

# **STATE OF OHIO EMERGENCY OPERATIONS PLAN**



## **EMERGENCY SUPPORT FUNCTION #1 TRANSPORTATION**

### **Tab C – Bridge Collapse Response Plan**

**FACILITATING AGENCY**

Ohio Department of Transportation

**OHIO EMERGENCY OPERATIONS PLAN  
EMERGENCY SUPPORT FUNCTION #1  
TRANSPORTATION**

**Tab C: BRIDGE COLLAPSE RESPONSE PLAN**

**FACILITATING  
AGENCY:**

Ohio Department of Transportation (ODOT)

**SUPPORT AGENCIES:** Ohio Department of Transportation – Office of Aviation (ODOT-AVI)  
Ohio Emergency Management Agency (Ohio EMA)  
Ohio Department of Natural Resources (ODNR)  
Ohio Department of Commerce, Division of State Fire Marshal (SFM)  
Ohio Department of Administrative Services (DAS)  
Ohio Department of Health (ODH)  
Ohio Environmental Protection Agency (OEPA)  
Ohio Department of Agriculture (ODA)  
Public Utilities Commission of Ohio (PUCO)  
Ohio State Highway Patrol (OSHP)  
Adjutant General’s Department, Ohio National Guard (OHNG)  
Ohio Department of Public Safety, Division of Emergency Medical Services (OEMS)  
Ohio Attorney General’s Office, Bureau of Criminal Investigation (BCI)  
Ohio Auditor of State (AOS)  
Ohio Development Services Agency (ODSA)  
Ohio Department of Insurance (ODI)  
Ohio Department of Mental Health and Addiction Services (Ohio MHAS)  
Ohio Treasurer of State (TOS)  
Ohio Homeland Security (OHS)

**NON-GOVERNMENTAL ORGANIZATIONS AND ASSOCIATIONS:**

Ohio Mortuary Operational Response Team (OMORT)  
American Red Cross (ARC)  
Ohio Hospital Association (OHA)  
Ohio Wing, Civil Air Patrol (OCAP)  
Ohio Fire Chiefs’ Association (OFCA)  
Ohio Task Force One (OH-TF1)  
Ohio Voluntary Organizations Active in Disasters (Ohio VOAD)  
The Salvation Army (TSA)

**FEDERAL AGENCIES:** Federal Emergency Management Agency (FEMA)  
U.S. Army Corps of Engineers (USACE)  
U.S. Coast Guard (USCG)

## Federal Bureau of Investigation (FBI)

### I. INTRODUCTION

- A. In Ohio, State-level bridge collapse incident response will be directed through the State of Ohio's Emergency Operations center, and response missions will be developed through existing Emergency Support Functions (ESF).
- B. The activation of agencies in response to a bridge collapse will be dependent on the size and complexity of the incident.

### II. SITUATION

#### A. General information

- 1. According to the National Academies of Sciences, Engineering and Medicine, "Ohio has one of the largest portfolios of transportation assets with the second largest number of bridges in the United States (27,015). These bridges, of varying ages, comprise diverse configurations and structural features and are exposed to various environmental conditions and service loads."
- 2. A bridge is a structure that is built to span physical obstacles underneath such as a body of water, valley, or road, for the purpose of providing passage over the obstacle.
- 3. Bridge design varies on the structure's intended function and the nature of the terrain where the bridge is constructed and/or anchored.

#### B. Bridge Collapse Impacts

- 1. The element that a bridge spans will have an impact on the impacts of its collapse. For example, the collapse of a bridge that spans a highway or a body of water will have the potential of causing greater impacts and disruption than the collapse of a bridge over an unoccupied valley.
- 2. Bridge collapses can cause significant material, economic, environmental and social impacts, including: loss of life, loss of property, losses in economic output, disruptions in the movement of people and goods, and increases in expenditures for repair and replacement.
- 3. In a bridge collapse, the destruction of bridge materials, the vehicles that were on it, and materiel that was under it, could release petroleum and gas products, heavy metals and industrial chemicals; which could contribute to the pollution of the air, waterways and soils.

