

EMERGENCY OPERATIONS PLAN

Hanley International Academy

The title of this document is “Hanley International Academy All Hazards Emergency Operations Plan (EOP).”

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APPROVAL AND IMPLEMENTATION

This plan shall apply to all Hanley International Academy students, faculty, staff, and others participating in protection, prevention, mitigation, preparedness, response and recovery efforts. Furthermore, the EOP may be applied to any school-sponsored events, whether on or off property, and all public or private school-sanctioned activities.

The school District Superintendent or their designee, Steve Paddock or “designee,” shall be responsible for plan oversight and coordination with applicable stakeholders, such as law enforcement, county health department, fire services, emergency management, etc. This emergency operations plan is based on the “all-hazards” concept and plans for natural and man-made disasters and incidents. The plan is flexible in that its parts – or entirety – may be activated based upon the specific emergency and decision by school leadership.

This EOP and its supporting contents are hereby approved, overwrites all previous editions formerly referred to as the Hanley International Academy EOP, and are effective immediately upon the signing of the authority figure noted below.

School Name: _____
Approval Signature: _____
Title: _____
Date: _____

EMERGENCY OPERATIONS PLAN
Hanley International Academy

The Hanley International Academy Emergency Operations Plan (EOP) has been completed and approved through a collaboration of effort throughout the community, including:

Please sign above your name:

Steve Paddock
Director/Superintendent

Jeff Leib
Board President

Marek Kalinowski
Police Chief

Tadarial Sturdivant
Emergency Manager

I. INTRODUCTION

The purpose of the Hanley International Academy Emergency Operations Plan (EOP) is to identify and respond to incidents by outlining the responsibilities and duties of Hanley International Academy and its employees.

Developing, maintaining, and exercising the plan empowers employees in an incident to act quickly and knowledgeably. In addition, the plan educates students, teachers, staff, and other key stakeholders on their roles and responsibilities before, during, and after an incident. This plan provides parents/guardians and other members of the community with assurances that Hanley International Academy have established guidelines and procedures to respond to incidents/hazards in an effective way.

The following plan outlines guidelines and procedures for dealing with present and/or potential incidents or hazards facing students and schools. The basic plan and the functional and hazard-specific appendices outline an organized, systematic method to mitigate, prevent, prepare for, respond to, and recover from incidents. Faculty/staff have been trained to assess the seriousness of incidents and respond according to these established procedures and guidelines. Hanley International Academy regularly schedule in-service training events for faculty and staff.

Lastly, developing, maintaining, and exercising the school EOP increases Hanley International Academy legal protection. In the past, schools without incident management procedures have been found liable. While no set of policies rules out the potential for legal problems, establishing procedures and guidelines based on common professional practices provides a margin of protection against liability.

SCOPE OF THE PLAN

The Hanley International Academy EOP outlines the expectations of the faculty and staff, the roles and responsibilities, direction and control systems, internal and external communications plans, training and sustainability plans, and authority and references as defined by local, tribal, state, and federal government mandates. It also outlines common and specialized procedures, as well as specific hazard vulnerabilities and response/recovery.

MISSION AND GOALS

In an emergency, the mission of Hanley International Academy EOP is to:

- Protect lives and property.
- Respond to emergencies promptly and properly.
- Coordinate with local emergency operations plans and community resources.
- Aid in recovery from disasters.

Mission Statement

- *Hanley International Academy, in partnership with home and community, will provide a safe learning environment that promotes the academic, physical, social, and emotional development of our diverse learning community.*

Vision Statement

- *Educating your child like our own!*

SCHOOL BOARD POLICY STATEMENT

This Academy shall operate as a public-school academy, pursuant to the provisions of the Charter Contract and applicable laws. The Board of Directors has all of the rights, powers, and duties expressly stated in the law and the Charter Contract. The Board may exercise power incidental to, or appropriate to, the operation of the Academy, including, but not limited to, all of the following:

- Educate Students. In addition to educating students in the grades and subjects authorized in the Charter Contract, the Board may operate preschool, adult education, and GED testing preparation programs, if specified in the Charter Contract.
- Provide for the safety and welfare of students while at the Academy, at a school-sponsored activity, or while en route to or from the Academy or a school-sponsored activity.
- Acquire, construct, maintain, repair, renovate, dispose of, or convey school property, facilities, equipment, technology, or furnishings.
- In accordance with the Charter Contract and with an Educational Service Provider: hire a Principal, to hire, contract for, schedule, supervise, or terminate employees, independent contractors, and others to carry out Academy operations. The Board may contract with the Educational Service Provider to provide educational, administrative and other services and to exercise certain of said powers. The rights, responsibilities and obligations of the school and the Educational Service Provider are set forth in the contract between the Board and the Educational Service Provider. The Academy's policies and guidelines are not intended to modify any of the terms of such a contract.
- Receive, account for, invest, or expend school money; borrow money and pledge school funds for repayment; and qualify for State-School Aid and other public or private money from local, regional, State, or Federal sources. The Academy may enter into agreements or cooperative arrangements with other entities, public or private and may join organizations that assist in performing the functions of the Academy.

DESCRIPTOR OF HANLEY INTERNATIONAL ACADEMY

Hanley International Academy is located in Hamtramck, Michigan in the Southeast Lower Peninsula of Michigan and is located in Wayne County. Hanley International Academy is a Prek-8th grade charter school authorized by Grand Valley State University. The district's enrollment is 689. All the grades are located in one location at 2400 Denton Street, Hamtramck, Michigan, 48212. Hamtramck has a population of approximately 37,638. It is comprised of 39% White, 29% Asian, 26% African American. The median income is about \$25,144 with a median home value of \$42,800.

PLAN DEVELOPMENT, MAINTENANCE AND DISTRIBUTION

Approval and Dissemination of the Plan

The school board, along with the principals and District Superintendent or their designee, will approve and disseminate the plan and its appendices following these steps:

- Review and validate the plan.
- Present the plan for comment or suggestion.
- Obtain plan approval from the school board.
- Distribute the plan.

Record of Changes

Each update or revision to the plan will be tracked. Revisions shall include: the revision number, date, and the name of the person who made the change. The revision of the plan will be in table format and maintained by the School Crisis Response Team.

See next page for table.

RECORD OF CHANGES
Hanley International Academy EOP

| Page/Section of Change | Brief description of change | Change Entered By | Date Entered |
|------------------------|-----------------------------|-------------------|--------------|
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Record of Distribution

Copies of plans and appendices will be distributed to those affected by this document.

| <i>Agency</i> | <i>Title of and Person Receiving Plan</i> | <i>Date</i> |
|----------------------|--|--------------------|
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Plan Review and Updates

The basic plan and its appendices will be reviewed annually by the school’s Crisis Response Team, emergency management agencies, and other entities deemed appropriate by school administration. The superintendent will establish a schedule for annual review of planning documents.

The school’s EOP will be updated based upon deficiencies identified during incident management activities and exercises, or when changes in threats, hazards, resources and capabilities, or school structure occur.

II. SITUATION OVERVIEW

BUILDING INFORMATION

All classes take place in and out of the buildings. In addition to classes, district facilities are also used for other events and gatherings such as: indoor/outdoor sporting events, community meetings, gatherings in common areas such as the library, gym, cafeteria and auditorium. In the event of an emergency, this EOP is applicable to all buildings and events that occur, regardless of the time or day of the week.

DISTRICT BUILDINGS:

| |
|---|
| Hanley International Academy |
| 2400 Denton Street Hamtramck, MI 48212 313-875-8888 |
| |
| |

SCHOOL POPULATION

General Population

| TYPE | TOTAL POPULATION |
|------------------------------------|-------------------------|
| School District Student Population | 689 |
| Administrators | 5 |
| Office Support Staff | 4 |
| Teachers | 34 |
| Counselors | 0 |
| Cafeteria Staff | 7 |
| Maintenance Staff | 1 |
| Custodial Staff | 1 |
| Transportation Department | 0 |
| Teacher Aides/Techs | 14 |
| Bus Aides | 4 |
| TOTAL | 759 |

Functional Needs of the Deaf, Blind, and Hard-of-Hearing Population

Hanley International Academy are committed to the safe evacuation and transportation of students, faculty, and staff with special needs.

The special needs population may include:

- Limited English Proficiency (LEP)
- Blindness or Visual Disabilities
- Cognitive or Emotional Disabilities
- Deafness or Hearing Loss
- Mobility and/or Physical Disabilities (Permanent and Temporary)
- Medically Fragile Health (Including Asthma, Diabetes and Severe Allergies)

Translation Services

Hanley International Academy students and volunteers may use English as a Second Language (ESL), or English Language Learners (ELL), and may require the following translation services in the event of an emergency. ESL and ELL students are served through UDL communications and applications.

PLANNING ASSUMPTIONS

Stating the planning assumptions allows Hanley International Academy to deviate from the plan if certain assumptions prove not to be true during operations. The school's EOP assumes:

- The school community will continue to be exposed and subject to hazards and incidents described in the Hazard Analysis summary, as well as lesser hazards and others that may develop in the future.
- A major disaster could occur at any time, and at any place. In many cases, dissemination of warning to the public and implementation of increased readiness measures may be possible; however, some emergency situations occur with little or no warning.
- A single-site incident (e.g., fire, gas main breakage, etc.) could occur at any time – without warning – and the employees of the school affected cannot, and should not, wait for direction from local response agencies. Action is required immediately to save lives and protect school property.
- Following a major or catastrophic incident, the school may have to rely on its own resources to be self-sustaining for up to 72 hours.
- There may be a number of injuries of varying degrees of seriousness to faculty, staff, and students. Rapid and appropriate response will reduce the number and severity of injuries.
- Outside assistance from local fire, law enforcement, and emergency managers will be available in most serious incidents. Because it takes time to request and dispatch external assistance, it is essential for the school to be prepared to carry out the initial incident response until responders arrive at the incident scene.
- Proper prevention and mitigation actions, such as creating a positive school environment and conducting fire inspections, will prevent or reduce incident-related losses.

PLANNING LIMITATIONS

It is the policy that Hanley International Academy implies no guarantee that this plan is a perfect incident management system.

As personnel and resources may be overwhelmed, Hanley International Academy endeavors to make every reasonable effort to manage the situation with the resources and information available at the time of the incident.

RESOURCES

This plan is based upon the concept that the emergency functions that must be performed by the school generally parallel some of their normal day-to-day functions. To the extent possible, the same personnel and material resources used for day-to-day activities will be employed during emergency situations.

Because personnel and equipment resources are limited, some routine functions that do not contribute directly to the emergency may be suspended for the duration of an emergency. The personnel, equipment, and supplies that would normally be required for those functions will be redirected to accomplish emergency tasks. Hanley International Academy will use its own resources to respond to emergency situations until emergency response personnel arrive. If additional resources are required because the school's own resources are insufficient or inappropriate to deal with the emergency situation, assistance from local emergency services, organized volunteer groups, or the State of Michigan should be requested. Resources from industry or individuals who have the resources needed to assist with the emergency situation may also be requested.

III. HAZARD ANALYSIS

Hanley International Academy are exposed to many hazards, all of which have the potential for disrupting the school community, causing casualties, and damaging or destroying public or private property. The Incident Protocols section of this plan contains incident response procedures to reduce loss of life and minimize damage and trauma that cannot be prevented.

The Wayne County Hazards Mitigation Plan was taken into consideration while creating the School Emergency Planning and Crisis Response Plan, as it applies to the entire county and all the schools that fall within the county's boundaries. See tab in back of this manual for complete Wayne County HVA.

Each school has special and unique characteristics that influence the development of their School Emergency Operations and Crisis Response Plan. Hanley International Academy should conduct hazard vulnerability and risk assessments to determine: the strengths and weaknesses of their individual building and grounds; the school's social, emotional, and cultural climate; community and staff resources; and the unique concerns of individuals with disabilities and special needs.

HAZARD RISK SUMMARY

The table below outlines Wayne County vulnerability and general risk assessment summary of potential hazards. The rankings are based on a composite evaluation of this plan’s risk assessment, namely, a hazard’s probability of occurring in the future, the vulnerability of a jurisdiction to a particular hazard, the intensity of past hazard impacts, and a joint evaluation of local experts and stakeholders.

Risk and Vulnerability Assessment Summary, Wayne County

Wayne County Hazard Mitigation Plan
Revision Number/Date: 0/June 2019
Publication Date: June 17, 2019

Table 5. First 2019 Survey Hazard Ranking Results, With 2013 Workshop Ranking

| | Open Ended | Count | Rank | Wtd. Average Rank (1 high, 5 low) | Weighted Rank (1 high, 5 low) | 2013 Plan Workshop Rank |
|--|------------|-------|------|-----------------------------------|-------------------------------|-------------------------|
| Natural Hazards | | | | | | |
| Celestial Impact | | 12 | 38 | 4.2 | 39 | |
| Drought | | 13 | 27 | 3.4 | 30 | |
| Earthquake | | 12 | 37 | 4.0 | 37 | |
| Extreme Temperatures - Extreme Hot or Cold | 5 | 24 | 7 | 2.6 | 9 | 1, 5 |
| Fire - Wildfires | | 12 | 36 | 3.9 | 36 | |
| Flooding - Riverine or Shoreline | 3 | 14 | 21 | 2.5 | 6 | |
| Fog | | 12 | 33 | 3.5 | 31 | |
| Invasive Species | | 12 | 34 | 3.7 | 34 | |
| Subsidence - Natural | | 11 | 39 | 3.6 | 32 | |
| Thunderstorms - Hail, Lightning, Severe Wind | 1 | 43 | 1 | 2.4 | 3 | |
| Tornadoes | 4 | 24 | 6 | 2.5 | 7 | |
| Winter Hazards - Snow, Ice & Sleet | 2 | 33 | 2 | 2.7 | 12 | |
| Technological Hazards | | | | | | |
| Fire - Scrap Tire | 9 | 12 | 35 | 3.8 | 35 | |
| Fire - Structural | | 14 | 23 | 3.0 | 20 | |
| Flooding - Dam Failure | | 13 | 28 | 3.6 | 33 | |
| Flooding - Urban | 4 | 21 | 12 | 2.8 | 16 | 6 |
| Hazmat Incidents - Fixed Site | | 15 | 18 | 2.7 | 11 | 3 |
| Hazmat Incidents - Transportation | 2 | 23 | 9 | 2.8 | 15 | |
| Infrastructure Failure - Bridges, Roads, Overpasses | 1 | 31 | 3 | 2.5 | 8 | 4 |
| Infrastructure Failure - Communications | 5 | 16 | 15 | 2.4 | 5 | 4 |
| Infrastructure Failure - Electrical Systems | 3 | 23 | 8 | 2.2 | 1 | |
| Infrastructure Failure - Sanitary/Storm Sewers | 6 | 18 | 13 | 2.3 | 2 | 4 |
| Infrastructure Failure - Water System | | 22 | 11 | 2.7 | 13 | |
| Nuclear Power Plant Accidents | 7 | 17 | 14 | 3.0 | 21 | |
| Oil and Gas Well or Pipeline Accidents | 8 | 13 | 25 | 2.8 | 14 | |
| Subsidence - Mining or Infrastructure | | 13 | 29 | 4.1 | 38 | |
| Human Hazards | | | | | | |
| Catastrophic Events/National Emergencies | 3 | 16 | 16 | 3.1 | 24 | |
| Civil Disturbance | 5 | 15 | 19 | 3.0 | 22 | |
| Criminal Acts - Mass Shootings/Active Assailant(s) | 4 | 25 | 5 | 3.0 | 19 | |
| Criminal Acts - Vandalism and Arson | 5 | 15 | 20 | 3.2 | 27 | |
| Criminal Acts - Homicide/Robbery/Carjacking | | 12 | 30 | 2.9 | 18 | |
| Gas/Oil Shortages or Supply Disruptions | 7 | 12 | 30 | 2.9 | 18 | |
| Information Technology Intrusion | 6 | 16 | 17 | 3.3 | 29 | |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water | 1 | 30 | 4 | 3.0 | 23 | 2 |
| Terrorism/Sabotage | | 13 | 25 | 2.9 | 17 | |
| Transportation Accidents - Air | 7 | 14 | 22 | 2.6 | 10 | |
| Transportation Accidents - Marine | | 12 | 32 | 3.3 | 28 | |
| Transportation Accidents - Rail | 7 | 12 | 31 | 3.2 | 26 | |
| Transportation Accidents - Surface Roads/Highways | 2 | 22 | 10 | 2.4 | 4 | |
| Weapons of Mass Destruction | | 14 | 24 | 3.1 | 25 | |

Table 4. Wayne County Hazard History Summary

| Hazard | Annual Frequency | Frequency Rank | Hazard Impact | | | | Consequence | Data Source |
|--|------------------|----------------|---------------|-----------------|----------|-----------|-------------|--------------------------------|
| | | | Probability | Health & Safety | Area | Economic | | |
| Transportation Accidents - Highway* | 55,001 | 1 | Very High | Medium | Local | High | Medium | MSP, NHTSA, MTCF, Detroit News |
| Criminal Acts - Vandalism** | 13,637 | 2 | Very High | Low | Local | Low | Low | MSP |
| Fire Hazards - Structural Fires | 4,207 | 3 | Very High | Medium | Local | High | Medium | NFIRS |
| Fire Hazards - Wildfires | 1,640 | 4 | High | Low | Local | Low | Low | NIFC |
| Criminal Acts - Arson** | 917 | 5 | High | Medium | Local | Low | Medium | NFIRS, MSP |
| Transportation Accidents - Marine | 10 | 6 | High | Low | Local | Low | Low | USCG and NSC |
| Thunderstorm Hazards- Severe Wind | 7 | 7 | High | Medium | County | High | Medium | NOAA |
| Infrastructure Failure - Water System | 5 | 8 | High | Low | Local | Medium | Medium | Wayne County |
| Transportation Accidents - Rail | 3 | 9 | High | Low | Local | Low | Low | USDOTFRA |
| Petroleum and Natural Gas Pipeline Accidents | 2 | 10 | High | Medium | Local | Medium | Medium | MSP, NRC |
| Thunderstorm Hazards - Hail | 2 | 10 | High | Low | County | Medium | Medium | NOAA |
| Winter Hazards-Snowstorms | 2 | 10 | High | Medium | County | High | Medium | NOAA |
| Flooding-Riverine | 1.3 | 13 | High | Low | Local | High | Medium | NOAA |
| Flooding-Urban | 1.3 | 13 | High | Low | Local | High | Medium | NOAA |
| Civil Disturbance* | 1 | 15 | High | High | Local | High | Medium | Armstrong Economics |
| Flooding - Dam Failure | 1 | 15 | High | Low | Local | High | Medium | State of Michigan |
| Infrastructure Failure - Electrical System | 1 | 15 | High | Medium | Local | High | High | Wayne County, MSP |
| Transportation Accidents - Air | 1 | 15 | High | Medium | Local | Low | Low | FAA |
| Winter Hazards- Ice and Sleet | 1 | 15 | High | Medium | County | Medium | Medium | NOAA |
| Extreme Temperatures-Extreme Cold | 0.83 | 20 | High | Medium | County | Low | Medium | NOAA |
| Extreme Temperatures-Extreme Heat | 0.67 | 21 | High | Medium | County | Low | Medium | NOAA |
| HazMat Incidents - Fixed Sites | 0.60 | 22 | Low | Medium | Local | Very High | High | NRC |
| Infrastructure Failure - Storm Sewer System | 0.50 | 23 | Low | Low | Local | Low | Low | Wayne County |
| Infrastructure Failure - Communications | 0.50 | 23 | Low | Medium | Local | Low | Medium | Wayne County |
| Infrastructure Failure - Bridges, Roads, and Overpasses | 0.50 | 23 | Low | High | Local | High | Medium | MDOT and FHA |
| Thunderstorm Hazards - Lightning | 0.5 | 23 | High | Medium | County | Medium | Medium | NOAA |
| Tornadoes | 0.5 | 23 | Low | High | County | High | High | Wayne County and NOAA |
| HazMat Incidents - Transportation | 0.40 | 28 | Low | Medium | Local | Medium | Medium | NRC |
| Subsidence | 0.40 | 28 | Low | Low | Local | Low | Low | State of Michigan |
| Criminal Acts - Mass Shooting | 0.35 | 30 | Low | High | Local | Medium | Medium | MSP |
| Invasive Species | 0.35 | 30 | Low | Low | County | High | Medium | State of Michigan |
| Public Health Emergencies - Pandemics and Epidemics | 0.33 | 32 | Low | High | County | High | High | MSP |
| Public Health Emergencies - Contaminated Food Supply and/or Water Supply | 0.33 | 32 | Low | High | County | High | High | MSP |
| Gas/Oil Shortages or Supply Disruption | 0.23 | 34 | Low | Low | County | Very High | High | State of Michigan |
| Terrorism and Sabotage | 0.21 | 35 | Low | High | Local to | High | High | State of Michigan |
| Drought | 0.21 | 35 | Low | Low | County | Medium | Medium | Wayne Co., NOAA, & NDMC |
| Earthquake | 0.20 | 37 | Low | Low | County | Low | Low | USGS |
| Fog | 0.20 | 37 | Low | Medium | County | Medium | Medium | State of Michigan, NOAA |
| Oil and Gas Well Incidents | 0.20 | 37 | Low | Low | Local | Medium | Low | MSP |
| Catastrophic Events/National Emergencies | 0.12 | 40 | Low | Medium | County | Medium | Medium | No established frequency |
| Infrastructure Failure - Sanitary Sewer System | 0.05 | 41 | Low | High | Local | Medium | High | Wayne County |
| Fire Hazards - Scrap Tire Fires | 0.04 | 42 | Low | Low | Local | Low | Low | MSP and MDEQ |
| Celestial Impact | 0 | 43 | Very Low | High | County | High | High | No established frequency |
| Flood-Great Lakes Shoreline and Erosion | 0 | 43 | Very Low | Low | Local | Low | Low | Wayne County |
| Nuclear Power Plant Accidents | 0 | 43 | Very Low | Medium | County | High | Medium | No established frequency |
| Weapons of Mass Destruction | 0 | 43 | Very Low | Very High | County | Very High | Very High | No established frequency |

* Value shown is the total number of vehicle crashes recorded in Wayne County for 2017. The five-year average for 213 through 2017 equals 50,750.

Number of fatal crashes in Wayne County for 2017 equals 157.

** Vandalism = Property Crime

*** Arson figures do not include City of Detroit

IV. PREPAREDNESS, PREVENTION AND MITIGATION OVERVIEW

PREPAREDNESS

Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating and taking corrective action.

Ongoing preparedness efforts require coordination among all those involved in emergency management and incident response activities. Hanley International Academy foster preparedness at all levels, including students, parents, faculty and staff.

The preparedness activities included in the school emergency operations program are:

- Providing emergency equipment and facilities.
- Emergency planning, including maintaining this plan and appendices.
- Involving emergency responders, emergency management personnel, other local officials, and volunteer groups who assist this school during emergencies in training opportunities.
- Conducting periodic drills and exercises to test emergency plans and training.
- Completing an after-action review after drills, exercises, and actual emergencies.
- Revising plan as necessary.

PREVENTION AND MITIGATION

Hanley International Academy will conduct prevention and mitigation activities as an integral part of the school's Emergency Operations and Crisis Response Planning Program.

Prevention and mitigation are intended to eliminate hazards and vulnerabilities, reduce the probability of hazards and vulnerabilities causing an emergency situation, or lessen the consequences of unavoidable hazards and vulnerabilities. Either should be performed as a pre-disaster activity, although prevention and/or mitigation may also occur in the aftermath of an emergency, with the intent of avoiding repetition of the situation.

The prevention and mitigation activities included in the EOP are:

- Identifying Hazards
- Recording Hazards
- Analyzing Hazards
- Preventing / Mitigating Hazards
- Monitoring Hazards
- Auditing Security

Hanley International Academy is also committed to preventing and mitigating incidents from happening within their school(s) to protect the safety and security of students, faculty, and staff. Our policies address bullying, drug use, weapons, and other actions that undermine the safe haven of a school.

In order to mitigate the loss of life and property during a disaster, the schools require compliance with applicable building codes and regulations.

PREVENTION AND INTERVENTION MEASURES

Safe schools do not happen automatically; they require collaboration and support from students, parents, faculty, and the community. Attention to careful planning and proper training is the key to continuous safety.

Limiting School Access

Efforts will be made to minimize the number of entrance and exit points used daily by outsiders and unauthorized students. Staff should be visible before school, during class change, and at the end of the day. Delivery entrances used by vendors should be checked regularly. Refer to the security guidelines.

Visitors

All visitors are required to check in at the front office prior to visiting classroom areas to state their specific business. It is suggested that all visitors wear a "Visitor Pass." All school faculty and staff should be advised to greet visitors or any unidentified person to ensure they have legitimate business at the school and direct them to the office. Refer to the visitor policy for further detail.

Emergency Alarm System / Warning Codes

A warning announcement will be used to alert faculty, staff, and students in the event of a critical incident. The announcements are intended to gain the attention of all faculty, staff, and students so that further directions can be provided. This announcement could signal a lockdown, help facilitate evacuation, or other responses appropriate for the situation. See communication section.

Evacuation Routes

In addition to the standard evacuation plan, secondary evacuation routes will be used, as needed. See Evacuation Annex.

Off-Site Staging Areas

An area away from the scene may be identified for dissemination of information and/or media response with the Superintendent or designee. Parents and/or guardians may be directed to a secondary building or meeting area, away from the media, to gain information and/or pick-up their child. See Re-unification Plan.

Building Plans, Blueprints and Site Plans (On- and Off-Site)

Building site maps and floor plans are on file with local police and fire departments. They are located in the back of this EOP in Evacuation Annex.

V. INCIDENT COMMAND SYSTEM (ICS)

In a major emergency or disaster involving a Hanley International Academy building that may be damaged or need to be evacuated, people may be injured, and/or other incident management activities may need to be initiated. These activities must be organized and coordinated to ensure efficient incident management.

The Incident Command System (ICS) will be used to manage all incidents and major planned events. The ICS approach can be used in all phases of incident management, including pre-incident activities, response and recovery.

School personnel are usually first on the scene of an incident in a school setting. If the designated District Superintendent or their designee is not present at the onset of the incident, his/her successor or the most qualified individual will assume command. Staff and faculty are expected to take charge and manage the incident until it is resolved, or command is transferred to someone more qualified and/or to an emergency response agency with legal authority to assume responsibility.

At no time will school officials transfer responsibility for student care. To clarify the roles, the school official in charge will be known as the District Superintendent or their designee. The District Superintendent or their designee will be delegated the authority to direct all incident activities within the school's jurisdiction. The District Superintendent or their designee will establish an Incident Command Post (ICP). The District Superintendent or their designee is responsible for establishing objectives and policies for emergency operations and providing general guidance for emergency response and recovery. The District Superintendent or their designee will provide an assessment of the situation to the school principal/ administrator and other local officials, identify incident management resources required, and direct the on-scene incident management activities. The District Superintendent or their designee, assisted by staff sufficient for the tasks to be performed, will manage the emergency response from the Incident Command Post (ICP) until local emergency response services arrive.

Staff will seek guidance, direction, and technical assistance from local officials, state agencies, federal agencies, and industry experts, where appropriate. In emergency situations where other jurisdictions are providing significant response resources or technical assistance, there will be a transition from the normal ICS structure to a Unified Command structure.

Designated individuals from one or more response agencies, along with the District Superintendent or their designee, will work jointly to carry out the response. This arrangement helps to ensure that all participating agencies are involved in developing objectives and strategies to deal with the emergency.

CONCEPT OF OPERATIONS

The overall strategy of Hanley International Academy EOP is to execute effective and timely decisions and actions that prevent harm, protect lives and property, mitigate damages, restore order and aid recovery.

This plan is based upon the concept that the incident management functions that must be performed by the school generally parallel some routine day-to-day functions. To the extent possible, the same personnel and material resources used for day-to-day activities will be employed in responding to an incident in the school.

In addition, the incident may require coordinated operations with others. The key to successful operations is an organized command structure. It is important to understand that the school's command of the incident and the school's incident management structure may change once official emergency responders arrive on the scene. Emergency responders are knowledgeable in the Incident Command System (ICS) and may be best equipped to command the response to a specific incident. If this is to occur, the school may transition command of the incident to a more qualified Incident Commander (IC).

It is critical for Hanley International Academy administration officials and all segments of the Hamtramck community emergency response system to work together in advance of an incident to develop a working relationship and understanding of how the school's initial response would transition into the overall response to a critical incident at the school.

NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS)

The National Incident Management System (NIMS) is a set of principles that provides a systematic, proactive approach guiding government agencies, nongovernmental organizations and the private sector to work seamlessly to prevent, protect against, respond to, recover from and mitigate the effects of incidents, regardless of cause, size, location, or complexity, to reduce the loss of life or property and harm to the environment. This system ensures that those involved in incident response/recovery understand their roles and have the tools they need to be effective.

According to Homeland Security Presidential Directive 5 and the U.S. Department of Education, school districts are among local agencies that must adopt NIMS if they receive Federal grant funds.

Hanley International Academy recognizes that staff and students will be first responders during an incident. Adopting NIMS enables staff and students to respond more effectively to an incident and enhances cooperation, coordination, and communication among school officials, first responders, and emergency managers.

As part of its NIMS implementation, Hanley International Academy participates in the local government's NIMS preparedness program to remain NIMS compliant and believes it is essential to ensure that response/recovery services are delivered to schools in a timely and effective manner. NIMS compliance for school districts includes completing the following:

1. Adopt the use of the Incident Command System (ICS). All staff and students who assume roles described in this plan will receive ICS-100 training.
2. Complete NIMS awareness course IS-700 NIMS: An Introduction.
3. Participate in local government's NIMS preparedness program and incorporate the School EOP into the Wayne County EOP.
4. Train and exercise the plan. All staff and students are expected to participate in training and exercising the plan's procedures and hazard-specific incident plans. The school is charged with ensuring that the training and equipment necessary for an appropriate response/recovery operation are in place.

INITIAL RESPONSE AND IMPLEMENTATION OF THE INCIDENT COMMAND SYSTEM (ICS)/ AUTHORITY TO ACTIVATE

In a major emergency or disaster, Hanley International Academy may be damaged or need to be evacuated, people may be injured, and/or other incident management activities may need to be initiated. School personnel are usually first on the scene of an incident in a school setting. School officials and staff are expected to take charge and manage the incident until it is resolved, or command is transferred to someone more qualified, usually an emergency responder agency with legal authority to assume responsibility. School personnel will seek guidance and direction from local officials and technical assistance from state and federal agencies where appropriate.

All activities necessary in managing an incident must be organized and coordinated to ensure the most efficient response. The Incident Command System (ICS) will be used to manage all incidents.

Until non-school emergency responders arrive on-scene, the principle or designee of that school is responsible for activating the School EOP, including common and/or specialized procedures, as well as hazard-specific incident plans. The principle shall notify the School Superintendent and designate the school Incident Commander who has the authority to direct all incident activities. The designated Hanley International Academy Incident Commander should be the person most qualified to manage the specific type of incident.

Once an emergency responder agency with legal authority to assume responsibility arrives on scene, the School Incident Commander should transition command to that Incident Commander and move to serving within the incident command structure.

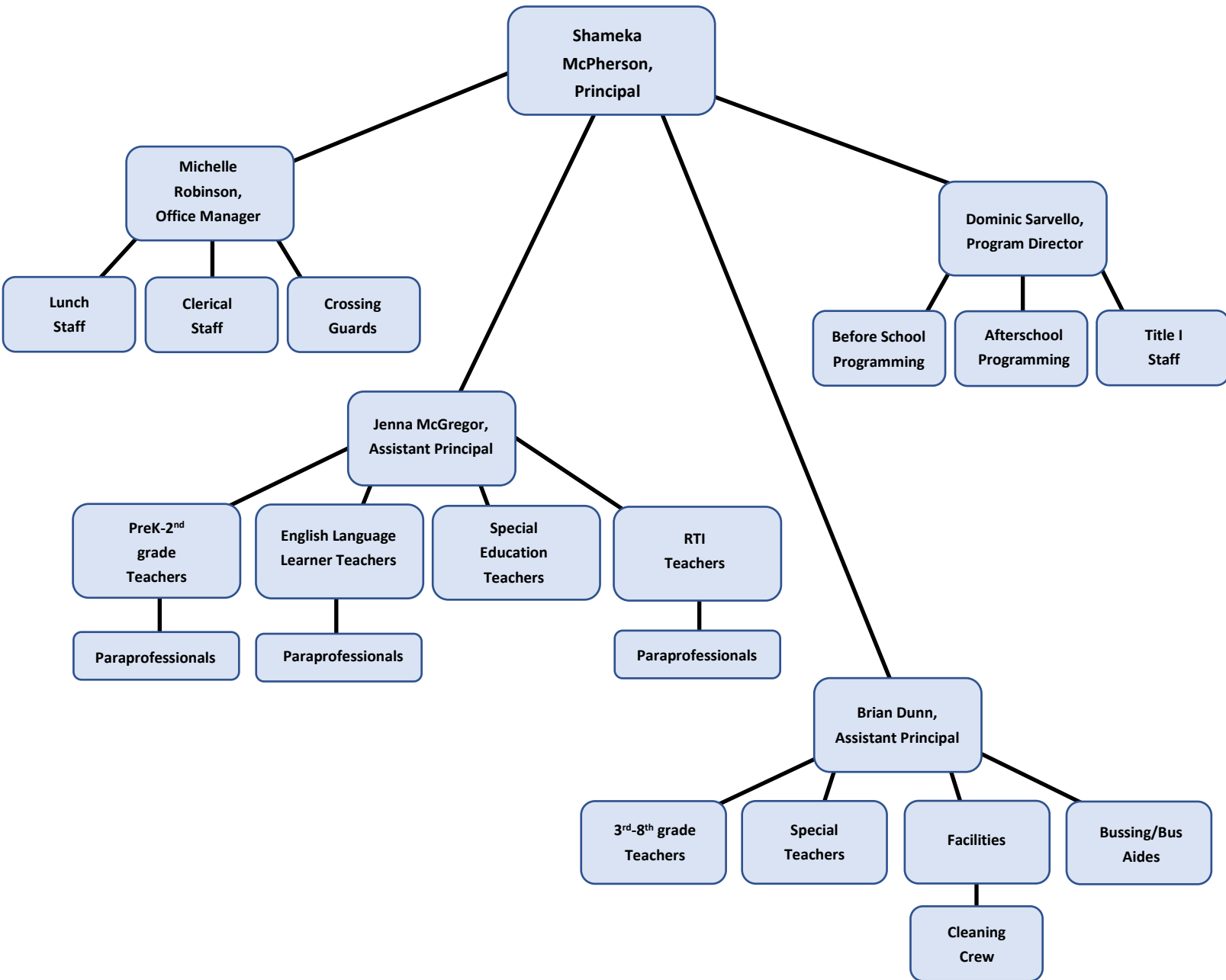
ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

This section establishes the operational organization that will be relied on to manage the incident. This includes a list of tasks and responsibilities by position.

The principals are not able to manage all the aspects associated with an incident without assistance. The school relies on other key personnel to perform tasks that will ensure the safety of students, faculty, and staff during a crisis or critical incident. The Incident Command System (ICS) uses a team approach to manage incidents. It is difficult to form a team while a crisis or critical incident is unfolding. Roles should be pre-assigned based on training and qualifications. Each staff member and volunteer must be familiar with his/her role and responsibility before an incident occurs.

School staff may be required to remain at school to assist in an incident. In the event that this School Emergency Operations and Crisis Response Plan is activated, staff will be assigned to serve within the ICS based on their expertise and training, and the needs of the incident.

ORGANIZATIONAL CHART



ORGANIZATION

General (District Level)

All school employees have emergency functions in addition to their normal day-to-day duties. During emergency situations, the normal organizational arrangements are modified to facilitate emergency operations. School organization for emergencies includes an Executive Group, Emergency Response Teams (ERT), volunteers, and other services. In small school districts, it is entirely possible that some of the organizational responsibilities may overlap.

Executive Group

The Executive Group provides guidance and direction for emergency management programs and for emergency response and recovery operations. The Executive Group includes the District Superintendent or their designee and Principals.

District Superintendent or Designee

The District Superintendent or their designee may delegate his/her authority to another qualified individual. At all times, the District Superintendent or their designee retains the overall responsibility for the safety of students and staff; however, delegating the authority to manage the incident to another individual allows the District Superintendent or their designee to focus on policy level activities and interface with other agencies and parents. The District Superintendent or their designee shall coordinate with the Executive Group.

ASSIGNMENT OF ROLES

General (Site Specific)

For most emergency functions, successful operations require a coordinated effort from a number of personnel. To facilitate a coordinated effort, district and school staff and other school personnel are assigned primary responsibility for planning and coordinating specific emergency functions. Generally, primary responsibility for an emergency function will be assigned to an individual from the school that possesses the most appropriate knowledge and skills. Other school personnel may be assigned support responsibilities for specific emergency functions.

The individual having primary responsibility for an emergency function is normally responsible for coordinating, preparing of, and maintaining that portion of the emergency plan that addresses that function/procedure. Listed below are general responsibilities assigned to the school staff.

Principal

The principal may serve as the Incident Commander or delegate that authority to a qualified individual. At all times, the principal still retains the responsibility for the overall safety of students and staff. However, delegating the authority to manage the incident allows the principal to focus on policy-level activities and interfacing with other agencies and parents. The principal shall coordinate between the policy group and the Incident Commander.

ROLES AND RESPONSIBILITIES

Teachers

Teachers shall be responsible for the supervision of students and shall remain with students until directed otherwise. Responsibilities include:

- Supervising students under their charge.
- Taking steps to ensure the safety of students, faculty, staff, and other individuals in the implementation of incident management protocols.
- Directing students in their charge to inside or outside assembly areas, in accordance with signals, warning, written notification, or intercom orders according to established incident management procedures.
- Giving appropriate action commands during an incident.
- Taking attendance when the class relocates to an outside or inside assembly area or evacuates to another location.
- Reporting missing students to the Incident Commander or designee.
- Executing assignments as directed by the Incident Commander or ICS supervisor.
- Obtaining first aid services for injured students from the person trained in first aid and arranging for first aid for those unable to be moved.
- Rendering first aid if necessary.

Instructional Assistants

Responsibilities include assisting teachers, as directed.

Counselors, Social Workers and Psychologists

Counselors, social workers, and psychologists provide assistance with the overall direction of the incident management procedures. Responsibilities may include:

- Taking steps to ensure the safety of students, faculty, staff, and other individuals in the implementation of incident management protocols.
- Directing students in their charge according to established incident management protocols.
- Rendering first aid, if necessary.
- Assisting in the transfer of students, faculty, staff, and other individuals when their safety is threatened by a disaster.
- Executing assignments as directed by the Incident Commander or ICS supervisor.

Custodians and Maintenance Personnel

Responsibilities include:

- Surveying and reporting building damage to the Incident Commander or their designee.
- Controlling main shutoff valves for gas, water, and electricity and ensuring that no hazard results from broken or downed lines.
- Providing damage control, as needed.
- Assisting in the conservation, use, and disbursement of supplies and equipment.
- Keeping Incident Commander or designee informed of condition of school.

School Secretary and Office Staff

Responsibilities include:

- Answering phones and assisting in receiving and providing consistent information to callers.
- Providing for the safety of essential school records and documents.
- Executing assignments as directed by the Incident Commander or ICS supervisor.
- Providing assistance to the principal.
- Monitoring radio emergency warning systems.
- Assisting with medical emergencies or any other function as designated by the incident commander.

Food Service and Cafeteria Workers

Responsibilities include:

- Using, preparing, and serving food and water on an as needed basis whenever the feeding of students and staff becomes necessary during an incident.
- Executing assignments, as directed by the Incident Commander or ICS supervisor.

Students

Responsibilities include:

- Cooperating during emergency drills and exercises, and during an emergency situation.
- Learning to be responsible for themselves and others, if the emergency situation warrants.
- Understanding the importance of not being a bystander and to report situations of concern to appropriate staff.
- Developing a general awareness of natural, technological, and human-caused hazards and associated prevention, preparedness, and mitigation measures.

Parents and Guardians

Responsibilities include:

- Having an understanding that their school has an Emergency Operations Plan and knowing their roles during a school emergency.
- Encouraging and supporting school safety, violence prevention, and incident preparedness programs within the school.
- Participating in volunteer service projects for promoting school incident preparedness.
- Providing the school with requested information concerning the incident, early and late dismissals, and other related release information.
- Practicing incident management preparedness in the home to reinforce school training and ensure family safety.

Other Staff (Itinerant Staff, Substitute Teachers)

Responsibilities include:

- Reporting to the Incident Commander or ICS supervisor, if requested or activated.

IMPLEMENTATION OF THE INCIDENT COMMAND SYSTEM (ICS)

(See Appendix L for specific ICS positions)

To provide for the effective direction, control, and coordination of an incident, either single site or multi-incidents, the School Emergency Operations & Crisis Response Plan will be activated including the implementation of the Incident Command System (ICS).

The District Superintendent or their designee has the authority to direct tactical on scene operations until transfer of command or Unified Command is established.

School-related responsibilities and duties include:

- Establishing and managing the Incident Command Post (ICP).
- Establishing the incident organization.
- Determining the strategies and objectives to implement protocols and adapt, as needed.
- Monitoring safety concerns.
- Coordinating media relations and information dissemination.
- Documenting all activities.

Incident Commander (IC)

The IC is in charge of the organizations on scene response. This individual will maintain command until public agencies arrive and assume command or when relieved by an individual more qualified within the organization. This individual has overall authority and responsibility for conducting incident operations.

Incident Commander Responsibilities:

- Determine the incident objectives and strategies
- Identify information needed or required by others
- Implement appropriate strategies and tactics
- Appoint others to command positions as needed
- Review and approve requests for resources
- Terminate the response and

Public Information Officer (PIO)

The PIO disseminates information to the public, media, parents, and other stakeholders to ensure accurate information is communicated appropriately.

Public Information Officer Responsibilities:

- Collects, verifies, prepares, coordinates, and disseminates community information to the public through the news media, radio, newspaper, and social media.
- Collaborates with law enforcement command prior to the release of any information which may contain sensitive information or information that may hamper a law enforcement investigation.
- Obtains incident command and management approval prior to the release of any information to the public.

Liaison Officer

The Liaison Officer serves as the single point of contact for representatives of governmental departments, agencies and private organizations and speaks on behalf of the Incident Commander (IC).

Liaison Officer Responsibilities:

- Ensures that those who are not part of the command staff, but who contribute to the incident's prevention, protection, mitigation, response, and recovery, receive appropriate information and exchange communications with the Incident Management Team (IMT) or Emergency Operations Center staff.
- Monitors operations to identify interorganizational problems or issues.

Safety Officer

The Safety Officer's sole purpose is to ensure the safety of everyone involved in the incident. **THE SAFETY OFFICER HAS THE AUTHORITY TO STOP ANY AND ALL FUNCTIONS OF THE INCIDENT IF HE/SHE DEEMS THEM UNSAFE IN ANY MANNER.**

Safety Officer Responsibilities:

- Monitors incident operations and advises the Incident Commander (IC) on all matters relating to health and safety.
- Assesses safety hazards and works to ensure safety during incident operations.
- Develops and implements a transition plan based on escalating incident complexity

Operations Section

The Operations Section directs all tactical operations of an incident, including the implementation of response and recovery activities according to established incident management procedures and protocols, and provides accountability and care of students, first aid, site security, damage assessment, evacuations, and family reunification.

School-related responsibilities and duties of the Operations Section include:

- Implementing the Reunification Procedure.
- Monitoring site utilities (electric, gas, water, HVAC) and shut off, only if immediate danger exists or directed to do so by the commander.
- Assuring the faculty is secure. See online security guidelines for specifics.
- Establishing medical triage with staff trained in first aid and CPR and providing and overseeing care given to injured persons.
- Identifying and providing psychological services for those in need, as well as providing a list of additional resources for ongoing crisis counseling for students, faculty, staff, and parents.
- Distributing supplies and coordinating the distribution of food and water.
- Establishing secondary restroom facilities, as needed.
- Requesting additional supplies from the Logistics Section.
- Documenting all activities.

Planning Section

The Planning Section collects, evaluates, and disseminates information needed to measure the size, scope, and seriousness of an incident, and to plan appropriate incident management activities.

School-related responsibilities and duties of the Planning Section include:

- Assisting the Incident Commander (IC) in collection and evaluation of information as the incident develops, including a site/area map of related events.
- Assisting with ongoing planning efforts.
- Documenting all activities.

Logistics Section

The Logistics Section supports incident management operations by securing and providing needed personnel, equipment, facilities, resources, and services required for incident resolution, coordinating personnel, assembling and deploying volunteer teams, and facilitating communications among incident responders. This function may be implemented if this is a major or extended incident.

School-related responsibilities and duties of the Logistics Section include:

- Establishing and overseeing media staging sites, as listed in the arriving media section of the appendices.
- Developing a means for after-hours communication.
- Coordinating access and distribution of supplies.
- Monitoring inventory of supplies and equipment.
- Documenting all activities.

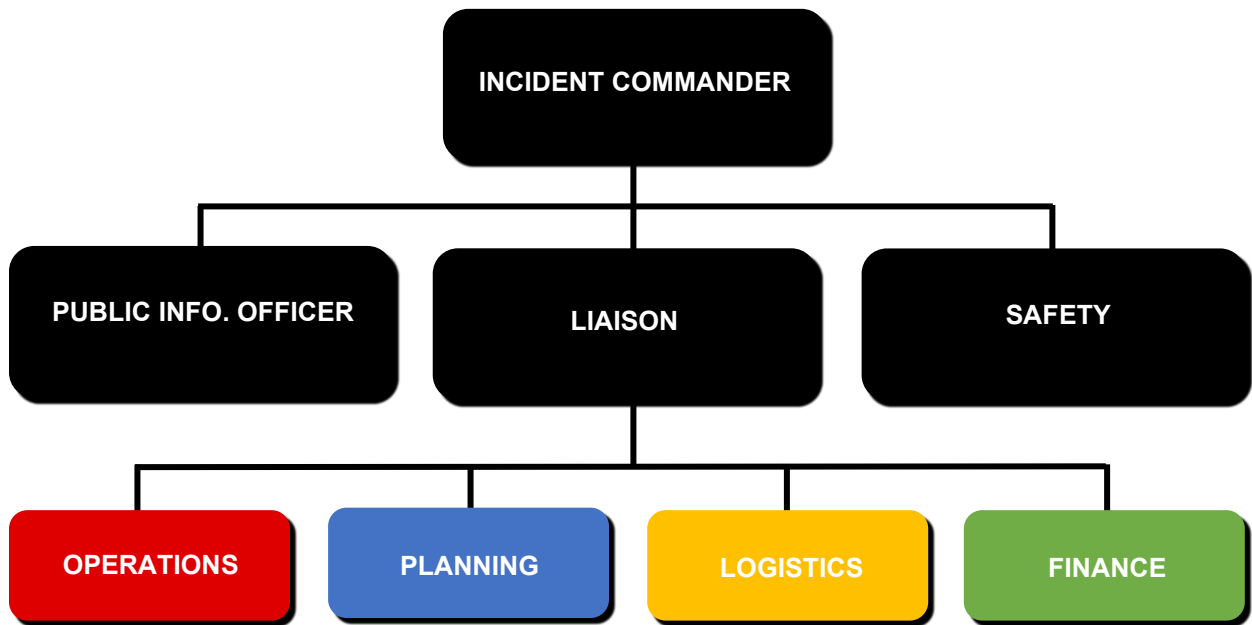
Finance and Administration Section

The Finance and Administration Section oversees all financial activities, including purchasing necessary materials, tracking incident costs, arranging contracts for services, timekeeping for emergency responders, submitting documentation for reimbursement, and recovering school records following an incident. This section may not be established on-site at the incident; rather, the school and school district management may assume responsibility for these functions.

School-related responsibilities and duties of the Finance and Administration Section include:

- Overall documentation and recordkeeping of the entire event.
- Photographing and/or videotaping damage to property, if possible.
- Developing a system to monitor and track expenses and financial losses.
- Securing all school records.

INCIDENT COMMAND STRUCTURE



FUNCTIONAL ANNEXES

VI. COMMUNICATION

Communication is critical part of incident management. This section outlines Hanley International Academy' communication plan and supports its mission to provide clear, effective internal and external communication between the school, students, faculty, staff, parents/guardians, responders, and media.

COMMUNICATION TOOLS

Some common internal and external communication tools that Hanley International Academy may use include the following:

- Cell Phone – These phones may be the only tool working when electric service is out. They are useful in route to or from a site.
- Intercom Systems – The intercom system includes teacher-initiated communication with the office using a handset rather than a wall-mounted speaker.
- Individual telephones in each classroom.
- Applications – DOJO, Edulink and PowerSchool are common notification applications utilized by Hanley International Academy.
- Two-Way Radio – Two-way radios provide a reliable method of communication between rooms and building at a single site. Designated staff will be trained to understand how to operate a two-way radio.

| Building | Radio Location |
|------------------------------|----------------|
| Hanley International Academy | Main office |
| | |
| | |
| | |

- Computers – A laptop computer may be used for communication both within the school and to other sites. Email may be a useful tool for updating information for staff, families, other schools in an affected area, and the District Superintendent or their designee. An assigned staff member(s) will post information such as school evacuation, closure, or relocation on the homepage of the school and/or district website.
- Alarm Systems – Bells or buzzers are in place to signal incidents; for example, fire, lockdown or special alert (with instructions to be followed).

INTERNAL COMMUNICATION

Communication Between Staff and Faculty Members

Faculty and staff will be notified when an incident occurs and will be kept informed as additional information becomes available, and as plans for management of the situation evolve. The following practices may be utilized to disseminate information internally, when appropriate:

- DOJO and Edu link notification services
- Facebook or social media
- Email and SMS text message
- Regularly scheduled faculty meetings

Communication with the District Office

The Site Incident Commander will notify the principal of the school's status/needs. The principal will notify the District Office. The District Office will alert _____ of the status of all district schools. He/she will designate staff member(s) to monitor all communications.



EXTERNAL COMMUNICATION

Communicating with the larger school community begins before an incident occurs. Parents/guardians, media, and first responders will require clear and concise messages from the Hanley International Academy System about what is being done and the safety of the students, faculty, and staff.

Communication with Parents, Guardians, Etc.

Before an incident occurs, Hanley International Academy may:

- Develop a trusting relationship with parents, guardians, etc.
- Educate them on how to access alerts and incident information.
- Identify parents, guardians, etc. who are willing to volunteer in case of an incident and include them in preparation efforts and training.
- Be prepared with translation services for limited English or non-English speaking families and students.

In the event of an incident, Hanley International Academy may:

- Disseminate information via text messages, radio announcements, and emails to inform parents, guardians, etc. about exactly what is known to have happened.
- Implement a plan to manage phone calls and parents, guardians, etc. who arrive at the school.
- Describe how the school and school district are handling the situation.
- Provide reunification procedures.
- Provide information regarding possible reactions of their children and ways to talk with them.
- Inform parents, guardians, students, faculty, and staff about when and where school will resume.

Communication with the Media – Refer to Media Policy located in Appendix H

In the event of an incident, the Site Incident Commander will:

- Designate a Public Information Officer (PIO), if necessary.
- Establish an off campus briefing area for media representatives.
- Determine the need to establish or participate in a Joint Information Center.

Hanley International Academy staff members are to refer all questions and requests for information to the designated spokesperson. The district PIO maintains media contacts at the major television, Internet, and radio stations.

In the case of an incident, these media contacts will broadcast Hanley International Academy' external communication plans for parents, guardians, etc.

Communication with First Responders

The site Incident Commander will maintain communication with first responders during an incident. Transfer of command will occur when first responders arrive on the scene to assume management of the incident under their jurisdiction. Hanley International Academy frequently conducts exercises with first responders covering the EOP and practices the effective coordination and transfer of command.

EMERGENCY PERSONNEL ASSISTANCE

In critical incidents which require outside emergency personnel assistance (law enforcement, firefighters, emergency medical personnel, etc.) to arrive on site, it will be necessary to have a designated area from which they may perform their duties. Each school building or site needs to designate a staging area that is consistently used in every crisis situation, though law enforcement may choose another, should they deem it appropriate.

As response personnel arrive, they can be quickly and easily directed to the selected area, unknown to arriving media, parents, and other visitors who may hinder their work. This provides faster emergency response, as well as better organization as the staging area is contained and remains confidential and allows emergency response management personnel to coordinate their efforts.

It is important to note, however, that arriving emergency personnel may select a different site, and school professionals are expected to assist in that and any change of plans.

Emergency Personnel Command Transition

Upon arrival of qualified first responders, command will be transferred, and a transfer of command briefing shall occur. The school's Site Incident Commander may be integrated into the Incident Command structure or assume a role within a Unified Command structure.

HANDLING RUMORS AND MISINFORMATION

In addressing rumors, the most effective strategy is to provide facts as soon as possible.

To combat rumors and misinformation, Hanley International Academy will:

- Provide appropriate information to the internal groups, including administrators, teachers, students, custodians, secretaries, instructional assistants, cafeteria workers, and bus drivers; these people are primary sources of information and are likely to be contacted in their neighborhoods, at grocery stores, etc.
- Conduct a debriefing with faculty/staff before staff members are allowed to go. Discuss factual information and clearly communicate what may be discussed in a public setting.
- Designate and brief personnel answering calls to help control misinformation.
- Conduct briefings for community representatives directly associated with the school.
- Enlist the help of the media to provide frequent updates to the public, particularly providing accurate information where rumors need to be dispelled.

After the emergent nature of incident subsides, Hanley International Academy will conduct public briefings, as needed. These briefings are designed to provide the opportunity for people to ask questions and receive accurate information.

EMERGENCY NOTIFICATION SYSTEM



Fire Alarm – Any Evacuation

- Disaster
- Fire
- Explosion
- Fallen aircraft
- Chemical release
- Bomb threat
- Drill



P.A. Announcement – Any Need to Shelter

- Hazardous material release
 - ▶ Chemical truck overturned
 - ▶ Chemical train derailment
 - ▶ Chemical plant accident
 - ▶ Pipeline rupture
 - ▶ Outside gas leak
- Tornado watch
- Shelter drill



Move to Interior

- Tornado warning



P.A. Announcement – Secure Mode

All Buildings use **SECURE MODE**, which signifies there is a potential outside threat to the school (potential violence/ hazardous material situation). All entrance/exit doors are locked.

P.A. Announcement – Lockdown

All buildings use **LOCKDOWN**, which signifies there is danger in the building, and all teachers should lock their doors and move all students away from windows and doors.

All Clear – Return to Class

NOTIFICATION PROCEDURES

In the case of an emergency at any district facility, the flow of information after calling 9-1-1 should be from the school principal or their designee to the District Superintendent or their designee. Information should include the nature of the incident and impact on the students, faculty, and staff.

In the event of a fire, anyone discovering the fire shall activate the building fire alarm system. Unless there is a lockdown or shelter/tornado incident in progress, the building may be evacuated. In the event that a lockdown or shelter/tornado incident is in progress, the situation should be assessed and if deemed necessary, evacuation shall be limited to the area immediately in danger from the fire.

- ⇒ Upon a fire alarm activation, the principal and staff should complete an immediate assessment to determine the cause of the alarm and if evacuation is necessary.
- ⇒ In the event of an unscheduled fire alarm, the principal should utilize the PA system, requesting staff to inspect the fire pull stations nearest their classroom and report any activated stations.
- ⇒ Upon locating an activated pull station, staff should attempt to determine the reason for activation and report if the alarm is false or any signs indicating a possible fire.
- ⇒ If a pull station activation is suspicious and lacks merit, the principal's office may choose to forego evacuation until further investigation by public safety is completed. The principal's office shall advise all staff and students to standby for further instructions.
- ⇒ **ALL** fires and unscheduled fire alarms shall be reported to public safety.
- ⇒ **ALL** entry and exit doors are to remain free and clear of any obstructions at **ALL** times.



If the district receives information, such as a weather warning that may affect a school within the district, the information shall be provided to the District Superintendent or their designee.

EMERGENCY COMMUNICATION

The principal or designee is responsible for the overall direction of the response procedures and communication at the school facility until the emergency responders arrive.

9-1-1 Calls

Provide the information you know, including location, type of incident, number of individuals involved and whether or not there are injuries. When possible, stay on the line with the 9-1-1 dispatcher until emergency responders arrive.

Alarm Signals

- The fire alarm shall be used to alert students, faculty and staff to evacuate the building.
- The tornado warning signal shall be used to alert students, faculty and staff to move to tornado shelter areas immediately.

PA Announcement

- Provide instructions, creating awareness
- Announce SECURE MODE OR LOCKDOWN
- Each building will announce the specific lockdown that is taking place (secure mode/Lockdown)
- Indicate "All Clear"

Tools

In an emergency situation, it is priority to communicate critical information to faculty, staff and students. The use of two-way radios (unless during a bomb threat), megaphones, runners, tones, codes, intercom systems, etc. are important tools for school administrators to utilize.

EMERGENCY PHONE NUMBERS

ADMINISTRATION


| <i>Building</i> | <i>Title</i> | <i>Name</i> | <i>Office Number</i> | <i>Cell Number</i> | <i>Email Address</i> |
|-------------------------------------|---------------------------------|------------------------|----------------------|--------------------|--|
| Administration Building | Superintendent | Steve Paddock | 313-875-8888 | 586-909-4096 | spaddock@therominegroup.com |
| Administration Building | Secretary to the Superintendent | Michelle Robinson | 313-875-8888 | 248-755-2200 | mrobinson@hanleyacademy.org |
| Hanley International Academy | Principal | Shameka McPherson | 313-875-8888 | 517-214-1770 | smcpherson@hanleyacademy.org |
| Hanley International Academy | Assistant Principal | Brian Dunn | 313-875-8888 | 313-632-3227 | bdunn@hanleyacademy.org |
| Hanley International Academy | Assistant Principal | Jenna McGregor | 313-875-8888 | 313-570-3381 | jmcgregor@hanleyacademy.org |
| Hanley International Academy | Program Director | Dominic Sarvello | 313-875-8888 | 313-550-9347 | dsarvello@hanleyacademy.org |
| Hanley International Academy | Transportation Contact | AJ's Transportation | | | alejandrojones123@gmail.com |
| Hanley International Academy | Food Service Contact | CJ's Catering | | | cjscateringandfoodservice@yahoo.com |
| Hanley International Academy | Facilities Contact | CITI Building Services | | | anthony@yourcbs.com |
| Hanley International Academy | Finance CFO | John Weier | | | johnw@therominegroup.com |
| | | | | | |
| | | | | | |

EMERGENCY PHONE NUMBERS

UTILITIES

| | | |
|------------------|--------------------|--------------|
| Phone: | Comcast (Phone) | 877-818-4391 |
| Electric: | DTE Electric | 800-477-4747 |
| Gas: | DTE GAS | 800-947-5000 |
| Water: | City Dept of Water | |

GENERAL EMERGENCY CONTACT NUMBERS

| | | |
|--|---|--------------|
| General Emergency | | 9-1-1 |
| Emergency Manager (Tadarial Sturdivant- Wayne County Emergency Management Coordinator) | | 734-728-3711 |
| Police Department (Marek Kalinowski- Chief of Police) | | 313-876-7800 |
| Fire Department Hamtramck Fire Department- Chief Danny Hagen | | 313-305-4503 |
| Poison Control | | 800-222-1222 |
| Medical Hospital |  | |
| Child Protective Services | | 855-444-3911 |

VII. HAZARD SPECIFIC ANNEXES

MANDATORY REPORTING TO LAW ENFORCEMENT (PUBLIC ACT 102)

Reportable Incidents

- Armed student or hostage
- Suspected armed student
- Weapons on school property
- Death or homicide
- Drive-by shooting
- Physical assault (fights)
- Bomb threat
- Explosion
- Arson
- Sexual assault (criminal sexual conduct)
- Robbery or extortion
- Unauthorized removal of student
- Threat of suicide
- Suicide attempt
- Larceny (theft)
- Intruders
- Illegal drug use or overdose
- Drug possession or drug sale
- Vandalism or destruction of property
- Minor in possession of alcohol or tobacco products
- Bus incident and accident



ABUSE

PRINCIPAL

- ⇒ The Principal or a counselor should examine the student and make an assessment of any abuse or neglect.
- ⇒ If any abuse or neglect is determined or even suspected, notify a counselor or social worker and notify Child Protective Services immediately.
- ⇒ Inform faculty of your assessment.
- ⇒ Allow the student to return to their normal schedule as soon as possible.
- ⇒ Ensure the written report is submitted to Child Protective Services or MDHHS within 72 hours. File a copy of the report in the principal's office, which is **confidential**.
- ⇒ Be aware that the person who reports it, without malice, is immune from civil or criminal liability. Also, be aware that the name of the reporting person remains **confidential**.

STAFF

- ⇒ Report any suspected abuse or neglect of a student's physical or mental health or welfare to the principal's office immediately.
- ⇒ Administer first aid as necessary.
- ⇒ Each person to whom a child discloses abuse/neglect has a responsibility to report it to Child Protective Services.
- ⇒ Complete the required paperwork (DHS-3200) within 72 hours.
- ⇒ Ensure the student receives the necessary counseling services.
- ⇒ All reports made to the Michigan Department of Health and Human Services (MDHHS) are **confidential**.



ARMED STUDENT OR HOSTAGE

STAFF

- ⇒ Notify the principal's office as soon as possible and advise them whether a weapon is suspected or visible.
- ⇒ Try to calm the student and others within your span of control.
- ⇒ If a weapon is visible:
 - DO NOT attempt to confiscate the weapon.
 - Calmly ask the student for permission to evacuate the rest of the class.
 - If allowed, evacuate quietly.
 - If evacuation is not allowed, keep talking with the student until law enforcement arrives.
 - When law enforcement arrives, allow them to take over the incident and follow their direction.
- ⇒ After the incident, determine if counseling services will be needed and inform the administrator in charge.
- ⇒ Complete a detailed report for the administration and provide a copy to law enforcement upon request. Detailed reports are a necessity for a complete and thorough investigation.

ARMED STUDENT OR HOSTAGE (Continued)

**PRINCIPAL'S
OFFICE**

IMMEDIATELY DIAL 9-1-1

Weapon SUSPECTED

- ⇒ Escort the student to the office with backpack, purse, books, and other possessions.
- ⇒ Safely monitor the student until law enforcement arrives.
- ⇒ If a weapon is found, law enforcement will remove the student from campus.
- ⇒ Notify the parent(s)/guardian(s).
- ⇒ Call the Superintendent's office.
- ⇒ Follow disciplinary action according to the Student Handbook.

Weapon VISIBLE

- ⇒ Ensure students in public areas or outside the building are accounted for and directed away from the threat.
- ⇒ Call the Superintendent's office, who will ensure that the necessary administrators are notified.
- ⇒ Escort law enforcement to the scene.
- ⇒ Stay out of view of the student, if possible.
- ⇒ Work with law enforcement, as directed.
- ⇒ Provide a copy of the floor plan and/or telephone numbers to the school, as directed.
- ⇒ Consider the options on the following page.

ARMED STUDENT OR HOSTAGE (Continued)

**PRINCIPAL'S OFFICE
(CONTINUED)**

Based on the circumstances, choose one option:

OPTION 1

- ⇒ Announce a lockdown on the Public Address (PA) system.
- ⇒ Have faculty and staff direct any students who are not secured in a classroom to a safe location.
- ⇒ Lock or secure your area.

OPTION 2

- ⇒ If safe, evacuate the building by PA announcement; do not use the fire alarm.
- ⇒ Evacuation will be made to the prearranged location.
- ⇒ Faculty and staff should bring their attendance book or laptop.
- ⇒ Follow the Reunification Procedures.

SUSPECT LOCATION

ON SCHOOL GROUNDS

- ⇒ Secure the area.
- ⇒ Obtain a detailed description of the suspect (race, sex, height/weight, clothing, hair color, any distinguishing characteristics and name if known), provide to law enforcement.
- ⇒ Follow above protocols.

IN A VEHICLE

- ⇒ Secure areas surrounding the vehicle.
- ⇒ Obtain vehicle information (make, model, color, license plate, and direction of travel if vehicle leaves the area), provide to law enforcement.
- ⇒ **DO NOT** allow anyone to enter the vehicle or area.

ASBESTOS RELEASE

Asbestos is not considered dangerous until it is airborne as dust fibers. Most asbestos-containing building materials are products such as floor tiles, window putty, pipe insulation, and ceiling tile, which will not release airborne asbestos fibers unless significantly disturbed. Under Federal Asbestos Hazardous Emergency Response Act (AHERA), all schools that contain asbestos should be re-inspected every three years, with a periodic surveillance every six months.

PRINCIPAL'S OFFICE

- ⇒ Determine the areas potentially affected by the suspected asbestos fiber release.
- ⇒ Move students, faculty, and staff away from the affected area immediately.
- ⇒ After the area is evacuated, close doors and isolate the affected area as much as possible.
- ⇒ Notify a custodian to shut down HVAC units (heating, ventilation, and air conditioning) to the affected areas.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Call the County Health Department and report the incident.
- ⇒ Assist the district and civic officials, as needed.
- ⇒ File an Incident Report.
- ⇒ Notify parent(s) or guardian(s) if their child may have been exposed to asbestos.



BOMB THREAT

ANY TYPE OF BOMB THREAT



Upon receiving any type of bomb threat, if time permits, refer to the **Bomb Threat Incident Response Guide (Appendix A)**

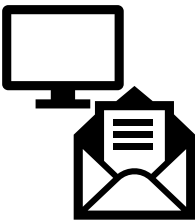
- Immediately contact public safety, as ALL types of bomb threats are criminal.
- Notify the Superintendent's office.
- Notify the internal Threat Assessment Team

TELEPHONE



- Ask the questions on the Bomb Threat Checklist. Signal another staff member to listen if possible.
- Complete the Bomb Threat Checklist (provide to public safety if applicable).
- Gather as much detail as possible, keeping the caller on the line as long as possible.
- Record the suspect's phone number (if possible) or ask the suspect for his/her number in case the phone gets disconnected.

WRITTEN OR DIGITAL TRANSMISSION



- Preserve the document or digital transmission for evidence.
- Place the handwritten document in a bag or large envelope (avoid touching the document to preserve fingerprints and **DO NOT FOLD**).
- Print, photograph, or copy the digital transmission (include the email header).
- Save the digital transmission (if possible) or leave it open on computer/phone until public safety arrives.

VERBAL



- If the suspect is present, attempt to keep them on scene until public safety arrives.
- Obtain a detailed physical description of the subject (note any distinguishing features).
- If the subject leaves, obtain direction of travel and vehicle information (license plate, make, model and color of vehicle).
Document the threat, using the subject's exact words and specific details of the threat.

BOMB THREAT (Continued)

SUSPICIOUS DEVICE LOCATED

***UNDER NO CIRCUMSTANCES SHOULD ANYONE TOUCH
OR MOVE THE SUSPICIOUS PACKAGE OR DEVICE.***

***TURN OFF ALL CELL PHONES AND ELECTRONIC DEVICES IN THE
IMMEDIATE AREA OF THE SUSPICIOUS PACKAGE OR DEVICE.***

***EVACUATE THE IMMEDIATE AREA IN WHICH THE
SUSPICIOUS PACKAGE/DEVICE IS LOCATED.***

**PRINCIPAL'S
OFFICE**



- ⇒ Upon notification of a suspicious package or device being located, call 9-1-1 using a landline if possible.

**(NO CELL PHONES SHALL BE USED IN CLOSE PROXIMITY OF A
SUSPICIOUS PACKAGE OR DEVICE)**

- ⇒ Notify the Superintendent's office.
- ⇒ Secure the area where the item is located but stay away from the item.
- ⇒ If possible and can be done safely, open doors and windows near the item.
- ⇒ Notify faculty/staff and direct them to prepare for evacuation (select evacuation routes and assembly areas that are away from the suspicious package or device).
- ⇒ Utilize your school's bomb threat response team personnel to clear evacuation routes and assembly areas.
- ⇒ Meet arriving public safety personnel and brief them on the situation. Allow them to speak directly with the individual who located the suspicious package or device.
- ⇒ Establish an incident command post, working in conjunction with public safety personnel.
- ⇒ Determine if the incident will require short or long-term evacuation and advise faculty/staff as soon as possible.
- ⇒ Announce the **"ALL CLEAR"** to return to class when deemed appropriate by incident command.

BOMB THREAT – SUSPICIOUS DEVICE LOCATED (Continued)



STAFF

- ⇒ Upon discovery of a suspicious package or device, immediately notify the principal's office.
- ⇒ If the suspicious item is located in a classroom, immediately and calmly evacuate.
- ⇒ All faculty/staff should search their immediate area and report any suspicious packages or devices to the principal's office immediately using a landline phone.
(NO CELL PHONE USE IN THE IMMEDIATE VICINITY OF THE SUSPICIOUS PACKAGE OR DEVICE)
- ⇒ Upon receiving notification of an evacuation from the principal's office, have students gather their personal belongings and exit the building according to evacuation procedures.
- ⇒ Speak calmly to students to maintain order.
- ⇒ Once at the determined evacuation point, take attendance and report any missing students to the principal's office immediately.
- ⇒ Remain in your designated area until given further instructions to move or return to the classroom.



BUS ACCIDENT

SUPERINTENDENT'S OFFICE

- ⇒ Receive the emergency call from the bus company and record all accident information.
- ⇒ Call 9-1-1 (if not already done).
- ⇒ Notify the principal about the accident and continue to inform him/her as new information becomes available.
- ⇒ Obtain the names of students on the bus from bus route files.
- ⇒ Obtain a list of injuries as soon as possible.
- ⇒ Contact the insurance carrier to authorize treatment at the hospital.

PRINCIPAL

- ⇒ Collect health information from enrollment cards or PowerSchool for all students on the bus.
- ⇒ Appoint a staff member to go to the accident site to report any special health considerations to medics.
- ⇒ In the event of a serious injury or fatality, the principal or designee will go to the accident site and hospital.
- ⇒ Appoint staff to contact parents and as information is available, inform them:
 - If their child is injured or not and to what extent.
 - What medical facility students were taken to.
 - To contact the hospital.
- ⇒ Refer incoming media calls to the Superintendent
- ⇒ Inform faculty and staff.

BUS ACCIDENT (Continued)

SAFETY INVESTIGATOR
(DESIGNATED BY SUPERINTENDENT)



- ⇒ Go to the scene of the accident ASAP with the following:
 - Guidelines and forms
 - Camera and radio or cellular phone
- ⇒ If medics have not arrived, assist in first aid.
- ⇒ Get a list of students involved and injuries and report new information to Central Administration.
- ⇒ Take pictures of the accident and gather information.
- ⇒ Go to the hospital and stay until everyone has been seen by a physician.
- ⇒ Complete an Accident Report Form and forward a copy to the Support Services Department.



DEATH OR HOMICIDE

PRINCIPAL'S OFFICE

- ⇒ If homicide is suspected, initiate a lockdown.
- ⇒ Call 9-1-1 and provide a detailed description of the incident.
- ⇒ Contact the Superintendent's Office and they will ensure the necessary administrators are notified.
- ⇒ Send assistance to the site, if deemed safe to do so.
- ⇒ Wait for law enforcement to arrive.
- ⇒ Provide privacy for the victim and their family.
- ⇒ Document approximate time and specific observations regarding the death or homicide.
- ⇒ Provide a copy of recorded information to EMS.
- ⇒ Isolate witnesses and do not allow them to talk with others.
- ⇒ Assist law enforcement in locating any possible suspects.
- ⇒ Inform staff and assist counselors in setting up support services, as needed.
- ⇒ Complete an incident report.

STAFF

- ⇒ Any faculty or staff member should call 9-1-1 and provide them with detailed information regarding the incident, location, victim and any known suspect information.
- ⇒ Remove students from the area.
- ⇒ Notify the Principal's Office.
- ⇒ If a suspect is present, speak calmly with him/her until assistance arrives. Try to regain overall calm and discourage discussions.
- ⇒ Wait for public officials and administrative personnel.
- ⇒ Assist with Identifying students that may be in need of counseling.
- ⇒ Complete an incident report.

DISTURBANCE (ANGRY PARENT / VISITOR)

**PRINCIPAL'S
OFFICE**

- ⇒ Speak in a normal voice.
- ⇒ Attempt to calm the person.
- ⇒ Call law enforcement if the person refuses to cooperate.
- ⇒ Restrict student entrances to the main office.
- ⇒ Place the facility in lockdown if student, faculty, or staff safety becomes endangered.
- ⇒ Activate the Incident Command System.

When the situation allows:

- ⇒ Take census of faculty, staff, and students.
- ⇒ Allow for normal continuance of daily activities or reunification procedures as warranted.
- ⇒ Cooperate with law enforcement in on-going investigations.
- ⇒ Communicate with parent(s)/guardian(s) as policy dictates.



DRIVE-BY SHOOTING

PRINCIPAL'S OFFICE

- ⇒ Identify the problem and call 9-1-1.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Assist law enforcement in identifying and locating suspect(s) and victim(s).
- ⇒ Bring all students and staff indoors ASAP. Secure the building(s) by locking doors and windows.
- ⇒ Secure emergency information from student enrollment cards or PowerSchool and provide to law enforcement and EMS.
- ⇒ Consider making announcements to students, faculty, and staff to drop to the floor.
- ⇒ Hold students beyond the dismissal time, when necessary.
- ⇒ Faculty and staff should remain with the students until the emergency is over and the "All Clear" signal is given.
- ⇒ Notify parent(s)/guardian(s).
- ⇒ Provide counseling to anyone, as needed.

STAFF

- ⇒ When shots are heard, yell to the students to drop to the floor. Move students to the safest area of the classroom.
- ⇒ Once the car exits the area, be alert for the car to return.
- ⇒ Notify the Principal's Office ASAP.
- ⇒ Report any known injuries or property damage.
- ⇒ Organize the students within the building and try to restore calm.
- ⇒ Return students to the classroom, only when safe.
- ⇒ Take roll and immediately report any missing students.
- ⇒ Be prepared to answer questions from law enforcement.
- ⇒ Complete the necessary reports.



DRUG OVERDOSE

PRINCIPAL'S OFFICE

- ⇒ Send assistance to the site.
- ⇒ Assess medical needs.
- ⇒ Document findings. If the student is alert, ask the name of the drug he/she took, how it was administered, and at what time it was administered.
- ⇒ Call 9-1-1, providing description.
- ⇒ Notify parent(s)/guardian(s) immediately.
- ⇒ Secure the health information from the emergency enrollment card or PowerSchool.
- ⇒ Administer first aid until medics arrive. Notify EMS.
- ⇒ Provide a copy of document information to EMS and law enforcement.
- ⇒ Appoint a staff person to accompany the student to the hospital and act as a liaison between the school and hospital.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Assist in any further investigation.
- ⇒ Complete an incident report.

