

# Charleston Water System

*See File "CPW AR" for Adopting Resolution*

**A RESOLUTION FOR THE ADOPTION OF THE REVISED  
CHARLESTON REGIONAL HAZARD MITIGATION PLAN BY THE  
CHARLESTON WATER SYSTEM COMMISSION**

**Resolution No.**

**WHEREAS** the Charleston Water System Commission service area has experienced the effects of natural and man-made hazard events; and

**WHEREAS** the Charleston Regional Hazard Mitigation Project Committee has prepared a recommended *Charleston Regional Hazard Mitigation Plan*; and

**WHEREAS** the recommended *Charleston Regional Hazard Mitigation Plan* has been widely circulated for review by residents/business organizations/professional organizations of the unincorporated and incorporated areas of Charleston County, state, federal, regional and local government agencies and has been supported by those reviewers; and

**WHEREAS** the Charleston Water System Commission (formerly Commissioners of Public Works) originally adopted the *Charleston Regional Hazard Mitigation Plan* in 1999 and readopted it in 2004, and is required to adopt the amended version of this plan on a five-year cycle for the Commission to remain eligible for certain Federal programs in which Charleston Water System Commission participates, and

**NOW THEREFORE** be it resolved that

1. The *Charleston Regional Hazard Mitigation Plan* is hereby adopted as an official plan of the Charleston Water System Commission, and
2. The Charleston Regional Hazard Mitigation Project Committee is recognized as a continuing entity charged with reviewing, maintaining in accordance with Community Rating System, Flood Mitigation Assistance, and Disaster Mitigation Act requirements, and periodically reporting on the progress towards and revisions to the plan to the Charleston Water System Commission.

Effective this 22<sup>nd</sup> Day of September, 2008

Attest:

F. K. Hill, Jr., C.E.O.

Margaret B. Porter, Witness

## 2011 STATUS REPORT FOR THE CHARLESTON WATER SYSTEM

*(fka Commissioners of Public Works for the City of Charleston)*

The Charleston Water System is located in Charleston County, SC.

The following are projects proposed to be undertaken/continued in the Commissioners of Public Works for hazard mitigation during 2010-2011 and their status as of June 2011:

*(Abbreviations for "Type" are as follows: "PA" is Preventive Activities, "PP" is Property Protection Activities, "NB" is Natural and Beneficial Functions/Resource Preservation Activities, "ES" is Emergency Services Activities, "SP" is Structural Projects Activities, "PI" is Public Information Activities, and "GIS" is Geographic Information System Activities.)*

Revision Date: July 8, 2011

CWS Department Legend (indicates responsibility)

E&C – Engineering & Construction

EO - Executive Office

ERD – Environmental Resources (Wastewater Treatment)

IT – Information Technology

HR – Human Resources

HWTP – Hanahan Water Treatment Plant

WWC – Wastewater Collection

WDD - Water Distribution

Various Departments (Black)

Type	Activity	Lead Agency	Funding Source	Goal(s) Addressed	Priority (1-highest, 4-lowest)	Status as of 2011
<b>Engineering &amp; Construction</b>						
SP	Maintain 25-year master plans for water supply, distribution, collection, and treatment.	E&C	O&M	Proactively replace aging infrastructure, ensure hydraulic efficiencies, and prepare for area growth.	1	On-going
PA	Perform sewer system evaluation surveys	E&C; WWC	Major Capital	Minimize potential for sewer overflows and upsets at wastewater treatment plants	1	On-going

