Respecting, Enabling, and Involving All Personnel in a Sustainable Continuity of Operations Plan

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This paper describes implementation of a local government continuity of operations plan and pandemic influenza appendix through the first plan–train–exercise cycle. The potential for pandemic influenza was addressed by the Bernalillo County Public Works Division, New Mexico, as part of an all-hazards approach in continuity of operations planning. The continuity of operations planning process typically emphasizes loss of use of facilities. A pandemic scenario based on the 1918 influenza is used to determine whether adequate staff will be available to ensure that essential functions are performed. Staff reduction during an emergency requires difficult choices among what is "essential." It also requires redefinition of each member of the staff as currently or potentially providing an essential function. The paper describes how all personnel are involved in the continuity of operations plan. "All personnel" in this agency involves more than 200 employees with diverse job descriptions and skills. All personnel include political appointees, janitorial staff, civil engineers, field technicians, and clerical staff. Each person is considered an essential employee. Respect for each individual as an essential employee was demonstrated by enabling and involving each employee. Human factors addressed during the process included communication to ensure that all staff were informed, education to ensure that all staff could be trained, and organization to ensure that all staff were part of a team. The result of the approach is a near-term capability to maintain essential functions during a pandemic influenza. The effort also supports long-term, all-hazards local government capacity to maintain essential functions.

The potential for a pandemic influenza was addressed by Bernalillo County, New Mexico, as part of an all-hazards approach to emergency preparedness. Uncertainty about the timing of a pandemic led the Bernalillo County Public Works Division to design and develop a near-term capability that was sustainable over the long term. To meet this need, the decision was made to incorporate pandemic influenza planning, training, and exercises in the context of a continuity of operations (COOP) plan. This paper describes the COOP planning process including modifications to address a pandemic and the inclusion of all staff throughout the development, implementation, and ongoing refinement of the COOP plan.

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COOP PLANNING PROCESS

Organization of the Agency and COOP Planning Overview

The Bernalillo County Public Works Division is organized into five departments: fleet and facilities management, operations and maintenance, solid waste, infrastructure planning and geological resources, and technical services. The deputy county manager for public works oversees the division. The deputy county manager assembled the department directors as a COOP leadership team to design a COOP plan and pandemic influenza appendix. Each member of the leadership team is assigned as the liaison to one or more operations team leaders responsible for maintaining essential functions. Operations team leaders typically report to their executive team liaison when the COOP plan is not activated. During COOP plan activation, a replacement for an executive team director is drawn from their set of operations team leaders. Similarly, replacement of an operations team member, unless specifically designated otherwise in the operations plan for a specific essential function, is drawn from their set of support team leaders.

As a COOP design template, the leadership team used the joint TCRP-NCHRP transportation security document (*1*). The leadership team also reviewed current and draft COOP plans, including those developed by the Massachusetts Institute of Technology (*2*), Florida Atlantic University (*3*), the Southwest District Office of the Environmental Protection Agency (*4*), and the United States Army Civilian Personnel Regionalization (*5*).

The leadership team developed the COOP plan and pandemic appendix over a 3-month period. In addition, training was provided during this period. An exercise was conducted in cooperation with the New Mexico Federal Executive Board to test the plan and training. As a result, the COOP plan was modified.

With the completion of the first plan–train–exercise cycle, the COOP leadership team finished its work. A seven-person COOP executive team was formed for ongoing maintenance and implementation of the plan. The second plan–train–exercise cycle was initiated.

Modifications of the COOP Planning Process

The established COOP planning process emphasizes the loss of facility use. A pandemic scenario based on the 1918 influenza is used to determine whether adequate staff will be available to ensure that essential functions are performed.

Staff reduction during an emergency requires difficult choices among what is "essential." It also requires redefinition of each member of the staff as currently or potentially providing an essential function. This paper describes how all personnel are involved in the COOP plan. Included in "all personnel" in Bernalillo County Public Works are 225 employees with diverse job descriptions and skills. Personnel include political appointees, janitorial staff, civil engineers, field technicians, and clerical staff. In the COOP planning process and the resulting plan, each person is considered an essential employee.

