Promoting a Resilient Water Utility

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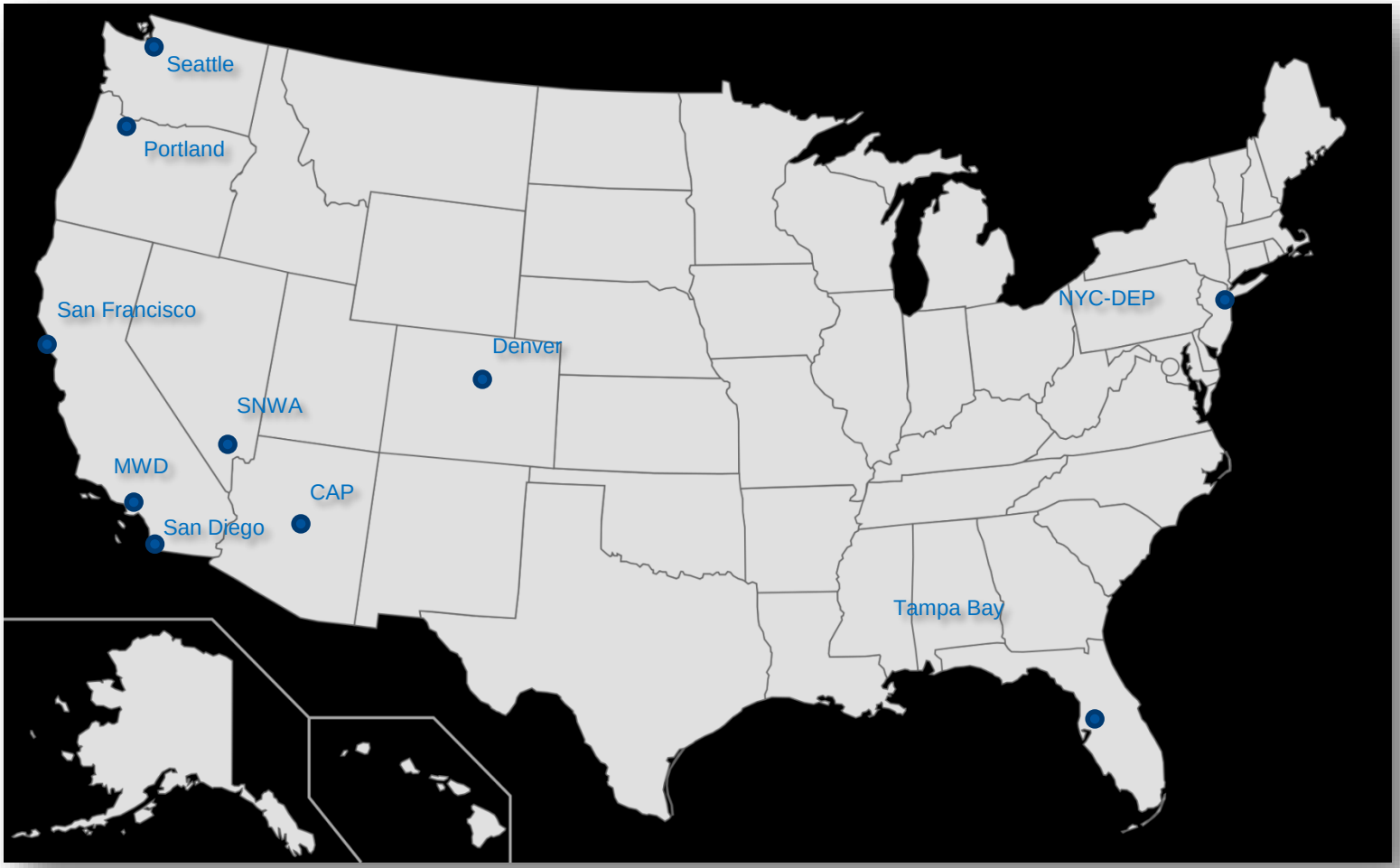
Water Utility Climate Alliance