## C. Bridge Collapse Causes

1. The primary expected causes of bridge collapse are:
  - a. Earthquake
  - b. Fire
  - c. Impacts by road vehicles, train and boats
  - d. Flooding
  - e. Construction accidents
  - f. Manufacturing and design defects
  - g. Improper maintenance

## D. Pre-incident planning

1. Initial Response Resources
  - a. Local jurisdictions in which critical bridges have been identified will need to determine the bridge collapse response resources that will be needed to respond to a collapse of their identified bridges, determine which of those resources are readily available within their jurisdiction, and determine where the need resources that are not available within their jurisdiction can be accessed through mutual aid or some other source.
2. Incident Commander Identification
  - a. Local jurisdictions in which critical bridges have been identified will need to pre-identify the command structure that will be employed in a bridge collapse response, including which position(s)/agency(ies) will function as the Incident Command.
3. Local Jurisdiction Bridge Collapse Response Planning
  - a. Local jurisdictions in which critical bridges have been identified will need to incorporate planning for bridge collapse response into their all-hazards planning process.
4. Response Agency-level Planning
  - a. Agencies that have been identified as having response roles in local- and state-level bridge collapse response plans will need to develop adequate standard operating procedures (SOP) for their assignment(s) of responsibility.

- b. Measures must be taken to support the creation of local, inter-jurisdictional Memoranda of Understanding/Agreement (MOU/MOA) to ensure that jurisdictions will have adequate resource support.
- c. Necessary measures must be taken to ensure that agencies that will respond to bridge collapse incidents have the proper training, expertise and equipment to effectively respond; and that agency-based SOPs are developed to cover missions that may be assigned to them.
- d. ODOT has created “playbooks” that identify bridge-specific re-routings and pre-identified detours.

### **III. CONCEPT OF OPERATIONS**

- A. Immediately after a bridge collapse, the first operational responses will be taken by response agencies within the impacted jurisdiction(s), using their own resources and mutual aid resources. Additional initial response and resources could come from neighboring jurisdictions, from the public, and from volunteers.
- B. Interaction with neighboring jurisdictions will be necessary for bridges that connect between regions, between states, and between county and municipal jurisdictions.
- C. The establishment of a Unified Command operation will be necessary to ensure that all response missions/tasks are addressed and completed, including communications from the ground level to local and State EOCs.
- D. Command and control will probably consist of Fire, Emergency Medical Services, Law Enforcement, County Engineers, and Public Works.
- E. The technical expertise of county-level engineering, local and regional water rescue teams, local and regional urban search and rescue teams, and river flow control operations via the USACE will be critical to the effectiveness of initial response operations.
- F. Resources from surrounding counties will be activated by MOUs/MOAs for urban search and rescue, swift water teams, dive teams, etc.
- G. Emergency personnel, county-level responders and volunteers, and State- and Federal-level agencies will be involved in coordinated rescue and recovery operations during the initial response phase.
- H. It will be important for all responding agencies to know who is in charge of deployed response assets and what their response roles are.
- I. It will be important for there to be effective situational awareness and plans for operational control.

- J. It will be important to ascertain if the collapse was due to man-made or natural circumstances and to determine if there are any secondary threats.
- K. It will be important to assess the existence of, and damage to utilities (natural gas, electricity, water, telephone, etc.) that are housed in chaseways that are damaged by the collapse.
- L. Initial search and rescue operations may be 24-hour-per-day operations. Response to a bridge collapse incident can stretch out over a long period of time. It may be weeks until all victims are located and removed from the wreckage.
- M. Rescue efforts may quickly shift to recovery operations of human remains.
- N. Federal-level search and rescue resources (U.S. Navy Diving and Salvage Units, U.S. Coast Guard) may arrive within two days.
- O. The scene may need to be treated as a crime scene operation during search and rescue operations, and the FBI may assist with underwater search evidence teams.
- P. Unmanned underwater vehicles and other underwater equipment may not be able to be used due to debris and murky water conditions.

#### **IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES**

##### **A. Organization**

1. The Ohio Department of Transportation is the Facilitating Agency for this plan.
2. The missions that are assigned under this plan will be supported by the Support Agencies, Non-Governmental Organizations and Associations, and Federal Agencies that are listed on pages one and two of this plan.
3. As indicated below, mission assignments under this plan are defined by the already existing missions in the Ohio Emergency Operations Plan's ESFs and Annexes.
4. The number of type of missions that are assigned under this plan, and the number of agencies that are called on to respond to missions under this plan will be dependent on the scale of bridge collapse's scale and impacts.