STAFF

- ⇒ Notify the Principal's Office and give them the name of the student involved.
- ⇒ Keep the student as stable as possible, which may include removal from the class.
- ⇒ Isolate witnesses and do not allow them to talk to anyone or to each other. Speak calmly.
- ⇒ Move other students to a different location.
- ⇒ Await administrative / emergency personnel.
- ⇒ Complete an incident report.



DRUG USE / SALE / POSSESSION

STAFF

- ⇒ Notify the Principal's Office if you think you have witnessed a drug sale, drug usage, or drug possession.
- ⇒ Complete an Incident Report ASAP.

PRINCIPAL'S OFFICE

- ⇒ Identify the problem and evaluate.
- ⇒ Call the Superintendent's Office, who will call local law enforcement.
- ⇒ Have law enforcement bring the student to the office with their backpack, purse, books, and other possessions.
- ⇒ Ensure that at least two adults and law enforcement, if possible, are present at the meeting. Follow statutes.
- ⇒ Tell the student what is suspected and ask the student to produce the drugs. Turn the investigation over to law enforcement.

DRUGS LOCATED SALE WITNESSED

- ⇒ Law enforcement will remove the student(s) from campus.
- ⇒ Notify parent(s)/guardian(s).
- ⇒ Notify the Superintendent's Office.
- ⇒ Follow disciplinary action according to the Student Code of Conduct.
- ⇒ Suggest that the student enroll in a drug counseling program.

DRUGS NOT LOCATED SALE NOT WITNESSED

- ⇒ Notify parent(s)/guardian(s) to immediately come to the school.
- ⇒ Meet with the student, counselor, and parent(s)/guardian(s).
- ⇒ Follow disciplinary action according to the Student Code of Conduct.
- ⇒ Suggest that the student enroll in a drug counseling program.

EVACUATION

PRINCIPAL'S OFFICE

- ⇒ Signal an evacuation from the building by using the fire alarm. Use the Public Address (PA) system if an alternative evacuation route or long-term reunification site is to be used.
- ⇒ Utilize other staff members as necessary to ensure all personnel and students in all areas of the building have been evacuated.
- ⇒ Notify public safety.
- ⇒ Initiate incident command if event dictates or directed by public safety.
- ⇒ Ensure that appointed caretakers assist handicapped students.
- ⇒ If an offsite or long-term reunification is necessary and transportation is required, coordinate with public safety personnel and transportation supervisor.
- ⇒ Notify the Superintendent's Office and advise them of the type of emergency and type of evacuation taking place.
- ⇒ Make sure you or a designated staff member take the emergency response plans and emergency contact information with you when leaving the building.
- ⇒ If available, take a copy of the building floorplans and mechanical drawings when exiting the building to assist emergency response personnel.
- ⇒ If students are to be dismissed for the day, a checkout area should be established along with a reunification plan. Students shall only be released to parents/guardians listed on the emergency contact form.
- ⇒ Signal the **"ALL CLEAR"** to return to class when deemed appropriate.

EVACUATION (Continued)

STAFF



TEACHERS

- ⇒ Follow the predetermined evacuation routes/procedures based on the information given by the principal's office. You should be aware of your surroundings at all times and may have to deviate from the predetermined routes or procedures if circumstances exist that may cause unnecessary harm or danger to students or staff.

(ALL EVACUATION ROUTES SHALL BE TAKEN IN THE OPPOSITE DIRECTION OF THE EMERGENCY)

- ⇒ Based on the type of incident and reason for evacuation, teachers may or may not allow students to gather their personal belongings before exiting the building.
- ⇒ Take your record/attendance book or laptop and your "Emergency Management Guide" with you upon exiting the building.
- ⇒ Close your classroom doors and shut off the lights upon exiting the room.
- ⇒ If necessary, request additional assistance for any students with physical or mental disabilities.
- ⇒ Proceed to the designated area, at a minimum of 300 feet from the building and out of the way of emergency vehicles and public safety personnel.
- ⇒ Upon arrival at the evacuation site, assemble students accordingly and take attendance. Report any missing students to the principal's office or the emergency responder in charge (incident commander) immediately.
- ⇒ Administer first aid as necessary. Report any major medical issues to the principal's office immediately or dial 9-1-1.
- ⇒ Speak calmly and clearly to students to maintain control and alleviate tension and fear.
- ⇒ Remain with your class and await further instructions from the principal or incident commander.

Continued on next page

EMERGENCY OPERATIONS PLAN

Hanley International Academy

- ⇒ After evacuating, take attendance and account for all students. Report any missing students to school administration. Hold up a RED status card to indicate you have missing, injured, or extra students. Use a GREEN status card if everything is ok.
- ⇒ Return to the classroom when instructed by the principal or incident commander. Take attendance to account for all students within your span of control. Report any missing students as soon as possible.
- ⇒ When en-route to the relocation site, the teachers will prepare a list of all students on the bus, which will be delivered to the reunification Site Incident Commander, upon arrival.
- ⇒ Follow the instructions of the reunification site staff when you arrive. You may be asked to assist in staffing the site.

EVACUATION (Continued)

STAFF

OFFICE STAFF

- ⇒ Gather all student medications before exiting the building, if necessary.
- ⇒ Take daily attendance record/PowerSchool and emergency contact information with you upon exiting the building.
- ⇒ If time permits (with principal's permission), place a recorded message on the main school phone line with brief information regarding the incident and any necessary or pertinent information for parents.

MAINTENANCE STAFF

- ⇒ Based on the type of incident requiring school evacuation, the following may be necessary:
 - Turn off natural gas supply.
 - Turn off electric supply.
 - Turn off water supply.
 - Close all windows and doors.
 - Shut down heating, cooling, and ventilation systems (HVAC).
 - Turn off all appliances (kitchen, art room, etc.).
- ⇒ If available, take a copy of the building floorplans and mechanical drawings when exiting the building to assist emergency response personnel.



FIRE / ARSON

- ⇒ Upon a fire alarm activation, the principal and staff should complete an immediate assessment to determine the cause of the alarm and if evacuation is necessary.



BE AWARE

A fire alarm activation may be false
and a precursor to active violence

- ⇒ In the event of an unscheduled fire alarm, the principal should utilize the PA system, requesting staff to inspect the fire pull stations nearest their classroom and report any activated stations.
- ⇒ Upon locating an activated pull station, staff should attempt to determine the reason for activation and report if the alarm is false or any signs indicating a possible fire.
- ⇒ If a pull station activation is suspicious and lacks merit, the principal's office may choose to forego evacuation until further investigation by public safety is completed. The principal's office shall advise all staff and students to standby for further instructions.
- ⇒ **ALL** fires and unscheduled fire alarms shall be reported to public safety.
- ⇒ **ALL** entry and exit doors are to remain free and clear of any obstructions at **ALL** times.

FIRE / ARSON (Continued)

MAJOR FIRE / EXPLOSION

**PRINCIPAL'S
OFFICE**

- ⇒ Sound the fire alarm to signal an evacuation.
- ⇒ Use the Public Address (PA) system if an alternative evacuation route or assembly area is to be utilized.
- ⇒ Call 9-1-1.
- ⇒ Advise faculty and staff to administer first aid, as necessary, and to report all major injuries immediately.
- ⇒ Evacuate all students, faculty, and staff to the pre-designated evacuation areas.
- ⇒ Ensure that appointed caretakers assist handicapped students.
- ⇒ Pre-appointed staff members should search all areas of the building for stragglers.
- ⇒ Ensure that custodians and cafeteria personnel have turned off all motors, fans, cooking systems, and other power-driven equipment.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Request bus service if students need to be transported to another site.
- ⇒ Designate a staff member to direct public safety personnel to the appropriate location.
- ⇒ Assist/Establish a command post with public safety personnel if necessary.
- ⇒ Help locate any possible suspects and/or witnesses.
- ⇒ After attendance is taken, pre-appointed staff should search the building for any missing students.
- ⇒ If students are to be evacuated to another site, or if they are to be dismissed for the day, consider utilizing the long-term reunification location and system.
- ⇒ If students are to be dismissed for the day, a check-out area should be established for accountability.
- ⇒ Students should only be released to parents or guardians that are listed on their emergency release form.
- ⇒ Signal the "**ALL CLEAR**" announcement, when appropriate.
- ⇒ Complete a detailed incident report and provide to public safety upon request.

FIRE / ARSON (Continued)

MAJOR FIRE / EXPLOSION

STAFF

- ⇒ Upon activation of the fire alarm, evacuate.
- ⇒ Be aware of pre-designated primary and alternative evacuation routes, and the location of the fire alarm pull stations within your area of responsibility.
- ⇒ Take your attendance sheet and/or laptop with you (PowerSchool).
- ⇒ Close the classroom door and turn off the lights as students leave.
- ⇒ Leave the building in an orderly fashion without rushing or crowding.
- ⇒ If the situation warrants, busses will be used to transport students to another site.
- ⇒ If the emergency calls for an evacuation without the use of busses, walk from the building on the pre-designated route.
- ⇒ Students should be evacuated at least 300 feet from the building and out of the way of emergency vehicles.
- ⇒ Reassemble students and take roll. Report any missing students to the principal's office or incident commander immediately.
- ⇒ Render first aid if necessary. Report any major injuries to the principal's office or call 9-1-1.
- ⇒ Return to the school when instructed that the situation is deemed safe.

FIRE / ARSON (Continued)

SMALL FIRE

PRINCIPAL'S OFFICE

- ⇒ Call 9-1-1.
- ⇒ Use judgment on when and whether to activate the fire alarm for evacuation.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.

If fire is EXTINGUISHED

- Notify Public Safety that the fire is extinguished.
- Keep students outside of the classroom until the principal declares it is safe to return to class.
- Restore calm and resume the educational process as soon as possible.
- Complete an incident report.

If fire CANNOT BE EXTINGUISHED

- If safe to do so, close all doors and windows within the immediate area of the fire, limiting oxygen flow, which fuels the fire.
- Follow "Evacuation Procedures".
- If feasible, provide emergency response personnel with the exact location and nature of the fire.
- Advise public safety of any injuries or individuals in need of special assistance with evacuation.

FIRE / ARSON (Continued)

ARSON

Arson is the unauthorized starting of a fire or assisting another in starting a fire.

- ⇒ Call public safety to report the incident.
 - **Note:** After the initial discovery of any fire in a school building, faculty, staff, or the principal should complete an immediate site assessment to determine if any type of evacuation of the building is necessary. Be aware that fire can spread unseen, and visible signs may be absent.
- ⇒ If arson is suspected, inform public safety, as arson is a criminal offense.
- ⇒ Assist public safety in their investigation.
- ⇒ Help locate any possible suspects and/or witnesses.
- ⇒ Preserve any evidence left at the scene and take photographs if possible. Provide all evidence and photographs to public safety. Preserve any video surveillance evidence if appropriate.
- ⇒ If possible, isolate the area until public safety has processed for their criminal investigation.

FOOD POISONING

**PRINCIPAL'S
OFFICE**



- ⇒ Assess the severity of the illness and source.
- ⇒ Notify the cafeteria (if notified by the classroom) to take actions.
- ⇒ Appoint staff members to pull appropriate health information from enrollment cards or PowerSchool.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ File appropriate reports with the district and Public Health Agency.

SEVERE

- ⇒ Call 9-1-1.
- ⇒ Contact parent(s)/guardian(s).
- ⇒ Administer first aid until paramedics arrive.
- ⇒ File appropriate reports with the district and Public Health Agency.

MINOR

- ⇒ Administer first aid.
- ⇒ Contact parent(s)/guardian(s).
- ⇒ Give parent(s)/guardian(s) copies of suggested home treatment for mild food poisoning from the appropriate health agency.
- ⇒ File Incident Report ASAP.

FOOD POISONING (Continued)

CLASSROOM

- ⇒ Contact the Principal's Office.
- ⇒ Keep the student(s) calm.
- ⇒ Move other students to another location, if necessary.

CAFETERIA

- ⇒ Close the cafeteria.
- ⇒ Contact the Principal's Office.
- ⇒ Secure items used in food preparation for examination and testing.
- ⇒ Store samples of suspected contaminated items for examination and testing.
- ⇒ Follow any further directions from the Manistee Public Health Department.



INTRUDER / TRESPASSER / UNIDENTIFIED PERSON

**PRINCIPAL'S
OFFICE**

- ⇒ Approach the intruder(s) and determine the nature of their visit.
- ⇒ Ask for identification.
- ⇒ If they have no acceptable purpose, ask them to leave.
- ⇒ Direct and/or accompany them to the proper office or off grounds.
- ⇒ If they refuse to leave:
 - Alert them that law enforcement will be called. Observe descriptions.
 - If they continue to refuse to leave, call 9-1-1.
 - If the situation is severe, announce a lockdown.
 - Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Complete an Incident Report.

STAFF

- ⇒ Immediately report any suspicious person(s) to the Principal's Office. This should include anyone without proper identification.
- ⇒ Be prepared to describe height, weight, gender, clothes and direction headed.



LARCENY / ROBBERY / EXTORTION

Larceny

The unlawful taking of personal property with intent to deprive the rightful owner of it permanently.

Armed Robbery

The taking of property from a person by force or threat while armed with a weapon or article representing a weapon.

Unarmed Robbery

The taking of property from a person by force or threat.

Extortion

Threatening another person for the purpose of extorting money or property, or to compel the threatened person to do an act against the threatened person's will.

STAFF

- ⇒ Notify the Principal's Office ASAP.
- ⇒ Try to calm the student(s), if possible

LARCENY / ROBBERY / EXTORTION (Continued)

**PRINCIPAL'S
OFFICE**



**INCIDENT INVOLVING
A WEAPON**

- ⇒ Identify the problem and location.
- ⇒ Call 9-1-1 or local law enforcement to report the incident.
- ⇒ Follow the weapons procedure:
 - Determine if a weapon is visible or suspected.
 - Provide the suspect(s)' information.

**INCIDENT INVOLVING
THEFT / LARCENY**

- ⇒ Call 9-1-1 or local law enforcement to report incident if:
 - Theft of any item(s).
 - There are numerous events of minor theft.
 - Theft is motivated by hate or is gang related.
- ⇒ Assist law enforcement in the investigation and identification of possible suspect(s) and/or witness(es).
- ⇒ Call the Superintendent's Office. Administration will contact parent(s)/guardian(s).
- ⇒ File an Incident Report.
- ⇒ If the incident involves less significant theft/larceny, calling law enforcement may not be necessary. Investigate the incident per the school district's policy.

SECURE MODE

SECURE MODE will occur when a person or situation presents an immediate threat to students, faculty, or staff in or near the building. All exterior doors and classroom doors are locked, and students, faculty, and staff stay in their offices, work areas, and classrooms.

This action is considered appropriate for, but not limited to, situations that involve potential violence outside the school facility and/or major hazardous materials situations that immediately and directly affect the safety of the students, faculty, staff, or other personnel.

- ⇒ The message will be communicated over the PA system, or other appropriate communication device, that there is now a SECURE MODE in effect. This warning will come from school administrators whenever possible.
- ⇒ Where communication is limited to include a lack of bells or PA, school administrative or technical staff will act as runners to notify teaching staff of an outside SECURE MODE.
- ⇒ As soon as a decision is made to lock down the school, administration will notify law enforcement using 9-1-1 rather than non-emergency telephone numbers.

PRINCIPAL'S OFFICE

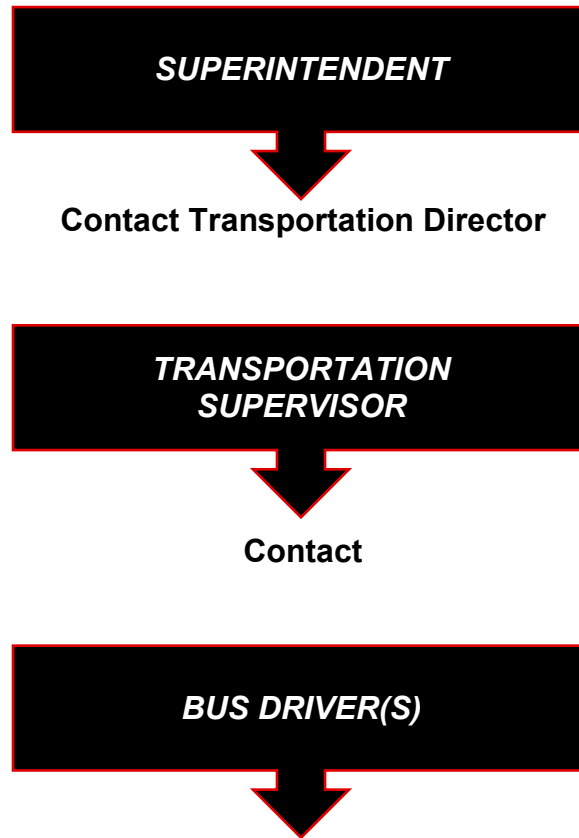
- ⇒ Secure all exterior doors
- ⇒ Deny entrance and/or exit at all exterior doors until cleared
- ⇒ When appropriate, attempt to notify staff of the situation, and only share information given by the administration
- ⇒ Once the situation is deemed safe by school administration, notification of the "All Clear" can be made over the PA system or other communication device.

STAFF

- ⇒ Keep all students in their assigned rooms; classrooms are not in full lockdown, but students should remain in their rooms until the secure mode is lifted
- ⇒ Allow students to go between classes, but travel between classes should be expedited
- ⇒ Communicate that cellular phone use is PROHIBITED, and this applies to all faculty, staff, and students

SECURE MODE (Continued)

TRANSPORTATION PROCEDURES DURING BUILDING LOCKDOWN



Buses in route to building(s) in SECURE MODE shall be redirected to a safe location for staging. Drivers and assistants will remain on the bus with students. At the direction of the Superintendent, additional adult supervision will be sent.

The Transportation Director will communicate all information to the driver(s), and the Superintendent will determine when it is safe to return to the site.

LOCKDOWN

A **lockdown** will occur when a person or situation presents an immediate threat to students, faculty, or staff in or near the building. All exterior doors and classroom doors are locked, and students, faculty, and staff stay in their offices, work areas, and classrooms.

This action is considered appropriate for, but not limited to, situations that involve potential violence inside the school facility, and/or a SECURE MODE failure that will immediately and directly affect the students, faculty, staff, or other personnel.

- ⇒ The signal will be communicated over the PA system, or other appropriate communications device, that there is now a LOCKDOWN in effect. This warning will come from school administrators whenever possible.
- ⇒ As soon as a decision is made to lock down the school, administration will notify law enforcement using 9-1-1 rather than non-emergency telephone numbers.
- ⇒ Cellular phone use is strictly prohibited by students, faculty, and staff.

If students are in class at the time of the signal, staff will:

- ⇒ Explain that there is an emergency; only share information with students given directly from administration
- ⇒ Secure all classroom doors utilizing Nightlock devices.
- ⇒ Account for all students, faculty, and staff in their respective room(s)
- ⇒ Close blinds and shades on interior windows (if safe to do so) and turn off lights
- ⇒ If the situation warrants, students, faculty, and staff should sit or lie on the floor in a safe corner away from windows and doors, and remain locked in the classroom, office, or storage room until a uniformed police officer releases you. You do not have to unlock the door if you are not comfortable opening it. The police officer(s) will have a key to open the door.

If students are not in class at the time of the signal, staff will:

- ⇒ Assist in moving students into the nearest safe location
- ⇒ Secure all of the doors of the room, if possible; if the lock is on the outside of the door, rubber stops can be placed behind the door to secure it
- ⇒ Stay with students to maintain order; following directions is paramount
- ⇒ Keep students in a safe area until advised personally by public safety personnel to move
- ⇒ Avoid, if possible, large open areas such as the library, gymnasium, media centers, auditoriums, lunchrooms, etc.

LOCKDOWN (Continued)

All Clear Signal

A personal notification by a police officer will be the **ONLY** method of release from a lockdown. A uniformed officer will knock on the door and make appropriate notification. If the faculty/staff member is not comfortable opening the door, then the police officer will open the door after properly identifying themselves. In most circumstances, the police officer will have a master key to all doors.

Staff will not release students or terminate lockdown procedures based on a PA system message or bell.

Administrative Responsibilities

Once the “All Clear” is determined, the school administrative staff needs to establish communication between school administrative personnel and their respective law enforcement agency’s person in charge or incident commander.

Information

School administration will make all attempts at informing staff of the reason for the lockdown and the status of the incident; however, due to circumstances that transpire quickly, information may not be readily available or easily communicated.

These situations can be extremely stressful. It is the responsibility of each staff member to do whatever possible to calm the students, even though the staff members themselves may not be fully aware of the issue.

School administration should conduct a debriefing with the faculty, staff, and students as soon as possible.

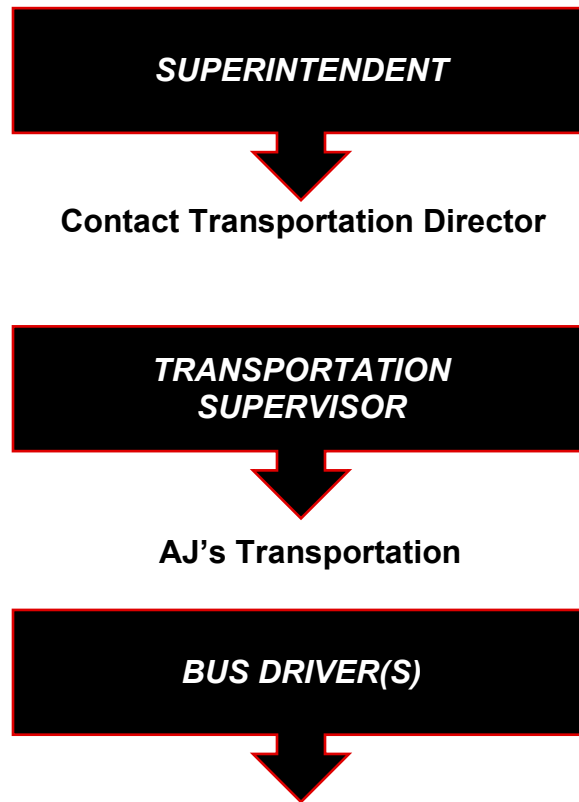
Lockdown Exercises

Lockdown exercises will be conducted 3 times per year.

Staff will inform students that any disregard to lockdown exercises will be handled as a disciplinary issue and will be addressed accordingly.

LOCKDOWN (Continued)

TRANSPORTATION PROCEDURES DURING BUILDING LOCKDOWN



Buses in route to building(s) in LOCKDOWN shall be redirected to a safe location for staging. Drivers and assistants will remain on the bus with students. At the direction of the Superintendent, additional adult supervision will be sent.

The Transportation Director will communicate all information to the driver(s), and the Superintendent will determine when it is safe to return to the site.

MEDICAL EMERGENCY / ACCIDENT

**PRINCIPAL'S
OFFICE**

- ⇒ Secure the student's health information from the registration form or PowerSchool and take it with you to the emergency location.
- ⇒ Report to the location, secure and isolate the area to avoid further injury to the victim or bystanders.
- ⇒ Assess the severity of the injury or illness.
- ⇒ If EMS is needed, assign a staff member to meet EMS personnel and direct them to the location.
- ⇒ Provide EMS personnel with emergency information as needed.
- ⇒ Call the parent(s)/guardian(s).
- ⇒ The principal may accompany the student to the hospital with the health information or appoint a staff member to do so. The staff member will act as a liaison between the hospital and the principal's office.
- ⇒ Call the Superintendent's Office.
- ⇒ Complete a detailed incident report. Interview staff and witnesses if necessary. Provide a copy to public safety upon request.

MINOR PROBLEM

- Move the student to the office and assess.
- Administer first aid, as appropriate.
- Call the parent(s)/guardian(s).
- Complete a detailed incident report.

SEVERE PROBLEM

- Call 9-1-1.
- Stabilize the student and administer first aid until medics arrive.
- Obtain a diagnosis, follow-up, and complete a detailed incident report.

DEATH OCCURS

- Secure the area for public safety and remove bystanders.
- Request additional assistance from staff.
- Isolate witnesses. Do not let them speak with others.
- Await medical officials.

MEDICAL EMERGENCY / ACCIDENT (Continued)

STAFF

- ⇒ If a medical emergency exists, contact the principal's office or dial 9-1-1. Give the exact location of the emergency and provide as many details as possible.
- ⇒ Administer first aid, as necessary.
- ⇒ Keep the affected student as stable as possible.
- ⇒ Direct any unaffected person(s) to a safe and secure area.
- ⇒ Assist public safety personnel upon arrival.
- ⇒ Separate and secure witnesses until they can be interviewed by public safety personnel.
- ⇒ Complete a detailed incident report as soon as possible.
- ⇒ Request counseling services for students if deemed appropriate.



MISSING / RUNAWAY STUDENT

**PRINCIPAL'S
OFFICE**

**Notify the Superintendent's Office if the student
is not located in a reasonable amount of time.**

BEFORE / DURING SCHOOL HOURS

- ⇒ If the student is absent from school, school staff should call a parent or guardian to verify student's absence.
- ⇒ Conduct an immediate search of the school and school grounds.
- ⇒ If the student is reported missing during school hours, contact a parent or guardian to verify absence.
- ⇒ Question friends and/or classmates pertaining to the incident (possible whereabouts of the student).
- ⇒ If the student is not located, advise parent(s)/guardian(s) to contact law enforcement.
- ⇒ Obtain a photograph for law enforcement, if applicable.
- ⇒ If the student is located, advise parent(s)/guardian(s) immediately. Parent(s)/Guardian(s) are to notify law enforcement upon return of the student.

AFTER SCHOOL HOURS

- ⇒ If student doesn't arrive home from school, verify with transportation department that the student was on the bus and dropped off at the appropriate location.
- ⇒ Conduct an immediate search of the school and school grounds.
- ⇒ Consider driving the route between the school and the student's residence.
- ⇒ If the student is not located, advise parent(s)/guardian(s) to contact law enforcement.
- ⇒ If the student is located, advise parent(s)/guardian(s) immediately. Parent(s)/Guardian(s) are to notify law enforcement upon return of the student.



RIOT OR GANG ALTERCATION

GENERAL INSTRUCTIONS

- ⇒ Never grab or touch a violent student unless they are causing harm to themselves or others.
- ⇒ Discuss the student's behavior individually and consequences, but only after they are calm.
- ⇒ Establish lines of communication between school authorities and student groups in order to be aware of any future developments.
- ⇒ Refer students to either internal or external counselors.

STAFF

A large black arrow pointing downwards from the "STAFF" box to the subsequent instructions.

- ⇒ Alert the Principal's Office immediately.
- ⇒ If possible, identify the student(s) involved.
- ⇒ File an Incident Report.

**PRINCIPAL'S
OFFICE**

EVALUATE THE SEVERITY OF THE SITUATION

SEVERE

- ⇒ Call 9-1-1.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Be prepared to announce a lockdown.
- ⇒ If conflict is within the building, make verbal contact in a calm voice.
- ⇒ Separate opposing factions and try to get them to a more isolated area so they can calm themselves without losing face. Continue to be calm and reasonable.
- ⇒ Cooperate with law enforcement.
- ⇒ Identify participating student(s) and gang affiliation(s).
- ⇒ Notify parent(s)/guardian(s).
- ⇒ Along with disciplinary actions, refer the student(s) to receive counseling.
- ⇒ File an incident report.

MINOR

- ⇒ Use discretion in calling law enforcement.
- ⇒ Separate opposing factions and try to get them to a more isolated area so they can calm themselves.

SEVERE WEATHER

SEVERE WEATHER GUIDELINES

Tornado Watch

The possibility of tornados exists

Tornado Warning

A tornado has been spotted or indicated by radar

Severe Thunderstorm Warning

The possibility of large hail, heavy rain, lightning, and damaging winds may occur

- ⇒ Faculty, staff, and students should know the difference between a tornado watch and warning. Remember, there may not be time for a tornado warning before a twister strikes; tornados form suddenly.
- ⇒ Faculty, staff, and students should know their designated shelter areas. Use interior hallways on the ground floor and/or designated areas. Never use gymnasiums, auditoriums, or other rooms with wide, free-span roofs. Avoid all windows and other glassed areas. The most dangerous locations of a building are usually along the south and west sides, and at all corners.
- ⇒ During a tornado watch, the principal or designee should monitor the National Weather Service (NWS) for information pertaining to the weather conditions.
- ⇒ Designate staff to monitor the sky for dark/rolling clouds, driving rain, a sudden increase in wind speed, or a funnel cloud. Tornados are often obscured by precipitation or darkness.
- ⇒ Faculty and staff should round up students on playgrounds and other outdoor areas and escort them inside.
- ⇒ When students are assembled in designated shelter areas and when danger is imminent, they should be instructed to respond to a specific command, such as “drop and tuck.” They should assume a protective posture with their backs to the wall. Most tornado deaths are caused by head injuries.
- ⇒ Schedule regular tornado drills for compliance and shelter location awareness.

SEVERE WEATHER (Continued)

PRIOR TO THE ONSET OF SEVERE WEATHER

PRINCIPAL'S OFFICE

- ⇒ Ensure designated shelter areas have been determined within each building and faculty and staff have been made aware of these safe sheltering areas.
- ⇒ Designate a system for notifying faculty and staff of weather-related information:

PA Announcement

(common language and directives)

- ⇒ A back-up or secondary warning system should be in place in case of electrical failure (bullhorn or alternate method).

STAFF

- ⇒ Know the designated shelter area closest to your area of responsibility.
- ⇒ It is your responsibility to know the severe weather policy, to include all terminology, proper procedures, and emergency sheltering locations throughout the school.

SEVERE WEATHER (Continued)

TORNADO WATCH

PRINCIPAL'S OFFICE

- ⇒ Make faculty and staff aware that a tornado watch is in effect.
- ⇒ Remind faculty, staff, and students what to expect if a warning is issued.
- ⇒ Advise designated staff to monitor weather warning radio, television, or other appropriate system.
- ⇒ Make sure any students or staff on the playground or other outdoor areas have been brought indoors.
- ⇒ Communicate with custodial staff that a tornado watch is in effect and if conditions deteriorate, they may be required to shut off the necessary utilities to the building for safety reasons.
- ⇒ During a tornado watch, students will not be released until the end of the school day. Students may be released to a parent or guardian.
- ⇒ Ensure that faculty and staff close their windows and blinds in case conditions deteriorate to prevent flying objects from causing injury.

STAFF

- ⇒ Close windows and blinds in your area of responsibility.
- ⇒ Review tornado procedures with students.
- ⇒ Advise students the location of the sheltering area that they will be proceeding to in the event of a tornado warning.
- ⇒ Inform students not to be alarmed if the lights go out.
- ⇒ Remind students of the “drop and tuck” position and the importance behind assuming this position if necessary.
- ⇒ Office staff should monitor the early warning (NOAA) weather radio.

SEVERE WEATHER (Continued)

TORNADO WARNING

PRINCIPAL'S OFFICE

- ⇒ Announce the warning immediately.
- ⇒ Move all occupants to designated shelter areas.
 - If a tornado is spotted or reported as being imminent, issue a command over the PA system to “drop and tuck” in place, consider utilizing desks or other methods of cover to avoid possible hazards.
- ⇒ Ensure that appointed caretakers assist disabled students.
- ⇒ Account for all students.
- ⇒ Parents arriving at school to pick up students should be invited to shelter inside.
- ⇒ Keep all exterior doors closed.

STAFF

- ⇒ Evacuate students to the shelter area.
 - Take your class roster and emergency “go to” bag with you.
 - Leave the classroom door open.
- ⇒ Have students sit on the floor quietly.
- ⇒ Take attendance to account for all students.
- ⇒ Keep students calm and quiet. Communication is the key.
- ⇒ If you are given the “drop and tuck” command, ensure students’ backs are against the wall with their head tucked between their knees.
- ⇒ If you sense that a tornado is imminent, give the “drop and tuck” command yourself.

CUSTODIAL STAFF

- ⇒ Shut off gas and electricity.
- ⇒ Ensure that all exterior doors are closed to prevent wind tunnel effect and flying debris.
- ⇒ If time permits, hand out flashlights.
- ⇒ If there is a possibility that a tornado has hit the building, shut off the electrical power immediately.

SEVERE WEATHER (Continued)

POST-TORNADO

PRINCIPAL'S OFFICE

BUILDING STRUCK BY TORNADO

- ⇒ Call custodian(s) to ensure that gas and electricity have been shut off at the main.
- ⇒ Call 9-1-1.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ If appropriate, staff should administer first aid until first responders arrive.
- ⇒ All injuries should be reported and documented.
- ⇒ Evacuate damaged areas with caution.
- ⇒ Ensure all students, faculty, and staff are accounted for.
- ⇒ Consider establishing a unified command post with public safety personnel.
- ⇒ Provide public safety personnel with detailed floor plans as necessary for accountability and search and rescue efforts.
- ⇒ Students should remain in designated shelter areas until it is considered safe.
- ⇒ Announce an **"ALL CLEAR"** once the authority having jurisdiction has deemed the area safe.

TORNADO PASSES WITHOUT STRIKING

- ⇒ Be cautious, as there may be other funnels in the area.
- ⇒ Continue to monitor the weather warning radio, television, or other appropriate system for updated weather conditions.
- ⇒ Notify utility companies of any break or suspected break in lines.
- ⇒ Students should remain in designated shelter areas until it is considered safe.
- ⇒ Announce an **"ALL CLEAR"** to return to class when deemed safe to do so.

SEVERE WEATHER (Continued)

POST-TORNADO

STAFF

- ⇒ Once the “**ALL CLEAR**” is given, return to class and take attendance as soon as possible.
- ⇒ Report any injuries or missing students to the principal’s office immediately.
- ⇒ Administer first aid as necessary.
- ⇒ Keep students calm; communication is the key.
- ⇒ Await further instructions from the principal’s office.
- ⇒ Resume normal classroom activity.



SEXUAL ASSAULT

Criminal Sexual Conduct involves non-consensual sexual penetration or unconsented touching of a person's intimate parts. District faculty and staff should work with local law enforcement to obtain legal definitions, where appropriate. School faculty and staff are required to report child abuse and neglect according to Michigan Law. (PA 238 of 1975 – MCL 722.621-636).

PRINCIPAL'S OFFICE

- ⇒ Call 9-1-1.
- ⇒ Pull health information from the enrollment card or PowerSchool.
- ⇒ Administer first aid, if applicable.
- ⇒ Call a counselor to stay with the victim.
- ⇒ Isolate the suspect, if possible.
- ⇒ Comply with Child Protection Laws.
- ⇒ Isolate the witness(es) and do not allow them to talk to anyone or each other.
- ⇒ Appoint an administrator or counselor to notify the parent(s)/guardian(s), in person if possible.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Complete an incident report and provide to law enforcement upon request.

STAFF

- ⇒ Alert the principal's office immediately.
- ⇒ Assess injuries.
- ⇒ Do not leave the victim alone.
- ⇒ Do not let the victim alter their physical appearance.
- ⇒ Discourage discussion.
- ⇒ Await public safety arrival.
- ⇒ Complete an incident report as soon as possible.

SHELTER-IN-PLACE

Shelter-in-place is taken when conditions are safer inside the building than outside. For severe weather sheltering, students, faculty, and staff are held in the building's safe areas, such as interior rooms or a basement, away from windows.

For hazardous material release outdoors with toxic vapors, students, faculty, and staff are to remain in their classrooms with windows and doors sealed and all ventilation systems shut off. Limited movement may be allowed.

Taking shelter inside a sealed building is highly effective in keeping students, faculty, and staff safe.

PRINCIPAL'S OFFICE

- ⇒ Receive information and instructions to shelter-in-place, rather than evacuate, due to a nearby hazardous material release
- ⇒ Activate the School Shelter-in-Place plan by public address announcement
- ⇒ Require all persons outside of building areas to go indoors
- ⇒ Ensure persons entering the building from a potentially contaminated environment DO NOT integrate with those already inside to avoid cross contamination concerns.
- ⇒ Ensure that maintenance immediately shuts off all heating, cooling, and ventilation systems for the entire campus
- ⇒ In severe cases, instruct teachers to secure doors and windows
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified
- ⇒ Allow no one to leave the shelter during the emergency
- ⇒ Use reasonable judgment in allowing outsiders into a shelter during the height of the incident
- ⇒ Be in contact with the local police jurisdiction for continuous information and instructions until the incident is under control
- ⇒ Announce the current status of the incident at frequent intervals over the PA system because updated communication is key

SHELTER-IN-PLACE (Continued)



STAFF

- ⇒ Move all students indoors; report missing students to office staff
- ⇒ Move students into designated safe areas such as inside rooms with no windows, bathrooms, utility closets and hallway without large windows or doors.
- ⇒ For severe weather, if there is no time to get into a building or shelter, attempt to squat or lie low in the nearest ravine, open ditch, or low spot away from trees and power poles.
- ⇒ Close all windows and doors to the shelter
- ⇒ Turn off room heating, cooling, and ventilation systems
- ⇒ If there appears to be air contamination within the shelter, place a wet paper towel over the nose and mouth for temporary respiratory protection
- ⇒ Continue to follow instructions given over the PA system
- ⇒ Do not allow anyone to leave the shelter until the “All Clear” command is given

STUDENT WALKOUT

PRINCIPAL'S OFFICE

INDICATIONS OF A WALKOUT

- ⇒ Students informing faculty, staff, counselors or the Principal's Office of their plans for a walkout.
- ⇒ Student walkout leaders or a group of students meeting with the Principal to present issues and concerns that are causing them to plan a walkout.

UPON HEARING ABOUT A POTENTIAL WALKOUT

- ⇒ Identify the issues and concerns that have led up to a potential walkout.
- ⇒ Obtain date and time of planned walkout and names of those involved.
- ⇒ Determine a course of action to avert the walkout.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Meet with faculty and staff to inform them of the potential walkout.
- ⇒ Meet with student leaders and Student Council to explain the situation, clear up rumors, and attempt to gain support to avert the walkout.

STUDENT WALKOUT (Continued)

PRE-PLAN FOR WALKOUT DAY

- ⇒ Assign staff members to a supervision schedule for the day that the walkout is supposed to occur.
- ⇒ Pre-plan to have faculty stand at specific locations in the halls or on school grounds to supervise if the walkout occurs.
- ⇒ Instruct faculty to take attendance before the time of the walkout and after.
- ⇒ Instruct faculty to prepare a special absentee list to document the names of students who participate in the walkout.
- ⇒ Instruct faculty to watch their actions and comments so that they do not aggravate the walkout situation.
- ⇒ May designate a person to make a video tape recording, using a camera, of all the students and adults who participate in the walkout.
- ⇒ Confer with the Superintendent for advice.
- ⇒ Ensure the Superintendent is available to assist with the media.
- ⇒ Provide current information to appropriate administrators.

STUDENT WALKOUT (Continued)

DURING THE WALKOUT

- ⇒ Instruct staff to allow students to leave the building.
- ⇒ Encourage staff to say, “If you go to class now, there will be no disciplinary action.”
- ⇒ Ensure that the video camera operator, if utilized, is filming students, staff, and outsiders.
- ⇒ Make the following PA announcement:
“Students, if you go to class now, there will be no disciplinary action. If you walkout, you may be subject to disciplinary action.”
- ⇒ Wait five minutes to give students the opportunity to return to class.
- ⇒ Instruct hall duty personnel to conduct a hall sweep to clear the halls of students.
- ⇒ Ensure that all students are either in class or outside.
- ⇒ Secure doors so that students cannot come back and disrupt classes after the five-minute deadline.
- ⇒ Monitor the ongoing situation.
- ⇒ Go outside with a bullhorn to address participants of the walkout:
“Students, we want you back in school. If you come back now, there will be no disciplinary action. You have five minutes to return to the auditorium where we can process you to go to class. If you do not come back within five minutes, you may be subject to disciplinary action.”
- ⇒ Concentrate on trying to get the students back into the classroom and do not let the media distract that effort.

STUDENT WALKOUT (Continued)

AFTER THE WALKOUT

- ⇒ Instruct faculty to take attendance each period after the walkout so that a list of students participating in the walkout can be generated.
- ⇒ Principal will use attendance list and video tape to develop a list of all students involved in the walkout.
- ⇒ Contact the parent(s)/guardian(s) of the students participating in the walkout to arrange for the return of each student.
- ⇒ Inform the parent(s)/guardian(s) of the disciplinary action in store for students participating in the walkout.
- ⇒ Develop a system for admitting students back to school after a walkout.



SUBSTANCE ABUSE (ALCOHOL / TOBACCO / VAPING)

**PRINCIPAL'S
OFFICE**

- ⇒ Bring the student(s) to the office with their backpack, purse, books, and other possessions.
- ⇒ Contact law enforcement, if appropriate.
- ⇒ Tell the student what is suspected and ask the student to produce the alcohol, tobacco or vaping materials. Have two adults present.
- ⇒ Question the student regarding the involvement of others.
- ⇒ If the student denies or refuses, ask the student to empty their pockets and all other containers.
- ⇒ Search the student's locker, if necessary.
- ⇒ If alcohol, tobacco or vaping materials are found, or if usage has been witnessed, notify the parent(s)/guardian(s).
- ⇒ Call the Superintendent's Office, who may call Child Protective Services.
- ⇒ Follow disciplinary action according to the Student Code of Conduct.
- ⇒ File an Incident Report.

STAFF

- ⇒ Notify the Principal's Office of witnessed or suspected use or possession of alcohol, tobacco or vaping materials.



SUICIDAL SUBJECT

SUICIDE IN PROGRESS

**PRINCIPAL'S
OFFICE**

- ⇒ Call 9-1-1
- ⇒ Determine if there are any weapons involved; be specific as to the type of weapon and the location of the individual within the building.
- ⇒ Use good judgment on whether or not to approach the student.
- ⇒ Notify parent(s)/guardian(s).
- ⇒ Secure health information from emergency enrollment card or PowerSchool and take it to the scene.
- ⇒ Escort emergency responders to the scene, staying out of the view of the student.
- ⇒ Appoint a staff member to handle the parent(s)/guardian(s) arrival.
- ⇒ Keep faculty and staff informed.
- ⇒ Call the Superintendent's Office, who will ensure that the appropriate personnel are contacted.
- ⇒ If suicide was prevented, require parent(s)/guardian(s) to show proof of psychological consultation before the student returns to school.
- ⇒ If suicide was not prevented, inform faculty and staff.
- ⇒ Authorize counseling services for students, faculty, and staff.
- ⇒ Assist law enforcement with the investigation as requested.
- ⇒ Complete a detailed incident report and provide a copy to law enforcement as requested.

SUICIDAL SUBJECT (Continued)

SUICIDE IN PROGRESS

STAFF

- ⇒ Notify the principal's office or dial 9-1-1 if appropriate.
- ⇒ Determine if there are any weapons involved; be specific as to the type of weapon and the location of the individual within the building.
- ⇒ Try to keep the student calm.
- ⇒ In a calm manner, ask the student for permission to evacuate the rest of the class.
- ⇒ Attempt to diffuse the situation.
- ⇒ Do not negotiate; wait for law enforcement.
- ⇒ Identify students in need of counseling.
- ⇒ In the event of the death of the student, be prepared to assist the principal's office as requested. All notifications will be made by law enforcement personnel.
- ⇒ Out of courtesy and privacy for the student and their family, request that all students **DO NOT** use any type of electronic communication pertaining to the incident.
- ⇒ Complete a detailed incident report and provide a copy to law enforcement as requested.

SUICIDAL SUBJECT (Continued)

VERBAL / WRITTEN THREAT

PRINCIPAL'S OFFICE

- ⇒ Send assistance to the classroom.
- ⇒ Attempt to determine if there are any weapons involved; be specific as to the type of weapon and the location of the individual within the building.
- ⇒ Take all threats seriously. Isolate the student from others, if possible, or escort the student to the office.
- ⇒ Notify the parent(s)/guardian(s) to come and get the student.
- ⇒ If necessary, contact law enforcement to ensure the safety of all students.
- ⇒ Parents must provide proof of psychological consultation before the student is permitted to return to school.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Provide an update to faculty and staff members confidentially.

STAFF

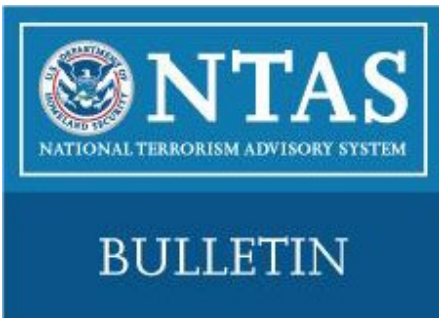
- ⇒ Attempt to determine if there are any weapons involved; be specific as to the type of weapon and the location of the individual within the building.
- ⇒ Notify the principal's office.
- ⇒ Take all threats seriously. Isolate the student from others, if possible, or escort the student to the office.
- ⇒ Tell the student you are concerned and isolate them from other students, if possible.
- ⇒ Do not leave the student alone.
- ⇒ Calmly speak to the student, letting them know you care.
- ⇒ Continue to express interest in the student after the crisis is over.



TERRORISM

NATIONAL TERRORISM ADVISORY SYSTEM

The National Terrorism Advisory System (NTAS) replaced the color-coded Homeland Security Advisory System (HSAS) in April 2011. The NTAS effectively communicates information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation hubs, and the private sector.



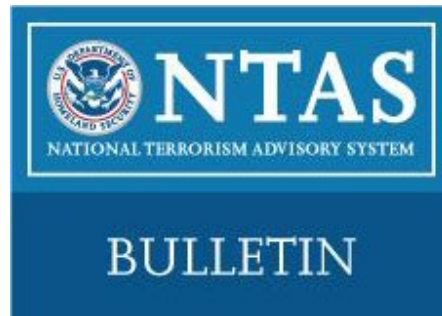
Describes current developments or general trends regarding threats of terrorism



Warns of a credible terrorism threat against the United States



Warns of a credible, specific and impending terrorism threat against the United States



NTAS Bulletins will provide broader or more general information about terrorism trends, events, and potential threats in those situations where additional precautions may be warranted, but where the circumstances do not indicate a threat against the United States of sufficient credibility, or specificity and credibility, to issue an Alert. The NTAS Bulletin will summarize the issue and why it is important for public awareness; outline U.S. Government counterterrorism efforts; and offer recommendations to the public on how it can contribute to the overall counterterrorism effort.

- Be alert to suspicious activity and report it to the proper authorities.
- Conduct 100% visitor identification check.
- Assess and update the crisis plan and procedures.
- Discuss updates to the school and local crisis plans with emergency responders.
- Review duties and responsibilities of Crisis Team members.
- Review crisis response plans with school staff.
- Provide CPR and first aid training for staff.



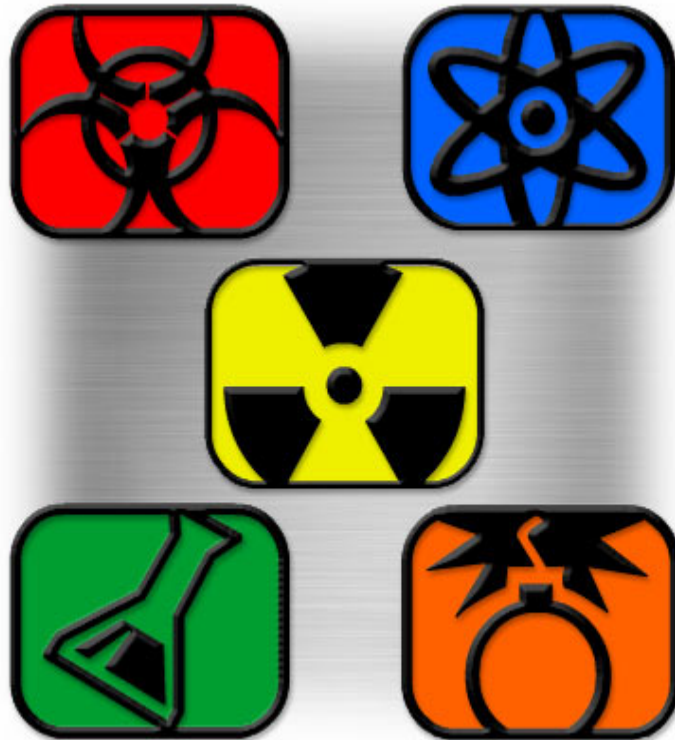
- Regularly inspect school buildings and grounds and report any suspicious activity to the proper authorities.
- Conduct 100% visitor identification check.
- Assess increased risk with public safety officials.
- Assess facility security measures.
- Closely inspect any mail or other deliveries.
- Review the emergency communication plans.
- Inventory, test, and repair communication equipment.
- Test alternative communication capabilities.
- Inventory and restock emergency supplies.
- Conduct crisis training and drills.
- Update parents/guardians on preparedness efforts.
- Update media on preparedness efforts.
- Address the students' fears concerning possible terrorist attacks.
- Place the school and district Crisis Response Teams on standby alert status.



- Activate appropriate lockdown procedures.
- Restrict school access to essential personnel only and perform a 100% identification check (i.e., driver's license retained at front office) and escort anyone entering the school other than students, faculty, and staff.
- Close the school if recommended to do so by appropriate authorities.
- Put reunification procedures into effect.
- Activate crisis response plans.
- Follow local and/or federal government instructions.
- Cancel outside activities and field trips.
- Be alert to suspicious activities and report them to the proper authorities immediately.
- Provide mental health services to anxious students, faculty, or staff.
- Listen to radio/TV for current information/instructions.
- Restrict or suspend mail and other deliveries.

CBRNE

CBRNE is an acronym for Chemical, Biological, Radiological, Nuclear, and high yield Explosives. These types of weapons have the ability to create both mass casualties as well as mass disruption of society. Emergency responders are taught how to recognize and mitigate attacks from such weapons.



CBRNE – CHEMICAL

A chemical attack is the deliberate release of a toxic gas, liquid, or solid that can poison people and the environment.

Chemical agents include:

- ⇒ Nerve agents
- ⇒ Blister agents
- ⇒ Blood agents
- ⇒ Choking agents
- ⇒ Irritating agents

Indicators of a chemical hazard include:

- ⇒ Blisters or rashes
- ⇒ Unusual liquid droplets or oily film
- ⇒ Unexplained odors
- ⇒ Unexplained coughing, fatigue, tearing in eyes, and dizziness

Note: Most chemical agents do not produce a visible cloud.

CBRNE – CHEMICAL (Continued)

In the event of a chemical incident:



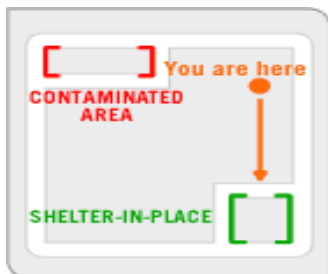
- (1) Take immediate action to get away from any sign of a chemical attack.



- (2) Cover mouth and nose with layers of filtering material that can filter the air but still allow breathing.



- (3) If the chemical is inside a building where you are, try to get out of the building without passing through the contaminated areas, if possible.



- (4) Otherwise, it may be better to move as far away from where you suspect the chemical release is and shelter-in-place.



- (5) If you think you may have been exposed to a chemical, immediately wash. Look for a hose, fountain, or any source of water.
- (6) Secondary Science classrooms contain wash centers.

CBRNE – CHEMICAL (Continued)

CHEMICAL ATTACK / RELEASE / OUTBREAK

- ⇒ Call 9-1-1.
- ⇒ Activate the Incident Command System.
- ⇒ Determine if the chemical is inside or outside.

INSIDE

- ⇒ Follow evacuation plan.
- ⇒ Cover nose and mouth with handkerchief or other filtering material.
- ⇒ Go to collection areas.
- ⇒ Determine if there are any medical problems caused from exposure to the chemical.
- ⇒ Conduct attendance audit of students, faculty, staff, and visitors.
- ⇒ Begin reunification procedures.

OUTSIDE

- ⇒ If unsafe to evacuate, initiate an SECURE MODE.
- ⇒ Remain in rooms with doors and windows closed.
- ⇒ Cover nose and mouth with handkerchief or other filtering material.
- ⇒ Shut off HVAC (heat, ventilation, air conditioning).
- ⇒ Await further instructions from fire or law enforcement.
- ⇒ Conduct attendance audit of students, faculty, staff, and visitors.
- ⇒ Consider need to Shelter-in-Place.
- ⇒ Notify any buses that may be coming to the facility to stay away.
- ⇒ When able, begin reunification procedures.

CBRNE – BIOLOGICAL

A biological attack includes germs or other substances that can make you sick. Agents must be inhaled, enter through a cut in the skin, or be eaten in order to make you sick.

Biological agents include:

- ⇒ Bacteria or virus
- ⇒ Toxins
- ⇒ Delayed effects ranging from hours to weeks
- ⇒ Invisibility to senses

Examples of a biological agent are:

- ⇒ Smallpox
- ⇒ Botulism

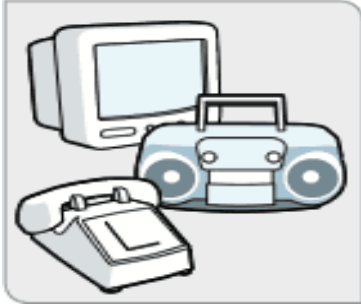
Indicators of a biological incident include:

- ⇒ Fever, headache, chills, sweating, weakness and/or fatigue
- ⇒ Respiratory distress
- ⇒ Difficulty talking or eating
- ⇒ Joint and muscle pain
- ⇒ Nausea

Note: Symptoms may not present themselves for one to 20 days, depending upon the biological agent.

CBRNE – BIOLOGICAL (Continued)

In the event of a biological incident:



- (1) You will probably learn of the danger through an emergency radio or TV broadcast.



- (2) Cover mouth and nose with layers of filtering material that can filter the air but still allow breathing.



- (3) Wash with soap and water and contact authorities.

CBRNE – BIOLOGICAL (Continued)

BIOLOGICAL ATTACK / RELEASE / OUTBREAK

- ⇒ Call 9-1-1.
- ⇒ Activate the Incident Command System.
- ⇒ Ensure the local health department is contacted.
- ⇒ Shut down all HVAC or air handling units.
- ⇒ Conduct attendance audit of students, faculty, and staff.
- ⇒ Notify any incoming contracted buses to stay away.
- ⇒ Do not begin reunification until approved to do so by medical authorities.

Note: Do not allow movement throughout the facility until the local health department can determine what areas and people are contaminated. Ensure that an information sharing system with public health officials is in place to report excessive/unusual student absenteeism.

Consideration: Establishing a location for evacuation, decontamination, or quarantine at the direction/approval of the Incident Command or authority having jurisdiction.

CBRNE – RADIOLOGICAL

A radiation threat can be delivered in many ways, the most common being a dirty bomb. This is the use of common explosives to spread radioactive materials over a targeted area.

A radiological incident is more toxic than a chemical incident:

- ⇒ Poses possible inhalation hazards
- ⇒ Is invisible to the senses
- ⇒ Is not absorbed through intact skin
- ⇒ Has delayed effects ranging from several hours to days or weeks

Indicators of a radiological exposure include:

- ⇒ Nausea
- ⇒ Vomiting
- ⇒ Diarrhea
- ⇒ Dizziness
- ⇒ Fatigue
- ⇒ Headache

Note: Symptoms can take two to six hours to appear. Treatment decisions should be made by public health officials.

Response should include:

- ⇒ Wearing self-protection
- ⇒ Quarantine / Evacuation considerations
- ⇒ Initial decontamination by removal of clothing
- ⇒ Preservation of evidence

CBRNE – RADIOLOGICAL (Continued)

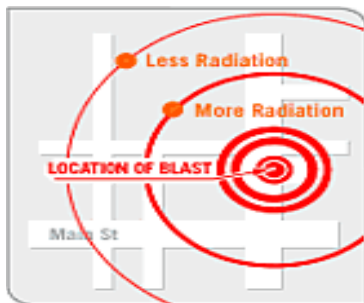
In the event of a radiological incident:



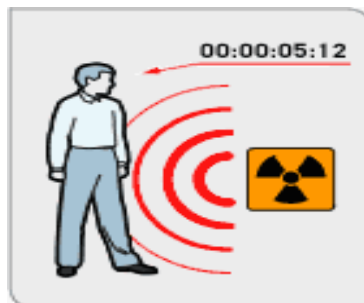
- (1) It is not a nuclear blast. The force of the explosion and radioactive contamination will be more localized. In order to limit the amount of radiation you are exposed to, think about shielding, distance, and time.



- (2) Shielding: If you have a thick shield between yourself and the radioactive materials, more of the radiation will be absorbed by the thick shield and you will be exposed to less.



- (3) Distance: The farther away you are from the radiation, the lower your exposure.



- (4) Time: Minimizing time spent exposed will also reduce your risk.

CBRNE – RADIOLOGICAL (Continued)

RADIOLOGICAL ATTACK / RELEASE

- ⇒ Call 9-1-1.
- ⇒ Activate the Incident Command System.
- ⇒ Determine if the radiation threat is inside or outside.

INSIDE

- ⇒ Activate evacuation procedures.
- ⇒ Close windows and doors.
- ⇒ Turn off HVAC (heating, ventilation, and air conditioning) systems.
- ⇒ Do not chew gum, eat, drink, or place objects in the mouth.
- ⇒ Cover nose and mouth with handkerchief or other material.
- ⇒ Isolate any persons contaminated away from noncontaminated persons.
- ⇒ Conduct attendance audit of students, visitors, faculty and staff.

OUTSIDE

- ⇒ Shelter-in-Place.
- ⇒ Close windows and doors.
- ⇒ Do not chew gum, eat, drink, or place objects in the mouth.
- ⇒ Cover nose and mouth with handkerchief or other material.
- ⇒ Isolate any persons contaminated away from noncontaminated persons.
- ⇒ Take attendance.
- ⇒ Begin reunification procedures only after approval from the local health department.

CBRNE – NUCLEAR

A nuclear blast is an explosion with intense light and heat, a damaging pressure wave, and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around.

A nuclear incident involves:

- ⇒ Explosion of a nuclear bomb
- ⇒ Use of nuclear weapons
- ⇒ Usable fissile materials
- ⇒ Sabotage of nuclear facilities
- ⇒ Detonation of thermal nuclear bomb
- ⇒ Bombing of a nuclear facility or transportation vehicle (freeway)
- ⇒ Use of a dirty bomb
- ⇒ Dissemination of radioactive materials with a spray device

Note: The amount of radiation from a dirty bomb is unlikely to give you radiation sickness or cancer, depending on time, rate, distance, etc.

NUCLEAR ATTACK / RELEASE

- ⇒ Call 9-1-1.
- ⇒ Notify administration and await further instructions.
- ⇒ Conduct attendance audit of students, visitors, faculty and staff.

CBRNE – EXPLOSIVES

Approximately 70% of terrorist events involve the use of explosives. Explosives can be used to disperse other hazardous materials.

Types of explosions are:

- ⇒ Mechanical
- ⇒ Chemical
- ⇒ Nuclear / Radiological

CBRNE – EXPLOSIVES (Continued)

In the event of an explosive's incident:



- (1) Take shelter under your desk or a sturdy table.



- (2) Check for fire and other hazards.



- (3) Exit the building as quickly as possible.



- (4) If there is a fire, use a wet cloth to cover your nose and mouth.



- (5) If there is a fire, crawl low in smoke.



- (6) If there is a fire, do not open the door if it is hot. Look for another way out.



UNAUTHORIZED REMOVAL / ABDUCTION

Preventative Measures:

- ⇒ Have a list of students who are not to be released to anyone except a specific parent or guardian.
- ⇒ Check with the custodial parent or guardian before releasing the student to anyone else.
- ⇒ Record the time and date of phone approval and check identity before release.
- ⇒ Verify the identity of any parent or guardian who telephones a request for a student's release with a return phone call to the number listed on the student's emergency card.
- ⇒ Record any custody changes after seeing a dated court order document.
- ⇒ Hold in the office any student who seems reluctant to go with the person picking up the student.
- ⇒ Notify the parent(s) or guardian(s) and the Principal's Office of the student's reluctance and abide by the parent's/guardian's wishes.

PRINCIPAL'S OFFICE



- ⇒ Use good judgment in trying to retain the abductor while security notifies law enforcement and the parent(s)/guardian(s).
- ⇒ Get the abductor's license plate number.
- ⇒ Call 9-1-1 and Child Protective Services, if needed.
- ⇒ Call the parent(s)/guardian(s) listed on the student's emergency registration card or PowerSchool.
- ⇒ Obtain registration form and photograph from file.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Notify the building(s) where siblings are, if applicable.
- ⇒ Do not release any information to the media. Refer to the Superintendent's Office
- ⇒ Work closely with law enforcement.

UTILITY FAILURE – ELECTRICAL POWER

DURING SCHOOL HOURS

- ⇒ The Principal directs the maintenance staff to check circuit breakers, fuses and/or other possible causes of a failure.
- ⇒ If power cannot be restored immediately, contact the Facilities Manager or designee.
- ⇒ The Facilities Manager or designee shall respond to the building/facility to determine if the problem can be resolved within 2 hours. If not, the Principal will consult with the Superintendent or his/her designee and suspend classes and/or other operations for the day or relocate students to another facility. The decision will depend upon a number of factors including but not limited to weather conditions, outside temperature, time of year, type of building, food service.
- ⇒ A phone/email fan out to all parents and Principals will be made by the central office once it is determined to close schools. Teachers should not contact classroom parents individually.
- ⇒ Students who cannot be picked up by parents or guardians will be transferred to another building and those parents will be notified.
- ⇒ When power is restored a phone/email fan out will be sent to parents, administrators, board of education and posted on the school website.

UTILITY FAILURE – ELECTRICAL POWER (Continued)

AFTER SCHOOL HOURS

- ⇒ The person discovering the power failure will immediately contact the Facilities Manager or designee.
- ⇒ The Facilities Manager will respond to the building/facility to ascertain the problem and contact either the utility company or electricians as deemed appropriate to rectify the problem.
- ⇒ The Facilities Manager shall determine with the Superintendent whether any evening classes, practices, meetings, performances or athletic events need to be cancelled.
- ⇒ The Facilities Manager shall maintain liaison with the Principal to ensure that classes/operations will commence on schedule. If the problem is of such magnitude that classes should be canceled, then the Superintendent or his/her designee must be notified.
- ⇒ The Superintendent will prepare the appropriate information and release to the media, families and online.

UTILITY FAILURE – GAS LEAK / GAS LINE BREAK

DURING SCHOOL HOURS

- ⇒ Upon smelling gas, dial 9-1-1 for public safety support and prepare for evacuation procedures.
- ⇒ The Principal directs the maintenance staff to check the gas main or other source of natural gas for the leak, and if possible, shut off the gas main.
- ⇒ If the source of the gas leak cannot be identified immediately, execute the evacuation plan.
- ⇒ Call the utility company
- ⇒ Contact the Facilities Manager or designee.
- ⇒ The Facilities Manager will coordinate with the Principal, utility company, and the public safety officer in charge.
- ⇒ The Facilities Manager shall respond to the building/facility and determine if the problem can be resolved immediately. If not, the Principal will consult with the Superintendent and suspend classes and other operations for the day or relocate students to another facility.
- ⇒ The Superintendent will prepare appropriate information and release to the media, families and online.

UTILITY FAILURE – GAS LEAK / GAS LINE BREAK (Continued)

AFTER SCHOOL HOURS

- ⇒ Call 9-1-1 for public safety support in the event of an explosion.
- ⇒ If possible, attempt to shut the gas off at the main.
- ⇒ Call the utility company 1-800-477-4747.
- ⇒ The person discovering the gas leak shall immediately contact the Facilities Manager or designee.
- ⇒ The Facilities Manager will coordinate with the utility company and public safety officer in charge.
- ⇒ The Facilities Manager will contact either the utility company or other skilled trades as deemed appropriate to rectify the problem.
- ⇒ The Facilities Manager shall determine with the Superintendent any evening classes, practices, meetings, performances or athletic events need to be cancelled.
- ⇒ The Facilities Manager shall maintain liaison with Principal to ensure that classes/operations will commence on schedule.
- ⇒ If the problem is of such a magnitude that classes should be canceled, then the Superintendent's or designee must be notified.

UTILITY FAILURE – HEATING & AIR CONDITIONING

DURING SCHOOL HOURS

- ⇒ The Principal directs the maintenance staff to check circuit breakers and other possible causes of the failure.
- ⇒ If heat or air conditioning cannot be restored immediately, contact the Facilities Manager.
- ⇒ The Facilities Manager shall respond to the building and determine if the problem can be resolved within 2 hours. If not, the Principal will consult with the Superintendent and suspend classes or other operations for the day or relocate students to another location. The decision will depend upon a number of factors including but not limited to weather conditions, outside temperature, time of year, type of building, food service.
- ⇒ The Superintendent will prepare and release the appropriate information to the media, families and online.

UTILITY FAILURE – HEATING & AIR CONDITIONING (Continued)

AFTER SCHOOL HOURS

- ⇒ The person discovering the heating or air conditioning failure will immediately contact the Facilities Manager or his/her designee.
- ⇒ The Facilities Manager will contact the utility company, electricians or plumbers as deemed appropriate to quickly rectify the problem.
- ⇒ The Facilities Manager shall determine with the Superintendent whether any evening classes, practices, meetings, performances or athletic events need to be cancelled.
- ⇒ The Facilities Manager shall maintain liaison with the Principal to ensure that classes/operations will commence on schedule. If the problem is of such a magnitude that classes should be canceled, then the Superintendent must be notified, and the Superintendent will prepare and release the appropriate information to the media, families and online.

UTILITY FAILURE – WATER MAIN BREAK

DURING SCHOOL HOURS

- ⇒ The Principal directs the custodian to check the source of the water leak and, if necessary, closes the water main.
- ⇒ If water cannot be restored immediately, contact the Facilities Manager or designee.
- ⇒ The Facilities Manager shall respond to the building and determine if the problem can be resolved within 2 hours. If not, the Principal will consult with the Superintendent and suspend classes and other operations for the day.
- ⇒ If water to the building/facility is interrupted for an extended period of time, the public safety department must be notified of the problem and notified again when the water is back online.
- ⇒ The Superintendent will prepare and release the appropriate information to the media, families and online.

UTILITY FAILURE – WATER MAIN BREAK (Continued)

AFTER SCHOOL HOURS

- ⇒ The person discovering the break will immediately contact the Facilities Manager.
- ⇒ The Facilities Manager will contact either the utility company or plumbers as deemed appropriate to quickly rectify the problem.
- ⇒ The Facilities Manager shall determine with the Superintendent whether any evening classes, practices, meetings, performances or athletic events need to be cancelled.
- ⇒ The Facilities Manager shall maintain liaison with the Principal to ensure that classes/operations will commence on schedule. If the problem is of such magnitude that classes should be canceled, then Superintendent must be notified, and the appropriate announcements made.
- ⇒ If water to the building/facility is interrupted for an extended period of time the public safety department must be notified of the problem, and again notified when the water is back online.
- ⇒ The Superintendent will prepare and release the appropriate information to the media, families and online.



VANDALISM / GRAFFITI

STAFF

- ⇒ Notify the Principal's Office if the incident is in progress, or if damage is found, and inform them of the vandals' names, if known.
- ⇒ Be a good witness; record or document your observations in a timely manner.
- ⇒ Provide your information to law enforcement, if requested.

PRINCIPAL'S OFFICE

EXCESSIVE DAMAGE

(MOTIVATED BY HATE OR GANG-RELATED)

- ⇒ Cordon off the area.
- ⇒ Call 9-1-1.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Take a photo of the damage.
- ⇒ Make notes on the kind, extent, location, and time of the incurred damage.
- ⇒ After law enforcement has seen the damage, call Custodial Services for clean-up or Maintenance for repairs.
- ⇒ Attempt to identify the vandal(s).
- ⇒ Find witnesses, if possible.
- ⇒ File the appropriate criminal charges against the vandal(s).

MINOR DAMAGE

- ⇒ Take a photo of the damage.
- ⇒ Make notes on the kind, extent, location, and appropriate time of the incurred damage.
- ⇒ Attempt to identify the vandal(s).
- ⇒ If student(s) has/have been identified, notify parent(s)/guardian(s).
- ⇒ Follow disciplinary action according to the Student Code of Conduct.
- ⇒ File an Incident Report.



VIOLENT ACTIONS
(PHYSICAL OR VERBAL ASSAULT / THREATS / FIGHTS)

PRINCIPAL'S OFFICE

- ⇒ Assess the situation and intervene, if necessary (especially if a weapon is involved).
- ⇒ Call 9-1-1 if the students refuse to cooperate, if there is an injury, or if the victim is a faculty or staff member.
- ⇒ Call the Superintendent's Office, who will ensure that the necessary administrators are notified.
- ⇒ Secure emergency information and contact the parent(s)/guardian(s).
- ⇒ Assist law enforcement, if requested.
- ⇒ Follow disciplinary action according to the Student Code of Conduct.
- ⇒ Complete an Incident Report.

STAFF

- ⇒ Make verbal contact in a calm voice.
- ⇒ If behavior does not cease, shout "STOP!" and then lower your voice and encourage the students to talk about the issues somewhere else.
- ⇒ Try to get the individuals to an isolated area so that they can calm themselves without losing face or try to empty the area of other students so there is a smaller audience and less danger.
- ⇒ Do not leave the students alone until they are calm.
- ⇒ Discuss their behavior and consequences, but only after they are calm.
- ⇒ Violence is time-lined; if you can delay it long enough, it can subside.
- ⇒ Never grab or touch a violent student, unless they are causing harm to themselves or others.
- ⇒ Escort the students to the Principal's Office.
- ⇒ If the students refuse to cooperate, notify the principal or assistant principal that you need assistance with a violent problem.

VIII. MASS CARE

The purpose and scope of mass care is to provide procedures to adequately shelter students and staff in their own school building for an extended period of time. This includes plans to stock and provide adequate water, basic food items and sanitary needs for sheltered students and staff. In addition, communication devices will need to be established that will allow outside communication from the school shelter. Basic details of the plans are:

1. Water
2. Basic Food
3. Sanitary Needs
4. Communication needs
5. Other as provided for (e. g. – medicines, blankets, etc.)

Schools are often used as a place for community shelter, a memorandum of understanding (MOU) or some other document outlining terms, conditions and details of use should be established by the school district and the sheltering agency (i.e. Red Cross, Salvation Army, local community emergency management, etc.) A copy of the agreement will be found in the attachment section of this EOP.

IX. RECOVERY AND MITIGATION

COMMUNICATION AFTER AN INCIDENT (RECOVERY PROCESS)

After the safety and status of staff and students have been assured and emergency conditions have abated following an incident, faculty and staff will assemble to support the restoration of the school's educational programs. Defining mission-critical operations and staffing will be a starting point for the recovery process. Collecting and disseminating information will facilitate the recovery process.

Staff/Faculty

- Conduct a comprehensive assessment of the physical and operational recovery needs.
- Examine critical information technology assets and personnel resources and determine the impact on the school operations for each asset and resource that is unavailable or damaged.
- Document damaged facilities, lost equipment, resources used, and special personnel expenses that will be required for insurance claims and requests for state and federal assistance.
- Provide detailed facilities data to the school district office so that it can estimate temporary space reallocation needs and strategies.
- Arrange for ongoing status reports during the recovery activities to estimate when the educational program can be fully operational and identify special facility, equipment, and personnel issues or resources that will facilitate the resumption of classes.
- Educate school personnel, students, and parents on available crisis counseling services.

School District

- Identify recordkeeping requirements and sources of financial aid for state and federal disaster assistance.
- Establish absentee policies for faculty/staff and students after an incident.
- Establish an agreement with mental health organizations to provide counseling to students and their families after an incident.
- Develop alternative teaching methods for students unable to return to classes immediately (e.g., correspondence classes, videoconferencing, tele-group tutoring, etc.).
- Create a plan for conducting classes when facilities are damaged (e.g., alternative sites, half-day sessions, portable classrooms).
- Get stakeholder input on prevention and mitigation measures that can be incorporated into short-term and long-term recovery plans.

ADMINISTRATION, FINANCE AND LOGISTICS

Finances

Hanley International Academy are responsible for establishing the administrative controls necessary to manage the expenditure of funds, and to provide reasonable accountability and justification for expenditures made to support incident management operations. These administrative controls will be completed in accordance with the established local fiscal policies and standard cost accounting procedures.

Record Keeping (Activity Log)

The Incident Command Section Chiefs will maintain accurate logs, recording key incident management activities, including:

- Issuance of protective action recommendations to student and staff
- Evacuations
- Casualties
- Mitigation or termination of the incident

Preservation of Records

Vital records must be protected in order to continue normal school operations following an incident. These include legal documents and student files, as well as property and tax records.

POST-INCIDENT AND AFTER-ACTION REVIEW

The Superintendent and/or his/her designee is responsible for organizing and conducting an after-action review following the conclusion of a significant emergency event/incident.

The review will entail both written and verbal input from all appropriate school participants and first response agencies. An After-Action Report (AAR) will be created and where deficiencies are identified, school personnel will be assigned responsibility for correcting the deficiency. A due date shall be established for that action.

PSYCHOLOGICAL/EMOTIONAL RECOVERY

These procedures have been developed to provide guidelines to staff and students who have been impacted by emotional trauma at school or in the community. Following a traumatic incident these procedures will be helpful in assisting students, staff and their families in the healing/recovery process.

Responsibilities

- All staff will undergo training to learn how to recognize signs of trauma.
- Members of the Crisis Response Team will undergo in-depth training to learn how to assist in managing trauma.
- Parents and guardians will be offered tips on how to recognize signs of trauma.
- Mental health experts will review and provide input into the plan.
- Other duties as assigned

Specialized Procedures

The following procedures will be implemented by staff/faculty when directed by the principal immediately following a serious injury, death and/or major incident:

- Convene a staff meeting immediately to discuss how the situation is being handled and to discuss what resources are available to staff, students, and families (refer to the communication procedures in the basic plan).
- Set up crisis centers and designate private rooms for private counseling/defusing. Staff should include outside mental health professionals to assist with staff grief.
- Encourage teachers to facilitate class discussions about the incident and allow students to openly discuss feelings, fears, and concerns shortly after the incident. Any students who are excessively distraught should be referred to the crisis response team.
- Accept donations. In the first hours and days after a major incident, offers of help will probably be plentiful; however, offers will diminish considerably as time passes. Donations given and not used can always be returned.
- Designate a place for staff, students, and community members to leave well-wishes, messages, and items.
- Other as discussed

Hospital/Funeral Arrangements

- Provide staff with information regarding visitation and/or funeral arrangements (time, location, customs) when available.
- Designate staff person(s) to visit the hospital and/or attend the funeral to represent the school.
- Other as agreed to by the school district

Post-Incident Procedures

- Allow for changes in normal routines or schedules to address injury or death; however, recommend students and staff return to their normal routine as soon as possible after the funeral.
- Follow up with students and staff who receive counseling and refer them to outside mental health professionals as needed.
- Donate all remaining memorial items to charity.
- Discuss and approve memorials with the school board's consent.
- Other as agreed upon

OFF CAMPUS INCIDENTS

A school emergency is likely to occur when students are outside of the school facility but still under school supervision. As such, procedures to assist responding are as follows:

- Staff member will have an accurate roster of students and staff
- An accurate headcount of students/staff
- Possession of a working communication device (cell phone, radio, etc.)
- A list of emergency contact information for those attending the off-campus event
- A copy of the school's emergency response procedures
- A first aid kit
- Other items and procedures as necessary

SPECIAL NEEDS POPULATION PROCEDURES

Purpose

The cumulative effects of trauma and other environmental stimuli have compelled school administrators to identify and implement methods for assisting students who are unable to function and learn in traditional ways and/or settings.