ES	Replace aging sections of the wastewater tunnel	E&C	Major Capital	Will ensure that major overflows do not occur	1	Completed Ashley and Cooper Tunnels; Engineering for West Ashley Tunnel complete; Permits pending
PA	Continue including in preconstruction conferences: Environmental Management System, safety, and security	E&C; HR; Facilities	O&M; Major and Recurring Capital	Educate contractors on understanding safe work practice, protection of environment, and security issues	1	On-going
ES	Continue to install emergency power backup at pump stations	E&C	Major and Recurring Capital	Ensure continuous operations during power outages for service continuity and protection of the environment	2	On-going
PA	Continue to require engineering and construction which minimizes impacts from flood, hurricane, and seismic events	E&C; HWTP; ERD; WWC; WDD	Major and Recurring Capital	Minimizes the impacts from natural disasters to help ensure continual operations	2	On-going
PA	Maintain upgrades to GIS	E&C; WDD; WWC; CS	Major and Recurring Capital; O&M	Provides a powerful tool for analysis to minimize disruption of water distribution and wastewater services; work planning	1	Updates on-going
SP	Continue implementation of water main replacement/rehabilitation	E&C; WDD	Major and Recurring Capital	Helps ensure reliable water infrastructure for providing safe and abundant water, reducing leaks, etc.	1	On-going
SP	Continue rehabilitation of treatment plant unit processes	E&C	Major and Recurring Capital	Assures reliability and robustness of mechanical equipment and system infrastructure	1	On-going
PA	Continue Cross Connection Control program	E&C	O&M	Protects CWS's water system from contaminants; hence, public health protection	1	On-going
SP	Expand/improve Supervisory Control and Data Acquisition (SCADA) infrastructure and system	EO	Major and recurring capital; O&M	Increase ability to monitor water and wastewater systems throughout plants and service area	2	On-going
Executive Office						

PA	Conformance to ISO 14001 Standards	EO and other depts.	O&M	Serves to minimize risk of activities adversely impacting the environment and public health	1	On-going
NB	Continue support of the SC Water Quality Association	EO	O&M	Protect the environment while preserving valuable natural resources	2	On-going
NB	Continue support of the Cooper River Water Users Association	EO	O&M	Protect the environment while preserving valuable natural resources	2	On-going
NB	Continue general water quality monitoring program for area rivers	EO; Laboratory	O&M	Helps ensure that the water environment is being protected	1	On-going
PI	Co-Sponsor Earth Day	EO and other depts.	O&M	Opportunity to inform general public about critical environmental issues and what the public can do to help minimize their impacts to environment	1	On-going
NB	Continue and expand recycling program	EO and other depts.	O&M	Reduces impacts on the environment; landfill use; air quality; water quality, etc.	1	On-going
PA	Continue membership in American Water Works Asso. (AWWA) & Water Research Foundation (WRF)	EO and other depts.	O&M	Supporting research efforts and staying top of latest technology helps to optimize operations and minimize risk	1	On-going
PA	Continue membership in Water Research Foundation (WRF) & Water Environment Research Foundation (WERF)	EO and other depts.	O&M	Supporting research efforts and staying on top of latest technology helps to optimize operations and minimize risk	1	On-going
PA	Continue participation in the Water Manager's Coalition	EO	O&M	Collaboration, emergency preparation & response, & cooperative efforts w/ other utilities in S.C.	4	On-going
PA	Continue participation in special research efforts of Water Research Foundation (WRF) regarding many utility-related issues	EO; HWTP; WDD; E&C	O&M	Involvement in special studies, such as security, monitoring efforts, emergency response, etc. will keep CWS on the leading edge of technology and education	2	On-going

PA	Continue participation in special research efforts of Water Environment Research Foundation (WERF) regarding many utility-related issues	EO; ERD; WWC; E&C	O&M	Studies related to homeland security, emergency response, water quality protection, etc. will keep CWS on leading edge of technology and education	2	On-going
ES	Maintain/improve counter-terrorism program.	EO; HWTP; E&C; Facilities	O&M	Minimize potential for water and wastewater contamination in order to protect public health and the environment	1	Emergency Response Plan 100% complete; training 100% complete
PI	Continue Speakers' Bureau Program for water/wastewater education to schools, civic clubs, and public meetings	EO	O&M	Helps disseminate critical information to CWS's customers; improves understanding and solicits help	2	On-going
NB	Continue/expand recycling program	EO and other depts.	O&M	Reduces impacts on the environment; landfill use; air quality; water quality, etc.	2	Recycling being increased; Tracking improvements 100% complete
NB	Evaluate/implement portions of the City of Charleston's Green Plan	EO	Major and Recurring Capital; O&M	Reduces use of natural resources and impact of our operations on the environment	2	LEED evaluation pilot underway
Environmental Resources (Wastewater Plant)						
PA	Continue using sodium hypochlorite at the wastewater plant(s) for disinfection purposes	ERD	O&M	Greatly reduces risk from using gaseous chlorine	1	On-going
PA	Continue optimizing process control at wastewater treatment plant(s)	ERD	O&M	Promotes efficiency, and protects public health and the water environment	1	On-going
PA	Enforce and maintain the industrial pre-treatment program (as applicable)	ERD; WWC	O&M	Enforcement minimizes risk of toxicity to the WWTPs	2	On-going
Information Technology						
ES	UPS system installation on critical facilities	IT; All departments where applicable	Recurring Capital	Ensures that critical facilities for computer and other operations remain functional during power loss	2	100% complete