INCLUSION OF ALL STAFF

All staff are either directly or indirectly affected by a pandemic influenza. The COOP leadership team adopted the position that every person will be needed to support essential functions if there is a significant reduction in available staff. Therefore, the leadership team determined that every person should be respected, enabled, and involved.

For the first time, all division employees across all job descriptions were involved in emergency preparedness training. Maintaining essential functions during an emergency such as a pandemic may require redefining employee roles and responsibilities, so job descriptions may change. In a pandemic, for example, the skills of the janitorial team in disinfecting county public and work areas may be needed more urgently than the skills of a transportation planner in assessing the traffic impact of a proposed commercial development. The transportation planner may be trained and assigned as a member of a maintenance team. Involving everyone in understanding the mission, essential functions, and the potential for new assignments required that the division identify and consider human factors.

Human factors addressed during the process included diverse communication procedures to engage all staff, training adapted to the learning styles of employees, and teamwork. As a result of this approach, there was no acceptable excuse for not being trained. There was also the clear performance measure of 100% of staff successfully trained and tested.

Diverse Communication Procedures

Respecting diverse staff means using diverse communications. Four documents were prepared for distribution to all employees. The documents were provided to supervisory staff, who determined how to communicate the content to the employees they supervise. In some instances, photocopies of the material were distributed, and the content was discussed in staff meetings. In other instances, the content was posted on bulletin boards and then shared at staff meetings.

The first communication with all staff was a letter from the deputy county manager for public works. The letter directed all employees to complete the Incident Command System (ICS) 100 and National Incident Management System (NIMS) 700 courses. The intent was to provide a common language for all employees that could be critical if personnel were asked to work together in new assignments. The common language would also help if employees were asked to serve as part of a larger emergency response. The letter identified the all-hazards approach being taken and indicated that everyone was important to the effort. The letter also presented three options for the training based on personal learning styles: web-based instruction and web-based testing, classroom instruction and individual written testing, and small-group discussion and verbal testing. The first training option was provided by the Federal Emergency Management Agency (FEMA). The second and third were developed by the division for its employees. The training and testing options are described in the next section.

Three bulletins were prepared for distribution to staff. The intent was that the bulletins be periodically distributed to all employees while the COOP plan was being implemented. The first bulletin emphasizes planning, the second training, and the third exercises to test the COOP plan and training. The same approach was used to communicate the bulletins as was used with the letter. Written material, verbal sharing, and a combination of the two were used to communicate with staff and to elicit comments from staff.

Training Options and Learning Styles

Training options were developed to respect different learning styles. The training options are as indicated below.

Web-Based Instruction and Web-Based Testing

The U.S. Department of Homeland Security, through FEMA, provides web-based training and testing for both ICS and NIMS. Web-based training is helpful and appropriate for persons who are adept with and have access to a computer. Staff persons who use a computer regularly as part of their work often, but not always, selected this training option.

Classroom Instruction and Individual Written Testing

Some individuals who are adept at listening, reading, and writing in English prefer a classroom learning environment. They want to ask questions and interact with the instructor. Other persons may be similarly skilled in English but may not have access to or be adept in the use of a computer. For these individuals, classroom instruction was offered.

A 1-h lecture with a PowerPoint slide presentation was developed for each of the two training programs. A printed copy of the test was distributed to persons who completed the training class. Each individual read and completed the test. The written responses by individual students were then entered online, either by the individuals taking the test if they had access to a computer or by their department clerical staff with computer access.

Classes with 10 to 15 students were held. By keeping the class size relatively small, participants were encouraged to ask questions. The 1-h design for the class typically required 1½ h because of the discussion.

Small-Group Discussion and Verbal Testing

Some individuals are adept at listening but not at reading or writing in English. This option is helpful to those with special needs and those whose primary language is not English. For these individuals, a small-group training approach was developed by the division and implemented.

