Purpose and Use

This Addendum incorporates updated design hydrographs and supersedes analysis and conclusions as described herein.

Approach

VCWPD has performed additional analysis and provided revised individual and combined hydrographs that more closely match previous design model results (VCWPD 2008). Upon review, select revised hydrographs were applied to the MIKE 21 numerical model runs for the lagoon to evaluate impacts of the revised hydrographs on the lagoon breaching process and channel design for the 100-yr storm event.

Summary

The revised hydrographs for the 100-yr event are shown in Figures C.1. Table C.1 compares peak flows for the original and revised hydrographs. Peak flows into the lagoon for the revised hydrograph are about 500 cfs higher than in the original analysis. In the revised analysis, flows are much higher within J Street, slightly higher within Hueneme Drain, and slightly lower within the OID.

Figure C.1. Revised 100-yr hydrograph (VCWPD 2008).

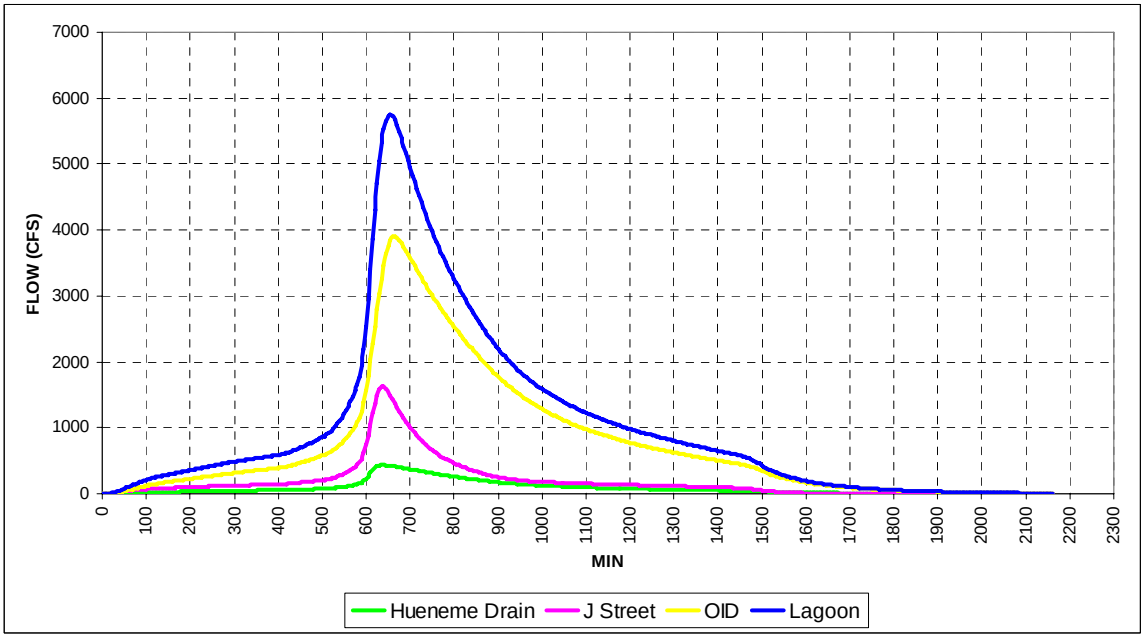

Table C.1. Comparison of 100-yr peak flow rates for original and revised hydrograph.

	100-yr Peak Flow Rate (cfs)	
Source	**Original**	**Revised**
J Street	795.2	1625.0
Hueneme	350.8	434.4
OID	4132.2	3900.8
Lagoon	5255.8	5754.4

The model runs shown in Table C.2 were performed in the MIKE21 model to simulate lagoon breaching and water level gradients within the lagoon for the new hydrographs. Peak water levels in the lagoon near J Street generally increased with the revised hydrographs.

Table C.2. Comparison of numerical model results for 100-yr peak lagoon water level.

Run	Return Period (yr)	Lagoon Initial Water Level, ft (NAVD)	Description	Peak Water Level Near J-Street, ft (NAVD)	
				Original	Revised
4	100	9.0	Existing representative beach.	11.8	12.1
10	100	tide	Inlet near OID	11.8	12.1
11	100	tide	Inlet near J-Street	8.5	10.8

Review of model results indicated that breaching processes are unchanged between the original and revised analysis. The lagoon breaches early in the hydrograph, well before peak flow arrives; peak flow to the lagoon in the revised analysis increased by less than about 10 percent.

Numerical modeling also indicated that the water level near J Street will be slightly higher than in the original analysis, due to higher flow rates from the revised hydrographs, particularly from J Street. Additionally, if an emergency breach were created at J Street, Run 11 indicated that peak lagoon water levels would be reduced less than as indicated in the original analysis, but still provide more than 1 ft of peak water level reduction.

Recommendations

Based on the revised analysis, the report conclusions presented in Section 2 of the Coastal Engineering Report are revised as follows:

8. Water levels in the lagoon, prior to a breach, range from about 1.6 ft to 6.6 ft NGVD (4 ft to 9 ft NAVD) and have been reported to reach up to 7.6 ft NGVD (10 ft NAVD). Based on numerical modeling for the 100-year storm, peak water levels within the lagoon at J Street are expected to reach about 9.7 ft NGVD (12.1 ft NAVD) in the absence of emergency breaching.

9. Channel design should consider lagoon water levels of no less than 9.7 ft NGVD (12.1 ft NAVD). If hydraulic analysis of the improved channel indicates that this water level cannot be accommodated by the design, or if the future unanticipated events change the condition of the beach/lagoon such that the design conditions analyzed herein may be exceeded, then emergency breaching must be considered.

11. Creating an emergency breach near J-Street prior to the 100-year storm would decrease the peak water level in the lagoon near J Street from approximately 9.4 ft to 8.4 ft NGVD (11.8 ft to 10.8 ft NAVD). Emergency breaching would become less effective if performed further south of J Street.

References

VCWPD(2008). Ormond Lagoon Watershed Hydrographs Generation Using HEC-HMS. Memorandum prepared by Mark Bandurraga, October 9, 2008.