

# Stormy Weather: NCPC's Climate Adaptation Initiatives

May 21, 2012  
MWCOCG Conference

- ❑ The federal government's central planning agency in the capital region
- ❑ Review federal development proposals
- ❑ Comprehensive plan policies
- ❑ Special initiatives



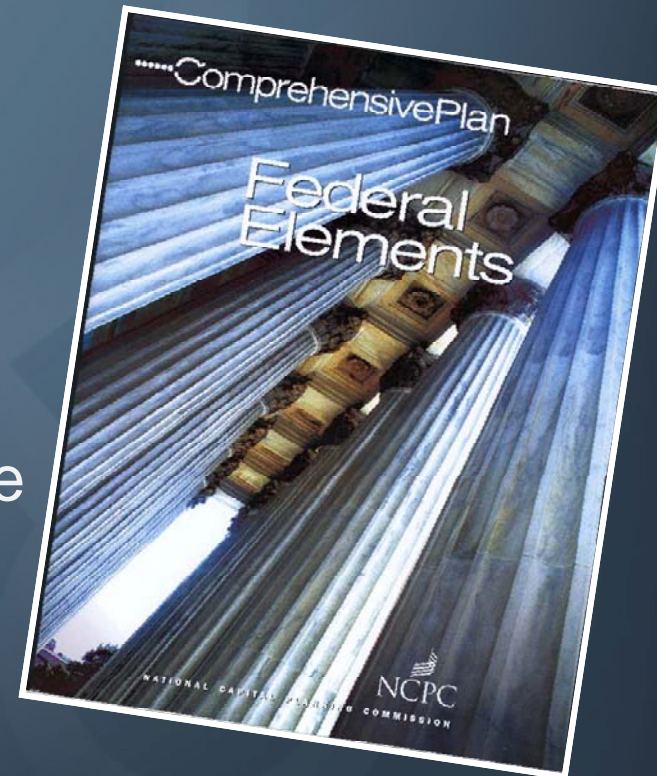


- ❑ *Agency Strategic Sustainability Performance Plans*
- ❑ CEQ guidance on federal agency climate change - March 2011
- ❑ *Agency Climate Change Adaptation Plans* – due June 2012



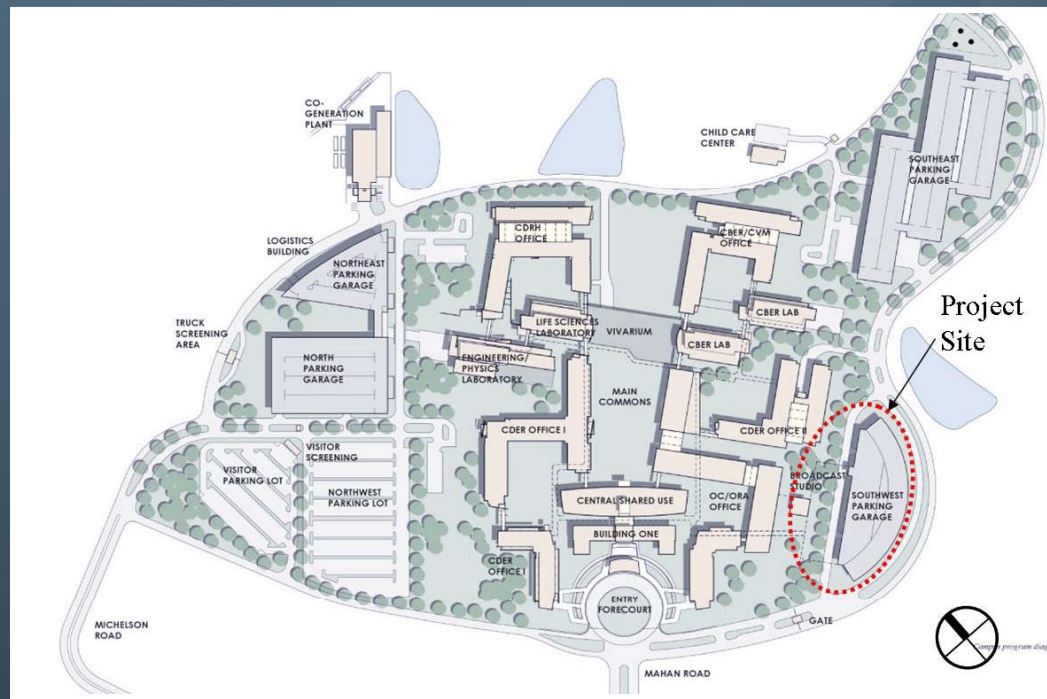
- ❑ Comprehensive Plan updates
- ❑ SW Ecodistrict
- ❑ Levee on the National Mall
- ❑ Federal Triangle Flood Study

- ❑ Updating the *Comprehensive Plan for the National Capital: Federal Elements*
- ❑ Climate adaptation policies included for the first time
- ❑ Closely following EO 13514 guidance
- ❑ June 2012 public draft release

