

STRATEGY 1: IMPROVE PLANNING, TRAINING, AND EXERCISES

Initiative 1A – Planning Toolbox

This initiative provides for development of a “planning toolbox” for regional preparedness guidance that describes how the individual utilities and the region as a whole would supply water during response to, and recovery from a regional emergency. There are a number of steps the region can take to improve planning for catastrophic events affecting the water sector across a wide area, for a prolonged period of time or both. The goal for this initiative is to ensure that the region has a unified approach to managing a large-scale emergency, while recognizing that each utility will have varying levels of capabilities and risks.

Development of regional guidance and tools will minimize the level of effort contributed by individual utilities and encourage the sharing of lessons learned and best practices. The planning toolbox could include:

- Standard templates to support those utilities that do not have emergency operating plans or have weak plans;
- Inventory requirements;
- Decision aids and checklists;
- Standard operating procedures for catastrophic events (e.g. category 3 and above) that addresses sheltering-in-place to maintain operations and evacuation criteria;
- Pre-scripted asset and/or resource requests;
- Mutual aid and emergency contracts;
- Guidance and supporting documents to support utilities in updating their water VAs; and
- Guidance and supporting documents to support utilities in developing more specific and comprehensive planning documents, such as a communications plan; an emergency water supply plan; a terrorist response plan; and a pandemic, safety, and health damage-assessment plan.

Likewise each utility should establish and maintain a relationship with its local emergency manager (EM) to ensure that he or she understands the issues, concerns, and crisis priorities of the utility. This does not need to be a significant investment of time or effort; it is more of an awareness campaign on behalf of the utilities with the EMs.

The more planning tools applied by each utility, the more prepared the region is overall. If utilities work from the same or similar templates, there is added value in predictability and commonality across the region in response and recovery.

The region should consider establishing an operations level working group within the Water Sector to plan for catastrophic events that would have regional impact. This group could be central to deciding which tools are appropriate to add to the “toolbox” and how common approaches, templates, and processes could be developed, coordinated, periodically assessed and improved, and approved by government leaders as needed.

STRATEGY 1: IMPROVE PLANNING, TRAINING, AND EXERCISES

Initiative 1D – Continuity of Operations Planning

This project provides for the development of regional guidance to support utilities' continuity of operations planning. Overall, utilities across the Hampton Roads region have identified succession plans as part of their emergency operations plan. However, planning efforts have generally focused on the level of incidents that utilities have previously experienced; minimal planning has been conducted for catastrophic events (e.g., Category 3 or stronger hurricane). Given the risk of catastrophic events—or even incidents that stress and/or exhaust utilities' capabilities, this initiative recommends that utilities across the Hampton Roads region collaborate to develop *regional guidance* for continuity of operations (COOP). Individual utilities would then refer to this guidance in order to develop a customized COOP plan to meet their own requirements and risks.

A COOP plan establishes operating procedures to sustain essential functions when normal procedures are not possible and provides a guide for the restoration of normal operations and building functions. Individual utilities should develop their COOP plans in coordination with all key stakeholders. This coordinated effort encourages situational awareness among stakeholders and allows an opportunity for the alignment of COOP plans (from different agencies/departments) to the extent possible. Ultimately, all COOP plans should aim to address the following objectives:

- Ensure the safety of employees;
- Maintain command, control and direction during emergencies and disaster events;
- Provide organizational and operational stability;
- Assess and minimize damages and losses;
- Execute successful order of succession with accompanying delegation of authorities in the event a disruption renders agency leadership and key personnel unavailable or incapable of assuming or performing their responsibilities;
- Protect personnel, facilities, equipment, records, and other assets in the event of a disruption
- Provide resources and capabilities to develop plans and procedures for restoring or reconstituting normal activities, depending on the scope, severity, and nature of the incident; and
- Ensure and validate continuity readiness through a dynamic and integrated continuity test, training, and exercise program and operational capability.