NYC Range of Challenges

Climate Change

Water Shortages

Flooding

Aging Infrastructure

Storm Surge

Revenue Decline

Sewer Overflows

Droughts

Public Health

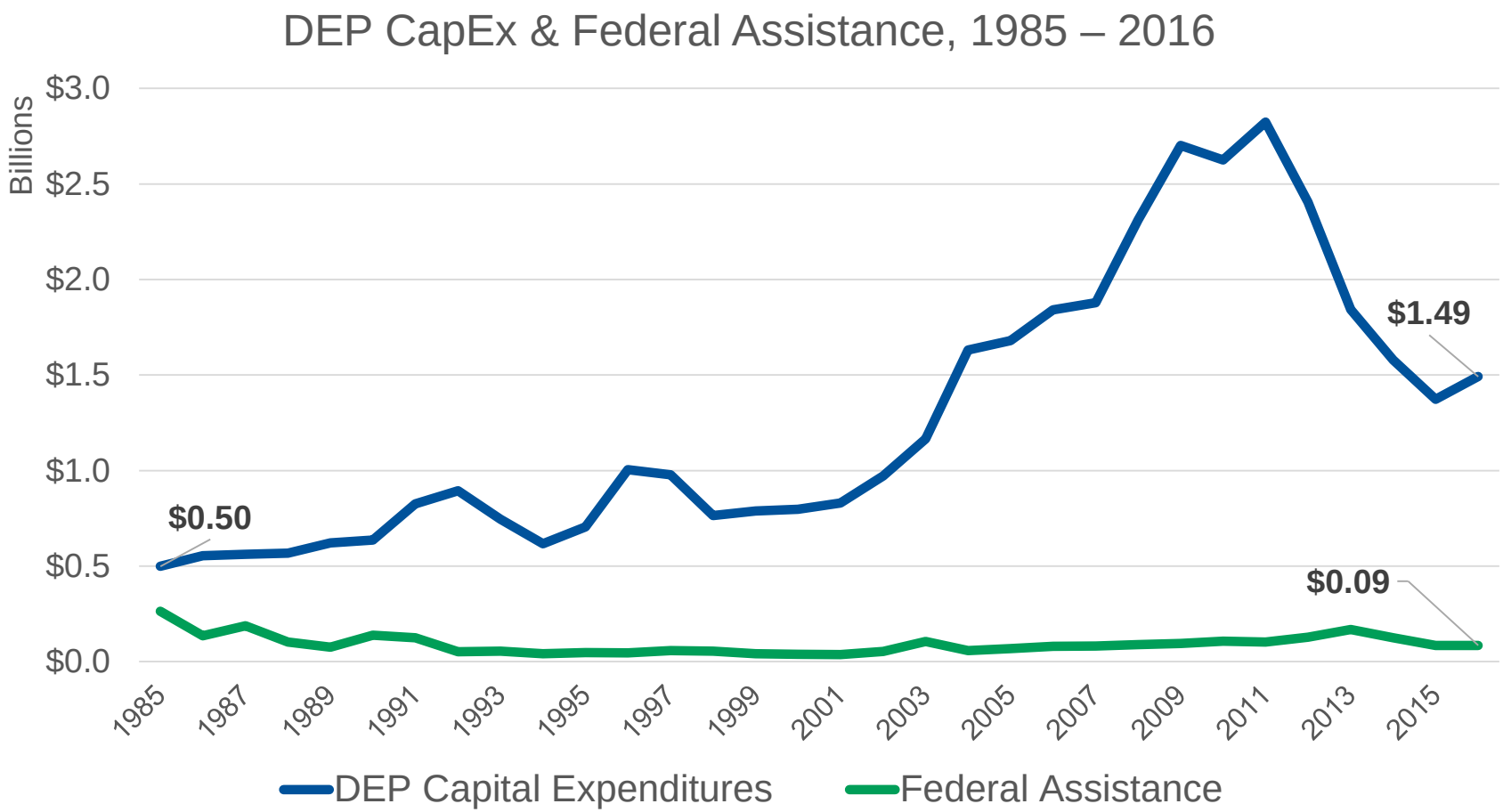
Cloudbursts

Public Perception

Stormwater

Water Quality

NYC Capital & Federal Funding



- In 1985, Federal assistance composed 52% of DEP CapEx
- In 2016, Federal assistance composed 6% of DEP CapEx