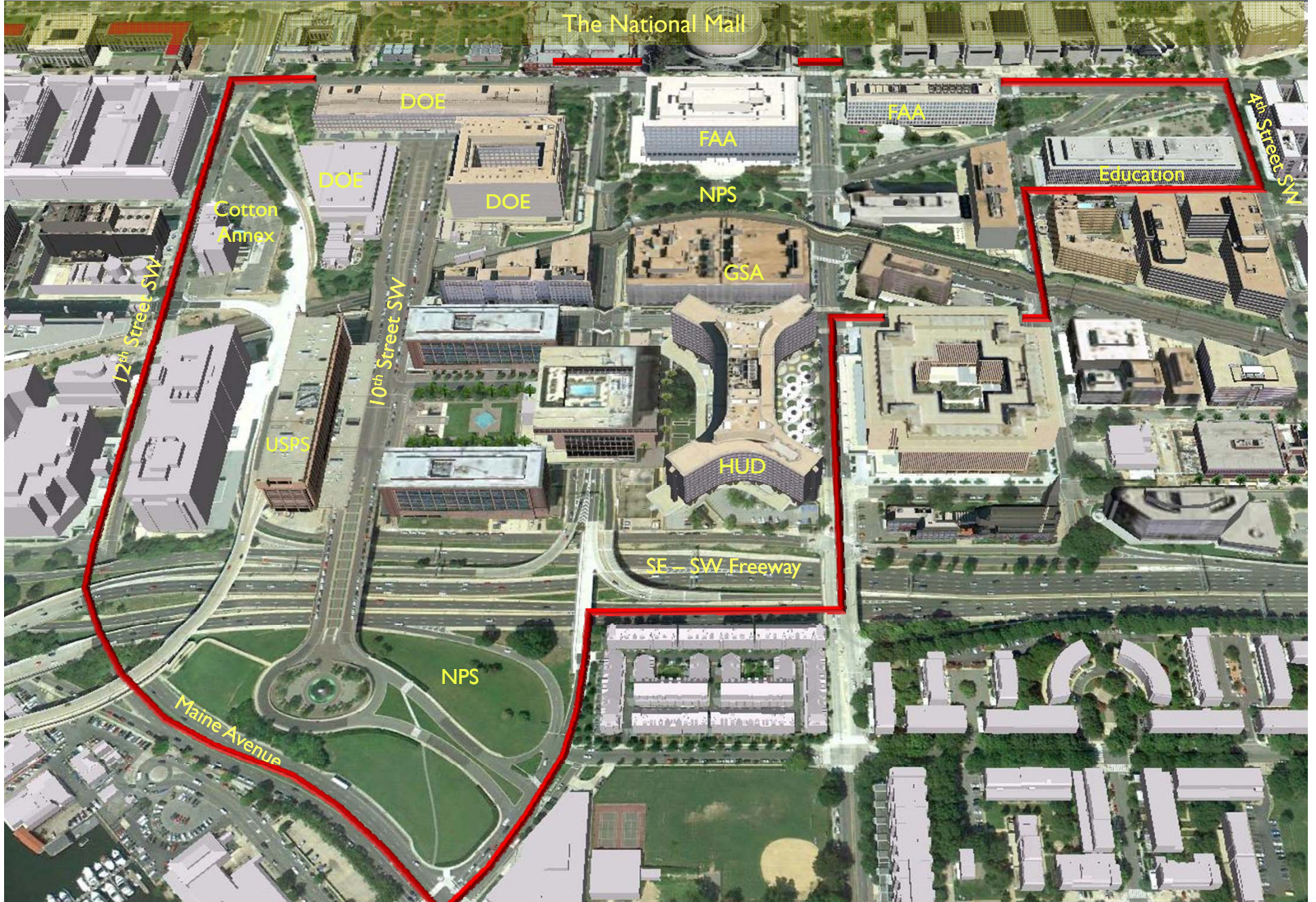


## Impact:

Comp Plan policies are the primary tool NCPC uses to review federal development projects and master plans.