PA	Link work order system to GIS and maps	IT; WWC; WDD	O&M	Will enable real-time changes to be made to GIS and asset condition description; this will ensure faster emergency response	2	System development † 100% complete; Linking 100% complete
PA	Utilize ruggedized laptops for use with field crews	IT; WDD; WWC	O&M	Will enable sending of work-orders and other documents and records to crews in real-time. This will ensure faster response time in emergencies	2	On-going
Human Resources						
ES	Continue training on first aid, CPR, and defensive driving	HR	O&M	Train CWS associates to provide first aid response to protect health	2	On-going
PA	Continue Employee Wellness Program	HR	O&M	Reduce health risks to CWS associates	1	On-going
PA	Continue/improve Safety Program	HR	O&M	Help ensure safe working conditions for CWS associates, contractors, and CWS customers and visitors	1	Many improvements to safety program complete; On-going
Hanahan Water Treatment Plant						
ES	Continue Risk Management Plan & Process Management Plan	HWTP	O&M	Protects public and worker health from chemical releases	1	On-going
ES	Continue Hazwoper Training	HWTP	O&M	Minimize impact of chemical release	1	On-going
ES	Continue training on caustic scrubber for chlorine leak mitigation	HWTP	O&M	Minimize impact of chemical release	1	On-going
ES	Continue training with local area fire and police departments	HWTP	O&M	Ensure that chemical releases are dealt with quickly with minimum of property damage and risk to public	1	On-going
PA	Continue monitoring of raw water supplies	HWTP	O&M	Ensures safety and treatability of source water supplies	1	On-going
PA	Continue optimizing process control at water treatment plant	HWTP	O&M	Promotes efficiency, and protects public health and the water environment	1	On-going
PA	Continue membership in AWWA's Partnership for Safe Drinking Water	HWTP	O&M	Ensures excellence in water treatment to protect water quality and public health due to protozoan contaminants	1	On-going
Wastewater Collection						

PA	Continue to enforce wastewater rules and regulations	WWC; ERD; E&C; Customer Service	O&M	Minimize problems with wastewater collection and treatment to protect public health and environment	2	On-going
PI	Continue informing citizens about need for proper grease disposal	WWC; EO	O&M	Educating the public will help CWS to minimize problems with its wastewater collection	3	On-going
PA	Continue enforcing grease trap ordinance program	WWC	O&M	Minimizes clogs in wastewater mains	3	On-going
PA	Continue CCTV monitoring and cleaning of wastewater mains	WWC	O&M; Major Capital	Ensures proper operations of wastewater system; identifies deficient wastewater mains for rehab	1	On-going
PA	Continue Smoke Testing Program	WWC	O&M	Identifies deficiencies to be corrected for proper system operations and to minimize hydraulic overloads	2	On-going
SP	Rehab. of wastewater mains and service laterals	WWC; E&C	Major and Recurring Capital	Improvements to wastewater infrastructure allows better control of I/I, fewer main collapses, and fewer wastewater back-ups	2	On-going
GIS	Asset Register Population	WWC	O&M	Populate GIS with missing data and Improve the integrity of asset data as needed	1	Corrections 87% complete
<b>Water Distribution</b>						
PA	Continue to enforce water rules and regulations	WDD; Cross Connection; Customer Service	O&M	Minimize problems with water distribution and water quality	2	On-going
PA	Expand corrosion control of Water Distribution	WDD	Recurring Capital; O&M	Minimize potential corrosion of water mains to extend life and lower leakage rate	2	On-going; anodes installed on repairs
ES	Continue fire hydrant installations, replacements, and improvements	WDD; E&C	Major and Recurring Capital	Helps ensure proper levels of water quantity for fighting emergency fires	1	On-going
PA	Continue working with area fire department on proper flushing techniques	WDD	O&M	Educating 14 different fire districts on proper operation of fire hydrants to minimize damage and to help protect water quality	2	On-going
PA	Continue leak detection program	WDD	O&M	Ensures water main integrity and minimizes water losses	1	On-going
PA	Continue Water Main Flushing Program	WDD	O&M	Helps protect water quality and public health	1	On-going
PA	Install automated meter reading throughout water system	Water Distribution	Major and Recurring Capital	Reduces exposure of meter readers to dangerous elements such as dog bites, insect stings, etc	2	50% complete