Small groups were formed with no more than seven students and with at least two instructors. A student–teacher ratio of 2:1 or 3:1 was optimal for this approach.

One instructor verbally presented the training materials. As the training progressed, questions related to each point in the training were raised by students and other instructors.

The test was given verbally. Instructors asked the question, and the students gave answers individually. The instructors recorded the responses given by each student. The recorded responses were entered online by department clerical staff.

This training option is required to respect, enable, and involve all employees in a diverse public agency. No distinction is made among the training options. The content is identical, but the manner of presentation and testing varies.

Pilot Training, Training Options, and Continuous Improvement

A pilot training program was developed for the classroom training and small-group discussion format. One department, fleet and facilities, volunteered to develop, use, and refine the pilot training program.

The training program was revised on the basis of student performance on the test. If the same question was answered incorrectly by a group of students, the training program was revised to emphasize the related materials. After the pilot was revised, the training materials were provided to the COOP executive team for ongoing use by all departments.

The majority of the staff chose not to be trained through web-based programmed learning. Classroom and small-group training options were evenly distributed, with a slight increase in the number of persons who participated in the classroom option. The distribution of training option among the staff was as follows: web-based training, 27%; classroom training, 38%; and small-group training, 35%. Staff initially evaluated their training in the same manner, as positive, independent of the type of training they received. Perhaps this was a result of staff having a voice in choosing their training option. In two instances, persons who selected the web-based training and passed requested and received approval to participate in a classroom setting to understand the content better.

Human factors in emergency preparedness and response must address employee turnover. The level of turnover varies from year to year. In the most recent 6-month period, 10 persons left their former position. The leadership team decided that new employee orientation should include the requisite training courses. The same options will be offered to new employees as were offered to current employees.

Evaluation mechanisms were developed for continuous quality improvement. Each employee receiving training had an opportunity to comment on the effectiveness of the training and how to improve it. Persons who completed web-based and classroom training received written forms. Persons who completed classroom training were given an evaluation form designed to help instructors improve their communication. A third evaluation procedure was used for persons who participated in small-group training. Someone other than the instructor verbally asked the evaluation questions and recorded the responses. Evaluation summaries were provided to the instructors and to the COOP executive team.

Employee Recognition

There is intrinsic value in being part of continuity of operations. In the adopted approach, particularly in relation to pandemic influenza, all employees are told that they are essential. This value is demonstrated in training and exercises.

It is also important to understand the impact of extrinsic rewards. In government, one way to provide extrinsic rewards is to recognize employees who are successful. The deputy county manager for public works and the fleet and facilities department director prepared and presented a framed award to the first team of individuals to complete their training successfully. The award was presented to each person on the team responsible for facility maintenance. These employees chose the small-group discussion and verbal testing option. The award reinforces their success and the importance of working as a team during an emergency.

Intrinsic and extrinsic awards are mutually supportive. The importance of working as a team was emphasized through the extrinsic award. The award and emphasis were communicated across the division. An office manager who had successfully completed the ICS 100 training online attended the classroom presentation with the other members of her office. The basis of her involvement was to understand more and to work better as a team. The emphasis on teamwork began with offering options to individual web-based training and employee recognition.

COOP PLAN

All employees were involved in the process. What was the product?

A COOP plan was developed with a pandemic influenza annex. In accordance with national guidance and emergency management principles, the plan was designed to be maintained at a high level of readiness, capable of being implemented with or without warning and operational no later than 3 h after notification, and capable of sustained operations in an alternate facility for up to 30 days.

The COOP plan relies on the validity of the following assumptions: it is based on an all-hazards approach and it supports and is supported by the county emergency operations plan, the emergency or emergencies that cause activation of the COOP plan may or may not be localized, the COOP plan is based on the availability of either the existing facilities or relocation sites, the COOP plan can be implemented at any time, and the state of readiness is enhanced by the ongoing use of plan–train–exercise cycles.

The COOP plan is responsive to organizational changes and assigned responsibilities and therefore is updated on an ongoing basis. At a minimum, the COOP plan is updated annually.