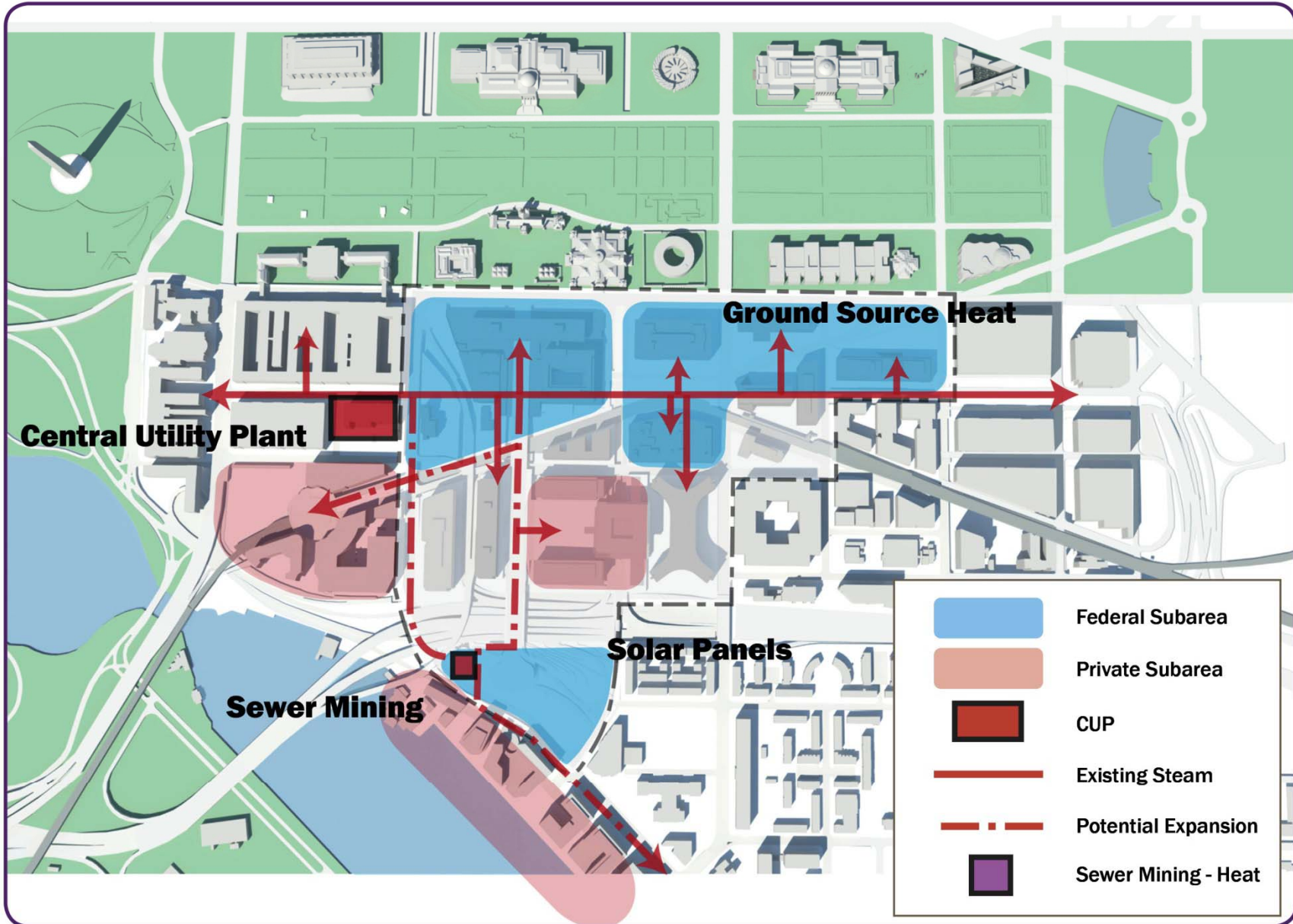








# District-scale energy systems



## Energy, Water and Waste Targets

- ❑ Capture and reuse all rainwater in the Ecodistrict
- ❑ Reduce potable water use by 70%
- ❑ Reduce the Ecodistrict's greenhouse gas emissions by 51%
- ❑ Increase the amount of waste diverted from landfills from 35 to 80%



Understand  
flood risks and flood  
management in  
Washington, DC





- ❑ Downtown is the bottom of the topographic bowl
- ❑ At confluence of two major rivers
- ❑ Three buried streams and a high water table
- ❑ Development in floodplains
- ❑ Sewer system is old and has limited capacity
- ❑ Sea level rise and climate change affect risk, damage





1889 – first flood of record

- ❑ Overbank flooding: river-caused
- ❑ Tidal flooding: storm surge-caused
- ❑ Urban drainage flooding: sewer capacity-caused



1889



1936



1942



2006

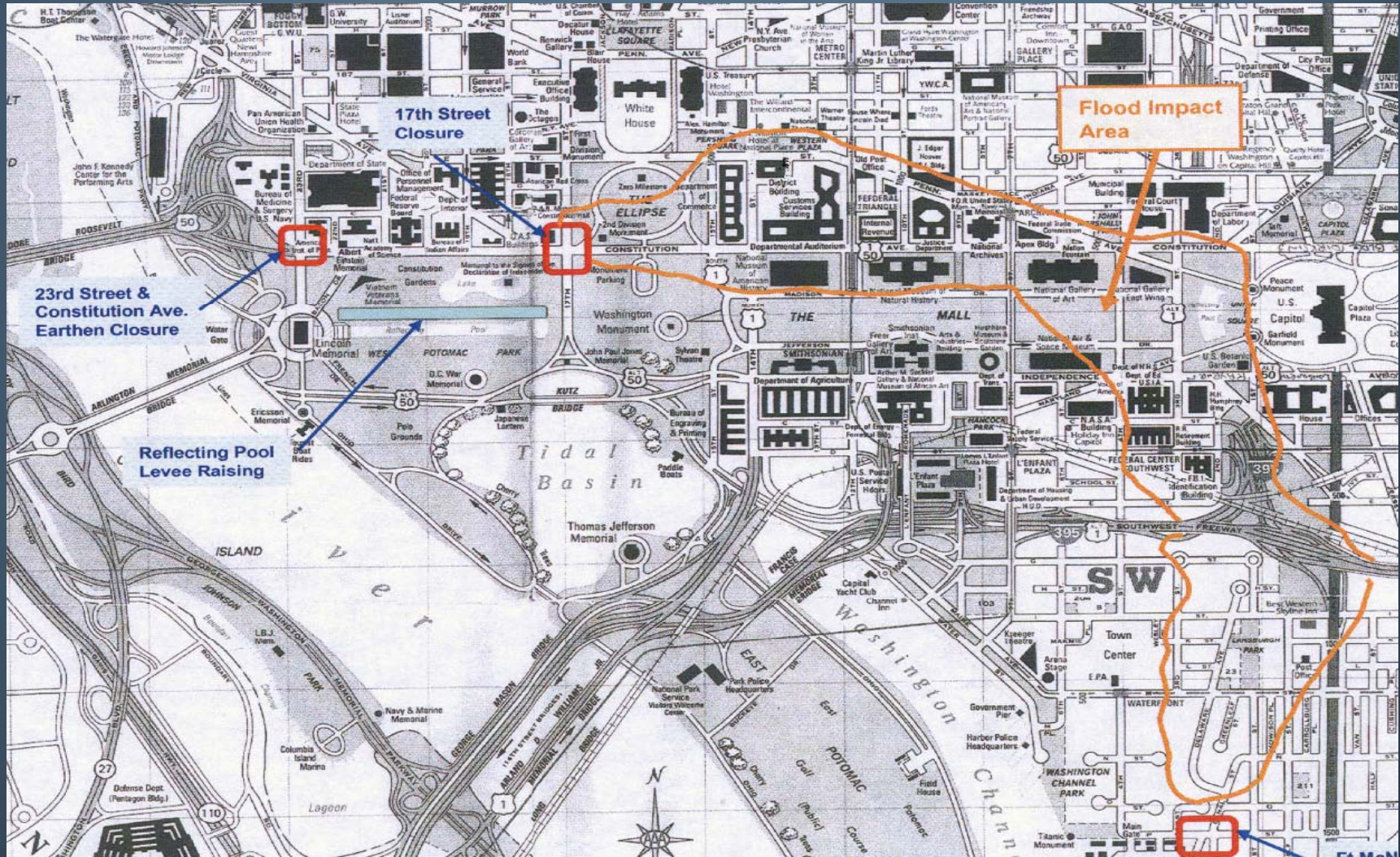


- ❑ Protects against Potomac overbank flooding
- ❑ Authorized in 1936 after the Great Flood
- ❑ Operational by 1940

Photo # NH 92386 Looking west from the Washington Monument, Washington, D.C., November 1943







