

**DEPARTMENT OF THE ARMY**

**COMPLETE STATEMENT**

**OF**

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U.S. ARMY CORPS OF ENGINEERS**

**BEFORE**

**THE ENVIRONMENTAL RESOURCES AND ENERGY COMMITTEE  
AND  
THE SENATE MAJORITY POLICY COMMITTEE  
FOR THE**

**STATE OF PENNSYLVANIA**

**ON**

**FLOOD MITIGATION**

**NOVEMBER 16, 2011**

Chairman White and distinguished members of the Committee, I am Amy Guise, Chief of Civil Works Project Development, Baltimore District, U.S. Army Corps of Engineers (Corps). In this position, I oversee the development of projects for ecosystem restoration, navigation and flood risk management for the Baltimore District. On behalf of Colonel David Anderson, Baltimore District Commander, I thank you for the opportunity to testify before you today about our organization and how we plan, respond and recover from high water events and specifically the recent Tropical Storm Lee.

Responsibility for flood risk management in the United States is a shared responsibility among multiple Federal, State, and local government agencies with a complex set of programs and authorities. The authority to determine how land is used in floodplains and to enforce flood-wise requirements is entirely the responsibility of state and local governments. Floodplain management choices made by state and local officials, in turn, impact the effectiveness of federal programs to mitigate flood risk and the performance of federal flood risk management infrastructure. Importantly, we must ensure the public is educated both as to the risks they face and actions they can take to reduce their risks.

My remarks begin with an overview of the Corps and will address our regulatory function, emergency response role and flood risk management programs.

#### **I. OVERVIEW:**

The Corps is a unique organization, with a diverse military and civil works mission. The Baltimore District is 1,200 employees strong and executes its Civil Works mission primarily in flood risk management, ecosystem restoration, and navigation throughout the Chesapeake Bay watershed, from its headwaters in New York through Pennsylvania to the shorelines of Maryland and Virginia and to the Atlantic coastline.

There are three Corps Districts that serve the Commonwealth of Pennsylvania. Generally speaking, the Pittsburgh District operates within the Ohio River Basin, the Baltimore District covers the Chesapeake Bay watershed including the Susquehanna River basin, and the Philadelphia District covers the Delaware River Basin. For regulatory matters, the Baltimore District assumes a lead role and coordinates with the other Corps Districts. My comments and examples today will generally reflect the role of the Baltimore District.

The Corps owns or operates 692 dams that provide hydropower, water supply and crucial flood damage reduction throughout the United States, including 15 dams in the Susquehanna River Basin, 11 of which are in the Commonwealth of Pennsylvania, and nearly 60 miles of constructed levees.

The Corps is also responsible for executing an important regulatory program that helps protect tens of thousands of acres of aquatic resources per year, and we work with the Federal Emergency Management Agency (FEMA) to provide valuable engineering expertise during times of National emergencies.

We are the Army's engineers, focusing our expertise on building training facilities, hospitals, barracks and other assets across the Department of Defense that help improve the lives of our service members and increase our military's ability to protect and defend our Nation.

Included in our diverse areas of expertise and missions, and related to the topic here today, is our role and responsibility in flood risk management.

## **II. AUGUST-SEPTEMBER 2011 FLOODING**

The Baltimore District, which has responsibility for the Susquehanna River Basin, exercised its full range of flood risk management programs in response to Hurricane Irene in August 2011 and Tropical Storm Lee in September 2011. These two events produced significant precipitation in the Susquehanna River Basin and caused flooding throughout the East Coast. First, Hurricane Irene passed through the northeast corridor, making landfall on August 26-28, 2011. Then, only a week and a half later, Tropical Storm Lee moved up from the Gulf of Mexico and stalled over the northeast, creating moderate to major flooding along the Upper Susquehanna and mainstem Susquehanna Rivers. In some locations, the flood stage was exceeded by more than 15 feet, with numerous river gages exceeding previous records set mostly during Tropical Storm Agnes in June 1972 and during the storm of June 2006.

Rainfall totals ranged from 6-15 inches, mostly from Tropical Storm Lee, during the period of September 6-9, 2011. The heaviest rain fell over the mainstem Susquehanna and Upper Susquehanna River Basins, generally in a north-south band running from Binghamton, New York to Harrisburg, Pennsylvania. Some of these areas had already been affected by heavy rains associated with Hurricane Irene.