Essential Functions by Priority

The COOP plan is based on essential functions. All organizational efforts, training, and exercises follow from the identification of essential functions. These are the activities that must be maintained in any emergency, no matter how protracted the emergency might be. In a pandemic influenza, for example, the 11-month initial series of three waves is followed by a second year of lower-impact waves. The expectation is that the third year will be similar to annual influenza outbreaks.

The COOP leadership team created an initial list of essential functions. A modified Delphi approach was used in identifying priorities by essential function. Management team members worked separately to identify essential functions and their priorities. The separate work was shared and participants brought their second separate iteration to a meeting. The final selection of essential functions was by

consensus. Table 1 presents the consensus-based list, Version 1, by priority. This list was created during the planning phase of the first plan–train–exercise cycle. The list was expected to change after the first exercise.

The leadership team defined operational teams responsible for supporting the initial essential functions. While the team structure of the COOP plan is described in the next section, to exercise the first version of the plan, the operational team members were identified three deep as required to maintain each essential function. In some instances, support team members were also identified. Team rosters were prepared so there could be an assessment of the division capacity to maintain essential functions during an emergency exercise.

After the first exercise, it was clear that should a pandemic similar to the 1918 flu strike Bernalillo County, there were more essential functions and associated activities than personnel to support them. In response, changes to the COOP plan included the number and priority of essential functions.

At the conclusion of the first plan–train–exercise cycle, it was also clear that emergency support functions should be removed from the list of essential functions. These activities would be directed by the incident commander or coordinated by a unified or area command. After the first plan–train–exercise cycle, the essential functions were revised. The revision is presented in Table 2. During the exercise, it was evident that the essential functions differed from the initial list of priorities. The final list of essential functions and priorities was adopted by the deputy county manager. The operations and support teams could now be identified, personnel trained, and comprehensive exercises developed.

TABLE 1 Bernalillo County Public Works Essential Functions, Version 1: Prepared During Initial Plan–Train–Exercise Cycle, 2006

Essential Function	Priority
Road and bridge maintenance	1
Traffic systems maintenance	2
Storm drainage maintenance	3
Solid waste collection and disposal	4
Communication and information systems	5
Fleet and equipment maintenance	6
Facilities maintenance	7
Employment-related decisions	8
Financial disclosure forms and budget preparation	9
Infrastructure construction management	10
Spatial data and imagery, GIS applications	11
Payroll	12
Payment of invoices	13
Emergency legislation required to fund services	14
Certification of road inventory	15
Interlocal agreements	16
Collective bargaining agreements	17
State legislative session	18
Certifications of infrastructure design and construction	19
End-of-year activities	20
Infrastructure damage assessment	21
Prepare and provide initial support for EOC relocation site	22
Prepare county facilities as directed	23
Secure and maintain BCPWD buildings and facilities	24
Coordinate emergency acquisition through the EOC	25
Support emergency needs of other agencies	26
Identify and maintain needed fuel resources	27
Transfer fuel, equipment, and resources	28
Assist in infrastructure repair and recovery	29

BCPWD = Bernalillo County Public Works Division; EOC = emergency operations center.

Teams

Teams provide the ability to continue government service and maintain essential functions. Four types of teams were defined. Table 3 presents the teams and their roles and responsibilities when the COOP plan is activated and on an ongoing basis until the plan is deactivated.

Each person in the public works division is assigned to a team. Team participation reinforces the commitment to respect and use the skills of every employee.

Executive Team

The organizational backbone of the COOP plan is the executive team. In the event of a disaster affecting the division, the executive team initiates specific actions for response and recovery. The executive team is activated under the authority of the deputy county manager for public works. The executive team activates the operations teams and receives essential function status reports to maintain situational awareness for all essential functions.

In the first version of the COOP plan, the executive team identified a set of essential functions for which the executive team was directly responsible. These activities were removed as essential functions after the initial exercise. With Version 2 of the COOP plan, all essential functions are the direct responsibility of an operations team, and overall efforts are managed by the executive team.