Although utilities currently maintain succession plans, COOP planning is a more comprehensive process to ensure that utilities' mission-essential functions continue to operate under all conditions. In addition to succession planning (i.e., orders of succession), COOP plans should also address the following key elements:

- Identification of mission-essential functions;
- Delegation of authority;
- Evacuation, accountability, notification;
- Identification of alternate operating facilities;
- Identification and redundancy of interoperable communications;
- Identification of protection of vital records and databases;
- Human capital;
- Devolution plan; and
- Reconstitution plan.

COOP planning cannot be done in a vacuum. Therefore the utilities should coordinate with all relevant stakeholders (e.g. emergency management, public health, law enforcement) to develop comprehensive COOP planning guidance that encompasses and builds upon current succession planning efforts.

Work to execute this initiative should be conducted by an independent third party to allow the aggregation of information across utilities without compromising sensitive or proprietary information. This initiative is estimated to require 4 to 6 months for completion, depending on the availability of information. The products would include a regional COOP guidance document, templates, and resources for developing customized utility plans.

STRATEGY 2: ENHANCE RESPONSE AND RECOVERY CAPABILITIES

Initiative 2A – Enhance Shelter-in-Place Capability

Under this initiative, the region would complete a study to examine the challenges and requirements associated with either maintaining operations or evacuating in advance of catastrophic incidents. In terms of past storm events and disasters, the Hampton Roads Water Sector is viewed as fairly to highly resilient. Utility emergency response plans have been validated and refined following recent storms such as Hurricanes Isabel and Irene. Operators recognize that systems have gone off-line for periods of time, but overall service is quickly restored. The loss of storage towers or tanks would not be a crippling event for most systems due system redundancy and the ability to divert flow through other parts of the system.

However, existing planning efforts are inadequate for catastrophic incidents (e.g., Category 3 or stronger hurricane). In this scenario utilities generally would do one of three things:

- Maintain operations to the extent possible with a skeleton crew;
- Cease operations and evacuate staff and resources to a safe location within the region to facilitate activation of recovery plans as quickly as possible; or
- Cease operations and evacuate staff and resources outside the region; return to the area when it is safe to initiate recovery operations.

This initiative would include a study to identify existing hardened facilities to shelter personnel safely during a catastrophic incident. The study will also identify the value, requirements, and cost to upgrade existing facilities/buildings in order to provide better protection. The study could also examine the value of arranging for multiple utilities to share common sheltering facilities and the cost to maintain or upgrade them at one or more locations.

Opportunities to improve SCADA capabilities across the region would also be identified through this initiative. Remote access to monitor and operate systems through technology such as SCADA is available and used across the region; however, application of SCADA varies across the region. Most operators indicated that remote monitoring can provide information on system operations, but they cannot make the adjustments within the systems remotely. Onsite personnel are needed in order to provide “eyes” and “hands” on verification and remediation. The study will also examine the applicability of the DHS Cyber Security Evaluation Tool (CSET) on-site assessments for the Control System Security Program (CSSP) to improve information about and protection against threats to SCADA and other utility IT systems.

This initiative will also encourage coordination between utilities and their emergency management agency counterparts to determine the viability of using mitigation grant funding to support recommendations. This discussion could include FEMA or other DHS grant specialists who could provide updates on the latest grant guidance, opportunities, and application processes.

This assessment should be conducted by an independent third party to allow the aggregation of exercise information from across the utilities in the region without compromising sensitive or proprietary information.

The assessment could be completed within 6 months depending on the availability of information from the utilities. The deliverable from this initiative will be a study report that addresses the following topics:

- Locations for staff to shelter-in-place
- Identify gaps and determine costs of upgrades to harden facilities
- Assess feasibility of common sheltering facilities
- Assess potential grant funding
- Develop a planning template for sheltering staff and maintaining operations during catastrophic events (e.g., Category 3 and higher hurricanes).

STRATEGY 3: ENHANCE COMMUNICATIONS, COORDINATION, AND INFORMATION SHARING

Initiative 3A – Inter-utility “Common Operating Picture”

This initiative recommends developing an inter-utility “common operating picture” to facilitate information sharing between utilities during an emergency and to provide in alignment with NIMS. This initiative focuses on the flow of information within and between regional utilities prior to an impending disaster and then in the survival, response, and recovery periods of the disaster.