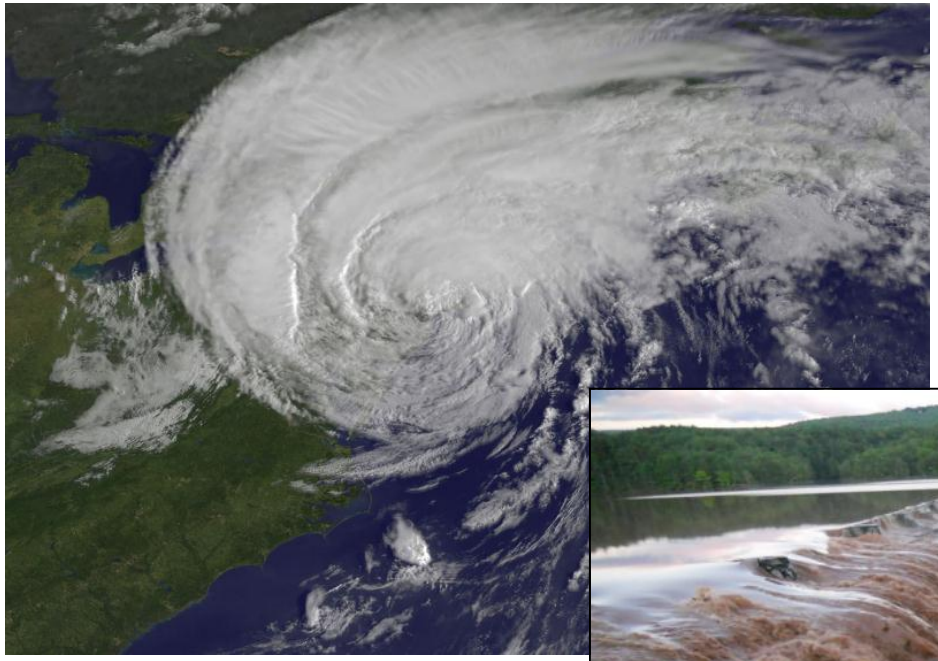
Smart Investments – Watershed Protection

- Filtration Avoidance Determination (FAD) issued in 1997
  - Permits continued use of land in upstate watersheds to filter water and avoid building a filtration plant
- Allows DEP to purchase vacant lands or conservation easements to protect open space in perpetuity throughout the watershed

- FAD has cost approximately $1.7 billion
- **Avoided cost of building a filtration plant**
  $8 to $10 billion capital
  + $100 million/year O&M