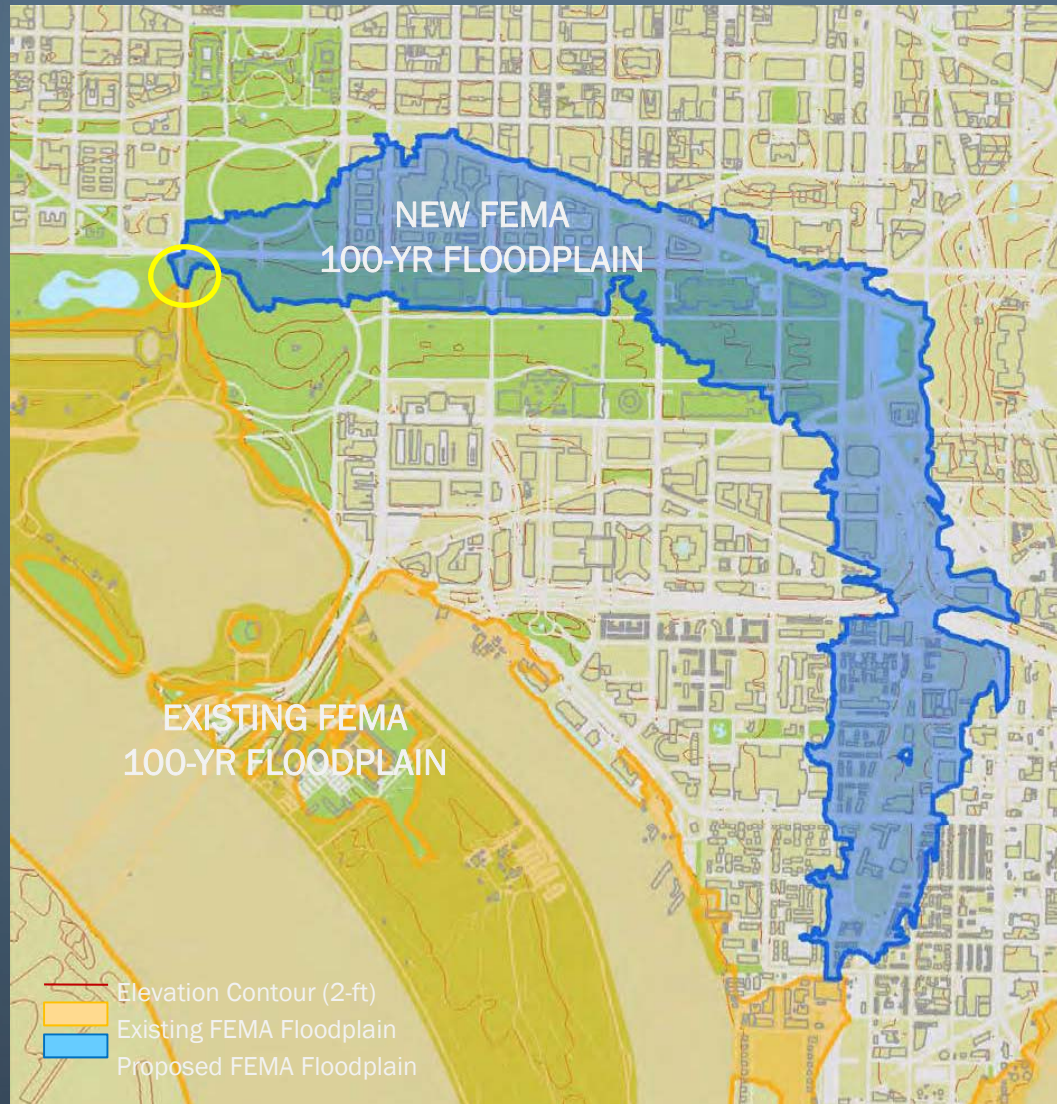


## Three temporary closures

- ❑ 23rd Street, NW
- ❑ 17th Street, NW
- ❑ Fort McNair

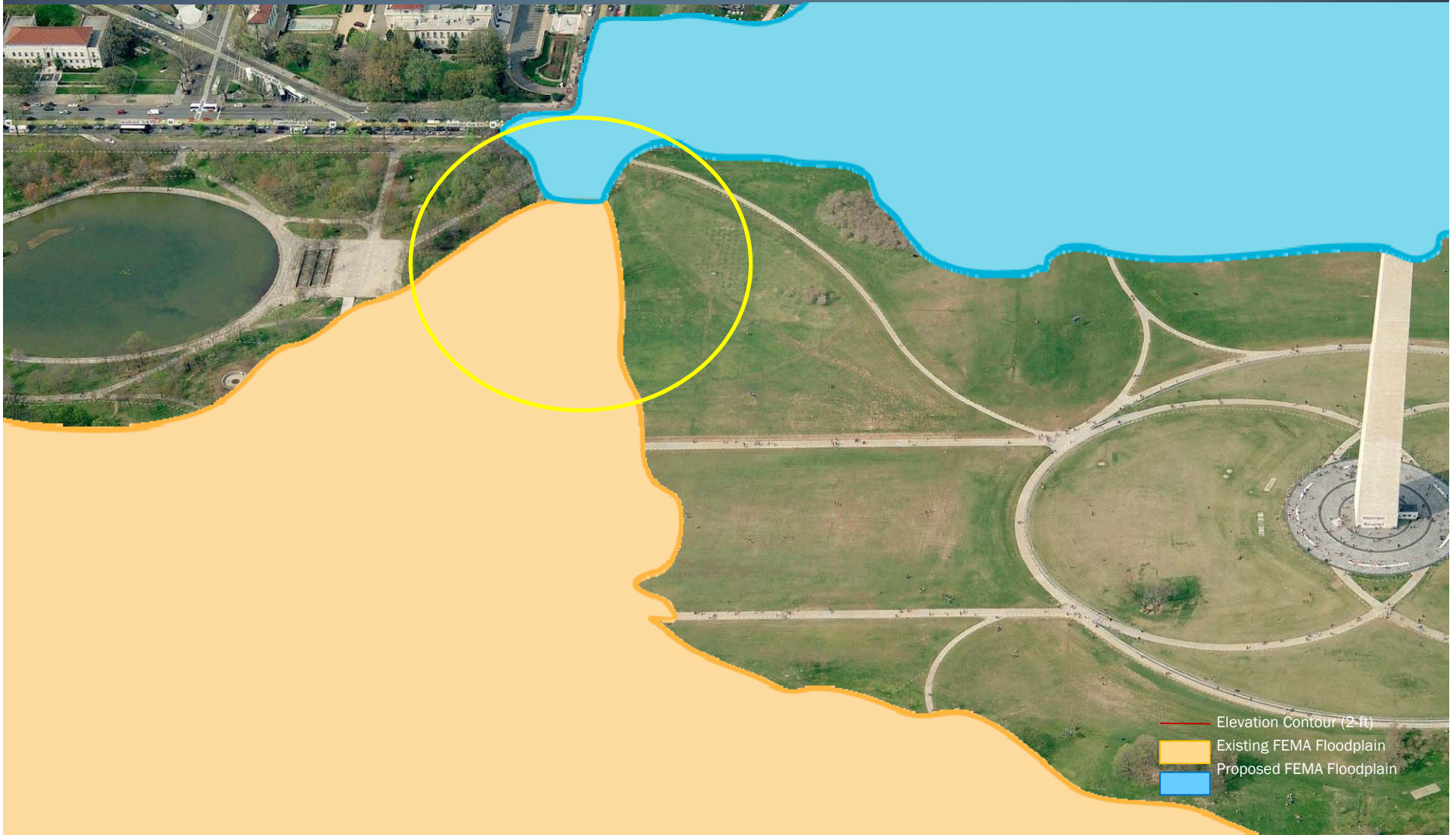


# Critical Role of 17<sup>th</sup> Street Levee Improvements

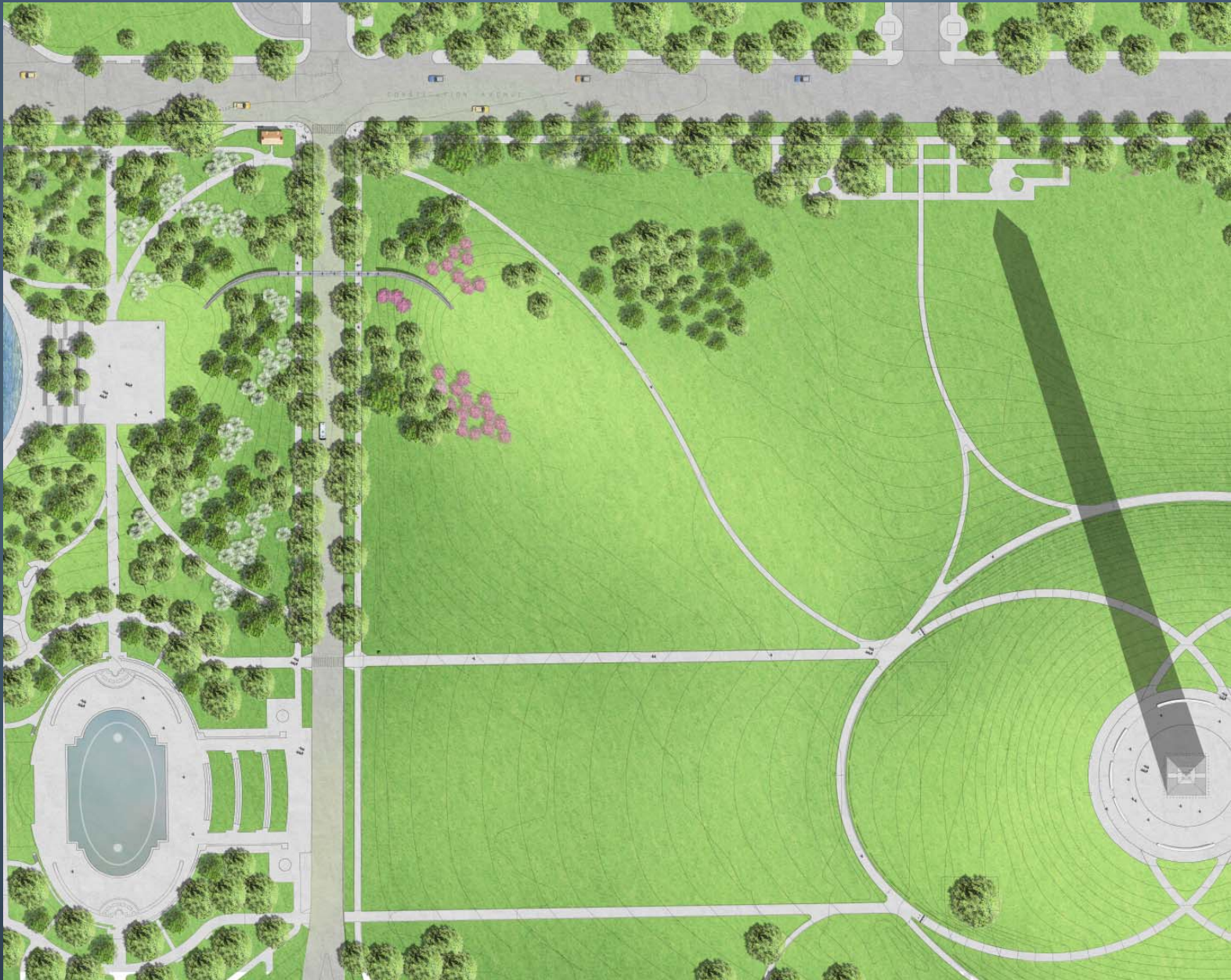