TABLE 2 Bernalillo County Public Works Essential Functions, Version 2: Prepared After Initial Plan–Train–Exercise Cycle, 2006

Essential Function	Priority
Road and bridge maintenance	1
Traffic systems maintenance	2
Storm drainage maintenance	3
Solid waste collection and disposal	4
Communication and information systems	5
Fleet and equipment maintenance	6
Facilities maintenance	7
Employee-related decisions	8
Financial disclosure forms and budget preparation	9
Infrastructure construction management	10
Spatial data and imagery, GIS applications	11
Payroll	12
Payment of invoices	13
End-of-year activities	14

TABLE 3 COOP Team Overview

Team	Members	Immediate Action	Ongoing Responsibility
Executive	Division and department directors	Implement COOP plan Deploy advance team Initiate agencywide communication that the plan is in effect	Coordinate with county Oversee essential functions Assign resources Encourage staff
Advance	Personnel who support critical systems	Ready information and communication systems Ready alternative sites	Report status of critical systems, processes, records Report status of alternative sites
Operations	Personnel responsible for an essential function	Ready the essential function for which the team is responsible	Manage essential function Assess and report capabilities and performance measures
Support	Personnel supporting an essential function	Support essential functions under direction of an operations team	Support and address needs as directed by an operations team
Contingency	Personnel who support one or more essential functions	Deploy as directed by an operations team to relieve or assist a support team	Support and address needs as directed by an operations team

Advance Team

The advance team is deployed when the COOP plan is activated. The purpose of the advance team is to support the successful stand-up of the COOP plan. Its support includes ensuring the ability of the executive team to provide operations oversight and the ability of the operations teams to ensure continuation of essential functions. The advance team is expected to perform its responsibilities from notification until its mission is accomplished or ongoing responsibility is handed to the operations teams responsible for maintenance of the advance team functions.

Three needs are addressed by the advance team. First, the division depends on information processing and telecommunication support. Information and communication are important to implement the COOP plan quickly and ensure that team efforts are coordinated. Second, one of the tools that the COOP teams will use is a geographic information system (GIS). Emergency needs, actions, and impacts will be assessed by using spatial data and imagery from activation through deactivation of the COOP plan. Third, facilities are as important as communications and information systems. The safety and security of the facilities used by the division to continue essential services are fundamental for successful implementation of the COOP plan.

The advance team consists of three three-person teams with the responsibility of ensuring that each of the above needs is met at activation of the COOP plan, or as close to activation as possible. On each team, one person will ensure that information and communication systems are operational. One person will ensure that the GIS-based data are accessible and that new information can be entered and evaluated. One person will check that the facility or facilities that will be used to coordinate the COOP effort are safe and secure.

The advance teams are three deep to scale to the need and to address staff reduction in incidents such as pandemic influenza. The first team is always deployed when the COOP plan is activated. The second and third teams may be deployed or held in reserve at the direction of the executive team.

Operations Team

An operations team is assigned responsibility for one essential function. The mission of the operations team is to ensure that the assigned essential function is provided without interruption.

An operations team is charged with overcoming external impacts on a service that may be caused by one or more emergencies. Operations teams are charged with overcoming internal division impacts caused by reduction in staff or resources, or both.

When the COOP plan is activated, each operations team will oversee and evaluate the essential function for which it is responsible. Each operations team will report to the COOP executive team in a timely and efficient manner in accord with the COOP plan and the emergency operations plan. Each operations team reports to a designated member of the executive team.

The operations team will either maintain the essential function directly or through oversight of one or more support teams. Operations teams may relieve or supplement support team rosters with personnel from the contingency teams.

The operations team is responsible for ensuring that the roster of team members is current and that the team is ready to deploy when activated.

Support Teams

Support teams are responsible for one or more activities that contribute to the successful and sustained provision of an essential function. Support teams report to operations teams.

Contingency Teams

Contingency teams are prepared to deploy as directed to help support teams. There are two types of contingency teams: those organized by specific essential function that may be drawn on by one operations team and those providing a general resource that may be drawn on by any operations team. If the contingency team is organized by essential function, team members are trained or cross-trained before an exercise or deployment to a support team.