##### **B. Assignment of Responsibilities**

1. ESF-1 – Transportation
  - a. Missions for the re-routing of traffic and route blocking, directly after a bridge collapse, during search and rescue/recovery operations, and during reconstruction.

2. ESF-2 – Communications and Information Technology
  - a. Missions for the deployment of State- and Federal-level communications resources directly after a bridge collapse, during search and rescue/recovery operations.
3. ESF-3 – Engineering and Public Works
  - a. Missions for debris management operations, including debris clearance, reduction and disposal, directly after a bridge collapse, and during search and rescue/recovery operations. Private firms may be used to assist local authorities in debris removal. Debris and challenging currents were the biggest obstacles during collapse response operations.
  - b. Missions for bridge structure evaluation during search and rescue/recovery operations.
  - c. Missions for water level control (USACE) directly after a bridge collapse, during search and rescue/recovery operations, and during reconstruction.
4. ESF-4 – Firefighting
  - a. Missions for activation of the Ohio Fire Response Plan to provide mutual aid resources.
  - b. Missions for transport and tracking of victims to area hospitals.
5. ESF-5 – Information and Planning
  - a. Additional resources may be secured through the Emergency Management Assistance Compact (EMAC).
  - b. Missions to act as a liaison between the State and affected jurisdictions.
  - c. Missions to assist in the establishment and support of on-scene command and control operations.
  - d. Missions to assist in multi-jurisdiction coordination.
6. ESF-6 – Mass Care
  - a. Missions to conduct mass care support for victims and responders.
7. ESF-7 – Resource and Logistics Support
  - a. Missions for contracting and private contractor procurement/coordination.
  - b. Missions for assisting in preparing emergency large rebuilding project contracts.

8. ESF-8 – Public Health and Medical Services
  - a. Missions for public health and medical service support (e.g., resources, subject matter expertise, guidance) for incident response.
9. ESF-9 – Search and Rescue
  - a. Missions for land-based and water-based search, rescue and recovery operations.
10. ESF-10 – Hazardous Materials
  - a. Missions for water- and land-based hazardous materials response.
11. ESF-11 – Food and Agriculture
  - a. Missions for river and land-based animal response (transported animals, wild animals and pets).
12. ESF-12 – Energy
  - a. Missions for response to severed/damaged utility lines/pipes.
13. ESF-13 – Law Enforcement
  - a. Missions for support of local law enforcement operations, roadway management and re-routing.
  - b. Missions for site security.
  - c. Missions for incident investigation.
14. ESF-14 – Recovery and Mitigation
  - a. Missions for short-term and mid-term community recovery response.
15. ESF-15 – Emergency Public Information and External Affairs
  - a. Missions for support of public information dissemination, JIC operations and community liaising.
16. Financial Management Support Annex
  - a. Missions for cost tracking, cost control, private contractors
17. Terrorism Incident Annex
  - a. Missions for the support of terrorism-related incident investigation and response by the FBI, BCI, and other law enforcement agencies.

## **V. FEDERAL-LEVEL AID HIGHWAY ASSISTANCE USE IN RESPONSE TO A BRIDGE COLLAPSE**

### **A. Introduction**

1. Bridges that are part of the federal-aid highway system are eligible for assistance from the Department of Transportation (DOT) through the Emergency Relief Program (ER) of the Federal Highway Administration (FHWA).
2. Following a natural disaster or catastrophic failure, Emergency Repair funds are made available for both emergency repairs and for restoring the federal-aid highway facility to pre-disaster conditions.
3. For disaster-damaged roads that are not federal-aid highways, states may request reimbursement for emergency road repairs and debris removal from the Federal Emergency Management Agency (FEMA).

### **B. The FHWA's Emergency Repairs (FHWA ER) Program**

1. The FHWA ER program funds for the repair and reconstruction of roads on the federal-aid highway system that have suffered serious damage as a result of either 1) a natural disaster over a wide area, such as a flood, hurricane, tidal wave, earthquake, tornado, severe storm, or landslide; or 2) a catastrophic failure from any external cause; for example, the collapse of a bridge that is struck by a barge. Historically, the vast majority of ERP funds have gone for natural disaster repair and reconstruction.
2. The FHWA ER program is administered through the state departments of transportation in close coordination with FHWA's division offices.

