMA according to the Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States. Additionally, the use of any new topographic and survey data in an appeal must meet FEMA's specifications as outlined in FEMA's Guidelines and Specifications for Flood Hazard Mapping, Appendix A: Guidance for Aerial Mapping and Surveying. These resources can be found on FEMA's website, https://www.fema.gov/. In addition to updated technical analyses, the appeal should provide new BFEs and flood hazard mapping for areas affected by the appeal.

Appeals can be submitted anytime during the 90-day Appeal Period for Orange County and must be submitted before the end date of that appeal period. You will be notified when the appeal period will begin once the appeal period dates are set. FEMA will review results of the appeal to evaluate if it is in compliance with FEMA Guidelines and Specifications and if the results are an improvement and superior to the existing Preliminary FIRMs.

FEMA would like to discuss your comments and additional study findings. To set up a meeting, please contact Ed Curtis of our FEMA staff in Oakland, California, either by telephone at (510) 627-7207 or by e-mail at Edward.Curtis@fema.dhs.gov.

Sincerely,



FOR Juliette Hayes, Chief
Risk Analysis Branch
FEMA Region IX

cc: Samir Ghosn, P.E., Principal Plan Engineer
Seimone Jurjis, Assistant Community Development Director | Chief Building Official