There are several ways to improve the communications between utilities during an emergency, such as aligning the types of reporting that each utility provides to local government leaders according to a template (coordinated during pre-crisis planning by the operations working group discussed in Initiative 1A). Another way is to use the existing Emergency Management WebEOC process to provide updates and projections via a “board” visible to the water sector community. This helps utilities, emergency managers, and regional leaders to see a “common operating picture” of the water sector in Hampton Roads throughout the response and recovery stage of a disaster. (During the May 23/24 tabletop exercise, local emergency managers reiterated the capability of creating such a “water sector board” in the regional WebEOC system.)

The Hampton Roads emergency managers maintain a regional WebEOC server, which is used to share information prior to and during an emergency, to develop a common operating picture, and to provide updates to VDEM and other state agencies at the State EOC. WebEOC can also be configured to support water and wastewater utilities and provide an overall picture of the health and status of the Water Sector in the event of a crisis.

The value of constructing this large-scale view and monitoring the region’s water and wastewater situation may be only apparent in a severe disaster. At that point, a number of organizations will be trying to assess regional priorities for response and recovery based on whatever information is available. It is recommended that the region develop a water sector EOC board or a similar tool to describe the regional and local status and to prioritize actions and articulate support requirements.

This initiative could be sponsored by the HRPDC Directors of Utilities Committee and implemented through the HRPDC work program. Efforts should be coordinated with the HRPDC Regional Emergency Management Technical Advisory Committee and other entities as appropriate. This initiative is anticipated to require a 3 to 5 month implementation timeframe.

STRATEGY 3: ENHANCE COMMUNICATIONS, COORDINATION, AND INFORMATION SHARING

Initiative 3B – Networking with Key Disaster Response Partners

This initiative recommends the HRPDC Directors of Utilities Committee network with key disaster response partners and develop guidance to support the use of available information-sharing tools. The May 23-24, 2012 tabletop exercises highlighted a number of readily accessible and extremely low cost opportunities for individual utilities and the region to improve their pre-incident and post-disaster information sharing. A number of utilities already take advantage of these tools.

The Virginia Water/Wastewater Agency Response Network (VA WARN) is a mutual aid network for water and wastewater utilities that can be accessed simply by signing up. After logging in, an initial screen states that utilities are required to enter a long list of assets but, while preferred, that is not required in order to access the system. Additional information on VA WARN can be found at: <http://www.vawarn.org/>. Similarly, WaterISAC is a subscription information network subsidized by a grant from the Department of Homeland Security; registration for the “Pro” membership is free for 12 months, and a “Basic” membership is free indefinitely. During the tabletop exercise, EPA’s Water Security Division offered to extend free memberships at the Pro level to Hampton Roads utilities.

The Hampton Roads region should consider using the United States Environmental Protection Agency's (US EPA) Community-Based Water Resiliency (CBWR) tools. The CBWR electronic tool helps stakeholders identify preparedness-related activities that can increase resiliency. The US EPA is seeking a region that is willing to pilot CBWR and work to increase their resiliency. Additional information on CBWR can be found at <http://water.epa.gov/infrastructure/watersecurity/communities/>.

Another information resource is the Virginia State Police Fusion Center. The Virginia Fusion Center (VFC) was created as a partnership between the Virginia State Police and Virginia Department of Emergency Management to improve the Commonwealth of Virginia’s preparedness against terrorist attacks and to deter criminal activity. VFC is currently making a focused effort to reach out to critical infrastructure communities order to establish better liaison directly with utilities. Several city managers are reviewing requests to establish more formal communications between the VFC and water utilities. Water Sector operators should encourage the VFC to provide training and information to Water Sector employees to foster a closer working relationship. Additionally, the Homeland Security Information Network (HSIN) is a DHS information tool that provides updates on threats and trends. The network is subdivided by various disciplines. The Critical Sector (CS) section is the appropriate subset for water utilities. Water Sector operators should work with the local DHS Infrastructure Protection Protective Security Advisor to gain access to the HSIN-CS.