ES	Continue to maintain & increase the capacity of portable potable water supply tanks	WDD	O&M; Recurring Capital	During an emergency water loss, potable water service is critical for certain facilities; potable water tanks provide that service	2	On-going
PA	Continue with program to communicate more effectively with CWS's large water customers	WDD; EO	O&M	Improvements in communication to large customers is essential prior to, during, & after a crisis. Communicate important regulatory changes & solicit feedback.	2	Several improvements complete; On-going program
GIS	Asset Register Population	WDD	O&M	Populate GIS with missing data and Improve the integrity of asset data as needed	1	Corrections 80% complete
Various Departments						
ES	Maintain emergency preparedness plans for various emergencies	All departments	O&M	Comprehensive emergency preparedness plans are used to direct operations before, during, and after a disaster to minimize adverse impacts	1	On-going
ES	Continue training associates for emergency response	Facilities; HWTP	O&M	Associate awareness is critical to ensure proper response during event of disaster	1	On-going
ES	Emergency Communication improvements	All departments	O&M	Improve communications during emergency situations`	1	Crisis Communications Policy complete; On-going
ES	Risk Management Scoring of critical assets	ERD; HWTP; WWC; WDD	O&M	Prioritize critical assets; initiate efforts to reduce risk	1	On-going
ES	Establish corporate-level emergency preparedness & response plans to reduce redundancy among departments	EO	O&M	Comprehensive emergency preparedness & response plans are used to direct operations before, during and after a disaster to minimize adverse impacts and ensure business continuity	1	100% complete
ES	Eliminate redundant emergency plans	All departments	O&M	Same as above	1	90% complete

The Charleston Water System (Commissioners of Public Works of the City of Charleston) shall, through Project Impact, provide support to the many activities and projects that will benefit the residents of Charleston County. Additional recommended projects may be added to this project list as other projects are recommended to the Charleston Water System. Some Projects that are being undertaken by other jurisdictions may not necessarily be listed here but may affect the Charleston Water System.

## **2011-2012 ACTION PLAN FOR THE CHARLESTON WATER SYSTEM**

*(fka Commissioners of Public Works for the City of Charleston)*

**The Charleston Water System is located in Charleston County, SC.**

**The following are proposed projects to be undertaken/continued in the Charleston Water System service area for hazard mitigation during 2011-2012:**

***(Abbreviations for “Type” are as follows: “PA” is Preventive Activities, “PP” is Property Protection Activities, “NB” is Natural and Beneficial Functions/Resource Preservation Activities, “ES” is Emergency Services Activities, “SP” is Structural Projects Activities, “PI” is Public Information Activities, and “GIS” is Geographic Information System Activities.)***

Revision Date: July 8, 2011

CWS Department Legend (indicates responsibility)

E&C – Engineering & Construction

EO - Executive Office

ERD – Environmental Resources (Wastewater Treatment)

IT – Information Technology

HR – Human Resources

HWTP – Hanahan Water Treatment Plant

WWC – Wastewater Collection

WDD - Water Distribution

Various Departments (Black)

