



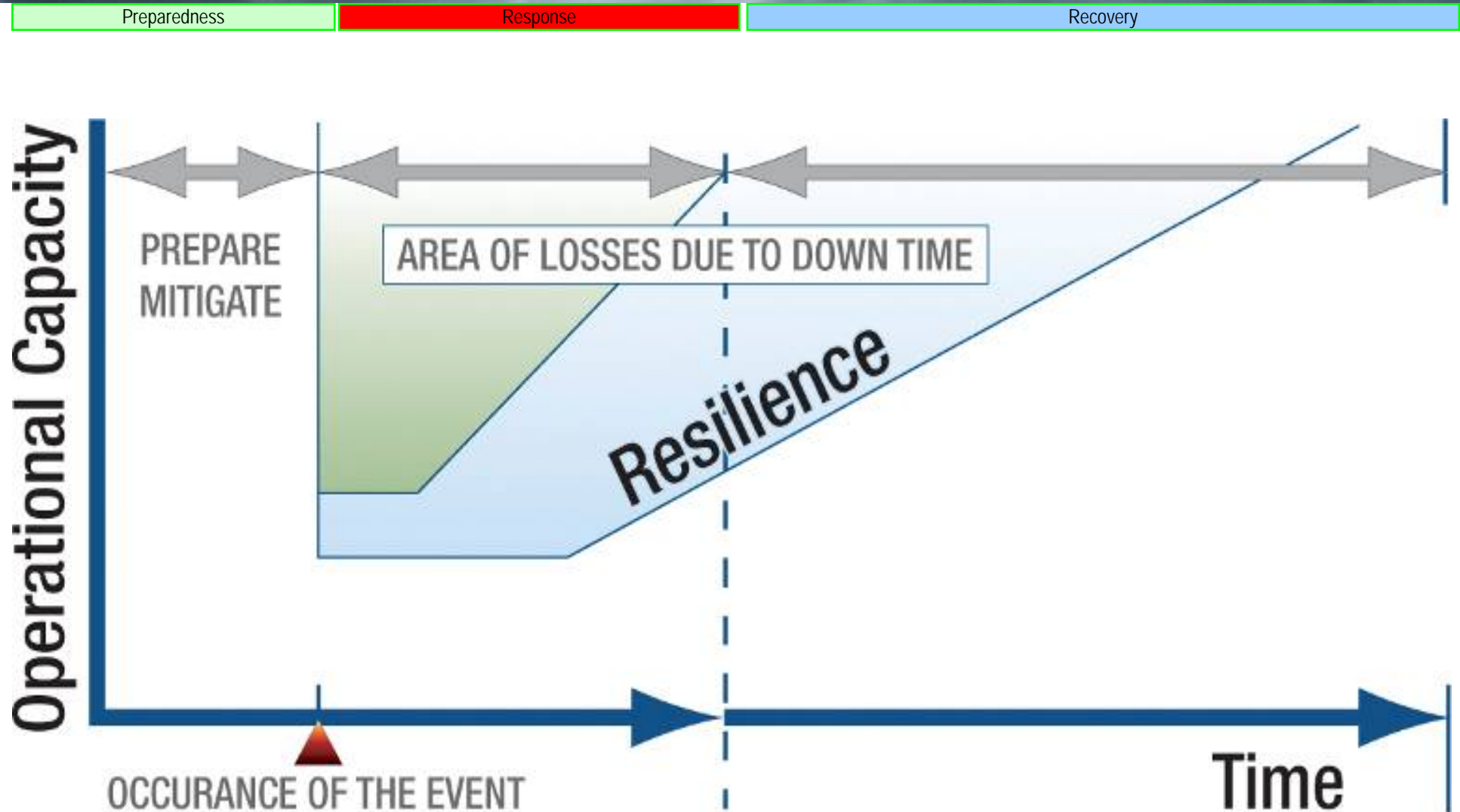
Developing a Resiliency Strategy for NJ's Wastewater Treatment Plants