Scope

The Procedures for the Special Needs Population Annex provides appropriate accommodations for these students. In most cases, additional safeguards have been established regarding roles, responsibilities, and procedures for students with physical, sensory, cognitive, emotional, and health disabilities. All school nurses and staff members assigned to assist students with special needs are required to participate in the development, implementation, and evaluation of the School EOP as it relates to this annex.

This annex provides for the safety of students with:

- Limited English proficiency
- Blindness or visual disabilities
- Cognitive or emotional disabilities
- Deafness or hearing loss
- Mobility/physical disabilities (permanent and temporary)
- Medically fragile health (including asthma and severe allergies)

Responsibilities

Designated school staff/faculty, in conjunction with the principal, will take the following actions:

- Identify the staff and students with special needs and the type of assistance they will require in an incident.
- Review all paths of travel and potential obstacles.
- Create a usable circulation path to allow students with visual and/or mobility needs to travel unassisted to an exit.
- Determine the primary and secondary paths of exit to be used during incidents.
- Assign appropriate staff members to students that require assistance and provide training.
- Install appropriate signage and visual alarms
- Place evacuation information indicating primary and secondary exits in all offices, classrooms, multipurpose rooms, lunchrooms, hallways/corridors, lobbies, bathrooms, and cafeterias.

Specialized Procedures

The following procedures will be followed by staff/faculty designated to assist students with special needs during an incident. Staff/faculty will receive training and equipment based upon the specific needs of the student(s).

- Students with limited English proficiency will be assigned staff members for assistance.
- Students/Staff who are blind or have visual disabilities will be assigned a staff member to assist them during an incident when appropriate. All assigned staff members will receive training in how to be a sighted guide, how to use specialized equipment, and where additional supplies are located to assist students/staff who have visual disabilities.

Note: If a visually disabled student/staff member has a service animal, it may become confused, panicked, frightened, or disoriented during an incident. Keep the animal confined or securely leashed or harnessed.

- Students with cognitive or emotional disabilities will be assigned a staff member to assist during an incident (if deemed necessary). Specific procedures include:
 - Quickly describe the situation and how to involve him or her during an incident.
 - Let the student know what is happening and keep him/her reassured.
 - Remain with the student until directed otherwise by the school administrator or emergency response personnel.
- Students who are deaf or have hearing loss will be assigned a staff member to assist during an incident. Procedures include:
 - Create a pre-printed message such as “I may need help. I am hearing impaired.” for deaf or hearing-impaired students to display.
 - Communicate with a notepad and pen, with simple and concise speech, or with sign language.
- Students with physical/mobility disabilities may need staff assistance during an incident.

Alternative/Enhanced Communication Strategies

All staff members will be made aware of the following alternative/enhanced communication. Strategies that may be useful for communicating with all students in an incident include:

Pantomime is used in everyday life. Staff can use their hands to describe the size, roundness, or placement of an object. Facial expressions are often all that are needed to project a feeling or thought to a deaf student.

Speech Reading is the ability to read lips. Eye contact and lighting are essential for deaf students or those with hearing loss to read lips successfully.

Written Communications can be used for short conversations with deaf or hearing-impaired students.

Interpreting is a very effective mode of communication for students who do not speak English or students who use American Sign Language.

Donations Management

This annex section discusses the process used to coordinate the collection and distribution of goods and monies donated following an emergency. This district will use John Weir, CFO, as the designee for the collection and distributions of donations made to the district.

- The District will establish methods and procedures to receive and manage cash contributions.
- The District will assist, as requested, other voluntary organizations in donations management.
- The District will establish procedures to handle the spontaneous influx of volunteers.
- The District will pre-identify facilities likely to be used in the management and storage of contributions.
- The District will implement additional donation management procedures as necessary.
- Donations should be in concert with school policy.

X. LONG-TERM EVACUATION AND REUNIFICATION

A long-term evacuation will be used when conditions are safer outside than inside a building, and require students, faculty and staff to leave the building immediately. It can also be used when conditions exist that require students, faculty, and staff to be outside of the school for an unusual amount of time due to the immediate threat, danger, or complexity of the circumstances regarding the evacuation, such as a hazardous chemical spill.

Large-scale, long-term evacuations possess a challenge for any school district. Hanley International Academy are committed to the safety of its students, faculty, and staff; therefore, will take into consideration recommendations from public safety officials, weather conditions, seriousness of the incident and length of time, before evacuating students, faculty, and staff to long-term locations. Hanley International Academy should evaluate each incident independently to determine if long-term evacuation is necessary.

Hanley International Academy understands that in most cases, large scale evacuations may be a result of a serious emergency, including but not limited to, a bomb threat, active violence or large fire. Hanley International Academy have designated evacuation routes to long-term reunification locations. During evacuation staff should make all efforts to follow designated routes to the long-term reunification locations, however, if at any time staff assess that student safety may be compromised, staff may choose additional routes that may not be mapped or suggested by this plan. In emergency situations, staff are encouraged to use any additional evacuation measures necessary to ensure the safety of students and staff. If additional locations are chosen, and when the situation is deemed safe, anyone who deviated from the suggested plan should immediately contact Hanley International Academy Incident Command and notify them of the change.

REUNIFICATION GUIDELINES

- ⇒ Once students arrive at the reunification location, control of the situation should be maintained.
- ⇒ Main entrance doors would be preferable.
- ⇒ If at an exterior evacuation site, use a gate or entry of some type to control the site, if possible.
- ⇒ Parents and guardians should not be able to freely take the child or others without tracking by school administrators.
- ⇒ Posted signage directing all visitors to the reunification location is helpful and preferred.
- ⇒ **DO NOT** allow parents to roam the building; supervise them at all times.
- ⇒ Check identification cards and confirm that the identified person has permission to take child by referencing the Emergency Contact Form.
- ⇒ A person of responsibility, according to the Emergency Contact Form, must sign for the child.

REUNIFICATION ROLES AND RESPONSIBILITIES

Operations

Establish and manage the operational staff

Greeters

Help coordinate the parent lines (i.e., explain the process to the parents, help verify identify of parents without identification cards, etc.)

Checkers

Verify identification cards and custody rights of parents and guardians, and direct those parents and guardians to the reunification location

Runners

Take the reunification card to the student staging areas, recover the student(s), and bring them back to the reunification area

Crisis Counselors

Standby, unless needed

Kid herds

Faculty or staff members that will help maintain order in the staging area

Movie Coordinator

Set up a projector and screen to play movie to help reduce student stress

Reunification Site Staff

- ⇒ Check identification of all non-uniformed personnel who arrive to assist. Secure a holding area for arriving students/staff away from waiting family members.
- ⇒ Establish an adult reporting area for parents/guardians, etc., to sign in and have identification checked.
- ⇒ Establish a student release area where students will be escorted to meet their parent/guardian, etc., and sign out.
- ⇒ Establish a mental health area and direct staff to escort parents/guardians, etc., of any injured, missing or deceased student to the area for staff to provide notification in private.
- ⇒ Ensure counseling services are available at the reunification site. Keep students on buses or in a holding area separate from waiting parents/guardians, etc., until they can be signed out.

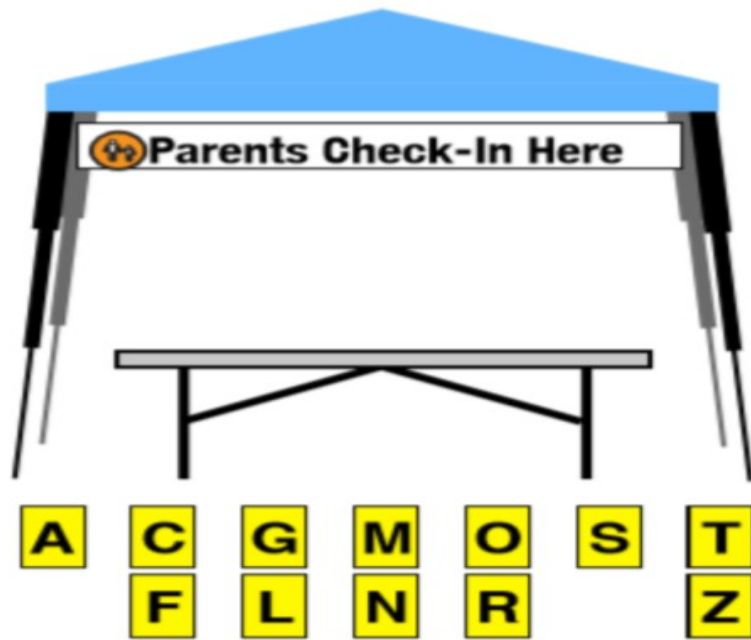
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Reunification Site Staff (Continued)

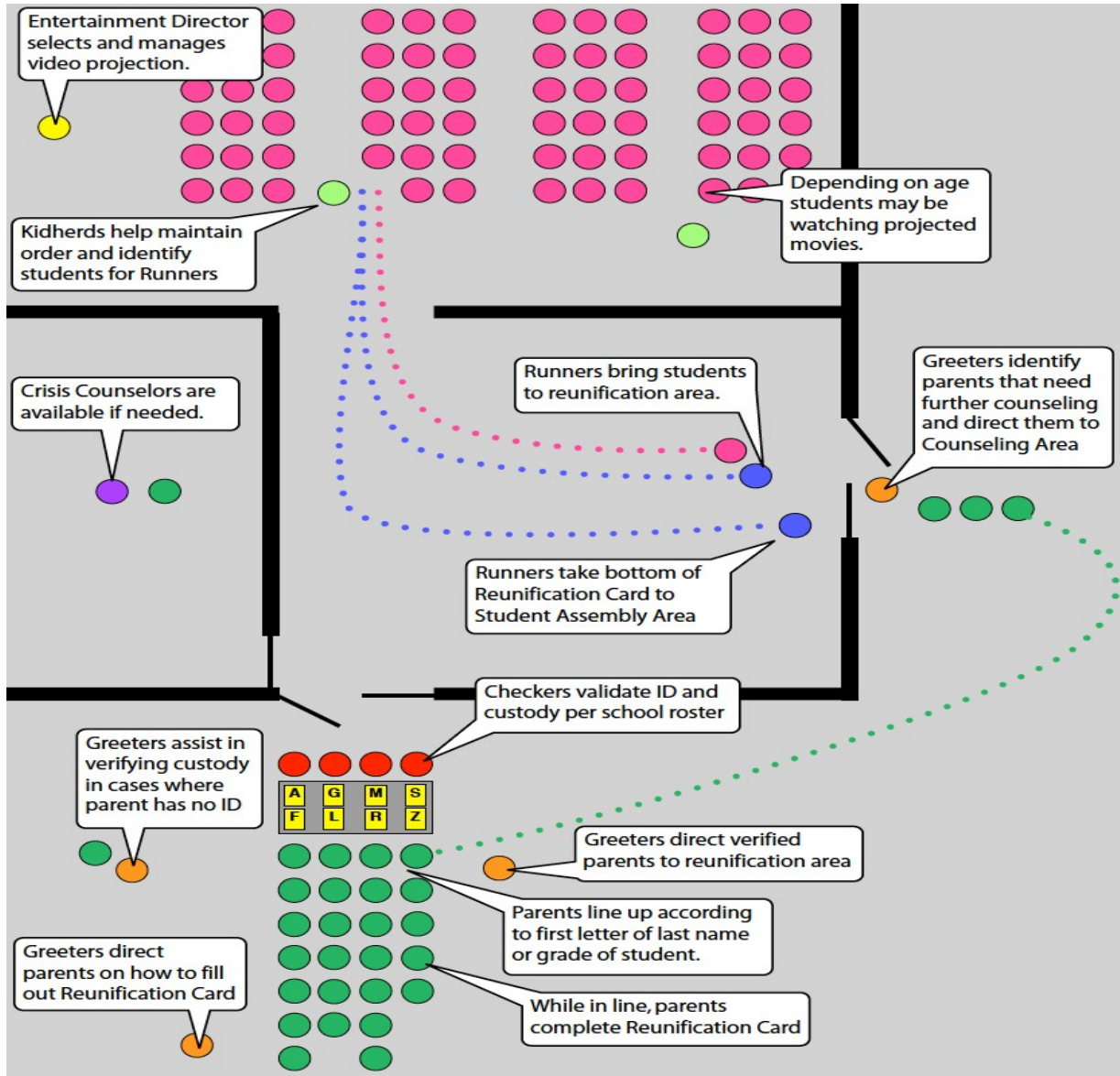
- ⇒ Only release students to authorized persons after checking proof of identity and signing a student release form.
- ⇒ Once they have signed out their student, instruct parents/guardians, etc., to quickly depart the site in order to make room for others.
- ⇒ Provide a list of students to the reunification site staff, upon arrival.
- ⇒ Provide proper assistance to access and functional needs students/staff, as well as deaf, deaf/blind and hard-of-hearing students/staff. Request help, if needed.
- ⇒ Follow the instructions of the reunification site staff when you arrive. You may be asked to provide staffing assistance.

GOALS FOR REUNIFICATION SETUP

- ⇒ Establish a visible parent check-in area, with proper signage
- ⇒ Utilize student demographic cards
- ⇒ Distribute Student Reunification Forms
- ⇒ Utilize directional traffic signage
- ⇒ Tape alphabet breaks to the ground or table (see example below)
- ⇒ Identify and mark the separate student/parent/guardian reunification area



REUNIFICATION SETUP



ARRIVING MEDIA -Refer to Media Policy Appendix H

In most critical incidents that happen on-campus and following incidents that occur elsewhere, it is common for media to arrive and for parents to have heard through home scanners or word-of-mouth that something has happened. It is crucial that each site has a designated staging area where media and parents are directed to gather. If there is a portion of the building that is completely safe and isolated from the critical incident, it is convenient to use that area for staging. It is likely, however, that it may be necessary to elect areas away from the building site.

A trained staff person or emergency personnel should be designated to direct all visiting traffic (non-emergency personnel) to this place. The building's or district's designated spokesperson authorized to speak on behalf of the school to media and parents must be present and as prepared as possible to answer questions.

Also, please note that in almost all cases where law enforcement is present, information must be cleared through these professionals before becoming accessible to media.

Ideally, a connection has previously been made between the school and local news media. The better the working relationship is, the smoother the communication at the time of a crisis. A spokesperson must be designated to handle questions from the media and should almost always be the Superintendent, a principal, or a designee. The advantage of the Superintendent as acting spokesperson is freeing up the building's personnel to manage the other aspects of crisis intervention. It is important that the spokesperson is professional and honest.

The school, however, in some cases, should not be the principle source of information. Releasing details about suicide, accidental or other deaths, and incidents which occur away from school, is the responsibility of the legal authorities. It is a family's prerogative to share information regarding the wellbeing of a victim of violence.

The school should explain the positive steps of the current intervention plan to help the students, parents, faculty, and staff through the crisis, and should provide information about where troubled individuals can get help.

Secretaries, or whomever is designated to answer incoming calls, must have a fact sheet from which to respond to inquiries when a spokesperson is unavailable. While one must never refuse a request for information, it is necessary at times to politely direct calls to another source. Refusal only ignites anger and may add confusion. Reporters should not be given access to school grounds, and filming or interviewing of students or staff should be prohibited as it is seen as intrusive.

ARRIVING PARENTS

It will be necessary to respond to the concerns of family members; they will need both reassurance and accurate information. Arriving parents should be directed to a designated staging area to receive information from a spokesperson. Parents calling the school should also be given accurate information and must be discouraged from visiting the school in the first stages of a critical incident. Never refuse information to parents, unless directed by authorized personnel.

After the initial phases of a crisis have been managed, confusion, anxiety, and other emotional reactions will likely need to be addressed in family and some closer community members. It is helpful to be prepared to offer small group workshops and/or debriefing sessions following a critical incident. Large group discussions tend to be more difficult to manage, and it is important to legitimize individual people's experiences by meeting the needs they present in a small group environment.

Meetings should always be led by capable facilitators. School counselors, members of the intervention team, and trained de-briefers should be considered.

Reunification Location for Students and Parents/Guardians

The following locations have been recommended for off-site staging areas. While initial contact has been made between the school and each site, continued communication is necessary to maintain an outstanding working relationship.

| AFFECTED SCHOOL | REUNIFICATION LOCATION |
|------------------------------|--|
| Hanley International Academy | Option 1 Veteran's Memorial Park 3201 Dan Street Hamtramck, MI 48212 (313) 800-5233 ext. 355 |
| Hanley International Academy | Option 2 Pulaski Park 9625 Lumpkin Street Hamtramck, MI 48212 (313) 800-5233 ext. 355 |

CUSTODY VERIFICATION

Whitelist Custody Verification

The whitelist method involves confirming the parent/guardian via photo identification and is done by comparing the photo identification to the student's demographic card provided to the school during enrollment.

Blacklist Custody Verification

The blacklist method relies on a pre-determined list of persons with custodial restrictions. Identification is used, in this case, to determine if preventing student release to the non-custodial parent/guardian is necessary.

Other Custodial Verification

Parents and guardians may not have photo identification. Sometimes, identification can be verified by the student's teacher or other school staff. Students should not be released to persons whose identification cannot be confirmed through photo identification or school staff confirmation.



STUDENT REUNIFICATION FORM

REUNIFICATION INFORMATION (Please Print Clearly)

Have photo identification out and ready to show school district personnel.

Student Name _____

Student Grade _____

Student Birthday _____

Name of Person Picking up Student _____

Signature _____

Relationship to Student _____

----- PARENT / GUARDIAN SIGN OFF -----

Print your Name _____ **Date** _____

Signature _____

Cell Phone # _____

----- SCHOOL STAFF RELEASE -----

School personnel completes upon release of student

Student Name _____

Student Grade _____

Student Birthday _____

Photo ID matches name of person picking up student? Y or N (Circle One)

Released by _____ **Time** _____ **AM / PM (Circle One)**

Signature _____

XI. CONTINUITY OF OPERATIONS PROCEDURES (COOP)

The purpose of Continuity of Operations Procedures (COOP) is to ensure there are procedures in place to maintain or rapidly resume essential operations of the school district after the disruption of these normal operations. These essential operations are the academic, business and physical facilities of the school district.

The scope of these COOP plans pertains to Hanley International Academy district.

Designated school staff will perform the essential functions as listed below:

Superintendent/Their Designee/Incident Commander

- Determine when to close schools, and/or send students/staff to alternate locations.
- Disseminate information internally to students and staff.
- Communicate with parents, media, and the larger school community.
- Identify a line of succession, including who is responsible for restoring which business functions for schools/districts.
 - i. Ensure systems are in place for rapid contract execution after an incident
 - ii. Restore administrative and recordkeeping functions such as payroll, accounting, and personnel records.

Principals and/or Department Heads

- Identify relocation areas for classrooms and administrative operations.
- Create a system for registering students
- Brief and train staff regarding their additional responsibilities.
- Secure and provide needed personnel, equipment, resources, and services required for continued operations.
- Identify strategies to continue teaching
- Reevaluate the curriculum
- Other as needed

Custodians/Maintenance Personnel

- Work with local government officials to determine when it is safe for students and staff to return to the school buildings and grounds.
 - i. Manage the restoration of school buildings and grounds (e. g. debris removal, repairing, repainting, and/or re-landscaping)
 - ii. Other as needed

Teaching Staff

- Work with others to obtain class teaching materials
- Work with others to obtain student curricular materials
- Prepare for alternative curricular delivery methods as needed
- Other as directed

School Secretary/Administrative Support Staff

- Maintain inventory
- Maintain essential records
- Ensure duplicate of records is kept at a different physical location.
- Secure classroom equipment, books, and materials in advance.
- Retrieve, collect, and maintain all building personnel data (emergency contact information, etc.).
- Provide accounts payable and cash management services
- Other duties as needed

Counselors, Social Workers, and School Nurses/Health Assistants

- Establish academic and support services for students and staff/faculty.
- Implement additional response and recovery activities according to established protocols.

Support Staff

- Determine how transportation, food services, maintenance and custodial services will resume.

ANNUAL TRAINING

All core COOP Plan members and senior staff will undergo annual training on the COOP Plan. Training will be designed to inform each member of their responsibilities during a COOP Plan implementation. Identified COOP Plan members will participate in exercises to test academic, physical, and business systems. Training will include testing the information technology (IT) systems and backup data including testing of off-site backup system data and IT operating systems in cooperation with the district office.

PROCEDURES

The following procedures will be followed by staff/faculty to assist in the execution of essential functions and the day-to-day operations.

Activation and Relocation

The Superintendent/Administrator will determine when to activate and implement the COOP Plan and make the decision to relocate to the alternate site. Authority for activation may be delegated. The activation may occur with or without warning.

The Superintendent or designee (with delegated authority) will activate the COOP Plan whenever it is determined the school is not suitable for safe occupancy or functional operation. The principal will also notify the district office and provide contact information for the relocation.

Alert, Notification, and Implementation Process

A telephone tree will be used to notify employees of the COOP Plan activation and provide situation information, as available. Parents/guardians will be alerted and notified using the automated notification system as important information becomes available.

Relocation Sites

Relocation sites have been identified as locations to establish management and to implement essential functions as warranted by an incident.

Alternate Facilities and Strategy

Contingent alternative facilities are listed below:

- District Business Office
- High School(s)
- Middle School(s)
- Elementary Schools
- Special Purpose School(s)
- District Support/Maintenance Offices

For each alternate facility, the essential resources, equipment, and software that will be necessary for resumption of operations at the site will be identified and plans developed for securing those resources. IT systems available at the site will need to be tested for compatibility with the School's backup data.

Vital Records and Retention File

Vital records are archived or retained on backup data systems stored off site.

Human Capital Management

Employees responsible for essential functions are cross-trained. Identified special needs Employees are provided ADA accommodation and guidance in their responsibilities and assistance may be provided by coworkers in the event of an incident. A coworker may assist the individual, in the appropriate capacity, to an area of safety. All personnel are also encouraged to plan for their families' well-being before a disaster strikes.

Reconstitution

In most instances of COOP Plan implementation, reconstitution will be a reverse execution of those duties and procedures listed above, including:

- Inform staff that the threat of or incident no longer exists and provide instructions for the resumption of normal operations.
- Supervise an orderly return to the school building.
- Conduct an after-action review of COOP operations, plans and procedures.

TAB

APPENDIX A: BOMB THREAT INCIDENT RESPONSE GUIDE



HANLEY INTERNATIONAL ACADEMY BOMB THREAT ASSESSMENT GUIDE



HANLEY INTERNATIONAL ACADEMY BOMB THREAT ASSESSMENT

1. When is the bomb going to explode? _____
 2. Where is it right now? _____
 3. What does it look like? _____
 4. What kind of bomb is it? _____
 5. What will cause it to explode? _____
 6. Did you place the bomb? _____
 7. Why? _____
 8. What is your address? _____
 9. What is your name? _____
 10. What number are you calling from? _____
- EXACT WORDING OF THE THREAT:** _____
- _____

11. Describe the Caller

- Male
- Female
- Unsure
- Approx. Age _____

Speed and Pitch

- Hurried or Rapid
- Moderate Paced
- Slow
- Hushed or Quiet
- Loud
- Deep
- High-pitched
- Masked
- Electronic
- Squeaky
- Familiar (Who did it sound like?) _____

Emotions

- Distant
- Excited
- Angry
- Sad
- Happy
- Calm
- Agitated
- Matter-of-Fact
- Boastful
- Sincere
- Excited
- Crazy

Quality

- Stutter
- Lisp
- Slurred
- Whispered
- Laughing/Giggling
- Raspy
- Nasal
- Deep Breathing
- Crying
- Stressed
- Clearing Throat
- Cracking Voice

Language

- Accented: _____
- Foul
- Taped
- Incoherent
- Message Read
- Irrational
- Drunk
- Broken
- Other: _____

12. Background Sounds

- | | | | |
|--|--|-----------------------------------|---|
| <input type="checkbox"/> Street Noises | <input type="checkbox"/> Motor | <input type="checkbox"/> Voices | <input type="checkbox"/> Music |
| <input type="checkbox"/> House Noises | <input type="checkbox"/> Animal Noises | <input type="checkbox"/> Office | <input type="checkbox"/> Cellular Phone Call |
| <input type="checkbox"/> Factory Machinery | <input type="checkbox"/> Long Distance | <input type="checkbox"/> Clear | <input type="checkbox"/> Land Line Phone Call |
| <input type="checkbox"/> Television | <input type="checkbox"/> PA System | <input type="checkbox"/> Children | |

13. Remarks: _____

14. Written Threat

Describe: _____
Where was it found? _____

15. Face-to-Face Threat

Who made the threat? _____
Exact Words: _____

16. Suspicious Package

Describe: _____
Where was the package found? _____

Person Who Received/Found Threat: _____ Date/Time: _____



HANLEY INTERNATIONAL ACADEMY BOMB THREAT DECISION MATRIX

| THREAT | RISK LEVEL |
|--|--|
| Bomb threat written on wall or received via social media, text, letter, or written note with no specifics | <input checked="" type="checkbox"/> LOW RISK <input type="checkbox"/> HIGH RISK |
| Bomb threat comment made by student, parent, or staff member through another person (3 rd party) with no specifics | <input checked="" type="checkbox"/> LOW RISK <input type="checkbox"/> HIGH RISK |
| Bomb threat received via social media, email, phone, or written note with specific time and/or location | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |
| Bomb threat comment made by student, parent, or staff member through another person (3 rd party) with specific details | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |
| Bomb threat comment made directly to school staff by student, parent, or staff member | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |
| Bomb threat made to 3 rd party news station, law enforcement, city hall, school district office, or other official entity | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |
| Threat made by known organized criminal group | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |
| Suspicious device/package found | <input type="checkbox"/> LOW RISK <input checked="" type="checkbox"/> HIGH RISK |

RECOMMENDED ACTIONS

LOW RISK THREATS

1. Notify local law enforcement.
2. Notify Threat Assessment Team immediately.
3. Notify Superintendent's Office and Building Principal with voice call, direct notification, or page. **DO NOT EMAIL.**
4. Assemble Threat Assessment Team at a central private location or at the location where the threat was received. Discuss threat and determine if additional assignments or searching is necessary.
5. Assign a liaison to meet with law enforcement at a determined entry point.
6. Photograph or copy threat (preserve for fingerprints).
7. May consider assigning search teams (wing, floor, outside building) based on threat level and necessity. Refer to Bomb Threat Response Matrix.
8. After search is complete, fill out all required documents.
9. Debrief with school administration and law enforcement.

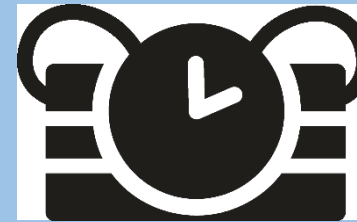
HIGH RISK THREATS

1. Notify local law enforcement.
2. Notify Threat Assessment Team immediately.
3. Notify Superintendent's Office and Building Principal with voice call, direct notification, or page. **DO NOT EMAIL.**
4. Assemble Threat Assessment Team at a central private location or at the location where the threat was received. Discuss threat and make assignments.
5. Determine if law enforcement will be utilizing a police K-9 bomb detection dog.
6. Assign a liaison to meet with law enforcement at a determined entry point.
7. Decide on partial or full evacuation based on specific threat.
8. Photograph or copy threat for law enforcement (preserve for fingerprints).
9. Provide law enforcement with a list of students absent from school or dismissed early.
10. Assign search teams (wing, floor, outside building). Refer to Bomb Threat Response Matrix.
11. After search is complete, fill out all required documents
12. Debrief with school administration and law enforcement.



THREAT RECEIVED

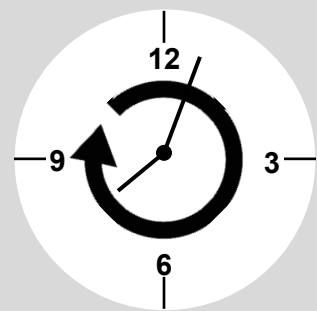
- 1 Fill out *BOMB THREAT ASSESSMENT* while you are on the call
 - CALL 9-1-1
- 2 Notify school administrator (school administrator is liaison with law enforcement)
 - DO NOT delay calling Threat Response Team or 9-1-1 if administrator is not available
- 3 Notify Threat Response Team (internal school team)
 - 2-person teams
- 4 SEARCH



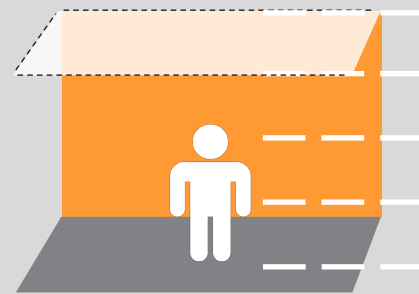
IF YOU HEAR
"BEEPING OR TICKING"
DO NOT TOUCH. EVACUATE ROOM.

SEARCH & SECURE CLASSROOMS

CLOCKWISE SEARCH



SEARCH & SECURE PERIMETER

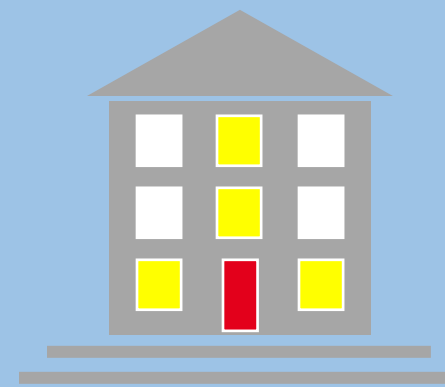
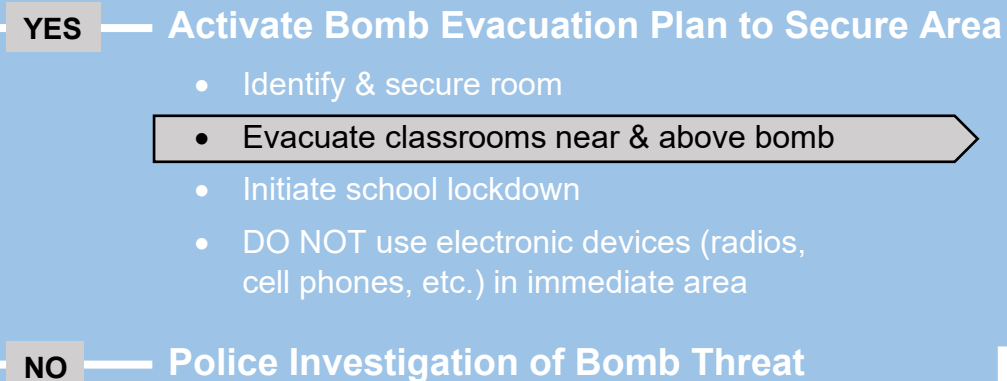


- 1 CEILING TILES
- 2 EYE LEVEL TO CEILING
- 3 WAIST TO EYE LEVEL
- 4 FLOOR TO WAIST

SEARCH & SECURE PUBLIC AREAS

- Search parking lot
- DO NOT open vehicles
- Report suspicious objects to law enforcement
- Search garbage cans
- Search out 50 feet from building
- Report large trucks in parking lot to law enforcement

5 Suspicious Package Found?



■ BOMB LOCATION ■ EVACUATE ROOM

THREAT ASSESSMENT

LOW RISK

- THREAT RECEIVED
 - Indirect
 - Vague
- LOCATION OF THREAT
 - On Wall
 - Email to Student
- LACKS REALISM / SOPHISTICATION
- AGE OF CALLER
 - Very Young
- IDENTIFICATION & FREQUENCY OF CALLER
- ABILITY TO CARRY OUT THREAT QUESTIONABLE










HIGH RISK

- THREAT IS DIRECT & SPECIFIC
- NAMING POSSIBLE TARGETS
- CREDIBLE MOTIVE
- BOMBER PROVIDES PERSONAL INFORMATION
- SPECIFIC TIME & LOCATION OF DETONATION
- PERPETRATOR PROVIDES NAME(S) OF INTENDED VICTIM(S)



BOMB THREAT STAND-OFF CARD



| Threat Description  | Explosives Capacity | Mandatory Evacuation Distance | Shelter-in-Place Zone | Preferred Evacuation Distance |
|---|---------------------|-------------------------------|-----------------------|-------------------------------|
|  Pipe Bomb | 5 lbs | 70 ft | 71-1199 ft | +1200 ft |
|  Suicide Bomber | 20 lbs | 110 ft | 111-1699 ft | +1700 ft |
|  Briefcase/Suitcase | 50 lbs | 150 ft | 151-1849 ft | +1850 ft |
|  Car | 500 lbs | 320 ft | 321-1899 ft | +1900 ft |
|  SUV/Van | 1,000 lbs | 400 ft | 401-2399 ft | +2400 ft |
|  Small Delivery Truck | 4,000 lbs | 640 ft | 641-3799 ft | +3800 ft |
|  Container/Water Truck | 10,000 lbs | 860 ft | 861-5099 ft | +5100 ft |
|  Semi-Trailer | 60,000 lbs | 1570 ft | 1571-9299 ft | +9300 ft |



HANLEY INTERNATIONAL ACADEMY THREAT DATA COLLECTION

*Below are our school's procedures for recording data on a bomb threat.
Remember to remain calm and gather as much information as possible.*

PHONED THREAT



- Signal another staff member to listen, if possible.
- Transcribe the threat.
- Fill out as much of the Phoned Threat Data Sheet as possible, including detailed questions.
- Notify the Principal of the threat.
- Complete any unanswered questions on the Phoned Threat Data Sheet.
- Be available after the call for the school's Threat Response Team and law enforcement to interview you.

WRITTEN THREAT



- Handle the item as little as possible.
- On a separate piece of paper, re-write the threat exactly as it reads. On this copy, also record:
 - ▶ Where the item was found
 - ▶ The date and time you found the item
 - ▶ Any situations or conditions surrounding the discovery
 - ▶ Any other person you are aware of who saw the threat
- Secure the original item. If small, place in a bag or envelope. **DO NOT** fold, crumple, tear, or mark the item in any way. If on a large object, secure the location.
- Notify the Principal of the threat.



HANLEY INTERNATIONAL ACADEMY THREAT DATA COLLECTION

EMAILED OR DIGITAL THREAT



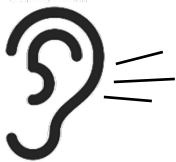
- Leave the message open on the computer until assistance arrives.
- Notify the Principal of the threat.
- Print, photograph, or copy down the message. Include the header of the email.
- Save the email.

VERBAL THREAT



- If possible, detain the person making the threat.
- If the person who made the threat leaves, note which direction they are going. If possible and safe, follow them at a discreet distance. Have another staff member notify the Principal.
- Note the description of the person who made the threat:
 - Name, if you know them
 - Race
 - Sex
 - Type and color of clothing
 - Body size
 - Hair color
 - Distinguishing features
 - Write down the threat exactly as it was communicated to you
 - Exact wording
 - Who made the threat
 - The date and time of the threat
 - Where the person who made the threat is now
- Notify the Principal if someone else has not already done so.

RUMOR



If you overhear a rumor about a bomb or explosive device threat or incident, write down exactly what you heard, from whom you heard it, and then report the rumor to the Principal.



HANLEY INTERNATIONAL ACADEMY BOMB THREAT RESPONSE ACTIONS

QUICK REFERENCE CHECKLIST

- Record, document, and preserve threat.
- Report threat to school security, police, and Superintendent's Office. Notify staff as appropriate.
- Assemble the Search Teams at the interior Command Center.
- Assess the threat and determine response (Search or Evacuate).

SEARCH

- Deploy Search Teams.
- Teams search assigned areas; teachers and staff search own areas.
- Hang indicator tags and record search results. If suspicious item found, under no circumstances should it be touched, tampered with, or moved. Staff will immediately leave the area, shut the door, and report the object to the principal. Law enforcement will need to know where the bomb is located, who discovered it, why it is suspected of being a bomb, and if it has been disturbed or moved.

EVACUATE (IF NECESSARY)

- Select evacuation routes and assembly areas.
- Notify police and fire and request assistance, if necessary.
- Assign Search Teams to search routes and assembly areas.
- Notify staff to prepare for evacuation.
- Give evacuation order. Teachers and staff check own areas. Teachers, staff, and students gather belongings and evacuate.
- Track and report evacuation progress.
- Confirm the building is empty.
- Evacuate School Threat Response Team to exterior Command Center.
- Bring Emergency Kit, if applicable.

CONTINUING ACTIONS AFTER EVACUATION

- Debrief emergency services and coordinate further actions.
- Take attendance and report.
- Open media, medical, and parent areas. Brief regularly.
- Determine whether to reoccupy or dismiss students.
- Principal remains on-scene until situation resolved or until relieved by another administrator.

IF SUSPICIOUS ITEM IS FOUND

- DO NOT TOUCH THE ITEM.
- Person or Search Team who found the item reports it to the administrator in charge.
- Notify police, fire, EMS, and bomb squad.
- Notify other search teams and terminate search.
- Secure area where item is located, but do not guard it (stay away from the item). If possible and can be done on the way out of the area, open doors and windows near item.
- Mark area with tag, chalk, or any other visible identifier.
- Notify staff of the situation and direct them to prepare for partial or complete evacuation.
- Select evacuation routes and assembly areas that are away from the suspicious item.
- Redeploy search teams to search evacuation routes and assembly areas prior to moving students.
- Meet arriving emergency responders and brief them, letting them speak with person who found item and informing them where the item is located.
- When evacuation routes and assembly areas are cleared, conduct evacuation as per evacuation protocol.
- Law enforcement will assume command of the scene. The School Threat Response Team should remain at the scene to inform and manage evacuees, media, parents, and others as appropriate.
- Determine whether to reoccupy or dismiss students.



HANLEY INTERNATIONAL ACADEMY BOMB THREAT SEARCH CHECKLIST

| <input checked="" type="checkbox"/> OR <input type="checkbox"/> | IF COMPLETE & CLEAR | IF COMPLETE & SUSPICIOUS ITEM | AREA # | BRIEF DESCRIPTION OF AREA | SEARCH TEAM MEMBERS |
|---|------------------------|----------------------------------|--------|---------------------------|------------------------|
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All search results should be reported to _____ (Search Coordinator)



HANLEY INTERNATIONAL ACADEMY ROOM SEARCH CARD

ROOM SEARCH CARD

Area Being Searched: _____

Search Pattern: _____

Key Search Points (Check All as Completed):

_____ All packages, boxes, briefcases, bags were identified

_____ Desk

_____ Bookcase

_____ Filing Cabinet

_____ Heat Ducts

_____ Wastebaskets

_____ Windowsills

_____ Lockers

_____ Clothing

_____ Other (Describe: _____)

IF SUSPICIOUS ITEM FOUND

Description of suspicious item: _____

Location of suspicious item: _____

If a suspicious item is found, DO NOT TOUCH OR MOVE IT.
Report immediately to _____ at _____.

Search Conducted by: _____



HANLEY INTERNATIONAL ACADEMY THREAT RESPONSE TEAM ASSIGNMENTS

One primary and one alternate should be designated for each position.
All team members should be familiar with all positions, but particularly skilled in their assigned area.

School Name: _____

Principal: _____

MEMBERS OF THE TEAM (List all Names, Titles, and Phone Numbers)

| Name: | Title: | Phone Numbers: |
|-------------------------|---------------|-----------------------|
| _____ | _____ | HOME _____ |
| | | CELL _____ |
| Coverage Person: | | PAGER _____ |
| _____ | | |

| Name: | Title: | Phone Numbers: |
|-------------------------|---------------|-----------------------|
| _____ | _____ | HOME _____ |
| | | CELL _____ |
| Coverage Person: | | PAGER _____ |
| _____ | | |

| Name: | Title: | Phone Numbers: |
|-------------------------|---------------|-----------------------|
| _____ | _____ | HOME _____ |
| | | CELL _____ |
| Coverage Person: | | PAGER _____ |
| _____ | | |



HANLEY INTERNATIONAL ACADEMY THREAT RESPONSE TEAM ASSIGNMENTS

| | | |
|----------------------------------|------------------------|--|
| Name: _____ | Title: _____ | Phone Numbers: HOME _____ CELL _____ PAGER _____ |
| Coverage Person: _____ | | |

| | | |
|----------------------------------|------------------------|--|
| Name: _____ | Title: _____ | Phone Numbers: HOME _____ CELL _____ PAGER _____ |
| Coverage Person: _____ | | |

| | | |
|----------------------------------|------------------------|--|
| Name: _____ | Title: _____ | Phone Numbers: HOME _____ CELL _____ PAGER _____ |
| Coverage Person: _____ | | |

| | | |
|----------------------------------|------------------------|--|
| Name: _____ | Title: _____ | Phone Numbers: HOME _____ CELL _____ PAGER _____ |
| Coverage Person: _____ | | |



HANLEY INTERNATIONAL ACADEMY ROLES ASSIGNED TO TEAM MEMBERS

PRINCIPAL OR INCIDENT COMMANDER

Primary: _____

Alternate: _____

EVACUATION COORDINATOR

Primary: _____

Alternate: _____

COMMUNICATIONS COORDINATOR

Primary: _____

Alternate: _____

SEARCH TEAM COORDINATOR

Primary: _____

Alternate: _____

RUMOR CONTROL AND RECORDER

Primary: _____

Alternate: _____



HANLEY INTERNATIONAL ACADEMY ROLES ASSIGNED TO TEAM MEMBERS

PERIMETER CONTROL COORDINATOR

Primary: _____

Alternate: _____

EMERGENCY NEEDS COORDINATOR

Primary: _____

Alternate: _____

ADDITIONAL PERSONNEL (if applicable)

Primary: _____

Alternate: _____

Primary: _____

Alternate: _____

Primary: _____

Alternate: _____



EMERGENCY LOCATIONS

School Name: _____

Principal: _____

PRIMARY SITES

In-School Command Post _____

Exterior Command Post
(after evacuation) _____

Evacuee Assembly Area(s) _____

Media Site _____

Parent Site _____

Medical Treatment Site _____

Bus Dismissal Site _____

Child Pick-Up Area _____

ALTERNATE SITES

In-School Command Post _____

Exterior Command Post
(after evacuation) _____

Evacuee Assembly Area(s) _____

Media Site _____

Parent Site _____

Medical Treatment Site _____

Bus Dismissal Site _____

Child Pick-Up Area _____



WHAT TO DO IF THERE IS AN EXPLOSION

In the moments after explosion, there may be fear and panic, even horror. You must be prepared to keep your thinking clear and orderly in this crisis. To assist you, here is a checklist of the major activities you should accomplish in the crucial moments after an explosion.

- Call 9-1-1.
- Immediately communicate with all staff and students using the designated communication method. Direct them to take cover and await further instruction.
- Initiate incident command per Emergency Operations Plan.
- Law enforcement will assume incident command upon arrival.
- Direct custodial staff to shut off gas and electricity to the building if it can be done safely.
- Assemble Threat Response Team or other appropriate body.
- Assess what exploded, where, and what injuries were caused. Determine evacuation course of action and communicate with first responders.
- Direct EMS to injuries.
- Brief fire department and law enforcement.
- ⇒ If evacuating:
 - Designate routes. Avoid any explosion-damaged areas.
 - Designate assembly areas, upwind of explosion if possible.
 - Search teams sweep routes and assembly areas. If clear, proceed. If not, secure area of suspicious item and reroute evacuees.
 - Notify all staff and students. Remind teachers to bring attendance sheets and leave doors and windows open.
 - Deploy Evacuation Team to direct evacuees.



Before you leave the building:

- Do you have the Emergency Kit?
- Have all the utilities been shut off as per Fire Department instruction?
- Have all students and faculty been evacuated?



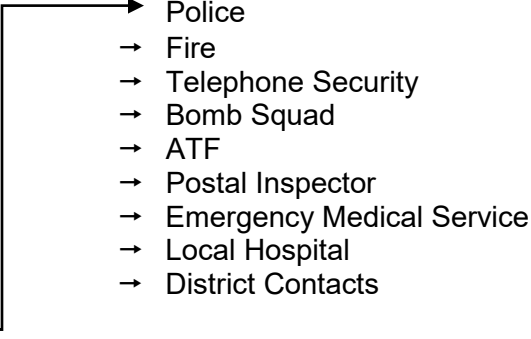
HANLEY INTERNATIONAL ACADEMY EMERGENCY TOOLKIT CONTENTS LIST

Items you **may** want to consider including in your Emergency Toolkit, which will be taken to the Command Post:

SCHOOL BUILDING

- Complete set of Master Keys: coded to rooms and corresponding with a printed key list
- Blueprints and floor plans or site map of school

EMERGENCY RESPONSE PLANS

- A copy of the emergency action checklist or flip chart (listing all critical functions in the order in which they must be carried out)
 - Copies of the school's site crisis response plan, bomb threat plan, and district's crisis management plan
 - A copy of the tactical survey and/or physical security plan
 - Emergency names and phone numbers
- 
- Police
 - Fire
 - Telephone Security
 - Bomb Squad
 - ATF
 - Postal Inspector
 - Emergency Medical Service
 - Local Hospital
 - District Contacts

STAFF AND STUDENT INFORMATION

- Updated list, with pictures if possible, of all faculty and students. List of all staff should have their contact numbers (home, classroom or office, cell, pager). Student contact information should include documentation of who is authorized to pick up that student
- Student and staff sign-out sheets that include how, when, and by whom. Include provision for students transported to medical facilities
- List of students and staff with special needs and description of need
- Staff and volunteer contact information, including emergency medical information and family notification information
- Contact information for contiguous schools or outbuildings

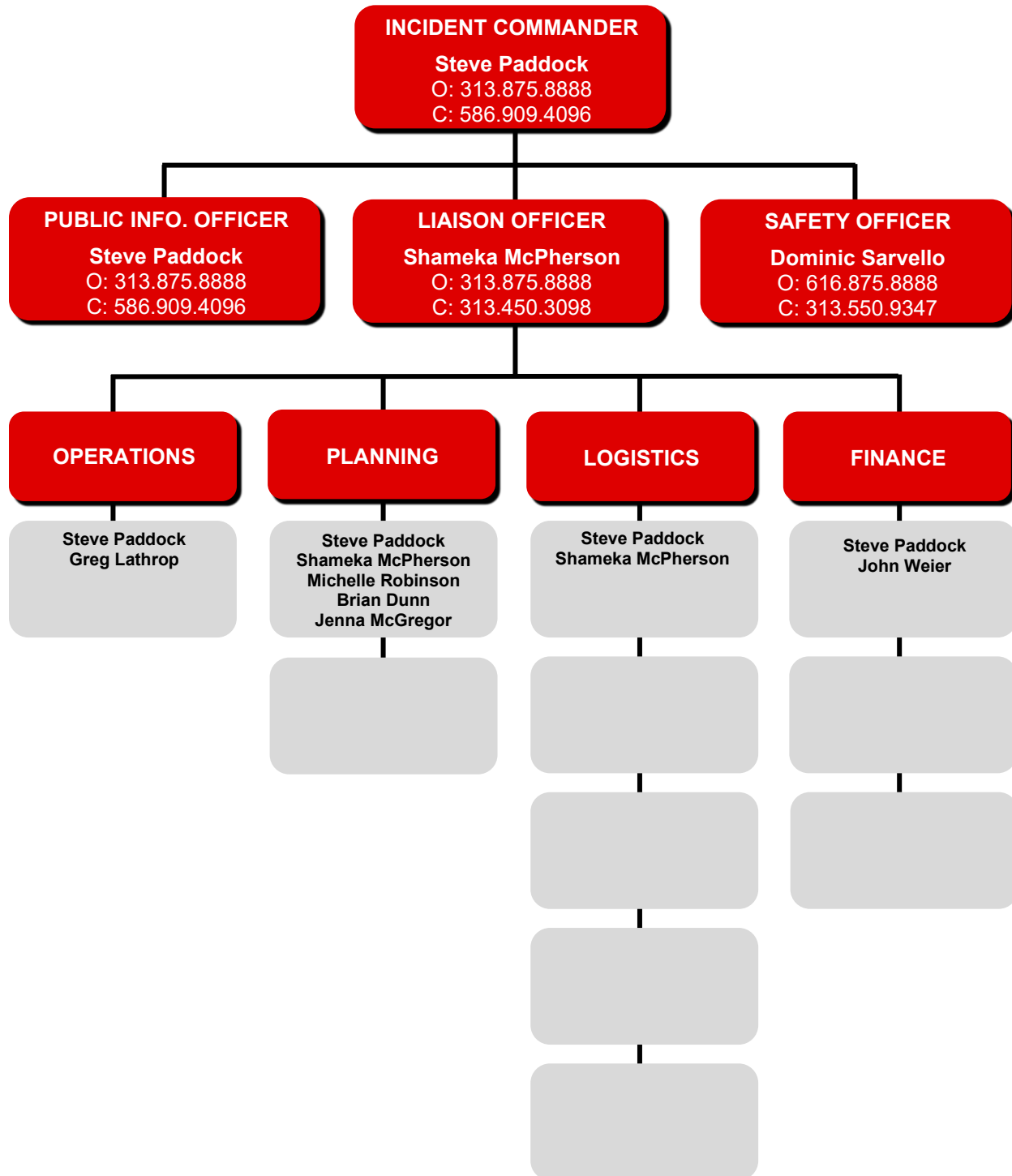
EMERGENCY ACTION RESOURCES

- Searched location tags
- Evacuation routes floor plans and evacuation plan
- List of all staff trained in CPR and/or first aid
- Reflective vests for staff and administration with identifying marks
- Bullhorn with charged batteries
- AM/FM portable radio
- 10 flashlights and batteries
- Map to emergency shelter with marked route
- Local street and zone maps
- 2-3 clipboards
- 10 legal pads
- 15 pens
- 15 markers
- 1000+ peel off stickers (for ID use)
- 500' of plastic red or yellow tape for cordoning off areas

TAB

APPENDIX B: INCIDENT COMMAND STRUCTURE

INCIDENT COMMAND STRUCTURE
HANLEY INTERNATIONAL ACADEMY



TAB

APPENDIX C: DISTRICT EMERGENCY OPERATIONS CENTER

DISTRICT EMERGENCY OPERATION CENTER

The ***Emergency Operations Center (EOC)*** is responsible for strategic direction and operational decisions dealing with emergency preparedness, emergency management, or disaster management functions. The EOC is to ensure the continuity of operations while leaving tactical decisions to lower command. The common functions of EOCs is to collect, gather and analyze data; make decisions that protect life and property, and disseminate those decisions to applicable agencies and individuals.

PRIMARY LOCATION:

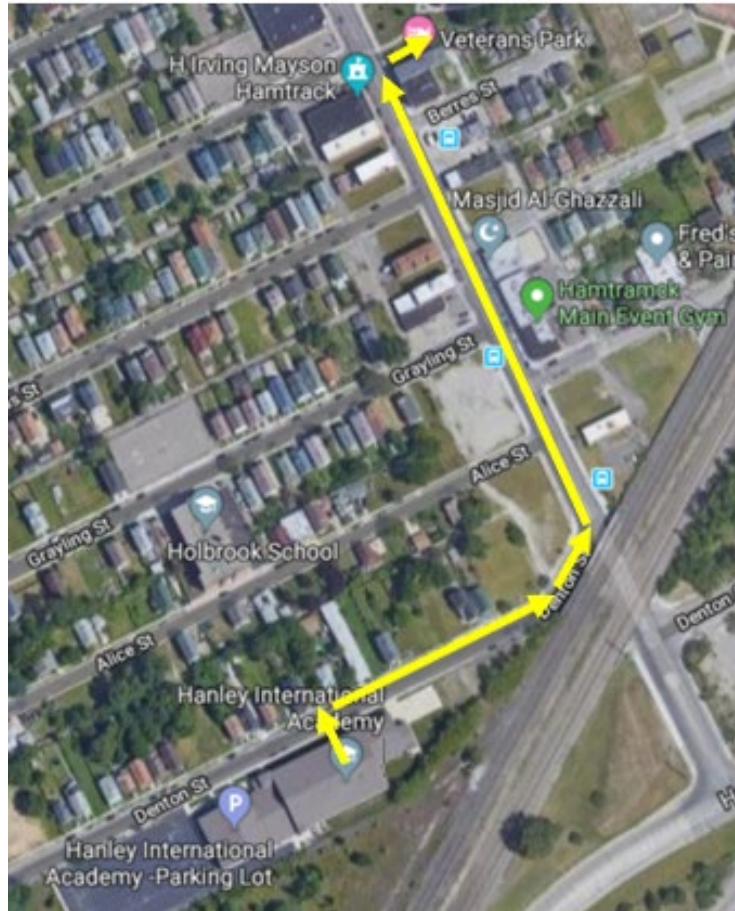


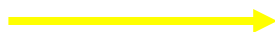
If the primary EOC location is deemed unsafe due to the nature of the emergency, the secondary location should be considered. If it is determined the secondary location is also deemed unsafe, the incident commander shall determine the best location to assemble the EOC.

TAB

APPENDIX D: SCHOOL EVACUATION ROUTES & REUNIFICATION PLANS

**HANLEY INTERNATIONAL ACADEMY
EVACUATION ROUTE (OPTION 1) (WALKING)**




Evacuation Route

This is the planned pedestrian flow for students and staff. Always use caution during movement and be ready to adjust the flow if deemed necessary during the evacuation.

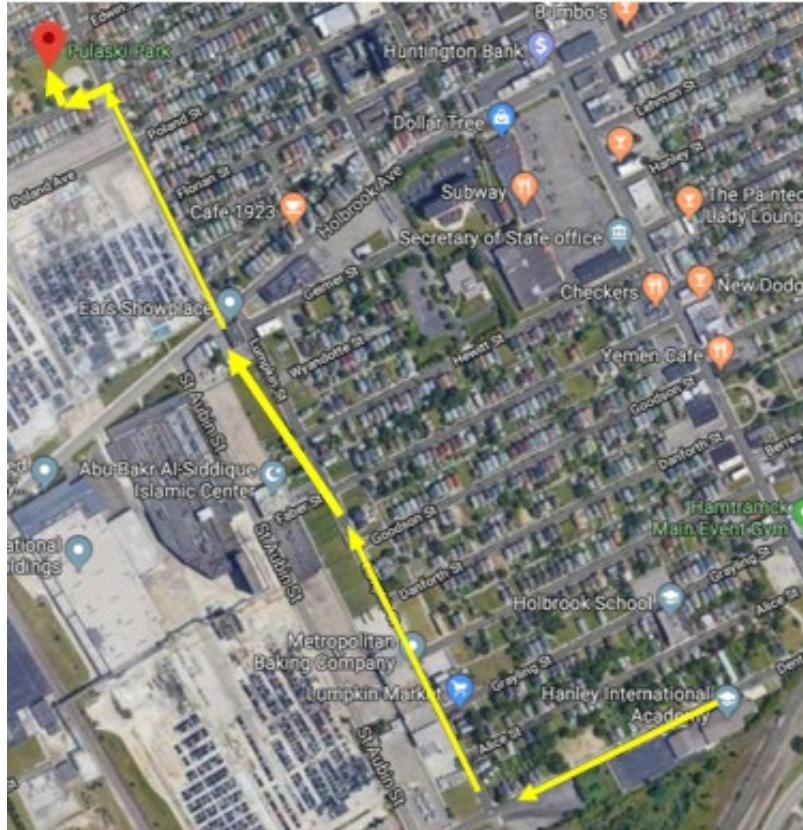

Reunification Location


Evacuation Entry Point. This is the planned entry point for students and staff during an evacuation. This point may change due to direction from emergency responders or unsafe conditions.

REUNIFICATION LOCATION

OPTION 1
Veteran's Memorial Park
3201 Dan Street
Hamtramck, MI 48212

**HANLEY INTERNATIONAL ACADEMY
EVACUATION ROUTE (OPTION 2) (BUS ONLY)**




Evacuation Route

This is the planned pedestrian flow for students and staff. Always use caution during movement and be ready to adjust the flow if deemed necessary during the evacuation.

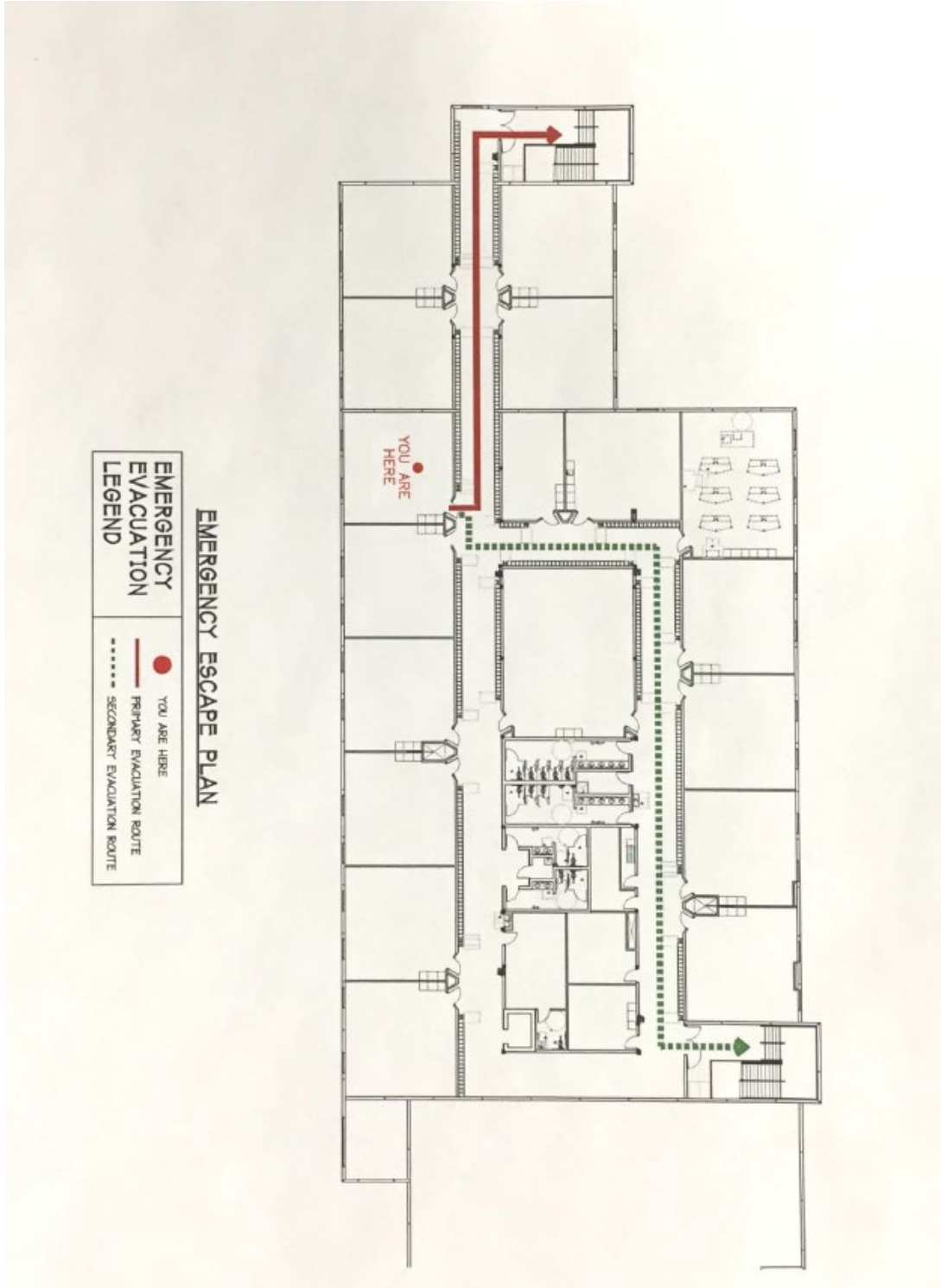

Reunification Location

Evacuation Entry Point. This is the planned entry point for students and staff during an evacuation. This point may change due to direction from emergency responders or unsafe conditions.

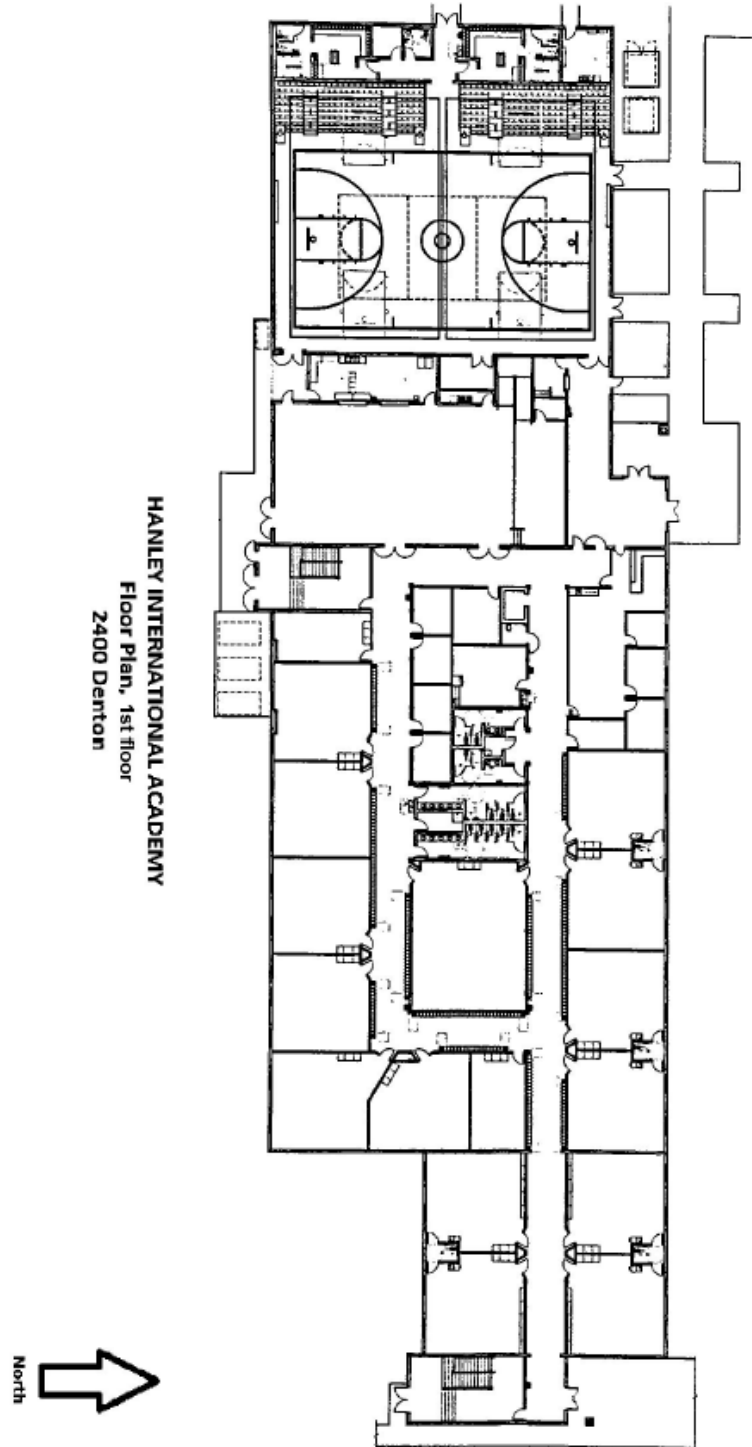
REUNIFICATION LOCATION

OPTION 2
Pulaski Park
9625 Lumpkin Street
Hamtramck, MI 48212

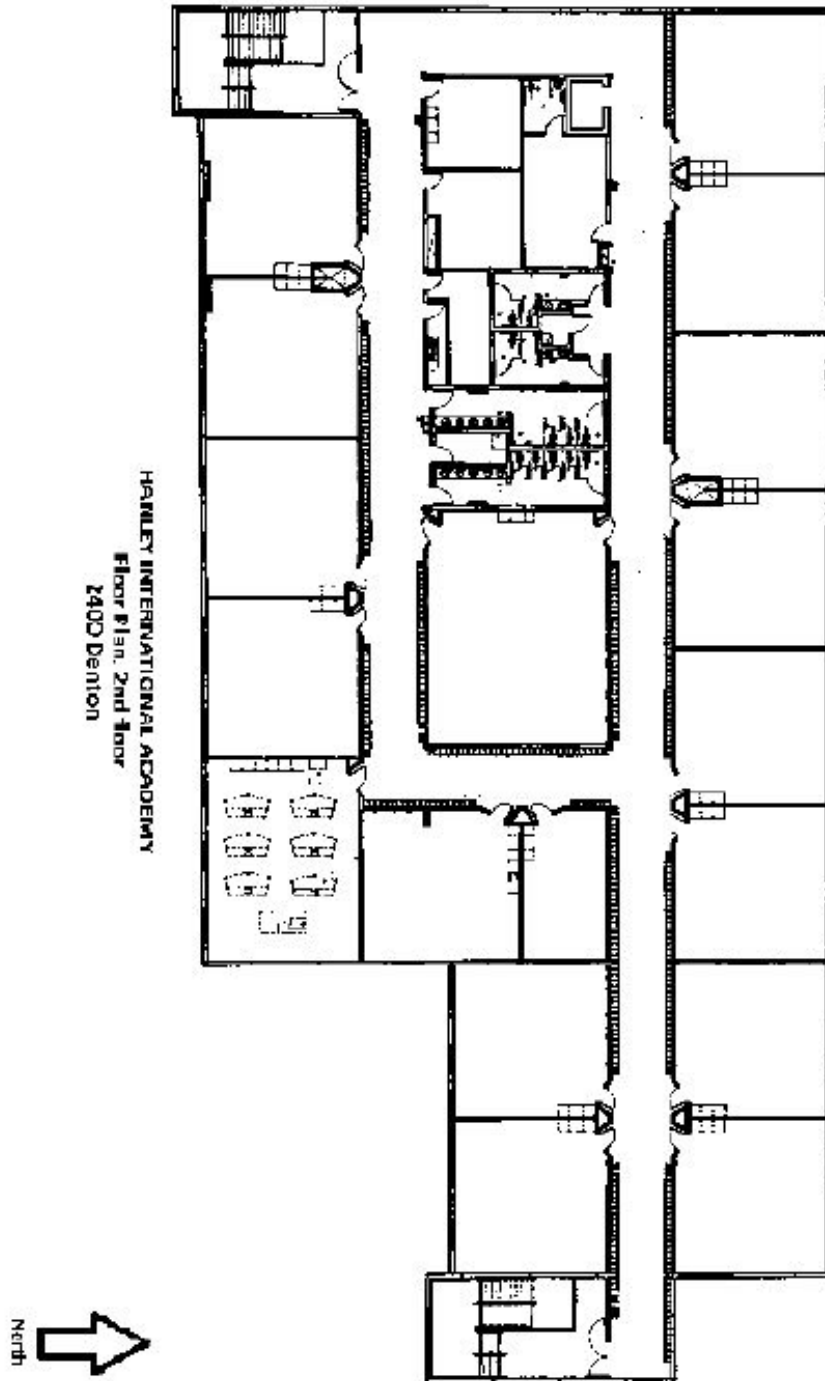
Hanley International Academy - Interior Floor Plan



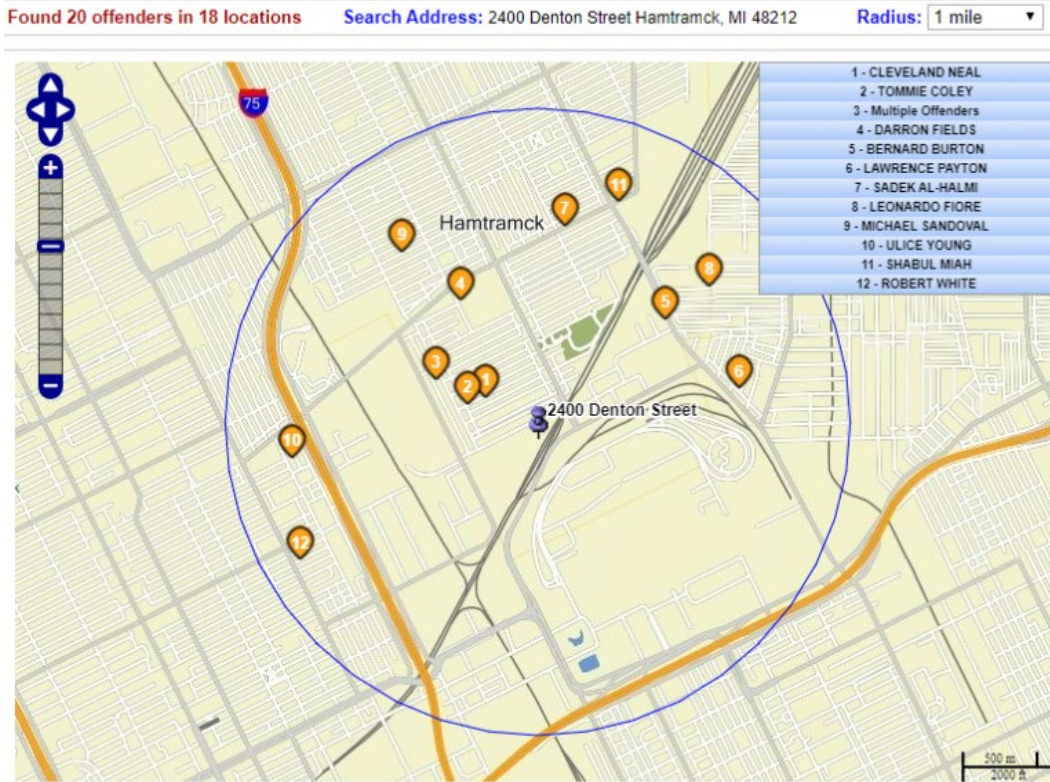
Hanley International Academy - Interior Floor Plan (First Floor)



Hanley International Academy - Interior Floor Plan (Second Floor)































HANLEY INTERNATIONAL ACADEMY SEX OFFENDER LOCATION



| | | | | | | | |
|--|---|---|-----------------------------|-----------|-------|--------------|--|
| | 1 | CLEVELAND NEAL Level: Tier 3 | 2318 DANFORTH ST | HAMTRAMCK | 48212 | Home Address | |
| | 2 | TOMMIE COLEY Level: Tier 3 | 2249 DANFORTH ST Floor 2 | HAMTRAMCK | 48212 | Home Address | |
| | 3 | DAMON GAMBLE Level: Tier 3 | 8916 Lumpkin ST 2 | Hamtramck | 48212 | Home Address | |
| | 3 | ROBERT REED Level: Tier 3 | 8922 LUMPKIN LOWER | HAMTRAMCK | 48212 | Home Address | |
| | 4 | DARRON FIELDS Level: Tier 3 Non-Compliant | 2620 HOLBROOK ST 710 | HAMTRAMCK | 48212 | Home Address | |
| | 5 | BERNARD BURTON Level: Tier 3 | 3866 OLIVER ST | HAMTRAMCK | 48212 | Home Address | |

➤ Continued on next page

HANLEY INTERNATIONAL ACADEMY
SEX OFFENDER LOCATION (Continued)

| | | | | | | | | |
|---|----|---------------|---|------------------------------|-----------|-------|--------------|---|
|  | 6 | | LAWRENCE PAYTON Level: Tier 3 | 8076 DWYER ST | DETROIT | 48211 | Home Address |  |
|  | 7 | | SADEK AL-HALMI Level: Tier 3 | 3433 COMSTOCK ST | HAMTRAMCK | 48212 | Home Address |  |
|  | 8 | | LEONARDO FIORE Level: Tier 3 | 8825 VINCENT ST | HAMTRAMCK | 48211 | Home Address |  |
|  | 9 | | MICHAEL SANDOVAL Level: Tier 3 | 2361 EDWIN ST 2F | HAMTRAMCK | 48212 | Home Address |  |
|  | 10 | Non-Compliant | ULICE YOUNG Level: Tier 3 | 8787 Chrysler Service Drive | Detroit | 48211 | Home Address |  |
|  | 11 | | SHABUL MIAH Level: Tier 2 | 3886 COMSTOCK ST | HAMTRAMCK | 48212 | Home Address |  |
|  | 12 | | ROBERT WHITE Level: Tier 2 | 932 E EUCLID ST | DETROIT | 48211 | Home Address |  |
|  | 13 | Non-Compliant | SILVESTER ROBINSON Level: Tier 3 | 7862 MELROSE | DETROIT | 48211 | Home Address |  |
|  | 14 | | MARC CROSS Level: Tier 2 | 2037 BELMONT ST | HAMTRAMCK | 48212 | Home Address |  |
|  | 15 | Non-Compliant | JAMES RONEY III Level: Tier 3 | 6104 DOMINE ST | DETROIT | 48211 | Home Address |  |
|  | 16 | | CARLOS DAVIE Level: Tier 3 | 674 MARSTON ST | DETROIT | 48202 | Home Address |  |
|  | 16 | | LAWRENCE PARNELL Level: Tier 3 | 671 MARSTON ST UPPER FLAT | DETROIT | 48202 | Home Address |  |
|  | 17 | | ANDRE NEAL Level: Tier 3 | 3874 EVALINE ST | HAMTRAMCK | 48212 | Home Address |  |
|  | 18 | Non-Compliant | JOE BOYD JR Level: Tier 3 | 8440 KINGSLEY CT | DETROIT | 48202 | Home Address |  |

TAB

APPENDIX E: CARDIAC EMERGENCY RESPONSE PLAN

CARDIAC EMERGENCY RESPONSE PLAN

This Cardiac Emergency Response Plan is adopted by the Hanley International Academy. This plan was reviewed and approved by medical and legal counsel for the Hanley International Academy District.

A cardiac emergency requires immediate action. Cardiac emergencies may arise as a result of a Sudden Cardiac Arrest (SCA) or a heart attack but can have other causes. SCA occurs when the electrical impulses of the heart malfunction, resulting in sudden death. Signs of SCA can include one or more of the following:

- Not moving, unresponsive or unconscious, *or*
- Not breathing normally (i.e., may have irregular breathing, gasping or gurgling or may not be breathing at all), *or*
- Seizure or convulsion-like activity.

NOTE: Those who collapse shortly after being struck in the chest by a firm projectile or direct hit may have SCA from commotio cordis (lethal disruption of heart rhythm).

The Cardiac Emergency Response Plan of Hanley International Academy District shall be as follows:

1. *Developing a Cardiac Emergency Response Team*

- (a) The Cardiac Emergency Response Team shall be comprised of those individuals who have current CPR/AED certification. It may include the school nurse, coaches, and others within the school. It should also include an administrator and office staff who can call 9-1-1 and direct EMS to the location of the SCA.
- (b) Members of the Cardiac Emergency Response Team are identified in the “Cardiac Emergency Response Team” attachment, to be updated yearly and as needed to remain current. One of the members shall be designated as the Cardiac Emergency Response Team Coordinator.
- (c) All members of the Cardiac Emergency Response Team shall receive and maintain nationally recognized training, which includes a certification card with an expiration date of not more than 2 years.
- (d) As many other staff members as reasonably practicable shall receive training.