Climate Risk: Heavy Rain

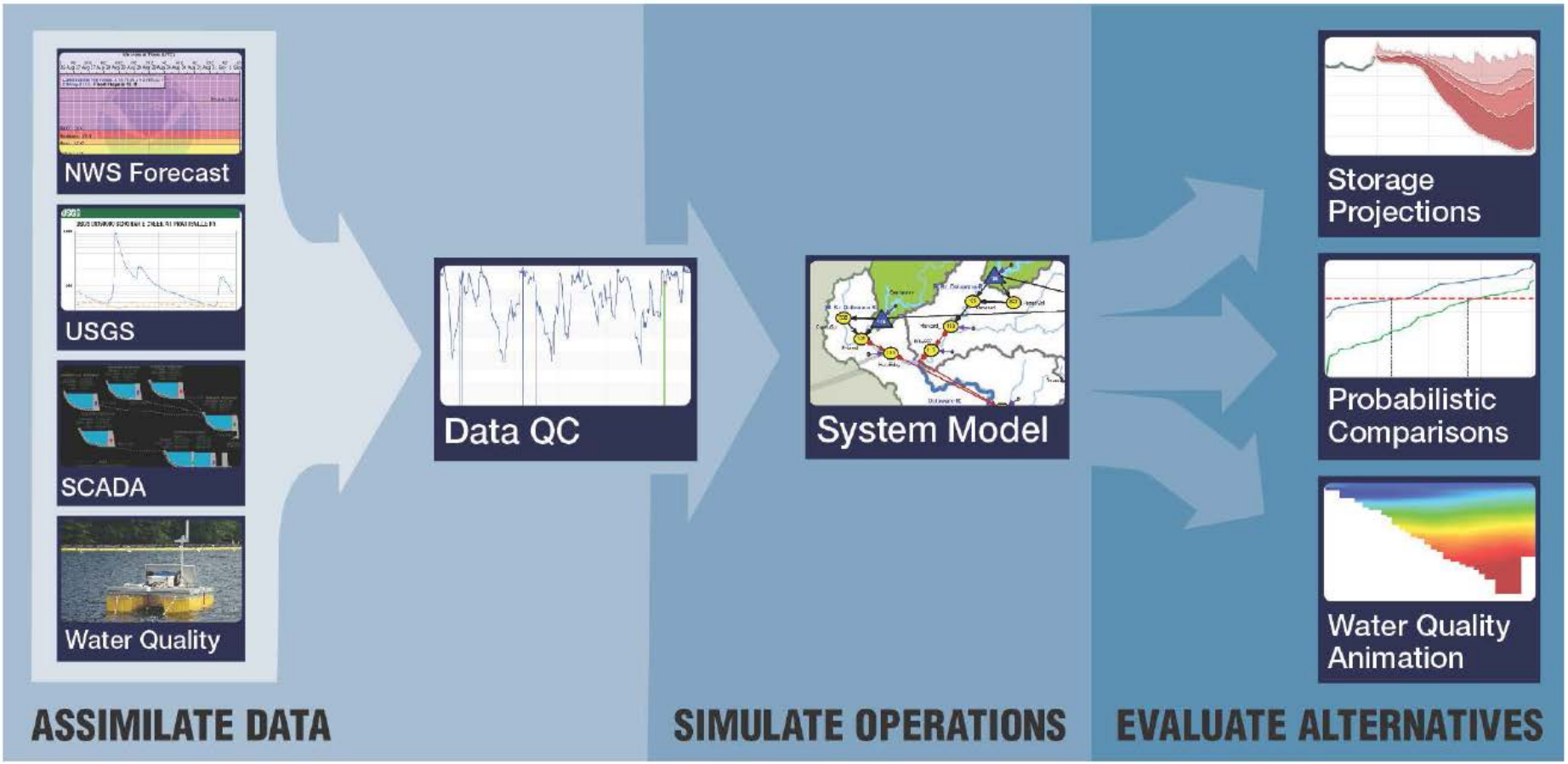
Heavy rain events increase turbidity and create pressure to use reservoirs to store more water to avert downstream flooding.



Tropical Storm Irene, August 2011

Water spills over the Gilboa Dam in Gilboa, NY Aug. 29, 2011

Smart Investments – Monitoring/Modeling



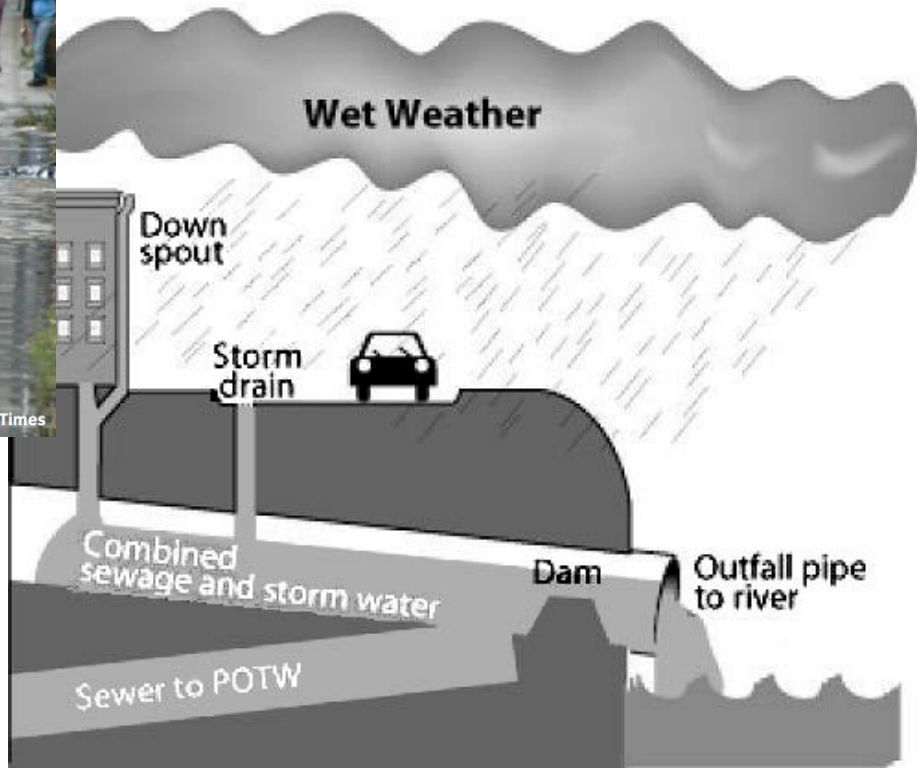
The Operations Support Tool's look-ahead capability provides system analysts, operators, and managers with information to support decisions concerning reservoir diversions and releases.