Mike Moriarty – FEMA Region 2 Mitigation Director

Key Points

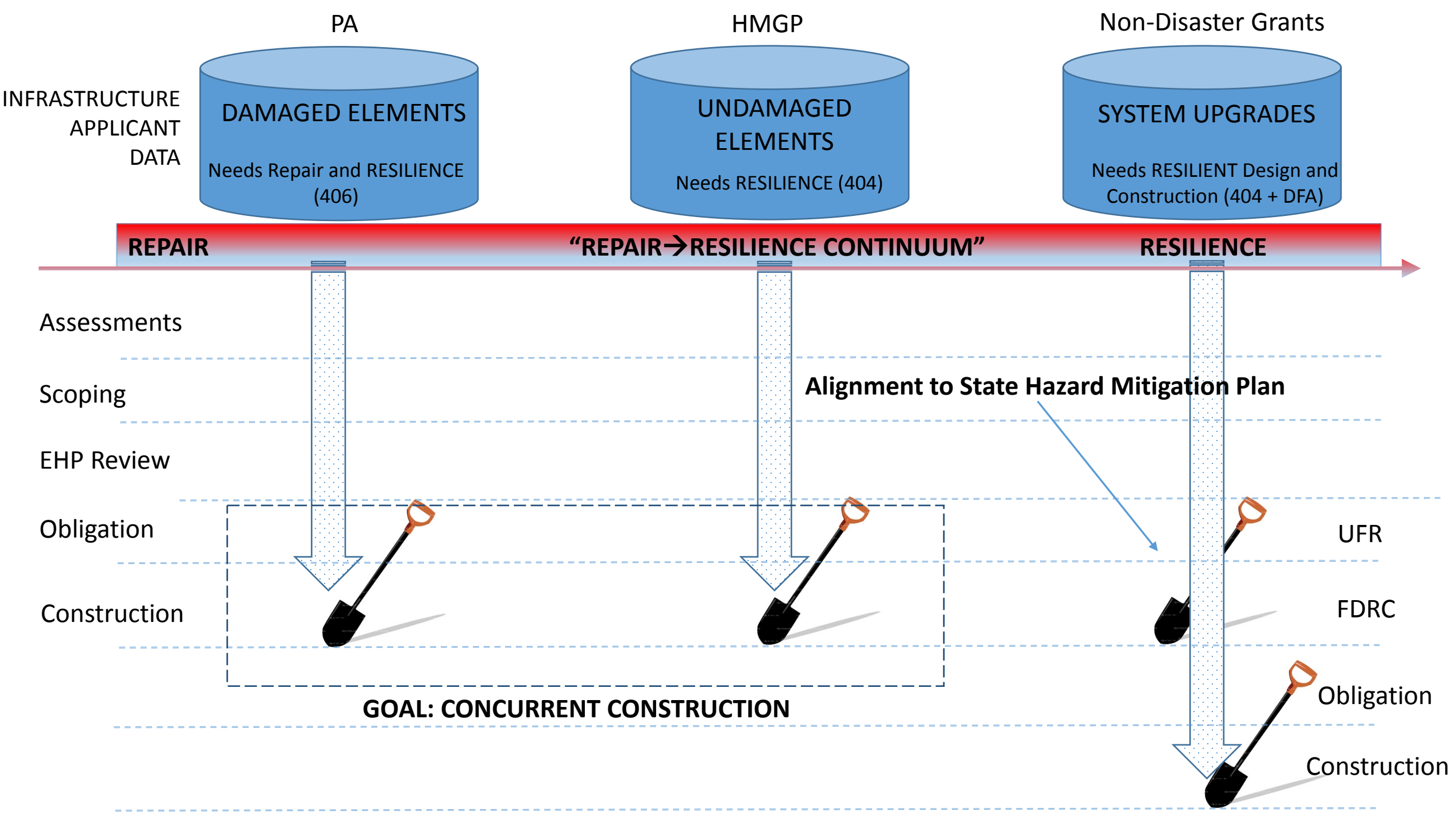
- Community Resilience – Overview
- Public Assistance & 406 Mitigation
- Mitigation Grants – reduces risk, cost effective, complete project
- State/County Hazard Mitigation Plan alignment