2. *Activation of Cardiac Emergency Response Team during an identified cardiac emergency*

- (a) The members of the Cardiac Emergency Response Team shall be notified immediately when a cardiac emergency is suspected.

- (b) The Protocol for responding to a cardiac emergency is described in Section 8 (below) and in the “Protocol for Posting” attachment.

3. Automated External Defibrillators (AEDs) – Placement and Maintenance

- (a) Minimum recommended number of AEDs for Hanley International Academy:
 - (1) *Inside the school building*: The number of AEDs shall be sufficient to enable the school staff or another person to retrieve an AED and deliver it to any location within the school building, ideally within 2 minutes of being notified of a possible cardiac emergency.
 - (2) *Outside the school building* (on school grounds / athletic fields): The number of AEDs, either stationary or in the possession of an on-site athletic trainer, coach, or other qualified person, shall be sufficient to enable the delivery of an AED to any location outside of the school (on school grounds) including any athletic field, ideally within 2 minutes of being notified of a possible cardiac emergency.
 - (3) *Back-up AEDs*: One or more AEDs shall be held in reserve for use as a replacement for any AED which may be out-of-service for maintenance or other issues. The back-up AED(s) should also be available for use by the school’s athletic teams or other groups traveling to off-site locations.
- (b) The Hanley International Academy will regularly check and maintain each school-owned AED in accordance with the AED’s operating manual and maintain a log of the maintenance activity. The school shall designate a person who will be responsible for verifying equipment readiness and for maintaining maintenance activity.
- (c) **Additional Resuscitation Equipment**: A resuscitation kit shall be connected to the AED carry case. The kit shall contain latex-free gloves, razor, scissors, towel antiseptic wipes and a CPR barrier mask.
- (d) AEDs shall not be locked in an office or stored in a location that is not easily and quickly accessible at all times.
- (e) AEDs shall be readily accessible for use in responding to a cardiac emergency, during both school-day activities and after-school activities, in accordance with this Plan. Each AED shall have one set of defibrillator electrodes connected to the device and one spare set. All AEDs should have clear AED signage so as to be easily identified. Locations of the AEDs are to be listed in the “Cardiac Emergency Response Team” attachment and in the “Protocol for Posting” attachment.

4. Communication of this Plan throughout the school campus

- (a) The Cardiac Emergency Response Protocol shall be **posted** as follows:
 - (1) In each classroom, cafeteria, faculty break room and all school offices.
 - (2) Adjacent to each AED.
 - (3) In the gym, near the swimming pool, and in all other indoor locations where athletic activities take place.
 - (4) At other strategic school campus locations, including outdoor physical education and athletic areas.
 - (5) Attached to all portable AEDs.
- (b) The Cardiac Emergency Response Protocol shall be **distributed** to:
 - (1) All staff and administrators at the start of each school year, with updates distributed as made.
 - (2) All Health Services staff including the school nurse, health room assistants and self-care assistants.
 - (3) All athletic directors, coaches, and applicable advisors at the start of each school year and as applicable at the start of the season for each activity, with updates distributed as made.
- (c) Results and recommendations from Cardiac Emergency Response Drills performed during the school year shall be communicated to all staff and administrative personnel. *(See paragraph 5(b) below)*

5. Training in Cardiopulmonary Resuscitation (CPR) and AED Use

- (a) Staff Training:
 - (1) In addition to the school nurse, a sufficient number of staff shall be trained in cardiopulmonary resuscitation (CPR) and in the use of an AED to enable the Hanley International Academy to carry out this Plan. (It is recommended that at a minimum, at least 10% of staff, 50% of coaches, and 50% of physical education staff should have current CPR/AED certification.) Training shall be renewed at least every two years. The school shall designate the person responsible for coordinating staff training as well as the medical contact for school-based AEDs, if available.
 - (2) Training shall be provided by an instructor, who may be a school staff member, currently certified by a nationally recognized organization to conform to current American Heart Association guidelines for teaching CPR and/or Emergency Cardiac Care (ECC).

- (3) Training may be traditional classroom, on-line or blended instruction but should include cognitive learning, hands-on practice and testing.
- (b) Cardiac Emergency Response Drills:
 - (1) Cardiac Emergency Response Drills are an essential component of this Plan. The Hanley International Academy shall perform a minimum of 2 successful Cardiac Emergency Response Drills each school year with the participation of athletic trainers, athletic training students, team and consulting physicians, school nurses, coaches, campus safety officials and other targeted responders.
 - (2) A successful Cardiac Emergency Response Drill is defined as full and successful completion of the Drill in 5 minutes or less.
 - (3) The Hanley International Academy shall prepare and maintain a Cardiac Emergency Response Drill Report for each Drill. These reports shall be maintained for a minimum of 5 years with other safety documents. The reports shall include an evaluation of the Drill and shall include recommendations for the modification of the CERP if needed.

6. Local Emergency Medical Services (EMS) integration with the school/district plan

- (a) The Hanley International Academy shall provide a copy of this Plan to local emergency response and dispatch agencies (e.g., the 9-1-1 response system), which may include local police and fire departments and local Emergency Medical Services (EMS).
- (b) The development and implementation of the Cardiac Emergency Response Plan shall be coordinated with the local EMS Agency, on-site first responders, administrators, athletic trainers, school nurses and other members of the school and/or community medical team.
- (c) The Hanley International Academy shall work with local emergency response agencies to:
 - (1) Coordinate this Plan with the local emergency response system and
 - (2) inform the local emergency response system of the number and location of on-site AEDs.

7. Annual review and evaluation of the Plan

The Hanley International Academy shall conduct an annual internal review of the school/district Plan. The annual review should focus on ways to improve the school's response process, to include:

- (a) A *post-event review* following an event. This includes review of existing school-based documentation for any identified cardiac emergency that occurred on the school campus or at any off-campus school-sanctioned function. The school shall designate the person who will be responsible for establishing the documentation process. Post-event documentation and action shall include the following:
- (1) A contact list of individuals to be notified in case of a cardiac emergency.
 - (2) Determine the procedures for the release of information regarding the cardiac emergency.
 - (3) Date, time and location of the cardiac emergency and the steps taken to respond to the cardiac emergency.
 - (4) The identification of the person(s) who responded to the emergency.
 - (5) The outcome of the cardiac emergency. This shall include but not be limited to a summary of the presumed medical condition of the person who experienced the cardiac emergency to the extent that the information is publicly available. Personal identifiers should not be collected unless the information is publicly available.
 - (6) An evaluation of whether the Plan was sufficient to enable an appropriate response to the specific cardiac emergency. The review shall include recommendations for improvements in the Plan and in its implementation if the Plan was not optimally suited for the specific incident. The post-event review may include discussions with medical personnel (ideally through the school's medical counsel) to help in the debriefing process and to address any concerns regarding on-site medical management and coordination.
 - (7) An evaluation of the debriefing process for responders and post-event support. This shall include the identification of aftercare services including aftercare services and crisis counselors.
- (b) A review of the documentation for all Cardiac Emergency Response Drills performed during the school year. Consider pre-established Drill report forms to be completed by all responders.
- (c) A determination, at least annually, as to whether or not additions, changes or modifications to the Plan are needed. Reasons for a change in the Plan may result from a change in established guidelines, an internal review following an actual cardiac emergency, or from changes in school facilities, equipment, processes, technology, administration, or personnel.

CARDIAC EMERGENCY RESPONSE TEAM PROTOCOL

Sudden cardiac arrest events can vary greatly. Faculty, staff and Cardiac Emergency Response Team (CERT) members must be prepared to perform the duties outlined below. Immediate action is crucial to successfully respond to a cardiac emergency. Consideration should be given to obtaining on-site ambulance coverage for high-risk athletic events. The school should also identify the closest appropriate medical facility that is equipped in advanced cardiac care.

Follow these steps in responding to a suspected cardiac emergency:

1. Recognize the following signs of sudden cardiac arrest and take action in the event of one or more of the following:
 - The person is not moving, or is unresponsive, or appears to be unconscious.
 - The person is not breathing normally (has irregular breaths, gasping or gurgling, or is not breathing at all).
 - The person appears to be having a seizure or is experiencing convulsion-like activity. (Cardiac arrest victims commonly appear to be having convulsions).
 - *Note:* If the person received a blunt blow to the chest, this can cause cardiac arrest, a condition called commotio cordis. The person may have the signs of cardiac arrest described above and is treated the same.

2. Facilitate immediate access to professional medical help:
 - Call 9-1-1 as soon as you suspect a sudden cardiac arrest. Provide the school address, cross streets and patient condition. Remain on the phone with 9-1-1. (Bring your mobile phone to the patient's side, if possible.) Give the exact location and provide the recommended route for ambulances to enter and exit. Facilitate access to the victim for arriving Emergency Medical Service (EMS) personnel.
 - Immediately contact the members of the Cardiac Emergency Response Team.
 - ⇒ Give the exact location of the emergency. ("Mr. /Ms. ____ Classroom, Room # ____, gym, football field, cafeteria, etc."). Be sure to let EMS know which door to enter. Assign someone to wait at that door to flag down EMS responders and escort them to the exact location of the patient.

- If you are a CERT member, proceed immediately to the scene of the cardiac emergency.
 - ⇒ The closest team member should retrieve the automated external defibrillator (AED) and take it to the scene. Leave the AED cabinet door open; the alarm typically signals that the AED was removed.
 - ⇒ Acquire AED supplies such as scissors, a razor and a towel. Consider an extra set of AED pads.

3. Start CPR:

- Begin continuous chest compressions while someone is retrieving the AED.
- Here's how:
 - ⇒ **Press hard and fast in center of chest.** Goal is 100 compressions per minute (faster than once per second, but slower than twice per second).
 - ⇒ **Use 2 hands:** The heel of one hand and the other hand on top (or one hand for children under 8 years old), pushing to a depth of 2 inches (or 1/3rd the depth of the chest for children under 8 years old).
 - ⇒ Follow the 9-1-1 dispatcher's instructions, if provided.

4. Use the nearest AED:

- When the AED is brought to the patient's side, press the power-on button, and attach the pads to the patient as shown in the diagram on the pads.
- Follow the AED's audio and visual instructions. If the person needs to be shocked to restore a normal heart rhythm, the AED will deliver one or more shocks.
 - ⇒ *Note:* The AED will only deliver shocks if needed; if no shock is needed, no shock will be delivered.
- Continue CPR until the patient is responsive or a professional responder arrives and takes over.

5. Transition care to EMS:

- Transition care to EMS upon arrival so that they can provide advanced life support.

6. Action to be taken by Office / Administrative Staff:

- Confirm the exact location and condition of the patient.
- Activate the Cardiac Emergency Response Team and provide the exact location.
- Confirm that the Cardiac Emergency Response Team has responded.
- Confirm that 9-1-1 was called. If not, call 9-1-1 immediately.
- Assign a staff member to direct EMS to the scene.
- Perform “Crowd Control” – directing others away from the scene.
- Notify other staff: school nurse, athletic trainer, athletic director, etc.
- Ensure that medical coverage continues to be provided at the athletic event if on-site medical staff accompanies patient to the hospital.
- Consider delaying class dismissal, recess, or other changes to facilitate CPR and EMS functions.
- Designate people to cover the duties of the CPR responders.
- Copy the patient’s emergency information for EMS.
- Notify the patient’s emergency contact (parent/guardian, spouse, etc.).
- Notify staff and students when to return to the normal schedule.
- Contact school district administration.

BUILDING LOCATION INFORMATION

Hanley International Academy
2400 Denton St, Hamtramck Mi. 48212

 **EMERGENCY
SCHOOL PHONE**
(313) 875-8888

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

AED Location _____

 **EMERGENCY
SCHOOL PHONE**

AED Location _____

AED Location _____

AED Location _____


AED Location _____

AED Location _____


AED Location _____

 **EMERGENCY
SCHOOL PHONE**


BUILDING LOCATION INFORMATION

 **EMERGENCY SCHOOL PHONE**

| | |
|--------------------|--------------------|
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |

 **EMERGENCY SCHOOL PHONE**

| | |
|--------------------|--------------------|
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |

 **EMERGENCY SCHOOL PHONE**

| | |
|--------------------|--------------------|
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |
| AED Location _____ | AED Location _____ |

CARDIAC EMERGENCY RESPONSE TEAM PROTOCOL

Heartsaver® **Adult CPR AED**



Tap and shout.

Shout for help. Send someone to phone 9-1-1 and get an AED.



Look for no breathing or only gasping.

Push hard and fast at a rate of 100 to 120 compressions per minute.



Open the airway and give 2 breaths.

Repeat sets of 30 compressions and 2 breaths.



When the AED arrives, turn it on and follow the prompts.

American Heart Association 2018

CARDIAC EMERGENCY RESPONSE TEAM PROTOCOL

Heartsaver® Child CPR AED



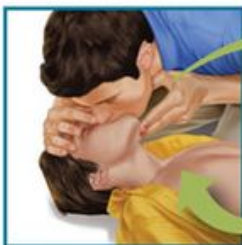
Tap and shout

Yell for help. Send someone to phone 911 and get an AED



Look for no breathing or only gasping

*Push hard and fast.
Give 30 compressions*



*Open the airway and give
2 breaths*

*Repeat sets of 30 compressions
and 2 breaths*




*If you are alone after 5 sets of
30 compressions and 2 breaths,
phone 911, and then resume
sets of 30:2*

*When the AED arrives, turn it
ON and follow the prompts*

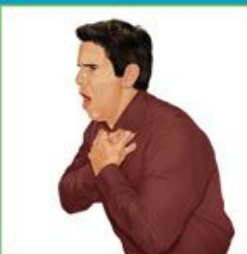
American Heart Association 2018

CARDIAC EMERGENCY RESPONSE TEAM PROTOCOL

Heartsaver®
Adult Choking



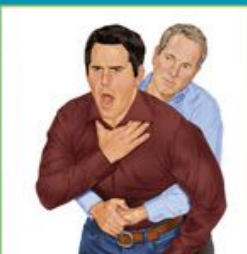
Recognize choking



- Makes the choking sign
- Cannot breathe, cough, speak, or make sounds


Ask, "Are you choking?" If he nods yes, tell him you are going to help

Give thrusts slightly above the belly button until




- Object is forced out
or
- Person can breathe and make sounds
or
- Person stops responding

If the person stops responding



- Yell for help
- Check breathing
- Give sets of 30 compressions and 2 breaths, checking the mouth for objects after each set of compressions (remove object if seen)
- After 5 sets, phone 911 and get an AED
- Then continue CPR until the person starts to respond or EMS takes over



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American Heart Association 2018

CARDIAC EMERGENCY RESPONSE TEAM PROTOCOL

Heartsaver®
Child Choking



Recognize choking



- *Makes the choking sign*
- *Cannot breathe, cough, speak, or make sounds*

Ask, "Are you choking?" If she nods yes, tell her you are going to help

Give thrusts slightly above the belly button until



- *Object is forced out*
or
- *Child can breathe and make sounds*
or
- *Child stops responding*

If the child stops responding



- *Yell for help*
- *Check breathing*
- *Give sets of 30 compressions and 2 breaths, checking the mouth for objects after each set of compressions (remove object if seen)*
- *After 5 sets, phone 911 and get an AED*
- *Then continue CPR until the child starts to respond or EMS takes over*



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AED LOCATIONS / CARDIAC EMERGENCY RESPONSE PLAN

AED Locations

➡ Located outside gym lower level hallway by Room 12, upper level hallway by Room 25 ◀

In the event a building occupant (student, staff, visitor) collapses on school property, the following steps should be taken:

1. Call 911
 - a. Confirm location/status of patient
 - b. Staff member shall be assigned task to direct emergency crews to the location of cardiac incident.
2. If building has an AED, AED should be taken to location where needed.
 - a. Pre-Assigned trained staff will be responsible for obtaining and responding with AED
 - b. Building Alert System will announce a “Cardiac Event (Cite Location)”. All students will clear all hallways until an “All Clear” is announced.
 - c. If event has taken place in a classroom, the classroom occupants will be moved to a pre-designated staging area.
3. Assess the victim; airway, breathing and circulation (ABC)
4. Initiate CPR, if needed, while AED is brought to the scene.
5. Upon arrival, place AED near the victim’s head, close to the AED Operator.
6. Prepare to use AED.
 - a. Make sure power is ON.
 - b. Bare and prepare chest for AED use.
 - c. Attach AED to the victim, considering appropriate use of pediatric or adult pads.
 - d. Stop CPR while the device analyzes the heart rhythm.
 - e. Follow the device prompts for further action. If a shock is indicated, be sure all rescuers and bystanders are “Clear” before the shock is administered.
 - f. If no shock is indicated, follow prompts to reassess and continue CPR.
7. Upon arrival, EMS shall take charge of the situation.
 - a. Provide victim information: name, age, known medical problems, emergency contact information** and time of incident.
 - b. Provide information as to current condition and number of shocks administered.
8. Contact Administration

EMERGENCY OPERATIONS PLAN
Hanley International Academy

9. If the patient has suffered any trauma or a fall, the patient should not be moved unless the scene is unsafe.
10. Prior to EMS arrival, someone in the administrative office should get the patient's emergency contact information from the file.
11. The Building's AED equipment will follow manufacturer prescribed maintenance procedures and document maintenance actions. Records of maintenance will be maintained in the School Office.
12. The Building Response Team will consist of building staff trained in both CPR and AED use. Staff will conduct annual training sessions and drills; records will be maintained of those training sessions in the School Office.

TAB

APPENDIX F: CLASSROOM EMERGENCY KIT CHECKLIST

RECOMMENDED CLASSROOM EMERGENCY KIT CHECKLIST

The classroom emergency kit checklist may include, but is not limited to:

| | |
|---|--|
| <input type="checkbox"/> Clipboard | <input type="checkbox"/> "CAUTION" Barricade Tape (100 Yards) |
| <input type="checkbox"/> Students with special needs and description of needs (i.e. medical issues, prescription medicines, dietary needs), marked confidential | <input type="checkbox"/> Compact Trauma Kit (100 Piece) |
| <input type="checkbox"/> Pens and paper | <input type="checkbox"/> Emergency Backpack |
| <input type="checkbox"/> Classroom personnel | <input type="checkbox"/> Nitrile Gloves (Pair) |
| <input type="checkbox"/> School emergency procedures | <input type="checkbox"/> Emergency Survival Blanket |
| <input type="checkbox"/> Emergency Food Ration | <input type="checkbox"/> Waterproof Poncho |
| <input type="checkbox"/> Emergency Drinking Water - 1 Liter | <input type="checkbox"/> Plastic Sheeting (9' x 9') |
| <input type="checkbox"/> Water Bottle (20oz) | <input type="checkbox"/> Pry Bar (15") |
| <input type="checkbox"/> Multi-Function Emergency Radio | <input type="checkbox"/> Duct Tape (10 yards) |
| <input type="checkbox"/> Emergency Whistle with Carabiner | <input type="checkbox"/> Clipboard and Pencil |
| <input type="checkbox"/> Yellow Light stick (12 Hour) | <input type="checkbox"/> First-aid kit with instructions |
| <input type="checkbox"/> Safety Vest with Reflective Stripes (Orange) | <input type="checkbox"/> Age-appropriate student activities (such as playing cards, checkers, inflatable ball, etc.) |
| <input type="checkbox"/> Hard Hat (White) | <input type="checkbox"/> |
| <input type="checkbox"/> Heavy-Duty Work Gloves | <input type="checkbox"/> |
| <input type="checkbox"/> Safety Goggles | <input type="checkbox"/> |
| <input type="checkbox"/> Dust Mask (N95) | <input type="checkbox"/> |

TAB

APPENDIX G: SCHOOL OFFICE EMERGENCY KIT CHECKLIST

RECOMMENDED SCHOOL OFFICE EMERGENCY KIT CHECKLIST

The school office emergency kit checklist may include, but is limited to:

| | |
|---|---|
| <input type="checkbox"/> A container – often a large duffel bag or backpack that can be carried | <input type="checkbox"/> First-aid kit with instructions |
| <input type="checkbox"/> Clipboard with Pens, pencils and markers | <input type="checkbox"/> Copy of the most recent yearbook |
| <input type="checkbox"/> Whistle | <input type="checkbox"/> Water |
| <input type="checkbox"/> Hat or brightly colored vest for visibility and leadership identification | <input type="checkbox"/> Sanitary items (paper towels, TP, wet wipes) |
| <input type="checkbox"/> Battery-operated flashlight and batteries | <input type="checkbox"/> Binoculars |
| <input type="checkbox"/> Building emergency plans and procedures | <input type="checkbox"/> Duct tape |
| <input type="checkbox"/> School personnel list | <input type="checkbox"/> Hand sanitizer |
| <input type="checkbox"/> Students with special needs and description of needs (i.e. medical issues, prescription medicines, dietary needs), marked confidential | <input type="checkbox"/> Plastic drop cloths |
| <input type="checkbox"/> Current student, staff and visitor rosters | <input type="checkbox"/> Breathing masks |
| <input type="checkbox"/> Key contact information for the district crisis team | <input type="checkbox"/> |
| <input type="checkbox"/> Parent-student reunification plan | <input type="checkbox"/> |
| <input type="checkbox"/> Emergency communication device | <input type="checkbox"/> |
| <input type="checkbox"/> Building walkie-talkies | <input type="checkbox"/> |
| <input type="checkbox"/> Cell phone | <input type="checkbox"/> |
| <input type="checkbox"/> Utility shutdown procedures | <input type="checkbox"/> |
| <input type="checkbox"/> Campus and site maps | <input type="checkbox"/> |

TAB

APPENDIX H: COMMUNICATIONS

BOARD ADOPTED MEDIA POLICY

0143.1 Public Expression of Board Members

The Board President, functions as the official spokesperson for the Board. Occasionally, however, individual Board members will make public statements on Academy matters.

If such statements imply, or the readers (listeners) could infer that the opinions expressed or statements made are the official positions of the Board, the Board members shall, when writing or speaking on school matters make it clear that their views do not necessarily reflect the views of the Board or those of their colleagues on the Board.

This policy shall apply to all statements and/or writings by individual Board members that are not explicitly sanctioned by a majority of its members, except as follows:

- A. correspondence, such as legislative proposals, when the Board member has received official guidance from the Board on the matters discussed in the letter;
- B. routine (not for publication) correspondence of the Educational Service Provider and/or other Board employees;

BOARD OF DIRECTORS
HANLEY INTERNATIONAL ACADEMY
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BOARD OPERATING POLICY
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- C. routine "thank you" letters of the Board;
- D. statements by Board members on non-school matters (providing the statements do not identify the author as a member of the Board);
or
- E. personal statements not intended for publication.
- F. A Board member's personal or private use of social media may have unintended, negative consequences to the Board member and/or the Academy, including possible violations of the Open Meetings Act and issues relating to creation of a public record. Postings to social media should be done in a manner sensitive to the Board member's responsibilities, applicable Academy policies, and legal obligations.

NOTIFICATION DURING SUMMER OR OTHER SCHOOL BREAKS

If a school administrator or other crisis response team member is notified of an emergency during the summer (or other break period), the response usually will be one of limited school involvement. In that case, the following steps will be taken:

- Institute the phone tree to disseminate information to Crisis Response Team members and request a meeting of all available members. See Emergency Phone list.
- Notify general faculty/staff and families of students with appropriate information.
- Schedule a faculty/staff meeting for an update the week before students return to school.
- Be alert for repercussions among students/staff.
- When school reconvenes, institute appropriate support mechanisms and referral procedures, if necessary.

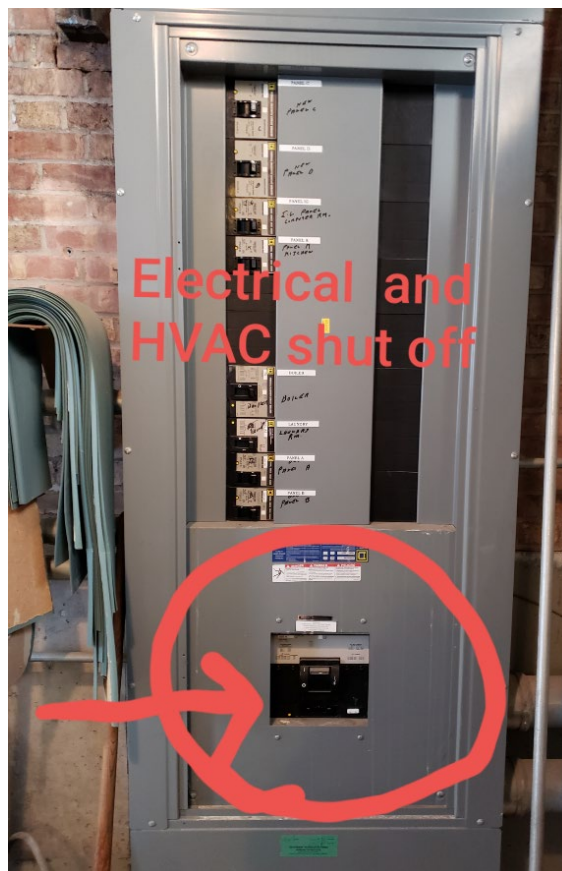
TAB

APPENDIX I: UTILITY FAILURE SHUTOFFS

UTILITY FAILURE SHUTOFFS – HANLEY INTERNATIONAL ACADEMY

ELECTRICITY

- SHUT OFF LOCATION:** The box is in the maintenance room, outside entrance off of the kitchen door.
- KEY LOCATION:** Custodians and administration have keys.
- TOOLS REQUIRED:** No tool required.
- INSTRUCTIONS:** Simply switch main breaker to off position to disconnect electricity to building



UTILITY FAILURE SHUTOFFS – HANLEY INTERNATIONAL ACADEMY

NATURAL GAS

- SHUT OFF LOCATION:** Located at the west end of the building, outside behind the dumpster.
- KEY LOCATION:** N/A
- TOOLS REQUIRED:** Wrench required to close it.
- INSTRUCTIONS:** To shut the valve off, the top circle needs to be turned clockwise so that it lines up over the circle on the side.



UTILITY FAILURE SHUTOFFS – HANLEY INTERNATIONAL ACADEMY

WATER

- SHUT OFF LOCATION:** Located in the maintenance room, outside entrance off of the Kitchen door
- KEY LOCATION:** Custodians and administration have access to room.
- TOOLS REQUIRED:** No tool required.
- INSTRUCTIONS:** Hand turn the valve until it stops to shut off water to building



TAB

APPENDIX J: MEMORANDUMS OF UNDERSTANDING

MEMORANDUMS OF UNDERSTANDING

| Agency | Resources Agreed to Provide |
|---------------|------------------------------------|
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| | |



NAME OF BUSINESS
Memorandum of Understanding (MOU)
Sheltering and Mass Care Facilities

This agreement is made and entered between the _____ Hanley International Academy and (Name of the Facility) to establish shelter site locations and terms of use in the event of an evacuation of the students and staff of the _____ Hanley International Academy.

The _____ Hanley International Academy will make every effort to notify (Name of the Facility) of evacuation possibilities with as much notice as possible. Contact information between the two parties shall be maintained in a separate appendix and is considered confidential information and is not subject to public disclosure.

(Name of the Facility) agrees to open their building located at (Physical Address of the Facility) to provide shelter and assistance to students and staff evacuated during emergency situations when the students and staff have a need to be sheltered. (Name of the Facility) has a capacity to accommodate approximately ___#___ people.

(Name of the Facility) understands that their organization will be responsible for opening the building and developing procedures for making the building accessible, including rest rooms and an area with telephone and Internet connection (if available) for the _____ Hanley International Academy. Furthermore, _____ Hanley International Academy will provide supervision for all students and staff during the time that the facility is used as an emergency shelter site.

The _____ Hanley International Academy agrees that it shall exercise reasonable care in the conduct of its activities in said facilities and further agrees to replace or reimburse (Name of the Facility) for any items, materials, equipment or supplies that may be used by the program in the conduct of its sheltering activities in said facilities.

The _____ Hanley International Academy will be responsible for replacing, restoring, or repairing damage occasioned by the use of any building, facilities or equipment belonging to (Name of the Facility).

The _____ Hanley International Academy will reimburse (Name of the Facility) for any bona fide expenditure of personnel required to maintain the facility, including overtime costs, upon production of receipts or time sheets. _____ Hanley

EMERGENCY OPERATIONS PLAN

Hanley International Academy

International Academy will not pay any operational or administrative fees to (Name of the Facility).

The _____ Hanley International Academy shall provide all releases of information to the press and media. Requests for interviews or information submitted to (Name of the Facility) shall be directed to the _____ Hanley International Academy Superintendent.

The _____ Hanley International Academy will make every effort to recognize the hospitality of (Name of the Facility) in any press or media releases pertaining to the relocation and sheltering of students and staff.

Nothing in this MOU is intended to conflict with current laws or regulations of the United States of America, State of Michigan or local government. If a term of this agreement is inconsistent with such authority, then that term shall be invalid, but the remaining terms and conditions of this MOU shall remain in full force and effect.

This agreement shall become effective on (insert effective date) and may be modified upon the mutual written consent of both parties.

The terms of this agreement, as modified with the consent of both parties, shall be self-renewable for a period of five years from the end date of the agreement unless written termination is given by either party. Either party, upon 60 days written notice to the other party, may terminate this agreement.

The terms of this agreement, as modified with the consent of both parties,

AND NOW, this _____ day of _____ 20____, the parties hereby acknowledge the foregoing as the terms and conditions of their understanding.

MAPS Superintendent Signature
Date

Print Name

Authorized Signature, Facility
Date

Print Name

TAB

APPENDIX K: COOP PLAN

TAB

APPENDIX L: INCIDENT COMMAND JOB DESCRIPTIONS

SCHOOL INCIDENT COMMAND SYSTEM (ICS): Functional Reference Model

This chart shows a full three-level management organization for a school response to an emergency. This structure is scalable. One person can perform multiple functions within the same section. Staff each function to the level needed to make it work; consolidate functions to meet resource availability and incident requirements.

INCIDENT COMMANDER
Provides overall direction of response at school site; determines level of staffing; communicates with local public safety and District EOC.

Public Information Officer
Media liaison, official spokesperson for school; coordinates information for parent community.

Safety Officer
Ensures activities are conducted in safe manner; assures safety of personnel (staff, students, volunteers and responders).

Agency Liaison
Assists in establishing and coordinating outside agencies that provide services or resources (e.g., Red Cross).

OPERATIONS
Supports on-scene response at school site; develops Incident Action Plan with Incident Commander; coordinates After Action Report with section chiefs.

PLANNING
Collects, evaluates and documents information about incident, including status of students, staff and facilities; coordinates demobilization of ICS response.

LOGISTICS
Provides services, personnel and supplies in support of incident response.

FINANCE/ADMINISTRATION
Provides financial tracking, procurement and cost accounting of incident response, administers incident-related compensation and claims.

Search & Rescue
Searches facility for injured and missing students and staff; conducts initial damage assessment; provides light fire suppression.

First Aid
Provides triage and medical care; establishes morgue, if needed.

Security/Traffic
Coordinates security needs; establishes traffic and crowd control; restores utilities; secures perimeter and isolates fire/ HazMat.

Evacuation/Shelter & Care
Provides accounting and long-term care for all students until reunited with parents/caretakers; manages food and sanitation needs of students.

Crisis Intervention
Provides onsite counseling and intervention; determines need for outside mental health support

Student Release
Provides for systematic and efficient reunification of students with parents/caretakers; maintains records of student release.

Situation
Processes and organizes all incident information, including staff, student and facility status; maintains ICS status boards and school site map

Documentation
Collects and archives all incident documents.

Resources
Tracks equipment and personnel assigned to the incident; checks in all resources (incoming equipment, personnel and volunteers).

Demobilization
Coordinates orderly and safe release of assigned resources and deactivation of incident response at the site

Food/Supplies/Staffing
Assesses supply resources at site, including food and water; procures supplies and provides personnel, as requested, including volunteers.

Transportation
Arranges transportation for staff, students and supplies.

Facilities
Coordinates site repairs and use of school facilities; arranges for debris removal.

Communications/IT
Maintains all communication equipment, including radios; provides services to support Information Technology functions.

Time
Maintains incident time logs for all personnel.

Procurement
Tracks and maintains complete records of site expenditures and purchases made by Logistics; manages vendor contracts

Cost
Provides cost estimates, analysis and recommendations for cost savings.

Compensation/Claims
Processes compensation/injury claims related to incident

JOB ACTION SHEETS (JAS)

JAS provide school personnel with the basic information needed when assigned a position within the ICS. The sheets provided in this section contain basic information and may be modified to fit the needs/requirements of individual schools. Additional JASs for a variety of ICS positions are available through simple internet searches (e.g., “ICS Job Action Sheets”).

Job Action Sheets included in this section:

Command Section:

Incident Commander
Safety Officer
Public Information Officer
Liaison Officer

Logistics Section:

Logistics Section Chief
Supplies/Facilities
Staffing
Communications

Operations Section:

Operations Section Chief
Site Facility Check/Security
Search & Rescue Team Leader
Search & Rescue Teams
Medical Team Leader
Medical Team
Medical Branch Morgue
Student Care
Student Release

Finance/Administration Section:

Finance/Administration Section Chief
Timekeeping
Purchasing

General:

Student Care: Teacher Responsibilities
Support Staff Responsibilities
Student Support Teams

Planning Section:

Planning Section Chief
Documentation
Situation Analysis

COMMAND SECTION - INCIDENT COMMANDER

RESPONSIBILITIES: The Incident Commander is solely responsible for emergency/disaster operations and shall remain at the Command Post to observe and direct all operations.

Ensure the safety of students, staff, and others on campus. Lead by example: your behavior sets tone for staff and students.

START-UP ACTIONS

- ⇒ Obtain your personal safety equipment (i.e., hard hat, vest, clipboard with job description sheet).
- ⇒ Assess the type and scope of emergency.
- ⇒ Determine the threat to human life and structures.
- ⇒ Implement the emergency plan and hazard-specific procedures.
- ⇒ Develop and communicate an incident action plan with objectives and a timeframe to meet those objectives.
- ⇒ Activate functions and assign positions as needed.
- ⇒ Fill in the Incident Assignments form.
- ⇒ Appoint a backup or alternate Incident Commander (as described in the emergency plan).

ONGOING OPERATIONAL DUTIES:

- ⇒ Continue to monitor and assess the total school situation:
 - View the site map periodically for search and rescue progress and damage assessment information.
 - Check with chiefs for periodic updates.
 - Reassign personnel as needed.
- ⇒ Report (through Communications) to the school superintendent on the status of students, staff, and facility, as needed (Site Status Report).
- ⇒ Develop and communicate revised incident action plans as needed.
- ⇒ Begin student release when appropriate.

NOTE: No student should be released until student accounting is complete. Never send students home before the end of the regular school day unless directed by the principal/superintendent, except at the request of parent/guardian.

- ⇒ Authorize the release of information.
- ⇒ Utilize your backup; plan and take regular breaks (5-10 minutes per hour). During break periods, relocate away from the Command Post.
- ⇒ Plan regular breaks for all staff and volunteers. Take care of your caregivers!
- ⇒ Release teachers as appropriate and per school guidelines. (By law, during a disaster, teachers become disaster workers.)
- ⇒ Remain on and in charge of your campus until redirected or released by the superintendent.

CLOSING DOWN:

- ⇒ Authorize deactivation of sections, branches, or units when they are no longer required.
- ⇒ At the direction of the principal/Superintendent, deactivate the entire emergency response. If the fire department or other outside agency calls an “all clear,” contact the district before taking any further action.
- ⇒ Ensure that any open actions not yet completed will be taken care of after deactivation.
- ⇒ Ensure the return of all equipment and reusable supplies to Logistics.
- ⇒ Close out all logs. Ensure that all logs, reports, and other relevant documents are completed and provided to the Documentation Unit.
- ⇒ Announce the termination of the emergency and proceed with recovery operations if necessary.

COMMAND POST EQUIPMENT/ SUPPLIES:

- Campus map
- LED Flashlight
- Master keys
- Staff and student rosters
- Disaster response forms
- Emergency plan
- Duplicate rosters (two sets)
- Tables and chairs (if Command Post is outdoors)
- Vests (if available)
- Job description clipboards
- Command Post tray (pens, etc.)
- School district radio
- Campus two-way radios
- AM/FM/ NOAA Weather Alert Radio (batteries)
- Bullhorn

COMMAND SECTION: SAFETY OFFICER

RESPONSIBILITIES: The Safety Officer ensures that all activities are conducted in as safe a manner as possible under the existing circumstances.

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Obtain necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Open and maintain a position log. Maintain all required records and documentation to support the history of the emergency or disaster.
- ⇒ Document:
 - Messages received.
 - Action taken.
 - Decision justification and documentation.
 - Requests filled.

OPERATIONAL DUTIES:

- ⇒ Monitor drills, exercises, and emergency response activities for safety.
- ⇒ Identify and mitigate safety hazards and situations.
- ⇒ Stop or modify all unsafe operations.
- ⇒ Ensure that responders use appropriate safety equipment.
- ⇒ Think ahead and anticipate situations and problems before they occur.
- ⇒ Anticipate situation changes, such as cascading events, in all planning.
- ⇒ Keep the Incident Commander advised of your status and activity and on any problem areas that now need or will require solutions.

CLOSING DOWN:

- ⇒ When authorized by the Incident Commander, deactivate the unit and close out all logs. Provide logs and other relevant documents to the Documentation Unit.
- ⇒ Return equipment and reusable supplies to Logistics.

EQUIPMENT/ SUPPLIES:

- Vest or position identifier, if available
- Hard hat, if available
- LED Flashlight
- Clipboard, paper, pens
- Two-way radio, if available
- NOAA Weather Radio

COMMAND SECTION: PUBLIC INFORMATION OFFICER (PIO)

PERSONNEL: Available staff with assistance from available volunteers

POLICY: The public has the right and need to know important information related to an emergency/disaster at the school site as soon as it is available.

The PIO acts as the official spokesperson for the school site in an emergency situation.

News media can play a key role in assisting the school in getting emergency/ disaster-related information to the public (parents).

Information released must be consistent, accurate, and timely.

START-UP ACTIONS:

- ⇒ Determine a possible “news center” site as a media reception area (located away from the Command Post and students). Get approval from the Incident Commander.
- ⇒ Identify yourself as the PIO (by vest, visor, sign, etc.)
- ⇒ Consult with the district PIO to coordinate information release.
- ⇒ Assess the situation and obtain a statement from the Incident Commander. Tape record it if possible.
- ⇒ Advise arriving media that the site is preparing a press release and the approximate time of its issue.
- ⇒ Open and maintain a position log of your actions and all communications. If possible, tape media briefings. Keep all documentation to support the history of the event.

OPERATIONAL DUTIES:

- ⇒ Keep up to date on the situation.
- ⇒ Statements must be approved by the Incident Commander and should reflect:
 - Reassurance (EGBOK— “Everything’s going to be OK.”)
 - Incident or disaster cause and time of origin.
 - Size and scope of the incident.
 - Current situation—condition of school site, evacuation progress, care being given, injuries, student release location, etc. Do not release any names.
 - Resources in use.

- Best routes to the school, if known and if appropriate.
- Any information the school wishes to be released to the public.
- ⇒ Read statements if possible.
- ⇒ When answering questions, be complete and truthful, always considering confidentiality and emotional impact. Avoid speculation, bluffing, lying, talking “off the record,” arguing, etc. Avoid using the phrase “no comment.”
- ⇒ Remind school staff and volunteers to refer all questions from the media or waiting parents to the PIO.
- ⇒ Update information periodically with the Incident Commander.
- ⇒ Ensure that announcements and other information are translated into other languages as needed.
- ⇒ Monitor news broadcasts about the incident. Correct any misinformation heard.

CLOSING DOWN:

- ⇒ At the Incident Commander’s direction, release PIO staff when they are no longer needed. Direct staff members to sign out through Timekeeping.
- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ Close out all logs. Provide logs and other relevant documents to the
- ⇒ Documentation Unit.

EQUIPMENT / SUPPLIES:

- Public information kit consists of:
 - ID vest
 - Battery-operated AM/FM radio
 - LED Flashlight
 - NOAA Weather Radio
 - Paper/pencils/marketing pens
 - Scotch tape/masking tape
 - Scissors
 - School site map(s) and area maps
 - 8-1/2 x 11 handouts
- Laminated poster board size for display
- Forms: Located in Appendix R

COMMAND SECTION: LIAISON OFFICER

RESPONSIBILITIES: The Liaison Officer serves as the point of contact for agency representatives from assisting organizations and agencies outside the school and assists in coordinating the efforts of these outside agencies by ensuring the proper flow of information.

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Determine your personal operating location and set it up as necessary.
- ⇒ Obtain the necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Open and maintain a position log. Maintain all required records and documentation to support the history of the emergency or disaster.

OPERATIONAL DUTIES:

- ⇒ Brief agency representatives on the current situation, priorities, and incident action plan.
- ⇒ Ensure coordination of efforts by keeping the Incident Commander informed of agencies' action plans.
- ⇒ Provide periodic update briefings to agency representatives as necessary.

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, deactivate the Liaison Officer position and release staff no longer needed. Direct staff members to sign out through Timekeeping.
- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ Close out all logs. Provide logs and other relevant documents to the Documentation Unit.

EQUIPMENT/ SUPPLIES:

- Vest or position identifier, if available
- Two-way radio, if available
- NOAA Weather Radio
- LED Flashlight
- Clipboard, paper, pens

OPERATIONS SECTION: OPERATIONS SECTION CHIEF

RESPONSIBILITIES: The Operations Chief manages the direct response to the disaster, which can include:

- Site Facility Check/Security
- Search and Rescue
- Medical
- Student Care
- Student Release

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Obtain necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.

OPERATIONAL DUTIES:

- ⇒ Assume the duties of all operations positions until staff are available and assigned.
- ⇒ As staff members are assigned, brief them on the situation, and supervise their activities, using the position checklists.
- ⇒ If additional supplies or staff are needed for the Operations Section, notify Logistics. When additional staff arrive, brief them on the situation, and assign them as needed.
- ⇒ Coordinate search and rescue operations if it is safe to do so. Appoint an S&R Team Leader to direct operations, if necessary.
- ⇒ As information is received from operations staff, pass it on to situation analysis and/or the Incident Commander.
- ⇒ Inform the Planning Section Chief of operations tasks and priorities.
- ⇒ Make sure that operations staff are following standard procedures, using appropriate safety gear, and documenting their activities.
- ⇒ Schedule breaks and reassign staff within the section as needed.

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, release Operations staff no longer needed. Direct staff members to sign out through Timekeeping.
- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ When authorized by the Incident Commander, deactivate the section and close out all logs. Provide logs and other relevant documents to the Documentation Unit.

EQUIPMENT / SUPPLIES:

- Vest or position identifier, if available
- S&R equipment
- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- Job description clipboard, paper, pens
- Maps:
 - Search and rescue maps
 - Large campus map

OPERATIONS SECTION: SITE FACILITY CHECK/SECURITY

PERSONNEL: Staff as assigned. Work in pairs.

RESPONSIBILITIES: Take no action that will endanger yourself.

START UP ACTIONS:

- ⇒ Wear hard hat and orange identification vest, if available.
- ⇒ Take appropriate tools, job description clipboard, and radio.
- ⇒ Put batteries in flashlight if necessary.

OPERATIONAL DUTIES:

As you complete the following tasks, observe the campus and report any damage by radio to the Command Post.

- ⇒ Remember: If you are not acknowledged, you have not been heard. Repeat your transmission, being aware of other simultaneous transmissions.
- ⇒ Lock gates and major external doors.
- ⇒ Locate, control and extinguish small fires as necessary.
- ⇒ Check gas meter and, if gas is leaking, shut down the gas supply.
- ⇒ Shut down electricity only if building has clear structural damage or advised to do so by Command Post.
- ⇒ Post yellow caution tape around damaged or hazardous areas.
- ⇒ Verify that the campus is “locked down” and report the same to the Command Post.
- ⇒ Advise the Command Post of all actions taken for information and proper logging.
- ⇒ Be sure that the entire campus has been checked for safety hazards and damage.
- ⇒ No damage should be repaired before full documentation, such as photographs and video evidence, is complete unless the repairs are essential to immediate life-safety.
- ⇒ Route fire, rescue, and police, as appropriate.
- ⇒ Direct all requests for information to the Public Information Officer.

CLOSING DOWN:

- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ When authorized by the Incident Commander, close out all logs. Provide logs and other relevant documents to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- Vest, hard hat, work gloves, and whistle.
- LED Flashlight
- NOAA Weather Radio
- Campus two-way radio, master keys, and clipboard with job description.
- Bucket or duffel bag with goggles, flashlight, dust masks, yellow caution tape, and shutoff tools—for gas and water (crescent wrench)

OPERATIONS SECTION: SEARCH AND RESCUE TEAM LEADER

SAFETY RULES:

- ⇒ Use the buddy system: Assign a minimum of 2 persons to each team.
- ⇒ Take no action that might endanger you. Do not work beyond your expertise. Use appropriate safety gear. Size up the situation first. Follow all operational and safety procedures.

START-UP ACTIONS:

- Obtain all necessary equipment from container. (See list below.)
- Obtain a briefing from Operations Chief, noting known fires, injuries, or other situations requiring response.
- Assign teams based on available manpower, minimum 2 persons per team.

OPERATIONAL DUTIES:

- Perform a visual and radio check of the outfitted team leaving the Command Post. Teams must wear sturdy shoes and safety equipment.
- Record names and assignments before deploying teams.
- Dispatch teams to known hazards or situations first, then to search the campus using specific planned routes. Send a specific map assignment with each team.
- Remain at the Command Post in radio contact with S&R Teams.
- Record all teams' progress and reports on the site map, keeping others at the Command Post informed of problems. When a room is reported clear, mark a "C" on the map.
- If injured students are located, consult the Operations Section Chief for response. Utilize Transport teams or send a First Aid Team.
- Record the exact location of damage and a triage tally (I=immediate, D=delayed, DEAD=dead) on the map.
- Keep radio communication brief and simple. No codes.
- Remember: if you are not acknowledged, you have not been heard. Repeat your transmission, being aware of other simultaneous transmissions.

CLOSING DOWN:

- Record the return of each S&R team. Direct them to return equipment and report to Logistics for additional assignment.
- Provide maps and logs to the Documentation Unit.

EMERGENCY OPERATIONS PLAN

Hanley International Academy

EQUIPMENT/SUPPLIES:

- Vest, hard hat, work and latex gloves, and whistle with master keys on lanyard. One team member should wear a first aid backpack.
- LED Flashlight
- NOAA Weather Radio
- Campus two-way radio and clipboard with job description and map indicating the search plan.
- Bucket or duffel bag containing goggles, flashlight, dust masks, pry bar, grease pencil, pencils, duct tape, and masking tape.

OPERATIONS SECTION: SEARCH AND RESCUE TEAMS

SAFETY:

- Use the buddy system: Ensure that each team has been assigned a minimum of 2 persons.
- Take no action that might endanger you. Do not work beyond your expertise. Use appropriate safety gear. Size up the situation first.
- Follow all operational and safety procedures.

START-UP ACTIONS:

- Obtain all necessary equipment from the container. (See list below.) You must wear sturdy shoes and long sleeves. Put batteries in the flashlight.
- Check in at the Command Post for assignment.

OPERATIONAL DUTIES:

- Report gas leaks, fires, or structural damage to the Command Post immediately upon discovery. Shut off gas or extinguish fires if possible.
- Before entering a building, inspect the complete exterior of the building. Report structural damage to the team leader. Use yellow caution tape to barricade hazardous areas. Do not enter severely damaged buildings. If you are in doubt about your safety, DO NOT ENTER!
- If the building is safe to enter, search the assigned area (following the map) using an orderly pattern. Check all rooms. Use chalk or grease pencil to mark a slash on the door when entering a room. Check under desks and tables. Search visually and vocally. Listen. When leaving each room, complete the slash to form an "X" on the door. Report by radio to the Command Post that the room has been cleared (e.g. "Room A-123 is clear.").
- Remember: If you are not acknowledged, you have not been heard. Repeat your transmission, being aware of other simultaneous transmissions.
- When an injured victim is located, transmit the location, number, and condition of the injured to the Command Post. Do not use names of students or staff. Follow directions from the Command Post.
- Record the exact location of damage and triage tally (I=immediate, D=delayed, DEAD=dead) on the map and report the information to the Command Post.
- Keep radio communication brief and simple. Do not use codes.

CLOSING DOWN:

- Return equipment to Logistics. Provide maps and logs to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- Vest, hard hat, work and latex gloves, and whistle with master keys on a neck lanyard. One member of the team should wear a first aid backpack.
- LED Flashlight
- NOAA Weather Radio
- Campus two-way radio and clipboard with job description and map indicating the search plan.
- Bucket or duffel bag containing goggles, flashlight, dust masks, pry bar, grease pencil, pencils, duct tape, and masking tape.

OPERATIONS SECTION: MEDICAL TEAM LEADER

RESPONSIBILITIES: The Medical Team Leader is responsible for providing emergency medical response, first aid, and counseling. He or she informs the Operations Chief or Incident Commander when the situation requires health or medical services that staff cannot provide and ensures that appropriate actions are taken in the event of deaths.

START-UP ACTIONS:

- ⇒ Establish scope of disaster with the Incident Commander and determine probability of outside emergency medical support and transport needs.
- ⇒ Make personnel assignments. If possible, assign a minimum of two people to triage, two to immediate treatment, two to delayed treatment, and two to psychological treatment.
- ⇒ Set up a first aid area in a safe place (upwind from the emergency area if the emergency involves smoke or hazardous materials), away from students and parents, with access to emergency vehicles. Obtain equipment and supplies from the storage area.
- ⇒ Assess available inventory of supplies and equipment.
- ⇒ Review safety procedures and assignments with personnel.
- ⇒ Establish a point of entry (“triage”) into the treatment area.
- ⇒ Establish “immediate” and “delayed” treatment areas.
- ⇒ Set up a separate psychological first aid area if staff levels are sufficient.

OPERATIONAL DUTIES:

- ⇒ Oversee the assessment, care, and treatment of patients.
- ⇒ Ensure caregiver and rescuer safety: Ensure that they use latex gloves for protection from body fluids and new gloves for each new patient.
- ⇒ Make sure that accurate records are kept.
- ⇒ Provide personnel to respond to injuries in remote locations or request a Transport Team from Logistics.
- ⇒ If needed, request additional personnel from Logistics.
- ⇒ Brief newly assigned personnel.
- ⇒ Report deaths immediately to the Operations Section Chief.
- ⇒ Keep the Operations Section Chief informed of the overall status.
- ⇒ Set up a morgue, if necessary, in a cool, isolated, secure area; follow the guidelines established in the plan.
- ⇒ Stay alert for communicable diseases and isolate appropriately.
- ⇒ Consult with the Student Care Director regarding health care, medications, and meals for students with known medical conditions (e.g., diabetes, asthma, etc.).

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, release medical staff who are no longer needed. Direct staff members to sign out through Timekeeping.
- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ When authorized by the Incident Commander, deactivate the section and close out all logs. Provide the logs and other relevant documents to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- First aid supplies. (See additional list below)
- Job description clipboards
- LED Flashlight
- NOAA Weather Radio
- Stretchers
- Vests, if available
- Tables and chairs
- Staff and student medication from the Health Office
- Forms:
 - Notice of First Aid Care
 - Medical Treatment Victim Log
- Masking tape
- Marking pens
- Blankets
- Quick reference medical guides
- Ground cover/tarps

Recommended First Aid Supplies:

- 4 x 4" compress: 1000 per 500 students
- 8 x 10" compress: 150 per 500 students
- Kerlix bandaging: 1 per student
- Ace wrap: 2-inch: 12 per campus, 4-inch: 12 per campus
- Triangular bandage: 24 per campus
- Cardboard splints: 24 each of sm, med, lg.
- Steri-strips or butterfly bandages: 50 per campus
- Aqua-Blox (water) cases (for flushing wounds, etc.): 0.016 x students + staff = # cases
- Neosporin: 144 squeeze packs per campus
- Hydrogen peroxide: 10 pints per campus
- Bleach: 1 small bottle
- Plastic basket or wire basket stretchers or backboards: 1.5 per 100 students
- Scissors, paramedic: 4 per campus
- Tweezers: 3 assorted per campus
- Triage tags: 50 per 500 students
- Latex gloves: 100 per 500 students
- Oval eye patch: 50 per campus
- Tapes: 1" cloth: 50 rolls/campus, 2" cloth: 24 per campus
- Dust masks: 25 per 100 students
- Disposable blanket: 10 per 100 students
- First Aid Books: 2 standard and 2 advanced per campus
- Space blankets: 1 per student and staff
- Heavy duty rubber gloves: 4 pair

OPERATIONS SECTION: MEDICAL TEAM

PERSONNEL: First aid trained staff and volunteers

RESPONSIBILITIES: Use approved safety equipment and techniques.

START-UP ACTIONS:

- ⇒ Obtain and wear personal safety equipment including latex gloves.
- ⇒ Check with the Medical Team Leader for assignment.

OPERATIONAL DUTIES:

- ⇒ Administer appropriate first aid.
- ⇒ Keep accurate records of care given.
- ⇒ Continue to assess victims at regular intervals.
- ⇒ Report deaths immediately to the Medical Team Leader.
- ⇒ If and when transportation is available, do a final assessment and document on the triage tag. Keep and file records for reference—do not send any records with the victim.
- ⇒ A student's emergency card must accompany each student removed from campus to receive advanced medical attention. Send an emergency out-of-area phone number, if available.

Triage Entry Area:

- ⇒ The triage area should be staffed with a minimum of two trained team members, if possible.
 - One member confirms the triage tag category (red, yellow, green) and directs to the proper treatment area. Should take 30 seconds to assess—no treatment takes place here. Assess if not tagged.
 - Second team member logs victims' names on form and sends the forms to the Command Post as completed.

Treatment Areas (“Immediate and Delayed”)

- ⇒ Treatment areas should be staffed with a minimum of two team members per area, if possible.
 - One member completes secondary head-to-toe assessment.
 - Second member records information on the triage tag and on-site treatment records.
- ⇒ Follow categories: Immediate, Delayed, Dead
- ⇒ When using the two-way radio, do not use the names of the injured or dead.

CLOSING DOWN:

- ⇒ Return equipment and unused supplies to Logistics.
- ⇒ Clean up first aid area. Dispose of hazardous waste safely.
- ⇒ Complete all paperwork and turn it in to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- First-aid supplies (See the list on the following page.)
- Job description clipboards
- LED Flashlight
- NOAA Weather Radio
- Stretchers
- Vests, if available
- Tables and chairs
- Staff and student medication from health office
- Forms:
 - Notice of First Aid Care
 - Medical Treatment Victim Log
- Marking pens
- Blankets
- Quick reference medical guides
- Ground cover/tarps

OPERATIONS SECTION: MEDICAL BRANCH MORGUE

PERSONNEL: To be assigned by the Operations Section Chief if needed.

START-UP ACTIONS:

- ⇒ Check with the Operations Section Chief for direction.
- ⇒ If directed, set up a morgue area. Verify:
 - Tile, concrete, or another cool floor surface
 - Accessible to Coroner's vehicle
 - Remote from the assembly area
- ⇒ Security: Keep unauthorized persons out of the morgue.
- ⇒ Maintain a respectful attitude.

OPERATIONAL DUTIES:

- ⇒ After pronouncement or determination of death:
- ⇒ Confirm that the person is actually dead. Remember, you do not have the authority to pronounce a person dead. This must be done by the Coroner or other medical authority.
- ⇒ Do not move the body until directed by the Command Post.
- ⇒ Do not remove any personal effects from the body. Personal effects must remain with the body at all times.
- ⇒ As soon as possible, notify the Operations Section Chief, who will notify the Incident Commander, who will attempt to notify law enforcement authorities of the location and, if known, the identity of the body. Law enforcement personnel will notify the Coroner.
- ⇒ Keep accurate records and make them available to law enforcement and/or the Coroner when requested.
- ⇒ Write the following information on two tags:
 - Date and time found.
 - Exact location where found.
 - Name of decedent if known.
 - If identified—how, when, by whom.
 - Name of person filling out tag.
- ⇒ Attach one tag to body.
- ⇒ If the Coroner's Office will not be able to pick up the body soon, place the body in a secure in the morgue.
- ⇒ Place any additional personal belongings found in a separate container and label as above. Do not attach to the body—store separately near the body.

CLOSING DOWN:

- ⇒ After all bodies have been picked up, close down the Morgue.
- ⇒ Return equipment and unused supplies to Logistics.
- ⇒ Clean up the area. Dispose of hazardous waste safely.
- ⇒ Complete all paperwork and turn in to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- Tags
- LED Flashlight
- NOAA Weather Radio
- Pens/pencils
- Plastic trash bags
- Duct tape
- Vicks VapoRub (to assist with odor)
- Plastic tarps
- Stapler
- 2" cloth tape

OPERATIONS SECTION: STUDENT CARE

PERSONNEL: Classroom teachers, substitute teachers, and staff as assigned.

RESPONSIBILITIES: Ensure the care and safety of all students on campus except those who are in the medical treatment area.

START-UP ACTIONS:

- ⇒ Wear an identification vest, if available.
- ⇒ Take a job description clipboard and radio.
- ⇒ Check in with the Operations Section Chief for a situation briefing.
- ⇒ Make personnel assignments as needed.
- ⇒ If evacuating:
 - Verify that the assembly area and routes to it are safe.
 - Count or observe the classrooms as they exit, to make sure that all classes evacuate.
- ⇒ Initiate the set-up of portable toilet facilities and hand-washing stations.

OPERATIONAL DUTIES:

- ⇒ Monitor the safety and well-being of the students and staff in the assembly area.
- ⇒ Administer minor first aid as needed.
- ⇒ Support the Student Release process by releasing students with the appropriate paperwork.
- ⇒ When necessary, provide water and food to students and staff.
- ⇒ Make arrangements for portable toilets if necessary, ensuring that students and staff wash their hands thoroughly to prevent disease.
- ⇒ Make arrangements to provide shelter for students and staff.
- ⇒ Arrange activities and keep students reassured.
- ⇒ Update records of the number of students and staff in the assembly area (or in the buildings).
- ⇒ Direct all requests for information to the PIO.

CLOSING DOWN:

- ⇒ Return equipment and reusable supplies to Logistics.
- ⇒ When authorized by the Incident Commander, close out all logs. Provide logs and other relevant documents to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- Vest
- LED Flashlight
- NOAA Weather Radio
- Clipboard with job description
- Ground cover, tarps
- First aid kit
- Forms: Located in Appendix R
- Campus two-way radio
- Water, food, sanitation supplies
- Student activities: books, games, coloring books, etc.

OPERATIONS SECTION: STUDENT RELEASE AND REUNIFICATION

PERSONNEL: School secretary, available staff and disaster volunteers. Use a buddy system. The Student Release process is supported by student runners.

RESPONSIBILITIES: Assure the reunification of students with their parents or authorized adult through separate Request and Release Gates.

START-UP ACTIONS:

- ⇒ Obtain and wear a vest or position identifier, if available.
- ⇒ Check with the Operations Section Chief for assignment to the Request Gate or Release Gate.
- ⇒ Obtain necessary equipment and forms from Logistics.
- ⇒ Secure the area against unauthorized access. Mark the gates with signs.
- ⇒ Set up the Request Gate at the main student access gate. Use alphabetical grouping signs to organize parent requests.
- ⇒ Have Student Release Forms available for parents outside of the fence at the Request Gate. Assign volunteers to assist.
- ⇒ Set up the Release Gate some distance from the Request Gate.

OPERATIONAL DUTIES:

- ⇒ Follow the procedures outlined below to ensure the safe reunification of students with their parents or guardians:
- ⇒ Refer all requests for information to the POI. Do not spread rumors!
- ⇒ If volunteers arrive to help, send those with Disaster Volunteer badges with photo ID to Logistics. If they are not registered (i.e., do not have badges), direct them to a branch library to register.

PROCEDURES:

- ⇒ The requesting adult fills out a Student Release Form, gives it to a staff member, and shows identification.
- ⇒ The staff member verifies the identification, pulls the Emergency Card from the file, and verifies that the requester is listed on the card.
- ⇒ The staff member instructs the requester to proceed to the Release Gate.
- ⇒ If there are two copies of the Emergency Cards (one at each gate), staff files the Emergency Card in the out box. If there is only one copy, a runner takes the card with the Student Release Form, and staff files a blank card with the student's name on it in the out box.
- ⇒ The runner takes the form(s) to the designated classroom.

Note: If a parent refuses to wait in line, don't argue. Note the time with appropriate comments on the Emergency Card and place it in the out box.

If the student is with the class:

- ⇒ Runner shows the Student Release Form to the teacher.
- ⇒ The teacher marks the box, "Sent with Runner."
- ⇒ If appropriate, the teacher sends the parent copy of the First Aid Form with the runner.
- ⇒ The runner walks the student(s) to the Release Gate.
- ⇒ The runner hands the paperwork to release personnel.
- ⇒ Release staff match the student to the requester, verify proof of identification, ask the requester to fill out and sign the lower portion of Student Release Form, and release the student. Parents are given the Notice of First Aid Care Given, if applicable.

If the student is not with the class:

- ⇒ The teacher makes the appropriate notation on the Student Release Form:
- ⇒ "Absent" if the student was never in school that day.
- ⇒ "First Aid" if the student is in the Medical Treatment area.
- ⇒ "Missing" if the student was in school but now cannot be located.
- ⇒ The runner takes Student Release Form to the Command Post.
- ⇒ The Command Post verifies the student's location if known and directs the runner accordingly.
- ⇒ If the runner is retrieving multiple students and one or more are missing, the runner walks the available students to the Release Gate before returning "Missing" forms to the Command Post for verification.
- ⇒ The parent should be notified of the missing student's status and escorted to a crisis counselor.

If the student is in First Aid: the parent should be escorted to the Medical Treatment Area.

If the student was marked absent: the parent will be notified by a staff member.

CLOSING DOWN:

- ⇒ At the direction of the Operations Section Chief, return equipment and unused supplies to Logistics.
- ⇒ Complete all paperwork and turn it in to the Documentation Unit.

EQUIPMENT/SUPPLIES:

- Job description clipboards
- Pens, stapler
- LED Flashlight
- NOAA Weather Radio
- Box(es) of Emergency Cards
- Signs to mark Request Gate and Release Gate
- Signs for alphabetical grouping to organize the parents (A-F, etc.)
- Empty file boxes to use as out boxes
- Student Release Form (copies for every student)

PLANNING SECTION: PLANNING SECTION CHIEF

RESPONSIBILITIES: This section is responsible for the collection, evaluation, documentation and use of information about the development of the incident and the status of resources. Maintain accurate records and site map. Provide ongoing analysis of situation and resource status.

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Obtain necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.

OPERATIONAL DUTIES:

- ⇒ Assume the duties of all Planning Section positions until staff is available and assigned.
- ⇒ As (or if) staff is assigned, brief them on the situation and supervise their activities, utilizing the position checklists.
- ⇒ Assist the Incident Commander in writing action plans.

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, deactivate the section and close out all logs.
- ⇒ Verify that the closing tasks of all Planning Section positions have been accomplished.
- ⇒ Return equipment and reusable supplies to Logistics.

EQUIPMENT/SUPPLIES:

- Two-way radio
- File box(es)
- Dry-erase pens
- Large site map of campus, laminated or covered with Plexiglas
- Forms:
 - Emergency Time/Situation Report
 - Sample Log
 - Student Accounting Form
- Paper, pens
- Job description clipboard
- Tissues

PLANNING SECTION: DOCUMENTATION

RESPONSIBILITIES: This section is responsible for the collection, evaluation, documentation and use of information about the development of the incident and the status of resources.

START-UP ACTIONS:

- ⇒ Check in with the Planning Section Chief for a situation briefing.
- ⇒ Obtain necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Determine whether there will be a Finance/Administration Section. If there is none, the Documentation Clerk will be responsible for maintaining all records of any expenditures as well as all personnel timekeeping records.

OPERATIONAL DUTIES:

Records:

- ⇒ Maintain a time log of the incident, noting all actions and reports. (See the sample log in Appendix G.)
- ⇒ Record content of all radio communication with the district Emergency Operations Center (EOC).
- ⇒ Record verbal communication for basic content.
- ⇒ Log in all written reports.
- ⇒ File all reports for reference (file box).

Important: A permanent log may be typed or rewritten at a later time for clarity and better understanding. Keep all original notes and records—they are legal documents.

Student and Staff Accounting:

- ⇒ Receive, record, and analyze Student Accounting forms.
- ⇒ Check off staff roster. Compute the number of students, staff, and others on campus for Situation Analysis. Update periodically.
- ⇒ Report missing persons and site damage to the Command Post.
- ⇒ Report first aid needs to the Medical Team Leader.
- ⇒ File forms for reference.

CLOSING DOWN:

- ⇒ Collect and file all paperwork and documentation from deactivating sections.
- ⇒ Securely package and store these documents for future use.
- ⇒ Return equipment and reusable supplies to Logistics.

EQUIPMENT/SUPPLIES:

- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- File box(es)
- Forms: Located in Appendix R
- Paper, pens
- Job description clipboard

PLANNING SECTION: SITUATION ANALYSIS

RESPONSIBILITIES: This section is responsible for the collection, evaluation, documentation and use of information about the development of the incident and the status of resources. Maintain accurate site map. Provide ongoing analysis of situation and resource status.

START-UP ACTIONS:

- ⇒ Check in with Planning Section Chief for a situation briefing.
- ⇒ Obtain necessary equipment and supplies from Logistics.
- ⇒ Put on a position identifier, such as a vest, if available.

OPERATIONAL DUTIES:

Situation Status (Map):

- ⇒ Collect, organize and analyze situation information.
- ⇒ Mark the site map appropriately as related reports are received, including but not limited to S&R reports and damage updates, giving a concise picture of the status of the campus.
- ⇒ Preserve the map as a legal document until it is photographed.
- ⇒ Use an area-wide map to record information on major incidents, road closures, utility outages, etc. (This information may be useful to staff for planning routes home, etc.)

Situation Analysis:

- ⇒ Provide current situation assessments based on analysis of information received.
- ⇒ Develop situation reports for the Command Post to support the action planning process.
- ⇒ Think ahead and anticipate situations and problems before they occur.
- ⇒ Report only to Command Post personnel. Refer all other requests to the PIO.

CLOSING DOWN:

- ⇒ Close out all logs and turn all documents in to Documentation.
- ⇒ Return equipment and reusable supplies to Logistics.

EQUIPMENT/SUPPLIES:

- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- Paper, pens, dry-erase pens, tissues
- Job description clipboards
- Large site map of campus, laminated or covered with Plexiglas
- File box(es)
- Map of county or local area

LOGISTICS SECTION: LOGISTICS SECTION CHIEF

RESPONSIBILITIES: The Logistics Section is responsible for providing facilities, services, personnel, equipment, and materials in support of the incident.

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Open the supplies container or other storage facility.
- ⇒ Put on position identifier, such as a vest, if available.
- ⇒ Begin distribution of supplies and equipment as needed.
- ⇒ Ensure that the Command Post and other facilities are set up as needed.

OPERATIONAL DUTIES:

- ⇒ Assume the duties of all Logistics positions until staff is available and assigned.
- ⇒ As (or if) staff is assigned, brief them on the situation and supervise their activities, utilizing the position checklists.
- ⇒ Coordinate supplies, equipment, and personnel needs with the Incident Commander.
- ⇒ Maintain security of the cargo container, supplies and equipment.

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, deactivate the section and close out all logs.
- ⇒ Verify that closing tasks of all Logistics positions have been accomplished. Secure all equipment and supplies.

EQUIPMENT/SUPPLIES:

- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- Job description clipboard
- Paper, pens
- Cargo container or other storage facility and all emergency supplies stored on campus
- Clipboards with volunteer sign-in sheets
- Forms:
- Inventory of emergency supplies on campus
- Site Status Report
- Communications Log
- Message forms

LOGISTICS SECTION: SUPPLIES/FACILITIES

RESPONSIBILITIES: This unit is responsible for providing facilities, equipment, supplies, and materials in support of the incident.

START-UP ACTIONS:

- ⇒ Check in with the Logistics Section Chief for a situation briefing.
- ⇒ Open the supplies container or other storage facility if necessary.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Begin distribution of supplies and equipment as needed.
- ⇒ Set up the Command Post.

OPERATIONAL DUTIES:

- ⇒ Maintain security of the cargo container, supplies and equipment.
- ⇒ Distribute supplies and equipment as needed.
- ⇒ Assist team members in locating appropriate supplies and equipment.
- ⇒ Set up the Staging Area, Sanitation Area, Feeding Area, and other facilities as needed.

CLOSING DOWN:

- ⇒ At the Logistic Chief's direction, receive all equipment and unused supplies as they are returned.
- ⇒ Secure all equipment and supplies.

EQUIPMENT/SUPPLIES:

- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- Job description clipboard
- Paper, pens
- Cargo container or other storage facility and all emergency supplies stored on campus
- Form: Inventory of emergency supplies on campus

LOGISTICS SECTION: STAFFING

RESPONSIBILITIES: This unit is responsible for coordinating the assignment of personnel (staff, students, disaster volunteers) in support of the incident.

START-UP ACTIONS:

- ⇒ Check in with the Logistics Section Chief for a situation briefing.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Open three logs to list staff, volunteers, and students who are awaiting assignment.

OPERATIONAL DUTIES:

- ⇒ Deploy personnel as requested by the Incident Commander.
- ⇒ Sign in volunteers, making sure that volunteers are wearing their ID badges and are on the site disaster volunteer list. Unregistered volunteers should be sent to the city library to register.

CLOSING DOWN:

- ⇒ Ask volunteers to sign out.
- ⇒ At the Logistic Section Chief's direction, close out all logs and turn them in to Documentation.
- ⇒ Return all equipment and supplies.

EQUIPMENT/SUPPLIES:

- Two-way radio
- NOAA Weather Radio
- LED Flashlight
- Job description clipboard
- Paper, pens
- Cargo container or other storage facility and all emergency supplies stored on campus
- Clipboards with volunteer sign-in sheets
- Forms:
 - Inventory of emergency supplies on campus
 - List of registered disaster volunteers

LOGISTICS SECTION: COMMUNICATIONS

RESPONSIBILITIES: This unit is responsible for establishing, coordinating, and directing verbal and written communications within the school disaster site and with the school district. If the school district cannot be contacted, communications may be made with outside agencies when necessary.

PERSONNEL:

- ⇒ A school staff member with a campus two-way radio, supported by student or disaster volunteer runners, and
- ⇒ A disaster volunteer who is a qualified amateur radio operator.

START-UP ACTIONS:

- ⇒ Set up the Communications station in a quiet location with access to the Command Post.
- ⇒ Turn on radios and advise the Command Post when ready to accept traffic.

OPERATIONAL DUTIES:

- ⇒ Communicate with the county EOC per school procedure. At the direction of the Incident Commander, report the status of students, staff, and campus, using the Site Status Report form.
- ⇒ Receive and write down all communications from the county EOC.
- ⇒ Use runners to deliver messages to the Incident Commander with copies to the Planning Section Chief.
- ⇒ Maintain the Communications Log: date/time/originator/recipient.
- ⇒ Direct the media or the public to the PIO.
- ⇒ Monitor AM/FM radio for local emergency news: [specify station(s) and frequency].

CLOSING DOWN:

- ⇒ Close out all logs, message forms, etc. and turn them over to Documentation.
- ⇒ Return all equipment and unused supplies to Logistics.

EQUIPMENT/SUPPLIES:

- Two-way radios with spare batteries for each
- NOAA Weather Radio
- LED Flashlight
- Job description clipboard
- Paper, pens
- Table and chairs
- AM/FM radio
- File boxes, tote tray for outgoing messages
- Forms:
 - Site Status Report
 - Message forms

FINANCE/ADMINISTRATION SECTION: FINANCE/ADMINISTRATION SECTION CHIEF

RESPONSIBILITIES: The Finance/Administration Section is responsible for financial tracking, procurement, and cost analysis related to the disaster or emergency. It maintains financial records and tracks and records staff hours.

START-UP ACTIONS:

- ⇒ Check in with the Incident Commander for a situation briefing.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Locate and set up workspace.
- ⇒ Check in with the Documentation Clerk to collect records and information that relate to personnel timekeeping and/or purchasing.

OPERATIONAL DUTIES:

- ⇒ Assume the duties of all Finance/Administration positions until staff is available and assigned.
- ⇒ As (or if) staff is assigned, brief them on the situation and supervise their activities, utilizing the position checklists.

CLOSING DOWN:

- ⇒ At the Incident Commander's direction, deactivate the section and close out all logs.
- ⇒ Verify that the closing tasks of all Finance/Administration positions have been accomplished. Secure all documents and records.

EQUIPMENT/SUPPLIES:

- Job description clipboard
- LED Flashlight
- NOAA Weather Radio
- Paper, pens
- Form: Staff Duty Log

FINANCE/ADMINISTRATION SECTION: TIMEKEEPING

RESPONSIBILITIES: This unit is responsible for maintaining accurate and complete records of staff hours.

START-UP ACTIONS:

- ⇒ Check in with the Finance/Administration Section Chief for a situation briefing.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Locate and set up workspace.
- ⇒ Check in with the Documentation Clerk to collect records and information which relate to personnel timekeeping.

OPERATIONAL DUTIES:

- ⇒ Meet with the Finance/Administration Section Chief to determine the process for tracking regular and overtime hours of staff.
- ⇒ Ensure that accurate records are kept of all staff members, indicating the hours worked.
- ⇒ If district personnel not normally assigned to the site are working, be sure that records of their hours are kept.

CLOSING DOWN:

- ⇒ Close out all logs.
- ⇒ Secure all documents and records.

EQUIPMENT/SUPPLIES:

- Job description clipboard
- LED Flashlight
- NOAA Weather Radio
- Paper, pens
- Form: Staff Duty Log

FINANCE/ADMINISTRATION SECTION: PURCHASING

RESPONSIBILITIES: This unit is responsible for maintaining accurate and complete records of purchases.

START-UP ACTIONS:

- ⇒ Check in with the Finance/Administration Section Chief for a situation briefing.
- ⇒ Put on a position identifier, such as a vest, if available.
- ⇒ Locate and set up workspace.
- ⇒ Check in with the Documentation Clerk to collect records and information that relate to purchasing.

OPERATIONAL DUTIES:

- ⇒ Meet with the Finance/Administration Section Chief to determine the process for tracking purchases.
- ⇒ Support Logistics in making any purchases which have been approved by the Incident Commander.

CLOSING DOWN:

- ⇒ Close out all logs.
- ⇒ Secure all documents and records.