Climate Risk: Heavy Rain

Heavy rain events cause flooding and combined sewer overflows.

A September 2004 storm flooded 9th Street in Brooklyn.

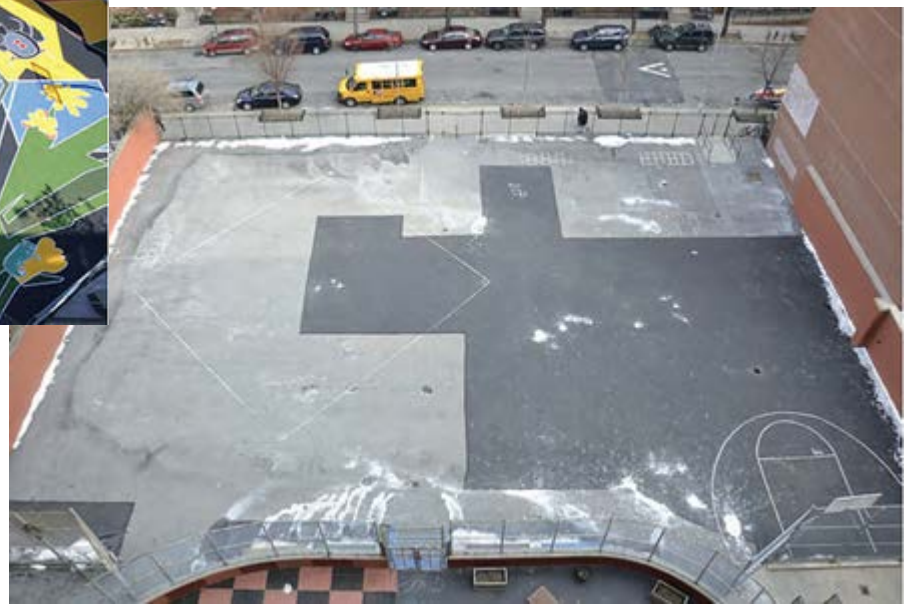
Credit: Seth Wenig/The New York Times



Smart Investments – Green Infrastructure

- $1.5 billion green infrastructure program, will defer spending in underground tanks and tunnels
- Creates green and public space for communities across the city, reduces urban heat island, and can help reduce flooding