Within the Susquehanna River Basin, the Baltimore District managed flood risk through the operation of the system of Corps reservoirs. We combined data from stream gages, weather and flood forecasts from the National Weather Service and information received during constant communication with dam tenders to strategically and systematically manage water flowing down the Susquehanna River. The goal was to reduce downstream flood peaks by storing water during the period of greatest flow and slowly releasing it after the flood crest passed. The outlet gates were closed or held to minimum outflows at the Raystown, Sayers, Tioga-Hammond, Cowanesque, East Sidney, Whitney Point, Stillwater and Indian Rock reservoir projects. The Curwensville reservoir also stored excess runoff during the event. The reservoir projects operated as designed with no significant problems, and no record pools were set during these events, which can primarily be attributed to the fact that the bulk of the rainfall fell downstream of the reservoirs. Overall, Corps projects performed as designed.

## **III. EMERGENCY MANAGEMENT AND PREPAREDNESS**

The Corps' emergency response authorities derive from the Stafford Act, the authority of 33 U.S.C. 701n (referred to as Public Law 84-99 or PL 84-99) and our regulatory

statutes. The Corps also provides reimbursable emergency response and recovery support to the Federal Emergency Management Agency (FEMA) under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended), and in emergencies the Corps can expedite permitting through its own regulatory program.

Under PL84-99, the Corps is authorized to undertake activities that include disaster preparedness, advance measures, emergency operations and rehabilitation of eligible flood damage reduction projects damaged by flood or rehabilitation of Federally authorized shore protection projects.

Disaster preparedness ensures that the Corps is ready to respond to a broad range of disasters and emergencies. Corps flood preparedness includes coordination, planning, training, and conducting response exercises with key local, state, and tribal stakeholders/partners. Establishing and maintaining good working relationships benefits both the Corps and its partners and improves communications during a flood response. Also, confirming points of contact for both state/local partners and the Corps on a periodic basis allows for exchanges of information and updating on key areas of interest. Being aware of state and local authorities' requirements, capabilities and expectations helps the Corps determine how it can best supplement state and local capabilities. Conversely, educating state and local entities about Corps authorities, requirements and expectations illuminates potential gaps and overlaps. The Corps' first and primary concern is always public safety. Each person should be aware of current and future flood events, stay in touch for the latest updates and warnings, particularly changing weather and river conditions as monitored and forecasted by the National Weather Service, have evacuation plans prepared and implemented, and avoid flooded areas and moving water unless involved in the flood fight effort.

The Rehabilitation and Inspection Program (RIP) provides for the inspection and rehabilitation of federal and non-federal flood risk management projects damaged or destroyed by floods, and the rehabilitation of federally authorized and constructed hurricane and storm damage reduction projects damaged or destroyed by wind, wave or water action other than that of an ordinary nature. A project in the program remains eligible for acceptance into the program for future rehabilitation as long as it is properly operated and maintained as determined by a Corps inspection, which is conducted annually.

During such events, District Liaisons reported to Pennsylvania Emergency Management Agency operations centers. The District Liaisons support the Emergency Management Agency by providing information regarding day-to-day District operations/procedures, support under Public Law (PL) 84-99 authority, and provide a single point of contact for requests from the state for sandbags, technical assistance, etc. In addition, the Corps has Emergency Area Coordinators to serve as "boots on the ground" during events, meeting with the local governments to discuss issues, field requests for technical assistance, requests for sandbag supplies and related matters. The District also has

technical engineering and damage assessment personnel that can deploy before, during, and after events.

At the same time and in accordance with the Department of Homeland Security's National Response Framework, the Corps is the executing agency under Emergency Support Function #3 (Public Works and Engineering), on behalf of the Department of Defense. Typical mission assignments include Emergency Temporary Power, Debris Removal, Commodities/Water, Temporary Housing/Roofing, Infrastructure Assessments, Urban Search and Rescue, among others. As a result of Hurricane Irene and Tropical Storm Lee, the Baltimore District supported FEMA by deploying 45 experts for various timeframes for assistance.

The Corps responded to the high water event by immediately dispatching engineers, construction experts and public affairs officials to area levees and dams, monitoring water levels, activating emergency operations procedures in preparation for potential flooding, and helping to communicate important life-saving information to the public. During the height of the storm, we deployed a 10-person team of engineers to central Pennsylvania to assist in evaluating the condition of levees and floodwalls, providing technical assistance, and supporting the flood fight.