<b>Type</b>	<b>Activity</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Goal(s) Addressed</b>	<b>Priority (1-highest, 4-lowest)</b>
<b>Engineering &amp; Construction</b>					
SP	Maintain 25-year master plans for water supply, distribution, collection, and treatment. Updates on-going.	E&C	O&M	Maintain up-to-date master plans to proactively replace aging infrastructure, ensure hydraulic efficiencies, and prepare for area growth.	1
SP	Continue implementation of wastewater main replacement and rehabilitation	E&C; WWC	Major Capital	Ensures reliable wastewater infrastructure, reducing blockages, I&I, etc.	1
ES	Replace West Ashley wastewater tunnel	E&C	Major Capital	Will accommodate area growth and ensure that major overflows do not occur	1

PA	Continue to discuss Environmental Management System, Safety, and Security at preconstruction conferences	E&C; HR; Facilities; Purchasing	O&M; Major and Recurring Capital	Educate contractors on understanding safe work practices; protection of environment and security issues	1
ES	Continue to install emergency generators or stand-by power connections at pump stations	E&C	Major and Recurring Capital	Ensure continuous operations during power outages to protect the environment	2
PA	Continue to require design and construction which meets code requirements for flood, hurricane, and seismic considerations	E&C; HWTP; ERD;WWC; WDD	Major and Recurring Capital	Minimizes the impacts from natural disasters to help ensure continual operations	2
SP	Continue implementation of water main replacement rehabilitation	E&C; WDD	Major and Recurring Capital	Ensures reliable water infrastructure for providing safe and abundant water, reducing leaks, etc.	1
SP	Continue rehabilitation of treatment plant unit processes	E&C	Major and Recurring Capital	Assures reliability and robustness of mechanical equipment and system infrastructure	1
SP	Continue the optimization of plant and distribution pumping utilizing hydraulic modeling software	E&C; WDD; HWTP	O&M	Ensures adequate pressures are available to monitor age of water and maintain distribution system pressures	1
PA	Continue Cross Connection Control Program	E&C	O&M	Protects CWS's water system from contaminants; hence, public health protection	1
SP	Expand/improve Supervisory Control and Data Acquisition (SCADA) infrastructure and system	EO	Major and recurring capital; O&M	Increase ability to monitor water and wastewater systems throughout plants and service area	2
PA	Maintain upgrades to GIS	E&C; WDD; WWC; CS	Major and Recurring Capital; O&M	Provides a powerful tool for analysis to minimize disruption of water distribution and wastewater services; work planning; emergency response location accuracy	1
Executive Office					
PA	Maintain conformance with ISO 14001 Standards	EO and other depts.	O&M	Serves to minimize risk of activities adversely impacting the environment and public health	1

ES	Maintain/improve counter-terrorism program.	EO; HWTP; E&C; Facilities	O&M	Minimize potential for water and wastewater contamination in order to protect public health and the environment	1
NB	Continue support of the SC Water Quality Association	EO	O&M	Protect the environment while preserving valuable natural resources	2
NB	Continue support of the Cooper River Water Users Association	EO	O&M	Protect the environment while preserving valuable natural resources	2
NB	Continue general water quality monitoring program for area rivers	EO; Laboratory	O&M	Helps ensure that the water environment is being protected	2
PI	Continue Speakers' Bureau Program for water/wastewater education to schools, civic clubs, and public meetings	EO	O&M	Helps disseminate critical information to CWS's customers; improves understanding and solicits help	2
PI	Continue Co-Sponsoring Earth Day	EO and other depts.	O&M	Opportunity to inform general public about critical environmental issues and what the public can do to help minimize their impacts to environment	2
NB	Continue/expand recycling program	EO and other departments	O&M	Reduces impacts on the environment; landfill use; air quality; water quality, etc.	2
PA	Continue membership in American Water Works Association (AWWA) & Water Research Foundation (WEF)	EO; HWTP; WDD; E&C	O&M	Supporting research efforts and staying top of latest technology helps to optimize operations and minimize risk	1
PA	Continue membership in Water Environments Federation (WEF) & Water Environment Research Foundation (WERF)	EO; ERD; WWC; E&C	O&M	Supporting research efforts and staying on top of latest technology helps to optimize operations and minimize risk	1
PA	Continue participation in Water Manager's Coalition	EO	O&M	Collaboration, emergency preparation & response, & cooperative efforts w/ other utilities in S.C.	1
NB	Evaluate/implement portions of the City of Charleston's Green Plan	EO	Major and Recurring Capital; O&M	Reduces use of natural resources and impact of our operations on the environment	2