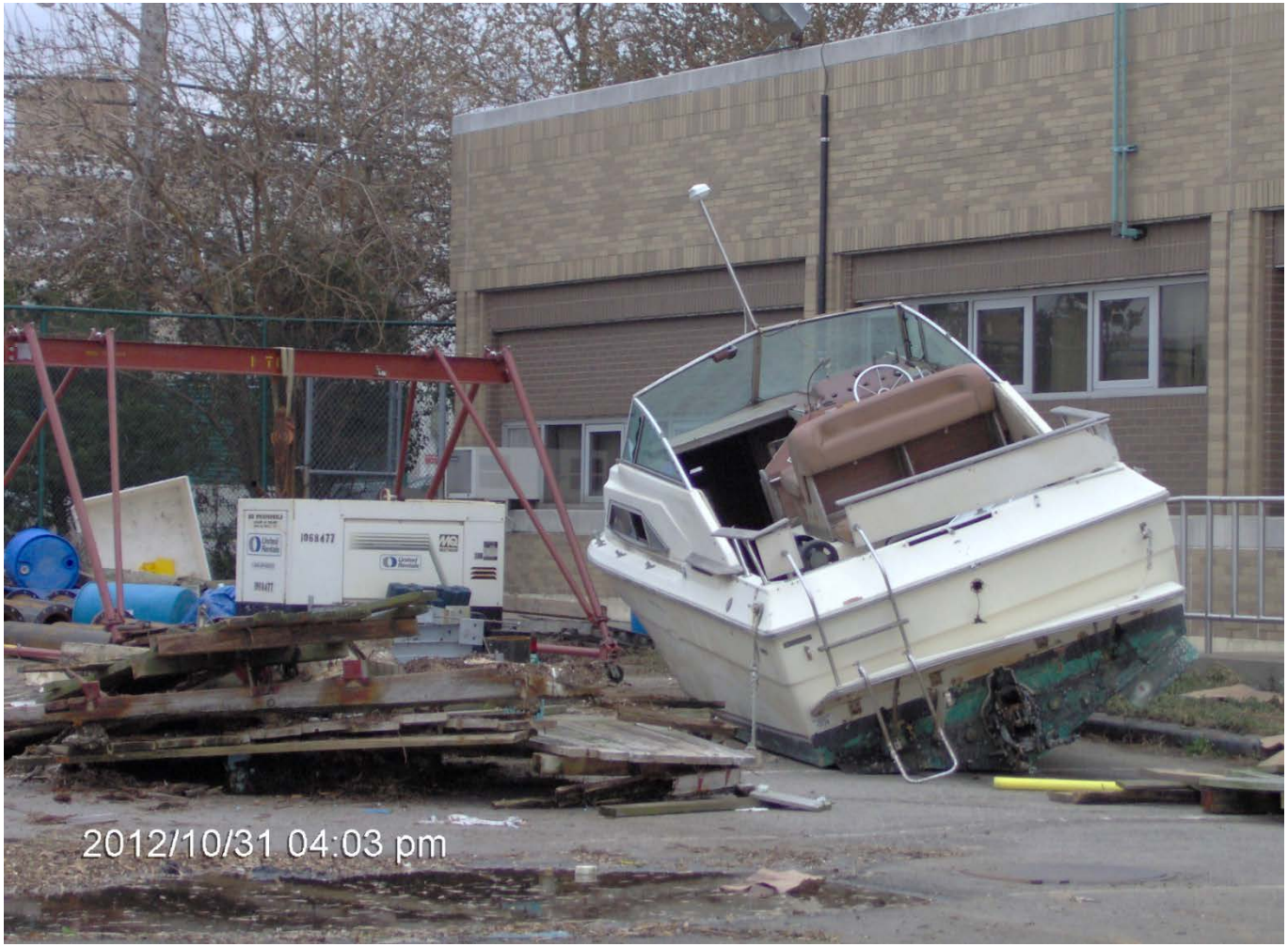
PS 15 after green infrastructure



PS 15 before green infrastructure

Climate Risk: Storm Surge

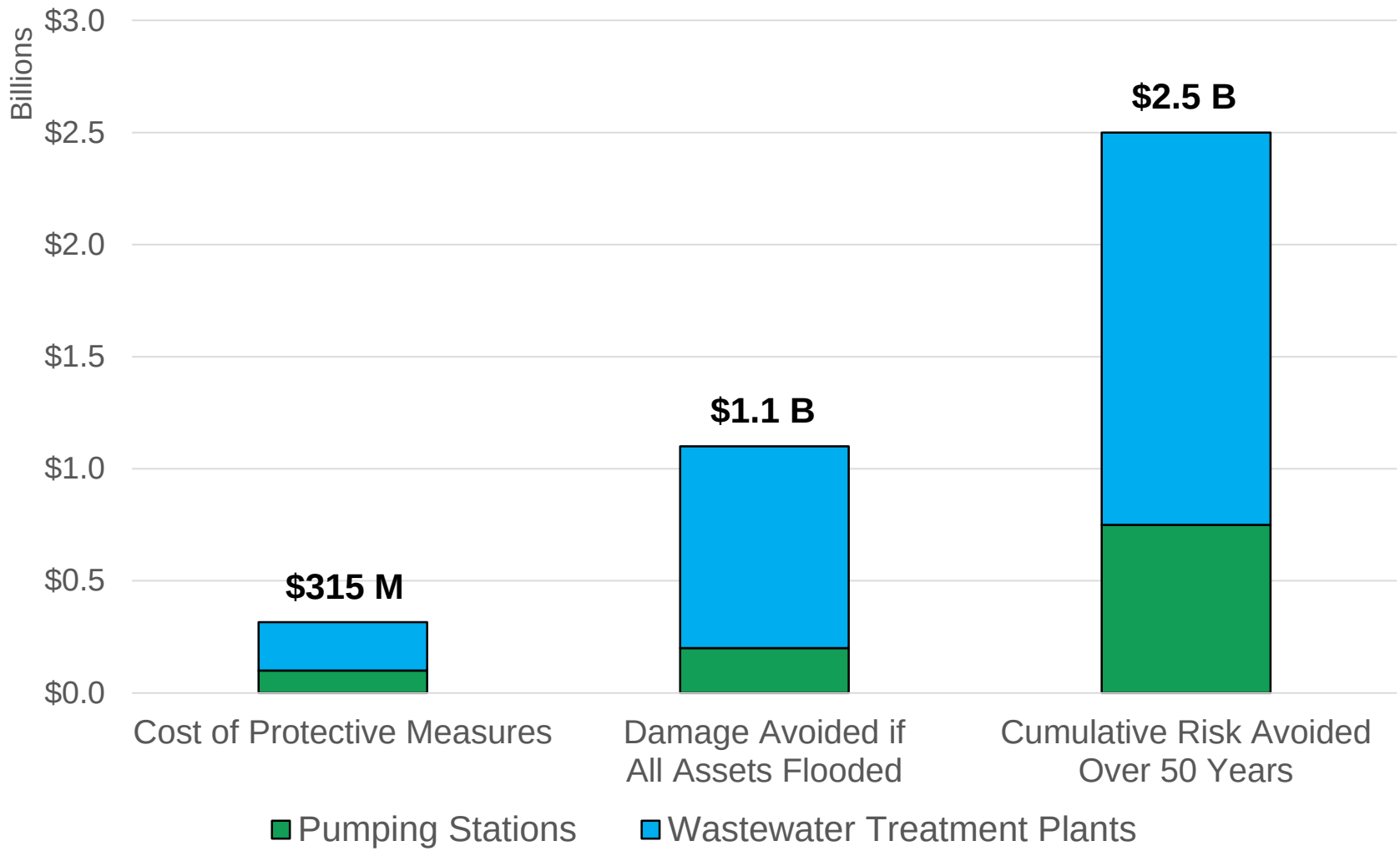
Sea level rise increases the risk of coastal flooding.



A boat washed onto the premises of the Coney Island Wastewater Treatment Plant after Superstorm Sandy, October 31, 2012

Smart Investments – Flood Protection

*Investing **$315 million** in strategic flood protection measures could save the City **$2.5 billion** in emergency response costs over the next 50 years.*



Source: NYC Wastewater Resiliency Plan, 2013

Observations

- Advancing resiliency requires integration with a busy agenda:
  - Fulfilling regulatory mandates
  - Keeping the existing system in a state-of-good-repair
  - Avoiding costly rate increases

- Federal assistance opportunities include:
  - Monitoring & modeling
    - Helps sustain and promote programs that avoid costly investments
    - Requires localized future scenario development to help weigh decisions
  - Hazard mitigation funding
    - Promotes projects that are often unfunded due to competition with regulatory and state-of-good repair investments
  - Technology clusters
    - Supports integration between government, academia, nonprofit, and private sector to advance innovative solutions and startups