One example of the measures taken occurred in Wilkes-Barre, where the river gage recorded 42.66 feet of water at its peak, a full 1.75 feet higher than Tropical Storm Agnes in 1972, which reached 40.91 feet. The Wyoming Valley Levee System, originally constructed in 1936, consists of three levee systems at Plymouth, Kingston-Exeter, and Wilkes-Barre-Hanover Township. The levees extend for approximately 15 miles with 13 storm water pump stations. Tropical Storm Lee tested this system with tremendous flows and water pressure placed on the structure.

On-site patrols identified two locations in Forty-Fort that required interim solutions in order to reduce the risk of damage to the levee system. The first incident occurred late in the day Thursday, September 8, where rising waters caused cracks to develop on the system's floodwall. In order to stabilize the wall and maintain flood protection, we provided on-site expertise and made recommendations to the local flood authority to add ballast – or weight – to the land side of the wall. By building up additional material on the land side, a flood wall is stabilized against the pressure of the rising water. A local contractor provided the necessary equipment, staff and truckloads of material to perform the repairs, and they, along with the flood authority and the Corps, worked throughout the night and finished the repairs around 2 a.m.

A few hours after repairing the floodwall, the Corps was called to a second location in Forty-Fort that needed repairs. A large boil, an area where differential pressure allows seepage, measuring 50 feet in diameter was occurring on the landside toe of the levee. Boils are typical during a high water event, and if not properly monitored, they can destabilize the levee. Our engineers again recommended covering the area with a specialized material and loading it with additional fill to prevent further degradation of the levee. By adding a geotextile filter and additional fill material, weight is added to the

land side of a levee, increasing its stability. The repair was completed by the local sponsor's contractor and further damage was avoided

In addressing the flood risks in Wilkes-Barre, teams of engineers perform 24-hour levee patrols at the Federal projects, walking the levees and examining the flood walls and pump stations to ensure proper performance during significant flow events. Typically, our engineers look for cracking, tilting and soft foundation conditions around the floodwall. They also look for boils and properly working closure structures, drainage structures and pump stations. They work in partnership with state and local officials to provide technical assistance and support for levees that are not operated by the Corps. This intensive effort is conducted so that issues can be identified and resolved early, reducing the risk of a more serious problem to structures or people.

Overall, the rain events resulted in rising river levels and significant flooding along the nearly 60 miles of federally built levees and higher lake elevations due to stored flood waters at reservoirs throughout central Pennsylvania. Although flood damages in the entire Northeast region were devastating, in many areas where Corps projects exist, their operation by the Corps effectively reduced an additional estimated \$6 billion of damages to the residents in the Northeast.

#### ***A. PL 84-99 – FLOOD CONTROL AND COASTAL EMERGENCIES***

Following a significant event, the Corps has the authority to rehabilitate flood risk management projects as authorized by Public Law 84-99, which is funded by the Flood Control and Coastal Emergencies (FCCE) Appropriation. It includes responsibility for disaster preparedness, emergency operations, rehabilitation of flood damage reduction projects, provision of emergency water, advance measures when the threat of flooding is imminent, and participation in FEMA-led hazard mitigation teams. The Corps has the ability to execute emergency response operations and specific activities under this authority; a Presidential declaration is not required. Following an event, the Corps releases a public notice to federal and non-federal sponsors, who can submit a formal/written request for assistance.

Rehabilitation is limited to those projects that have been previously and regularly inspected (called "active" projects) and determined to be in acceptable condition. In most cases, these projects are maintained by local jurisdictions. In accordance with Corps' regulations, assistance for "active" projects is limited to repair to pre-disaster condition and level of protection, must be beyond normal operation and maintenance, must have construction repair costs greater than \$15,000, and must have a benefit-to-cost ratio of 1.0 or greater. Channel restoration, within the project limits, to pre-flood hydraulic capacity may be eligible when the channel capacity has been decreased to 75 percent or less of pre-event capacity.

Post-storm, the Corps deployed teams to the affected areas to conduct initial assessments of damages to our flood risk management projects. The results from these assessments will be combined with a sponsors' written request for assistance,

and projects will be considered for eligibility under the PL 84-99 Program. Many projects sustained varying levels of damage, some more critical than others.

Funding for repair of eligible damages is 100% federal cost for federal projects and 80% federal, 20 percent local sponsor for non-federal projects. Funding is provided through the Corps' FCCE appropriations account.

