



The Status of Puerto Rico Infrastructures & Enhancement Plans

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Autoridad de Acueductos y Alcantarillados
GOBIERNO DE PUERTO RICO



PRASA Overview

1,236,728 customer accounts

Residential



95%

Government



0.8%

Commercial

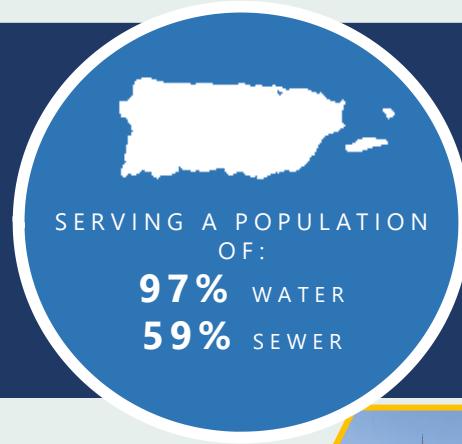


4.1%

Industrial



0.07%



4,654 employees

1,562 WATER TANKS



254 WATER WELLS



113

WATER TREATMENT PLANTS



14,753 MILES OF WATER PIPELINE
5,994 MILES OF WASTEWATER PIPELINE



8 DAMS
143 WATER INTAKES



883 WATER PUMP STATIONS
714 WASTEWATER PUMP STATIONS



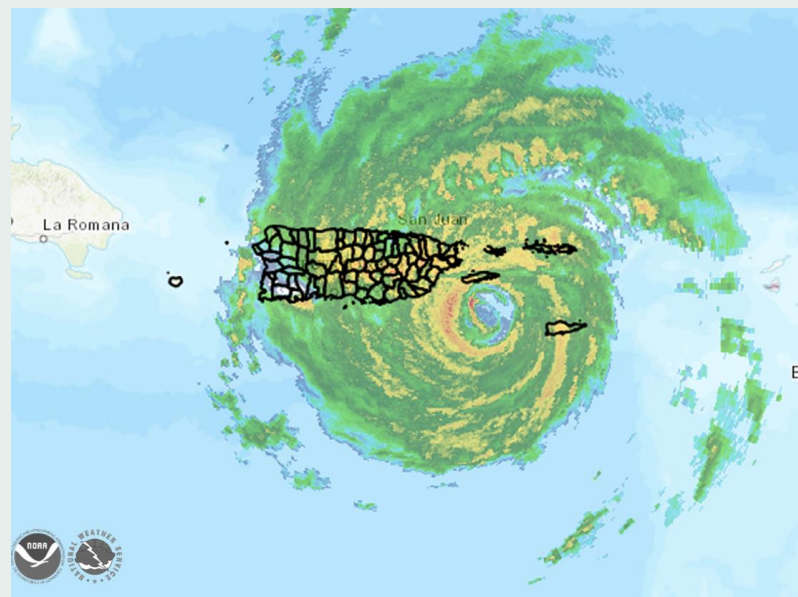
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WASTEWATER TREATMENT PLANTS



The impact of hurricane Maria

- On September 20th, at approximately 6:15 AM hurricane Maria made landfall in Yabucoa, Puerto Rico as a strong category 4 hurricane with maximum sustained winds of 155 mph. As the center of the storm moved west-northwestward over southeastern PR into the interior and northwestern PR, widespread hurricane force winds spread all over mainland PR along with extremely heavy rainfall that produced major to catastrophic flooding and flash flooding, especially across the northern half of Puerto Rico.
- Maria's center moved over the coastal waters off northwestern Puerto Rico early that afternoon. Even though hurricane force winds started to diminish once the system moved offshore, tropical storm force winds continued well into the evening and overnight hours across mainland Puerto Rico.

