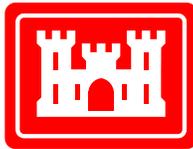


**JUNE 2006 FLOOD INVESTIGATION
FOR CAMERON RUN**

FAIRFAX COUNTY, VIRGINIA



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EXECUTIVE SUMMARY

This study was conducted by the U.S. Army Corps of Engineers (USACE), Baltimore District, Planning Division at the request of the Fairfax County Stormwater Planning Division, under the Floodplain Management Services Program (FPMS). Significant flooding occurred in the Huntington (also referred to as Arlington Terrace) Subdivision along Cameron Run in Fairfax County, Virginia on June 25 and June 26, 2006 (June 2006 flood event). Flood elevations were in excess of 2.0 feet higher than the expected county-adopted 100-year flood elevations (flood having a 1-percent chance of occurring in any given year). Factors such as the construction at the U.S. Route 1 Interchange (a component of the Woodrow Wilson Bridge Project), Lake Barcroft release rates, floodplain development, and sedimentation were thought to be potential causes of increased flood levels. The purpose of this investigation was to determine specific causes of the higher than expected flood levels experienced during the June 2006 flood event in Huntington.

During this study, it was determined that the June 2006 flood event has a recurrence interval of approximately 60 to 70 years, meaning it was between the 60 and 70-year flood event. As a result of the analysis presented in this report, it has been determined that cumulative impacts to the Cameron Run channel and floodplains have increased the flood levels in Huntington over time. At the time of the June 2006 flood event, Fairfax County and FEMA were using the 1976 USGS study for floodplain management purposes. Although the study was accurate when it was completed, it is not accurate for the Huntington area today due to significant changes in the channel and watershed. As a result, the flood levels during the June 2006 flood event were higher than the county expected.

During this study, various potential causes of the increase in flood levels in Huntington were evaluated and the following was determined:

Activities that contributed to higher flood levels over time

- Channel sedimentation had a considerable impact to flood elevations in Huntington during the June 2006 flood event. Based on surveys, between 1965 and 1999 nearly 5 to 6 feet of sediment accumulated between Telegraph Road and U.S. Route 1. Had the channel been at its 1965 condition (same channel depth and width as in 1965), flood elevations would have been approximately 1.2 to 2.0 feet lower in Huntington.
- The U.S. Route 1 interchange construction activity (part of the Woodrow Wilson Bridge construction project) had a lesser impact to flood elevations in Huntington during the June 2006 flood event. The temporary construction activity caused between a 0.5-foot (at the upstream end) and 0.9-foot (at the downstream end) increase in flood elevations along the Huntington area. The increase as a result of the construction activity was within the permitted limits established by the Federal Emergency Management Agency (FEMA). As a result of the overall finished construction of the U.S. Route 1 interchange, the maximum increase in the 100-year flood elevation is estimated to be 0.8 feet approximately 300 feet west of the confluence of Hoofs Run. Therefore, the temporary increase in flood levels during the construction of the interchange is similar to the expected future increase in flood levels after the project construction is complete. VDOT has stated that they will re-analyze

the impacts of the new construction after it is complete to account for any design changes during construction.

- Development within the floodplain, including Jones Point and the Metro Rail and Station (as well as other commercial developments) had minimal impact to flood elevations in Huntington during the June 2006 flood event. The floodplain development caused between a 0.2 and 0.4-foot increase in flood elevations along the Huntington area. The increase as a result of the floodplain encroachments were within the permitted limits established by FEMA.

Activities that did not contribute to higher flood levels

- The barge blockage at the George Washington Memorial Parkway had no impact to flood elevations in Huntington during the June 2006 flood event.
- Lake Barcroft release rates had no impact on the flood elevations in Huntington during the June 2006 flood event. For this storm event, the peak at the USGS gage occurred nearly simultaneously with the peak exiting Lake Barcroft.
- The Potomac River tide stages had no impact to the flood elevations in Huntington during the June 2006 flood event.

Although each factor in the first list above increases flood levels to varying degrees, the cumulative increase created by adding the increases together creates a significant increase over time. It should be noted, however, that some of the houses in Huntington still would have been flooded during the June 2006 flood event even if these activities had not increased the flood levels.

Since the completion of the 1976 USGS study, several other studies, including the 1982 CDM study and the 2002 VDOT study were completed and showed a greater risk of flooding in Huntington. The 1982 CDM study may have been disputed. The 2002 VDOT study, which is the most current and accurate model, was not provided to Fairfax County staff for use in floodplain management applications; however, according to VDOT, they did provide the final study to FEMA, who produces the county Flood Insurance Rate Maps (FIRMs) that show the 100-year floodplain.

The flood levels during the June 2006 flood event were consistent with the peak flows recorded and the current condition of Cameron Run. The dramatic changes to the watershed and Cameron Run channel, along with the continued use of the 1976 USGS study for floodplain management purposes, were the reasons that flood levels during the June 2006 flood event were higher than expected.

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