EQUIPMENT/SUPPLIES:

- Job description clipboard
- LED Flashlight
- NOAA Weather Radio
- Paper, pens

STUDENT CARE: TEACHER RESPONSIBILITIES

RESPONSIBILITIES: All teachers and substitute teachers

General:

- ⇒ Assess the situation and remain calm.
- ⇒ If the ground is shaking or wind is blowing “Drop. Cover. Hold on.”
- ⇒ Calm, direct, and give aid to students. Assist seriously injured students if possible.

Lockdown or Shelter in Place:

- ⇒ If gunfire or explosions are heard, or if notified by authorities, initiate lockdown procedures as outlined in your school’s plan. Move everyone away from the windows and doors, lock the doors, remain quiet and wait for further instructions.
- ⇒ If shelter in place is activated, follow procedures as described in your school’s plan. (Note: These procedures should be in your classroom “Go Kit” as well.)

Evacuation:

- ⇒ Check with your buddy teacher and assist as necessary.
- ⇒ Take classroom Go Kit, emergency cards, and roll book.
- ⇒ Evacuate to emergency assembly area:
- ⇒ Check with your buddy teacher and assist or, if necessary, evacuate both classes together.
- ⇒ Use the safest route; stay alert for hazards; move quickly and quietly.
- ⇒ Close the classroom door, but leave it unlocked for search and rescue access.

Assembly Area:

- ⇒ Instruct the students to sit on the grass or blacktop.
- ⇒ Take attendance and complete a Student Accounting Form.
- ⇒ One of each pair of buddy teachers must take the accounting forms to documentation and reports (at the Command Post).

Remaining Supervising Teacher:

- ⇒ Supervise and reassure students.
- ⇒ Administer first aid as necessary, or send the student(s) to the First Aid area with his/her emergency card.
- ⇒ Fill out a Notice of First Aid Care form if first aid is given. Retain one copy; attach the other to the emergency card.
- ⇒ Locate each student’s emergency card.

- ⇒ Keep a record of the location of all students at all times, using the Student Accounting Form.
- ⇒ Be alert for latent signs of injury/shock in all students.

Student Release:

- ⇒ Student runners will bring a form requesting the student.
- ⇒ Note that the student has left on the Student Accounting Form.
- ⇒ Send the emergency card and any first aid forms with the student.
- ⇒ The student will accompany the runner to the release area.
- ⇒ If a parent demands the child, breaking release procedure, make an appropriate notation describing the incident on the emergency card and store it in the Classroom Kit. Avoid confrontations.

EQUIPMENT/SUPPLIES:

- Class lists
- LED Flashlights
- Student Information Sheets or Emergency Cards
- First Aid Kit and Classroom Kit (if available)
- Forms: Located in Appendix R
- Clipboard
- Pen or pencil

SUPPORT STAFF RESPONSIBILITIES

PERSONNEL:

- Administrative Staff
- Administrative Staff
- Security
- Librarian
- Cafeteria Workers
- Classroom Aides
- School Support Teams
- Resource Teachers
- Guidance Counselors
- Maintenance Workers
- Curriculum Specialist
- Custodians

RESPONSIBILITIES:

- ⇒ Follow standard safety procedures.
- ⇒ If remaining with the students, follow Classroom Teacher Responsibility guidelines.
- ⇒ Check in at the Command Post for assignment.
- ⇒ Report any known injuries or damage.
- ⇒ Use safety equipment and follow directions.

STUDENT SUPPORT TEAMS (OPTIONAL)

PERSONNEL: If age appropriate, pre-selected students, trained on emergency procedures and with parental permission, may assist in support roles. Students should never be placed in hazardous or potentially traumatic situations or unsupervised positions responsible for the safety of others.

RESPONSIBILITIES:

- ⇒ Report to classroom location for roll call.
- ⇒ After roll is taken, check in at the Command Post for assignment.
- ⇒ Possible assignments may include:
 - ⇒ Serving as runners for student release or delivery of written information to or from the Command Post.
 - ⇒ Assisting in the setup of student release and other response locations.
 - ⇒ Assisting the Student Care Director by delivering or assembling equipment (e.g., portable toilets and enclosures), distributing water, or acting as information runners.
 - ⇒ Assisting in recreational activities for students.

EQUIPMENT/SUPPLIES:

- Orange safety vest (if available)
- Others issued as necessary

TAB

APPENDIX M: CLASS ROSTERS/ SCHEDULE

| | | | | | | | |
|------------------|--------------------|--|--|--|--|--|--|
| | | | | | | | |
| 2nd Grade | | | | | | | |
| | | | | | | | |
| 7:40 | Breakfast | | | | | | |
| 8:00 | Reading | | | | | | |
| 10:00 | Math | | | | | | |
| 11:15 | Lunch | | | | | | |
| 11:45 | Bathroom Break | | | | | | |
| 11:55 | Science | | | | | | |
| 12:30 | Encore | | | | | | |
| 1:15 | Writing | | | | | | |
| 2:05 | Recess | | | | | | |
| 2:25 | Social Studies | | | | | | |
| 3:15 | Pack up/ Dismissal | | | | | | |

| | |
|------------------------------------|-----|
| ELA - 8:00 - 9:50 | 110 |
| Encore - 9:50 - 10:35 | |
| Restroom Break - 10:35 - 10:45 | |
| ELA, cont. (writing) 10:45 - 11:20 | 35 |
| Lunch - 11:20 - 11:45 | |
| Math 11:45 - 1:25 | 100 |
| Restroom 1:25-1:30 | |
| Recess - 1:30 - 1:45 | |
| Science - 1:45 - 2:30 | 45 |
| Social Studies - 2:30 - 3:15 | 45 |



| | | | |
|--|--|--------------------------------|--|
| Science - 8:00 - 8:55 | | | |
| Encore - 8:55 - 9:40 | | | |
| Restroom Break - 9:40 - 9:50 | | | |
| Math - 9:50 - 11:15 | | | |
| Writing - 11:15 - 11:45 | | | |
| Lunch - 11:50 - 12:15 | | | |
| Recess - 12:15 - 12:30 | | | |
| ELA - (Reading & Grammar) - 12:35 - 2:30 | | [Restroom Break - 1:50 - 2:00] | |
| Social Studies - 2:30 - 3:10 | | | |

| | | | | |
|--------------------------------|---|--|--|--|
| ELA - 8:00 - 10:45 | (8:30-9:30 Whole Group, 9:30-10:15 Independent Practice/Workshop) | | | |
| Restroom Break - 10:00 - 10:10 | | | | |
| Encore - 10:45 - 11:30 | | | | |
| CNN-10 - Mon., Wed., & Fri. | PBIS Recess - Tues. and Thurs. 11:30-11:45 | | | |
| Lunch - 11:50 - 12:15 | | | | |
| Science - 12:20 - 1:05 | | | | |
| Restroom Break - 1:05 - 1:15 | | | | |
| Math - 1:15 - 2:30 | | | | |
| Social Studies - 2:30 - 3:10 | :35-3:10 | | | |

| | |
|----------------------|---------------------------------|
| 8:45 - 9:00 | Morning Journal Prompt |
| 9:00 - 10:30 | Math |
| 10:35 - 11:20 | Science |
| 11:20- 12:05 | Social Studies |
| 12:05 - 12:20 | CNN 10 (SS/Writing/S&L) |
| 12:20 - 12:45 | Lunch |
| 12:45 - 1:00 | DEAR/Small Group Skills |
| 1:00 - 3:15 | ELA (Reading, Writing, Grammar) |

TAB

APPENDIX N: RESOURCE INVENTORY

RESOURCE SUMMARY

| Resource | Location |
|---|-----------------|
| Communication Equipment – Radios, weather radio, telephones | |
| First Aid Equipment | |
| AED's | |
| Emergency supply bins for relocation – student age appropriate activities | |
| Fire suppression equipment | |
| Extra Food/Water | |
| Blankets | |
| Flashlights/other lighting equipment | |
| Maintenance Supplies/Tools | |
| | |
| | |
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| | |
| | |

TAB

APPENDIX O: LAW ENFORCEMENT COMMAND POSTS

LAW ENFORCEMENT COMMAND POSTS

| | |
|--|--|
| <p>Primary Post Location:</p> | <p>Hamtramck Police Department 3401 Evaline St. Hamtramck, Mi. 48212 313-800-5281</p> |
| <p>Alternate Post Location:</p> | <p></p> |

TAB

APPENDIX P: HAZARD MITIGATION PLAN

DRAFT Hazard Mitigation Plan (For Public Distribution & Review)

Department of Homeland Security
& Emergency Management
Wayne County, Michigan

June 17, 2019

ASTI ENVIRONMENTAL



**Hazard Mitigation Plan
(For Public Distribution & Review)**

Wayne County, Michigan

June 17, 2019

Prepared For:

Wayne County Department of Homeland Security
& Emergency Management
Wayne County, Michigan

Prepared By:

ASTI Environmental, Inc.
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ASTI File No. 10943

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Executive Summary

Wayne County Hazard Mitigation Plan

As with all communities in Michigan, Wayne County is subject to natural, technological, and human hazards that can threaten life and health, and can impact the quality of life, property, the environment, and infrastructure. Because of its location and land use, some hazard events in Wayne County have historically been more significant than others, and some hazard events may be more significant in the future. Providing strategies that minimize the impact of these hazards requires a commitment to a multiple-step program, including defining the problem, identifying preventive measures, implementing mitigation strategies, and incorporating hazard mitigation in County-wide planning efforts. As a first step, Wayne County has prepared this multi-jurisdictional *Hazard Mitigation Plan* (the Plan) to better understand significant Wayne County hazards and their impacts, and to identify ways to mitigate those hazards. The Plan is an update of the 2013 Hazard Mitigation Plan for Wayne County, which was in turn an update of the 2006 Wayne County HMP. The Wayne County communities listed below participated in this process and are included in the Plan. Those communities listed with an asterisk (*) were not included in the original 2006 Plan. These are communities that have been approved under Public Act 390 of 1976 to have their own emergency management departments. In 2005-2006, they chose to not participate during development of the original county-side plan but elected to be part of the County's multijurisdictional planning effort during the 2013 and 2019 updates.

Forty-two (42) communities, all of the municipalities in Wayne County except the City of Detroit, were considered in the preparation of the Plan. The City of Detroit has its own, separate Department of Homeland Security and Emergency Preparedness and Local Emergency Preparedness Committee.

| | |
|----------------------------------|---------------------------------|
| Allen Park, City of | Lincoln Park, City of* |
| Belleville, City of | Livonia, City of* |
| Brownstown Township | Melvindale, City of |
| Canton Township* | Northville, City of |
| Dearborn, City of | Northville, Charter Township of |
| Dearborn Heights, City of* | Plymouth, City of |
| Ecorse, City of | Plymouth, Charter Township of* |
| Flat Rock, City of | Redford Township |
| Garden City, City of | River Rouge, City of |
| Gibraltar, City of | Riverview, City of |
| Grosse Ile Township | Rockwood, City of |
| Grosse Pointe, City of | Romulus, City of* |
| Grosse Pointe Farms, City of | Southgate, City of |
| Grosse Pointe Park, City of | Sumpter Township |
| Grosse Pointe Shores, Village of | Taylor, City of |
| Grosse Pointe Woods, City of | Trenton, City of |
| Hamtramck, City of | Van Buren Township |
| Harper Woods, City of | Wayne, City of* |
| Highland Park, City of | Westland, City of |
| Huron Charter Township | Woodhaven, City of |
| Inkster, City of | Wyandotte, City of |

The Plan Process

This Plan was completed with the assistance of the Wayne County Department of Homeland Security & Emergency Management; representatives and leaders from Wayne County communities; the Michigan State Police Emergency Management Division, Mitigation/Recovery Section; and numerous other stakeholders. Over 60 individuals were involved in the preparation, evaluation, and community outreach components of this Plan, facilitated by ASTI Environmental. The Plan was prepared by an Advisory Committee of local emergency response personnel, public works department staff, school representatives, elected officials, and interested business owners, and regional agency leaders who provided evaluation and assessment and assisted with community outreach and Plan adoption.

The goal of hazard mitigation is to reduce loss of life and property from hazards that occur in the County by protecting the health, safety and economic interests of its residents. Additional goals of this Plan are:

- To retain access to Federal Emergency Management Agency (FEMA) funding for the County and its communities by complying with Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165)
- To provide a basis for identifying and mitigating hazards that affect the County and its communities
- To develop a method to incorporate hazard identification and mitigation into the planning process of the County and its communities

Specific tasks for this Plan included the following:

- Identifying Hazards and Risks
- Developing a Hazard History
- Developing a Community Profile
- Assessing Vulnerabilities
- Defining Community Goals and Objectives
- Identifying and Prioritizing Hazard Mitigation Strategies
- Developing Action Plans for A Select List of Mitigation Strategies
- Preparing a Draft Report for County, Municipal, and Public Review
- Soliciting County, Municipal, and Public Feedback
- Preparing a Final Report
- Providing Community Outreach and Communication
- Documenting the Planning Process
- Adopting the Final Plan

Hazard Assessment

A total of 40 hazards were evaluated during the planning process using a combination of historical research, surveys, workshops, and community and public meetings. Based on that evaluation, the following fourteen hazards were initially identified as deserving additional consideration for mitigation and planning.

- Extreme Temperatures - Hot or Cold

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- Flooding - Riverine & Shoreline
- Flooding - Urban (Storm water)
- Thunderstorms - Hail, Lightning, Severe Wind
- Tornadoes
- Winter Hazards - Snow, Ice, & Sleet
- Hazmat Incidents - Transportation
- Infrastructure Failure - Water & Sewer Systems
- Catastrophic Events/National Emergencies
- Civil Disturbance
- Criminal Acts - Mass Shootings/Active Assailant(s)
- Criminal Acts - Vandalism & Arson
- Public Health Emergencies - Pandemics, Epidemics, Food/Water, Opioid Crisis
- Transportation Accidents - Surface Roads/Highways

This list was then further prioritized and reduced to the following six hazards, in order of priority, that are the focus of this Plan.

- Criminal Acts - Mass Shootings/Active Assailant(s)
- Infrastructure Failure - Water & Sewer Systems
- Public Health Emergencies - Pandemics, Epidemics, Food/Water, Opioid Crisis
- Extreme Temperatures - Hot or Cold
- Hazmat Incidents - Transportation
- Flooding - Riverine & Shoreline

These hazards were selected to represent both County-wide and local community concerns about hazards. Evaluation of these six (or fourteen) hazards does not reduce the significance of any of the hazards evaluated, but provides a method for the County to focus mitigation activities and resources.

Hazard Mitigation

The Advisory Committee reviewed the mitigation strategies from the 2013 Plan and identified new strategies for consideration, based on input from the mitigation survey, community meetings, and workshop discussions. These strategies were evaluated by the Advisory Committee, and the nine listed below were selected to develop into final Action Items. This Plan contains Action Items developed by Committee members. Items 1 through 6 below are updates of Action Items from the 2006 Plan revised to account for progress made since 2006.

Criminal Acts: Mass Shooting(s)/Active Assailant(s)

1. Continue training in most current protocols and develop a process for requesting assistance from local and state law enforcement.

Infrastructure Failure

2. Identify, prioritize, and replace or renovate aging structures and equipment. Establish procedures to protect IT systems.

Public Health Emergencies

3. Stockpile vaccines and antidotes; train & equip volunteers to staff open/closed points of dispensing (PODs)
4. Develop and use mass media notification systems for public health emergencies (establish Wayne County geo-targeting/geo-fencing methods for notifications using Facebook, Nixle, Twitter, etc.)

Extreme Temperatures

5. Establish and build awareness of accessible heating/cooling centers in the community. Utilize all means available, including webs sites, social media, smart phone apps, mailers, etc. to inform public of impending weather threats and resources available, including heating & cooling shelters.
6. Educate the public regarding safe use of office and home space heaters, generators, smoke detectors & carbon monoxide detectors.
7. Catalog & map areas of vulnerable and other residents (unlicensed facilities, empty/vacant buildings, etc.). Provide outreach and transportation to vulnerable and normally hard-to-reach populations during extreme temperature events.

HazMat Incidents – Transportation

8. Utilize public warning systems and networks for public awareness and instructions in the event of hazardous materials incidents.

Flooding – River/Shoreline

9. Identify and map, or update existing maps of, floodplains and flood prone areas. Leverage new ArcGIS online application with MI CIMS sponsored by Michigan State Police. Provide training for local jurisdiction use and access.

1. Introduction

Wayne County is subject to natural, technological, and human hazards that can threaten life, health, property, and the environment. The Federal Disaster Mitigation Act of 2000 requires local governments to develop a Hazard Mitigation Plan (HMP), which identifies strategies to minimize the impact of these hazards, in order to be eligible for *pre-* or *post-* disaster mitigation funding. In response, Wayne County has prepared this multi-jurisdictional *Hazard Mitigation Plan* (the Plan) to better understand significant Wayne County hazards and their impacts, and to identify ways to mitigate those hazards.

This Plan was completed with the guidance of the Wayne County Department of Homeland Security & Emergency Management; members of the community; representatives and leaders from communities in the County; the Michigan State Police Emergency Management Division, Mitigation/Recovery Section; and numerous other stakeholders. Over 90 individuals were involved in the preparation, evaluation, and community outreach components of this Plan.

1.1 Acknowledgements

Development of this Hazard Mitigation Plan required the time, talents, effort, and ideas of numerous individuals. Over 60 stakeholders, community leaders, residents, and County staff participated in the development of this Plan. Sixty-two people attended meetings to provide input on Plan development, including staff from the Department of Homeland Security & Emergency Management and representatives and leaders from communities and non-profit organizations in the County.

Wayne County would like to acknowledge and thank the following people for their cooperation and assistance in developing this report:

Wayne County Department of Homeland Security & Emergency Management

Tadarial Sturdivant, Director
Samer Jaafer, Deputy Director
Danielle Elzayat, Chief of Staff
G. Vencil Parker

Michigan State Police Emergency Management Division, Mitigation/Recovery Section

Mike Sobocinski, Hazard Mitigation Specialist

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Table 1. Wayne County Hazard Mitigation Plan Advisory Committee Meeting Attendees

| Name | Community or Organization | Title/Department |
|------------------|--|--------------------------------------|
| Doug Laford | Allen Park | Fire Chief |
| Robert Matthews | Browntown Township | Police Chief |
| William Hayes | Canton Township | Emergency Manager |
| Bradley Smith | Dearborn | Captain, Fire |
| Mickey Wiewiura | Dearborn Heights | Battalion Chief, Fire |
| Lee Gavin | Dearborn Heights | Emergency Manager |
| Troy Cruzen | Ethos Corp | Operations Manager |
| Scott Cruzen | Ethos Corp | President |
| Jaylee Lynch | Garden City | Director of Compliance |
| Don Barton | Garden City | Lieutenant, Police |
| Catherine Harman | Garden City | Fire Chief |
| Derek LaPerriere | Garden City | Captain, Fire |
| Derek Fisher | Garden City | Superintendent, Public Schools |
| Matthew Lawyer | Gibraltar | Police Chief |
| Duncan Murdock | Grosse Ile Township | Fire Chief |
| Brian Loftus | Grosse Ile Township | Supervisor |
| Stephen Paloni | Grosse Pointe City/ Grosse Pointe Park | Director, Public Safety |
| Holly Krizmanich | Grosse Pointe Farms | Lieutenant, Public Safety |
| John Kosanke | Grosse Pointe Woods | Director, Public Safety |
| Anne Moise | Hamtramck | Police Chief |
| James Tolbert | Highland Park | Deputy Chief, Police |
| Chuck Hubbard | Inkster | Fire Chief |
| Bud Avery | Inkster | Superintendent, Public Safety |
| William Riley | Inkster | Police Chief |
| Lashaw Smithon | Inkster | Sergeant, Police |
| Michael Heyward | Inkster | Police Officer |
| Steve Martin | Lincoln Park | Fire Chief |
| Don Rohraff | Lincoln Park | Superintendent, Public Works |
| Jacob Rushlow | Livonia | Director, Public Works |
| Brian Kahn | Livonia | Emergency Manager |
| John Raymond | Livonia | Director of Security, Public Schools |
| Gary Mann | Madonna University | Director, Public Safety |
| Steve Densmore | Melvindale | Fire Chief |
| Dustin Krueger | Northville | Captain, Police |
| Mike Burrough | Northville Township | Lieutenant, Police |
| John Walker | Plymouth-Canton | Director, Public Schools |
| Dan Phillips | Plymouth Township | Fire Chief |
| Danny Dotson | River Rouge | Inspector, Police |
| Leonel Lopez | River Rouge | Police Chief |

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| | | |
|---------------------|-------------------|--|
| Cliff Rosebohm | Riverview | Police Chief |
| Jill Martin | Romulus | Administrative Assistant, Fire |
| Mike Sypula | Southgate | Fire Chief |
| Jeff Smith | Southgate | Police Chief |
| Anthony Chicko | Taylor | Lieutenant, Police |
| Paul Haley | Trenton | Emergency Manager |
| Amy Brow | VanBuren Township | Fire Chief |
| Ed Queen | Wayne | Assistant Director, Public Works |
| Finley Carter | Wayne | Detective Lieutenant, Police |
| Aaron Vincent | Wayne County | Logistic Chief, Homeland Security & Emergency Mgt |
| William Bantom | Wayne County | Director, Roads Division |
| Samer Jaafar | Wayne County | Deputy Director, Homeland Security & Emergency Mgt |
| Lisa Dirado | Wayne County | Planner, Homeland Security & Emergency Mgt |
| Tadarial Sturdivant | Wayne County | Director , Homeland Security & Emergency Mgt |
| Danielle Elzayat | Wayne County | Chief of Staff, Homeland Security & Emergency Mgt |
| Brian Herman | Wayne County | Finance Director, Homeland Security & Emergency Mgt |
| Voncil Parker | Wayne County | Office Assistant , Homeland Security & Emergency Mgt |
| Shanon Herron | Wayne County | Planner, Homeland Security & Emergency Mgt |
| Hector Roman | Wayne County | Director, IT |
| Matthew Connolly | Wayne-Westland | Field Supervisor Maintenance Operations, Community Schools |
| Geno Montayne | Wayne-Westland | Engineer Management Supervisor, Community Schools |
| Tony Spisak | Wayne-Westland | Executive Director Maintenance Operations, Community Schools |
| Mike Stradtner | Wayne-Westland | Fire Chief |
| Michael Clark | Woodhaven | Fire Chief |

This multi-jurisdictional Hazard Mitigation Plan was created for Wayne County, and the participating communities within Wayne County, to better understand natural, technological, and human hazards and their impacts, and to identify ways to mitigate those hazards to protect the health, safety and economic interests of its residents. The Wayne County communities listed below participated in this process and are included in

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this Plan. Forty-two (42) communities in Wayne County, all county communities except the City of Detroit, were considered in the preparation of this Plan.

Allen Park, City of
Belleville, City of
Brownstown Township
Canton Township*
Dearborn, City of
Dearborn Heights, City of*
Ecorse, City of
Flat Rock, City of
Garden City
Gibraltar, City of
Grosse Ile Township
Grosse Pointe, City of
Grosse Pointe Farms, City of
Grosse Pointe Park, City of
Grosse Pointe Shores, Village of
Grosse Pointe Woods, City of
Hamtramck, City of
Harper Woods, City of
Highland Park, City of
Huron Charter Township
Inkster, City of

Lincoln Park, City of*
Livonia, City of*
Melvindale, City of
Northville, City of
Northville, Charter Township of
Plymouth, City of
Plymouth, Charter Township of*
Redford Township
River Rouge, City of
Riverview, City of
Rockwood, City of
Romulus, City of*
Southgate, City of
Sumpter Township
Taylor, City of
Trenton, City of
Van Buren Township
Wayne, City of*
Westland, City of
Woodhaven, City of
Wyandotte, City of

2. Hazard Mitigation Plan Process

This Plan is designed to comply with requirements of the Disaster Mitigation Act of 2000, which states that local governments must have an approved Hazard Mitigation Plan in place to be eligible for pre-disaster mitigation funds after November 1, 2003, and post-disaster mitigation funds after November 1, 2004.¹ This Plan is also designed to comply with the Federal Emergency Management Act; guidance documents developed by the Federal Emergency Management Agency (FEMA) and the Michigan State Police Emergency Management Division (EMD); and other applicable federal, state, and local regulations. This was accomplished by evaluating the impacts of known natural, technological, and human hazards, prioritizing mitigation alternatives, and coordinating hazard mitigation with other County programs and policies.

A total of 40 hazards, in the three categories described below, were evaluated during the planning process. Hazard definitions are included in Section 4. These hazards were selected based on the guidelines presented in the *Local Hazard Mitigation Planning Guidebook*, Michigan Department of State Police Emergency Management Division².

Natural Hazards

- Celestial Impact
- Drought
- Earthquakes
- Extreme Temperatures
 - Including extreme heat and extreme cold
- Fires (Wildfires)
- Flooding (Non-Dam)
 - Including riverine and shoreline flooding and erosion
- Fog
- Invasive Species
- Subsidence (Natural)
- Thunderstorms
 - Including hail, lightning, and severe winds
- Tornadoes
- Winter Hazards
 - Including ice, sleet, and snowstorms

Technological Hazards

- Fires (Non-Natural)
 - Including structural and scrap tire fires
- Flooding
 - Including dam failure and other urban (stormwater) flooding

¹ Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165), 44 CFR (Code of Federal Regulations) Part 201

² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012.

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- Hazmat Incidents
 - Including fixed site and transportation
- Infrastructure Failure
 - Including water, electrical, communication, storm water and sanitary sewer systems
- Nuclear Power Plant Accidents
- Oil and Gas Wells Accidents
- Pipeline Accidents
 - Including petroleum and natural gas
- Subsidence (Mining and Technical)

Human Hazards

- Catastrophic Events/National Disasters
- Civil Disturbance
- Criminal Acts
 - Including vandalism, arson and mass shootings
- Information Technology Intrusion
- Gas and Oil Shortages or Supply Disruptions
- Public Health Emergencies
 - Including pandemics, epidemics, and contaminated food and water
- Terrorism and Sabotage
- Transportation Accidents
 - Including air, highway, surface roads, rail, and marine
- Weapons of Mass Destruction

Although included in the hazard analysis section, this Plan does not include mitigation strategies for terrorism, the use of weapons of mass destruction, or nuclear power plant accidents. These hazards are addressed in the Wayne County Emergency Operations Plan, which is a homeland security and law enforcement sensitive document and, therefore, not available to the public. For security purposes, operational information regarding these hazards is not included in this Plan.

2.1 Plan Goals and Objectives

The general goals of any Hazard Mitigation Plan include: saving lives and protecting property, preserving and protecting an area's environment and economy, and preserving and maintaining an area's essential services and quality of life. This Plan includes these general goals. In addition, specific goals of this Plan are:

- To retain access to FEMA funding for the County and its communities by complying with Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165)
- To provide a basis for identifying hazards that affect the County and its communities

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- To develop a method to incorporate hazard identification and mitigation into the planning process of the County and its communities

Through the hazard mitigation planning process presented in this Plan, Advisory Committee members also identified specific goals and objectives, consistent with the overall planning process and supported by specific mitigation strategies, to do the following:

- Protect and preserve human health and well being
- Maintain and fortify critical assets, structures and infrastructure to preserve the quality of life.
- Ensure interagency cooperation and coordination for preparedness
- Enhance emergency response capabilities (including and especially communications)
- Review and improve county-wide contingency plans for maintaining quality of life

2.2 Planning Process

This Plan was prepared to provide a basis for identifying and managing natural, technological, and human hazards, and to meet federal, state and local requirements for hazard mitigation and FEMA grant funding. Plan preparation involved completion of the following tasks:

- Identifying Hazards and Risks
- Developing a Hazard History
- Developing a Community Profile
- Assessing Vulnerabilities
- Defining Community Goals and Objectives
- Identifying and Prioritizing Hazard Mitigation Strategies
- Developing Action Plans for a Select List of Mitigation Strategies
- Preparing a Draft Report for County, Municipal, and Public Review
- Soliciting County, Municipal, and Public Feedback
- Preparing a Final Report
- Providing Community Outreach and Communication
- Documenting the Planning Process
- Adopting the Final Plan

Wayne County contracted ASTI Environmental, Inc. (ASTI) of Brighton, Michigan to facilitate the hazard mitigation planning process and prepare the final Hazard Mitigation Plan. Members of the Advisory Committee are listed in Table 2. As described below, development of this Plan involved identifying and evaluating hazards and mitigation options conducted by an Advisory Committee made up of community representatives from municipalities in the County, emergency management leaders and other stakeholders from these same municipalities, and review and input from members of the general the public. Each of these is described further in Section 2.3, Plan Participation.

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Table 2. Advisory Committee

| Name | Community or Organization | Title/Department |
|------------------|--|--------------------------------------|
| Doug Laford | Allen Park | Fire Chief |
| Robert Matthews | Browntown Township | Police Chief |
| William Hayes | Canton Township | Emergency Manager |
| Bradley Smith | Dearborn | Captain, Fire |
| Mickey Wiewiura | Dearborn Heights | Battalion Chief, Fire |
| Lee Gavin | Dearborn Heights | Emergency Manager |
| Troy Cruzen | Ethos Corp | Operations Manager |
| Scott Cruzen | Ethos Corp | President |
| Jaylee Lynch | Garden City | Director of Compliance |
| Don Barton | Garden City | Lieutenant, Police |
| Catherine Harman | Garden City | Fire Chief |
| Derek LaPerriere | Garden City | Captain, Fire |
| Derek Fisher | Garden City | Superintendent, Public Schools |
| Matthew Lawyer | Gibraltar | Police Chief |
| Duncan Murdock | Grosse Ile Township | Fire Chief |
| Brian Loftus | Grosse Ile Township | Supervisor |
| Stephen Paloni | Grosse Pointe City/ Grosse Pointe Park | Director, Public Safety |
| Holly Krizmanich | Grosse Pointe Farms | Lieutenant, Public Safety |
| John Kosanke | Grosse Pointe Woods | Director, Public Safety |
| Anne Moise | Hamtramck | Police Chief |
| James Tolbert | Highland Park | Deputy Chief, Police |
| Chuck Hubbard | Inkster | Fire Chief |
| Bud Avery | Inkster | Superintendent, Public Safety |
| William Riley | Inkster | Police Chief |
| Lashaw Smithon | Inkster | Sergeant, Police |
| Michael Heyward | Inkster | Police Officer |
| Steve Martin | Lincoln Park | Fire Chief |
| Don Rohraff | Lincoln Park | Superintendent, Public Works |
| Jacob Rushlow | Livonia | Director, Public Works |
| Brian Kahn | Livonia | Emergency Manager |
| John Raymond | Livonia | Director of Security, Public Schools |
| Gary Mann | Madonna University | Director, Public Safety |
| Steve Densmore | Melvindale | Fire Chief |
| Dustin Krueger | Northville | Captain, Police |
| Mike Burrough | Northville Township | Lieutenant, Police |
| John Walker | Plymouth-Canton | Director, Public Schools |
| Dan Phillips | Plymouth Township | Fire Chief |
| Danny Dotson | River Rouge | Inspector, Police |

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| | | |
|---------------------|-------------------|--|
| Leonel Lopez | River Rouge | Police Chief |
| Cliff Rosebohm | Riverview | Police Chief |
| Jill Martin | Romulus | Administrative Assistant, Fire |
| Mike Sypula | Southgate | Fire Chief |
| Jeff Smith | Southgate | Police Chief |
| Anthony Chicko | Taylor | Lieutenant, Police |
| Paul Haley | Trenton | Emergency Manager |
| Amy Brow | VanBuren Township | Fire Chief |
| Ed Queen | Wayne | Assistant Director, Public Works |
| Finley Carter | Wayne | Detective Lieutenant, Police |
| Aaron Vincent | Wayne County | Logistic Chief, Homeland Security & Emergency Mgt |
| William Bantom | Wayne County | Director, Roads Division |
| Samer Jaafar | Wayne County | Deputy Director, Homeland Security & Emergency Mgt |
| Lisa Dirado | Wayne County | Planner, Homeland Security & Emergency Mgt |
| Tadarial Sturdivant | Wayne County | Director , Homeland Security & Emergency Mgt |
| Danielle Elzayat | Wayne County | Chief of Staff, Homeland Security & Emergency Mgt |
| Brian Herman | Wayne County | Finance Director, Homeland Security & Emergency Mgt |
| Voncil Parker | Wayne County | Office Assistant , Homeland Security & Emergency Mgt |
| Shanon Herron | Wayne County | Planner, Homeland Security & Emergency Mgt |
| Hector Roman | Wayne County | Director, IT |
| Matthew Connolly | Wayne-Westland | Field Supervisor Maintenance Operations, Community Schools |
| Geno Montayne | Wayne-Westland | Engineer Management Supervisor, Community Schools |
| Tony Spisak | Wayne-Westland | Executive Director Maintenance Operations, Community Schools |
| Mike Stradtner | Wayne-Westland | Fire Chief |
| Michael Clark | Woodhaven | Fire Chief |

Planning Approach

Plan preparation was based on the contract titled *Professional Services Contract Between Wayne County and Applied Science and Technology, Inc. D/B/A ASTI*

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Environmental. The planning process involved updating background information on the County and hazards affecting the County from available published and internet sources, updating information on local hazard issues from individual communities, obtaining input on hazard priorities, identifying specific vulnerabilities and desired mitigation strategies, facilitating the activities of the Advisory Committee, and conducting a series of workshops and a public meeting with County officials, local stakeholders, and the general public as described below.

Information on hazards in the County, and applicable mitigation strategies to address those hazards, was also obtained from two workshops and three surveys. The first survey was provided to Advisory Committee members, and resulted in a numerical ranking of 37 hazards. Information from this survey was used in the first workshop described below. The second survey was provided to the Advisory Committee to rank 228 mitigation strategies and provided opportunities to add new mitigation strategy ideas. Information from this survey was used in the second workshop described below. Additional information regarding the surveys is included in Sections 2.4.1, 5.1 and 6.2 below.

The workshops included individual assignments, small group assignments, and group-wide discussion and evaluation. Through a combination of pair-wise ranking exercises, worksheets, and discussion groups, workshop participants evaluated survey input, created and used evaluation criteria, identified goals and objectives, and selected options for mitigating specific hazards.

2.2.1 Existing Plans and Programs

Because a Hazard Mitigation Plan is only a part of the emergency planning, mitigation, preparedness, response, and recovery process, a second objective of this planning process was to coordinate plan preparation with existing emergency plans, programs, procedures, and organizations established by Wayne County. Future coordination of this Plan with other activities in the County will be conducted by the Hazard Mitigation Plan Advisory Committee (HMPAC) as described in Section 2.6 below. Individual members of the HMPAC are to identify opportunities, within their respective departments or organizations, to incorporate this Plan into other County plans and programs. Any such opportunities that are identified will be referred back to the HMPAC as a whole, for consideration. Incorporating this Plan into other plans and programs will ultimately be at the discretion of the County department or organization which administers these plans or programs.

In developing this Plan, existing hazard mitigation goals and objectives within the County were reviewed, and are described below. It should be noted that this Plan does not replace any existing plans or programs, but is intended to serve as a reference for hazard mitigation to be used in planning and program development.

Several existing documents published by county, regional, state, and federal institutions were utilized in developing this Plan, as shown in the footnotes throughout the Plan. These documents included:

- Michigan Department of State Police Emergency Management Division, *Michigan Hazard Analysis*, December 2001, July 2012, and April 2019.

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- Michigan State Police, Uniform Crime Reports, Crime Statistics, Wayne County, 1997-2010.
- Michigan State Police Property Index Crime Trends, 1997-2000.
- SEMCOG, *Land Use in Southeast Michigan, 1990-2000*, Specific to Wayne County, April 2004.
- SEMCOG, *2045 Regional Development Forecast (RDF) Forecasted Population Change*, May 2019.
- SEMCOG and Wayne County Geographic Information Systems (GIS) digital land use data. 2008 and 2012.
- U.S. Census Bureau, *Profile of General Demographic Characteristics: 2000, 2010*, Wayne County, Michigan.
- U.S. Census Bureau, Decennial Census, 2015 American Community Survey 5-Year Estimates.
- FEMA NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004.
- FEMA National Flood Insurance Program Community Status Book, updated June 15, 2012.

2.2.2 County Goals and Objectives

Successful implementation of this Plan requires that it fit within, and be consistent with, other goals, objectives, and programs of Wayne County government. As such, identified goals and objectives, mission statements, and other guiding principles of relevant County agencies were reviewed as part of the planning process. The County's hazard mitigation planning process is not intended to replace any other County planning effort, but should be considered in future County-wide planning. Specific goals and objectives developed as part of this hazard mitigation planning process fit within the context of the existing roles of the Wayne County Department of Homeland Security & Emergency Management listed below.

The Wayne County Department of Homeland Security & Emergency Management serves as the lead department for both development and implementation of the County's Hazard Mitigation Plan. This Plan is consistent with the mission of the Wayne County Emergency Management Division which is:³

"To take the lead role in coordinating the County's responsibility to plan, analyze, conduct and maintain programs to preserve and protect lives and property from major emergencies and disasters of all types. In this capacity, it maintains a current adequate emergency management program for the County of Wayne and all participating local municipalities."

³ Source: Wayne County Emergency Management Division website, <http://www.co.wayne.mi.us/hsem.htm>

Furthermore, the Plan is consistent with the goals and objectives of the Wayne County Department of Homeland Security & Emergency Management which include the following:⁴

Update and maintain the Emergency Operations Plan and all related support documents.

Maintain emergency response facilities, equipment and supplies in immediately operational status.

Conduct public awareness activities designed to increase basic emergency preparedness skills and develop public confidence in the County's Emergency Management Program.

Conduct disaster response training drills and exercises designed to highlight and correct emergency planning and resource deficiencies and to otherwise maintain and improve the overall emergency response readiness level of the County and participating local communities.

Enhance Technical Support Team and Metropolitan Medical Strike Team (both counter-terrorism specialty teams) capabilities.

2.3 Plan Participation

The focus of the County hazard mitigation planning process was a series of structured discussions with, and opportunities for feedback from, County officials, municipal officials, affected stakeholders, and the general public. In particular, these included the mechanisms for outreach and input listed below. Copies of public outreach materials describing the planning process and soliciting participation in development of the Plan are provided in Appendix A.

- A project web site that presented a summary of the planning process, relevant background materials, and a web-based comment form;
- Flyers describing the planning process available to the Advisory Committee, municipal officials, and the general public;
- On-line surveys provided to the Advisory Committee;
- Two workshops for identifying and prioritizing hazards, hazard mitigation strategies, and action plans, with meeting minutes emailed to the Advisory Committee and community representatives;
- One public meeting;
- Copies of the draft plan distributed to all Advisory Committee members and community representatives and available for public review on the project web site.

⁴ Source: Wayne County Emergency Management Division website, <http://www.co.wayne.mi.us/hsem.htm>.

2.3.1 County Participation

The Wayne County Department of Homeland Security & Emergency Management provided contract administration, participation on the Advisory Committee, local matching funds for the development of this Plan (in the form of staff salaries and direct expenses), and Geographic Information Systems (GIS) data.

2.3.2 Advisory Committee

The Advisory Committee was formed to provide input on the hazards and mitigation options applicable to the County, and to oversee development of the Plan. Advisory Committee members were suggested by the Department of Homeland Security & Emergency Management. Additional stakeholders within Wayne County, and from neighboring counties, were also invited to participate. The final committee consisted of the 62 individuals listed in Tables 1 and 2. The Advisory Committee participated in hazard identification and risk assessment, evaluation of mitigation alternatives, and preparation of the final action plans through a series of workshops and surveys.

2.3.3 Community Representatives

One or more representatives from each of the 42 communities coordinated community input and discussed hazard identification, mitigation options, and community-specific vulnerabilities with Wayne County staff. Community representatives consisted of one or more key stakeholders such as the Police Chief; Fire Chief; Public Safety Directors; Mayors, Village Presidents, Township Supervisors; and Emergency Management Coordinators, school district representatives or other representatives appointed by each community. Community representatives were kept informed of planning progress through the project web site, Advisory Committee meetings, requests for participation in project meeting and three on-line surveys, and invited to comment on the Draft Plan posted on the web site.

2.3.4 Public Outreach

One public meeting was held at the Heinz C. Prechter Educational & Performing Arts Center (EPAC) at the Wayne County Community College, Downriver Campus, in Taylor. The public meeting was announced via email to members of the Advisory Committee, on the project website, via press release to 84 individuals representing 31 media outlets, and a legal notice in the Detroit Free Press newspaper.

The public meeting was held at 5:30 p.m., April 23, 2019. The purpose of the meeting was to introduce project team members, provide an overview of the project, discuss the processes and purposes of the planning effort and resulting Hazard Mitigation Plan, provide the project contacts and web links individuals could use to receive further information regarding the Plan and planning process, to update the public on developments in the project, and solicit feedback on the draft plan.

As noted above, the public meeting was publicized the Sunday prior to the meeting with a legal notice in the Detroit Free Press. Copies of public meeting materials and a summary of public comments received are provided in Appendices A and B, respectively.

Members of the public at the public meeting provided comments regarding flooding and erosion concerns along the Lake Erie shoreline. The comments received did not require amendment of the Plan but emphasized the importance of flooding as a high priority and the need for mechanisms to inform the public of impending high water levels. Public comments are referenced in the specific hazard descriptions sections and Action Plans. Specific comments were provided by County representatives and representatives of several local municipalities under separate reviews. These comments centered on clarification of municipal priorities and hazard mitigation actions. These are discussed further in Sections 5.2, Community Input.

2.3.5 Other Stakeholders

Several communities, agencies, hospitals, and other interested parties had representatives on the Hazard Mitigation Plan Advisory Committee who provided comment and information through the Plan development workshops. In addition to these Advisory Committee representatives, the following stakeholders were provided with copies of the project newsletter and contacted to obtain input on the draft Plan:

- American Red Cross – Southeastern Michigan Chapter
- Michigan State University Cooperative Extension Service
- Wayne County Road Commission
- Wayne County Sheriff
- Friends of the Rouge
- Clinton River Watershed Council
- Huron River Watershed Council
- Genesee County LEPC
- Lapeer County LEPC
- Livingston County LEPC
- Macomb County LEPC
- St. Clair County LEPC
- Washtenaw County LEPC
- Wayne County LEPC
- U.S. Geological Survey
- U.S. Army Corps of Engineers
- National Weather Service

2.4 Plan Activities

2.4.1 Surveys

Planning participants were asked to participate in three online surveys. Each survey was designed to provide input for one or more of the planning workshops, and to provide a basis for discussing hazard evaluation or mitigation options. The first survey provided

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an opportunity for participants to rank the hazards affecting the County. The second survey assisted in narrowing mitigation options acceptable to the County, and the third survey helped to further prioritize mitigation strategies to develop into county-wide Action Plans.

First Survey

The survey asked participants to identify the most significant hazard in each of three major categories (natural, technological, and human) and included open-ended questions that allowed other hazards to be included in the final list. Participants were also asked to select the top five hazards on a scale of 1 (Most Significant) to 5 (Least Significant). Importance was evaluated based upon the negative consequences of the hazard on the population, economy and environment of the County. These comparisons and responses were used to rank the relative importance of each hazard in order to consider its likelihood and consequence, and to identify the need for action plans to address each hazard during the workshops.

Participants were also asked to indicate the top five assets that are the most vulnerable to hazard events, in terms of the impact to population, the environment, and economic activity. Assets evaluated were: commercial sites; hospitals; industrial sites; open spaces; public facilities; residential areas; roads, bridges and railroads; utility facilities; schools and churches; sports and entertainment arenas; and central business district. Ranking of vulnerability was on a scale of 1 (most important overall) to 5 (least important of the top five). The responses were used during the workshops to rank the criticality of assets and assess the likelihood that each identified hazard would impact each asset.

The survey was provided to 62 individuals in the Advisory Committee in electronic form, and included 40 hazards arranged in order of the 3 categories (Natural, Technological, & Human Related). A total of 57 participants (92%) participated in the survey. The results of the survey were presented to the Advisory Committee for review and evaluation at the first workshop.

Second Survey

Advisory Committee members were asked to evaluate possible hazard mitigation strategies in a written survey prior to the second workshop. Mitigation strategies presented in this survey were developed from the first Advisory Committee meeting, the 2013 Plan, as well as from lists of potential mitigation strategies developed by other communities undertaking hazard mitigation planning in Michigan and elsewhere. The survey listed eight or more mitigation strategies for each hazard, for a total of 228 strategies. Of the 62 committee members, 31 (50%) participated in the survey prior to the second workshop.

For this survey, Advisory Committee members were asked to rate each mitigation strategy for appropriateness in Wayne County. Participants could decline scoring items with which they were not familiar. Additional space was provided for each hazard, so that participants could suggest mitigation strategies. The survey requested open-ended input on the best mitigation strategies to address each of the 14 highest priority hazards identified by the Advisory Committee during the first workshop.

Community representatives and Advisory Committee members were asked to identify and rank those mitigation strategies they considered either Important or Very Important,

with strategies rating lower rankings to be left blank. The results of this survey were presented to the Advisory Committee members during the second workshop. The top responses were compiled into an initial list for consideration, and the committee was asked to review all applicable responses to identify other strategies that should be considered.

2.4.2 Workshops

The Advisory Committee met at the Wayne County Community College Downriver Campus, in two workshops. The following describes each workshop and the procedures used to focus this Plan on the hazards and mitigation strategies specific to Wayne County. More information on the process used and the results of the workshop activities are provided in Sections 5 and 6. Agenda, handouts, and worksheets from the workshops are provided in Appendix C.

First Workshop – Risk Analysis Workshop

The first workshop was conducted March 14, 2019. This meeting included an orientation to familiarize committee members to the hazard mitigation planning process. A risk and vulnerability assessment was also conducted to identify and rank priority hazards in Wayne County, to assess the risk from the top ranked hazards, and to determine the County's unique critical assets and specific vulnerabilities. The objective of the workshop was to use a rational approach to focus the Plan on the most critical hazards and vulnerable assets in the County.

The first task of the meeting was to identify the goals and objectives for the mitigation process. Advisory Committee members reviewed the goals set forth in the 2013 HMP and suggested additional goals based upon other County programs.

The Advisory Committee then reviewed the hazard history of the County, the hazard ranking in the 2013 Plan, and the results of the first survey. An updated hazard history for Wayne County was reviewed, and workshop participants discussed the frequency and impacts in three categories: health and safety, area affected, and economic effects. Survey results were presented and the Committee discussed the importance of each hazard and its impacts to population, environment, and the economy in each of 11 asset classes, such as residential areas, business districts, industrial sites etc., that exist in the county.

Based on historical information, the results of the survey, and discussion, 14 hazards were determined to be significant for the County and selected for further analysis. The committee was then asked to select and weight criteria for individually evaluating the top hazards. Participants were asked create a list of evaluation criteria specifically applicable to Wayne County. Questions provided to stimulate thought included: "What are the top priorities for the community when considering hazard mitigation?," "What do community leaders represent as important?," "What are the top priorities for emergency response agencies when considering hazard impacts?," and "What are the top challenges facing the County when a hazard occurs?" Four criteria were developed and weighted relative to one another: Injury and Loss of Life, Geographic Area of Interest, Resulting Infrastructure Failure, and the Ability to Recover following an incident. These

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criteria were used to evaluate the top 14 hazards for consequence and frequency. Through this process the list of priority hazards was further reduced to six.

During the same interactive workshop, the committee also evaluated 11 general asset categories. These assets were evaluated to determine how critical they may be if impacted by a hazard. They were then evaluated in the context of consequence and likelihood of individual hazard impacts.

Second Workshop – Mitigation Strategies Workshop

The second workshop was conducted on March 28, 2019. This workshop focused on (1) identifying, evaluating, and prioritizing hazard mitigation alternatives for the key hazards and critical assets, (2) developing evaluation criteria to select mitigation strategies, and (3) identifying mitigation strategies to develop further as specific Action Items for the final Plan.

The committee was asked to select and weight criteria for evaluating mitigation strategies. Criteria were selected based on a review of evaluation criteria used in development of the 2013 Plan and group discussion. Four criteria were selected to evaluate and compare individual mitigation strategies: Ability to Accomplish, Technical Feasibility, Cost Effectiveness, and Effectiveness of Strategy (including downside risk).

Individual and small group work was discussed amongst the entire group to identify the final evaluation criteria for selection of mitigation strategies. The rankings of mitigation strategies from the survey plus an additional 3 community identified strategies were highlighted for consideration, for a total of 251 potential strategies. Of these, 15 were identified as the top-ranked strategies based on numerical scoring.

Survey results identifying the top mitigation strategies for each of the priority hazards were presented and the committee was divided into self-selected groups representing the six priority hazards. Each group and discussed each of the applicable top-ranked strategies and any others that were considered applicable to the County. During the discussion, strategies were revised to combine redundant strategies, and to identify additional mitigation strategies for the top hazards, if applicable.

The committee used the evaluation criteria to rank the strategies presented by the groups. After revising the top 14 strategies that were identified through the survey process, the committee considered whether any of the strategies generated through the open-ended questions in the on-line survey should be included, based on a discussion of the goals and objectives of the Plan, the needs of the County, and the critical hazards and vulnerable assets. The committee selected two additional strategies as a result of this discussion, and then removed one from the final list because it was inapplicable to some of the communities within the County. The resulting list of 15 strategies became the basis for the revision of Action Items from the 2006 Plan and the development of new Action Items.

The final task of the committee was to evaluate each of the seven Action Items from the 2006 Plan, based on the survey results, the mitigation strategies selected during the workshop, the needs of the County, and the critical hazards and vulnerable assets. The committee made recommendations to revise Action Items to eliminate redundancy and address changes in the County. In addition, two new Action Items were recommended.

Each Action Item was assigned to a committee member for further development after distribution of the meeting notes.

2.4.3 Community Input

Representatives from each Wayne County community were asked to complete three online surveys with other key stakeholders in their community. Surveys were intended to identify the most significant hazards and their impacts in the community, to review individual community goals and action plans from the 2013 HMP, and to specify any hazard mitigation programs currently being conducted or planned. Representatives were also asked to provide suggestions for desired hazard mitigation programs in their community and County-wide.

Community representatives were asked to evaluate hazards based on the history of hazard occurrence, the potential for future hazard occurrence, consequence(s) of the hazard, or hazards that are highlighted in community mitigation goals and objectives. Finally, community representatives, and other regional agencies, were asked to review and comment upon the draft Plan.

2.5 Plan Adoption

Formal adoption of a Hazard Mitigation Plan is required for FEMA approval. The Draft Plan was provided initially to the Wayne County Department of Homeland Security & Emergency Management for review for issues of security. Following incorporation of security related comments, a public review version of the draft document was provided to members of the project Advisory Committee, including the project representative from the Michigan State Police, for review and comment. Copies of the Draft Plan were also provided to each community in the County and were made available to other stakeholders and the public via the project website.

Following incorporation of review comments from all sources involved in the planning process, the Plan was presented to the County Board of Commissioners for approval and adoption. The Wayne County Hazard Mitigation Plan was formally adopted by the Board of Commissioners on [Insert Date of Adoption]. A copy of the County resolution is included in Appendix D.

FEMA and the Michigan State Police also require that all multi-jurisdictional Plans be adopted, in whole or in part, by individual municipalities within the planning area. Municipal officials were informed of this requirement and a sample resolution of adoption was provided to each community with the announcement of the final Plan. Information regarding local hazard priorities and local hazard mitigation strategies is included in separate subsections of the Plan so that each community may readily reference and adopt sections specific to their municipality. Tables 1 and 2 list all people who participated in the planning process, including responding to surveys, attending meetings, and providing input on the Plan. The communities listed in Table 3 have adopted this Plan, either in whole or in part, as indicated. Copies of the final resolutions for each community are included in Appendix D.

2.6 Plan Maintenance

The Wayne County Hazard Mitigation Plan Advisory Committee (HMPAC) will monitor this Plan on a regular basis. The HMPAC will consist of members of the Wayne County Department of Homeland Security & Emergency Management as well as representatives of the Wayne County communities and stakeholders. Plan evaluation and maintenance is the responsibility of the County Emergency Management Coordinator.

The Plan will be reviewed annually by the HMPAC to assess progress on each Action Item, changes in hazard history, and any known changes in vulnerability. Every two (2) years, following review by the HMPAC, a description of Plan progress and any changes in circumstances or trends that may require revision to the Plan will be presented to the Wayne County Board of Commissioners.

The Plan will be reviewed, updated, and revised, as necessary every five (5) years to maintain consistency with the changing community and hazard history, as well as the goals and objectives of the County.

Each time the Plan is revised a new Revision Number and Revision Date will be inserted in the document header. Changes constituting a substantive revision to the Plan will require that the new plan be provided to the County Board of Commissioners, and the individual communities participating in the Plan, for approval and re-adoption.

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Table 3: Community Plan Adoption

| Community | Items Adopted [Insert "Full Plan" or Section #s]: | Date Adopted |
|----------------------|---|--------------|
| Allen Park | | |
| Belleville | | |
| Brownstown | | |
| Canton Township | | |
| Dearborn | | |
| Dearborn Heights | | |
| Ecorse | | |
| Flat Rock | | |
| Garden City | | |
| Gibraltar | | |
| Grosse Ile Township | | |
| Grosse Pointe | | |
| Grosse Pointe Farms | | |
| Grosse Pointe Park | | |
| Grosse Pointe Shores | | |
| Grosse Pointe Woods | | |
| Hamtramck | | |
| Harper Woods | | |
| Highland Park | | |
| Huron Township | | |
| Inkster | | |
| Lincoln Park | | |
| Livonia | | |
| Melvindale | | |
| Northville | | |
| Northville Township | | |
| Plymouth | | |
| Plymouth Township | | |
| Redford Township | | |
| River Rouge | | |
| Riverview | | |
| Rockwood | | |
| Romulus | | |
| Southgate | | |
| Sumpter Township | | |
| Taylor | | |
| Trenton | | |
| VanBuren Township | | |
| Wayne | | |
| Westland | | |
| Woodhaven | | |
| Wyandotte | | |

3. Community Profile

3.1 Historical Overview

Wayne County was established in 1796 with the founding of the Northwest Territories. It was named for Major Anthony “Mad Anthony” Wayne (1745-1796), a Revolutionary War hero whose military service led to a lasting peace in the region. As a result, his name has found a place of honor in cities and towns throughout Michigan, Ohio, Indiana, and Illinois. At the time of its creation, Wayne County covered almost all of the Lower Peninsula of Michigan, as well as parts of Ohio, Indiana, Illinois, and even Wisconsin.

The area was settled by French explorers in the 1600’s in an expanding effort to settle strategic areas on the continent and contain the British colonies in New England. It’s location along the Detroit River made it a settlement of high commercial value as well as military importance. While the French made the first lasting impact in the region, many Jesuit groups had previously moved into the area doing missionary work. Several Native American settlements were reported in the area in the 1600’s, and prior to their settlement, the area (along with much of the Midwest) was home to a people known as the Mound Builders, from the elaborate burial mounds they left behind. Mound Road in Wayne County is so named for the burial mound found in that area. Post-European settlement, the area was chiefly used for farming and lumber, but grew to encompass small industrial operations which capitalized on the iron and copper resources in the area and its easy access to shipping lanes through the Great Lakes. In the second half of the 19th century, Wayne County became a leading producer of stoves, ships, and railroad cars, as well as a leading producer of bicycles and carriages which opened the door for the explosive growth of the area with the coming of the automotive industry in the 20th century.

While the automobile was invented in the late 1800’s, it was the innovations brought about by Henry Ford in the early 1900’s that made the automobile popular and affordable. Ford’s first assembly plant was located in Highland Park and offered jobs to employees that not only had higher than average wages, but also a cohesive set of rights which led to the first Union. The population of Detroit doubled between 1910 and 1920.

Because Wayne County was the birthplace of the automotive industry, it also became the leader in roadway technologies. In 1909, the Wayne County Road Commission was the first in the world to pave a road (a small stretch of Woodward Avenue) with concrete. These technologies allowed Wayne County a number of other distinguishable ‘firsts’, including the first roadway line-painting vehicle in 1911, the first snow plow in 1912, the first roadway testing laboratory in 1910, and the first superhighway (the Davison) in 1942.

Detroit and Wayne County continued to be at the forefront of technology and industry, converting auto plants to produce aircraft and tanks during World War II, and re-converting them for auto production as the war ended. But Wayne County’s innovation and production weren’t limited to industry. The 1950’s and 1960’s saw Detroit become a producer of new music sensations in rhythm and blues that changed the nation. The Motor City became Motown.

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Industry in the county remains strong, the County is home of award winning sports teams, and its diversity and culture make it not only resilient, but also an interesting and lively place to live and work today.

3.2 Geography and Climate

Wayne County is located in southeast Michigan, north of Monroe County east of Washtenaw County, and south of Oakland and Macomb Counties. (Figure 1) Wayne County encompasses 672 square miles. Topography in the county is generally flat, which is consistent with most of southeastern Michigan.

Weather in Wayne County is consistent with non-coastal, southeastern areas of Michigan. The following table provides average monthly weather conditions for Wayne County.

| Month | Average Daily Temperature (F°) | Average Precipitation (inches) | Average Snowfall (inches) |
|--------------|--------------------------------|--------------------------------|---------------------------|
| January | 25.0 | 2.17 | 12.5 |
| February | 27.0 | 2.49 | 10.4 |
| March | 35.4 | 2.46 | 6.9 |
| April | 48.3 | 3.71 | 1.7 |
| May | 62.6 | 4.32 | 0 |
| June | 70.4 | 3.72 | 0 |
| July | 74.0 | 2.76 | 0 |
| August | 73.1 | 4.37 | 0 |
| September | 66.9 | 3.48 | 0 |
| October | 54.3 | 2.87 | 0.1 |
| November | 40.6 | 2.70 | 1.4 |
| December | 31.9 | 2.19 | 9.7 |
| Annual Total | - | 36.97 | 42.7 |

Source: NOAA: w2.weather.gov/climate, Updated May, 2019

Figure 1 – Site Location

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3.3 Land Use Patterns

Wayne County does not exercise land use or zoning control. Instead, each of the individual cities, townships, and villages in the County is zoned and exercises their own control regarding land use planning and permitting.

The table below presents a breakdown of land use/land cover, by acreage, for Wayne County. Although reported land use definitions/categories changed between 2000 and 2008 single-family residential remains the dominant land use/land cover in Wayne County, followed by Transportation and utility corridors. From 1990 to 2000, single-family residential lands exhibited the greatest increase in acreage and active agriculture exhibited the greatest decrease in acreage.

| Land Use Patterns & Trends | | | |
|--|-------------------|-------------------|-------------------|
| Land Use Type* | 1990 Acres | 2000 Acres | 2010 Acres |
| Single-Family Residential | 143,038 | 149,807 | 134,340 |
| Multiple-Family Residential | 9,622 | 10,160 | 4,190 |
| Commercial and Office | 21,736 | 23,547 | 21,550 |
| Governmental / Institutional | 16,255 | 17,100 | 18,233 |
| Industrial | 23,440 | 26,168 | 35,070 |
| Transportation, Communication, and Utility | 22,421 | 24,004 | 48,848 |
| Park, Recreation, and Open Space | 17,550 | 19,054 | 21,653 |
| Agriculture | 46,183 | 25,844 | 13,060 |
| Airport | | | 7,308 |
| Water | 3,813 | 4,152 | 3,083 |
| Grassland and Shrub** | 31,655 | 27,499 | |
| Woodland and Wetland** | 48,375 | 49,701 | |
| Extractive and Barren** | 1,720 | 2,208 | |
| Under Development** | 1,564 | 5,338 | |
| Total Acres | 387,372 | 384,582 | 307,334 |

* Land Use Type definitions have changed since 2000, so direct comparison of 2010 data set and previous years is imprecise. 2010 data derived from 2010 leaf-off aerial imagery.

** These categories not in use in 2010

Source: Southeast Michigan Council of Governments, www.semcoog.org, Community Profile for Wayne County, excluding Detroit.

The above table demonstrates the increasing development in Wayne County from 1990-2000. The greatest increase in land use was single-family residential, followed by land actively under development (primarily residential lots under construction) and industrial use. This increase in development is also reflected by the sharp decline in active agriculture and grassland and shrub land uses. Between 1990 and 2000 there was a 14% decrease in the undeveloped lands in Wayne County.

According to the 2015 U.S. Census Bureau American Community Survey 5-year estimates, 73% of Wayne County's housing consists of single-family detached homes. Multiple family housing accounts for 17% of housing types and mobile homes account for 3%. The median home value in Wayne County (excluding Detroit) is \$107,944 and

the median gross rent is \$840 per rental unit per month. According to ATTOM Data Solutions, approximately 5.6% of all Wayne County housing units were vacant in in the 3rd quarter of 2018, giving the County the second highest vacancy rate in Michigan behind Genesee County and the fifth highest vacancy rate in the country.

3.4 Transportation Network

There are approximately 460 miles of interstate freeways and highways and 175 miles of county roads within the County. County roads are maintained by the Wayne County Department of Public Services Division of Roads.

Wayne County is served by two different bus systems: the Detroit Department of Transportation (D-DOT), which primarily serves the City of Detroit, Hamtramck, and Highland Park, averages 31.2 million rides per year and the Suburban Mobility Authority for Regional Transportation (SMART) system which provides transport for over 10.1 million passengers per year. These bus systems provide routes and/or connections to destinations throughout Oakland, Wayne, and Macomb Counties. SMART also provides specialized services to the elderly and handicapped.

Commercial and passenger air transportation are provided through the Detroit Wayne County Metropolitan International Airport and Coleman A. Young International Airport.

There are four major railroads in Wayne County: CSX Transportation, Norfolk Southern Railway, Conrail, and Amtrak provide passenger and shipping services to locations throughout the U.S. and Canada.

3.5 Population Characteristics

Wayne County is Michigan's most populous county and the 19th-most populous county in the United States. It is home to over 18% of Michigan's total population. With a total population (including Detroit) of just under 2 million people (2010), Wayne County is the eleventh most populous county in the United States. Census values show that Wayne County has been losing population, but that trend is projected to flatten out in the coming decades. The 2045 Wayne County population is expected to increase approximately 1% over 2010 values. The following tables contain demographic information regarding the County, as provided by the Southeast Michigan Council of Governments (SEMCOG) and the U.S. Census Bureau.

| Year | Population Count/Projection |
|-------------|------------------------------------|
| 1990 | 2,111,687 |
| 2000 | 2,061,162 |
| 2010 | 1,106,788 |
| 2045 | 1,149,249 |

Source: U.S. Census Bureau & Southeast Michigan Council of Governments, Community Profile for Wayne County, excluding Detroit.

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| Wayne County (excluding Detroit) Age, Sex, and Race Breakdown (2010 Census Data) | | |
|---|---------------|----------------|
| Subject | Number | Percent |
| Total Population | 1,088,895 | 100 |
| Age | | |
| Under 5 years | 66,528 | 6 |
| 5 to 17 years | 183,648 | 17 |
| 18 to 24 years | 99,151 | 9 |
| 25-54 years | 436,821 | 40 |
| 55 to 64 years | 153,821 | 14 |
| 65-84 years | 138,427 | 13 |
| 85 and over | 24,436 | 13 |
| Race | | |
| White | 823,359 | 76 |
| Black/ African American | 147,278 | 14 |
| Asian | 42,843 | 4 |
| Other Race | 6,052 | 1 |
| Multi-racial | 23,667 | 2 |

Source: U.S. Census Bureau & Southeast Michigan Council of Governments, Community Profile for Wayne County, excluding Detroit.

| Household Characteristics | | |
|---------------------------------------|---------------|----------------|
| Subject | Number | Percent |
| Total households | 411,535 | 100.0 |
| 2+ Person Households with children | 131,828 | 32.0 |
| 2+ Person Households without children | 159,887 | 39.0 |
| Average household size | 2.49 | - |

Source: U.S. Census Bureau & Southeast Michigan Council of Governments, Community Profile for Wayne County, excluding Detroit.

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3.6 Economic Characteristics

Nearly 80% of the Wayne County population is over 16 years of age with 61% of that population in the workforce. Manufacturing and health care services employ the most Wayne County residents at 12% each. The following tables provide detailed information regarding the employed population of Wayne County.

Occupation & Industry Characteristics

| Subject | Number | Percent |
|--|-----------|---------|
| Employment Status | | |
| Daytime Population | 1,196,372 | 100 |
| Employed Residents | 591,006 | 49 |
| Age 15 & Under | 228,714 | 19 |
| Not in Labor Force | 325,682 | 27 |
| Unemployed | 50,970 | 4 |
| Industry | | |
| Natural Resources, Mining, & Construction | 27,362 | 5 |
| Manufacturing | 69,627 | 12 |
| Wholesale Trade | 23,705 | 4 |
| Retail Trade | 64,510 | 11 |
| Transportation and Warehousing, and Utilities | 42,357 | 7 |
| Information & Financial Activities | 48,640 | 8 |
| Professional and Technical Services & Corporate HQ | 62,227 | 6 |
| Administrative, Support, & Waste Services | 42,610 | 7 |
| Education Services | 33,115 | 6 |
| Healthcare Services | 71,169 | 12 |
| Leisure & Hospitality | 56,046 | 9 |
| Other Services | 36,822 | 6 |
| Public Administration | 12,816 | 2 |

Source: U.S. Census Bureau & SEMCOG, Community Profile for Wayne County, excluding Detroit.

| Income & Poverty Status Characteristics | | |
|--|---------------|----------------|
| Subject | Number | Percent |
| Median Family Income (dollars) | \$53,307 | - |
| Population with Social Security Income | 211,545 | 30 |
| Population with Supplemental Security Income | 45,989 | 7 |
| Population with public assistance income | 36,478 | 5 |
| Population with retirement income | 156,146 | 22 |
| Per capita income (dollars) | \$27,877 | - |
| Poverty Status in 2015 | | |
| Number of individuals below poverty level | 166,729 | 15.4 |

Source: U.S. Census Bureau & SEMCOG, Community Profile for Wayne County, excluding Detroit.

3.7 Community Services/Organizations

Natural gas and electrical services are provided to Wayne County customers by Consumers Energy and DTE Energy. Telephone service in the county is provided by a number of different companies, but is primarily provided by AT&T and Verizon. Sewer service for most of the county is provided by the City of Detroit Water and Sewerage Department, but Canton, Northville and Plymouth Townships also receive service from the Western Townships Utilities Authority (WTUA) and the Ypsilanti Community Utilities Authority (YCUA). The City of Detroit provides water service to most of the county.

Wayne County provides a number of services to residents through various boards and agencies, including the Wayne County Board of Commissioners, the Department of Homeland Security & Emergency Management, and the Departments of Community Services, Economic Development, Environment, Family Services, Health Services, Parks and Recreation, and Public Services, and the Wayne County Sheriff’s Office.

The county is served by 34 public school districts. Also within the county are several community colleges, private colleges, private and public universities. Additional learning resources are provided through the county public library services.

Wayne County has an extensive Parks & Recreation Department which maintains 12 county parks. Also, the county is home to numerous arts and entertainment venues including shopping complexes such as Fairlane Town Center and Laurel Park. The City of Detroit is home to historic theatres such as the Fox and Fisher Theatres, and sports venues such as Comerica Park, Little Caesar’s Arena, and Ford Field.

3.8 Critical Assets

The following list of critical assets was developed based on current and future land use in Wayne County, the nature of hazards which may affect the county, and the results of

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community input. The following facilities and infrastructures were identified as critical to providing essential products and services to the general public, preserving the welfare and quality of life of the community, and assuring public safety, emergency response, and disaster recovery.

- Central Business Districts
- Commercial Sites
- Hospitals
- Industrial Sites
- Natural Areas
- Open Spaces
- Public Facilities
- Residential Areas
- Roads, Railroads and Bridges
- Schools and Churches
- Sports and Entertainment Venues
- Utility Facilities

4. Hazard History

4.1 Civil Disturbance

Definition

A public gathering or inmate uprising that disrupts essential functions and results in unlawful behavior such as rioting or arson. This event involves a large number of people and requires a significant response effort by law enforcement and/or emergency responders.

Historical Events

Large civil disturbances are not common in Michigan and typically are a result of the following causes:

- labor disputes,
- controversial court judgments or government actions,
- resource shortages following a catastrophe,
- demonstrations by special interest groups,
- unfair death or injury, or
- celebration following a high profile victory or defeat by a sports team.

A total of 29 incidents of civil unrest are recorded in a listing of United States dating back to 1783, the most recent of these being in response to riots in Los Angeles in the wake of the Rodney King trial in 1992.

Historically, most of the civil disturbances in Wayne County have occurred in the City of Detroit. These include the race riots of 1943 which resulted in 34 deaths and more than 700 injuries and the 1967 civil rights riots which resulted in 43 deaths and over 1,000 injuries. Additional looting and arson damages were estimated at over \$50 million, with 5,000 or more individuals left homeless in their wake. More recently in 1995, Detroit witnessed minor skirmishes and injuries when newspaper employees went on strike over contract disagreements.

Other civil disturbances of note in Wayne County include the "Hunger March" in Dearborn in 1932, in which 10,000 demonstrators fought with police leaving four dead and many injured.

Frequency & Probability

A civil disturbance occurs in Wayne County approximately once every 8-10 years.⁵ The most likely causes for a civil disturbance in the county would be a result of a labor dispute, a sporting event or demonstration at a college, or government or military facility

⁵ Listing of US Civil Unrest Incidents, Armstrong Economics: www.armstrongeconomics.com/statistics/listing-of-us-civil-unrest-incident.

within the county. There are six detention/correctional facilities located within the county which are potential sites for an inmate uprising.

The potential for this hazard to occur in Wayne County is somewhat elevated due to the number of sport/entertainment venues, educational facilities, detention facilities, large scale industrial facilities, and government facilities within the county. Racial diversity in some communities was also cited as a factor in civil disturbance, due to the potential for an influx of out-of-state protesters during community events.

Health & Safety

There have been at least 81 deaths and over 1,700 injuries from major civil disturbances in Wayne County since 1932.⁶

Area Impacted

Civil disturbance events often involve acts of arson, looting, and/or vandalism which can result in devastating levels of property damage. The 1967 riots in Detroit included looting and over 150 fires burned properties over 15 blocks. Forty-three people were killed and over 1,000 were injured during the riots. Property damage was estimated at \$50 million and over 5,000 people were left homeless; it was the largest and most destructive of any such incident in the country for that decade.⁷ Places of public gathering such as festivals, sporting and entertainment venues, colleges and universities, detention facilities, and government facilities are the most likely places for a civil disturbance to occur however, as noted, most of these venues are located within the City of Detroit, which is not included in this Plan.

Economic Impact

The economic impact of a civil disturbance reaches far beyond emergency response costs and property damage. Economic recovery from civil disturbances is very slow and often requires government assistance to revive the local economy. This hazard can tarnish an area's image and deter potential investors and residents.

Critical Facilities/Services

The nature of civil disturbance is such that local emergency response services are often overwhelmed. As a result, aid is often required from other local or state units.

The high degree of property damage which can occur from this hazard can greatly impact the ability to operate or provide services at the hazard location (particularly sporting and entertainment venues, colleges and universities, detention facilities, and government facilities).

⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 7.

⁷ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 340.

4.2 Criminal Acts

4.2.1 Vandalism

Definition

Vandalism is the willful or malicious destruction, injury, disfigurement, or defacement of any public or private property, real or personal, without consent of the owner or person having control. A vandalism offense is an act of vandalism which is reported to a law enforcement agency.

Historical Events

Examples of acts of vandalism include graffiti, tampering with traffic signs and damage to vacant buildings. In more extreme cases, vandalism to public facilities or infrastructure has the potential to result in significant impact to the community.

In February 2018, vandals smashed windows on every car (60) in an auto dealer's lot in Highland Park causing thousands of dollars damage.⁸

Frequency & Probability

Crime statistics do not report "vandalism" directly, but instead reference property crimes or damage to property. The 2017 Michigan State Police Michigan Incident Crime Reporting (MICR) online database indicates that there were a total of 68,184 "damage against property" incidents reported in Wayne County from 2013 through 2017, resulting in an average of 13,637 incidents per year.⁹

Given the well-established frequency of this hazard in recent years, it is anticipated that this hazard will continue to occur in the future.

Health & Safety

There are no data available for death or injury rates due to acts of vandalism. It is anticipated that the majority of these acts do not pose a threat to human health or safety. This however, may not be the case in instances of vandalism involving public infrastructure.

Area Impacted

Due to the nature of vandalism, property damage can be expected with each occurrence. Data regarding property damage due to vandalism is not available for Wayne County; however, the amount of property damage is directly related to the severity of the event.

All areas of Wayne County are potential targets for vandalism. Higher rates of occurrence can be anticipated in areas of urban blight or vacant buildings.

⁸ WXYZ Detroit, <https://www.wxyz.com/news/region/wayne-county/metro-detroit-car-dealership-cleaning-up-after-vandals-bust-hundreds-of-windows>, February 22, 2018.

⁹ Michigan State Police, Michigan Incident Crime Reporting, Crime Statistics, Wayne County, 2013, 2014, 2015, 2016, and 2017. <http://www.micrstats.state.mi.us/MICR/Reports/Report02.aspx>

Economic Impact

No information is available regarding the overall economic impact of vandalism in Wayne County. However, considering the effects of this crime, high rates of vandalism can decrease the attractiveness of neighborhoods or business districts. This can result in economic loss due to loss of residents or businesses, in addition to any property damages incurred.

Critical Facilities/Services

Critical facilities and services are not often directly impacted by vandalism. However, in 1984 vandals in nearby Lake Orion (Oakland County) damaged the entire school bus fleet. This is an example of the potentially far-reaching effects of vandalism. Also, the indirect impacts of vandalism, most notably the time required of police and court systems in dealing with acts of vandalism, should not be overlooked.

4.2.2 Arson

Definition

Arson is the willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling, public building, motor vehicle, or personal property of another. An arson offense is an act of arson which is reported to a law enforcement agency.

Historical Events

According to the U.S. Fire Administration, arson is the leading cause of fires and third-leading cause of fire-related injuries and deaths in the United States¹⁰.

In recent years, Wayne County has experienced numerous arson fires at both private and public properties. The night before Halloween in the city of Detroit had been known as “Devils Night” which brought widespread arson. After the peak of 810 fires in 1984, that number declined to only 21 in 2017.¹¹

Frequency & Probability

Arson (intentional fires) accounts for 4.2% of the residential fires and 9.3% of the non-residential building fires in the U.S.,¹² but only 225 of intentional fires occur indoors.¹³ In 2003, arson or a suspicious fire occurred every 1 hour 2 minutes in Michigan.¹⁴ From 2013 to 2017, Wayne County experienced 4,081 arson fires, an average of 816 per

¹⁰ U.S. Fire Administration Topical Fire Research Series, Volume 1, Issue 8, January 2001.

¹¹ Trip Savvy, *History of Devils' Night in Detroit*, <https://www.tripsavvy.com/history-of-devils-night-in-detroit-1085250>

¹² U.S. Fire Administration, 2017, U.S. fire statistics, www.usfa.gov/data/statistics/

¹³ U.S. Fire Administration Topical Fire Report Series Volume 9, Issue 5 / November 2009

¹⁴ Michigan State Police, Fire Marshall Division, *2003 Michigan Fire Clock*

year.¹⁵ This is notably less than the 6,565 total and average of 1,094 arson fires per year reported in Wayne County's 2013 Hazard Mitigation Plan.