Team Contact and Capability Information

Information maintained about employees was extended to support the COOP mission. Staff capabilities and other commitments, such as current National Guard service, are important to know. A database was

developed and implemented. This information should be current so that divisionwide communication of an emergency and activation of the COOP plan can take place quickly and effectively.

Some information in the database would be maintained because of the personal commitment of the individual or an individual's supervisor. Some information would be maintained by the operations teams.

The issue was how to ensure a baseline of current information for each employee in all positions on all teams. Updates are ongoing, and in addition the decision was made to update the information as part of each employee's annual performance appraisal. There is a direct tie between training and capabilities in performance evaluation and on the COOP database, so the timing was appropriate. Every employee's information in the database will be updated no less often than once each year.

Pandemic Influenza Scenario

Local, state, national, and international pandemic influenza documents and plans were reviewed before assessing how to address this hazard as part of the COOP planning process. Pandemic documents reviewed included the *National Strategy for Pandemic Influenza* (*6*) and *National Strategy for Pandemic Influenza Implementation Plan* (*7*), the World Health Organization's *Pandemic Influenza Draft Protocol* (*8*), and the Congressional Research Service's report to Congress on *U.S. and International Responses to the Global Spread of Avian Flu* (*9*). Pandemic response plans reviewed included the New Mexico Department of Health's *Pandemic Influenza Emergency Response* (*10*), the New York City Department of Health and Mental Hygiene's *Pandemic Influenza Preparedness and Response Plan* (*11*), and the *New Zealand Police National Pandemic Influenza Action Plan* (*12*).

The COOP leadership team decided to address pandemic influenza as an appendix to the COOP plan. It determined that a separate COOP plan prepared specifically for pandemic influenza could lead to conflicting COOP content and confusion. A pandemic influenza was viewed as one of many emergencies with unique characteristics that could be addressed as appendices to the COOP plan.

Planning Assumptions

Some characteristics of pandemic influenza are helpfully documented in a separate appendix to the COOP plan. The pandemic influenza appendix includes continuity assumptions in addition to those of the more general COOP plan. Pandemic influenza will be widely dispersed geographically and will therefore be associated with an area command. Pandemic influenza similar to that of 1918 will potentially occur in three waves of 6 to 8 weeks each, which in combination will endure over an 11-month period. Public health officials project absentee rates of 30%. The absentee rates are due to illness, caring for someone who is ill, and fear of becoming ill. The appendix identifies steps to help address the fear of becoming ill. One of the steps is social distancing.

Social Distancing

Bernalillo County Public Works will encourage social distancing if a pandemic is declared. Field operations in support of an essential function such as traffic signal maintenance or solid waste disposal do not permit social distancing. They do permit use of personal protective equipment to reduce exposure. There are essential functions such as payroll and invoice payment that can be supported by persons who are geographically dispersed. The COOP executive team has estimated that between 50 and 60 persons, or 20% to 25% of division employees, could work remotely by using either personally owned or office-supplied equipment. At present, most of these employees are not prepared to do so. Preparation for remote work by these employees will be addressed in the second plan–train–exercise cycle.

The pandemic influenza appendix to the COOP plan identifies ways in which social distancing will be achieved while supporting essential functions. The division will discourage meetings and will encourage phone conferencing, telecommuting, and videoconferencing.

The pandemic influenza appendix identifies tools and services needed from other county and government organizations required to achieve social distancing. These include dial-in access to e-mail and the Internet from employees' homes or other off-site worksites, ongoing operation of the Bernalillo County Virtual Private Network, online payroll and accounts payable software, and backup computer server management and maintenance.

Social Distancing and Teamwork

Social distancing is a component of the pandemic influenza appendix. It also presents challenges to the team approach underlying the adopted all-hazards approach of the COOP plan.

In a pandemic, persons who have planned, trained, and exercised as a member of a team may be assigned to work separately from their team. Steps were taken to address human factors introduced by this change in operations.