Benefits of a Resilient Infrastructure



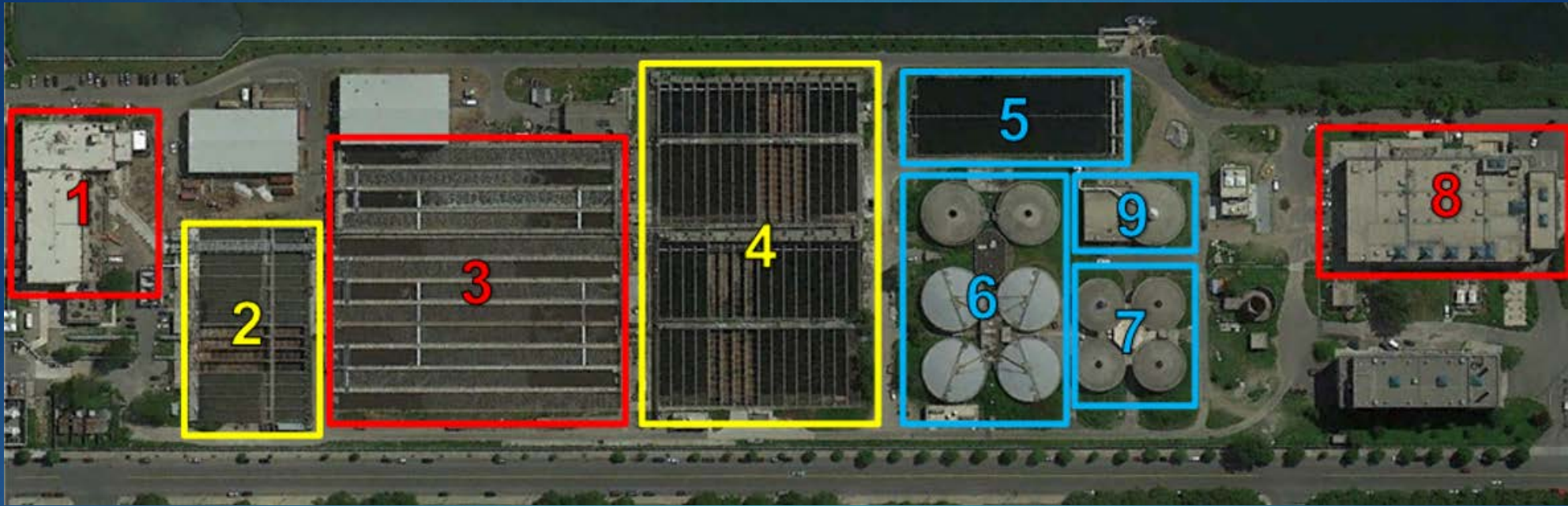
Critical Infrastructure

- Chemical – biological, chemical, explosive, fertilizer plants
- Energy – production plants, storage, terminals
- Disaster – historic faults, storm tracks
- Transportation – hubs, lines, tunnels/bridges
- Water – sanitation, supply points, water control





26TH WARD WASTEWATER TREATMENT PLANT



Achieved full mitigation funding under 406 Mitigation HQ Determination

- Wastewater treatment is an integrated and interdependent process
- Mitigate both essential and non-essential undamaged elements
- Critical Action determination
- \$21.3M Dry floodproofing vs. \$44M Floodwall

\$52M

PA Repair Cost

\$12M

PA 406 Eligible

\$4.5M

Applied Under 404

\$4.7M

Unprotected

New York Sandy related WWTP Funding

PW Number	Version Number	Applicant	Project Title	PA Dollars Obligated	HMP Dollars Obligated
1048	2	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2604 - Coney Island WWTP	\$ 16,517,509.00	\$ 37,518,591.00
2576	2	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2615 - Tallman Island WWTP	\$ 2,262,920.00	\$ 487,373.00
2619	4	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2605 - North River WWTP	\$ 6,851,692.00	\$ 13,910,722.00
3193	1	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2616 - Rockaway WWTP	\$ 9,781,700.00	TBD
3710	2	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2626 - Port Richmond WWTP and Bowery Bay WWTP	\$ 2,467,894.02	\$ 259,505.00
3870	2	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2631 - Red Hook WWTP and Newtown Creek	\$ 1,943,067.00	\$ 509,372.00
4142	3	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2627 Oakwood Beach WPCP	\$ 9,311,699.00	\$ 62,540,634.00
4250	1	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2628 - 26th Ward WWTP and Spring Creek CSO	\$ 20,709,905.00	\$ 17,180,616.00
4568	1	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2629 - Owl's Head WWTP and Jamaica Bay WWTP	\$ 2,198,984.00	TBD
4590	2	NEW YORK / ENVIRONMENTAL PROTECTION, DEPARTMENT OF / 081-51000-26	NYQ2630 - Hunt's Point WWTP and Wards Island WWTP	\$ 9,494,862.00	\$ 618,129.00
				\$ 81,540,232.02	\$ 133,024,942.00