Health & Safety

The U.S. Fire Administration reported in 2009, for the period of 1994 through 1998, that the state of Michigan averaged 16.4 civilian deaths per million population and 9.6 civilian injuries per 1,000 arson fires.¹⁶

Area Impacted

In the United States, one-fifth of all property loss is due to arson and arson is the leading cause of fire-related economic loss.¹⁷ The U.S. Fire Administration reported for the period of 2002 to 2006, that the state of Michigan averaged \$7,070 in property damage per arson fire.¹⁸ Wayne County experiences more arson fires than any other county in Michigan, accounting for more than half the arson incidents in the state annually, with 1,001 reported cases in 2017.¹⁹

Any property is a potential target for arson. Given that arson is a property crime, it is anticipated that arson will occur in areas with high property crime rates.

Economic Impact

In 2015, nearly 3,000 arson and suspicious fires in Wayne County cost County residents over \$100 million.

Critical Facilities/Services

Although not common, critical facilities and services can be directly impacted by arson. An arson fire involving any of the county's assets could temporarily impede the county's ability to provide that service.

4.3 Drought

Definition

Drought is an extended period with significantly low precipitation levels that usually occurs during planting and growing seasons.

Historical Events

The U.S. Department of Agriculture (USDA) designated 21 Michigan Counties, including Wayne County, as primary disaster areas due to drought-caused losses and damage in

¹⁵ Michigan State Police, Michigan Incident Crime Reporting, Crime Statistics, Wayne County, 2013, 2014, 2015, 2016, and 2017. <http://www.micrstats.state.mi.us/MICR/Reports/Report02.aspx>

¹⁶ U.S. Fire Administration, Fire Data, Arson Fires, Civilian Injuries and Civilian Deaths, 1994, 1995, 1996, 1997, 1998

¹⁷ U.S. Fire Administration, www.usfa.fema.gov

¹⁸ U.S. Fire Administration, Fire Data, Arson Fires, Property Loss, 1994, 1995, 1996, 1997, 1998

¹⁹ Michigan State Police, Incident Crime Reporting, Wayne County, 2017

2016.²¹ In 2007 and 2012, drought disaster declarations were declared by the U.S. Department of Agriculture for all 83 counties in Michigan due to drought-related crop losses.^{22,23}

Elsewhere in the state, extreme drought conditions in 1976-1977 contributed heavily to the large wildfire that struck the Seney area in Michigan's Upper Peninsula in July 1976.²⁴

During the drought in 1988, Michigan took several steps to combat the impacts of the drought on businesses, natural resources, and individual citizens. A statewide burning ban was enacted and water use restrictions were put into place in many communities.

During a drought that struck Michigan from 1998-2001, one-third of the state's fruit, vegetable, and field crops were destroyed. This drought resulted in a U.S. Department of Agriculture Disaster Declaration for 82 of the State's counties, including Wayne County.²⁵

Frequency and Probability

There is one major drought event every 20-25 years, on average, that affects the entire State.²⁶ As described above, at least four drought events have been recorded for Wayne County since 2000 and climate patterns continue to trend to drier, hotter summers even though average annual precipitation is likely to generally increase.²⁷ The southeast Michigan climatic region (Region 10), which includes Wayne County, exhibits one of the lowest probabilities in the state for drought, yet Wayne County experiences some level of drought 46% of the time, on average.²⁸

Health & Safety

The risk to human life from a drought event is low.²⁹ Possible loss of human life from a drought event is due to secondary effects such as extreme heat (refer to Section 4.5.1), fire (refer to Section 4.6), and other health-related problems such as increased pollutant concentrations in surface water due to drought-induced low water levels.

²¹ Michigan Farm News, January 12, 2017.

https://www.michfb.com/MI/Farm_News/Content/People/Michigan_counties_declared_natural_disaster_areas/

²² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, July 2012, page 132.

²³ Governor Rick Snyder announcement, http://www.michigan.gov/mdard/0,4610,7-125-1572_28248-285246--,00.html

²⁴ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, July 2012, page 139.

²⁵ Ibid.

²⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 7.

²⁷ NOAA National Centers for Environmental Information Storm Events database query

<https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, May 14, 2019

²⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, April 2019, page 223.

²⁹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 7.

Area Impacted

Impacts of drought primarily affect those employed in agriculture. Drought affects widespread areas; however, the greatest impact is generally to agricultural lands. Natural resources such as lakes, streams, and other bodies of water could be affected by decreased water levels. Also, fires resulting from drought can result in the destruction of trees and other natural habitats, as well as homes and businesses.

The July 2001, drought affected 12 southeast Michigan counties, including Wayne County. The drought in September 2002 affected 12 counties, including Wayne County.³⁰ Drought in 2012 caused all 83 counties in Michigan to be declared primary natural disaster areas for drought and excessive heat by USDA on August 29, 2012³¹. Wayne County contains approximately 13,060 acres of agricultural land (Figure 2).³²

Economic Impact

The impacts of drought on a community include water shortages; a decrease in the quantity and quality of agricultural crops; a decline of water levels in lakes, streams, and other bodies of water; poor nourishment for wildlife and livestock; increases in wildfires; and increases in insect infestations, plant disease and wind erosion.

The 1988 drought/heat wave in the central and eastern U.S. (an event that greatly impacted Michigan) caused an estimated \$40 billion in damages from agricultural losses, disruption of river transportation, water supply shortages, wildfires, and related economic impacts.³³

The July 2001 drought resulted in \$150 million in crop damage over an area of 12 southeast Michigan counties, reducing yields of corn, dry beans, and soybeans to 1/3 of normal.³⁴ The drought that occurred in September 2002 resulted in agriculture yields of less than 50 percent of normal and many counties across eastern Michigan were declared agricultural disaster areas.³⁵

Critical Facilities/Services

Most facilities impacted from drought would be related to agriculture. Farms, large grain facilities, fruit and vegetable vendors/markets could potentially see a significant decrease in production/sales.

³⁰ National Climatic Data Sponsored Website, [www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, Standard Query for Severe Weather](http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm,StandardQueryforSevereWeather), September 6, 2005

³¹ Governor Rick Snyder announcement, http://www.michigan.gov/mdard/0,4610,7-125-1572_28248-285246--,00.html.

³² SEMCOG, 2008 *Land Use and 2010 Land Cover*, Specific to Wayne County, not including Detroit, May 2019.

³³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 139.

³⁴ NOAA National Centers for Environmental Information Storm Events database query <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, May 14, 2019

³⁵ National Climatic Data Sponsored Website, [www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, Standard Query for Severe Weather](http://www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm,StandardQueryforSevereWeather), May 14, 2019.

Figure 2 - Hazard History: Fire – Forest/Field

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Local and regional governmental services may be required to respond to drought. However, if the severity of the drought is significant, State and Federal assistance could be required.

Agricultural services and departments such as the Farm Bureau and the U.S. Department of Agriculture may also be required to provide assistance.

4.4 Earthquakes

Definition

An earthquake is a sudden movement or motion in the earth caused by an abrupt release of slowly accumulating strain, which results in ground shaking, surface faulting, or ground failures.

Historical Events

Most earthquakes that occur in Michigan are minor tremors resulting in little damage. No severely destructive earthquake has ever been documented in Michigan. However, several mildly damaging earthquakes have occurred since the late 1700s.³⁹ Michigan has fault lines in the bedrock geology that are considered stable; however, data is poorly documented. Michigan is most likely to be affected by earthquakes which occur in the New Madrid Seismic Zone (centered near the Arkansas/Tennessee state line) and upstate New York.

There is no record of an earthquake originating within Wayne County. However, there have been several low-magnitude earthquakes centered outside of the county which have been felt in the county.⁴¹

Frequency and Probability

Since 1793, there have been eight earthquakes in Michigan, one centered in the Lansing area and the other centered near Kalamazoo. Since 1793, there have been approximately 43 earthquake related disturbances in Michigan.⁴² An earthquake of significant magnitude is unlikely due to Wayne County's distance from the fault and the type of fault in Michigan. The frequency is assumed to be once every 50 or more years. Although a small disturbance from an earthquake is possible, the probability for a significant earthquake to occur in Wayne County is very low.

³⁹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 168.

⁴¹ United States Geological Survey, *Earthquake History of Michigan*, www.neic.cr.usgs.gov/neis/states/Michigan/hichigan_history.html

⁴² Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, July 2012, page 170.

Health & Safety

There have been no recorded deaths or injuries related to earthquakes in Michigan. The risk rating for human life related to earthquake events is low.⁴³

Area Impacted

The number of people affected is dependent upon the earthquake magnitude and distance from the epicenter. Typically, an earthquake affects a large region, not a specific location. Because earthquakes typically have regional affects, the entire Wayne County population could be affected. However, given the historic severity, only a fraction of the population would be affected by a typical event. The impact of an earthquake would be primarily on water, sewer, and gas pipelines, which are located throughout Wayne County.

Economic Impact

Damage occurs primarily to any type of structure or improvement. The amount of damage is directly proportional to the earthquake magnitude and a large amount of property damage could be anticipated due to the high development density in southern Wayne County. Given the historical severity, economic impacts are expected to be minimal. Since 1793, only a few earthquakes (most of which were minor tremors) resulted in minimal structural damage such a cracked plaster and damaged chimneys. In Wayne County, the impact of an earthquake would be primarily on water, sewer, and gas pipelines. The United States averages approximately \$550,000 per accident to natural gas and liquid pipelines due to earth movement.

Critical Facilities/Services

Due to the low probability of a severely destructive earthquake, response would most likely be limited to primary utility services and pipeline owners. Due to the lack of earthquake events in Michigan, additional investigation of the impact to critical facilities/services is not recommended at this time.

4.5 Extreme Temperatures

4.5.1 Extreme Heat

Definition

A prolonged period of extreme heat, often accompanied by conditions such as high humidity, high winds and lack of rain. Although no standardized temperature is used to define extreme heat, the Centers for Disease Control and Prevention define extreme heat as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks.⁴⁴ In Michigan, heat advisories

⁴³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, July 2012, page 16.

⁴⁴U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp

refer to times when the heat index, a combination of relative humidity and temperature, is calculated to exceed 100 degrees for at least three hours in duration. An excessive heat warning occurs if the calculated heat index is at least 105 degrees for three or more hours.⁴⁵ Prolonged periods of temperatures greater than 90° Fahrenheit are of concern. The minimum mortality temperature threshold is lower in northern latitudes (from 65° to 70° F) than in the southern United States (from 76° to 90° F). Human health effects of heat are also dependent upon the age, health, and physical activity of an individual, as well as humidity and access to air conditioning.

Historical Events

The highest temperature ever recorded in Michigan was 112 degrees Fahrenheit on July 13, 1936 in Mio. During that week, 570 people died statewide and 5,000 deaths were attributed to the heat wave nationwide.⁴⁶

During a heat wave in the summer of 1988, thirty-nine days had temperatures of 90 degrees or more. The temperature in southeast Michigan topped the 100 degree mark on 5 occasions.⁴⁷

In July 1999, a heat wave that struck the Midwest and East Coast resulted in an estimated 256 heat-related deaths in 20 states, including one death in Michigan. A number of people were treated at area hospitals, including in Detroit, for heat-related problems ranging from dehydration to heat stroke.⁴⁸

Between January 2013 and April 2018, four extreme temperature events were reported in Wayne County.⁴⁹ Of the four events, one resulted in 80 injuries.

Frequency and Probability

Extreme temperature periods occur every year in the state. Wayne County experienced 14 extreme heat events between 1996 through 2016, resulting in 541 injuries and three deaths.⁵⁰ The probability of an extreme heat event occurring in Wayne County is likely, but is based on seasonal weather patterns.

Health & Safety

The major threats associated with extreme heat are heatstroke and heat exhaustion.

⁴⁵ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, April 2019, pages 91-92.

⁴⁶ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. July 2012, page 85.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ NOAA National Centers for Environmental Information Storm Events database query <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, April 22, 2019

⁵⁰ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. April 2019, page 93.

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Nationwide, approximately 135 deaths per year are attributable to extreme heat (a total of 3,311 over the 24 year period from 1986 to 2009).⁵¹ Extreme heat primarily affects the most vulnerable segments of society such as the elderly, children, impoverished individuals and people in poor health. Within Wayne County, approximately 6% of the population is aged 0-5 years and 14% is aged 65 years or more.⁵² In summary, 20% of the Wayne County population is at higher risk for impact from extreme heat based solely on age. Two deaths related to excessive heat have been recorded in Wayne County since 2000.⁵³

Area Impacted

Extreme heat typically affects entire counties or regions of Michigan. Although the entire county would be affected, open spaces (at-risk for wildfires), elderly housing centers, and the homeless would be most impacted. The Michigan Department of Health and Human Services lists 45 nursing homes in Wayne County in their Medicaid Long Term Care Provider List.⁵⁴

Economic Impact

Extreme heat is usually accompanied by drought and can have hazardous effects on livestock, agricultural crops, and energy demands and is associated with forest or field fires. Drought is discussed in Section 4.3. Medical costs and increased emergency response costs would be anticipated.

Critical Facilities/Services

Primarily, local and regional governmental services would be requested to provide assistance. Hospitals and clinics would expect an increase in heat exhaustion and other heat-related illness cases.

Utility companies (Consumers Energy, DTE Energy, etc.) would be essential in providing enough resources to supply an increased demand for power (increased use for air conditioning).

If the severity of the extreme heat is significant enough to cause a drought hazard, state and federal assistance could be available. Agricultural services and departments such as the Farm Bureau and the U.S. Department of Agriculture will be the most likely type of agency to provide assistance and aid.

⁵¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, July 2012, page 77.

⁵² Southeast Michigan Council of Governments (SEMCOG), Community Profiles, Wayne County, excluding Detroit. <https://semcog.org/Community-Profiles>

⁵³ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, April 19, 2013

⁵⁴ Michigan Department of Health and Human Services, Medicaid Long Term Care Provider List, https://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_42542_42543_42546_42551-20397--,00.html

4.5.2 Extreme Cold

Definition

A prolonged period of extreme cold, usually accompanied by snowstorms, sleet and ice storms or hail. As with extreme heat, no standardized temperature is used to define extreme cold, although prolonged periods of temperatures below freezing, and especially below 20° F would certainly be of concern.⁵⁵ Also similarly to extreme heat, human mortality temperature thresholds vary with latitude. Areas of the southern United States are more susceptible to human health impacts from cold than areas in the north. Human health effects vary with wind chill and an individual's age, physical condition, physical activity, and access to heated buildings.

Historical Events

The lowest temperature ever recorded in Michigan was -51 degrees Fahrenheit on February 9, 1934 in Vanderbilt.⁵⁶

The National Storm Events Database lists 14 extreme temperature events reported for Wayne County between January 1, 1950 and 2019.⁵⁷ These events resulted in a total of 8 deaths and 34 injuries. This includes the "polar vortex" that affected Michigan and 21 other states January 29 through 31, 2019, shortly before the writing of this Plan. During that period temperatures across the state hovered at or below zero; On January 30th, Harbor Springs, Michigan reported the warmest temperature in the state at 5 degrees Fahrenheit, Ironwood in the Upper Peninsula recorded the coldest temperature at -26 degrees. Two Wayne County residents died during the event, in the City of Detroit and in Ecorse.⁵⁸ Other injuries involved frostbite and slip and fall accidents.

Following an explosion at a natural gas compressor station in Macomb County, during the same cold weather event, Consumers Energy and Michigan's Governor Whitmer asked residents to reduce their use of natural gas. The US Postal Service even suspended mail delivery in parts or all of several Midwest states including Michigan.

Another extreme cold event occurred on January 11, 1999 and resulted in more than 120 water main breaks in the City of Detroit. In Adrian, in Lenawee County, a water main break caused a water shortage for that City's 22,000 residents. Together, the infrastructure damage in Detroit and Adrian caused an estimated \$250,000 and \$1,000,000 in property damage, respectively.⁵⁹

⁵⁵ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, <http://www.bt.cdc.gov/disasters/winter/guide.asp>

⁵⁶ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. July 2012, page 86.

⁵⁷ NOAA National Centers for Environmental Information Storm Events Database query <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, April 22, 2019

⁵⁸ Detroit News. 2019. <https://www.detroitnews.com/story/weather/2019/01/30/arctic-cold-lingers-over-metro-area-wednesday/2719279002/>

⁵⁹ NOAA National Centers for Environmental Information Storm Events Database query <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, April 22, 2019

On December 22, 2000, several freighters got stuck in ice on both the Detroit River and Lake St. Clair and blocked the shipping channel, bringing dozens of ships to a halt.⁶¹

Frequency and Probability

Michigan has 90 to 180+ days per year below freezing but Wayne County is categorized as an area of relatively low risk with zero to 9.9 days per year with temperatures at or below zero degrees Fahrenheit.⁶³ The probability for an extreme cold event in Wayne County to occur is likely, is based on seasonal weather patterns and, since 2000, occurs once every 1.4 years on average. Global climate change patterns indicate that this rate may increase in the future.

Health & Safety

Extreme cold poses a significant health risk to the same segments of the population as extreme heat. Although extreme cold would affect the entire population, the population most at-risk for health hazards from extreme cold includes children, the elderly, disabled and impoverished persons. Nationally, extreme cold is responsible for approximately 700 deaths per year.⁶⁴ Hypothermia and frostbite are the most common conditions associated with extreme cold. Over half of the approximate 700 deaths are persons 60 years of age or older. The Michigan Department of Health and Human Services lists 45 nursing homes in Wayne County in their Medicaid Long Term Care Provider List.⁶⁵ Statistics indicate that death due to cold is more frequent among males than females in most age groups.

Within Wayne County, approximately 20% is aged 60 years or more and therefore at higher risk from extreme heat based solely on age.⁶⁶ Seventeen extreme cold or wind chill events, resulting in 11 deaths and 10 injuries, were reported in Wayne County between 2000 and 2019.⁶⁸

Area Impacted

Extreme cold can affect water supply lines and secondary effects, such as winter storms, can greatly impair transportation. Although the entire county would be affected, the impacts of extreme cold, other than those impacts to human health, would primarily occur to infrastructure (gas and water lines) and to shipping channels.

⁶¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. April 2019, page 109.

⁶³ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. April 2019, page 104.

⁶⁴ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. July 2012

⁶⁵ Michigan Department of Health and Human Services, Medicaid Long Term Care Provider List, https://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_42542_42543_42546_42551-20397--,00.html

⁶⁶ Southeast Michigan Council of Governments (SEMCOG), Community Profiles, Wayne County, excluding Detroit. <https://semcog.org/Community-Profiles>

⁶⁸ NOAA National Centers for Environmental Information Storm Events Database query <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, April 22, 2019

Economic Impact

Damage to infrastructure (gas and water lines) could result in repair costs. Medical costs and increased emergency response costs would be anticipated. Shipping delays could cause a short-term increase cost in consumer products.

Critical Facilities/Services

Primarily, local and regional governmental services would be needed to provide assistance in times of extreme cold. Local churches, community centers, and other nonprofits and governmental groups opened warming centers during the 2019 polar vortex event and the Wayne County Sherriff's Office assisted by transporting individuals to area shelters. Similarly the Michigan Humane Society responded to calls of animals exposed to the cold.

Hospitals and clinics would see an increase in hypothermia, frostbite, and other cold-related illness cases. Coast Guard icebreaker assistance has been used to free shipping lanes from ice.

Utility companies (Consumers Energy, DTE Energy, etc.) would be essential in repairing lines and providing enough resources to meet increased demands for heat.

4.6 Fire Hazards

4.6.1 Forest/Field Fire

Definition

An uncontrolled fire within an open space, forested area, brush or grassed area, or wildland.

Historical Events

A total of 1,669 occurrences from forest/field fires occurred between January 1, 1998 and December 2004 in Wayne County.⁶⁹ Between 1998 and 2003, Wayne County averaged 278 forest/field related fires per year. Updated county-specific data is not available for the time period since 2003.

In October 1871, Michigan's first recorded catastrophic fire occurred after a prolonged drought over much of the Great Lakes region. The wildfire killed 200 people and burned 1.2 million acres in Michigan's Lower Peninsula.⁷⁰

⁶⁹ Federal Emergency Management Association Website, www.nfirs.fema.gov, *NFIRS 5.0 National Reporting*, October 3, 2005, Filtered for Wayne County Reporting Only

⁷⁰ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103. July 2012

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Frequency and Probability

On average, one major event requiring MDNR involvement occurs per decade in Michigan. Wayne County had zero wildfires reported between 1981 and 2000 (MDNR jurisdiction only).⁷¹ The probability for a major forest/field fire to occur in the county is low, but smaller scale occurrences such as localized grass or brush fires are likely to occur.

Health & Safety

Between January 1, 1998 and December 31, 2003, one death was reported from natural fires. A total of 3 injuries (civilian and fire fighter) resulted.⁷²

Generally heat exhaustion and smoke inhalation would represent the greatest risk to firefighters and/or civilians. The risk to human life is low to moderate for wildfires.⁷³

Area Impacted

In Michigan, 2% of all forest/field fires are caused by lightning strikes and the rest are caused by human activity. Forests cover approximately 49% (18.2 million acres) of Michigan's total land base.⁷⁴ The amount of area potentially affected by wildfire in Wayne County varies depending upon how land use/land cover data is classified: only 2.4% of Wayne County's is categorized as park, recreation or open space land uses. Agricultural lands make up an additional 4.2% of Wayne County. However, 63.2% of the County is covered by trees, shrubs, agricultural fields, grassland or turf grass.⁷⁵ Wayne County contains approximately 6,900 acres of forest land.⁷⁶ (Figure 2)

Populations adjacent to open space or vacant land will be directly affected. The extent of the affected area depends greatly on response time and fire control. Open spaces and vacant land are most at-risk for forest/field fires. In 2000, there was approximately 114,209 acres of undeveloped land in Wayne County.⁷⁷ However, this number is

| Forest/Field Related Fire Incidents in Wayne County 1/1/98-12/31/04 | | | |
|--|---------------|-----------------------------|--------------------------|
| Type | Number | Deaths/ Injuries | Property Loss |
| Natural Vegetation | 514 | 1/2 | \$11,054 |
| Forest, woods, or wild land fire | 81 | 0/0 | \$154 |
| Brush, or brush and grass mixture | 553 | 0/1 | \$223,215 |
| Grass fire | 521 | 0/0 | \$9,719 |
| Cultivated vegetation, grain or crop, orchard, vineyard, trees, or nursery stock | 147 | 1/4 | \$242,976 |

Source: NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004, filtered for Wayne County Reporting only.

⁷¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 66.

⁷² Federal Emergency Management Association Website, www.nfirs.fema.gov, *NFIRS 5.0 National Reporting*, October 3, 2005.

⁷³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 7.

⁷⁴ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 144.

⁷⁵ Southeast Michigan Council of Governments (SEMCOG), *Community Profiles, Wayne County, excluding Detroit*. <https://semcog.org/Community-Profiles>

⁷⁶ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, April 2004.

⁷⁷ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, April 2004.

expected to be less due to growth in the county over the past four years. Over 60% of Wayne County's land is developed.

Economic Impacts

The risk rate for property damage resulting from a wildfire is moderate to high (very high for timber loss).⁷⁸

Total property loss for vegetation, forest, woods, wildland, brush, and grass fires between January 1, 1998 and December 31, 2004 was \$24,414. Total property loss for fires on cultivated agricultural lands was \$242,976.⁷⁹ Secondary effects of forest/field fires include infrastructure damage, timber loss, property loss, wildlife loss and loss of life or injury to persons.

Critical Facilities/Services

There are 45 fire departments which respond to fires within Wayne County. Emergency response assistance is provided to fire departments through mutual aid arrangements. Between January 1, 1998 and December 31, 2004, no firefighter deaths were reported and 2 firefighter injuries were reported from related forest and field fires.⁸⁰

4.6.2 Scrap Tire Fire

Definition

Scrap tire fires are large fires which occur at a location where scrap tires are being stored for processing, recycling, or re-use.

Historical Events

Michigan generates 7.5 to 9 million scrap tires annually and Wayne County has an extensive history of scrap tire fires. Over the last decade, there has been a decrease in both the frequency and severity of fires at scrap tire disposal sites due to the cleanup of existing stockpiles and an increase in compliance at collection sites. The Michigan State Police list 16 significant fires at tire storage locations from 1987 to 2010. One of these was in southwest Detroit in 2005; that fire injured three firefighters and destroyed buildings on-site.⁸¹

The Michigan Department of Environmental Quality requires a scrap tire collection site to be registered if it exceeds established tire storage thresholds. Scrap tire collection sites can include businesses such as scrap tire processors, new tire retailers, junkyards,

⁷⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 7.

⁷⁹ Federal Emergency Management Association Website, www.nfirs.fema.gov, *NFIRS 5.0 National Reporting*, October 3, 2005.

⁸⁰ Federal Emergency Management Association Website, www.nfirs.fema.gov, *NFIRS 5.0 National Reporting*, October 3, 2005.

⁸¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 216.

farms, and go-kart tracks. It is estimated that there are over 650,000 scrap tires stored in Wayne County at registered and unregistered scrap tire collection sites.

Frequency & Probability

In Michigan there were sixteen major scrap tire fires from 1987 to 2010.⁸² However, since the MDEQ Michigan Scrap Tire Program began in 1991, Michigan's scrap tire stockpile has been reduced from 31 million to about 3,400,000 (2012).⁸³

Health & Safety

Scrap tire facilities present significant environmental and fire hazards. In addition, scrap tires are known for providing breeding grounds for mosquitoes, thus contributing hazards to public health. Scrap tire fires are also capable of producing acrid smoke and an oily residue which can leach into the soil.

Area Impacted

Scrap tire fires can be difficult to contain and, aside from the fire hazard presented by scrap tire fires, inhaling the smoke produced from the fire can be hazardous to human health. As a result, scrap tire fires often require people in surrounding areas to evacuate or seek shelter-in-place.

The oily material produced by scrap tire fires can also negatively impact the soil, and possibly groundwater and surface water, in the area of the fire. If groundwater or surface water is impacted, the affects can potentially extend well beyond the boundaries of the fire.

Economic Impact

A scrap tire fire will inevitably result in property damage and inventory loss to the collection site. In addition, environmental clean-up costs after the fire is extinguished can be significant.

Due to the amount of response required, extinguishing a scrap tire fire can be financially draining for local emergency response departments. For example, the largest scrap tire fire in recent Michigan history occurred in Osceola County in 1997. That fire burned over 1.5 million tires and cost approximately \$300,000 to extinguish. The State of Michigan paid \$100,000 to Osceola County as reimbursement for fighting that fire.

Critical Facilities/Services

Scrap tire fires can be very difficult to extinguish, often lasting for extended periods, and can require a substantial amount of resources from local emergency response departments. The response effort typically requires assistance from neighboring fire departments.

⁸² Ibid.

⁸³ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 214.

4.6.3 Structural Fire

Definition

A structural fire is a fire of any origin that ignites one or more structures and causes loss of life and/or property.

Historical Events

Structural fires are commonly known as the “universal hazard” because they can occur anywhere. The Michigan State Police, Fire Marshal Division estimated that, in 2003, a structural fire occurred in Michigan every 28 minutes and 6 seconds.⁸⁶ Wayne County has experienced numerous structural fires throughout its history.

Frequency & Probability

From 1998 through 2004, 8,674 structural fires in Wayne County were reported to the Federal Emergency Management Agency, National Fire Incident Reporting (NFIR) System.⁸⁷ Updated, Wayne County-specific information was not available for the writing of this report but national data from the U.S. Fire Administration notes and estimated 1,319,500 fires in 2017, with 29.1% of those impacting residential structures and another 8.3% involving nonresidential structures.⁸⁸ The Detroit Fire Report indicates there were 2,981 structural fires in the City of Detroit in 2015 and that 91% of those impacted residential buildings.⁸⁹ Although the number of structural fires nationally is declining, fires within Wayne County have a well-established history and this hazard will continue to occur in the future (Figure 3).

Health & Safety

Structural fires occur in Michigan roughly 22,000 times per year, and cause approximately 210 deaths and 670 injuries per year. Residential fires account for 74% of structure fires and 80% of fire deaths. Residential and other county land uses are shown in Figure 4. From 1998 through 2004, there were a total of 56 deaths and 330 injuries due to structural fires in Wayne County. This equates to an average of 8 deaths and over 47 injuries per year.⁹⁰

Area Impacted

Structural fires can occur on any parcel within which a structure is present.

⁸⁶ Michigan State Police, Fire Marshal Division, 2003 Fire Clock.

https://www.michigan.gov/documents/dleg_bccfs_03fireclock_94774_7.pdf

⁸⁷ NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004, report generated on October 3, 2005, filtered for Wayne County reporting only.

⁸⁸ U.S. Fire Administration. U.S. Fire Statistics: <https://www.usfa.fema.gov/data/statistics/>

⁸⁹ Loveland Technologies. 2015. The Detroit Fire Report: an in-depth look at a year of fires in the City of Detroit, January 1 - December 31, 2015. <http://detroitfires.squarespace.com/#cover>

⁹⁰ NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004, report generated on October 3, 2005, filtered for Wayne County reporting only.

Figure 3 - Hazard History: Structural Fire

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Economic Impact

Property loss and contents loss can be very high as a result of structural fires. From 1998 through 2004, Wayne County experienced a total of \$230,531,796 in property and content loss from structural fires, an average of \$32,933,114 per year, or \$26,577 per structural fire.

Critical Facilities/Services

35 fire departments, acting from 57 fire stations had responded to structural fires within the Wayne County communities covered in the 2019 Plan.⁹⁴ There are a total of 44 fire departments and 80 stations in the county, including those that respond to private, transportation, or port industries.⁹⁵

4.7 Flooding

4.7.1 Dam Failure

Definition

The failure of an impoundment located in a river, stream, lake or other waterway resulting in downstream flooding.

Historical Events

Dam failure can result in loss of life, property, and natural resources for miles downstream of a dam. Dam failures are not only caused by flood events, but can also be caused by poor operation, lack of maintenance, and vandalism.

| Name | Hazard | Height |
|-----------------------|---------------|---------------|
| Nankin Mill Dam | High | 17 |
| Newburgh Dam | High | 29 |
| Phoenix Dam | High | 24 |
| Wilcox Dam | High | 27 |
| Waterford Dam | High | 22 |
| Flat Rock Dam | High | 16.5 |
| French Landing Dam | High | 35 |
| Maybury Fish Pond Dam | Significant | 18.5 |

Source: State of Michigan Department of Environmental Land and Water Management Division.

Examples of dam failures in Michigan include: 1) in Marquette (2003) an earthen dam failed causing over \$10 million in property damages, 2) in September 1986, an intensive rainfall caused 11 dams to fail in the Lower Peninsula of Michigan, and 3) In August 2018, the Blackwater Dam near Coldwater was reported to be in a "state of failure," as water began undermining and flowing through portions of the earthen berm adjacent to the dam gates.

There are 2,400 dams identified statewide and there have been 287 documented dam failures in Michigan since 1888.⁹⁶

⁹⁴ Ibid.

⁹⁵ National Fire Department Census Database, report generated July 1, 2013, <http://apps.usfa.fema.gov/census/>.

⁹⁶ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 124.

Frequency and Probability

Over 300 dams and critical culverts exist in Wayne County.⁹⁷ Wayne County has eight high or significant Class I dam hazards.⁹⁸ Wayne County has had two documented dam failures.⁹⁹ However, dams upstream of Wayne County also increase the frequency and probability of dam hazards that would affect Wayne County. It is probable that a dam failure or a hazard resulting in an upstream dam failure will occur in the future within the county.

Health & Safety

No deaths or major injuries have been reported as a result of dam failure in the State.¹⁰⁰ Still, the risk to human life as a result of dam hazards is moderate to high.¹⁰¹

Area Impacted

Floodplain areas downstream of dams are at greatest risk for impact from a dam break. There are 3,820 enrollees in the National Flood Insurance Program within 100-year floodplains in Wayne County¹⁰² and there were approximately 9,500 structures¹⁰³ located within FEMA-mapped 100-year floodplains within Wayne County in 2004.

Economic Impact

The risk of property damage as a result of dam hazards is moderate to high.¹⁰⁴ Property loss and content loss can be very high as a result of a dam failure. Variable costs to repair a damaged dam are anticipated.

Critical Facilities/Services

Flooding events can require a substantial amount of resources and assistance from multiple agencies and departments including local emergency response departments, as well as state and federal departments such as the MDEQ Land and Water Management Division, Dam Safety Program staff and FEMA. If flooding from a dam resulted in significant damage to homes, The American Red Cross may also assist.

⁹⁷ Wayne County Michigan Pre-Disaster Mitigation Plan, Wayne County Department of Homeland Security & Emergency Management, March 2005

⁹⁸ Michigan Department of Environmental Quality, Land and Water Management Division, List of Dams in Oakland County and Dams Upstream of Wayne County, September 7, 2005

⁹⁹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 76.

¹⁰⁰ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 126.

¹⁰¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 8.

¹⁰² FEMA (Federal Emergency Management Agency), National Flood Insurance Program, NFIP Insurance Report by State, County, Community, January 23, 2006.

¹⁰³ ASTI Environmental, unpublished analysis of FEMA 100-year floodplain overlays and AeroData, Inc. 2004 aerial photography, Wayne County.

¹⁰⁴ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 126.

4.7.2 Riverine Flooding

Definition

The periodic occurrence of over-bank flows of rivers and streams resulting in partial or complete inundation of the adjacent floodplain.

Historical Events

Wayne County experienced significant riverine flooding during the writing of this report. Over a seven-hour period from April 30 to May 1, 2019, 3.6 inches of rain (approximately a 100-year storm) resulted in widespread flooding in Dearborn Heights, Detroit, and other communities, impacting approximately 3,000 homes in the county, forcing closure of the Southfield Freeway, and affecting residents within a six county area in southeast Michigan. Wayne County Executive, Warren Evans, declared a county state of emergency and Governor Gretchen Whitmer followed by declaring a State of Emergency for Wayne County.

On August 11, 2014, southeast Michigan experienced record rainfall of more than six inches in some areas. Metro Detroit and surrounding communities, as well as the Flint and Saginaw areas farther north were the hardest hit. Wayne, southern Oakland and Macomb Counties experienced the worst flooding with four to six inches of rain over a four hour period. Approximately 75,000 homes and businesses were impacted with damages in Detroit Metro area estimated at 1.8 billion dollars. The severe and widespread flooding prompted President Obama to declare a major disaster for Macomb, Oakland and Wayne Counties.

On July 16, 1995, heavy rainfall of around two inches in two hours caused the Middle Rouge River near Garden City to crest near flood stage.¹⁰⁵ A similar occurrence occurred again on August 3 and October 5, 1995. On June 30, 2004, a Presidential Disaster Declaration was issued for Wayne County, and 22 other counties in Michigan, to provide individual assistance to households and individuals affected by flooding.¹⁰⁶ In September of 1986 and 1987, a county/state disaster declaration was issued for downriver floods (Gibraltar and Brownstown) and (Gibraltar, Brownstown, and Riverview), respectively.¹⁰⁷ In May 2004, overflows from the Ecorse Creek caused the flooding of an estimated 1,500 homes in the downriver communities Ecorse Creek passes through.¹⁰⁸

¹⁰⁵ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005

¹⁰⁶ Federal Emergency Management Agency Website, Disaster Declarations, www.fema.gov/news/event.fema?id=3147, September 24, 2004.

¹⁰⁷ Wayne County Michigan Pre-Disaster Mitigation Plan, Wayne County Department of Homeland Security & Emergency Management, March 2005

¹⁰⁸ Press & Guide Newspapers, www.pressandguide.com/cgi-bin/printme.pl

Frequency and Probability

Although the Michigan Hazard Analysis indicates that Michigan averages one major riverine flood every two years,¹⁰⁹ NOAA's extreme weather database includes reports of six flood and flash flood events since 2013, which does not include the 2019 event described above. Wayne County includes portions of the Detroit River, the Huron River, the Rouge River, Ecorse Creek, and the Combined Downriver Watersheds (Blakely Drain, Frank & Poet Drain, and Detroit River South sub watersheds). Riverine flooding generally occurs every year in Wayne County and areas like Hines Drive may flood frequently each year.

Further, climate change is likely to increase the frequency of floods in Michigan. Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased about 35 percent. During the next century, spring rainfall and annual precipitation are likely to increase, and severe rainstorms are likely to intensify. Each of these factors will tend to further increase the risk of flooding.¹¹⁰

The Wayne County Parks Department has developed a system for quick response, road closings, and public notification for flooding of Hines Drive. It is highly probable that riverine flooding will continue to be a hazard in Wayne County.

Health & Safety

Although frequent and widespread, less than 10 deaths from riverine flooding were recorded in Michigan in the 25 years prior to 2001 and 140 nationally per year.¹¹¹ The risk to human life is generally considered low.¹¹² However, at least one more death was attributed to riverine flooding in 2018 when a 12-year old boy in Houghton was trapped in the collapse of his basement.

Area Impacted

A riverine flood in Wayne County would primarily affect streets and infrastructure located near floodplains and in areas with inadequate drainage. The Combined Downriver watershed includes 11 communities and encompasses approximately 85.9 square miles and in 2000, had 244,259 people living within its boundaries (2,844 people per square mile).¹¹⁴ The Ecorse Creek Watershed includes 11 communities and encompasses 27,791 acres or 43.4 square miles.¹¹⁵ The Rouge River basin has four tributary branches totaling 126 miles located in mostly urban areas of Wayne County.¹¹⁶ The

¹⁰⁹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 97.

¹¹⁰ US Environmental Protection Agency, 2015. What Climate Change Means for Michigan. EPA 430-F-16-024. August 2016.

¹¹¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 8.

¹¹² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 8.

¹¹⁴ Draft Combined Downriver Watershed Management Plan, CDWIC, August 5, 2005

¹¹⁵ Draft Ecorse Creek Watershed Management Plan, August 1, 2005

¹¹⁶ www.waynccd.org/index/files/Page_703.htm,

Rouge watershed extends over 438 square miles within three counties, including Wayne County.

Economic Impact

Property loss and content loss can be very high as a result of flood events. Property damage as a result of flooding in Michigan ranges from \$60 to \$100 million each year.¹¹⁷ The risk of property damage resulting from riverine flooding hazards is high.¹¹⁸ Since 1980, 122 properties in Wayne County have experienced repeated flooding and have had flood insurance claims filed for repetitive losses. Costs for damages due to repetitive flooding loss in Wayne County, since 1980 (total number of events = 316), average \$6,300 per event.¹¹⁹

Critical Facilities/Services

Flooding events can require a substantial amount of resources and assistance from multiple agencies and departments including local emergency response departments, state and federal departments (e.g., FEMA), and non-profit organizations such as the American Red Cross. If loss to significant yields of crops results from a flood event, agricultural services such as the U.S. Department of Agriculture may be called upon to offer assistance. The National Weather Service and local media issue flood watches and warnings to give advanced notice of potential flooding to areas. Watershed management programs and community/government programs, such as Friends of the Rouge River, also provide data and information.

National Flood Insurance Program (NFIP) Participation

Part 31, Water Resources Protection, Michigan Act 451 of 1994, as amended, regulates activities that result in occupation, fill, or grade lands within floodplains along watercourses with a drainage area in excess of two square miles. Such activities require an application, review, and permit issuance from the MDEQ prior to floodplain disturbance. Of the 42 communities in Wayne County, 36 participate in the National Flood Insurance Program¹²⁰ and DFIRM data is available for all. Those communities not listed as participating are the cities of Belleville, Hamtramck, Harper Woods, Highland Park, Melvindale, and Van Buren Township. There are 4,050 flood insurance policy holders enrolled in the National Flood Insurance Program in Wayne County.¹²¹ Analysis

¹¹⁷ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 97.

¹¹⁸ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 8.

¹¹⁹ FEMA (Federal Emergency Management Agency), National Flood Insurance Program, Repetitive Loss Summary for Wayne County, Michigan. provided by the Michigan State Police, Emergency Management Division, September 30, 2012.

¹²⁰ FEMA National Flood Insurance Program Community Status Book, <http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book>, updated 6/15/2012

¹²¹ from NFIP Policy Information by county for current month, <http://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13>, updated 1/7/2013

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of aerial photographs indicates that approximately 9,500 structures were located within the FEMA-mapped 100-year floodplains in 2004.¹²²

Repetitive Loss

FEMA has identified 122 repetitive loss properties in Wayne County. Severe repetitive loss properties are defined as residential properties covered under an NFIP flood insurance policy, and: (a) that have at least four NFIP claim payments (including building and contents) over \$5,000 each, with the cumulative amount of such claims payments exceeding \$20,000; or (b) for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both (a) and (b), at least two of the referenced claims must have occurred within any 10-year period, and must be greater than 10 days apart.

Repetitive loss properties comprise approximately one percent of currently insured properties but account for 25-30% of flood claims. They constitute a significant expense of the NFIP. Flood mitigation activities for reducing the potential of further damages to these properties are a priority. By addressing these high-priority at-risk properties, not only would all of the normal benefits of hazard mitigation be enjoyed, but the reduction in insurance claims would be expected to help keep flood insurance costs lower for everyone else in these NFIP-participating communities.

The following table summarizes the number and types of repetitive-loss properties, by community, in Wayne County.

| Jurisdiction | Total Number of properties | Number of Mitigated Properties | Property type(s) | Average total damage per event | # of Events |
|---------------------|----------------------------|--------------------------------|---------------------------------------|--------------------------------|-------------|
| Allen Park | 4 | 0 | Single-family residential | \$5,447 | 9 |
| Brownstown Township | 7 | 4 | Single-family residential | \$7,065 | 20 |
| Dearborn Heights | 12 | 2 | Single-family residential | \$4,887 | 27 |
| Gibraltar | 84 | 84 | 83 single-family, 1 nonresidential | \$6,300 | 223 |
| Grosse Ile Township | 4 | 0 | Single-family residential | \$5,733 | 10 |
| Grosse Pointe Park | 1 | 0 | Single-family residential | \$11,258 | 2 |
| Grosse Pointe | 1 | 1 | Single-family residential | \$2,842 | 2 |
| Lincoln Park | 1 | 0 | Single-family residential | \$15,928 | 2 |
| Northville Township | 1 | 0 | Single-family residential | \$13,725 | 3 |
| Redford Township | 1 | 0 | Single-family residential | \$5,171 | 2 |
| Rockwood | 1 | 1 | Single-family residential | \$1,272 | 3 |
| Trenton | 3 | 0 | 2 single-family, 1 other residential | \$2,474 | 7 |
| Wyandotte | 2 | 1 | multifamily resid., non-residential | \$12,239 | 6 |
| TOTAL | 122 | 93 | | \$6,300 | 316 |

¹²² ASTI Environmental, unpublished analysis of FEMA 100-year floodplain overlays and AeroData, Inc. 2004 aerial photography, Wayne County.

4.7.3 Urban Flooding

Definition

Urban flooding involves the overflow of storm sewer systems and is usually caused by inadequate drainage following heavy rainfall or rapid snowmelt. Urban flooding is typically the result of intense rainfall, snowmelt, ice jams, dam failures (considered separately above), or a combination of these factors. Secondary hazards associated with urban flooding include infrastructure damage, dam failure, riverine flooding, and shoreline flooding and erosion.

Historical Events

Since the National Centers for Environmental Information Storm Events Database began recording this category in 1996, a total of 51 individual flood or flash flood events have been recorded in Wayne County, not including the most recent events here in early May 2019.¹²³

In April 1947, a combination of snow and rainfall that began in late March affected areas surrounding the Rouge River.¹²⁴

On May 9, 1996, a flash flood caused flooding on I-94 in Wayne County.¹²⁵

On February 7, 1997, the Lower Rouge River at Inkster went above its 10.0-foot flood stage and crested at 10.1 feet.¹²⁶

Presidential and Gubernatorial Disaster Declarations were issued for flooding that occurred in July 1997, which caused flood-related damage to the public water and sewer systems in Wayne and Macomb Counties totaling nearly \$300,000.

In February 1998 a rain event caused a State of Emergency Declaration to be issued in Wayne County. Taylor, Dearborn Heights, Westland, and Gross Ile were among the hardest hit communities. Urban flooding was a significant problem. Hundreds of basements and many streets were flooded in the cities west and southwest of Detroit. Rainfall totals during the three day event were commonly over 2 inches.¹²⁷

¹²³ NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

¹²⁴ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 81.

¹²⁵ NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

¹²⁶ Ibid.

¹²⁷ NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

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On September 11, 2000 widespread, severe, urban flooding resulted in a Presidential Disaster Declaration for Wayne County.¹²⁸ Over 15,000 residences and other structures in the county suffered flood damage. In Allen Park, an estimated 40% of all streets flooded at some point during the event. Underpasses flooded in Dearborn. The Southfield Freeway was covered with two to three feet of water. A home in Riverview had its basement collapse and three feet of water covered Fort Street in Wyandotte. Wayne County suffered an estimated \$19 million in property damage as a result of the event.

In May 2004, the combination of heavy rain and power failure at the Wyandotte pumping station resulted in basement flooding in Dearborn Heights, Romulus, and Allen Park. The intersection of Telegraph and I-94 was closed due to flooding. Approximately 350 homes in Allen Park were damaged by flooding.¹²⁹

Edward Hines Drive has been closed numerous times between at least 1994 and May 2005 in Garden City due to cresting of the Middle Rouge River. The road is located within a floodplain of the Rouge River.

Finally, as noted above in the Riverine Flooding section of this report, severe rainfall that overwhelmed stormwater drainage systems caused widespread flooding in both August 2014 and May 2019, resulting in federal and state declarations, respectively, and millions to billions of dollars in damage. The most recent flood events closed portions of the Southfield Freeway and streets in Taylor, Dearborn Heights, and Allen Park.¹³⁰

Frequency and Probability

The frequency of urban flooding is dependent on seasonal weather patterns. Urban flooding is usually caused by inadequate drainage following heavy rainfall or rapid snowmelt. Urban flooding is more likely to occur during the spring, when thunderstorms and snow melt are more prevalent or during mid-summer thunderstorms. Many areas of Wayne County are heavily urbanized and are located along river corridors. Most of these areas are connected to aging municipal storm sewer systems that can exacerbate flooding. It is highly probable that urban flooding will continue to occur in the county. As development continues, and as stormwater infrastructure continues to age, an increase in urban flooding may occur. Additionally, scientists predict that climate change will increase the number of extreme rainfall and storm events, leading to more flooding throughout the Midwest and costing taxpayers as much as \$480 million annually just to adapt stormwater systems to handle the increased runoff.¹³¹

¹²⁸ Ibid.

¹²⁹ NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

¹³⁰ Detroit Free Press, <https://www.freep.com/story/weather/2019/05/02/detroit-area-rain-total-shatters-record/3649336002/>, May 2, 2019.

¹³¹ USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

Health & Safety

Possible loss of life would be primarily from drowning incidents. Other potential health-related problems could be from sewer back-ups and increased pollutant concentrations.

One man drowned in West Bloomfield Township, in neighboring Oakland County, on June 18, 1996, when he drove his car across a flooded parking lot into a pond, which was obscured by flood waters.¹³²

During July 2000, a stranded family was rescued by a boat in Novi after their car stalled in flood waters.¹³³

Area Impacted

An urban flood in Wayne County would primarily affect streets and infrastructure located in or near floodplains and in areas with inadequate drainage. Approximately 9,509 structures are located within the FEMA 100-year floodplain within 42 of the communities covered by this Plan. Figure 5 shows the location of all floodplains and flood-prone areas within the county.

Economic Impact

It is estimated that flood damages in Michigan are between \$60 and \$100 million per year.¹³⁴

The 51 individual flood or flash flood events recorded in Wayne County since 1996, not including the most recent events here in early May 2019, have resulted in property damage totaling an estimated \$1,123,600,000 dollars, an average of more than \$51 million dollars per year.¹³⁵

From 2000 to 2008, Michigan experienced eight flood disasters that resulted in either a Presidential Major Disaster Declaration or a Governor's Disaster Declaration. These flood disasters have damaged homes, businesses, personal property and agriculture, resulting in hundreds of millions of dollars worth of damage.¹³⁶

Critical Facilities/Services

Flooding events can require a substantial amount of resources and assistance from multiple agencies and departments including local emergency response departments, as

¹³² NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

¹³³ Ibid.

¹³⁴ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 97.

¹³⁵ NOAA National Centers for Environmental Information, Storm Events Database, <https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, *Query for Wayne County Michigan Flood and Flash Flood Events, May 1, 2019*.

¹³⁶ FEMA, Disaster Declarations by State/Tribal Government. <https://www.fema.gov/disasters/state-tribal-government/0/MI>

well as state and federal departments including FEMA and the American Red Cross. Thirty-six communities in Wayne County participate in FEMA's National Flood Program

The National Flood Insurance Program (NFIP) was instituted in 1968 to make flood insurance available in those communities agreeing to regulate future floodplain development. In February 2013 there were 26,247 flood insurance policies in force in Michigan, which amounts to approximately \$4.5 billion worth of coverage.¹³⁸ There are 4,050 flood insurance policy holders enrolled in the National Flood Insurance Program in Wayne County.¹³⁹

In 2002, Wayne County set up a subscription, online, emergency alert service that sends notices via e-mail, text message, or pager, of flooding along Edward Hines Drive and other emergencies.

4.7.4 Shoreline Flooding & Erosion

Definition

Shoreline erosion hazards typically involve the loss of property as sand or soil is removed by water action and is carried away over time.

Historical Events

Shoreline flooding and erosion typically occurs along the Great Lakes shoreline and is caused by high water levels. During the writing of this plan, the U.S. Army Corps of Engineers (USACE) reported that Lake Superior and Lake Erie will soon reach record high water levels, as heavy winter snowpack across the north adds to rain swollen rivers. The result is causing both flooding and shoreline erosion in some areas of Wayne County. Lake Superior, the largest of the Great Lakes, is approximately 15 inches above its long-term average for this time of year and nine inches higher than one year ago. Lake Erie is currently 26 inches above its long-term average level. The USACE reports that Lakes Huron, Michigan, and Ontario are not expected to set records, but are also well above average.

Great Lakes water levels fluctuate over time and have been trending upward since 2013 when Lake Huron and Michigan were at their lowest and the other lakes were significantly below normal. That was the low point of a 15-year period that resulted in the stranding of recreational boats and forced commercial vessels to lighten their loads.

Prior to the current high levels, the most recent high water period in Michigan was in 1997-98. During this period, the Great Lakes were at or near record levels set in the mid-1980s. In 1985-86, record high lake levels resulted in a Governor's disaster

¹³⁸ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 84.

¹³⁹ from NFIP Policy Information by county for current month, <http://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13>, updated 1/7/2013

declaration for 17 shoreline counties. During 1972-73, high water levels caused flooding in 30 counties in Michigan.¹⁴⁰

Frequency and Probability

Long-term and seasonal variations in precipitation and evaporation rates contribute to the fluctuation of water levels. Several manmade factors can also affect water levels such as diversion of water for resource use, dam regulations, and dredging. Shoreline flooding and erosion that occurs along the Great Lakes is caused primarily by natural factors. Wayne County is not located within a high risk erosion area, but does contain flood prone coastal areas.¹⁴¹ Shoreline erosion and flooding issues are likely to continue in Wayne County in communities along the Detroit River.

Health & Safety

Deaths and fatalities from shoreline erosion and flooding along the Detroit River are of low probability. Low-lying areas prone to flooding and erosion should have restrictions limiting or preventing access.

Area Impacted

Communities in Wayne County along the shoreline of the Detroit River are Grosse Pointe Shores, Grosse Point Farms, Gross Pointe Park, Grosse Pointe Woods, Detroit, River Rouge, Ecorse, Wyandotte, Riverview, Trenton, Gibraltar, and Brownstown Township. Grosse Ile, being an island has shoreline on all sides. Low-lying areas along the shoreline are prone to shoreline flooding during both high and low lake water periods (Figure 5).

Economic Impact

During 1972-73, high water levels caused flooding in over 30 counties, resulting in excess of \$50 million in public and private damage. Thousands of people were forced to evacuate their homes. Shoreline flooding would have similar economic impacts as urban flooding with damage or loss of property.

Critical Facilities/Services

The United States Army Corps of Engineers (USACE) implemented its Advance Measures Program, and the State of Michigan implemented three unique shoreline flooding and erosion programs aimed at reducing future flood impacts to shoreline communities and homeowners.¹⁴² The Detroit District USACE has been involved in thousands of projects related to shoreline erosion and flooding. Other critical facilities/services may be found in Sections 4.7.2 and 4.7.3 regarding riverine and urban flooding.

¹⁴⁰ Flesher, John, Associated Press. May 6, 2019.

<https://www.apnews.com/2af073fe3a634f68b80bdfb419e53a33>

¹⁴¹ Michigan Department of Environmental Quality Land and Water Management Division

¹⁴² Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 109.

4.8 Hazmat Incidents

4.8.1 Fixed Site

Definition

A Hazardous Material (Hazmat) Incident – Fixed Site is defined as an uncontrolled release of a hazardous material originating from a building, structure, or fixed equipment which is capable of posing a risk to life, health, safety, property or the environment.

Historical Events

There are around 500 facilities that store hazardous substances within the county.¹⁴³ Although most hazmat incidents occur at industrial facilities, this is not always the case. For example, one of the most common hazmat occurrences reported in Wayne County are gasoline and oil related incidents at gas stations and auto shops.¹⁴⁴

Frequency & Probability

From 1998 to October 2005, there were a total of 610 fixed site hazmat incidents in Wayne County, an average of 76 incidents per year.¹⁴⁵ As the county continues to develop and attract new business and industry, it is anticipated that the probability of occurrence for this hazard will increase.

Health & Safety

Given the frequency of hazmat incidents in Wayne County, the number of deaths and injuries from this event is extremely low. From January 2000 to October 2005, there was one fixed site hazmat related death and a total of 11 injuries, an average of just over two injuries per year.¹⁴⁶

Area Impacted

In Wayne County, fixed site hazmat incidents have rarely required evacuation. For the period of 1999 to October 2005, only six incidents required evacuation and both evacuations were limited to the site of the release.¹⁴⁷

The majority of hazmat material releases in Wayne County are releases to water, followed by land and air.¹⁴⁸ Environmental contamination which results from this hazard can extend to offsite locations. A high profile example of this was an oil spill on the Rouge and Detroit Rivers discovered April 8, 2002. Originating from a fixed site draining to the Rouge River, it resulted in oil slicks on the Rouge and Detroit Rivers and Lake

¹⁴³ Wayne County LEPC Facility List, supplied by Wayne County Emergency Management Division, November 4, 2005.

¹⁴⁴ U.S. Coast Guard, National Response Center website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Fixed Incidents, October 21, 2005.

¹⁴⁵ Ibid.

¹⁴⁶ Ibid.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

Erie, from Zug Island to Pointe Mouillee. In all, more than 45,000 gallons were recovered from the rivers, at a cost of \$3 million.¹⁴⁹

Economic Impact

The economic impact due to this hazard can be highly variable, especially when including the costs of environmental remediation. According to the U.S. EPA HazMat Response Team, costs for responding to a hazmat incident can range from \$1,000 to over \$100,000. Some property damage from this type of event can be expected, especially if the release results in a fire or explosion. Additional impact, in the form of lost business revenue, can result if the incident causes a business to close.

Critical Facilities/Services

Although major fixed site hazmat incidents are not common in Wayne County, the potential for such an incident is high. A significant incident would likely involve response efforts from multiple agencies and departments. Additional impact could result from environmental remediation and restoring public confidence in the environmental health of the county.

4.8.2 Transportation Incidents

Definition

Hazardous Material (Hazmat) Incident – Transportation is defined as an uncontrolled release of a hazardous material during transport which is capable of posing a risk to life, health, safety, property or the environment.

Historical Events

One of the most significant responses required for a hazmat transportation incident in Wayne County occurred on May 27, 2000. The incident involved a fuel tanker roll-over. As a result of the accident, fuel released from the damaged tanker ignited as it spilled down storm drains, damaging the roadway, blowing nearby manhole covers off, mortally injuring the driver, and causing smoke and vapors that disrupted the surrounding communities and events. A similar event occurred on October 3, 2003 when a gasoline tanker overturned and partially fell off the ramp from I-75 north to I-94 east. The accident and fire killed the driver, damaged the ramp causing it to be closed for several months, and required Hazmat teams to clean the area.

Frequency & Probability

Almost a million shipments of hazardous materials traverse the United States each day by highway, rail, air, water, and pipelines. Approximately 95% of those shipments, and

¹⁴⁹ Patterson, Delores. 2002. *Officials narrow search for suspects in oil spill*. Detroit News, May 11, 2002.

more than half of the hazmat tonnage transported, move via trucks on highways and roads.¹⁵⁰

From 1999 to December 2005, there were a total of 159 transportation related hazmat incidents in Wayne County, 119 occurring on roadways and 40 on railroads. This equals an average of almost 23 incidents each year.¹⁵¹ From 2000 to 2006, there were 67 reported hazmat motor carrier accidents in Wayne County that resulted in hazardous materials releases or spills. The majority (50.7%) of those involved the release of flammable liquids and just over 25% occurred on divided and limited access highways - thoroughfares that meet interstate specifications. This appears to be a significant drop from the previous seven-year period, but it appears that the probability of occurrence for this hazard will continue to be high.

Health & Safety

Compared to fixed site hazmat incidents in Wayne County, transportation related incidents are more likely to result in death or injury. From 1999 to December 2005, there have been 11 fatalities and 13 injuries from transportation related hazmat incidents, an average of almost 2 deaths and almost two injuries per year.¹⁵² Deaths and injuries are typically limited to the operators of the vehicle.

Area Impacted

There are 134 miles of freight railroads, approximately 460 miles of interstate and major state highways, and 175 miles of county roads in Wayne County. Although large-scale offsite impacts are not common with hazmat transportation incidents, they are certainly possible within Wayne County. Offsite impacts can include evacuation, closure of roadways, and environmental contamination. From 1999 to June 2004, the most commonly affected environmental media was surface water, closely followed by land.

Economic Impact

The economic impact due to this hazard can be highly variable, especially when including the costs of environmental remediation. According to the U.S. EPA HazMat Response Team, costs for responding to a hazmat incident can range from \$1,000 to over \$100,000. Damage to transportation equipment is expected with this event, however, these cost are the responsibility of the transporter. Costs to the public can include response efforts, commuter delays, and damage to transportation infrastructure.

Critical Facilities/Services

Transportation related hazmat incidents occur somewhat frequently in Wayne County, and the potential for such an incident is high. As demonstrated by the October 3, 2003 incident, a significant incident can involve response efforts from multiple agencies and

¹⁵⁰ Michigan Department of Transportation. 2012. Hazardous Materials Routing Synopsis Report, Wayne County: Proposed Recommendations. December 2012. 18 pp.

¹⁵¹ U.S. Coast Guard, National Response Center website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Rail Incidents and Mobile Incidents, December 13, 2005.

¹⁵² U.S. Coast Guard, National Response Center website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Rail Incidents and Mobile Incidents, December 13, 2005.

departments. Additional impact could result from environmental remediation and restoring public confidence in the environmental health of the county.

4.9 Infrastructure Failure

Definition

An infrastructure failure is the failure of a critical public or private utility infrastructure which results in a short-term loss of service.

4.9.1 Water Systems

Historical Events

Wayne County has not had any significant incidents involving loss of water due to failures in the water distribution system. However, Wayne County's 3,700 mile water distribution network, is aged and degraded. As a result, the county's distribution system lost an average of 35 billion gallons (17% of the total water pumped) to leaks in the system between 1995 and 2001.¹⁵³ While not directly related to Wayne County's water distribution network, the county and those surrounding it lost water service for several days, and 4.3 million customers were put on a boil water advisory for six days, following the blackout that struck the Midwest in 2003.

Supply system components, including transmission and distribution pipelines, make up most of the state's water infrastructure and significant portions of these systems exceed 50 years of age and their design lives. Approximately 80% of the Detroit community water system transmission and distribution network was constructed prior to 1940.¹⁵⁴

Frequency & Probability

Water system failures can be attributed to causes such as construction/excavation activities, underground freezing, power outages, and system blockages.

Every year, there are numerous water line breaks, most of which are related to poor insulation and sub-freezing temperatures. The vast majority of water line breaks do not create a water crisis situation. It is estimated that this hazard will be somewhat more likely to occur in the future as water system structures age, and county-wide development continues. A water main break caused by a construction contractor in the City of Northville in May 2019 led to a drinking advisory.¹⁵⁵ A water main break in May 2012 led to closure of the Lodge Freeway.¹⁵⁶

¹⁵³ The Detroit News, *Aging Water Pipes Leak \$23 Million a Year*, July 22, 2002.

¹⁵⁴ American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

¹⁵⁵ The Detroit Free Press, *Northville boil water alert to remain in effect through weekend*, May 17, 2019

¹⁵⁶ The Detroit Free Press, *Lodge reopens after flooding halts traffic near water main break*, June 1, 2012.

Health & Safety

The availability of clean drinking water is crucial to the health and safety of the public. Water service interruptions can cause untreated or poorly treated drinking water to enter the water supply, resulting in boil water advisories and public health concerns. Public Sector Consultants report that, statewide, drinking water system owners (municipalities, et al.) underfund system improvements by an estimated \$284 to \$563 million annually.

Area Impacted

The water system for Wayne County is operated and/or maintained by the Detroit Water and Sewerage Department (DWSD) and/or local municipalities (Figure 4). The impact of line breaks is highly variable.

Economic Impact

Water is vital to the operation of schools, hospitals, and businesses, and in maintaining public health. Information regarding the economic impact of water system failures is not available. It is anticipated that an interruption in service can be extremely costly, depending of the number of affected customers and duration of the event.

Critical Facilities/Services

Maintaining a functional water system is a critical service. Loss of water service can make it difficult to operate other critical facilities such as schools, hospitals, businesses, and sports/entertainment venues. A water main break in the Detroit Police headquarters knocked their 911 call center offline for a short time in 2004.

4.9.2 Electrical Systems

Historical Events

The largest, and arguably most infamous, electrical system failure in the United States occurred on August 14, 2003. This system failure started at 4:10 p.m. in southern Ohio and within seconds, 50 million people in North America were left without electricity. The blackout affected millions of customers in southeast Michigan, including Wayne County. In many ways, this event was a worst case scenario electrical failure.

Figure 4: Hazard History: Infrastructure Failure – Water/Sewer

REMOVED FOR PUBLIC DISTRIBUTION

Figure 5: Hazard History: Flooding

REMOVED FOR PUBLIC DISTRIBUTION

Frequency & Probability

Electrical service for the majority of Wayne County is provided by DTE Energy. Electrical failures, like the August 2003 blackout, although rare, can occur due to problems within the electrical system and from secondary causes such as weather and human/animal interference. Ice storms have an established history of causing electrical service interruptions. Electrical outages are often related to severe weather events, which occur 30-40 days annually within Wayne County.

As the county continues to grow and demand for electrical service increases, it is possible that this hazard will occur more frequently and with greater consequence. Additionally, at least one new gas-fired high efficiency plant is required to offset the coal plants expected to go offline and to stabilize the grid in southeast Michigan.¹⁵⁷

Health & Safety

Electrical service is incredibly important in maintaining the health and safety of the public. Electricity is required to heat and cool homes, operate traffic signals and operate hospitals and emergency services. Power outages can be particularly dangerous during times of extreme heat or cold. In addition, power outages can have a negative impact on the infirm. The number of people impacted by a power outage is highly variable with each event.

Economic Impact

Electricity is a vital component to operating businesses and county services. Information regarding the economic impact of electrical outages is not available. It is anticipated that an outage can be extremely costly, depending of the number of affected customers and duration of the event.

Critical Facilities/Services

As demonstrated by the August 2003 blackout, electricity is an integral part of every service the county provides to its residents. The blackout caused traffic backups, loss of water service, and gasoline shortages - making it difficult to provide even the most common services. Fortunately, large-scale electrical failures are not common. However, the blackout was a good "test" for the county's systems to determine effectiveness under disaster conditions.

4.9.3 Communications Systems

Historical Events

Wayne County operates internal communications systems such as the 911 Call Center and an emergency public radio system.

¹⁵⁷ American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

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Telephone service for Wayne County residents is available from numerous service providers. The most widely used telephone service provider was formerly SBC and is now AT&T. In April 2003, a significant ice storm affected Wayne County. Ice downed phone lines, cutting service to numerous customers throughout the county. In 2003, SBC experienced four major communications failures throughout the state of Michigan.¹⁵⁸ Each failure was a result of severe weather or flooding.

The continuing transition from land to cellular communications has resulted in more citizens having only a cellular phone. This can result in better communications during storm events that would otherwise occur during power outages, but also leave citizens more vulnerable to problems experienced by cellular providers.

Frequency & Probability

Communications failures most frequently result from severe weather events or other interferences which affect phone lines, such as animals or auto accidents involving utility poles. Very rarely does a communications failure result from a problem within the communications system.

Communications failures of both public and private systems are possible with any major storm event, such as ice storms, lightning, or severe winds, which occur an average of 30-40 days each year. Power outages can also interrupt operation of the 911 call center.

As the county continues to grow and demand for communications services increases, it is anticipated that this hazard will occur more frequently and with greater consequence.

Health & Safety

Communications systems are a vital link between the public and emergency response services. As a result, a failure of the system can have secondary impacts to the health and safety of the affected public. The number of people that experience a loss of service due to a communications failure is directly related to the severity of the event. However, people requiring emergency services during a failure are at greater risk for impact.

Area Impacted

A failure of private telephone communications is limited to the service area network. However, a failure of the emergency communications system can impact the entire county.

Economic Impact

The majority of economic impact from this hazard would result to loss of productivity for affected businesses.

¹⁵⁸ SBC News Release, *SBC Michigan Provides Excellent Service Quality in 2003*, February 3, 2004.

Critical Facilities/Services

The 911 Call Center and emergency dispatch systems are vital services provided to Wayne County residents. Power outages and downed lines can greatly impact the county's ability to operate these systems. Backup generators are utilized to maintain emergency communications during power outages. If phone lines to the 911 Call Center are downed, the calls are automatically re-routed to an alternate call center to maintain 911 phone services.

4.9.4 Storm Water Systems

Historical Events

In September 2000, August 2014, and May 2019 extensive rains in southeast Michigan flooded municipal storm sewers causing sewer backups in thousands of Wayne County homes and businesses. The major cause of the sewer backups was a temporary loss of power at pumping stations and insufficient capacity of the storm sewer system due to the heavy rains. Sewage backups caused extensive damage to affected homes and businesses and created a public health hazard due to potential human exposure to untreated sewage. Following both the 2000 and 2014 events, Wayne County was granted Presidential Major Disaster Declarations to provide disaster assistance to affected businesses and individuals.¹⁵⁹ Combined sewer overflows, which dump sewage into storm sewer systems during high flow events, have repeatedly been for a concern within the Rouge River watershed. Between January 3rd and 5th, 2005, the Detroit Water and Sewage Department discharged 2.7 billion gallons of combined sewage due to the higher than normal rain amounts received.¹⁶⁰

Frequency & Probability

There are two primary types of storm water sewers in Wayne County – open drains and enclosed, underground systems. The primary problems associated with open drains are log jams, plugged drains, and siltation. The major dilemma with the storm water sewers, both open drains and enclosed systems, is that system capacity is too low for the county's current needs. An increased amount of developed land has resulted in less pervious ground cover; therefore, more storm water must drain to the storm sewer system.

Problems with the storm water sewer system are evident during periods of high rain or snowmelt. Some storm sewer flooding can be expected with any major rain or snowmelt event. Small, frequent events occur with regularity and are planned for. It is anticipated that this hazard will become more frequent and more severe as the system ages and new development requires greater system flow capacity.

¹⁵⁹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 122.

¹⁶⁰ The News-Herald, *Combined Sewers Still Create Waterway Woes*, January 19, 2005

Health & Safety

The storm water sewer system is of great importance to protecting human health and safety. Flooding that results during system failures can create safety problems and sewer backups in combined storm and sanitary systems and present a major health concern. Backups and overflows that result in the combination of sanitary and stormwater increase the risk of disease and environmental impacts downstream.

Area Impacted

County drains are found throughout Wayne County. The Wayne County Department of Environment, Facilities Management Division and the Detroit Water and Sewerage Department (DWSD) are charged with the responsibility of maintaining the county drain and sewer systems and implementing and maintaining ordinances or permits that pertain to them. The area impacted is dependent upon the drainage area for the failed storm sewer. Areas with combined sewers (storm water sewer system combined with the sanitary sewer system) can be at increased risk for sewer backups and basement flooding.

Economic Impact

As demonstrated by the September 2000 system failure, flooding can result in major property damage costs. Storm sewer system upgrades also be very costly to implement. Funding is available for maintaining county drains, however, maintenance funding is limited for approximately 200 county drains which were established under the 1956 Drain Code.

Critical Facilities/Services

Maintaining a functional water system is a critical service provided by Wayne County. The storm sewer system is important to protect property, both public and private, and to maintain public health. Additionally, scientist predict that climate change will increase the number of extreme rainfall and storm events, leading to more flooding throughout the Midwest and costing taxpayers as much as \$480 million annually just to adapt stormwater systems to handle the increased runoff

4.9.5 Sewer Systems

Historical Events

Failures of the sanitary sewer system can result in significant risks to public health and safety. A system failure can result in sewer backups in homes or businesses and discharges of untreated sewage to rivers and lakes.

In May of 2004, high volumes and equipment failure left many downriver residents with water and sewage in their basements. Also, combined sewer overflows (CSOs) found throughout the county regularly allow untreated, partially treated, or diluted sewage to enter local waterways when input volumes exceed treatment capacity.

Frequency & Probability

A major system failure occurs within the county approximately once every 20 to 25 years on average. Smaller problems are more frequent. During major storm events, it is

highly possible for a loss of power to occur at certain pump stations. Outages and higher than normal rain volumes create the potential for an overflow discharge to local rivers or lakes or, possibly worse, into residents' homes.

It is expected that problems will become more frequent as the system ages.

Health & Safety

Human exposure to untreated sewage presents a health and safety threat. Discharges of untreated sewage to lakes or rivers can also significantly impact the environmental health of local waterways. Area beaches are routinely closed during portions of the summer due to unsafe concentrations of sewage-related contaminants.

Area Impacted

Sanitary sewer systems are found throughout the county and operated and/or maintained by the DWSD and/or the local municipality.

There are 151 CSO's or Sanitary Sewer Overflows (SSO's) within the county.¹⁶¹ CSOs discharge to local county drains or watercourses and may affect a sizable area within, and downstream of, Wayne County.

The number of sewer users impacted by each failure is dependent upon the severity of the event. Lakes or rivers could also be impacted due to sewer overflow discharges, making them temporarily unsafe for recreational activity.

Economic Impact

Information regarding the economic impact of sanitary sewer system failures is not available. The sanitary sewer system is a vital part of the operations system for a wide range of businesses. It is anticipated that a failure could be extremely costly, depending on the number of affected customers and duration of the event.

Critical Facilities/Services

Maintaining a functional sanitary sewer system is a critical service provided by the DWSD. The USEPA estimates that \$690 million is needed to repairs and improvements for Michigan's secondary treatment needs and an additional \$702 million for wastewater conveyance systems.¹⁶²

Loss of sanitary sewer service can make it difficult to operate other critical facilities such as schools, hospitals, businesses, recreational areas, and sports/entertainment venues.

¹⁶¹ Michigan Department of Environmental Quality – Combined Sewer and Sanitary Sewer Overflow Information System – Queried for Wayne County http://www.deq.state.mi.us/csosso/find_cso_facilities.asp

¹⁶² American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

4.10 Nuclear Power Plant Accidents

Definition

A nuclear power plant accident would involve an actual or potential release of radioactive material at a nuclear facility in a quantity sufficient to constitute a threat to the health and safety of offsite populations.

Historic Events

There are three nuclear power plants operating in Michigan. The operation of these facilities is regulated by the federal Nuclear Regulatory Commission. There has never been an off-site release of radioactive material from a nuclear power plant in Michigan. However, an on-site release did occur on October 5, 1966 at the Enrico Fermi-1 Atomic Power Plant in Monroe County, Michigan. The release was a result of fuel melt-down; however, the radioactive material was contained within the reactor containment building. The Enrico Fermi-1 was shut down in 1972. In 1988, the Enrico Fermi-2 was opened next to the site of the Enrico Fermi-1.

Frequency & Probability

Four protection action order areas have been established in the vicinity of the Enrico Fermi-2 Nuclear Power Plant and the Wayne County communities of Brownstown Township, south of Vreeland Road, and the Cities of Flat Rock, Gibraltar, and Rockwood are within Zone 4 (Figure 6). Although there has never been an off-site release from the plant, a release from the plant has the potential to impact Wayne County and its communities.

Health & Safety

An accident at a nuclear power plant could result in radioactive materials becoming airborne or in direct impacts to areas adjacent to the plant. The severity of radiological contamination from such an event is directly proportional to the type and amount of radioactive material released, weather conditions at the time of the release, and the wind direction following the release.

Wayne County communities within the protection action order areas of the Enrico Fermi-2 Atomic Power Plant are largely upwind of the facility, given prevailing wind patterns. For areas within these zones, the primary concern is radiological contamination of food sources. Procedures have been developed by the plant and emergency response agencies to prevent radiation from contaminating food supplies and to prevent contaminated foods from being consumed. The risk to human health is considered low.

Area Impacted

As noted above and shown in Figure 6, all or portions of Brownstown Township, and the Cities of Flat Rock, Gibraltar, and Rockwood are within Protection Action Order Area 4 of the Enrico Fermi-2 Atomic Power Plant. However, the actual area impacted by a release would depend greatly on the type and amount of radioactive material released, weather conditions at the time of the release, and the location relative to wind direction following the release.

Economic Impact

Due to the low frequency of this event in the United States, it is difficult to establish the economic impacts. It is anticipated that the impact could be very high, depending on the severity of the event.

Critical Facilities/Services

Nuclear power plant owners/operators work closely with emergency planners to develop response plans in the event of a release of radioactive materials. In Michigan, the responsibility to respond to such events is shared by the plant owner/operator and all levels of government. Response to an off-site release would likely involved multiple agencies and departments from all levels of government.

4.11 Oil and Gas Well Accidents

Definition

An oil or gas well incident could involve an uncontrolled release of oil or natural gas, or a release of hydrogen sulfide gas, a by-product of production wells.

Historic Events

Frequency & Probability

Although there have been no significant incidents in Wayne County in recent history, the presence of active and producing wells and pipelines within the county makes it possible for this hazard to occur. Since 1973, there has been an oil or gas well incident in Michigan every 3-4 years, between 1989 and 2008, there were seven reported oil or gas pipeline accidents resulting in one death and three injuries, and average of one events every 2.85 years.¹⁶⁴

Health & Safety

There are several hazards related to oil and gas wells. Producing wells can generate hydrogen sulfide gas as a by-product. Hydrogen sulfide gas is extremely poisonous and presents a number of chemical safety hazards to responders and adjacent populations. Accidental releases, fire and explosion can also result from such an event.