Following Hurricane Irene and Tropical Storm Lee, a Public Notice was issued on September 16, 2011 to federal and non-federal sponsors whereby sponsors could submit a formal/written request for assistance in accordance with the previously described criteria. The Public Notice was posted on the Baltimore District website and forwarded to the Pennsylvania Department of Environmental Protection (PADEP), the design/construction agent for non-federal flood risk management projects and an avid and proactive proponent for local sponsors. The 30-day request period ended on October 16, 2011. To date, we received requests for assistance through the PL 84-99 Program from:

- Lycoming County Flood Protection Authority – Wilkes Barre, Kingston-Exeter, Plymouth Segments, in Pennsylvania (Federal)
- *Athens, Pennsylvania (Non-Federal) – On critical repair list*
- Lebanon Hazel Dyke, Pennsylvania (Non-Federal)
- *Sayre, Pennsylvania, (Non-Federal) – On critical repair list*
- *Danville Mahoning Creek, Pennsylvania (Non-Federal) – On critical repair list*
- Mocanaqua, Pennsylvania (Non-Federal)
- McAdoo, Pennsylvania (Non-Federal)
- Plymouth – Brown's Creek, Pennsylvania (Non-Federal)
- Duryea, Pennsylvania (Non-Federal)
- Forty Fort, Pennsylvania (Non-Federal)
- City of Scranton, Lindy-Keyser, Pennsylvania (Non-Federal)

Due to the damages caused by the record flooding in 2011, the Corps is using a prioritization process to differentiate the level of need and to facilitate prioritized funding requirements. These are based primarily on those projects that pose the greatest risk to life safety and other factors. The Baltimore District identified, based on engineering data and best professional judgment, which projects had greater potential for immediate life safety, resulting in three Pennsylvania projects identified as 'critical repair' on the above list.

Requirements for funding as a result of September 2011 flooding are being evaluated by Corps Headquarters, along with requirements for damages resulting from other major natural disasters which occurred in 2011, namely flooding in the Mississippi River and Missouri River Basins.

## **B. REGULATORY PROGRAM**

The Corps regulatory authorities serve to protect waters of the United States, including wetlands. The Clean Water Act also provides authorities to allow the Corps to work with the Commonwealth in the development of General Permits, including nationwide permits and programmatic general permits, including the Pennsylvania State Programmatic General Permits (PASPGP) to quickly authorize work in waters with minimal individual and cumulative effects on the aquatic environment. In addition, our regulations contain provisions to develop emergency permit procedures to expedite reviews and authorize work in waters that is necessary to prevent an unacceptable hazard to life, significant loss of property or an immediate, unforeseen and significant economic hardship.

In accordance with Section 404 of the Clean Water Act as amended, a Department of the Army authorization is required for the discharge of dredged and/or fill material into waters of the United States, including jurisdictional wetlands. Section 10 of the Rivers and Harbors Act also requires Department of the Army authorization for any work in, over, or under a navigable water of the United States.

In Pennsylvania, most regulated work receives federal authorization through the PASPGP-4. Work that qualifies as a Category I or II activity under the PASPGP-4 does not require further coordination or notification of the Corps. The PASPGP includes work covered under PADEP Emergency Permits and maintenance/clearing within 50 feet upstream and downstream of bridges and culverts, as required and authorized by PADEP. PASPGP-4 may be used to authorize 1-acre or less of impact to waters of the United States, provided the required permit processing procedures are followed. All work associated with the repair of damages associated with Hurricane Irene and Tropical Storm Lee has been authorized under the PASPGP-4. In the case of Hurricane Irene and Tropical Storm Lee, Regulatory staff were identified and made available for coordination with PADEP staff. District staff continues to closely coordinate on applications as required to ensure efficient decisionmaking, including authorizations made by PADEP while on-site. In each case, the agencies quickly evaluate the situation and proposed solution to enable the appropriate actions/work to occur to effectively address the problem and enable removal of sediment and/or repair of structures or streams.

Work not covered under the terms, conditions, and processing procedures of PASPGP-4 may be authorized by a Corps Nationwide Permit, as published in the March 12, 2007 Federal Register. Nationwide Permit (NWP) 3 authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure, or fill, or of any currently serviceable structure or fill, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated in the original permit or the most recently authorized modification. The terms and conditions of NWP 3, including requirements for notification of the Corps, may be viewed in the March 12, 2007 NWPs (72 Federal Register 11092, p. 11181). Immediately following Tropical Storm Lee, the Corps put out special public notices advising the public that repairs that meet these conditions could be made without additional Corps permits, and in many cases without notification to the Corps.