NJ Sandy related Mitigation Funding for WWTPs

State	County	Project Identifier	Description	Project Amount	Federal Share Obligated
New Jersey	Salem	DR-4086-0487	Construction of collection pond and pump system	\$1,100,000.00	
New Jersey	Monmouth	DR-4086-0570-R	Construction of outlet structures and check valves	\$395,100.00	\$355,590.00
New Jersey	Monmouth	DR-4086-0229-R	Conversion to submersible and elevation of electrical	\$531,000.00	\$477,900.00
New Jersey	Hudson	DR-4086-0145-R	Generator Installation	\$250,000.00	\$250,000.00
New Jersey	Monmouth	DR-4086-0178-R	Generator Installation	\$558,772.00	\$558,772.00
New Jersey	Hudson	DR-4086-0212-R	Generator Installation	\$250,000.00	\$250,000.00
New Jersey	Bergen	DR-4086-0220-R	Generator Installation	\$75,000.00	\$75,000.00
New Jersey	Bergen	DR-4086-0243-R	Generator Installation	\$75,000.00	\$75,000.00
New Jersey	Monmouth	DR-4086-0261-R	Generator Installation	\$25,000.00	\$25,000.00
New Jersey	Union	DR-4086-0304-R	Generator Installation	\$225,000.00	\$225,000.00
New Jersey	Hudson	DR-4086-0340-R	Generator Installation	\$250,000.00	\$250,000.00
New Jersey	Hudson	DR-4086-0410-R	Generator Installation	\$100,000.00	\$100,000.00
New Jersey	Bergen	DR-4086-0492-R	Generator Installation	\$250,000.00	\$250,000.00
New Jersey	Monmouth	DR-4086-0547-R	Generator Installation	\$262,000.00	\$262,000.00
New Jersey	Morris	DR-4086-0566-R	Generator Installation	\$223,100.00	\$223,100.00
New Jersey	Morris	DR-4086-0594-R	Generator Installation	\$148,500.00	\$148,500.00
New Jersey	Middlesex	DR-4086-0493-F	Installation of pumping system	\$400,000.00	\$360,000.00
New Jersey	Ocean	DR-4086-0419-R	Installation of pumping system	\$157,304.00	\$157,304.00
New Jersey	Ocean	DR-4086-0299-R	Mobile bypass pump	\$37,690.00	\$33,921.00
New Jersey	Camden	DR-4086-0451-R	Installation of pumping system	\$97,000.00	\$75,000.00
New Jersey	Mercer	LPDM-PJ-02-NJ-2009-001	Relocation	\$800,000.00	\$500,000.00
New Jersey	Monmouth	DR-4086-0469-R	Upgrading and retrofitting pump stations	\$650,000.00	\$585,000.00
New Jersey	Burlington	DR-4086-0475-R	Upgrading pumps	\$780,000.00	\$166,039.00
New Jersey	Union	DR-4086-0466-R	Upgrading pumps	\$867,600.00	\$867,600.00
New Jersey	Ocean	DR-4086-0467-R	Wet Well only installation at pump station	\$435,000.00	\$0.00
New Jersey	Ocean	DR-4086-0605-R	Wet Well only installation at pump station	\$510,844.00	\$469,759.00

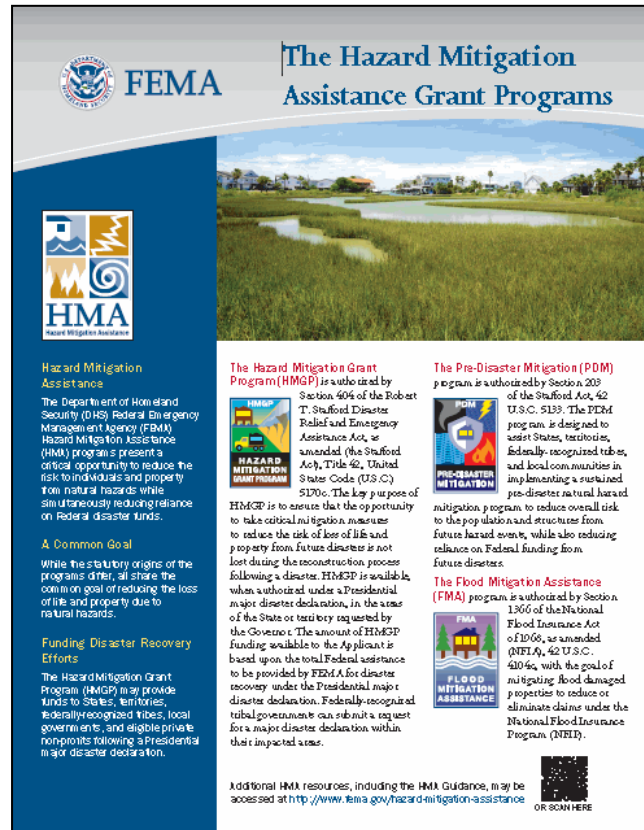
Niagara Falls Water Board Waste Water Treatment Plant