# Critical Role of 17<sup>th</sup> Street Levee Improvements











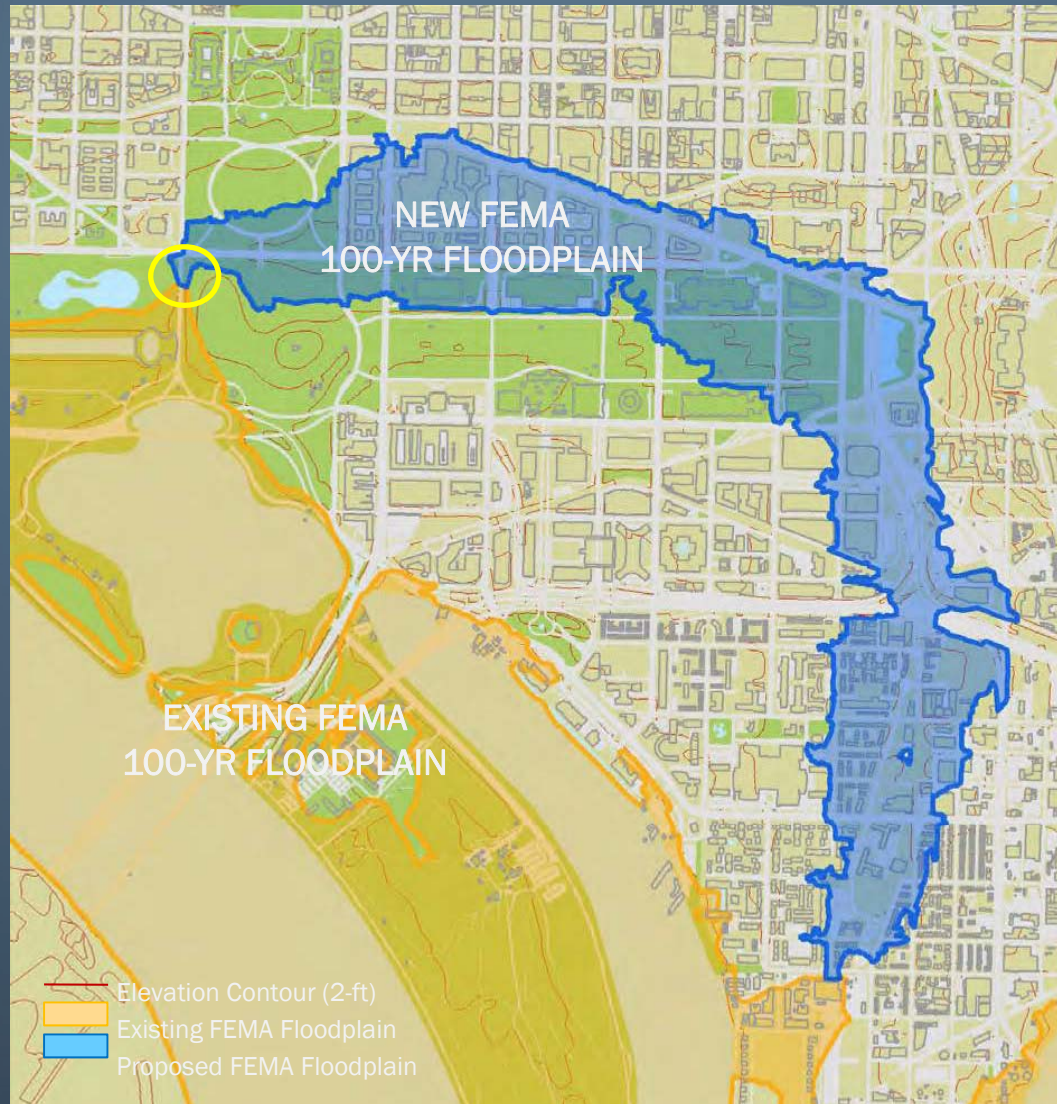
Oblique view of levee improvements looking southwest,  
without trees



- ❑ Major river floods have occurred in downtown Washington
- ❑ The levee system protects important federal assets, private sector buildings and neighborhoods
- ❑ Authorized flood protection is for 185 year flood event, offering higher than typical protection levels
- ❑ Complex property management, regulatory and funding roles require partnerships and persistence