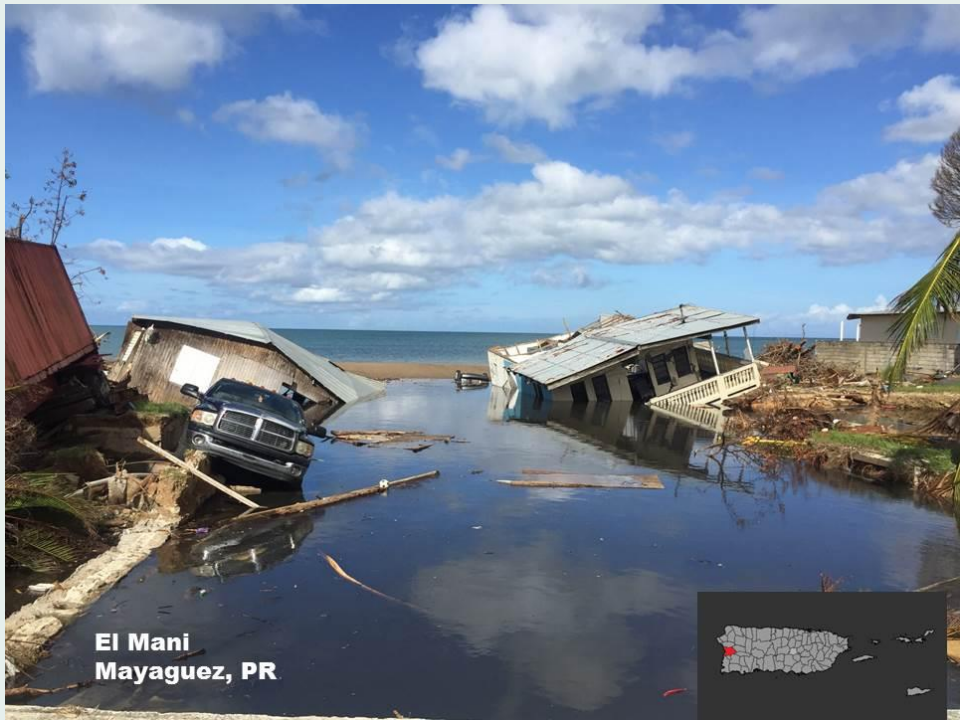




The impact of hurricane Maria



Utuado, PR



El Mani
Mayaguez, PR



PRASA impact

- Electrical power failure
- Communications failure
- Sanitary overflows (Due over 200 generators working at the same time)
- Structural damages in the spillway at Guajataca Dam
- Water well damages
- Facilities flooding (wastewater treatment plants)
- Debris on roads and irrigation channel
- Broken pipes



PRASA impact





PRASA impact





PRASA impact





Flooding in San Sebastian Wastewater Plant





PRASA impact





PRASA recovery

- Acquisition of more electric generators units
- Emergency infrastructure projects in affected areas
- Satellite communication
- Potable water trucking
- Wastewater and sludge trucking management
- Communication and report between PRASA, State and Federal agencies (EPA, Health Department, FEMA)
- Gasoline and diesel distribution
- Cleaning potable and wastewater facilities



PRASA resiliency

- Request for infrastructure projects in vulnerable areas
 - Casey Reservoir and Water Treatment Plant
 - Guajataca Dam Rehabilitation
 - Relocation of Dorado and San Sebastian Wastewater Treatment Plants (Due for new flood zones)
 - Improve potable water service zones (transfer capabilities)
 - Incorporate new technologies and sensors to improve system monitoring capabilities into distribution potable water system
 - Improve water treatment plants to handle high turbidity events caused by heavy rains.
 - Incorporate alternative energy source to potable water system, as pump stations and wells, using emergency generators.



PRASA resiliency

Municipality	Description	Estimated Investment Cost	Elegibility activity 404 Hazard Mitigation
Aguadilla	Improvements to the Culebrinas Raw Water Intake	\$4,512,307.00	Infrastructure Retrofit, Post Disaster Code Enforcement, Generators
Aguadilla	Expansion of Culebrinas WTP, 5 to 10 MGD	\$10,453,489.00	
Aguadilla	Impermeabilization Calero Lake	\$5,000,000.00	
Various	Emergency Generators in Guajataca Distribution System	\$3,000,000.00	



PRASA resiliency

Municipality	Description	Estimated Investment Cost	Elegibility activity 404 Hazard Mitigation
Añasco	Casey Reservoir and WTP	\$552,518,544.00	Infrastructure Retrofit, Miscellaneous/Other
San Sebastian	Elimination of San Sebastian New WWTP	\$45,115,016.00	Property Acquisition and Structure Relocation, Localized Flood Risk Reduction Projects, Infrastructure Retrofit, Post Disaster Code Enforcement
San Sebastian	Elimination of San Sebastian Old WWTP		
Aguada	Improvements to Aguada WWTP		