In Michigan, death and injury rates with oil and gas well accidents are very low. From 1973 to 2001, there was one reported death and two injuries from accidents. In those cases, death and injury resulted to those employees servicing the wells.¹⁶⁵

¹⁶⁴ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 255.

¹⁶⁵ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 9, 142-143.

Figure 6: Hazard History: Nuclear Power Plant

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Area Impacted

Lands with oil and gas wells and surrounding areas are most at risk for impact from well accidents. As shown on Figure 7, the location of wells is concentrated in the northwestern portion of the county.

Oil and gas well accidents often result in release or potential release of hazardous gases. As a result, areas adjacent to the site of the incident may be evacuated as a precaution. In Michigan, there have been no oil or gas well accidents which have resulted in offsite property damage. However, areas of evacuation have been large enough to include residents within a one-half mile radius.

Economic Impact

Accidents of this nature are not common within Michigan, and have not resulted in significant property damage or other loss. Therefore, information regarding the economic impact of oil and gas wells is limited and further investigation is not warranted at this time.

Critical Facilities/Services

Oil and gas wells within Wayne County are owned and operated by private companies; however, response to an accident would involve public agencies. The level of public response would depend upon the severity of the accident. Due to the possibility of evacuation with this accident, involvement from multiple emergency response agencies would likely be required.

4.12 Petroleum and Natural Gas Pipeline Accidents

Definition

A petroleum or natural gas pipeline incident would involve an uncontrolled release of petroleum, natural gas or hydrogen sulfide gas from a pipeline.

Historical Events

Michigan is a major producer and consumer of petroleum and natural gas products. Therefore, transmission and distribution pipelines are common throughout the state. According to the Michigan Public Service Commission, Michigan ranks 11th in the United States for natural gas production and 6th for natural gas consumption.

The U.S. Department of Transportation's Office of Pipeline Safety reports that Michigan gas companies had to repair 9,300 leaking underground gas lines required repair in 1998; more than twice as many as the 4,400 reported in 1991. More than 75% of these gas line breaks are caused by construction/excavation. Michigan ranks second only to Texas in the number of required repairs to damaged or leaking natural gas pipelines.

Since 1996, the Michigan Public Service Commission has investigated over 100 incidents involving pipelines, and at least half of those incidents involved injury, loss of life, or significant property damage. The pipeline accidents described in this section

Figure 7: Hazard History: Oil & Gas Wells

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include the worst in recent Michigan history, which required a combined emergency response effort by pipeline companies and state and local officials. In 2003 the U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety conducted a survey of natural gas distribution pipeline accidents and ranked Michigan's 11 recent accidents third behind California and Pennsylvania for the highest in the nation.¹⁶⁷

Statewide there are 14,539 oil and natural gas wells in the State of Michigan but only seven of these are located in Wayne County. Despite the low number of wells, Wayne County is crisscrossed with pipelines.

Recent examples of accidents in Wayne County include a natural gas leak in Taylor (2004) that resulted in a house explosion, sending debris approximately 100 feet and shaking houses as far as one mile away; a natural gas leak that blew up a house in Canton Township (2007), injuring a woman; and a natural gas pipeline explosion in Wayne (2010) that destroyed a furniture store, killing two people and injuring another. The explosion also shattered windows at nearby businesses and resulted in one person, who had been driving by at the time of the explosion, requiring hospitalization.

Frequency & Probability

The Michigan Hazard Analysis lists seven reported oil or gas pipeline accidents between 1989 and 2008, resulting in one death and three injuries, and average of one event every 2.85 years. However, USCG records indicate that there were 45 pipeline incidents in Wayne County, from 1990 through October 2012, an average of over three events each year.¹⁶⁸

It is anticipated that this hazard will be more likely to occur in the future as the pipeline structures age.

Health & Safety

Pipeline accidents can pose a significant threat to the public due to the potential for fires, explosions, and ruptures. From 1990 to 2005, there were no deaths and 25 injuries from the 47 accidents which have occurred in Wayne County.¹⁶⁹

Area Impacted

As shown in Figure 8, the major natural gas and petroleum products lines are concentrated in the western half of the county. Smaller natural gas distribution lines can be found throughout the county with Consumers Energy providing natural gas services to the majority of the county. Michigan Consolidated Gas Company provides service to a smaller number of customers.

¹⁶⁷ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 255.

¹⁶⁸ U.S. Coast Guard, National Response Center, www.nrc.uscg.mil/foia.html, Standard Query Report, Pipelines, Wayne County Michigan, report generated on October 15, 2005.

¹⁶⁹ U.S. Coast Guard, National Response Center, www.nrc.uscg.mil/foia.html, Standard Query Report, Pipelines, Wayne County Michigan, report generated on October 15, 2005.

Natural gas or petroleum pipelines can be found throughout the county, which means that pipeline accidents can occur anywhere. Typically, pipeline accidents only impact the immediate area. However evacuations of adjacent buildings can be required as a precaution.

Economic Impact

In the United States for 2003, the average property damage caused by a transmission pipeline accident was \$412,249. These costs are largely due to damage to the pipeline structures. Other impacts include the loss of life and property and decreases in product availability.

Critical Facilities/Services

Local fire and police departments would respond to pipeline accidents. This type of hazard may also require response from HazMat Teams. Gas leaks are a frequent call for service for Wayne County fire departments. From January 1998 through the end of 2004, there was a total of 1,371 calls for service due to suspected or actual gas leaks, an average of 196 calls each year.¹⁷²

4.13 Public Health Emergencies

Definition

A public health emergency is a widespread and/or severe epidemic, incident of contamination, or other situation that presents a danger to, or otherwise negatively impacts, the general health and well being of the public.

Historical Events

Public health emergencies can result from a variety of causes such as food borne illness, waterborne pathogens, loss of sewer/water service, and epidemics of communicable diseases. In recent years, the risk of a public health emergency resulting from an intentional release of a chemical, biological or radiological agent has become an increased concern.

As of late, the majority of these threats are due to illnesses borne by animal vectors. These include West Nile virus and the avian influenza. While there have been no widespread effects seen within Wayne County, or even in Michigan, public perception is that the threat is serious.

While there have been no widespread instances of public health emergencies in Wayne County, the largest botulism epidemic in U.S. history originated in neighboring Oakland County in March 1977. The cause was traced to home-canned peppers which were served at a Pontiac restaurant. The restaurant used home-canned peppers because of a shortage of commercially prepared peppers due to a crop failure. Although no one

¹⁷² NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004, report generated on October 3, 2005, filtered for Wayne County reporting only.

Figure 8: Hazard History: Pipelines

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died from the poisoning, 59 people became ill, many of which required intensive medical treatment.¹⁷³

The Flint water crisis, which exposed more than 100,000 residents to elevated lead levels, began in 2014 after the city changed the source of its drinking water from Lake Huron and the Detroit River to the Flint River. The change in water and insufficient treatment resulted in lead being leached from pipes into the drinking supply,

President Obama declared in a federal emergency in January 2016, and Flint residents were instructed to use only bottled or filtered water for drinking, cooking, cleaning, and bathing. Replacing the lead pipes is expected to be completed in 2019, but as this Plan is being developed in May 2019, an estimated 2,500 lead service lines are still in place and there is still disagreement whether the water in Flint is safe to drink.¹⁷⁴ In addition to elevated lead levels, insufficient chlorination in the Flint water supply was also linked to one of the largest outbreaks of Legionnaires' disease in the past decade.¹⁷⁵

In 2008, Michigan residents were affected by a nationwide *Salmonella* outbreak involving more than 700 cases in 46 states and Canada. In Michigan, 38 cases were confirmed, including 12 hospitalizations, across the Lower Peninsula. Institutional settings such as schools, colleges, long term care facilities, and correctional centers were focal points for the outbreak.¹⁷⁶

Frequency & Probability

Public health emergencies can arise from a wide range of causes and exhibit varying levels of severity, thus making it difficult to establish a frequency of occurrence. The Michigan Hazard Analysis lists seven major public health emergencies in Michigan between 1973 and 2010, approximately one every five years.¹⁷⁷

It is important to note that some of the same causes of a public health emergency (i.e. food borne illness, etc.) do occur with regularity within Wayne County. However, these cases are isolated to a few individuals with limited impact to the general public.

The safety of the municipal drinking water supplies is an increasingly important public health concern. Michigan communities are finding it difficult to adequately treat groundwater and/or surface water supplies. The Cities of Flint and Ann Arbor, Oscoda Township, and 12 Michigan counties are currently faced with either changing their drinking water source(s) or improving treatment efficacy to address a host of water

¹⁷³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 354. The Historical Society of Michigan, *Michigan History Calendar March*, March 28, 1977.

¹⁷⁴ The Detroit News. Flint: Water line replacement won't be done till 2019. <https://www.detroitnews.com/story/news/michigan/flint-water-crisis/2018/12/04/state-shrugs-flint-pipe-replacement-work-ahead/2204132002/>, December 4, 2018

¹⁷⁵ Zahran, Sammy, McElmurray, Shawn P., Kilgore, Paul E., Mushinsko, David; Press, Jack; Love, Nancy G.; Sadler, Richard; Swanson, Michele S. (February 1, 2018), "Assessment of the Legionnaires' disease outbreak in Flint, Michigan." *Proceedings of the National Academy of Sciences*. 115(8): E1730-E1739.

¹⁷⁶ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 360.

¹⁷⁷ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, page 354-355.

quality parameters including, hexavalent chromium; VOCs; trihalomethanes; 1,4 dioxane; PFAS/PFOS; arsenic, naturally occurring radioactive materials, and others.¹⁷⁸

It is anticipated that public health hazards will become more likely to occur in the future as the population ages and as the county population increases.

Health & Safety

Public health emergencies are an obvious threat to human health and safety. A public health emergency can take many forms and spread by various means. As a result, it is not feasible to determine a death or injury rate for this hazard. No deaths were reported in Michigan associated with the seven public health emergencies noted above, but over 400 people were injured.

Public health emergencies are of particular concern for populations with weakened or undeveloped immune systems.

Area Impacted

Due to the nature of public health emergencies, impacts from this event tend to be widespread rather than confined to a specific location. It is important to note that a public health emergency can originate outside of Wayne County, yet impact communities within the county.

Economic Impact

Economic impacts from this hazard can be severe if the source is infrastructure related, for example, if improvements are needed to the public water supply system. However, it is more likely that economic impacts will result through lost wages and medical expenses for impacted persons. Additional impact may result if a business is determined as the source of the emergency, (i.e. a restaurant must close). Due to the low frequency of this hazard, additional investigation of the economic impact is not recommended at this time.

Critical Facilities/Services

A major public health emergency would likely involve varying degrees of response from local, state, and possibly federal public health agencies.

4.14 Subsidence

4.14.1 Natural

Definition

A lowering or collapse of the land surface due to loss of subsurface support.

¹⁷⁸ American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

Historical Events

There have been no known natural subsidence events in Wayne County. There are no natural subsidence hazards in Wayne County according to the Geological and Survey Division of the EGLE.¹⁷⁹

Frequency and Probability

No known events have been recorded in Wayne County. Therefore, the frequency of events cannot be adequately determined. It can be expected to be an extremely low probability, as it is most often linked to groundwater movement through porous limestone. Cases of natural subsidence are more common in areas of Florida where the geologic conditions are favorable.

Health & Safety

In the event of a sinkhole, potential health and safety issues are dependent on the location and size of the sink hole. A sink hole occurring near or within a street or public access area could potentially cause injury. Injury could also occur if subsidence occurred beneath a building causing structural damage or collapse. Following the event, the sinkhole could pose a risk to the health and safety of people within the area if it is not probably marked and barricaded. Workers are at risk for cave-ins or confined space issues if entrance within the sinkhole is required to correct the problem.

Area Impacted

The area of impact would be the land immediately surrounding the subsidence or sinkhole and any transportation and utility networks disrupted by it.

Economic Impact

Economic impacts incurred from the occurrence of a sinkhole could include a disturbance in transportation, communication, and utilities as well as costs incurred to fill the sinkhole and repair roadways and utilities. If a sinkhole were to occur beneath a building foundation, costs to stabilize, repair, or rebuild could be substantial, dependent on the area and depth of the subsidence.

Critical Facilities/Services

Response agencies would primarily include localized police and fire departments, utility services, and road service agencies such as the Wayne County Road Commission or MDOT.

¹⁷⁹ Michigan Department of State Police, Emergency Management Division, Michigan Hazard Analysis, December 2001, page 183.

4.14.2 Mining

Definition

A lowering or collapse of the land surface due to loss of subsurface support in mining areas.

Historical Events

Wayne County lies over a regional salt bed. These salt deposits, laid down between 600 and 230 million years ago, are closer to the surface in the Detroit area, and have been very important to the local economy. The salt was removed in two ways. Solid mining of the salt involved sinking a shaft 1100 to 1200 feet below the surface, then carving out rooms of salt. The solid salt mine in Detroit closed in 1983, and reopened in 1998. Hundreds of miles of tunnels and excavation areas exist beneath the city. Liquid or brine extraction methods are now used for salt production and Southeastern Michigan is still a leading producer of salt. During their operation the mines in Michigan had neither a fatality nor a collapse.

Frequency and Probability

While there have been no cases of collapse or subsidence due to mining in Wayne County, it is important to realize that this doesn't preclude any future subsidence. The Retsof Salt Mine near Rochester, NY suffered a collapse due to the infiltration of groundwater into the mine. This water wore away the salt pillar supports, and resulted in the systematic collapse of the mine shafts and the closing of the mine. These collapses also resulted in a series of sinkholes 200- to 600-feet wide that damaged roadways and nearby structures, and filled with water¹⁸⁰. The possibility of mine-related subsidence remains of concern in Wayne County.

Area Impacted

The area impacted would be the area immediately surrounding the sinkhole.

Economic Impact

Economic impacts incurred from the occurrence of subsidence could include a disturbance in transportation and costs incurred to fill the sink hole. If subsidence were to occur beneath a building foundation, potential cost to stabilize, repair, or rebuild could be substantial, dependent on the size of the sink hole.

Critical Facilities/Services

Response agencies would primarily include localized police and fire departments, utility services, and road service agencies such as the Wayne County Road Commission or MDOT.

¹⁸⁰ The Center for Land Use Institute, www.ludb.clui.org/ex/i/ny3129, Restof Salt Mine

4.14.3 Water / Sewer

Definition

A lowering or collapse of the land surface due to loss of subsurface support over water and sewer lines.

Historical Events

Sinkholes or subsidence events appear to be fairly infrequent in Wayne County: one known sewer or waterline related subsidence event occurred in February 2000, when a leaking underground pipe formed a 15-foot wide sinkhole in Detroit that enveloped an automobile.¹⁸¹ Sinkholes are more frequently experienced in neighboring Macomb County. A sinkhole in Fraser requiring evacuation of three homes; it occurred in the same vicinity as a 160-foot by 60-foot by 30-foot deep sinkhole in 2004 and a 19878 sinkhole caused by a break in a local sewer interceptor.^{182,183}

Frequency and Probability

The infrequency of this type of subsidence in Wayne County makes it difficult to predict the probability of future occurrences. However, it is notable that multiple subsidence events have occurred in neighboring counties. Based on the amount of underground utilities (specifically water mains) within in the county, there is a good probability that a sink hole event can occur from this non-natural source. The probably of this occurrence increases with the age of these water systems.

Health & Safety

In the event of subsidence, potential health and safety issues are dependent on the location and size of the sinkhole. A sinkhole occurring near or within a street or public access area could potentially cause injury. Injury could also occur if subsidence occurred beneath a building causing structural damage or collapse. Following the event, the sinkhole could pose a risk to the health and safety of people within the area if it is not probably marked and barricaded.

Area Impacted

The areas of impact would be the land immediately surrounding the subsidence or sinkhole and any transportation and utility networks disrupted by it.

Economic Impact

Economic impacts incurred from the occurrence of a sinkhole could include disturbance in transportation, communication, and utilities as well as costs incurred to fill the sinkhole and repair roadways and utilities. If a sinkhole were to occur beneath a building

¹⁸¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 180.

¹⁸² WXYZ, Channel 7 ABC Detroit. April 8, 2019. Officials urge drivers to be cautious of sinkhole in Mount Clemens, <https://www.wxyz.com/getting-around-metro-detroit/officials-urge-drivers-to-be-cautious-of-sinkhole-in-mount-clemens>

¹⁸³ Detroit Free Press. December 24, 2016. <https://www.freep.com/story/news/local/michigan/macomb/2016/12/24/sinkholes-macomb-county/95829674/>

foundation, costs to stabilize, repair, or rebuild could be substantial, dependent on the area and depth of the subsidence.

Critical Facilities/Services

Response agencies would primarily include localized police and fire departments, utility services, and potentially road services such as the local road commission or MDOT.

4.15 Thunderstorm Hazards

Wayne County receives an average of 32 thunderstorm days per year.¹⁸⁷ Between July 2004 and June 2005, six severe thunderstorm warnings were issued in Wayne County.¹⁸⁸

4.15.1 Hail

Definition

Conditions where atmospheric water particles from thunderstorms form into rounded or irregular lumps of ice that fall to the earth.

Historical Events

In Wayne County, 12 hail storms were recorded between 2013 and April 2019.¹⁸⁹

On November 15, 1955 4 inch hail was reported in Wayne County.¹⁹⁰

On March 7, 1991, severe thunderstorms and accompanying high winds and hail caused considerable damage across a large portion of central and southern Michigan, damaging homes, businesses, farms, and some public facilities.

On June 24, 1998, two tracts of severe thunderstorms crossed the State moving east to west – one tract stretched across central Michigan, while the other moved in the southern portion of the State. The more northerly thunderstorms produced large amounts of hail in several counties, ranging from dime-size up to baseball-size hail.¹⁹¹

Frequency and Probability

Wayne County experiences a hail storm approximately twice per year: the Michigan Hazard Analysis notes 155 hail storms in 67 years for Wayne County.¹⁹² Most storms in

¹⁸⁷ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 33.

¹⁸⁸ National Weather Service FOIA Office, Email dated September 28, 2005.

¹⁸⁹ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 1, 2019.

¹⁹⁰ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005

¹⁹¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 31.

¹⁹² Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 39

Michigan result in hailstones approximately ¼-inch in diameter to golf ball sized hailstones (1¾ inches), but baseball sized hailstones have been recorded in most Michigan counties. .¹⁹³ Hail events are highly likely to occur in the county.

Health & Safety

The human health and safety risk associated with hail is low. However, hail is often associated with tornado activity. Tornadoes are discussed in Section 4.16.

Area Impacted

Hail storms are typically localized as they move through Michigan. The entire county could be affected; however, impacts will more likely be localized to residents directly under the center of the storm.

Economic Impact

Nationally, hail damages each year exceed \$3.1 million. Hail storms can impact infrastructure, power lines, roads and businesses. Property damage, loss of business revenue, and response costs can result from hail events. Hail is especially damaging to crops, property, and automobiles.

Critical Facilities/Services

Response to a hail related emergency would be localized. Utilities may require repair and maintenance resulting from hail.

The National Weather Service, NOAA, and local media, through radar, weather data, and spotters, can alert the public of severe storms capable of producing large hail, severe winds, and lightning. Warning sirens can alert those not near a radio or television of approaching storms. Warning sirens are located throughout the county; those located within the 42 communities participating in this Plan are shown in Figure 9.

4.15.2 Lightning

Definition

The discharge of electricity from within a thunderstorm.

Historical Events

On June 28, 1995, a man suffered first and second degree burns when lightning struck him in his kitchen in Plymouth while he was washing dishes.¹⁹⁴

¹⁹³ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 33.

¹⁹⁴ Wayne County Executive, Special Projects Staff, September 15, 2004.

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On July 21, 1998, southeast Michigan was hit particularly hard by a string of thunderstorms. The storms produced over 4,300 lightning strikes, some of which caused fires that destroyed a house and an apartment building in Sterling Heights, Macomb County. Sixteen people were left homeless and the storms resulted in damages totaling \$275,000. Governor John Engler and President Clinton issued state and federal disaster declarations for Wayne and Macomb County.¹⁹⁵

On July 31, 1999, a woman in Lincoln Park was knocked unconscious by a lightning strike just outside her home.¹⁹⁶

In May 2000, lightning struck the steel superstructure of a new terminal under construction at the Detroit Metropolitan Wayne County Airport. Nine workers were injured as a result with two requiring hospitalization.¹⁹⁷

On August 8, 2003, lightning struck Trojan Cleaners on Main Street in Belleville and the building caught fire and burned to the ground.¹⁹⁸

On May 20, 2004, lightning was blamed for a blackout which left most of the City of Gibraltar and parts of Brownstown Township and the City of Flat Rock without power.¹⁹⁹

Frequency

Only one lightning strike (resulting in fire, injury, death, etc.) was recorded for Wayne County in NOAA's severe weather database between 2013 and April

Lightning Statistics

Location of Lightning Strikes

- 40% are at unspecified locations
- 27% occur in open fields and recreation areas (not golf courses)
- 14% occur to someone under a tree (not on golf course)
- 8% are water-related (boating, fishing, swimming, etc.)
- 5% are golf-related (on golf course or under tree at golf course)
- 3% are related to heavy equipment and machinery
- 2.4% are radio, transmitter, and antenna-related

Months of Most Strikes

July - 30%
August - 22%
June - 21%

Time of Most Strikes

2:00p.m. - 6:00 p.m.

Source: National Oceanic and Atmospheric Administration (NOAA) and the National Lightning Safety Institute (NLSI) for the periods 1959-1994.

¹⁹⁵ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 51.

¹⁹⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 191.

¹⁹⁷ Ibid.

¹⁹⁸ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

¹⁹⁹ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

Figure 9: Hazard History: Warning Siren Locations

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2019; it resulted in a house fire in Canton Township causing \$300,000 in damage.²⁰² However, the Michigan Hazard Analysis listed a total of 21 lightning strikes on 17 days between 1996 and 2017 resulting in \$857,000 in damages. Over 50% of lightning casualties occur in the months of June and July, and another 28% of deaths occur in May and August.²⁰⁴ Lightning occurrences happen every year; therefore lightning events will occur in the future within the county.

Health & Safety

Michigan averages 1.5 deaths and 10.7 injuries per year from lightning strikes.²⁰⁵ Lightning deaths are usually caused by the electrical force shocking the heart into cardiac arrest or throwing the heartbeat out of rhythm. Lightning can also cause severe skin burns that can lead to death if complications from infection ensue. Ninety-one percent (91%) of lightning strikes impact a single person, and only 9% of strikes impact two or more victims.²⁰⁶ Approximately 20% of lightning strike victims die, and 70% of survivors suffer serious long-term effects such as memory and attention deficits, sleep disturbance, fatigue, dizziness, and numbness.²⁰⁷

Between 1959 and 2005, the National Weather Service recorded 101 lightning deaths and 711 lightning-related injuries, consistently ranking Michigan near the top in the nation in these categories. During the period 1959-1995, Michigan was ranked 2nd nationally in lightning injuries and 12th nationally in lightning deaths.²⁰⁸

Area Impacted

The effects of lightning are very localized; however, thunderstorms can cover a large area.

Economic Impact

Property damage estimates from lightning strikes in Wayne County between January 1, 1996 and April 30, 2017 equaled \$ 857,000, an average of \$40,809 per year.²⁰⁹

On September 19, 1997, lightning damaged an apartment building in Westland with property damage of \$5,000.²¹⁰

²⁰² National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 1, 2019.

²⁰⁴ Oakland County Michigan Emergency Management, *Hazard Study*, August 1998, page 17.

²⁰⁵ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 34.

²⁰⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 34.

²⁰⁷ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 34.

²⁰⁸ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 47.

²⁰⁹ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²¹⁰ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

Nationally, property damage from lightning is estimated at several billion dollars. In Michigan, property damage was estimated at \$20.0 million since 1990.²¹¹ Cost estimates for property damage vary greatly, but a conservative estimate is \$2 million per year in Michigan. Property damage from lightning is often a result of fires or electrical systems damage. Lightning strikes cause 2% of Michigan's wildfires.²¹²

Because lightning-related damage information is compiled by a number of different sources, it is difficult to accurately determine collective damage figures resulting from lightning strikes.

Critical Facilities/Services

Initial response to a lightning strike would be provided by local emergency responders (fire, police, emergency medical care, etc.). Power outages as a result of a lightning strike can impede emergency response. Electric utility companies across the county estimate as much as \$1 billion per year in damaged equipment and lost revenue from lightning.²¹³

Communication services can be damaged and destroyed (cell and communication towers, computer systems, phone services, etc). Utility companies (DTE Energy, Consumers Energy, SBC, AT&T, cable companies, etc.) and the services they offer are often affected by lightning strikes.

Lightning is directly associated with severe thunderstorms. The National Weather Service and local media can alert the public of the severe storms capable of producing large hail and lightning. Warning sirens can alert those not near a radio or television of an approaching storm. Warning sirens are located throughout the county. Figure 9 displays community siren locations applicable to this Plan.

4.15.3 Severe Wind

Definition

Winds greater than 58 miles per hour, not including tornadoes, are classified as windstorms, severe, or straight-line winds. Often Occurring during thunderstorms severe winds may be very damaging. Severe winds have the potential to cause injury or loss of life from breaking and falling trees, property damage, and flying debris. Although Tornadoes tend to result in more deaths than severe winds, property damage from straight line winds is often more widespread than from tornadoes, usually affecting multiple counties at a time.

²¹¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 34.

²¹² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page iv.

²¹³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 34.

Historical Events

On April 30, 1984 a windstorm struck the entire Lower Peninsula, resulting in widely scattered damage, 1 death, and several injuries.²¹⁵ Wind gusts up to 90 miles per hour (mph) were measured in some areas. Damage was extensive with 6,500 buildings, 300 mobile homes, and 5,000 vehicles being damaged. Over 500,000 electrical customers lost power.

On January 18, 1996, a strong storm tracked from the central plains northeast to northern Michigan downing power lines in Wayne County.²¹⁶

On April 20, 1996, downed power lines resulted in power outages for 30,000 DTE Energy customers within Macomb, Oakland, St. Clair, Washtenaw, and Wayne counties.

On July 22, 1998, a family of four attempted to leave a video store in Woodhaven and a severe gust struck an awning located above the exit. Falling bricks hit a young boy in the head, killing him. Two fatalities occurred in Woodhaven as a result of the same storm. Storm damage also occurred in Flat Rock, Gibraltar, and Trenton. On Grosse Ile, one hundred homes and two businesses suffered damages. Five people were killed in Grosse Pointe Farms.²¹⁸ Wayne County and parts of Macomb County received both state and federal disaster declarations following this event.²¹⁹

High winds were experienced across southeast Michigan on the afternoon of November 24, 2014. Peak winds of 68 mph were recorded at Detroit Metropolitan Wayne County Airport. Numerous downed power lines and trees were reported across the region and approximately 200,000 people were without power. The resulting damages were estimated at \$25 million.

Frequency and Probability

NOAA's Storm Events Database reports nine high wind and 37 thunderstorm wind events in Wayne County since 2103.²²⁰ The Michigan Hazard Analysis reports that Wayne County experienced 351 severe wind events between 1996 and 2017, an average of approximately 17 per year.²²¹ Severe winds are a high probability event for the county.

²¹⁵ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 196.

²¹⁶ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²¹⁸ Southeast Michigan Tornado Outbreak, National Weather Service in White Lake, Michigan, July 2, 1997.

²¹⁹ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²²⁰ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 1, 2019.

²²¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 25.

Health & Safety

Since 1990, Michigan averaged approximately 2.0 deaths and 20.0 injuries per year as a result of severe winds.²²³ The public is most at risk from such things as falling trees and electrical lines, blowing debris, and collapsed buildings or roofs. Severe winds can be a direct effect of tornadoes, which are discussed in Section 4.16.

Area Impacted

Severe winds would affect entire populations, but greatest risk would be to populations housed in mobile homes. There are approximately 2,240 acres of manufactured home parks in Wayne County, excluding Detroit.²²⁴

Economic Impact

Between 1996 and 2017, Wayne experienced an estimated \$99,770,000 in property damage from severe wind events.²²⁵ Property damage costs in Michigan average \$12,380,952 per year. Property damage would be greatest contributor to economic loss. Power outages resulting from high winds can also have an economic impact with costs associated to restore and repair power lines and loss of revenues from prolonged outages to businesses.

Critical Facilities/Services

The National Weather Service, NOAA, and local media, through radar, weather data, and spotters, can alert the public of severe storms capable of producing large hail, severe winds, and lightning. Warning sirens can alert those not near a radio or television of an approaching storm. Warning sirens are located throughout the county. Initial response activities due to emergencies from high winds would primarily be associated with local response from police, fire, and medical emergency services.

Utility companies are responsible for repairing lines and shutting down power or gas services that represent a threat to safety. Also private or governmental tree removal services (urban forestry services) are essential in providing preventive measures and are often involved following severe wind incidents in clearing downed trees from power lines, roadways, and buildings. Following the initial response, regional, state, and local agencies may assist in cleanup and aid.

4.16 Tornadoes

Definition

A violently rotating column of air extending downward to the ground from a cumulonimbus cloud.

²²³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 52.

²²⁴ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, Excluding Detroit, April 2004.

²²⁵ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 77.

Historical Events

Between 1950 and 2001, approximately 4% of tornadoes in Michigan were classified as violent tornadoes (F4 or F5 intensity).²²⁶ However, these few violent tornadoes have been responsible for 88% of Michigan's tornado-related deaths.²²⁷ One F4 tornado was recorded in Wayne County between 1950 and July 2001.²²⁸

On July 2, 1997, a series of thunderstorms went through south-central and southeast Michigan spawning 16 tornadoes, thirteen of which occurred in southeastern Michigan counties.²²⁹ An F2 tornado was reported west of Highland Park to Hamtramck in Wayne County.

Frequency and Probability

Between 1950 and 2012, there were 28 tornadoes, ranging from F0 to F4, recorded in Wayne County, resulting in 136 injuries.²³⁰ Four of those tornadoes were recorded between 1996 and 2017 resulting in 90 injuries and damages totaling \$91,250,000. Tornadoes in Michigan are most frequent in the spring and early summer when warm, moist air from the Gulf of Mexico collides with cold air from the Polar Regions to generate severe thunderstorms.²³¹ Most tornadoes in Michigan occur in the southern Lower Peninsula, which averages 17 tornadoes per year.²³²

Tornadoes will continue to represent a hazard to the county, and are most probable during the months of April through June.

Health & Safety

Michigan's tornadoes have resulted in more deaths than in many other tornado-prone states. Michigan ranks in the top 10 in single killer tornadoes, deaths per 10,000 square miles, and killer tornadoes as a percent of all tornadoes. Between 1950 and July 2009, 242 tornado-related deaths were reported in Michigan.²³⁵

There are approximately 4 tornado-related deaths per year in Michigan.²³⁸ A tornado that occurred on July 2, 1997 in Highland Park accounted for 90 injuries.²³⁹

²²⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, pages 61.

²²⁷ Ibid.

²²⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001.

²²⁹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 65.

²³⁰ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, April 2019, page 71.

²³¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001.

²³² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 62.

²³⁵ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 60.

²³⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 60.

Area Impacted

A tornado would affect the entire population in the tornado path. The most vulnerable population would be mobile home residents. According to 2000 land use data, there are approximately 2,240 acres of manufactured home park development in the county, excluding Detroit.²⁴⁰ Van Buren and Canton Township have the highest number of manufactured home establishments, with approximately 300 acres each.

The average tornado track is 16 miles long. The longest tracks have been reported at 200 miles long.²⁴¹ The tornado path width is typically less than one-quarter mile, but can be over one mile.

Economic Impact

Property damage is the greatest contributor to economic loss. The amount of damage varies greatly with the severity of the tornado. Also, damage or destruction to utility lines (primarily overhead lines) can result in the loss of power and other utilities anywhere from a few moments to several days. Tornadoes can also destroy or damage agricultural fields, disrupt transportation services due to debris and/or downed power lines, and destroy trees and other flora.

Property damage in Michigan averages more than \$15 million per year.²⁴² Between January 1, 1950 and June 30, 2005, property damage by tornadoes totaled over \$123 million in Wayne County.²⁴³

A tornado that touched down in the Highland Park area on July 2, 1997, resulted in \$90 million in property damage.²⁴⁴ This was one of a series of 13 tornadoes that swept through southeast Michigan that same day. These resulted in an additional 2,900 damaged or destroyed homes, 200 damaged or destroyed businesses, over \$25 million in public damage, and nearly \$30 million in private damage elsewhere. Two deaths were caused directly by tornadoes and 120 injuries were reported. Power was lost for 350,000 electrical customers.²⁴⁵

Critical Facilities/Services

Tornado warnings systems and agencies play a major role in limiting the amount of deaths and injuries related to tornadoes. Warning sirens are located throughout the county. (Figure 9 displays community siren locations applicable to this Plan) The

²³⁹ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁴⁰ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, Excluding Detroit April 2004.

²⁴¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 59.

²⁴² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 62.

²⁴³ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁴⁴ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005

²⁴⁵ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 65.

National Weather Service and local media (television and radio) provide advanced warnings to communities. Community warning sirens can be heard for several miles.

Initial response activities due to tornadoes would primarily be associated with local response from fire, police, and emergency medical care.

Utility companies (Consumers Energy, DTE Energy, SBC, etc.) would be essential for repairing lines and shutting down power or gas services that represent a threat to safety. Following the initial response regional, state, and local agencies may also assist in cleanup and aid.

4.17 Transportation Accidents

Definition

A transportation accident is a crash or other accident involving an air, land or water-based passenger carrier. (Note: Transportation accidents involving hazardous materials are addressed separately in Section 4.8.2, HazMat Incidents – Transportation.)

4.17.1 Air

Historical Events

Air transportation accidents result from four major causes:

- collision between two aircraft in-air,
- crash during in-air cruising due to mechanical failure, sabotage, etc.,
- crash during takeoff or landing, or
- collision between two aircraft during taxi or staging.

The majority of air transportation accidents occur during takeoff or landing, and therefore, impacted areas are typically located near airports or runways. Response to air transportation accidents may involve fire control, survivor rescue/first aid, site security and crowd/traffic control.

The most fatal airplane accident in Wayne County history, and one of the top 10 air accidents in US history, occurred on August 16, 1987 near Detroit Metropolitan Wayne County Airport in Romulus. Flight 255 crashed just after takeoff, killing 154 of 155 people on board as well as two people on the ground.²⁴⁶

A plane carrying the University of Michigan men's basketball team skidded off a runway at Willow Run Airport in March 2017 when a jammed part prevented the pilots from

²⁴⁶ National Transportation Safety Board, www.nts.gov, Aviation Database Query, Wayne County, Michigan, report generated September 19, 2005.

bringing the aircraft nose up during takeoff. Of the 110 passengers and six staff on board only one was injured in the crash.²⁴⁷

Frequency

As shown on Figure 10, there are five airports within Wayne County. The airports provide for commercial flights, industrial shipping, corporate jets and charter planes. Two of the airports are owned by Wayne County; the other three airports are privately owned and operated. The Detroit Metropolitan Wayne County Airport handles approximately 24.4 million air passengers annually; accounting for roughly 87% of the air traffic of all Michigan airports.²⁴⁸ Between 1990 and 2005, there were 28 air transportation incidents in Wayne County, nearly 2 incidents per year.²⁴⁹

Commercial passenger air transportation is available through two airports in Wayne County. Air transportation incidents in Wayne County will continue to occur and it is anticipated that the probability for this hazard will fluctuate with air traffic volume.

Health & Safety

Death and injury is limited in most aircraft accidents. Between 1990 and 2005, there have been 3 deaths from air transportation incidents in Wayne County, an average of one death every five years.²⁵⁰ However, although rare, major crashes can be very deadly, as in the 1987 crash noted above.

Area Impacted

Due to the fact that the majority of aircraft accidents occur during landing or takeoff, the area most at risk for impact is the airport (or heliport) and immediately adjacent areas.

Economic Impact

Economic impact would result from damage to the aircraft and damage to any structures or improvements on the ground at the site of the accident. Damages to aircraft would typically be the responsibility of the private owner. Because two airports are owned by Wayne County, damages to airport infrastructure at these facilities could be the

²⁴⁷ Detroit Free Press. May 7, 2019. <https://www.freep.com/story/sports/college/university-michigan/wolverines/2019/03/07/michigan-basketball-plane-crash/3095406002/>

²⁴⁸ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, July 2012, page 305.

²⁴⁹ National Transportation Safety Board, www.nts.gov, Aviation Database Query, Wayne County, Michigan, report generated September 19, 2005.

²⁵⁰ National Transportation Safety Board, www.nts.gov, Aviation Database Query, Wayne County, Michigan, report generated September 19, 2005.

Figure 10: Hazard History: Transportation

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responsibility of the county. Additional economic impact to the county may result if an accident causes disruption of services at the airport.

Critical Facilities/Services

Response to air transportation accidents is provided by local fire and police departments. Emergency response assistance is available through mutual aid arrangements.

Airports within Wayne County are an important service provided to area businesses. A significant accident at an airport could temporarily impede the county's ability to provide this service.

4.17.2 Highway

Historical Events

Vehicle accidents are common to all communities and can happen along any roadway. Most accidents are due to driver error or inclement weather conditions. Accidents involving modes of mass public transportation are of particular concern due to the high number of passengers which could be impacted.

Frequency & Probability

Michigan vehicle travel increased more than 20 percent between 1990 and 2015 and over 10 percent from 2013 to 2016.²⁵² Automobile accidents occur several times daily in Wayne County. In 2016, there were 312,172 traffic accidents on Michigan roads, resulting in 1,064 fatalities; a 22 percent increase since 2009. The number of fatalities per vehicle mile traveled increased from 0.91 to 1.07 from 2009 to 2016; slightly lower than the national average.²⁵³ In 2003, over 18% of all traffic crashes reported in Michigan occurred in Wayne County.²⁵⁴

Health & Safety

The 71,227 traffic accidents in Wayne County in 2003 resulted in 222 fatalities and 22,093 injuries.

Economic Impact

The National Highway Traffic Safety Administration estimated the total economic cost of traffic crashes in Michigan at \$8,069,000,000 for the year 2000.²⁵⁶ This total includes all types of accidents and accounts for costs associated with lost productivity, medical

²⁵² American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

²⁵³ American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

²⁵⁴ State of Michigan, Office of Highway Safety Planning, 2003 Michigan Traffic Crash Facts, Reported Statewide Traffic Crashed By County In Michigan.

²⁵⁶ U.S. Department of Transportation, National Highway Traffic Safety Administration, www.nhtsa.dot.gov, *The Economic Impact of Motor Vehicle Crashes 2000*, State Costs.

costs, legal costs, emergency services costs, insurance costs, travel delays, property damage, workplace losses, and human capital losses. Assuming that 18% of these accidents were in Wayne County, and assuming 2000 costs are representative of most years, the economic cost to the county would be over \$1.45 billion per year.

Based upon the number of all traffic crashes in Michigan, the average cost of a traffic crash is \$20,391 per accident. It is anticipated that this rate of economic loss would be higher for public passenger transportation given that more passengers are present and the higher cost of a bus versus a private automobile.

Critical Facilities/Service

The highway transportation system in Wayne County plays a vital part in the county's ability to provide services to the public. Traffic crashes are notorious for causing temporary traffic delays that complicate the county's ability to maintain a well operating transportation network.

4.17.3 Rail

Historical Events

Passenger rail accidents are typically associated with derailments or collision with motor vehicles attempting to cross railroad tracks. On January 23, 2003 in Romulus, the driver of a passenger vehicle ignored the warning signals at a level grade crossing and attempted to cross the railroad tracks. An approaching freight train struck the vehicle, killing the driver, injuring the passenger, and causing the derailment of 7 tank cars. While infrequent, accidents involving cars and trains at crossings are the leading source of rail fatalities.

Frequency & Probability

As shown in Figure 10, there are 134 miles of freight rail lines and 62 miles of passenger rail lines in Wayne County. Passenger rail service is provided by Amtrak with service between Pontiac, Detroit, Dearborn, and other southeast Michigan destinations.

From 1990 through 2009, there were 1970 railroad transportation accidents in Michigan, an average of almost 13 accidents each year.²⁵⁷ However, rail-automobile accidents have been decreasing notably through this period; the 44 vehicle-train crashes recorded in 2009 is a 64.8% decrease over the preceding 10 year period.²⁵⁸ The most common reported accidents (64%) are derailments. None of the derailments reported between 1999 and 2005 resulted in injury.

²⁵⁷ Federal Railroad Administration, <http://safetydata.fra.dot.gov>, all reports for all railroads in Wayne County, 1999 through December 2005, reports generated on December 13, 2005.

²⁵⁸ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, July 2012, page 310.

Approximately half of the public rail-road crossings in Michigan have active warning devices but accidents still occur. It is anticipated that the likelihood of occurrence for this hazard will fluctuate with the rate of rail traffic within the county.

Health & Safety

Death and injury to passengers involved in railroad accidents is rare in Wayne County. From 1999 through mid-December 2005, there have been three deaths and six injuries as a result of this hazard.²⁵⁹

Area Impacted

Areas adjacent to a railroad are most at risk for impact from this hazard due to the potential for derailment. As previously stated, 58 of the 90 accidents reported in Wayne County from 1999 to 2005 involved derailment of cars or locomotives. Secondary impacts may result from accidents of this type if railroad crossings are blocked resulting in traffic delays.

Economic Impact

The greatest economic loss is property damage to the train equipment and railroad tracks. This loss is the responsibility of the owner/operator of the equipment and railroad.

Critical Facilities/Services

Given the frequency of this event, it is not anticipated that county services or facilities will be greatly impacted. Impact to county services may result if an accident blocks a railroad crossing, thus causing traffic problems.

4.17.4 Marine

Historical Events

Most shipwrecks in Michigan occur in waters exhibiting treacherous weather and currents particularly areas of Lakes Superior and Huron. However, the C.K. Collins did sink in the Detroit River (Wayne County) in 1854, killing 23 people.

The number of shipwrecks occurring in the Great Lakes decreased dramatically between the 1800s and the 1930s. Marine travel has significantly changed and most boat traffic now is recreational. Additionally, weather prediction, communications, technology, ship design and construction, and emergency response have all improved over time. The

²⁵⁹ Federal Railroad Administration, <http://safetydata.fra.dot.gov>, all reports for all railroads in Wayne County, 1999 through December 2005, reports generated on December 13, 2005.

most recent significant accident occurred with the sinking of the Edmund Fitzgerald in 1975.²⁶⁰

Nineteen commercial marine passenger ferries operate from Michigan shorelines. Public marine passenger ferries are regulated and inspected by the U.S. Coast Guard to ensure public safety. To date, there has not been a significant accident involving public marine transportation in Michigan. Response to marine accidents differ significantly from air and land transportation accidents in that they can require underwater search and rescue. Typically, marine accidents involve recreational boating incidents and are often linked to individuals operating vehicles under the influence of alcohol. Like rail-automobile accidents, Michigan boating accidents are declining over time. The 131 boating accidents recorded in 2009 is a 40% decrease over the preceding 10 year period.²⁶¹

4.18 Winter Hazards

4.18.1 Ice and Sleet Storms

Definition

Freezing rain is rain that freezes on contact with surfaces causing a coating of ice on exposed surfaces.

Historical Events

Between January 1, 1950 and June 30, 2005, seven ice storm/freezing rain events have been recorded in Wayne County.²⁶²

On January 7, 1994, much of lower Michigan experienced a mix of freezing rain, rain, and snow.²⁶³ Ice accumulations during the event were approximately 1/4- inch over the southern third of Lower Michigan. Detroit Edison reported 50,000 people affected by power outages.

Freezing rain developed across southern lower Michigan late on February 26, 1995 and continued through the morning of the 27th.²⁶⁴ Numerous traffic accidents were reported and most schools were closed.

On March 13, 1997, freezing rain caused 425,000 homes and businesses in the Metropolitan Detroit area to lose power.²⁶⁵ Several thousand residents were without

²⁶⁰ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, July 2012, page 311.

²⁶¹ Michigan Department of State Police, Emergency Management and Homeland Security Division, *Michigan Hazard Analysis*, MSP/EMHSD Publication 103, July 2012, page 314.

²⁶² National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 21, 2005.

²⁶³ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁶⁴ Ibid.

power for as long as four days. In addition to power lines, falling trees damaged dozens of cars, houses and most schools were closed, and numerous auto accidents occurred.

On January 30, 2002, a mix of freezing rain and snow led to the collapse of the roof at Checker's Savemore Drugs in Westland. Falling branches and the weight of the ice downed hundreds of power lines and left an estimated 290 thousand residents and businesses without power, mostly in the Metro Detroit area. Several communities in the Metro Detroit area declared snow emergencies and almost all school districts in the region were closed.²⁶⁶

In April 2018, a three-day storm with heavy rain, snow, sleet, and freezing rain hit southeast Michigan, including Wayne County.. Damage to trees and power outages were experienced across the region with nearly 500,000 DTE and Consumers Power customers losing service during the storm. Strong northeast winds also caused flooding along the Lake Erie shoreline.²⁶⁷

Frequency and Probability

NOAA's Storm Events Database reports three ice storms, one winter storm, and four winter weather events including sleet and freezing rain for Wayne County since 2000. In Michigan, there were 40 major events recorded from 1970 through July 2001.²⁶⁸ Michigan averages one major event per year. The probability for ice and sleet storms to occur in Wayne County is high and is most likely to occur from December to March.

Health & Safety

Deaths and injury caused directly by ice or sleet storms are difficult to determine. Deaths and injury are usually caused by secondary effects such as auto accidents, downed power lines and heart attacks from overexertion. The majority of deaths related to ice storms are traffic related.

Area Impacted

Due to the widespread nature of ice/sleet storms the entire population could be impacted either directly or secondarily (i.e., power outages, etc.). According to 2000 Land Use Data, Wayne County, excluding Detroit, has approximately 6,816 acres of roadway, 917 acres of utility, and 1,036 acres containing electrical transmission lines.²⁶⁹

Economic Impact

Economic loss would include property damage and costs of response (clearing roadways, downed power lines or trees, etc.).

²⁶⁵ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁶⁶ Ibid.

²⁶⁷ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 1, 2019.

²⁶⁸ Ibid.

²⁶⁹ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, Excluding Detroit, April 2004.

From 1970 to June 2005 ice/sleet storms caused nearly \$30 million in property damage (nearly \$550,000 each year). Michigan has suffered \$100 million in property damage from major storms between 1976 and 2005.

Critical Facilities/Services

Response to an ice/sleet related emergency would primarily be localized. Initial response activities due to emergencies from sleet and freezing rain would primarily be associated with local response from police and medical emergency services.

Utilities may require repair and maintenance resulting from sleet and freezing rain. As in the event that occurred on April 3, 2003, regional or out-of-state services may be required to assist in cleanup and repair activities. Also, private or governmental tree removal services are often involved following severe wind incidents in order to remove trees from roadways, yards, and away from power lines.

The National Weather Service, NOAA, and local media can alert the public of severe storms capable of producing sleet and freezing rain.

4.18.2 Snow Storms

Definition

A period of rapid accumulation of snow accompanied by high winds and cold temperatures.

Historical Events

Between January 1, 1950 and June 30, 2005, 16 heavy snow events, 5 snow events, and 6 winter storms were reported in Wayne County.²⁷⁰

On January 26, 1977 a Presidential Emergency Declaration was issued for 15 counties in the southern part of the State. Many residents were isolated in rural residences or stranded in public shelters.²⁷¹

On March 12-14, 1993 a snowstorm now called "The Storm of the Century" struck the eastern U.S. dumping 56 inches of snow in some areas and causing \$2 billion in property damage. The storm impacted 26 states and approximately 50% of the nation's population. A total of 270 deaths and over 600 injuries were attributed to the storm.²⁷²

²⁷⁰ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 2019.

²⁷¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 46.

²⁷² Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2012, page 48-49.

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On March 19, 1996, snow accumulations of 5.8 inches combined with high winds resulted in power outages to 173,000 homes and businesses in southeast Michigan.²⁷³

On December 11, 2000 a powerful snow storm dumped heavy snow across southeast Michigan.²⁷⁴ Seven inches were reported in Grosse Point Farms, 8-10 inches were reported in Hamtramck, 12 inches were reported in Belleville, 8-11 inches were reported in Wayne, and 5 inches were reported in Grosse Ile with power outages in Trenton.

Frequency and Probability

NOAA's Storm Events Database reports three ice storms, one winter storm, and four winter weather events including sleet and freezing rain for Wayne County since 2000.²⁷⁵ The Michigan Hazard Analysis records 46 snow storms or blizzards impacting Wayne County between 1996 and 2017 and resulting in an estimated \$960,000 in damage and economic loss.²⁷⁶ Wayne County averages more than two major events per year. The probability for winter snow storms to occur in Wayne County is high and is most likely to occur from December to March.

Average annual snowfall in Michigan ranges from 30 to 200 inches. Wayne County had an average season snowfall of approximately 30 inches between the 1950-51 and 1978-80 seasons.²⁷⁸ It is probable that snow storms will occur in the future in Wayne County.

Health & Safety

Deaths caused directly from the event are difficult to determine. Deaths related to snowstorms are usually caused by secondary effects such as delays in emergency vehicle response, auto accidents, downed power lines and heart attacks from overexertion. The direct risk to human life from snowstorms is low.²⁷⁹

Area Impacted

Blizzards are the most dramatic of all snowstorms, bearing strong winds and an enormous amount of snowfall. Snowstorms can impact a large area of a community, especially if they result in heavy accumulations of snow. Due to the widespread nature of snowstorms the entire population could be impacted either directly or secondarily (i.e. power outages, etc.). Wayne County has approximately 6,816 acres of roadway.²⁸⁰

²⁷³ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁷⁴ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, September 6, 2005.

²⁷⁵ National Climatic Data Sponsored Website, www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm, *Standard Query for Severe Weather*, May 1, 2019.

²⁷⁶ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, April 2019, page 124.

²⁷⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 235.

²⁷⁹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 11.

²⁸⁰ SEMCOG, *Land Use in Southeast Michigan 1990-2000*, Specific to Wayne County, Excluding Detroit, April 2004.

Economic Impact

Primary costs would include property damage and snow removal. Economic losses are dependent upon the degree of storm severity. Schools and businesses may be closed if snowfall is severe enough or if a State of Emergency is declared that prohibits traffic on roadways.

Critical Facilities/Services

Response to a snow related emergency would primarily be localized. Initial response activities due to emergencies from snowstorms would primarily be associated with local response from medical emergency services, public works departments, and agencies such as the Wayne County Road Commission and MDOT. Municipalities would have increased costs in snow removal activities.

Transportation would be effected as roads and airports could see heavy delays or short-term to long-term closures. Schools and businesses may be closed for a day to several days.

The National Weather Service, NOAA, and local media are critical in alerting the public of severe storms capable of producing snowstorms and blizzard conditions.

4.19 Terrorism/Active Assailant Incidents

Definition

An intentional, unlawful use of force, violence or subversion against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives. An Active Assailant may or may not be affiliated with a terrorist organization and may not otherwise be considered a terrorist. In the US many active assailant events have been lone-shooter driven. For the purposes of this Plan they are described together despite ideological objective.

Historical Events

The most recognized forms of terrorism include assassination, bombings, and extortion. These acts are often identified with particular groups or organizations. The Middle East and portions of Europe, South America and Asia have been greatly impacted for many years by acts of terrorism and sabotage. In more recent years, the United States has been victim to acts of terrorism.

Wayne County has experienced instances of terrorism in the past several decades. In 2001, a homemade bomb left outside the St. Paschal Babylon Catholic Elementary School in Taylor, MI was inadvertently carried inside where it detonated injuring 10 people. In July of 2000, an individual pulled wiring from around 100 street lights throughout Detroit and, in one case, attached them to a nearby fence, electrifying it. The

city was forced to cut power to more than 600 street lights for repairs that were estimated to cost \$26,000.²⁸¹

Terrorism events may simply involve the threat of action or thwarted attempts. In 2018, a Detroit man pleaded guilty for threats, made in 2016, against the police. The case was declined for lack of evidence by the Wayne County Prosecutor but taken up by Michigan's Attorney General.²⁸² Similarly, a local high school student was arraigned on two counts of terrorism and two counts of making bomb threats for writing the threats on the bathroom walls at Salem and Plymouth High Schools.²⁸³ The threats came less than a month following the shooting at Marjorie Stoneman Douglas High School in Parkland, Florida.

During the writing of this plan the University of Michigan campus in Ann Arbor was placed on lockdown as local, state, and federal officials searched for a possible gunman. What students suspected were gunshots, triggering the incident, was later determined to be balloons popping. Social media was an important tools in notifying the student body and surrounding community to seek cover.

Cases such as these have occurred throughout Michigan. In 1927, a man detonated 1000 pounds of explosives underneath a local school in Bath, Michigan. The explosion killed 41 people and injured nearly 60 more, and stands as the worst school related attack in U.S. history.²⁸⁴

Frequency & Probability

It is difficult to establish a frequency for terrorist activity in Wayne County based on historical events and how you interpret trends depends upon the data sources used and the time frame of comparison. James Alan Fox, a professor of criminology at Northeastern University, notes that there have been 16 multiple-victim school shootings in schools since 1996. Eight of these incidents have resulted in four or more deaths and, thus, have been termed mass shootings.

Mass shootings are relatively rare. Fox found that, on average, they occur 20 to 30 times per year with approximately one of those located at a school. He and his associate found that shootings involving students have been declining, with four times fewer students being killed as a result now than in the early 1990s. He points out that more kids die each year from drowning in pools or from bicycle accidents.

²⁸¹ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, Page 162-163.

²⁸² Michigan Radio. February 7, 2018. <https://www.michiganradio.org/post/detroit-man-pleads-guilty-terrorism-charge-facebook-rant-against-police>

²⁸³ Detroit Free Press, March 8, 2018.

<https://www.freep.com/story/news/local/michigan/wayne/2018/03/08/plymouth-canton-school-bomb-threat/406759002/>

²⁸⁴ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, Page 166.

This contrasts with a study reported in the *Journal of Child and Family Studies*²⁸⁵ that found that more people have died or been injured in mass school shootings in the United States in the past 18 years than in the entire 20th century. Despite a lack of an established frequency for this hazard, it is likely to occur in the future.

Health & Safety

Due to the nature of terrorist attacks, it is difficult to establish a death or injury rate from historical events. Not all acts of terrorism are intended to cause death or injury, as demonstrated in the 1971 bus bombings in Pontiac, MI, nor do all of those intended for harm do so, as seen with the several homemade bombs found and safely detonated throughout Wayne County. However, all of these occurrences result in a general feeling of insecurity and fear that hurts social and economic systems in the areas affected.

Area Impacted

Terrorism can take many forms and the aim of terrorist attacks can vary from destruction of property to harming people to disrupting quality of life. Depending on the type of terrorist attack, property damage can be extensive.

Further information on this matter is law enforcement sensitive and homeland security sensitive and, therefore, is not available to the general public.

Economic Impact

It is difficult to determine the economic impact of terrorist acts. Given that terrorism can take many forms and have widely different consequences, there is the potential for terrorist acts to cause great economic damage.

Critical Facilities/Services

Terrorist acts carried out on public infrastructure can directly impact the county's ability to operate essential facilities and provide services. Significant terrorist acts would require large-scale response from all levels of government.

Special Consideration

Homeland security is addressed under a County-wide threats and needs assessment. Terrorist acts, outside of active assailant events, are not considered in this Plan.

4.20 Weapons of Mass Destruction

Definition

Weapons intended to cause widespread damage and high number of casualties.

²⁸⁵ Antonis Katsiyannis, Denise K. Whitford, Robin Parks Ennis. Historical Examination of United States Intentional Mass School Shootings in the 20th and 21st Centuries: Implications for Students, Schools, and Society. *Journal of Child and Family Studies*, 2018; DOI: 10.1007/s10826-018-1096-2

Historical Events

Weapons of mass destruction typically fall into four categories: 1) missiles, 2) biological weapons, 3) nuclear weapons, or 4) chemical weapons. Currently, there are 33 countries known to have one or more types of weapons of mass destruction.²⁸⁶ A number of nations and organizations may also be capable of obtaining weapons of mass destruction.

Frequency & Probability

Weapons of mass destruction have never been used to carry out an attack in Wayne County. Globally, there have been 18 attacks since 1985.²⁸⁷ Although Wayne County does not have a history of attacks using weapons of mass destruction, the possibility of such an event does exist.

Health & Safety

Given the nature of weapons of mass destruction, a successful use of these weapons would cause great loss of life and injury. Death and injury rates are highly variable with each attack and the form of weapon used. The atomic bombs dropped on Hiroshima and Nagasaki during World War II killed an estimated 210,000 people initially²⁸⁸, with radiation related deaths stretching to the present. As a reference, these bombs each carried 20 kiloton yields, while conventional nuclear weapons today carry 20 megaton yields. Chemical and biological weapons are often feared as they are easier to produce and are lethal in smaller amounts. These weapons, while they have historically killed fewer people and are harder to deliver successfully can result in the death of thousands as well as the disruption of agriculture and water infrastructures.

Depending on the type of weapon used, the effects on human health can linger for years, continuing to present a hazard.

Area Impacted

Further information on this matter is law enforcement sensitive and homeland security sensitive and, therefore, is not available to the general public.

Economic Impact

It is difficult to estimate the economic impact of a successful attack using weapons of mass destruction. It is anticipated that such an event would be incredibly damaging to life, property and infrastructure, as well as the local, state, and possibly federal economy.

²⁸⁶ Federation of American Scientists, www.fas.org, Intelligence Resource Program, Countries With Weapons of Mass Destruction, January 29, 2004.

²⁸⁷ Nuclear Threat Initiative, www.nti.org, Weapons of Mass Destruction Chronology 1985 through 2003, January 30, 2004.

²⁸⁸ The Detroit Free Press, www.freep.com, *Bombings at Hiroshima, Nagasaki: 60 Years Later, Many Wonder – Were Atomic Blasts Necessary?*, August 5, 2005.

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Critical Facilities/Services

An attack using weapons of mass destruction against public infrastructure can directly impact the county's ability to operate essential facilities and provide services. Successful attacks would require large-scale response from all levels of government. As stated above, the county has identified and evaluated locations within the county which are potential targets for weapons of mass destruction.

Special Consideration

Homeland security is addressed under a separate threats and needs assessment. Therefore weapons of mass destruction are not considered in this Plan.

Table 4. Wayne County Hazard History Summary

| Hazard | Annual Frequency | Frequency Rank | Hazard Impact | | | | Consequence | Data Source |
|--|------------------|----------------|---------------|-----------------|----------|-----------|-------------|--------------------------------|
| | | | Probability | Health & Safety | Area | Economic | | |
| Transportation Accidents - Highway* | 55,001 | 1 | Very High | Medium | Local | High | Medium | MSP, NHTSA, MTCF, Detroit News |
| Criminal Acts - Vandalism** | 13,637 | 2 | Very High | Low | Local | Low | Low | MSP |
| Fire Hazards - Structural Fires | 4,207 | 3 | Very High | Medium | Local | High | Medium | NFIRS |
| Fire Hazards - Wildfires | 1,640 | 4 | High | Low | Local | Low | Low | NIFC |
| Criminal Acts - Arson** | 917 | 5 | High | Medium | Local | Low | Medium | NFIRS, MSP |
| Transportation Accidents - Marine | 10 | 6 | High | Low | Local | Low | Low | USCG and NSC |
| Thunderstorm Hazards- Severe Wind | 7 | 7 | High | Medium | County | High | Medium | NOAA |
| Infrastructure Failure - Water System | 5 | 8 | High | Low | Local | Medium | Medium | Wayne County |
| Transportation Accidents - Rail | 3 | 9 | High | Low | Local | Low | Low | USDOTFRA |
| Petroleum and Natural Gas Pipeline Accidents | 2 | 10 | High | Medium | Local | Medium | Medium | MSP, NRC |
| Thunderstorm Hazards - Hail | 2 | 10 | High | Low | County | Medium | Medium | NOAA |
| Winter Hazards-Snowstorms | 2 | 10 | High | Medium | County | High | Medium | NOAA |
| Flooding-Riverine | 1.3 | 13 | High | Low | Local | High | Medium | NOAA |
| Flooding-Urban | 1.3 | 13 | High | Low | Local | High | Medium | NOAA |
| Civil Disturbance* | 1 | 15 | High | High | Local | High | Medium | Armstrong Economics |
| Flooding - Dam Failure | 1 | 15 | High | Low | Local | High | Medium | State of Michigan |
| Infrastructure Failure - Electrical System | 1 | 15 | High | Medium | Local | High | High | Wayne County, MSP |
| Transportation Accidents - Air | 1 | 15 | High | Medium | Local | Low | Low | FAA |
| Winter Hazards- Ice and Sleet | 1 | 15 | High | Medium | County | Medium | Medium | NOAA |
| Extreme Temperatures-Extreme Cold | 0.83 | 20 | High | Medium | County | Low | Medium | NOAA |
| Extreme Temperatures-Extreme Heat | 0.67 | 21 | High | Medium | County | Low | Medium | NOAA |
| HazMat Incidents - Fixed Sites | 0.60 | 22 | Low | Medium | Local | Very High | High | NRC |
| Infrastructure Failure - Storm Sewer System | 0.50 | 23 | Low | Low | Local | Low | Low | Wayne County |
| Infrastructure Failure - Communications | 0.50 | 23 | Low | Medium | Local | Low | Medium | Wayne County |
| Infrastructure Failure - Bridges, Roads, and Overpasses | 0.50 | 23 | Low | High | Local | High | Medium | MDOT and FHA |
| Thunderstorm Hazards - Lightning | 0.5 | 23 | High | Medium | County | Medium | Medium | NOAA |
| Tornadoes | 0.5 | 23 | Low | High | County | High | High | Wayne County and NOAA |
| HazMat Incidents - Transportation | 0.40 | 28 | Low | Medium | Local | Medium | Medium | NRC |
| Subsidence | 0.40 | 28 | Low | Low | Local | Low | Low | State of Michigan |
| Criminal Acts - Mass Shooting | 0.35 | 30 | Low | High | Local | Medium | Medium | MSP |
| Invasive Species | 0.35 | 30 | Low | Low | County | High | Medium | State of Michigan |
| Public Health Emergencies - Pandemics and Epidemics | 0.33 | 32 | Low | High | County | High | High | MSP |
| Public Health Emergencies - Contaminated Food Supply and/or Water Supply | 0.33 | 32 | Low | High | County | High | High | MSP |
| Gas/Oil Shortages or Supply Disruption | 0.23 | 34 | Low | Low | County | Very High | High | State of Michigan |
| Terrorism and Sabotage | 0.21 | 35 | Low | High | Local to | High | High | State of Michigan |
| Drought | 0.21 | 35 | Low | Low | County | Medium | Medium | Wayne Co., NOAA, & NDMC |
| Earthquake | 0.20 | 37 | Low | Low | County | Low | Low | USGS |
| Fog | 0.20 | 37 | Low | Medium | County | Medium | Medium | State of Michigan, NOAA |
| Oil and Gas Well Incidents | 0.20 | 37 | Low | Low | Local | Medium | Low | MSP |
| Catastrophic Events/National Emergencies | 0.12 | 40 | Low | Medium | County | Medium | Medium | No established frequency |
| Infrastructure Failure - Sanitary Sewer System | 0.05 | 41 | Low | High | Local | Medium | High | Wayne County |
| Fire Hazards - Scrap Tire Fires | 0.04 | 42 | Low | Low | Local | Low | Low | MSP and MDEQ |
| Celestial Impact | 0 | 43 | Very Low | High | County | High | High | No established frequency |
| Flood-Great Lakes Shoreline and Erosion | 0 | 43 | Very Low | Low | Local | Low | Low | Wayne County |
| Nuclear Power Plant Accidents | 0 | 43 | Very Low | Medium | County | High | Medium | No established frequency |
| Weapons of Mass Destruction | 0 | 43 | Very Low | Very High | County | Very High | Very High | No established frequency |

* Value shown is the total number of vehicle crashes recorded in Wayne County for 2017. The five-year average for 2013 through 2017 equals 50,750.

Number of fatal crashes in Wayne County for 2017 equals 157.

** Vandalism = Property Crime

*** Arson figures do not include City of Detroit

5. Hazard Assessment

5.1 Hazard Assessment

All hazards were ranked according to historical risk (frequency and impact), according to committee and community survey responses, and by comments on open ended questions in the survey. These rankings formed the basis for individual evaluations and group discussions during committee meetings that resulted in a final list of hazards of particular significance to the county. Final selection of the top hazards was based on a combination of risk and impact rankings as described below.

5.1.1 Survey

The first survey was provided to 62 individuals in the Advisory Committee in electronic form, and included 40 hazards arranged in order of the 3 categories (Natural, Technological, & Human Related). A total of 57 participants (92%) participated in the survey. The results of the survey were presented to the Advisory Committee for review and evaluation at the first workshop.

This survey asked respondents to rank the importance of 40 hazards on a scale of 1 (Not Important) to 5 (Extremely Important). Importance was defined as an evaluation of the negative consequences of the hazard on the population, economy and environment of the county. In addition, the survey included open ended questions asking respondents to list the most significant hazards in each of three major categories: natural, technological, and human. Respondents were asked to determine significance based upon the severity of the impact, probability of occurrence, and preparedness of the county to respond. These comparisons and responses were used to initially rank the relative significance of each hazard in order to consider frequency and consequence during the first workshop. Hazard rankings in the top five are highlighted in Table 5.

5.1.2 Risk Analysis Workshop

This hazard listing of highly-ranked hazards was then used during the Advisory Committee workshop to identify the top hazards for further evaluation. Although the top five hazards, in various rankings, are highlighted in Table 6 above, this list was not intended to be a final ranking, but was used to start discussion on the selection of hazards significant to the county. Of particular importance were those hazards ranked highly across more than one column.

Discussion by the committee removed those hazards that were historically significant because of their large frequency but were not of concern for future mitigation programs: specifically most criminal acts, structural fires, and transportation accidents. Secondly, hazards that were beyond the scope of this program were removed: specifically nuclear power plant accidents (highlighted in yellow, Table 6).

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Table 5. First 2019 Survey Hazard Ranking Results, With 2013 Workshop Ranking

| | Open Ended | Wtd Average | | Weighted Rank | 2013 Plan Workshop Rank |
|--|------------|-------------|----------------------|-----------------|-------------------------|
| | | Count | Rank (1 high, 5 low) | (1 high, 5 low) | |
| Natural Hazards | | | | | |
| Celestial Impact | | 12 | 38 | 4.2 | 39 |
| Drought | | 13 | 27 | 3.4 | 30 |
| Earthquake | | 12 | 37 | 4.0 | 37 |
| Extreme Temperatures - Extreme Hbt or Cold | 5 | 24 | 7 | 2.6 | 9 |
| Fire - Wildfires | | 12 | 36 | 3.9 | 36 |
| Flooding - Riverine or Shoreline | 3 | 14 | 21 | 2.5 | 6 |
| Fog | | 12 | 33 | 3.5 | 31 |
| Invasive Species | | 12 | 34 | 3.7 | 34 |
| Subsidence - Natural | | 11 | 39 | 3.6 | 32 |
| Thunderstorms - Hail, Lightning, Severe Wind | 1 | 43 | 1 | 2.4 | 3 |
| Tornadoes | 4 | 24 | 6 | 2.5 | 7 |
| Winter Hazards - Snow, Ice & Sleet | 2 | 33 | 2 | 2.7 | 12 |
| Technological Hazards | | | | | |
| Fire - Scrap Tire | | 12 | 35 | 3.8 | 35 |
| Fire - Structural | | 14 | 23 | 3.0 | 20 |
| Flooding - Dam Failure | 9 | 13 | 28 | 3.6 | 33 |
| Flooding - Urban | 4 | 21 | 12 | 2.8 | 16 |
| Hazmat Incidents - Fixed Site | | 15 | 18 | 2.7 | 11 |
| Hazmat Incidents - Transportation | 2 | 23 | 9 | 2.8 | 15 |
| Infrastructure Failure - Bridges, Roads, Overpasses | 1 | 31 | 3 | 2.5 | 8 |
| Infrastructure Failure - Communications | 5 | 16 | 15 | 2.4 | 5 |
| Infrastructure Failure - Electrical Systems | 3 | 23 | 8 | 2.2 | 1 |
| Infrastructure Failure - Sanitary/Storm Sewers | 6 | 18 | 13 | 2.3 | 2 |
| Infrastructure Failure - Water System | | 22 | 11 | 2.7 | 13 |
| Nuclear Power Plant Accidents | 7 | 17 | 14 | 3.0 | 21 |
| Oil and Gas Well or Pipeline Accidents | 8 | 13 | 25 | 2.8 | 14 |
| Subsidence - Mining or Infrastructure | | 13 | 29 | 4.1 | 38 |
| Human Hazards | | | | | |
| Catastrophic Events/National Emergencies | 3 | 16 | 16 | 3.1 | 24 |
| Civil Disturbance | 5 | 15 | 19 | 3.0 | 22 |
| Criminal Acts - Mass Shootings/Active Assailant(s) | 4 | 25 | 5 | 3.0 | 19 |
| Criminal Acts - Vandalism and Arson | 5 | 15 | 20 | 3.2 | 27 |
| Criminal Acts - Homicide/Robbery/Carjacking | | | | | |
| Gas/Oil Shortages or Supply Disruptions | 7 | 12 | 30 | 2.9 | 18 |
| Information Technology Intrusion | 6 | 16 | 17 | 3.3 | 29 |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water | 1 | 30 | 4 | 3.0 | 23 |
| Terrorism/Sabotage | | 13 | 26 | 2.9 | 17 |
| Transportation Accidents - Air | 7 | 14 | 22 | 2.6 | 10 |
| Transportation Accidents - Marine | | 12 | 32 | 3.3 | 28 |
| Transportation Accidents - Rail | 7 | 12 | 31 | 3.2 | 26 |
| Transportation Accidents - Surface Roads/Highways | 2 | 22 | 10 | 2.4 | 4 |
| Weapons of Mass Destruction | | 14 | 24 | 3.1 | 25 |

The Advisory Committee reviewed the hazard history of the County, the hazard ranking in the 2013 Plan, and the results of the first survey. Workshop participants discussed the frequency and impacts in three categories: health and safety, area affected, and economic effects. The Committee also discussed the importance of each hazard and its impacts to population, environment, and the economy in each of 11 asset classes, such as residential areas, business districts, industrial sites etc., that exist in the county.

Based on historical information, the results of the survey, and discussion, 14 hazards were determined to be significant for the County and selected for further analysis. The committee was then asked to select and weight criteria for individually evaluating the top hazards.

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After discussion, the following 17 hazards were selected for further review and analysis:

- Catastrophic Events/National Emergencies
- Civil Disturbance
- Criminal Acts - Mass Shootings/Active Assailant(s)
- Criminal Acts - Vandalism & Arson
- Extreme Temperatures - Extreme Hot or Cold
- Flooding - Riverine or Shoreline
- Flooding - Urban
- Hazmat Incidents - Transportation
- Infrastructure Failure – Bridges & Roads
- Infrastructure Failure – Communications
- Infrastructure Failure – Electrical Systems
- Infrastructure Failure – Water & Sewer Systems
- Public Health Emergencies - Pandemics/Epidemics, Food/Water Contamination
- Severe Weather Summer
- Severe Weather Winter
- Thunderstorms - Hail, Lightning, Severe Wind
- Tornadoes
- Transportation Accidents - Surface Roads/Highways
- Winter Hazards - Snow, Ice & Sleet

This selection was intended to focus discussion and evaluation and was not intended to eliminate any hazard from consideration.

Using a paired comparison methodology, workshop participants determined the most important criteria for evaluating hazards, and weights for each individual criterion. Participants were asked to brainstorm (individually, and then in small groups) to create a list of criteria specifically applicable to Wayne County. A question provided to stimulate thought was: “Why should communities be involved in this process?” A total of seven criteria were originally identified. The selected four most important criteria, and their relative weights during the ranking process, are provided below.

- Ability to Recover from Disaster/Incident (weighted 7)
- Associated Infrastructure Failure (weighted 8)
- Loss of Life and Injury (weighted 15)
- Geographic Area of Impact (weighted 7)

The impact of each hazard on each of the three criteria was then evaluated by the group. This was used to rank each hazard according to its impact and risk.

The final hazard rank from the workshop and risk rank for each hazard were then factored together to identify the most critical hazards for the county. The committee considered the most crucial hazards to be: public health emergencies, active assailant incidents, and water and sewer system infrastructure failure.

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Hazard and Risk Assessment as Ranked by Advisory Committee:

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan Needed |
|---|---------------|------------------|--------------------|
| Extreme Temperatures - Extreme Hot or Cold | 5 | 6 | 3 |
| Flooding - Riverine or Shoreline | 4 | 10 | 3 |
| Thunderstorms - Hail, Lightning, Severe Wind | 14 | 12 | 4 |
| Tornadoes | 8 | 13 | 4 |
| Winter Hazards - Snow, Ice & Sleet | 8 | 2 | 2 |
| Flooding - Urban | 8 | 9 | 4 |
| Hazmat Incidents - Transportation | 5 | 8 | 3 |
| Infrastructure Failure - Water & Sewer Systems | 1 | 5 | 1 |
| Catastrophic Events/National Emergencies | 11 | 13 | 4 |
| Civil Disturbance | 13 | 11 | 4 |
| Criminal Acts - Mass Shootings/Active Assailant(s) | 3 | 2 | 1 |
| Criminal Acts - Vandalism and Arson | 12 | 1 | 2 |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water, Opioid Crisis | 2 | 4 | 1 |
| Transportation Accidents - Surface Roads/Highways | 7 | 6 | 4 |

The need for a county-wide action plan to address each of the most important hazards was evaluated based on a table that compared the workshop rank (in columns) to hazard risk rank (in rows), such as the one shown here.

| Action Plan Assessment | | |
|------------------------|------|------|
| | Rank | |
| Risk | 1-5 | 6-10 |
| 1-5 | 1 | 2 |
| 6-10 | 3 | 4 |

The first workshop prioritized and evaluated the top 14 hazards described above, and 11 critical assets. The assets considered include the following (in order of ranked critically):

- Residential Areas.
- Hospitals/Response Facilities
- Utility Facilities
- Roads, Railroads, Bridges
- Industrial Sites
- Open Space
- Central Business District
- Sports/Entertainment Arenas
- Public Facilities
- Schools, Churches
- Commercial Sites

Individual assets were evaluated to determine their vulnerability to each hazard. The effect of a hazard on each asset, and for each of the three criteria, was evaluated in an interactive process. This was used to rank the most critical assets. The most important hazards identified in the first part of the workshop were then evaluated for the likelihood of impacting a specific asset, and the consequence of such an impact on that asset.