# Critical Role of 17<sup>th</sup> Street Levee Improvements





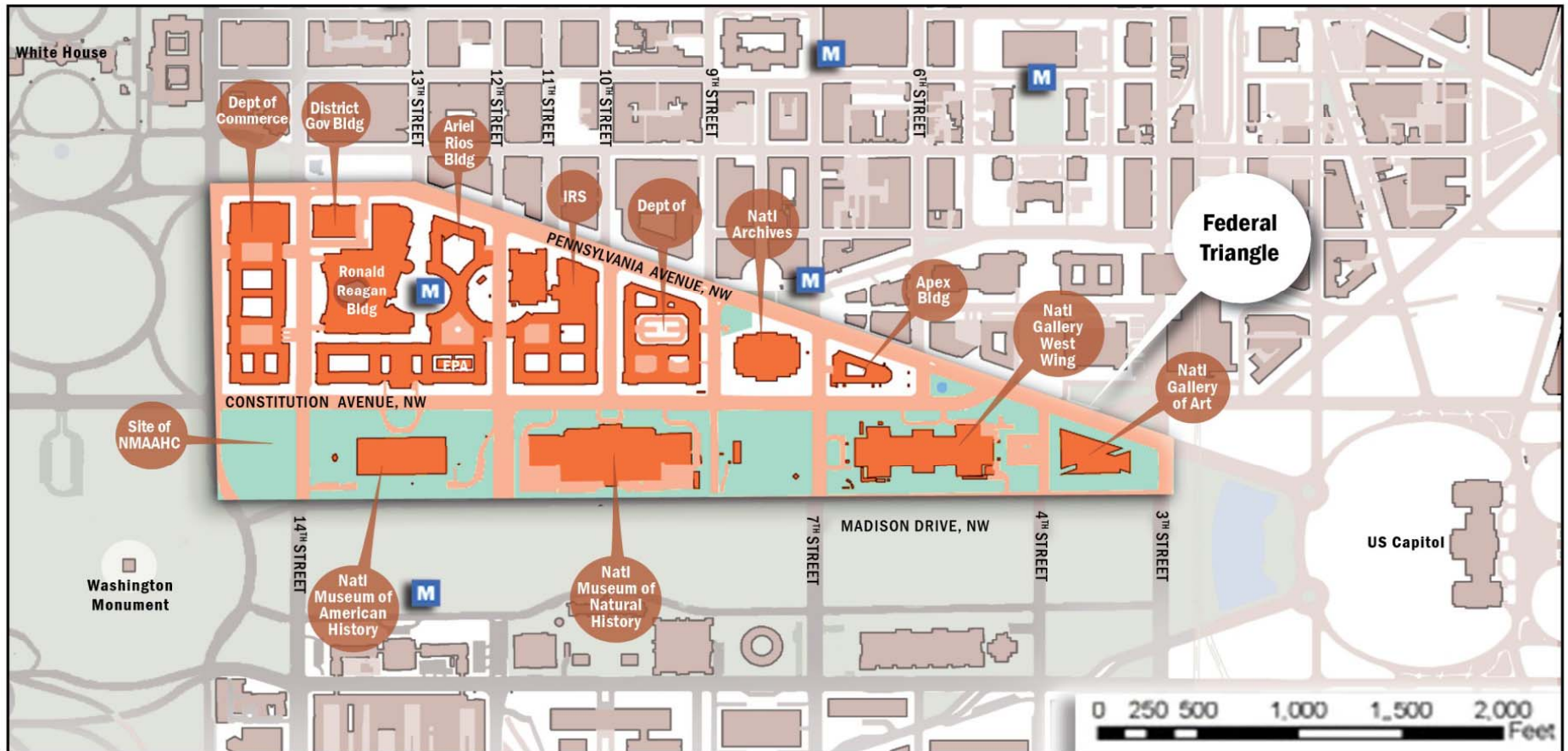


Commerce Building

12<sup>th</sup> Street NW







▲ Map of the Federal Triangle Study Area



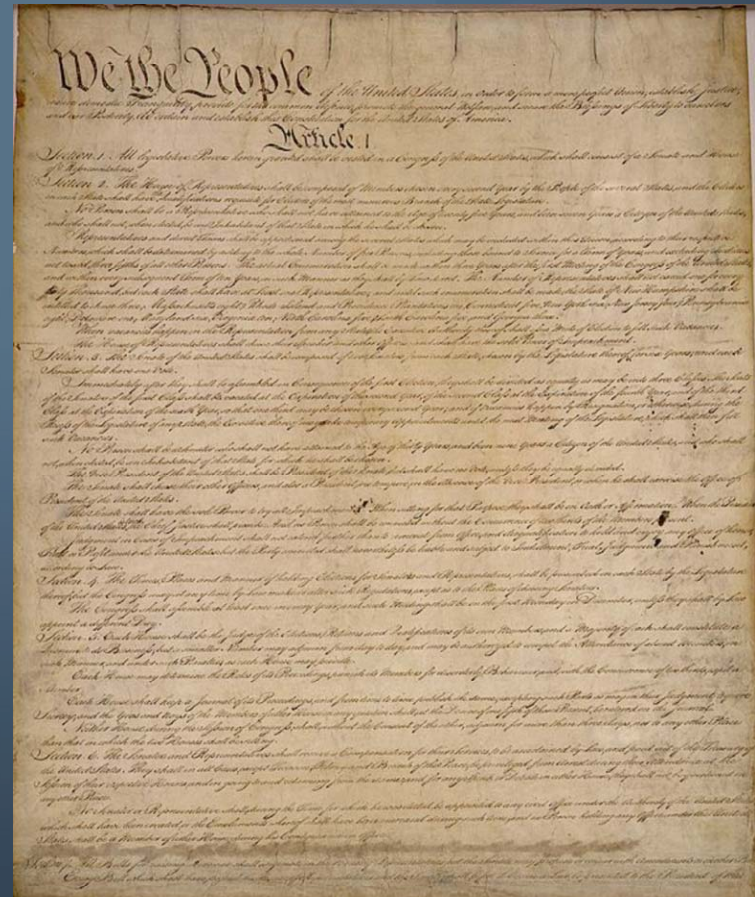
## Flooded Federal Facilities

- ❑ National Archives, IRS HQ, Justice, Commerce, Smithsonian, National Gallery

## Study Results

- ❑ Rainfall > 200-year event in 6-hour period
- ❑ Started earlier than expected
- ❑ Rivers did not exceed flood stage