If the proposed work does not qualify for authorization under PASPGP-4 or a NWP, the work would require a Department of the Army Individual Permit. The Individual Permit process requires issuance of a public notice and may take several weeks before authorization is issued, however, the Corps is working with permit applicants to ensure necessary information and appropriate public and agency input is received to ensure a timely decision is made on these requests.

#### **IV. FLOOD RISK MANAGEMENT**

The Corps shares with FEMA, both the expertise and mandate under its respective authorities and missions to address the nation's vulnerabilities to flood related disasters and damages. Since passage of the Flood Control Act of 1936 established a federal role in flood management, the Corps authorized responsibilities have expanded to include developing structural and nonstructural solutions to managing flood risks, inspecting the condition of existing flood management infrastructure, providing technical and planning support to states and communities, conducting advance emergency measures to alleviate impending flooding, providing emergency flood fight support, and rehabilitating levees and other flood management infrastructure damaged by flooding. In May 2006, the Corps established the National Flood Risk Management Program to take the first step of bringing together other federal agencies, state and local governments and agencies, and the private sector to develop and implement a unified national flood risk management strategy that eliminates conflicts between different flood risk management programs and takes advantage of all opportunities for collaboration.

In recent years, the Corps has placed an increasing emphasis on nonstructural approaches to flood risk management. Nonstructural alternatives focus on efforts and measures to reduce flood damages in an area by addressing the development in the floodplain, such as: floodplain zoning, participating in FEMA's National Flood Insurance Program (NFIP), developing and implementing flood warning systems (coordinated with the National Oceanic and Atmospheric Administration's flood warning program) and emergency evacuation plans, and flood proofing individual structures as well as removing structures from the extreme flood hazard areas. Other measures, such as setback levees, are also being utilized by the Corps, as they typically offer greater natural use of the floodplain while still providing structural protection from floodwaters if completely non-structural alternatives are not viable.

Traditionally, Corps efforts to address flooding hazards have been through civil works projects to reduce the probability of flooding through the construction of levees or other flood management infrastructure. Today, the Corps is focusing on the most effective combination of tools available that citizens may use to lower or "buy down" their flood risk. The Corps will consider not only reducing the probability of flooding, but also reducing the consequences should a flood occur. Furthermore, the decision on which tools to implement involves all stakeholders.

## **A. LEVEE SAFETY PROGRAM**

The Corps has had a long history of planning, designing, constructing, and inspecting a multitude of levee systems and conducting flood fighting throughout the Nation. The Corps established its Levee Safety Program in 2007 with the mission to assess the integrity and viability of levees and recommend courses of action to make sure that levee systems do not present unacceptable risks to the public, property and environment. The Levee Safety Program activities focus on public safety as its top priority. Some specific Levee Safety Program activities involve:

- Populating and maintaining the National Levee Database to serve as a living, dynamic record of information relative to the status and safety of the nation's levee systems. The National Levee Database was opened to public access on October 27, 2011 and can be found at (<http://nld.usace.army.mil>).
- Applying a levee screening tool that combines inspection data with a preliminary engineering assessment and maximizing the use of existing information (inspection rates and consequence data) and local knowledge of levee performance. Results will be used to rank levees based on relative risk to help inform decisions about future actions to improve public safety associated with the levees.
- Incorporating changes and improvements associated with the state-of-the-art professional engineering practice into levee safety policy and procedures.
- Conducting both routine (every year) and periodic (every 5 years) inspections for the levees in the Corps' Levee Safety Program –
  - To ensure that the levee system will perform as expected.
  - To identify deficiencies or areas which need monitoring or immediate repair.
  - To assess the integrity of the levee system in order to identify any changes over time.
  - To collect information in order to be able to make informed decisions about future actions.
  - To determine eligibility for federal rehabilitation funding for the levee in accordance with PL 84-99.
  - To determine if the levee is being properly operated and maintained.