- 2017 HMGP project cost is \$3,244,370 -mitigate damages up to the 500 year event.
- Project to allow the facility to safely close the main WWTP influent sluice gates to isolate the plant and bypass flows via connecting to an existing 84-inch tunnel. This project will also increase the conveyance capacity of the City's principal sewer interceptor ultimately preventing sewer collection system back-ups and residential basement flooding.
- (NOTE: This project is presently a phase 1 approval – construction will start in 2018.)

Comprehensive Mitigation at the Binghamton - Johnson City Joint Sewage WWTP

- This WWTP has recorded damages from four major declared events DR-1095-NY in 1996, DR-1589-NY in 2005, DR-1650-NY in 2006, and DR-4031-NY in 2011.
- Mitigation included a 1,427 LF perimeter floodwall system to an elevation of the 500 year event plus 1.5 foot of freeboard. Additional measures included 4 internal storm water twin pumps in order to remove stormwater runoff from within the floodwall barrier, self-activating flood gates along with other required modifications.
- Total project cost is \$22,577,273 and will mitigate damages greater than the 500 year event.
- (NOTE: The construction of this project has been completed.)

Brochure: *The Hazard Mitigation Assistance Grants Program*



Published July 2015, the brochure provides information on:

- Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, Flood Mitigation Assistance (FMA) program
- Program comparisons
- Application process



FEMA



Hazard Mitigation Assistance Job Aids

FEMA developed 23 job aids and resources to assist in HMA program delivery, some examples are:

- “Homeowner’s Guide to the HMGP”
- “Federally-Recognized Tribes and the HMGP – Option to Submit as an Applicant or Subapplicant”
- “Resilience and Climate Change Adaptation”
- “Closeout Toolkit”
- “Section 106 Process Under the National Historic Preservation Act” flowchart

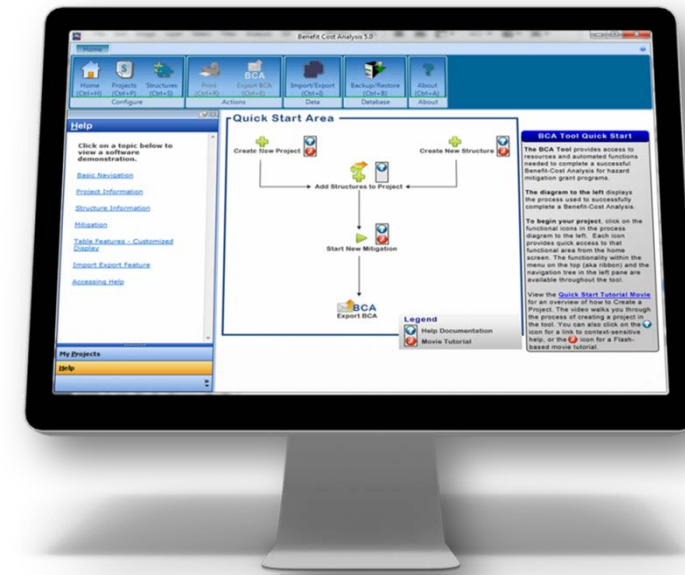


FEMA



Benefit Cost Tool Version 5.2.1 (February 2015)

- Used to perform benefit cost analysis for applications submitted under FEMA's HMA Grant Programs
- Updated periodically
- [Benefit Cost Toolkit 5.2.1](#)
- [FEMA Benefit-Cost Analysis](#)



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