## Partner Agencies

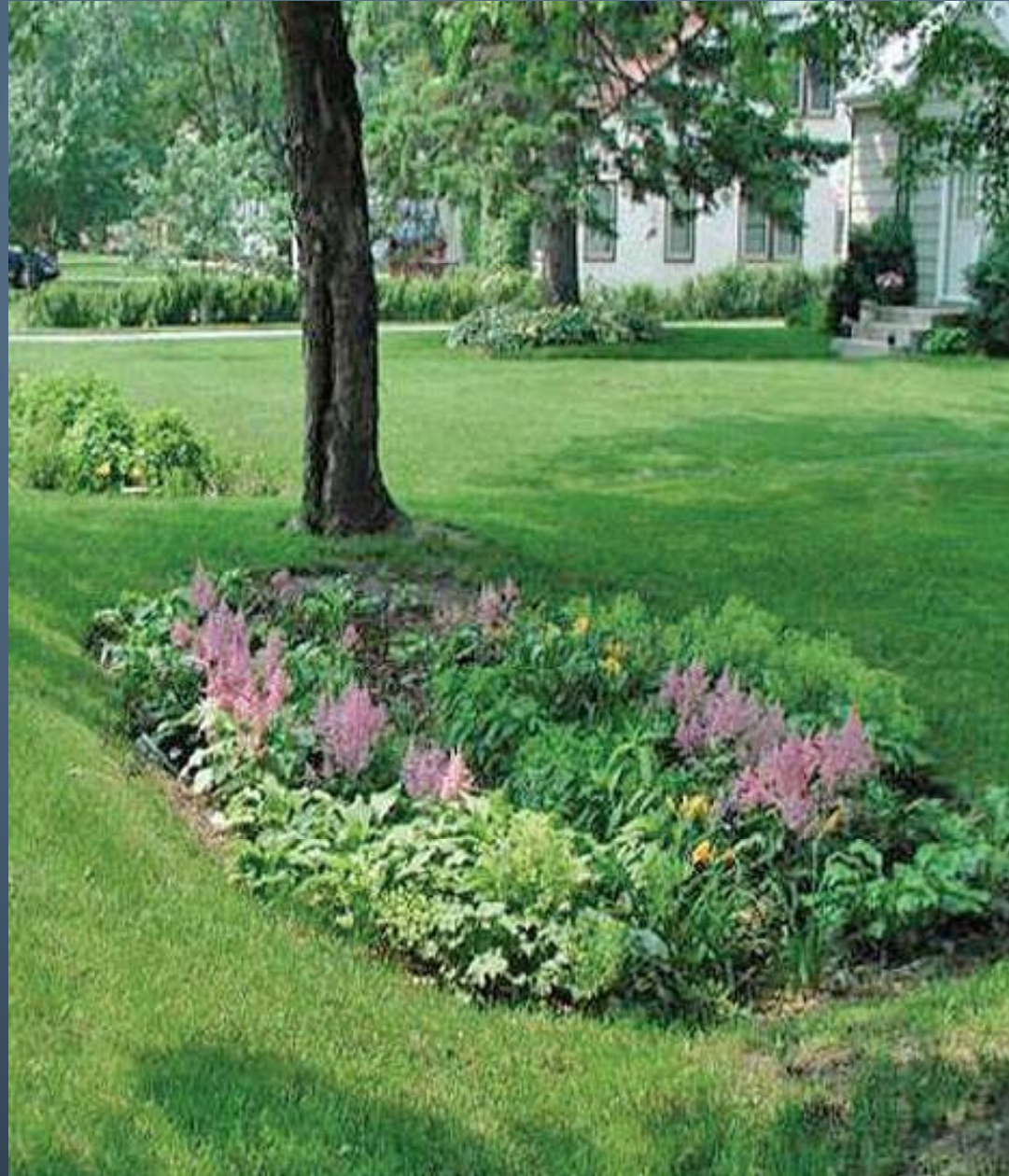
GSA, Smithsonian,  
DCOP, DC Water,  
DDOE, FEMA and  
NCPC

With WMATA, NPS,  
Archives, National  
Gallery of Art

## Six Strategies Considered

1. Low Impact Development
2. Store Upstream
3. Condensate Line
4. Store Under Mall
5. Mall Pumping Station
6. New Sewer Tunnel















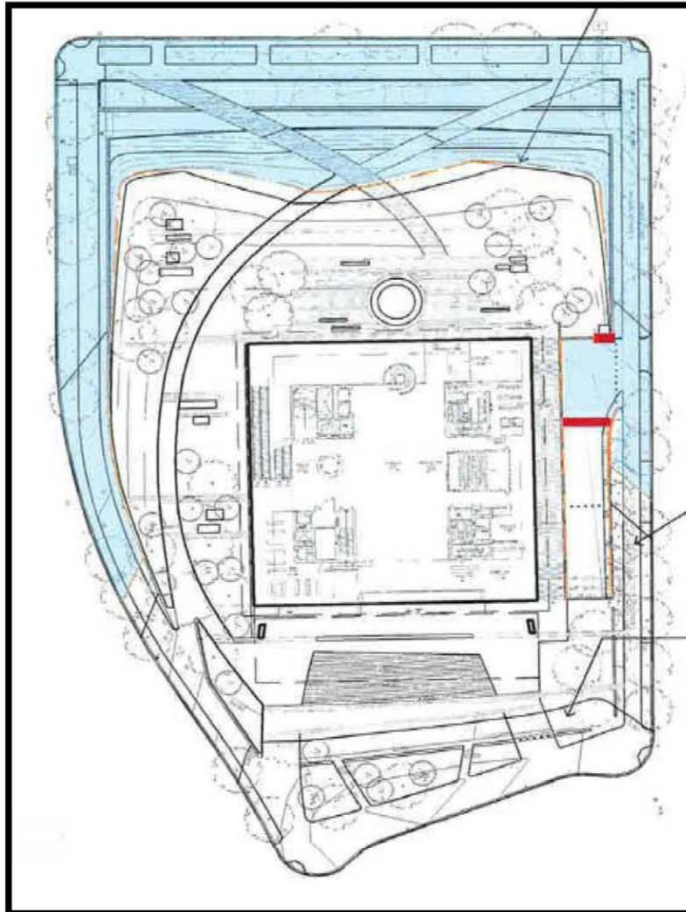
Flood doors and  
sandbags at Commerce





## NMAAHC Multi-Hazard Design 100 Year Flood

Security integrated with landscape



Flood protection integrated with perimeter security











## **Companion Report**

### **Federal Triangle Stormwater Drainage Study**

October 2011

By the Federal Triangle Stormwater Study Working Group





- Flooding happens in several ways
- Consider interior drainage flooding in adaptation planning
  
- Good information is critical for good decisions
- Model and design for more extreme events
- Even if area-wide solutions aren't possible, area-wide planning makes individual decisions more effective
  
- Structural solutions can be expensive and may not protect against 'worst case' events given variability.
- 'Green' solutions, such as LID, may not protect against major flood events.
  
- Partnerships are critical to develop effective solutions.



For more information, visit  
[www.ncpc.gov](http://www.ncpc.gov)

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