Levees within the Corps Levee Safety Program include those which are 1) federally authorized and Corps operated and maintained; 2) Corps constructed and locally operated and maintained; and 3) locally constructed and locally maintained, but have been accepted in to the Corps Rehabilitation and Inspection Program (RIP). Levees within the Corps program consist of approximately 14,600 miles or 2,000 levee systems. The Corps will communicate the condition and associated risk of these levee systems and recommend actions that may include immediate repair of certain deficiencies and/or interim risk reduction measures. The Corps will assist the local sponsor and other stakeholders to develop the best path forward. Levees do not and cannot eliminate risk and are not the only available flood risk reduction tool.

## ***B. FLOODPLAIN MANAGEMENT SERVICES PROGRAM***

Under the Floodplain Management Services Program, the Corps can provide technical assistance with flood-related issues. Technical assistance takes the form of hydrologic and hydraulic modeling, inundation mapping, geographic information system analyses, assessing structural and non-structural alternatives (including floodproofing and stormwater management measures), determining potential benefits and costs, assessing flood hazards and mitigation, comprehensive planning and risk management, and other related analyses and assessments. This program can provide concept plans for alternative solutions to flooding problems but cannot result in design or construction of projects.

## ***C. STUDY—DESIGN--CONSTRUCTION***

The Corps also has a range of study, design and construction authorities for flood risk management. There are the “large” project authorities such as that used for the Wyoming Valley and Lackawanna River Flood Risk Management projects and “small” project authorities, for projects generally less than \$7 million total.

The traditional and most common way for the Corps to help a community solve a water resource problem is through individually authorized studies and projects. The Corps jointly conducts a cost-shared study with a non-federal sponsor and, if shown by the study to be feasible, constructs the project. This approach requires that Congress provide the Corps with authority and funds to first accomplish a reconnaissance and feasibility study and, then, to design and construct the project. Local sponsors share the study and construction costs with the Corps and usually pay for all operation and maintenance costs. This approach may be used to address any one of a variety of water resource problems, including navigation, flood risk management and ecosystem restoration.

## ***D. PARTNERING WITH FEMA ON FLOODPLAIN MAPPING***

Both the Corps and FEMA have a long history of partnering on floodplain mapping as part of the NFIP. Over the past 30 years, the Corps has completed more than 3,000 studies for FEMA related to identifying the flood potential of various areas across the country. These studies involved activities such as flood plain delineations and detailed flood insurance studies. In August 2005, both agencies signed an agreement that further streamlined the process for the Corps to provide flood plain mapping and other related services to FEMA.

The Corps cooperates with FEMA and other federal, state and local agencies through numerous avenues in support of FEMA’s floodplain mapping efforts. Currently, the Corps and FEMA partnership is the strongest it has ever been. The Corps and FEMA will continue this partnership as FEMA transitions into their Risk Mapping, Analysis, and Planning (RiskMAP) program.

### ***E. SILVER JACKETS PROGRAM -AGENCY COLLABORATION***

The Pennsylvania Silver Jackets program is an interagency team with members that have some aspect of flood risk management/reduction as part of their mission. Traditionally, different agencies wear different colored jackets when responding to emergencies. The name Silver Jackets is used to underscore the common mission of the diverse agencies involved.

Silver Jackets includes more than 12 active federal, state, regional and professional agencies and organizations. Their focus over the past year has been on flood risk management outreach and learning others' programs. The team developed an interagency flood risk management program guide that lists all Federal, State and regional flood related programs. Most recently, the team met to discuss the recent flooding and the actions each agency took during and after the event. Flood related issues and how our programs can be used continue to be discussed among the various agencies.

The Pennsylvania Silver Jackets team recently submitted a proposal for a flood inundation mapping project for the City of Harrisburg and several adjacent communities. The proposed project leverages resources from the Corps, Susquehanna River Basin Commission, U.S. Geologic Survey, National Weather Service, Pennsylvania Emergency Management Agency, Federal Emergency Management Agency and The Harrisburg Authority. The project will provide a graphical extension to river forecasts issued by the National Weather Service in partnership with the Susquehanna River Flood Forecast and Warning System. The Harrisburg pilot project was selected to move forward.

### **V. SUMMARY**

Thank you for the opportunity to provide a comprehensive review of our role and programs for flood risk management, and an understanding of Corps programs for flood risk management. The Corps uses its authorities, programs and role in flood risk management to the optimum and maximum extent in order to reduce the risk to life, structures and property. We are all responsible for our safety.

This concludes my testimony and I would be happy to answer any questions you or other members of the Committee may have.