### **C. Funding**

1. The FHWA ER program has an annual authorization of \$100 million in contract authority to be derived from the Highway Trust fund. These funds are not subject to the obligation limitation, which means the entire \$100 million is available each year. Because the costs of road repair and reconstruction in many disasters exceed the \$100 million annual authorization, SAFETEA-LU authorizes the appropriation of additional funds on a "such sums as may be necessary" basis, generally accomplished in emergency supplemental appropriations legislation.

### **D. The Federal Share**

1. Emergency repairs to restore essential travel, minimize the extent of damage, or protect remaining facilities, if accomplished within the first 180 days after the disaster, may be reimbursed with a 100% federal share.
2. Permanent repair projects are reimbursed at the same federal share that would normally apply to the federal aid highway facility. For Interstate System highways the

federal share would be 90% and for most other highways the share would be 80%. Permanent repairs done during the first 180 days are also reimbursed at the pro rata share that would normally apply to the facility.

3. The share for disaster relief for roads on federal lands is 100%. Congress broadened the scope of the 100% federal share to encompass all FHWA ER program expenses for repair and reconstruction projects related to the Gulf Coast hurricanes.
4. As is true with other FHWA programs, the FHWA ER program is a reimbursable program. A state can incur obligations, begin repairs and then submit vouchers to FHWA for reimbursement for the federal share of the project.

#### E. Eligibility and Program Operation

1. The FHWA ER program divides all repair work into two categories: emergency repairs and permanent repairs. Only repairs to roads and bridges on the federal-aid highway system that have suffered damage during a declared disaster or catastrophic failure are eligible for FHWA ER program assistance. The intent of FHWA ER program assistance is to repair and restore highway facilities to pre-disaster conditions, not to fund new construction for increased capacity or improve highway facilities or fix non-disaster deficiencies. In general, work is confined to the federal-aid highway right-of-way.

#### F. Emergency Repairs

1. Emergency repairs are those that are made immediately following a disaster to meet the program goals to “restore essential traffic, to minimize the extent of damage, or to protect the remaining facilities.”
2. State and local transportation agencies can begin emergency repairs immediately, and prior approval from FHWA is not required. Once the FHWA Division Administrator finds that the disaster work is eligible, properly documented costs can be reimbursed retrospectively.
3. Emergency repair work is to be accomplished within the first 180 days after the disaster and is reimbursed at a 100% federal share. Examples of emergency repairs are: debris removal, re-grading, removal of landslides, construction of temporary road detours, erection of temporary detour bridges, and use of ferries as an interim substitute for highway or bridge service.
4. Emergency repairs are meant to permit work to start immediately to restore essential traffic in the disaster area that cannot wait for a finding of eligibility and programming of a project. This part of the program is especially designed for speed. In the case of some disasters, state DOTs have been able to let FWHA ER-funded debris removal and demolition contracts the same day of the disaster event.

## G. Permanent Repairs

1. Permanent repairs go beyond the restoration of essential traffic and are intended to restore damaged bridges and roads to pre-disaster conditions and capabilities. Where the damaged parts of the road can be repaired to pre-disaster conditions, without replacement or reconstruction, this is done. Where a road needs to be replaced, ER funding is limited to the costs of building a roadway designed to current standards and of comparable capacity. FHWA ER program funds may be used for temporary or permanent repair of a repairable bridge but permanent repairs may not be funded if the bridge is scheduled for replacement.
2. If a bridge is destroyed or repair is not feasible, then FHWA ER program funds may be used to participate in building a new comparable bridge to current design standards and to accommodate traffic volume projected over its design life. In some cases “betterments” (added protective features, added lanes, added access control, etc.) may be eligible, but they must be shown to be economically justified based on a cost/benefit analysis of the future savings in recurring repair costs.
3. Permanent repair and reconstruction contracts, not done as emergency repairs, must meet competitive bidding requirements. A number of techniques are available to accelerate projects, including design-build contracting, abbreviated plans, shortened advertisement period for bids, and the cost-plus-time (A+B) bidding<sup>6</sup> that includes monetary incentive/disincentive clauses designed to encourage contractors to complete projects ahead of time.
4. Contracts supported by FHWA ER funding must meet all contract provisions as required by 23 CFR Part 633A. Davis-Bacon wage rate requirements apply to all FHWA ER contracts. ER funded contracts must abide by Disadvantaged Business Enterprises (DBE) requirements, American With Disability Act (ADA) requirements, “Buy America” regulations, and prohibitions against the use of convict labor (23 U.S.C. 114).