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Will Herbig
202-482-7270 or will@ncpc.gov

Federal Triangle Stormwater Drainage Study Released

Multi-agency cooperative effort provides flood answers.

Washington, DC – The National Capital Planning Commission (NCPC), in cooperation with several federal and District agencies, today announces the release of the Federal Triangle Stormwater Drainage Study and a companion report which summarizes the findings. This collaborative effort brought federal and District agencies together to explore possible structural, system-wide alternatives to prevent flooding from events similar to the devastating storm in June of 2006.

“This was a joint effort that changed the way information is shared and analyzed between federal and District agencies,” says L. Preston Bryant, Jr., Chairman, NCPC, “The study provides useful information and a framework for future cooperation that will help protect out national treasures from flooding.”

On June 26, 2006, several days of heavy rain was capped off by a six hour deluge that caused extensive flooding in Washington, DC. Operations, buildings and infrastructure of key federal agencies, historic landmarks, and tourist destinations within the Federal Triangle were affected. The National Archives, the Internal Revenue Service, the U.S. Department of Commerce, the U.S. Department of Justice, the Environmental Protection Agency, numerous Smithsonian Museums and Metrorail all suffered damage from the storm and the ensuing high water. In response to this event, several federal, regional and District agencies (listed below) joined together to fund and support the Study.

“This study illustrates how effectively the District of Columbia and the federal government can work together to achieve a common goal,” said Mayor Vincent C. Gray. “By understanding how we can better protect and preserve our historic and cultural assets, we are ensuring a stronger and more sustainable city for future generations.”

The purpose of the Study was to identify causes, predict future risks, and examine the feasibility of area-wide, structural alternatives to mitigate flooding. Previous studies recognized that the Federal Triangle is the lowest point in a large watershed and is affected by both river and interior drainage (stormwater) floods. The Federal Triangle will soon be protected from river flooding with the completion of the 17th Street levee closure.

The study collected information on existing infrastructure and modeled intense storms under a variety of conditions including the potential effects of climate change. By using new site information and modeling, the Study found that the 2006 flooding was the result of a 200 year storm event. While all DC Water pumping stations were working, the combined sewer system that serves the Federal Triangle can only handle 15 year storm events and was overwhelmed by the record rainfall. The Study examined the effectiveness and cost of six system-wide, structural alternatives:

1. Capturing stormwater in the upstream watershed through low impact development (LID), such as green roofs and bioswales.
2. Storing stormwater upstream of the study area.
3. Utilizing the 48-inch gravity condensate line at Constitution Avenue.
4. Collecting and re-using stormwater beneath the National Mall.
5. Providing a pumping station on the National Mall.
6. Constructing a new sewer tunnel to the Main and O Street Pumping Station.

Of the six alternatives analyzed in this study, the first three are not able to adequately mitigate an intense flood. The last three alternatives can viably control a high-volume, short-duration flood event, but they require large capital investments, estimated in the range of \$300-\$500 million, and have short and long-term impacts. The Study does not identify a preferred alternative for an area-wide solution.

The partner agencies recognize that the risk of flooding impacts must be balanced with the costs and benefits of any alternative. Future work will consider system-wide, versus site by site solutions so opportunities for short term, rather than long-term strategies such as sewer cleaning and inspection can be explored. It may also consider multi-hazard mitigation and combining strategies to “buy-down” flood impacts.

Modeling results from the Study are already influencing individual agency decisions about flood risk and protection strategies. Armed with the flood elevation data from this Study, WMATA is developing flood protection for vents and entry areas, and the Smithsonian Institution is using this data to design flood protection for the new National Museum of African American History and Culture.

“The projected extent of flooding based on various storm events developed in this report has already proven useful for GSA,” commented Cathy Kronopolous, GSA’s Public Buildings Service Regional Commissioner. “We used this information to determine the level of protection out buildings in the Federal Triangle required for Hurricane Irene.”

Cooperation and information sharing between federal and local agencies, as well as between facility managers and service providers, was greatly improved through the Study. Agency representatives continue to share information on short and long term flood-proofing strategies, as seen most recently during Hurricanes Irene and Lee in 2011.

NCPC and FEMA will host a flood-proofing seminar for interested stakeholders on October 31, 2011. National best practices, including steps to avoid floodplain impacts during new construction or adapting existing buildings in floodplains will be examined, explored and discussed. To download the Federal Triangle Stormwater Drainage Study and/or the Companion Report which summarizes the participating agency’s review of the study, go to <http://1.usa.gov/n5FH8w>. A print version is available for public review at the offices of NCPC, located at 401 9th Street NW, Suite 500, Washington, D.C. 20004.

Cooperating Agencies:

District Office of Planning, District Department of the Environment, DC Water and Sewer Authority, General Services Administration, Smithsonian Institution, National Capital Planning Commission, and Federal Emergency Management Agency.

Supporting Agencies:

District of Columbia Homeland Security and Emergency Management Agency, National Archives and Records Administration, National Gallery of Art, National Park Service, U.S. Department of Justice, U.S. Environmental Protection Agency, and Washington Metropolitan Area Transit Authority.

Engineering consulting firms Greeley and Hansen, in association with LimnoTech, developed the predictive flood models and the technical analyses.

The National Capital Planning Commission is the federal government’s planning agency in the District of Columbia and surrounding counties of Maryland and Virginia. The Commission provides overall guidance for federal land and buildings in the region. It also reviews the design of federal projects and memorials, oversees long-range planning for future development, and monitors capital investment by federal agencies.

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