PA	Continue participation in special research efforts of Water Research Foundation (WRF) regarding many utility-related issues	EO; WDD; HWTP; E&C	O&M	Involvement in special studies such as security, monitoring efforts, emergency response, asset management, best practices, etc. will keep CWS on the leading edge of technology and education	2
PA	Continue participation in special research efforts of Water Environment Research Foundation (WERF) regarding many utility-related issues	EO; ERD; WWC; E&C	O&M	Involvement in special studies such as security, monitoring efforts, emergency response, water quality protection, asset management, best practices, etc. will keep CWS on the leading edge of technology and education	2
NB	Bio-solids (Bio-mass) Recycling Program	EO; ERD	O&M	Reduces impacts on the environment; landfill use; air quality; water quality, etc.	2
PA	Improve corporate-level emergency plans; improve consistency across all depts.	EO and all departments	O&M	Corporate-level emergency plans aids in consistent preparation & response to emergency situations.	1
Environmental Resources					
PA	Continue using sodium hypo-chlorite at Plum Island for disinfection purposes	ERD	O&M	Greatly reduces risk from using gaseous chlorine	1
PA	Enforce and maintain the industrial pre-treatment program	ERD; WWC	O&M	Enforcement minimizes risk of toxicity to the WWTPs	2
SP	Institute statistical process control at plant	ERD	O&M	Improves operational efficiencies, and will aid in protecting the environment	2
Information Technology					
GIS	Continue linking work order system to GIS and maps	IT; WWC; WDD; CS	O&M	Enables real-time changes to be made to GIS and asset condition description; this ensures faster emergency response	2
PA	Continue utilizing ruggedized laptops for use with field crews	IT; WDD; WWC	O&M	Enables sending of work-orders and other documents and records to crews in real-time. This ensures faster response time in emergencies	2
PA	OPS SQL statistical analysis SCADA update	HWTP	O&M	Improves statistical analysis for faster response to changes in the water treatment process	1
Human Resources					
ES	Continue training on first aid, CPR, and defensive driving	HR	O&M	Train CWS associates to provide first aid response to protect health	2

PA	Continue Employee Wellness Program	HR	O&M	Reduce health risks to CWS associates	1
PA	Continue/improve Safety Program	HR	O&M	Help ensure safe working conditions for CWS associates, contractors, and CWS customers and visitors	1
Hanahan Water Treatment Plant					
ES	Continue Risk Management Plan and Process Management Plan	HWTP	O&M	Protects public and worker health from chemical releases	1
ES	Maintain & train on Spill Prevention, Control, and Countermeasure (SPCC) plan	HWTP	O&M	Plan updates and mitigation for chemical spills	1
ES	Continue Hazwoper Training	HWTP	O&M	Minimize impact of chemical release	1
ES	Continue training on caustic scrubber for chlorine leak mitigation	HWTP	O&M	Minimize impact of chemical release	1
ES	Continue training with local area fire and police departments	HWTP	O&M	Ensure that chemical releases are dealt with quickly with minimum of property damage and risk to public	1
ES	Establish mutual aid agreement & emergency drill/training with Joint Base, Charleston (Air Base)	HWTP	O&M	Ensure that chemical releases & other emergencies are dealt with quickly with minimum of property damage and risk to public	1
PA	Continue monitoring of raw water supplies	HWTP	O&M	Ensures safety and treatability of source water supplies	1
PA	Continue optimizing process control at treatment plants	HWTP; ERD	O&M	Protects public health and water environment	1
PA	Continue membership in AWWA's Partnership for Safe Drinking Water	HWTP	O&M	Ensures excellence in water treatment to protect water quality and public health due to protozoan contaminants	1
SP	Continue/expand the use of statistical process control at plant	HWTP	O&M	Improves operational efficiencies and finished water quality, and will protect public health	1
ES	Maintain on-line, real-time monitoring system for raw water, finished water and water distribution system	HWTP; WDD; EO	Grant and O&M	Will help protect public health by monitoring in real-time any abnormalities in the potable water	1
PA	Bushy Park Tunnel Air Vent Protection Program	HWTP; E&C	O&M	Protect raw water source from contamination	1