Remote access to work will emphasize interaction with other team members. Software capability was installed by the public works information technology staff to enable multiple-participant instant messaging. Similarly, the appendix encourages teleconferencing and videoconferencing to continue to support a team approach to problem solving and the maintenance of essential functions.

Proactive Measures

The primary means of supporting the pandemic influenza appendix is the second plan–train–exercise cycle. Other steps identified in the appendix will be put in place as proactive measures. The division will use relevant public health materials to promote employee education campaigns. Newsletters, staff discussion, and posters in public works facilities will be used. The public health topics include personal hygiene as well as optional steps such as automatic deposit of paychecks and the use of mail to fill regular prescription purchases.

SUSTAINABILITY

The approach adopted was to respond to a near-term need in a way that could be sustained over the long term. Sustainability in the COOP plan is achieved in part through the annual plan–train–exercise cycle. The first-cycle planning emphasized the overall plan. The second-cycle planning builds on the first and emphasizes operational plans for each essential function.

The first-cycle training emphasized national standard practice. The needs for the second-cycle training are identified during preparation of operational plans by the operations team for each essential function. Training requirements vary among the operations teams. What is constant is the commitment to comprehensive, inclusive training for all staff independent of their learning styles.

The first-cycle exercise was based on pandemic influenza. The exercise based on the avian flu will be adapted for use in developing the training for another type of hazard in the second plan–train–exercise cycle. A near-term capability to maintain essential functions during a pandemic has been incorporated into long-term COOP.

The alignment of the COOP with other established processes such as annual performance evaluation helps ensure ongoing implementation. The use of extrinsic rewards reinforces the intrinsic value of teamwork in preparing for, responding to, and recovering from an emergency.

The way in which employees were engaged in the effort contributes to sustainability. The value and respect shown each person provides an organizationwide base that helps sustain the COOP capability. Each employee will help sustain the government services that the people expect and depend on.

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REFERENCES

1. Boyd, A., J. Caton, A. Singleton, P. Bromley, and C. Yorks. *TCRP Report 86/NCHRP Report 525: Transportation Security, Volume 8: Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies.* Transportation Research Board of the National Academies, Washington, D.C., 2005.
2. *Massachusetts Institute of Technology Public Version Business Continuity Plan.* Massachusetts Institute of Technology, Cambridge, 2002.
3. *Florida Atlantic University Environmental Health and Safety Unit Continuity of Operations Plan.* Florida Atlantic University, Boca Raton, Oct. 2003.
4. *Continuity of Operations Plan, Department of Environmental Protection, Southwest District Office.* U.S. Environmental Protection Agency, Southwest District Office, Dayton, Ohio, July 2004.
5. *Army Civilian Personnel Regionalization (CPR) Continuity of Operations Plan (COOP).* Civilian Personnel Operations Centers, Assistant Secretary of the Army for Manpower and Reserve Affairs, Nov. 2000.
6. *National Strategy for Pandemic Influenza.* Homeland Security Council, Office of the President of the United States, Washington, D.C., Nov. 2005.
7. *National Strategy for Pandemic Influenza Implementation Plan.* Homeland Security Council, Office of the President of the United States, Washington, D.C., May 2006.
8. *WHO Pandemic Influenza Draft Protocol for Rapid Response and Containment.* World Health Organization, May 30, 2006.
9. *U.S. and International Responses to the Global Spread of Avian Flu: Issues for Congress.* Congressional Research Service, Library of Congress, Washington, D.C., Feb. 2006.
10. *Pandemic Influenza Emergency Response.* Appendix 2 of the Hazard Specific Appendices, New Mexico Department of Health Emergency Operations Plan, Santa Fe, March 2006.
11. *Pandemic Influenza Preparedness and Response Plan.* New York City Department of Health and Mental Hygiene, July 2006.
12. *New Zealand Police National Pandemic Influenza Action Plan.* Discussion draft Version 3. Office of Commissioner, Wellington, New Zealand, Jan. 2005.

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