Several Hampton Roads jurisdictions host military installations. The water utilities have developed good working relationships with their military counterparts and view them as good partners for information and threat awareness. In the last several decades, military bases have moved from self-contained water systems to water service contracts with the city or county utility. Although the reliability of water distribution to military installations from local utilities is high, some local utilities (during the May 2012 tabletop exercise) saw this as a potential vulnerability to military operations. Most utilities do not know if military installations have equipment (e.g., generators) that could be loaned to localities in emergencies. Local governments would benefit from confirming whether local military installations could provide equipment and staff to support utility recovery operations; specific questions include: what assets are on hand; is the installation allowed to share assets; and who authorizes asset sharing.

This initiative could be pursued immediately by individual utilities and at little or no cost other than staff time. Implementation could be ongoing, with meetings and briefings depending on needs.

STRATEGY 5: ENHANCE WATER SUPPLY INFRASTRUCTURE AND INTERCONNECTIONS

Initiative 5A – Infrastructure Grant Funding

Under this initiative, the water and wastewater utilities would identify grants that support the enhancement of infrastructure. Utilities across the Hampton Roads area noted that additional grant funds would be useful for enhancing capabilities and improving the resiliency of systems.

Across the region, the utilities highlighted many opportunities for improvements. Examples include:

- Providing for redundancy in systems and the ability to share water
- Constructing resilient buildings/data centers
- Elevating pumping stations and relocating wells
- Installing permanent generators, possibly with natural gas-line feeds
- Acquiring portable generators with quick-connect hook-ups or acquiring appropriate connectors for rental generators.
- Providing online data storage facilities
- Acquiring additional bypass pumps

The Virginia Department of Conservation and Recreation (DCR) staff members work with the Department of Emergency Services to administer the FEMA Flood Mitigation Assistance Program, which provides an annual source of flood-mitigation funding. Staffers also provide technical support by helping select and administer Hazard Mitigation Grant Program projects. Hazard mitigation assistance grants include the Pre-Disaster Mitigation Grant, Repetitive Flood Claims, and Severe Repetitive Loss Program.

The U.S. Department of Housing and Urban Development, in addition to the Community Development Block Grant program, has Emergency Shelter Grants that can be used for renovation of buildings as emergency shelters, as well as for shelter operating expenses. The VDEM Grants Office administers all non-disaster/preparedness grant and funding programs available to local governments. The region has an assigned contact available.¹ Virginia also has various flood programs that may be able to provide funding to the region. The Virginia Dam Safety, Flood Prevention, and Assistance Awards for 2011 were approved on May 24, 2011.

The U.S. Army Corps of Engineers funds projects on a 50 percent cost share basis such as: hydrologic and hydraulic studies; GIS- digitized mapping; and other floodplain-management tools. The U.S. Environmental Protection Agency (EPA) has the following programs: the Drinking Water State Revolving Fund (DWSRF); the Clean Water State Revolving Fund (CWSRF); the Public Water Utility Security Grant Program; and the Implementing the American Recovery and Reinvestment Act (ARRA) of 2009.² All discretionary grants offered by the 26 federal grant-making agencies can be found on <http://www.grants.gov>.

The U.S. Environmental Protection Agency (EPA) is developing a new Fed FUNDS website to provide information on federal funding for water and wastewater utilities through disaster funding programs including the following:

- FEMA Public Assistance Grant Program and FEMA Hazard Mitigation Grant Program
- U.S. Department of Agriculture (USDA) Rural Development Emergency Community Water Assistance Grants
- EPA Drinking Water State Revolving Fund and Clean Water State Revolving Fund
- Housing and Urban Development (HUD) Community Development Block Grant program
- Small Business Administration (SBA) loan programs

This initiative is estimated to require 3 months for completion. The effort should be coordinated with the emergency management community. An independent third party can be retained to conduct the study and prepare the summary report and other deliverables.

¹ <http://www.vaemergency.gov/em/grants> These funding opportunities are used to enhance overall preparedness and response capabilities for a full range of hazards. The contact for VDEM Region 5 and Hampton Roads UASI is 804-897-9766, jocelyn.bagby@vdem.virginia.gov

² <http://water.epa.gov/infrastructure/watersecurity/funding/index.cfm>