ES	Continue preferential treatment from chemical vendors regarding chemical deliveries after emergency events.	HWTP	O&M	Ensures drinking water quality is a priority for the community after an emergency event.	1
<b>Wastewater Collection</b>					
PA	Continue to enforce wastewater rules and regulations	WWC; ERD; E&C; Customer Service	O&M	Minimize problems with wastewater collection and treatment to protect public health and environment	1
PI	Continue informing citizens about need for proper grease disposal and flushables	WWC; EO	O&M	Educating the public will help CWS to minimize problems with its wastewater collection	3
PA	Continue enforcing grease trap ordinance program	WWC	O&M	Minimizes clogs in wastewater mains	3
PA	Continue TV inspection and cleaning of wastewater mains	WWC	O&M; Major Capital	Ensures proper operations of wastewater system; identifies deficient wastewater mains for rehab	1
PA	Continue Sewer System Evaluation Surveys (SSES)	WWC	O&M	Identifies deficiencies to be corrected for proper system operations and to minimize hydraulic overloads	1
SP	Rehab. of wastewater mains and service laterals	WWC; E&C	Major and Recurring Capital	Improvements to wastewater infrastructure allows better control of I/I, fewer main collapses, and fewer wastewater back-ups	2
GIS	Asset Register Population	WWC	O&M	Populate GIS with missing data and Improve the integrity of asset data as needed	1
<b>Water Distribution</b>					
PA	Expand corrosion control of Water Distribution	WDD	Recurring Capital; O&M	Minimize potential corrosion of water mains to extend life and lower leakage rate	2
PA	Continue to enforce water rules and regulations	WDD; Cross Connection Control; Customer Service	O&M	Minimize problems with water distribution and water quality	2
ES	Continue fire hydrant installations, replacements, and improvements	WDD; E&C	Major and Recurring Capital	Helps ensure proper levels of water quantity for fighting emergency fires	1
PA	Continue working with area fire departments on proper flushing techniques	WDD	O&M	Educating 14 different fire districts on proper operation of fire hydrants to minimize damage and to help protect water quality	2
PA	Continue leak detection program	WDD	O&M	Ensures water main integrity and minimizes water losses	2
PA	Continue Water Main Flushing Program	WDD	O&M	Helps protect water quality and public health	1

PA	Install/maintain automated meter reading operations for the water system	WDD	Major and Recurring Capital	Reduces exposure of meter readers to dangerous elements such as dog bites, insect stings, etc	3
PA	Continue with program to communicate more effectively with CWS's large water customers	WDD; EO	O&M	Improvements in communication to large customers is essential prior to, during, & after a crisis. Communicate important regulatory changes & solicit feedback.	2
ES	Continue to maintain and increase the capacity of potable water supply tanks	WDD	O&M; Recurring Capital	During an emergency water loss, potable water service is critical for certain facilities; potable water tanks provide that service	1
GIS	Asset Register Population	WDD	O&M	Populate GIS with missing data and Improve the integrity of asset data as needed	1
Various Departments					
ES	Continue improvement of corporate-level emergency preparedness & response plans to reduce redundancy among departments	EO	O&M	Comprehensive emergency preparedness & response plans are used to direct operations before, during and after a disaster to minimize adverse impacts and ensure business continuity	1
ES	Eliminate redundant emergency plans	All departments	O&M	Same as above	1
ES	Update SPCC plans as needed	HWTP; ERD; WWC; Fleet	O&M	Minimize the impacts of a petroleum spill	2
ES	Annual training for associates on emergency preparedness & response	All departments	O&M	Associate awareness is critical to ensure proper response prior to, during, and after a disaster event	1
ES	Continue Risk Management Scoring of critical assets	ERD; HWTP; WWC; WDD	O&M	Prioritize critical assets; initiate efforts to reduce risk	1

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