PRASA's Capital Improvement Program

Current Approved CIP

In \$ Millions	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	6-year CIP
Emergency/Permanent Works	10.1	220.5	175.9	192.4	118.0	33.4	750.2
Renewal & Replacement	51.8	70.2	50.0	61.0	71.5	63.0	367.5
Mandatory Compliance	0.7	21.7	67.8	67.4	28.6	14.6	200.9
Non Mandatory Compliance	0.7	4.1	16.0	43.2	52.8	40.8	157.6
Others ¹	10.2	51.7	79.5	236.2	249.5	307.1	934.3
Total CIP by Fiscal Year	73.5	368.3	389.2	600.2	520.3	458.9	2,410.5

Direct impact
of the
Hurricanes

Note: This CIP includes \$644M for Resiliency projects over the 6-year period of the plan. The total CIP investments have been constrained by availability of funding. The total CIP is subject to increase once additional sources of funding are identified

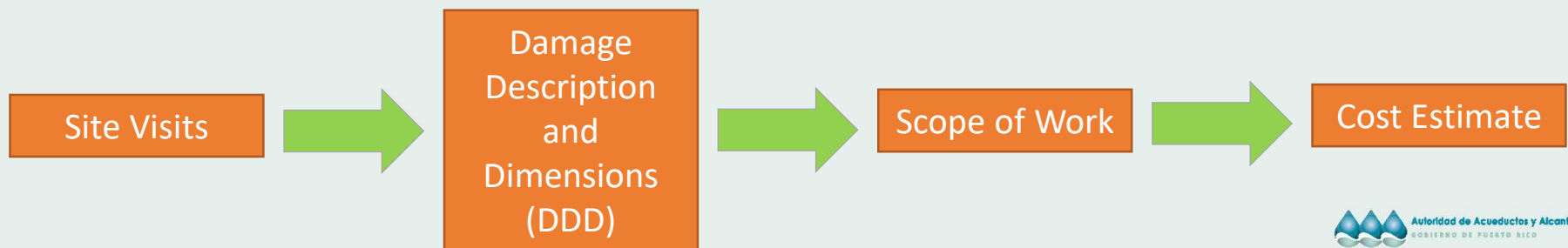


PRASA's Capital Improvement Program Non Recurring Sources of Funds

POTENTIAL SOURCES OF FUNDS TO REBUILD AND IMPROVE PRASA'S INFRASTRUCTURE

- FEMA's Public Assistance Program:
 - Emergency Works (Cat A-B), with estimates at \$265 million spent by PRASA to respond to the emergency
 - Permanent Work (Section 428), PRASA estimates damages at \$769 million
 - Hazard Mitigation Programs 404 and 406
- Community Disaster Block Grant – Disaster Relief
- Potential supplemental fund allocations from the EPA's State Revolving Funds program and the USDA Rural Utility Service program

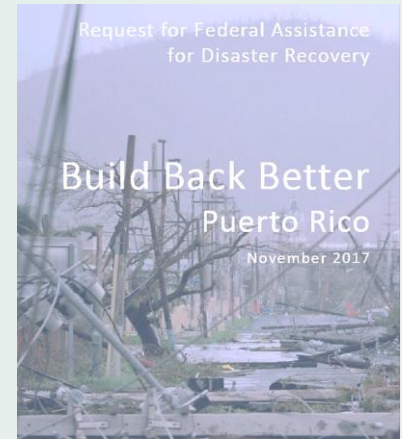
OBTAINING FUNDS THROUGH FEMA'S PUBLIC ASSISTANCE PROGRAM



PRASA's Capital Improvement Program Resiliency Opportunities



Project Type <i>In \$' Millions</i>	Water &		Projected Cost
	Water Control	Wastewater	
Water service reliability	\$ 1,608.8	\$ -	\$ 1,608.8
Wastewater treatment reliability	-	380.6	380.6
Intake relocation	148.3	-	148.3
Increase dams safety	46.8	-	46.8
Overflows elimination	-	15.5	15.5
Total BBB Plan Projects	\$ 1,803.9	\$ 396.2	\$ 2,200.0
Provide and install power generators			50.0
Rehabilitation of Bayamon transmission lines			42.6
Reservoirs dredging			960.0
Remote operational capabilities			150.0
Total Resiliency Projects			\$ 3,402.6



Other projects pursued by PRASA not included in the BBB Plan

From the total, **\$93M** are included in the **6-year CIP**, mainly for:

- Valenciano WTP: \$20M
- Enrique Ortega WTP Improvement: \$19M
- Dorado Sewer Trunk: \$18M
- Improvements to Añasco Intake and degritter: \$9M

Resiliency Projects will be executed only if federal funding is available for 100% of the amount

If PRASA should contribute a 10% state match, the financial need would increase by \$340M (not included in the financial projections included herein)



Questions