The risk to each asset was then ranked, and the criticality of the asset and asset risk rank were then factored together to identify the most vulnerable assets in the county. As indicated below, assets with a criticality and risk rank in the top half were considered most vulnerable (as indicated by an assessment ranking of 1). The committee considered the most vulnerable assets to be:

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- Hospitals/Skilled Care Facilities
- Residential Areas.
- Schools/Churches
- Roads, Railroads, & Bridges
- Central Business Districts

Vulnerability Assessment of Critical Assets as Ranked by Advisory Committee:

| Critical Asset | Criticality Rank | Asset Risk Rank | Vulnerability |
|-----------------------------------|------------------|-----------------|---------------|
| Commercial Sites | 10 | 6 | 4 |
| Hospitals/Skilled Care Facilities | 1 | 5 | 1 |
| Industrial Sites | 5 | 8 | 3 |
| Open Space | 11 | 11 | 4 |
| Public Facilities | 9 | 10 | 4 |
| Residential Areas | 2 | 3 | 1 |
| Roads, Railroads, Bridges | 6 | 4 | 2 |
| Utility Facilities | 2 | 7 | 3 |
| Schools, Churches | 4 | 2 | 1 |
| Sports/Entertainment Arenas | 6 | 9 | 4 |
| Central Business Dist. | 6 | 1 | 2 |

The Vulnerability Assessment was based on this table, which compares the criticality rank (in columns) to asset risk rank (in rows):

| Vulnerability Assessment | | |
|--------------------------|-------------|------|
| | Criticality | |
| Risk | 1-5 | 6-11 |
| 1-5 | 1 | 2 |
| 6-11 | 3 | 4 |

5.2 Community Input

The overall goals of a community with respect to hazard mitigation are to protect the local population from natural, technological, and human health hazards that may occur, and to reduce the potential impact of these disasters on vulnerable areas or populations within the community. Representatives from each community in Wayne County were contacted to identify hazards of particular concern to that community and specific hazard vulnerabilities within the community.

A ranking of community hazards identified in the responses is provided in the table below. A value of 1 represents the highest ranking. Communities discussed on average 6 of their highest ranked hazards.

Representatives of the 42 Wayne County communities discussed in this Plan were asked to review their section(s) of the 2013 HMP and revise their individual hazard priorities and mitigation strategies as appropriate. The following sections summarize the contents of each of the community responses regarding potential hazards and the critical assets that could be affected.

5.2.1 City of Allen Park

During and after heavy thunderstorms, increased volumes of storm water in the north branch of Ecorse Creek has caused significant flooding in the City of Allen Park. In particular, the area bordered by M-39, I-94 and Outer Drive is most vulnerable. This area has a history of sewer failures resulting in basement flooding. City representatives have also voiced concern over the potential health risk to residents as a result of sewers backing up into their homes.

Tornadoes were also mentioned as a significant risk to the population of the city. Of greatest concern was the impact on residents living in the senior citizen communities located within Allen Park.

I-94 and M-39 are heavily traveled routes located in Allen Park. Both highways have a history of numerous vehicular accidents. There is a particular risk due to the large volume of trucks that carry hazardous material through the community.

Of additional concern is the potential of a hazardous material accident at one of the industrial complexes located in the city. Also mentioned was the risk of a high pressure gas main rupture as well as the risk of an incident involving trains that transport hazardous materials through the community.

5.2.2 City of Belleville

Tornadoes, ice storms and thunderstorms accompanied by high winds, create a threat to the City of Belleville and to its residents. Resulting power outages and extreme temperatures could have a significant effect on the population, especially on the elderly. The citizens considered most at risk for weather-related emergencies are the residents of the city's two senior citizen facilities and those living in mobile home communities located in the northeast and southeast areas of Belleville.

According to city officials, trains and trucks transporting hazardous materials, industrial facilities, as well as a natural gas pipeline that traverses the city, create the potential of a hazmat emergency. To better respond to these and all potential emergencies in Belleville, officials suggested that there is a need for more reliable communication equipment for the police and fire departments. City officials also identified a need for a program to respond to active shooters, particularly in schools.

5.2.3 Brownstown Township

Tornadoes, thunderstorms, and severe winter weather are considered a significant threat to the residents of Brownstown Township. At greatest tornado and high-wind risk are the residents of mobile home communities and senior citizen facilities located within the township. Representatives of the township have identified a need for early warning sirens that would alert all citizens in the likelihood of an approaching tornado.

Telegraph Road and I-75 experience heavy vehicular traffic traveling through Brownstown Township. Many of these vehicles transport hazardous materials through the community. In addition, natural gas pipelines, trains carrying hazardous material, and the potential for structural fires or an accident at the Wayne County Waste Treatment Facility all present a hazmat risk to the residents of the community. The presence of a nuclear power plant in the vicinity was also noted as a potential source of risk.

Representatives of the community also mentioned concern about the potential for civil disturbance, health emergencies and criminal acts.

5.2.4 Canton Township

Community representatives from Canton Charter Township identified convective weather, including tornados, severe winds, and lightning; as their hazards of greatest concern. Examples of flooding damage to roads, businesses, residences, and public and private open spaces includes areas along Ford Road from Canton Center to Sheldon, in Cherry Hill Village, and in areas adjacent to retention ponds. High winds have damaged areas near Sheldon and Lilley Roads between Palmer and Michigan Avenue. Concerns related to severe weather include loss of power, lack of overnight warming/cooling centers for residents, and the adequacy of evacuation and response capacity for planned sporting events, including an annual soccer tournament with over 100,000 in attendance. Power loss was noted as having negative impact on traffic circulation, communications, and business revenue.

The highest priority technological hazards in Canton Township relate primarily to infrastructure failure, including electrical systems, roads and water and electrical systems. In the 2013 HMP Canton officials noted their concern regarding structural fires, particularly fires that could affect one of the senior assisted living facilities. Residential areas that do not have hydrants require additional assistance in the event of fire.

Canton officials also identified concerns regarding active shooter(s)/active assailant(s) as a key concern for the 2019 HMP update. Previously hazards relating to health emergencies, civil disturbance, criminal acts, and traffic accidents were listed as a source of concern in the Township. Public schools in the region have experienced closures due to H1N1 virus, and public conflicts relating to cultural and religious diversity were also reported. Roadways throughout the Township have high posted speeds, and accidents on roads with posted speeds of 45 mph are usually very serious and sometimes fatal. A bike trail through the Township has experienced at least one car-related fatality.

5.2.5 City of Dearborn

The most important natural hazards for the City of Dearborn include flooding and severe weather in both summer and winter, accompanied with power outages. Dearborn City buildings have been designated as cooling shelters during business hours in event of

extreme summer heat, and the City has supplied dry ice to residents during power outages longer than 24 hours.

The potential for a hazmat emergency exists in the City of Dearborn. According to City representatives, there are locations within the city where hazardous chemicals are either stored or used in production. M-39 and I-94 are major highways that serve as routes for trucks, many carrying hazardous materials through the City. Trains carrying hazardous materials, especially in the eastern portion of the City, are also a concern.

City officials identified high-rise buildings including offices, apartments, senior citizen facilities and a hospital as a source of concern for structural fires, particularly in cases that may require evacuation of the elderly. Dearborn has many older factories, particularly in the eastern section of the City, and at least one instance of a factory explosion. There has also been concern about the potential for arson fires in these areas. Because a fire in some of these locations could present particular challenges to fire fighters, Dearborn officials feel that there is a need for additional personnel as well as additional fire department and EMS training. Buildings of concern for structural fires identified by individual communities are presented in Figure 11.

Approximately 35% of the population of Dearborn is of Middle Eastern descent. The threat of hostilities directed against this segment of the population is a concern for officials of the city. An example was provided of an annual event that has attracted out-of-state instigators of civil unrest. City officials feel that there is a need to provide the public with a better awareness of issues regarding ethnic diversity within the community.

5.2.6 City of Dearborn Heights

Thunderstorms, high winds and associated power outages and flooding, particularly along Ecorse Creek, have had impacts on the City of Dearborn Heights. When they occur, the outages are typically widespread with varying size and duration. The need for a more comprehensive public warning and information distribution system was noted by public officials.

Human hazards in the community relate primarily to criminal acts that result in personal injury and property loss.

Figure 11: Hazard History: Community Structural Fire

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5.2.7 City of Ecorse

Thunderstorms, winter hazards, tornados, and associated flooding and wide-spread power outages, are concerns to the representatives of the City of Ecorse. The lack of tornado sirens in this community increases their concern. Although the entire population could be affected by a tornado, residents at the two mobile home communities located in the city are at greatest risk.

Due to the large amount of industry in Ecorse, city representatives expressed concern regarding their potential for hazmat emergencies within the community. Accidents on streets, at their train tracks and rail yards, at manufacturing sites and other businesses, or involving gas pipelines, were included as being vulnerable locations for these potential emergencies. The community is also within the zone that could potentially be affected by a nuclear power plant incident.

5.2.8 City of Flat Rock

I-75 and Telegraph Road are two heavily traveled roads where numerous vehicular accidents occur. Of particular risk to the community are accidents that involve vehicles carrying hazardous materials. The rupture of a gas pipe line, a hazmat emergency at one of the community's manufacturing facilities, or the derailment of a railcar carrying hazardous materials were all mentioned as potential hazards to the city.

Flooding of the Huron River is a concern to the city of Flat Rock. The area most susceptible to this hazard was identified as the area along Huron River Drive between Evergreen and Garden Roads.

Weather related emergencies, particularly the threat of a tornado or a severe winter storm, were also mentioned. Representatives discussed the need to re-activate the Fermi sirens already located in city. These sirens then could be used in conjunction with existing tornado sirens to provide additional protection to the citizens of Flat Rock.

5.2.9 Garden City

Extreme weather, including extreme hot and cold temperatures, tornadoes, severe winds, and storm resulting in flooding and electrical power loss were all identified as key natural hazards concerns and resulting technological hazards. Winter hazards and the threat of tornadoes were concerns mentioned by the officials of Garden City in 2013 along with the need for a backup electrical system for the community's shelter building and for City Hall was discussed.

5.2.10 City of Gibraltar

The City of Gibraltar has a history of flooding. The southeast section of the city is particularly vulnerable to this hazard. Of particular concern are homes that have not been elevated above potential flood levels. Berms installed along the Gibraltar waterfront combined with low Great Lakes water levels in recent years have somewhat mitigated this hazard but current near-record high lake levels make this a greater priority.

City officials identified shoreline flooding, severe weather, and a possible accident at the Fermi II Nuclear Power Plant as their chief concerns. The City of Gibraltar is also within the potential zone of effect of a nuclear power plant incident.

Previously (2013) the City had identified the presence of industrial sites, an old landfill, active railroad tracks and a tanker cleaning facility as creating hazardous materials risks to the City. Hazards include not only the potential for spill accidents and surface and ground water contamination from leachate, both on-site and during transportation, but also the potential for industrial fires. The level of railroad traffic exposes the community to the risk of unknown substances and their associated hazards, and the risk is heightened by the inaccessibility of the tracks due to woodlands and wetlands.

Uncertain funding for the collection and treatment of landfill leachate increases the level of risk to surface and ground water, including the Detroit River and Great Lakes. This risk poses a public health hazard because of the inter-connectedness of waterways throughout this area.

5.2.11 Grosse Ile Township

There are a number of industrial facilities located a short distance from Grosse Ile Township. The likelihood of a hazmat incident at one of these locations and the direction of prevailing winds create the potential for a hazmat emergency on Grosse Ile. The evacuation of residents is a concern to township officials. The adequacy of the evacuation route via the bridges between the Island and mainland is a concern to township officials.

Because there is a small airport located at the southern tip of the township, accidents involving aircraft are also of concern to officials. The Township is also within the range of possible effects from a nuclear incident.

5.2.12 City of Grosse Pointe

Power outages, as a result of high winds or ice storms, have adversely affected the residents of Grosse Pointe for years. The City has made progress on the development of an emergency power back-up system, particularly for the Department of Public Safety, but additional power back-up is needed for sewage pumps in the event of large storms and associated flooding.

5.2.13 Grosse Pointe Farms

Thunderstorms and the associated flooding and power outages have had negative effects in Grosse Pointe Farms. In the event of power outages, storm water pumps have failed, contributing to flooding problems.

5.2.14 Grosse Pointe Park

Tornadoes, ice storms, and thunder storms accompanied by high winds, create a threat to the City of Grosse Pointe Park and its residents. Resulting damage and power outages have a significant effect on the population. The capacity of emergency power back-up systems at the Department of Public Safety and the adequacy of the tornado warning system are concerns, along with the availability of necessary equipment needed to remove fallen trees and clear roads is a concern.

Due to the community's close proximity to the City of Detroit, the issue of civil disturbances and criminal activity affecting Grosse Pointe Park is a concern. The associated drain on Public Safety resources has been an issue for the community.

5.2.15 Grosse Pointe Shores

Weather-related hazards have the potential to impact the community. The potential exists for structural fire at the Grosse Pointe Yacht Club or Ford House, which could be a drain on the resources of the community.

5.2.16 Grosse Pointe Woods

Tornadoes, ice storms, and thunder storms accompanied by high winds, create a threat to the City of Grosse Pointe Woods and its residents. Resulting damage and power outages have a significant effect on the population, including congestion due to traffic lights not working, and medical problems in senior housing due to food spoilage and other hazards. Officials discussed the capacity of the emergency power back-up system at the city's municipal building and at the Department of Public Works' pump station, along with the readiness of a mobile generator.

Located within the city is a Wayne County pumping station. Since chlorine is stored at this location, the possibility of a hazmat emergency affecting the safety of the citizens of Grosse Pointe Woods is a concern. In recent years, structural fires have been the main community concern, sometimes relating to down power lines. The replacement of outdated fire gear and equipment was noted as a community need.

The close proximity to the City of Detroit and that city's potential for civil disturbance, terrorist acts, active shooter and criminal activity that could adversely affect the citizens of Grosse Pointe Woods, is a concern to the officials. The need to provide additional training to properly respond to these types of emergencies was discussed.

5.2.17 City of Hamtramck

Tornadoes, thunderstorms accompanied by high winds, and winter snow and ice storms, are all concerns of the City of Hamtramck officials. Of particular concern to the Public Safety Department is heavy snow or ice storms that block the streets, and increase traffic accidents. Adequacy of snow removal equipment and timeliness of snow removal in relation to emergency response remain a concern in this community.

Within the City of Hamtramck there are sites that stock hazardous materials, one of which has closed since the 2006 Plan. Several of the sites stock hazardous materials in amounts that by law mandate notification of the Hamtramck Fire Department. According to officials, the potential for a hazmat emergency at one of these locations presents a danger to the citizens and visitors to the city. In addition hazardous material is carried by trucks on I-75 and by trains traveling through the eastern portion of the City, as well as a gas pipeline running through the community. These present additional risks to the population if hazardous materials were to escape as a result of an accident.

Criminal acts including street robberies, and the associated need for sharing of information between road patrols, investigators and the public, have placed a demand on public resources.

5.2.18 City of Harper Woods

Thunderstorms and severe winter weather have resulted in power outages and down trees that have negatively affected the City of Harper Woods. Of particular concern is power outage to City Hall, and associated effects on public safety. The need for improvements to reduce the likelihood and limit the effects of power failure was identified by local officials.

The heavily traveled I-94 highway that runs through Harper Woods has a history of vehicular accidents. Of particular concern to City representatives are accidents involving vehicles carrying hazardous materials through the community. Based on the current level of hazmat training, hazmat equipment, and the number of public safety personnel currently employed, the ability to properly respond to an emergency of this type is a concern.

Criminal acts including auto thefts, robbery, and breaking and entering of residences in the community are of concern to officials. Public notification about threats and the hiring of additional law enforcement personnel has placed demands on the community. Limitations on Harper Woods public safety personnel's radio interoperability with their counterparts in Detroit continue to present a danger to the citizens of both communities.

5.2.19 City of Highland Park

City officials noted transportation related hazmat accidents, public health emergencies, and severe summer weather, including thunderstorms, high winds, hail, etc., as their priority hazard concerns for the 2019 HMP update.

In the 2013 HMP, Highland Park officials had noted that there are a large number of vacant homes and a high incidence of arson in the City of Highland Park, and that building fires were a significant hazard to the community. They also expressed the concern for potential hazmat material emergencies at any one of the many industrial facilities located within the city. According to officials, not having a sufficient number of public safety personnel to adequately respond to these emergencies increases the danger to the residents of the City. Representatives also discussed the need for additional fire and hazmat training for new and existing public safety personnel.

Ice and snow storms and their effect on the streets of Highland Park were previously noted as a concern to officials. Not having sufficient resources to clear streets during and after storms restricts the ability of public safety personnel to properly respond to emergencies.

5.2.20 Huron Township

Tornadoes, ice storms, and thunderstorms accompanied by high winds, create a threat to the citizens of Huron Township. Resulting power outages have a significant effect on the population, especially on the elderly. Officials mentioned that the residents of the township's three mobile home communities were at an increased risk in the likelihood of a tornado touching down in the area. Both Tornado and hail damage have been reported since the time of the 2006 Plan. The installation of tornado warning sirens is currently in process, and the Township has identified the need for more.

I-275, railroads, pipelines, and industrial facilities, all located within Huron Township, present the potential for hazardous material emergencies that could affect Township residents. Because the Township lies along a flight path for Detroit Metropolitan Airport, the potential for a plane crash exists within the community. The adequacy of police and fire personnel to properly respond to these multiple hazards may be a concern.

The issue of flooding of the Huron River, particularly in the southeast section of the Township was mentioned by representatives in 2006, but dry conditions in recent years has reduced the effect of this hazard.

5.2.21 City of Inkster

Tornadoes, structural fires, and hazmat accidents were all mentioned as potential hazards that could adversely affect the citizens of Inkster. Not having sufficient staffing in the police and fire departments increases the danger presented by these hazards.

Officials also mentioned that the inability to communicate between all city departments at times of emergencies restricts each department's ability to respond properly.

5.2.22 City of Lincoln Park

Extreme temperatures have the potential to impact the residents of the City of Lincoln Park, particularly the elderly. Limitations on air conditioning and water systems during severe summer weather were noted as concerns by City officials.

The potential for a hazardous material emergency exists in relation to pipelines and transport along both railroads and I-75. The highly technical requirements for preparedness to respond to a hazardous material incident has placed demands on responders to stay up-to-date. Preparation for emergency response is complicated by the proximity of transportation corridors to residential areas.

The potential for criminal acts and civil disturbances exist in the City. A policy for responding to active killers has been developed and training for police and schools is being implemented.

5.2.23 City of Livonia

The potential for a hazardous material emergency exists in relation to transport along I-275, I-96 and railroad lines. As such, Livonia officials noted hazardous materials incidents as a chief concern.

In the 2013 HMP update, Livonia officials had noted their concern regarding winter storms due to their frequency, their effects on traffic accidents and congestion, business slow-downs, and draining of government resources. Livonia officials had also noted flooding and other infrastructure problems as a secondary effect of winter storms.

For the 2019 HMP update, Livonia officials noted similar priorities; noting electrical infrastructure failure, flooding, and hazard materials incidents as their chief hazards.

5.2.24 City of Melvindale

The potential for hazmat accidents involving either trucks or trains, or at local industry and businesses, exists in Melvindale. I-75 on the eastern boarder of Melvindale is the route for many large trucks carrying hazardous materials through the city. A train derailment with the potential of a chemical spill is a risk to the neighborhoods along the tracks in the central and eastern portions of the City. A chemical accident at one of the industrial facilities within the city is a risk to all citizens of Melvindale. Officials stressed the need for additional personnel in the fire and police departments as well as additional training for hazmat emergencies.

Flooding as a result of storm sewer failures is a concern for the City of Melvindale. Officials identified the locations of the greatest frequency of flooding in the vicinities of Allen Road and Outer Drive, and Dix Road and Wabash near the railroad yard.

5.2.25 City of Northville

Storms and associated power outages and flooding are a threat to the citizens of the City of Northville, particularly the elderly in assisted living facilities. Power outages are of particular concern at City Hall, which needs to operate as a command center in the event of an emergency. The need for additional flood mitigation was noted by City officials, and a study is currently underway to improve flood mitigation capacity. Emergency radio interoperability was also highlighted as a problem that has not been fully resolved despite past efforts. According to City officials, trains carrying hazardous materials through the eastern section of the City present the risk of a hazmat emergency in the community. Providing adequate training to all responders has placed demands on City resources.

5.2.26 Northville Township

Severe winds, thunderstorms and tornadoes and associated power loss in Northville Township is considered a significant threat to all citizens. At particular risks are the residents of the senior citizen communities located in the Township. Areas of the Rouge River along Northville Road have a history of flooding. According to officials, the areas most susceptible to this hazard are in the vicinities of Jamestown Circle and just west of Franklin Road.

A Consumers Power station, battery plant, high pressure gas pipelines, and railroad tracks carrying trains with hazardous material cargo, all exist within Northville Township. A hazmat emergency at any of these locations presents a significant risk to the citizens of this community.

The community has recently been focused on training to mitigate the hazard of active shooters in schools and other locations.

5.2.27 City of Plymouth

Histories of flooding problems exist in the City of Plymouth. Large storms and the associated flooding of Tonquish Creek, particularly in the vicinity of Ann Arbor Trail and Harvey Streets, and the areas immediately surrounding this location, are of greatest concern to city officials.

There are two railroad lines that run through the City of Plymouth. According to City representatives, there is the potential for a hazmat emergency that could have a devastating effect on the citizens of Plymouth. Trains have the potential to block intersections in the city, interfering with timely emergency response, particularly in the event of a derailment at a road crossing.

The presence of the 35th District Court in the City of Plymouth creates the potential for civil disturbances to affect citizens.

5.2.28 Plymouth Township

Large storms and associated power outages and flooding present the most significant hazard to the citizens of Plymouth Township, due to their frequency. The effects include road flooding and down trees that interfere with emergency response, structural fire when energized power lines come in contact with buildings, and risks to the elderly. Evacuation from large senior complexes is a source of concern. Tornadoes have also affected the Township, causing property damage and the public burden of cleaning up many down trees. Winter storms place additional demands on emergency response due to increased traffic accidents and personal injuries from slipping on ice and snow-shoveling.

The potential for incidents relating to hazardous materials exists along the I-275 and M-14 highways and the CSX railroad, and limited resources to effectively manage a major incident has required assistance from other governmental units in the past. The at-grade railroad crossings in the Township can result in car-train accidents that require

hazmat response. The high railroad traffic volume transporting hazardous substances causes this to be a significant hazard in the Township.

5.2.29 Redford Township

The potential for hazmat accidents involving trucks, trains, gas pipelines, or industrial facilities, exists within Redford Township. According to township officials, not having a sufficient number of public safety personnel, especially those trained in responding to hazmat emergencies, presents a significant risk to citizens.

A tornado touching down in the township would be a significant threat to all citizens. In particular, the residents of the two mobile home and two senior citizen communities located in the township are the most vulnerable.

5.2.30 City of River Rouge

Tornadoes and thunderstorms accompanied by high winds create a threat to the City of River Rouge and its residents. Resulting damage and power outages create a significant risk to all citizens, especially the senior population. Most vulnerable to these storms are the residents of the high-rise senior citizen facility located on Vigger Road. Officials expressed the need for additional training and equipment to better prepare for and respond to these hazards.

Due to the large amount of industry in River Rouge, there exists the potential for a hazmat incident where hazardous materials are either transported or stored within the community. Officials discussed the need to provide additional security to protect vulnerable locations from the possibility of a terrorist incident. They also expressed a need for additional training for public safety departments concerning homeland security. City representatives suggested that all departments of the city be required to receive emergency management training.

5.2.31 City of Riverview

The City of Riverview has a history of flooding after large storms and snow melt. According to officials, the areas of greatest concern are the Huntington Creek Drain between Fort Street and Civic Park, King Road near Westfield, and in particular, the Frank and Poet Drain along Valley View between Williamsburg and Sibley. This drain originates at Detroit Metro Airport and has experienced significant flooding due to storm water runoff and releases upstream. The elderly population of the City is particularly vulnerable during times of flooding due to increases in emergency response times.

Due to the large amount of industry in the City of Riverview, there exists the potential for a hazardous material emergency. Railcars, tanker trucks, gas pipelines and manufacturing facilities in the eastern section of the city were mentioned as potential areas of concern for this hazard. In addition, officials discussed the need to continue the effort of protecting these vulnerable locations from terrorist activities. In the event of a

major emergency, a need for a mass evacuation plan as well as improved communications within the department and with Wayne County was discussed. The importance of establishing a unified command to properly respond to these major disasters was mentioned.

5.2.32 City of Rockwood

The potential for major storms and tornadoes and associated power outages and flooding in the City of Rockwood was identified as a primary hazard to this community. Insufficient warning of a tornado was a concern to City representatives. Flooding along the Huron River, shoreline erosion, and the potential effects of a Belleville Dam failure were also mentioned as a source of concern to city officials.

Due to the proximity of the Fermi Nuclear Plant within 10 miles and the potential effect on Rockwood if there was an emergency at the plant, officials feel that there is a need for an evacuation plan for the City.

I-75 is a heavily traveled highway that runs north and south through the City of Rockwood. This highway has a history of many vehicular accidents. Of particular concern to city officials are accidents involving trucks carrying hazardous materials. The additional demands on manpower that this type of emergency response requires is a source of concern to the City. In addition there exists the threat of hazmat emergencies involving railways, at the sewage treatment plant, or at industrial locations located within the city. The need to better notify citizens if these disasters strike, was discussed.

5.2.33 City of Romulus

Community representatives specified severe storms and tornados and associated flooding and power outages, along with extreme temperatures in both summer and winter as the natural hazards of greatest concern. Damage could result to roads, businesses, and residences, and in areas adjacent to retention ponds. Concerns related to severe weather include loss of power, damage to water-related infrastructure, and lack of overnight warming/cooling centers for residents. Power loss was noted as having negative impact on traffic circulation, communications, and business revenue.

Hazards relating to Detroit Metro Airport being located entirely within the City perimeter include health emergencies and terrorism. The presence of tank storage facilities near the airport, railroads, highways, pipelines and other industry create the potential for a hazardous materials emergency. The hazard extends to the local water supply in the event of a release. The community has a need for more comprehensive mutual aid agreements between communities and better accessibility to information about potential hazmat sites and their associated contingency plans.

The City has several municipal buildings, schools, and the 34th district court building that could all be the target of intrusion or civil disturbance. The need for a vulnerability assessment of these institutions was discussed by officials.

5.2.34 City of Southgate

Tornadoes, thunderstorms accompanied by high winds, and snow and ice storms, create a threat to the City of Southgate and its residents. Resulting power outages have a significant effect on the population, especially senior citizens. Those who are at greatest risk from these hazards are the residents of the senior citizens facilities located within the city. People living at the mobile home community located on Dix Toledo Highway in the northern section of the city are most vulnerable to the danger of tornadoes.

I-75 is a heavily traveled highway that runs through the City of Southgate. This highway has a history of many vehicular accidents. Of particular concern to city officials are accidents involving trucks carrying hazardous materials. The potential of train accidents and gas pipeline ruptures are additional hazardous material vulnerabilities. The ability to adequately respond to these potential disasters, as well as other emergencies, is a concern to the officials of Southgate.

The close proximity of Detroit Metro Airport and the City's location along a flight path to the airport is a concern to City officials. Not having the manpower and resources to properly respond to a plane crash was discussed.

5.2.35 Sumpter Township

The occurrence of a tornado could be devastating to the people and property of Sumpter Township. At greatest risk are residents of the five mobile home communities located within the township. Thunderstorms with accompanying high winds and ice storms have caused trees and limbs to fall across electric lines resulting in power outages, some lasting several days. Officials discussed the need to remove trees and limbs from the area of power lines. Also discussed were back-up generators and funds for a structure to be used to store cots and other supplies needed by the public in certain mass emergencies.

The need for additional manpower for the public safety departments was also mentioned. Emergency response to air and tanker accidents is a potential need, due to the location of the township.

5.2.36 City of Taylor

Tornadoes, thunderstorms accompanied by high winds, and other severe weather including extreme temperatures in summer and winter, continue to be a chief concern to officials in the City of Taylor. Many of these storms result in trees or branches falling on power lines or blocking city roads. Resulting power failures adversely affect the community. At greatest risk from these power outages is the senior population including the residents of the senior communities located in Taylor.

Similarly, city officials noted that the potential of accidents resulting in hazardous material spills remain a high priority for the 2019 HMP update. I-75, I-94, and Telegraph Road are heavily traveled routes with a high frequency of traffic accidents. The potential for a hazardous material emergency also exists on one of the railways, at fuel

storage facilities and pipelines, and at the many industrial facilities that are located in Taylor.

Because of the close proximity to Detroit Metropolitan Wayne County Airport, there exists the threat of an airplane crash in the community. The ability to properly respond to these emergencies, especially in conjunction with neighboring communities, is of concern to city officials.

5.2.37 City of Trenton

Tornadoes and winter weather hazards, especially those resulting in prolonged power outages and flooding, were mentioned as a concern of the City of Trenton. There is a history of flooding in Trenton, particularly along the Frank and Poet Drain in the area surrounding Fort Street (M-85) south of Van Horn. A particular concern expressed by a representative of the City of Trenton is the potential failure of the Trenton Waste Water Treatment Facility and resulting basement flooding. This hazard also presents a significant health threat to the citizens.

Also discussed was the potential for a hazardous material emergency as a result of a train derailment within the City. The most vulnerable area is along West Jefferson and Van Horn.

5.2.38 Van Buren Township

Tornados, winter weather hazards, thunderstorms and accompanying high winds and ice storms that result in power outages and property loss are of the greatest concern to Township officials. The presence of dead trees around electrical lines was cited as a potential contributor to this hazard. The capacity to support displaced residents was also listed as a concern.

The presence of I-94 and associated service drives in Van Buren Township create the potential for a major highway accident to interfere with local emergency response and regular traffic circulation. Under these circumstances, the need for public safety officers to direct traffic instead of addressing other safety needs is a burden for the local community. I-275, two railroads, and a cargo-based airport additionally contribute to the risk of hazardous materials incidents.

5.2.39 City of Wayne

Severe weather in both summer and winter, and associated power outages, have been the major natural hazard concern in the City of Wayne. The contribution of dead tree branches around power lines, and aging infrastructure, were noted as sources of this problem.

The age of urban infrastructure and associated hazards from gas mains and structural fires were cited as the greatest technological hazards. The presence of two railroads in

the City were also mentioned as having the potential for derailments, at-grade automobile crossing accidents, and hazardous materials emergencies.

5.2.40 City of Westland

Ice storm effects on city roads, along with any other storm generating high winds and resulting power outages were discussed by officials of the City of Westland. Ford Road in the area of I-275 is an area of numerous vehicular accidents as a result of ice on the road.

Because of the potential of hazardous material accidents in Westland and in surrounding communities along highways and railroad corridors, there exists a need to improve emergency communication between the public safety departments of those communities. It was also mentioned that there is a need for additional hazmat equipment to be distributed to all municipal employees of the City of Westland.

5.2.41 City of Woodhaven

Severe storms pose a significant threat to the city. According to officials, the residents of the mobile home community located south of Van Horn and east of Peters are at greatest risk from a tornado. Snow and ice storms resulting in traffic accidents, especially on I-75, were also discussed.

Due to the large amount of industry in the City of Woodhaven, city representatives expressed concern regarding the potential for hazmat emergencies within the community. Accidents on streets and highways, at the train tracks or rail yards, at manufacturing or other industrial facilities, or involving gas tank farms and pipelines, were included as being vulnerable locations for these emergencies. The need was discussed for a well-organized evacuation plan to be implemented if a hazmat or other emergency requires the relocation of citizens.

The likelihood of a pandemic resulting from the avian influenza (bird flu) and particularly, the avian Influenza A (H5N1) virus was of concern to representatives of the City of Woodhaven. Not having the necessary vaccine to immunize the population was discussed. The senior citizen population was determined to be at the greatest risk for this health hazard.

5.2.42 City of Wyandotte

Severe storms and associated power outages and flooding are a source of concern in the City of Wyandotte. In addition, the City has a history of flooding due to sewer failures. As a result of exceeding capacity at the Wayne County Wastewater Treatment Facility, sewers have backed up and flooded numerous homes in Wyandotte. The area of highest frequency of flooding occurs in the southern portion of the city in the area between Pennsylvania and Eureka Roads, west of Biddle. Officials discussed the potential health risk to citizens as a result of sewage backing up into their homes.

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Due to the large amount of industry in the City of Wyandotte, the potential for a hazmat emergency exists. Representatives discussed vulnerable locations including: railroads, chemical and other manufacturing plants, the Municipal Water and Power Plant, the Wayne County Wastewater Treatment Facility, and at high pressure pipelines. Officials expressed the need for additional public safety personnel, hazmat training and hazmat emergency equipment, to better prepare for these potential disasters.

Criminal activity has become an increasing concern due to changes in the economy and police staffing levels. School security has also become a concern.

5.3 Hazard Evaluation

Based on survey results, community input, and the results of the workshop evaluations, the top hazards to evaluate during mitigation planning were identified. In selecting the top hazards, special consideration was given to those hazards that are being evaluated and mitigated by other programs.

Specifically, terrorism and weapons of mass destruction are being evaluated under the Homeland Security Program. Due to security considerations, information from that program was not available for consideration in this Plan. Therefore these two hazards were not considered when selecting and prioritizing hazard mitigation alternatives. Hazards from nuclear power plant accidents have also been evaluated under other county planning initiatives, and due to security considerations, are not considered in this Plan.

5.3.1 Hazard Selection

The hazards selected for developing mitigation strategies combined the top hazards identified in the survey, the top hazards identified by the communities, and the hazard ranking conducted during the workshop. Hazard selection evaluated both potential impact and risk. The process was described previously in the discussion of the Risk Analysis Workshop.

The impact rank and risk rank for each hazard were used to identify the most critical hazards for the county. Hazards with an assessment ranking of 1 were of the greatest concern, followed by others in the top seven hazards listed below.

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan Needed |
|---|---------------|------------------|--------------------|
| Extreme Temperatures - Extreme Hot or Cold | 5 | 6 | 3 |
| Flooding - Riverine or Shoreline | 4 | 10 | 3 |
| Winter Hazards - Snow, Ice & Sleet | 8 | 2 | 2 |
| Hazmat Incidents - Transportation | 5 | 8 | 3 |
| Infrastructure Failure - Water & Sewer Systems | 1 | 5 | 1 |
| Criminal Acts - Mass Shootings/Active Assailant(s) | 3 | 2 | 1 |
| Criminal Acts - Vandalism and Arson | 12 | 1 | 2 |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water, Quid Crisis | 2 | 4 | 1 |

5.4 Vulnerability Assessment

5.4.1 Current Assessment

Civil Disturbance

A civil disturbance in Michigan occurs once every 8 to 10 years.²⁸⁹ The most likely causes for a civil disturbance in the county are a labor dispute, sporting event, or demonstration at a college, government facility, detention facility, or military facility.

Wayne County features numerous places of public gathering including major entertainment venues, festivals, national events, major league athletic facilities, places of potential political protest, and governmental facilities but most of these are located within the City of Detroit, which is not part of this Plan. The most vulnerable locations/events include the following:

- Court Houses and Federal Buildings
- Detention Facilities
- Little Caesar's Arena
- Ford Field
- Comerica Park
- Hart Plaza
- Wayne State University

Police stations are critical assets in the event of a civil disturbance event. Figure 12 displays the locations/events listed, those locations specifically listed as concerns by communities, and the locations of police stations in the county.

Criminal Acts - Vandalism

The 2017 Michigan State Police Michigan Incident Crime Reporting (MICR) online database indicates that there were a total of 68,184 "damage against property" incidents reported in Wayne County from 2013 through 2017, resulting in an average of 13,637 vandalism offenses per year.²⁹¹ The entire county area is susceptible to vandalism. Facilities that have the highest vulnerability to an act of vandalism are government facilities, educational institutions, and registered historic sites. Police stations are critical assets for responding to acts of vandalism.

Criminal Acts – Arson

In 2003, an arson or suspicious fire occurred every 62 minutes in Michigan.²⁹² Since 2013, Wayne County has experienced 4,081 arson fires, an average of 816 per year.²⁹³

²⁸⁹ Listing of US Civil Unrest Incidents, Armstrong Economics: www.armstrongeconomics.com/statistics/listing-of-us-civil-unrest-incident

²⁹¹ Michigan State Police, Michigan Incident Crime Reporting, Crime Statistics, Wayne County, 2013, 2014, 2015, 2016, and 2017. <http://www.micrstats.state.mi.us/MICR/Reports/Report02.aspx>

²⁹² Michigan State Police, Fire Marshall Division, *2003 Michigan Fire Clock*

²⁹³ Michigan State Police, Michigan Incident Crime Reporting, Crime Statistics, Wayne County, 2013, 2014, 2015, 2016, and 2017. <http://www.micrstats.state.mi.us/MICR/Reports/Report02.aspx>

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This is notably less than the 6,565 total and 1,094 average arson fires per year reported in Wayne County's 2013 Hazard Mitigation Plan.

Any property is a potential target for arson. However, residential areas and historic sites are most vulnerable to acts of arson. Fire departments are critical assets for responding to acts of arson. Thirty-five fire departments respond to structural fires within the Wayne County communities covered in this plan. Residential land use, indicating the highest concentrations of structures, is shown on Figure 17.

Drought

At least four drought events have been recorded for Wayne County since 2000 and climate patterns continue to trend to drier, hotter summers.²⁹⁵ All of the county's active agricultural lands are vulnerable to drought. Wayne County contains approximately 13,060 acres of agricultural land.

| Top 5 Community Land Use in Wayne County- Drought Vulnerabilities Active Agriculture and Cropland | | |
|--|---------------------|-----------------|
| Community | Agriculture (acres) | Agriculture (%) |
| Sumpter Township | 4,051 | 16.8 |
| Huron Township | 3,251 | 14.2 |
| Van Buren Twp. | 2,977 | 12.9 |
| Canton Township | 1,069 | 4.6 |
| Romulus | 955 | 4.2 |

Source: SEMCOG, 2008 Land Use and 2010 Leaf-off Land Cover: Wayne County, Excluding Detroit. May 2019.

Figure 13, shows the location of active agricultural lands in Wayne County. The most vulnerable agricultural resource is cropland. Sumpter Township, Huron Township, and Van Buren Township are the top three communities for total active agriculture and cropland acreage.²⁹⁷

Natural resources such as lakes, rivers, streams, and other bodies of water could be affected by decreases in water levels. Water features are also shown on Figure 13. Van Buren Township, Canton Township, and Northville Township contain the most water (by surface acreage) in the county.²⁹⁸

| Top 5 Community Land Use in Wayne County – Forest/Field Fire Vulnerabilities Forest Land | |
|---|-------|
| Community | Acres |
| Grosse Ile Township | 1,272 |
| Northville Township | 1,130 |
| Livonia | 866 |
| Plymouth Township | 806 |
| Van Buren Twp. | 719 |

| Grassland/Shrubland | |
|----------------------------|-------|
| Community | Acres |
| Sumpter Township | 3,288 |
| Huron Township | 2,901 |
| Canton Township | 2,789 |
| Romulus | 2,744 |
| Van Buren Township | 2,466 |

Source: SEMCOG, 2008 Land Use and 2010 Leaf-off Land Cover: Wayne County, Excluding Detroit. May 2019.

²⁹⁵ NOAA National Centers for Environmental Information Storm Events database query

<https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=26%2CMICHIGAN>, May 14, 2019

²⁹⁷ SEMCOG, 2008 *Land Use and 2010 Leaf-off Land Cover*: Wayne County, Excluding Detroit, May 2019.

²⁹⁸ SEMCOG, *Land Use in Southeast Michigan, 1990-2000*, Specific to Wayne County, Excluding Detroit, April 2004.

Figure 12: Vulnerability Assessment: Civil Disturbances

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Earthquakes

Most earthquakes in Michigan are minor tremors that result in little damage. Several mildly damaging earthquakes have been felt since the early 1800s. The most vulnerable assets to earthquakes are the county’s water, sewer, and natural gas services, and natural gas/petroleum pipelines. The entire county has gas service available either through Consumers Energy or DTE Energy. Municipal and county operated water, storm water, and sanitary sewers are also vulnerable. Existing and planned sewers within Wayne County and pipeline locations are shown in Figures 20 and 22, respectively.

Extreme Temperatures

Extreme temperature periods occur every year in the state and impact the entire county. Underground utilities, primarily water and gas service areas, are vulnerable to extreme cold. These vulnerable areas are shown in Figure 14. The entire county has natural gas services available through Consumers Energy or DTE Energy. Trenton, River Rouge, and Romulus have the highest utility land use acreage in the county, excluding Detroit.³⁰¹

**Top 5 Community Land Use in Wayne County,
Excluding Detroit – Extreme Temperature
Vulnerabilities
Utilities**

| Community | Acres |
|------------------|-------|
| Trenton | 150 |
| River Rouge | 110 |
| Romulus | 66 |
| Dearborn Heights | 63 |
| Westland | 57 |

Source: SEMCOG, Land Use in Southeast Michigan, 1990-2000, Specific to Wayne County, Excluding Detroit, April 2004.

Also vulnerable to extreme temperatures are the elderly, young, disabled, and impoverished persons. Hospitals are vulnerable due to increased cases of heat stroke, heat exhaustion, frost bite, hypothermia, and other temperature-related illnesses. Almost 21% of the Wayne County population is vulnerable to extreme temperature based on age alone.³⁰² There are 44 nursing homes in Wayne County. Figure 20 displays the locations of sewer service areas and hospitals in the county.

Forest/Field Fire

A total of 1,669 forest/field fires occurred between 1998 and 2004 in Wayne County.³⁰³ Woodlands, wetlands, grassland, shrub land, and areas near railroad right-of-ways are vulnerable to forest/field fires. Wayne County contains approximately 6,904 acres of forest land.³⁰⁴ Grosse Ile Township, Northville Township, and Livonia have the highest acreage of forest in the county. Wayne County contains approximately 27,336 acres of grassland and shrub land.³⁰⁵ Sumpter Township, Huron Township, and Canton Township have the highest total acreage in the county of grassland and shrub land.

³⁰¹ SEMCOG, *Land Use in Southeast Michigan, 1990-2000*, Specific to Wayne County, Excluding Detroit, April 2004.

³⁰² U.S. Census Bureau, *Profile of General Demographic Characteristics: 2000*, Wayne County, Michigan

³⁰³ Federal Emergency Management Association Website, www.nfirs.fema.gov, NFIRS 5.0 National Reporting, October 3, 2005, Filtered for Wayne County Reporting Only.

³⁰⁴ SEMCOG, *Land Use in Southeast Michigan, 1990-2000*, Specific to Wayne County, Excluding Detroit April 2004.

³⁰⁵ SEMCOG, *Land Use in Southeast Michigan, 1990-2000*, Specific to Wayne County, Excluding Detroit April 2004.

Figure 13: Vulnerability Assessment: Drought

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Figure 14: Vulnerability Assessment: Extreme Temperatures

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The 35 fire departments in the participating Wayne County communities are critical assets for responding to forest/field fires. Figure 15 presents the coverage of forest woodland, grassland, and shrub land, railroads (along which fires often occur), and the location of fire department headquarters in the county.

Scrap Tire Fire

Within Wayne County, there are 13 registered scrap tire facilities and approximately 107 unregistered facilities.³¹⁰ The Michigan Department of Environmental Quality's Scrap Tire Program has identified many unregistered scrap tire facilities which are in need of remediation. A third of the unregistered sites are very small, typically storing fewer than 500 tires, the majority listed store between 500 and 2,000 tires on site, and the largest site held over 53,000 when last surveyed.³¹¹

Due to the toxic smoke produced by tire fires and potential environmental impact, residents living near these facilities are considered vulnerable. Figure 16 shows the location of the registered scrap tire facilities with a 1-mile radius of census block groups. Unregistered scrap tire locations store fewer tires than registered facilities. Therefore, areas adjacent to unregistered sites are considered less vulnerable than areas near registered facilities. There are approximately 11,548 people within a one-mile radius of registered tire facilities in Wayne County. Also shown on Figure 16 are the locations of fire stations and air transportation facilities in the county. Air transportation facilities are considered vulnerable as the smoke produced by a fire may interrupt flight patterns.

Structural Fire

Structural hazards are commonly known as the "universal hazard" because they can occur anywhere. From 1998 through 2004, 8,674 structural fires in Wayne County were reported to the Federal Emergency Management Agency, National Fire Incident Reporting System.³¹² This equals an average of roughly 1,240 structural fires per year in Wayne County.

The 35 participating community fire departments are critical assets for responding to structural fires. Figure 17 shows the areas of multiple-family residential, industrial, and commercial development that may be susceptible to structural fires.

Flooding

Wayne County has had 2 documented dam failures.³¹³ Urban flooding and riverine flooding are dependent on seasonal weather patterns and seven flood and flash flood events have been recorded since 2013.

³¹⁰ Michigan Department of Environmental Quality, Southeast Michigan District, Scrap Tire Program, Tire Site Database.

³¹¹ Ibid.

³¹² NFIRS 5.0 National Reporting, Tally by Incident Type, January 1, 1998 through December 31, 2004, report generated on October 3, 2005, filtered for Wayne County reporting only.

³¹³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 76.

Figure 15: Vulnerability Assessment: Forest/Field Fire

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Figure 16: Vulnerability Assessment: Scrap Tire Fire

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Areas vulnerable to flooding are those locations and populations within floodplains and flood prone areas. Vulnerabilities include Infrastructure (bridges and structures) and populated areas. Approximately 9,509 structures are located within the FEMA 100-year floodplain in Wayne County. Figure 5 shows the location of dams in the county and floodplains. Figure 18 also shows floodplains and specific areas in the county which have a high occurrence of flooding.

Hazmat Incidents – Fixed Site

The majority of hazmat material releases in Wayne County are releases to water, followed by those to land and air.³¹⁶ Vulnerable locations are Sara Title III sites (sites that store hazardous substances) in the county and those areas within a one-mile radius of these sites. There are 153 Sara Title III sites in Wayne County, with 113 of those within the City of Detroit.³¹⁷

Between 1990 and October 2005, Ecorse, Detroit, River Rouge, Taylor and Trenton had the highest number of releases from fixed site hazmat locations.³¹⁸ Police and fire stations are critical assets for responding to hazmat fixed site releases. Areas with greater population are more at risk for secondary health-related incidents resulting from a fixed site hazmat release.

Hazmat Incidents – Transportation Incident

From 1990 to April 1, 2013, there were a total of 664 transportation related hazmat incidents, 420 occurring on highways and 244 in Wayne County railroads.³¹⁹ This equals an average of approximately 29 incidents each year in the county. Between 1999 and October 2005, the highest number of releases from transportation related hazmat incidents involved the release of oil.³²⁰ Vulnerable locations to a transportation hazmat incident are the areas within a one-mile radius of the railroads and major roadways, particularly I-75, I-696, I-96, I-94 and I-275. Areas of greater population are more vulnerable to these incidents. Police and fire stations are critical assets for responding to hazmat fixed site releases, providing evacuation and cleanup assistance. The locations of the railroads, major highways, and police and fire station locations are included on Figure 19.

³¹⁶ U.S. Coast Guard National Response Center Website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Fixed Incidents, October 2005.

³¹⁷ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, April 2012, page 234.

³¹⁸ U.S. Coast Guard National Response Center Website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Fixed Incidents, October 2005.

³¹⁹ U.S. Coast Guard National Response Center Website, www.nrc.uscg.mil/foia.html, Standard Query Report for Wayne County, Transportation, April 2013.

³²⁰ Ibid

Figure 17: Vulnerability Assessment: Structural Fire

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Figure 18: Vulnerability Assessment: Flooding

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Infrastructure Failures – Water System, Sanitary & Storm Sewers, Electrical, Communications

The Wayne County Department of Public Works along with the Detroit Water and Sewer Department operate and maintain county storm drains throughout the county (Figure 20) as well as other water, wastewater, and storm sewer infrastructure. Minor problems with the sanitary and storm sewers are common with major rain or snowmelt events. Interruptions in the water system are localized and intermittent, and typically only follow power outages and extreme temperatures. The primary consequence of this hazard is potential public health impacts. As a result, schools, hospitals and elderly care facilities have been identified as the most vulnerable. The downriver communities have been identified as having the greatest occurrence of problems with infrastructure failures involving the sanitary sewer system. Therefore, schools, hospitals, and elderly care facilities in these communities are at increased vulnerability.

Electrical service is provided to Wayne County residents by Consumers Energy and DTE Energy (Figure 21). Private communication services are provided by a number of companies with AT&T serving the most customers. Wayne County also operates a 911 Call Center and public safety radios. Failures of the electrical and communications systems are more likely to occur during severe storms. Populations in schools, hospitals and elderly care facilities have been identified as being at increased vulnerability to this hazard.

Wayne County and its local units of government participate in the State 800 MHz emergency communication system that provides communication services between various response facilities and groups during an emergency situation, and which can also aid in the distribution of information to the public.

Nuclear Power Plant Accidents

There are three nuclear power plants in Michigan. The closest active plant, Enrico Fermi-2 was opened in Monroe County in 1998. A portion of Brownstown Township, and the Cities of Flat Rock, Gibraltar, and Rockwood are within Protection Action Order Areas 4 of the Enrico Fermi-2 Nuclear Power Plant (Figure 6). The primary vulnerability to a nuclear power plant incident is radiological contamination of food sources. Agricultural lands, restaurants, and grocery stores are most vulnerable.

Oil and Gas Well Accidents / Petroleum and Natural Gas Pipeline Accidents

There have been no oil or gas well related incidents in Wayne County in the past 5 years.³²⁴ Although there have never been any significant incidents in Wayne County, the presence of active and producing wells within the county makes it possible for this hazard to occur. Between 1973 and 2001, there was an oil or gas well incident in Michigan every 3-4 years.³²⁵

³²⁴ Michigan Department of Environmental Quality, Southeast Michigan District, Geological and Land Management Division, staff telephone interview July 7, 2004.

³²⁵ Source: Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 9.

Figure 19 Hazmat Incidents - Transportation

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Figure 20: Vulnerability Assessment: Infrastructure Failures – Water System/Sanitary Sewer

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Figure 21: Vulnerability Assessment: Infrastructure Failures –
Electrical/Communications

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Pipelines can pose a significant threat to the public due to the threat of fires, explosions, and ruptures. Most vulnerable are heavily populated residential areas, schools, churches, and hospitals. Local fire and police departments would respond to a pipeline incident. Gas leaks are a frequent call for service for Emergency Response Teams. Populations located within a 1-mile radius of a well or pipeline are most vulnerable and urbanized areas are more vulnerable than rural areas, based solely on population densities. The locations of natural gas distribution pipelines, natural gas transmission lines, petroleum gas pipelines, oil/gas bottom wells, and oil/gas surface wells are shown in Figure 22. There are approximately 120 miles of natural gas distribution pipelines, 363 miles of natural gas transmission lines, and 107 miles of petroleum gas pipelines in Wayne County. Census block groups within a 1-mile radius of the pipelines and wells are included on Figure 22. Approximately 1,028,514 people are located within the census blocks identified. Figure 22 also presents the locations of schools, hospitals, police stations, and fire stations in the county.

Public Health Emergencies

Public Health Emergencies can arise from a wide range of causes and can result in varying levels of severity. Persons most susceptible are those with weakened or undeveloped immune systems. Therefore, adult care and day care facilities and schools are the most vulnerable. The locations of public safety facilities, adult care facilities, day care facilities, and schools are shown in Figure 23.

Vulnerable assets involved with public health emergencies are medical service facilities and include the county's health departments, clinics, and hospitals. The Wayne County Division of Health operates two locations within the county. The county's health departments and hospitals are also shown in Figure 23.

Subsidence

The most likely occurrence of subsidence in the county would be due to sink holes caused by water main and storm water utility breaks. The probability of this occurrence increases as infrastructure ages. Figure 20 presents Wayne County sewer services areas.

Thunderstorm Hazards and Tornadoes

Wayne County receives 40-60 thunderstorm days per year.³²⁸ Vulnerable and critical assets associated with thunderstorms (hail, lightning, and severe wind) and tornadoes are the warning siren systems, communications/ electrical infrastructure, police and fire facilities, and manufactured home sites. Private urban tree removal services and municipal forestry departments are also critical to responding to wind hazards.

³²⁸ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, December 2001, page 184.

Figure 22: Vulnerability Assessment: Oil & Gas Well Accidents/ Petroleum & Natural Gas Pipeline Accidents

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Figure 23: Vulnerability Assessment: Public Health Emergencies

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Figure 24: Vulnerability Assessment: Thunderstorm Hazards/Tornadoes

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Wayne County, excluding Detroit, has approximately 188 acres and 916 acres devoted to land uses associated with communication and utilities, respectively. There are also over 2,240 acres of manufactured home parks in the county. Canton Township, Van Buren Township, and Sumpter Township are most vulnerable to communication, utility, and electrical transmission line failure based on total acreage, respectively. Van Buren Township has the highest acreage for manufactured home park land use. Mobile home communities (for applicable communities only) are shown on Figure 24, which also includes the locations of the county's warning sirens and fire department headquarters (within participating communities).

Communication and electrical companies within the county include DTE Energy, Consumers Energy, Verizon, AT&T, Charter Communications, Comcast, local television networks, local radio networks, communication towers, local emergency services, and cell phone service providers.

Transportation Accidents – Air, Highway, and Rail

There are five airports within Wayne County. Between 1990 and 2005, there were 28 air transportation incidents in Wayne County, nearly two incidents per year.³³⁰ From 1987 to present (2019) five accidents occurred at or in the vicinity of the Detroit Metropolitan Wayne County Airport. The majority of transportation accidents occur during takeoff or landing, and therefore, impacted areas are typically those area located near the airports or runways. The locations of the airports within the county are provided on Figure 25, along with census blocks within a five-mile radius of the airports. There are over 300,000 people located within five miles of at least one airport in the county.

| Top 5 Community Land Use In Tornado Vulnerabilities | |
|--|-------|
| Communications | |
| Community | Acres |
| Riverview | 40 |
| Romulus | 31.5 |
| Taylor | 29 |
| Gibraltar | 29 |
| Lincoln Park | 21 |
| Electrical Transmission Lines | |
| Community | Acres |
| Canton Township | 243 |
| Sumpter Township | 210 |
| Van Buren Township | 191 |
| Huron Township | 95 |
| Trenton | 85 |
| Manufactured Home Park | |
| Community | Acres |
| Van Buren Township | 297 |
| Canton Township | 293 |
| Huron Township | 253 |
| Sumpter Township | 251 |
| Romulus | 159 |

Source: SEMCOG, Land Use in Southeast Michigan, 1990-2000, Specific to Wayne County, Excluding Detroit, April 2004

³³⁰ National Transportation Safety Board, www.nts.gov, Aviation Database Query, Wayne County, Michigan, report generated September 19, 2005.

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Automobile accidents occur several times daily in the county and can occur anywhere in the county. Wayne County averaged 54,042 traffic accidents in 2016-2017; of these an average of 164 each year involved fatalities.³³¹ The impact to the public from private automobile accidents is primarily limited to the individuals and families of those involved in the accident. However, the secondary impacts, whether permanent or transient, to traffic systems and roadway structures can affect a much greater number of people.

On average there are 13 recorded railroad accidents each year in Wayne County.³³² The majority of these recorded incidents involve minor derailments, most often on private property, and resulting in only mechanical damage to the train or its cars. Two accidents involved collisions between trains and passenger vehicles at level grade crossings. Areas adjacent to railroads are most vulnerable to a railroad accident. The locations of railroads, police stations, fire stations, and critical vulnerable assets in the county are included in Figure 25.

Winter Hazards

Michigan averages one major snow or winter storms every other year and one major ice and sleet storm event annually.³³³ Communications and utilities are vulnerable to winter hazard events and would include such companies as DTE Energy, Consumers Energy, AT&T, Charter Communications, Comcast, local television networks, local radio networks, and communication towers – local emergency services and cell phone service providers.) Bridges and major roadways are vulnerable in that most incidents related to winter hazards are secondary effects such as auto accidents. Public facilities such as road yards (road commission and MDOT) are vulnerable assets in snow removal and road salt services.

| Top 5 Community Land Use In Wayne County, Excluding Detroit – Winter Hazard Vulnerabilities | |
|---|-------|
| Communications | |
| Community | Acres |
| Riverview | 40 |
| Romulus | 31.5 |
| Taylor | 29 |
| Gibraltar | 29 |
| Lincoln Park | 21 |
| Electrical Transmission Lines | |
| Community | Acres |
| Canton Township | 243 |
| Sumpter Township | 210 |
| Van Buren Township | 191 |
| Huron Township | 95 |
| Trenton | 85 |
| Utilities | |
| Community | Acres |
| Trenton | 150 |
| River Rouge | 110 |
| Romulus | 66 |
| Dearborn Heights | 63 |
| Westland | 57 |
| <i>Source: SEMCOG, Land Use in Southeast Michigan, 1990-2000, Specific to Wayne County, Excluding Detroit, April 2004</i> | |

³³¹ MLive Public Records Search, May 1, 2019.

³³² Federal Railroad Administration, <http://safetydata.fra.dot.gov>, all reports for all railroads in Wayne County, 1999 through December 2005, reports generated on December 13, 2005.

³³³ Michigan Department of State Police, Emergency Management Division, *Michigan Hazard Analysis*, April 2012.

Figure 25: Vulnerability Assessment: Transportation Accidents – Air, Highway, and Rail

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During major events, schools are likely to close and hospitals are likely to see an increase in patients with ailments such as heart attacks from overexertion and auto accident injuries. Police and fire stations are vulnerable to emergency response activities related to winter hazard incidents. Private or governmental tree removal services are also vulnerable to winter hazards. The locations of major highways, schools, hospitals, and fire department headquarters, are included on Figure 26, along with utility land use locations.

5.4.2 Future Assessment

The majority of this Hazard Mitigation Plan focuses upon current hazards, and the locations and populations within Wayne County vulnerable to those hazards. Anticipated changes in population and land use within the county, however, allow some prediction of how these hazards and vulnerabilities may also change over time. Review of growth trends and predictions for Wayne County and southeast Michigan identify the following four hazard categories as particular concerns to be considered by Wayne County officials. These are discussed in order of the hazard and risk rankings determined by the Advisory Committee.

Extreme Temperatures

The population of Wayne County and much of southeast Michigan is aging. Between 2015 and 2045, the percentage change in people 65 to 84 years of age and those older than 84 are estimated at 37.9 and 65.4 percent, respectively, whereas most younger cohorts are expected to shrink. Over 231,245 people, will be of retirement age; an increase of 55% since the 2010 census.³³⁴ Wayne County will need to prepare for the needs of a substantially older population.

Among the hazards considered in this planning process, extreme temperatures may be the one that has the greatest implications for the elderly. Specific vulnerabilities include heating and cooling shelters where older individuals without access to air conditioning or sufficient heating may be brought for care. The County's aging population may have additional planning implications for emergency response agencies in cases of structural fires and other hazards requiring evacuation.

Infrastructure Failure

Although the Michigan legislature authorized new investment in our roads and bridges in 2015, the funds allocated are insufficient to fully address the needs within the system. Approximately 1,234 (11%) of the state's 11,156 bridges are deemed structurally deficient and the number of state maintained bridges in poor condition is expected to

³³⁴ SEMCOG, *2045 Regional Development Forecast (RDF) Forecasted Population Change*, May 2019, <https://semcog.org/community-profiles#People>

Figure 26: Vulnerability Assessment: Winter Hazards

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increase by 50% between 2016 and 2033.³³⁶ A 2016 assessment of our roads indicates that 39% of Michigan's 120,000 miles of paved roadways are in poor condition. Transportation funds for road and bridge maintenance and improvements, and for maintaining existing transit services, are expected to fall \$17 billion short of projected needs over the next 30 years.³³⁷ Monies available for maintaining and improving sewers are, likewise, expected to fall \$14 to \$26 billion short of infrastructure needs.³³⁸ Wayne County communities may be especially hard hit by this lack of public funding as decreasing population and the loss of jobs within portions of Wayne County will result in few tax dollars with which to fund improvements.³³⁹ Many of the same communities exhibiting these demographic trends of decreasing population and a loss of local jobs are the same as those that have some of the oldest existing infrastructure.

Transportation Accidents and Transportation Related Hazmat Incidents

Road congestion and traffic accidents are, and will continue to be, a particular concern in Wayne County. Within southeast Michigan, Wayne County is second only to Oakland County in the number and percentage of congested road miles. The Southeast Michigan Council of Governments (SEMCOG) has determined that 184.8 miles of road in Wayne County are congested. That equals 9% of the County's roadways, but over ¼ (26%) of the congested roads in the region.³⁴³ There are more commuters driving Wayne County roads than in any of the other counties in southeast Michigan, with over 1 million people commuting within, into, or out of the County to get to work each day. Additionally, the Detroit-Windsor border crossing is the busiest truck crossing of either the Canadian or Mexican-U.S. borders.

As a result of the number of congested road miles and the number of vehicles, Wayne County has more traffic accidents than any other in southeast Michigan. Over forty-one percent (41%) of the crashes in southeast Michigan, and forty-four percent (44%) of the fatal crashes, occur in Wayne County.³⁴⁴ These statistics have implications for both the number of transportation accidents and the number of transportation related hazmat incidents in the County. Likewise, future trends (e.g., an aging population, population shifts to outlying communities/areas, continued growth in truck traffic across the Detroit-Windsor border, etc.) for the County may have implications for the potential future increased risk for these hazards.

As mentioned previously, by the year 2030 more than twenty percent (20%) of the population in the cities of Northville, Plymouth, Livonia, Redford, Westland, Garden City, Dearborn, Wayne, Taylor, Allen Park, Melvindale, Lincoln Park, Ecorse, Southgate,

³³⁶ American Society of Civil Engineers (ASCE), Michigan Section. 2018 Report Card for Michigan's Infrastructure. infrastructurereportcard.org/michigan.

³³⁷ SEMCOG, *Land use Change in Southeast Michigan: Causes and Consequences*, March 2003, <http://www.semco.org/products/pdfs/LandUseChange.pdf>

³³⁸ Ibid

³³⁹ SEMCOG, 2020 Regional Development Forecast: Population, Households and Employment for Cities, Villages, Townships and Detroit Subcommunities, April 1996, <http://www.semco.org/products/pdfs/rdf2020.pdf>

³⁴³ SEMCOG, *Commuting in Southeast Michigan, 2000*, June 2003, <http://www.semco.org/products/pdfs/CommutingSEMI.pdf>

³⁴⁴ SEMCOG, *Traffic Crash Profiles for Southeast Michigan and Wayne County, 2004*. http://www.semco.org/website/transdata/reports/crash_profile.cfm

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Riverview, Trenton, Flat Rock, Rockwood, Highland Park, Harper Woods, Grosse Pointe Woods, Grosse Pointe Shores, Grosse Pointe Shores, Grosse Pointe, and Gross Pointe Park, and Plymouth Township will be over the age of 65.³⁴⁵ Elderly drivers have the lowest crash rate per licensed driver. However, when comparing rates per mile driven, elderly drivers are approximately twice as likely to be involved in a crash and, due to increased fatality, about three times as likely to experience a fatal crash as non-elderly drivers.³⁴⁶

The amount of traffic experiencing congested conditions in southeast Michigan is expected to increase from twenty-three (23) percent, in 2000, to thirty-three (33) percent by the year 2025. Over the same time period truck traffic across the Detroit-Windsor border is estimated to increase by 158%.

The confluence of increasing road congestion, an aging population, and increased truck traffic presumably exacerbates the potential for transportation accidents, including accidents involving the transport of hazardous materials. As County officials review and plan improvements for those areas currently identified as problem intersections and roads, hazard mitigation should be included in the planning process.

Flooding – Urban/Riverine

Although many communities in Wayne County are older and more densely developed than other areas of southeast Michigan, and despite the fact that Detroit and inner core communities are experiencing reductions in population, households, and jobs, Wayne County saw a net increase of 13,400 acres of developed land between 1990 and the year 2000.³⁴⁷ During the same period, Wayne County lost forty-three percent (43%) of its remaining farm land.

Housing development trends for most of the region show a shift toward less dense development patterns. New subdivisions in St. Clair County, for example, use more than two acres of land, on average, for a single new housing unit. SEMCOG reports that the region as a whole grew by five (5) percent from 1990 to 2000. During the same period, developed land in southeast Michigan increased by seventeen (17) percent. SEMCOG's data shows that land in much of the region is being developed at a rate greater than three times that of population growth.³⁴⁸

New housing in Wayne County, by contrast, continues to maintain higher densities of three housing units to the acre on average. Continued higher density development within Wayne County, more sprawling development and higher population growth in neighboring, upstream communities, and the loss of agricultural land and other open space have the potential to increase and exacerbate flooding within Wayne County. SEMCOG predicts that the area covered by impervious surfaces (i.e. roads, parking lots,

³⁴⁵ SEMCOG, *2030 Regional Development Forecast (RDF) Population by Age by Community*, September 2002, <http://www.semco.org/products/pdfs/2030RDFAgeByCommunity.pdf>

³⁴⁶ ACTS Older Driver Toolkit. <http://townsafety.com/ACTSweb/ODT/Overview.htm>

³⁴⁷ SEMCOG, *Land use Change in Southeast Michigan: Causes and Consequences*, March 2003, <http://www.semco.org/products/pdfs/LandUseChange.pdf>

³⁴⁸ Ibid

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driveways, and rooftops) in the region will increase from fourteen (14) percent (2000) to twenty-four (24) percent in the future as communities build-out according to existing master plans. Exacerbating this increase in imperviousness is the corresponding loss of the existing “natural infrastructure” of woodlands and wetlands, farmland, and other open space, which serve to intercept, store, and return storm water to the atmosphere. Studies compiled from across the country demonstrate that increased imperviousness results in imbalances in hydrology and degradation of water quality and stream integrity.³⁴⁹

In an undeveloped landscape, most of the water falling as rain or snow is intercepted by the forest canopy, or other vegetation. This water is returned to the atmosphere through the processes of evaporation and transpiration without ever reaching the ground surface. Water that does reach the ground is able to percolate through the soil surface. Some of this water is utilized by plants and some continues to flow downward through the soil until it reaches the water table and recharges local groundwater supplies.

As the landscape is developed, the protective layer of trees, shrubs, and grasses are stripped away and replaced by hardened surfaces. When it rains, much more water reaches the ground surface than previously and this water is then unable to infiltrate through the soil surface. Instead it runs off of roofs and roads, often carried more quickly through piped drainage systems, to local stream, rivers, and lakes. The result is an expected increase in both the frequency and the magnitude of area flooding.

Studies show that the magnitude of peak-stream flow increases by a factor of two (2) to three (3) with low-level suburban development (10-20% impervious area). In highly urbanized areas, not only are the major peak flows amplified, but smaller storms, which previously produced no runoff under pre-development conditions, also generate substantial stream flows. Under these conditions, moderate to large storms result in storm discharge lasting 30 to 100 times longer than under pre-development conditions.³⁵⁰ Hydrologic modeling of these changes also shows that the frequency of flood producing storms increases, with the five-year (20% probability of occurring in any one year) flood peak increasing in frequency from nine- (9) to twenty-nine (29)- fold, so that the “five-year” storm becomes much more commonplace, occurring from 2 to 6 times per year.³⁵¹ The loss of forest cover in a watershed exacerbates these changes so that even low-density development, with minor increases in impervious cover, result in altered stream hydrology.³⁵²

Continued climate change will further exacerbate flooding. Scientists predict an increase in the number of extreme rainfall and storm events, leading to more flooding throughout

³⁴⁹ Schueler, T.R., 1994. The Importance of Imperviousness. *Watershed Protection Techniques* 1(3):100-111.

³⁵⁰ Booth, D.B. 1990. Stream-Channel Incision Following Drainage-Basin Urbanization. *Water Resources Bulletin* 26(3): 407-417.

³⁵¹ Ibid

³⁵² Booth, D.B., Hartley, D., and R. Jackson. 2002. Forest Cover, Impervious Surface Area, and the Mitigation of Stormwater Impacts. *J. Am. Water Res. Assoc.* 38(3): 835-845.

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the Midwest and costing taxpayers as much as \$480 million annually just to adapt stormwater systems to handle the increased runoff.³⁵³

Approximately forty-nine percent (49%) of Wayne County's population lives within the Rouge River Watershed. The Ecorse Creek and Combined Downriver Watersheds and areas draining directly to Lake St. Clair are home to an additional thirty-four percent (34%) of Wayne County residents. These areas, particularly portions of the Rouge and the North Branch of Ecorse Creek, already experience severe flooding. Studies and storm water management initiatives to reduce flooding for these areas are underway; however, existing land use patterns and future land development make these efforts and uphill battle. Additional flooding will likely occur not only in areas currently identified as problem flood zones but, because population growth is expected to be concentrated in outlying headwater areas, it may also be expected to occur in areas that currently exhibit no problem flooding.^{354,355}

³⁵³ USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

³⁵⁴ SEMCOG, *Comparing 2000 Census and 2030 Regional Development Forecast by Watershed*, July 2002, <http://www.semcog.org/products/pdfs/watershedreport.pdf>

³⁵⁵ SEMCOG, *Land use Change in Southeast Michigan: Causes and Consequences*, March 2003, <http://www.semcog.org/products/pdfs/LandUseChange.pdf>

6. Hazard Mitigation

6.1 Goals and Objectives

The following five goals were selected by the Advisory Committee in 2013 and were confirmed as goals to focus mitigation activities under this (2019) Plan:

1. Protect and preserve human health and well being
2. Maintain and fortify critical assets, structures and infrastructure to preserve the quality of life.
3. Insure Interagency cooperation and coordination for preparedness
4. Enhance emergency response capabilities (including and especially communications)
5. Review and improve county-wide contingency plans for maintaining quality of life

6.1.1 *Mitigation Selection Criteria*

The Advisory Committee developed the evaluation criteria used for the selection of mitigation strategies. The 2013 evaluation criteria were reviewed and additional potential evaluation criteria were identified and discussed during the second workshop in 2019. The Advisory Committee voted selected the top five criteria listed below; weighting them using the method of paired alternatives to provide the weighting factor listed below.

Criteria (Weighting in parentheses):

- Ability to accomplish (22)
- Technical Feasibility (20)
- Cost Effectiveness (19)
- Availability of Funding (18)
- Effectiveness of strategy (including downside of risk) (14)

6.2 Survey Results

The second survey presented 201 mitigation alternatives organized by the hazard addressed by each strategy, as discussed in Section 2. Responses to open-ended survey questions generated an additional 50 strategies for a total of 251 mitigation strategies for discussion by the Advisory Committee during the Second Workshop. The results of the survey were ranked based on the number of respondents that indicated a strategy was important or very important. The ranking was used by participants to prioritize the strategies during the workshop.

The top-ranked strategies for consideration received an average rating of 3.8 (16 strategies). All strategies were presented with their associated ranking for consideration by the Advisory Committee. Discussion during the workshop resulted in sixteen survey strategies for Action Plan consideration. These strategies are listed in Section 6.4.

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6.3 Community Input

Each community identified potential mitigation strategies to address hazards within the community. Mitigation strategies outlined by each community are summarized in the discussion that follows.

6.3.1 Community Identified Mitigation Strategies

Each community discussed mitigation in different terms to address specific local needs.

The following describes the individual mitigation strategies identified by each community, along with the hazard addressed with that strategy. Strategies are listed in the order they were presented in the survey materials. These priorities and suggested mitigation strategies reflect local municipal concerns. Their inclusion within this County Plan does not necessarily imply County funding will be provided for these activities.

6.3.1.1 City of Allen Park

2013 Mitigation Strategies:

1) Provide additional funding for the replacement or relining of older sewer lines that back up and cause flooding within the city. Remove diseased or dead ash trees to prevent them from falling into Ecorse Creek and exacerbating flooding and sewer backups (Hazard Addressed: Urban Flooding, Riverine Flooding). Progress: BEING EVALUATED

2) Provide funding for additional training of public safety personnel in responding to hazardous material emergencies (Hazard Addressed: Hazmat Incidents – Fixed Site and Transportation). Progress: BEING EVALUATED

3) Allocate funds to equip the city's Community center so the facility can serve as an emergency shelter in case of a disaster that requires evacuation or relocation of citizens. Specifically, the need for back-up generator was mentioned (Hazard Addressed: Tornadoes/Severe Weather, Hazmat Incidents). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.2 City of Belleville

2013 Mitigation Strategies:

1) Provide back-up generators to be used during power failures especially at senior citizen facilities and the

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emergency shelter (Hazard Addressed: Severe Weather/Tornadoes). Progress: BEING EVALUATED

2) Upgrade or replace the current communication equipment; used by the public safety departments (Hazard Addressed: All). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.3 Brownstown Township

2013 Mitigation Strategies:

1) Provide funding for installation of new warning sirens and the repair and activation of existing sirens in the township (Hazard Addressed: Tornadoes/Severe Weather). Progress: ONGOING

2) Provide resources for continuous hazmat training (Hazard Addressed: Hazmat Incidents). Progress: ONGOING

3) Allocate funds to hire additional public safety personnel, especially mass emergencies such as tornadoes and hazmat accidents (Hazard Addressed: Tornadoes/Severe Weather). Progress: ONGOING

4) Activate Wayne County's resources at lower level of emergency in the township; responding to emergencies that require outside assistance (Hazards Addressed: All). Progress: ONGOING

2019 Mitigation Strategies:

1) The Township will continue with the ONGOING strategies it has listed above.

6.3.1.4 Canton Township

2013 Mitigation Strategies:

1) Use comprehensive land use and transportation plans to establish policies regarding the placement and design of critical facilities and infrastructure. Assure that future development does not impede existing hazard mitigation and response activities (Hazards Addressed: All). Progress: ONGOING

2) Plan for access to a back-up water supply to be used for public health and extended fire-fighting needs in the case of a drought or water system failure

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(Hazards Addressed: Fires, Severe weather – summer and winter, Health Emergencies, Infrastructure Failure). Progress: ONGOING

3) Arrange for a method of “rolling blackouts” in electrical systems that are at risk of overloading (Hazards Addressed: Infrastructure Failure, Criminal Acts). Progress: ONGOING

4) Review the feasibility of constructing concrete “safe rooms” in shelter areas in mobile home parks, fairgrounds, parks, shopping malls and other vulnerable areas (Hazards Addressed: Tornadoes/Severe Weather). Progress: ONGOING

5) Pre-plan for debris removal after a hazard response event, including staging, storage and disposal (Hazards Addressed: All). Progress: ONGOING

6) Establish maintenance and improvement standards requiring that roads, bridges and driveways are sufficient for and are accessible to emergency vehicles and fire equipment (Hazards Addressed: All). Progress: ONGOING

7) Create and revise public information materials on each hazard and warning system as it applies to the Township (Hazards Addressed: All). Progress: ONGOING

8) Facilitate and encourage the creation of escape plans and disaster supply kits for residents and businesses (Hazards Addressed: All). Progress: ONGOING

2019 Mitigation Strategies:

1) The Township will continue with the ONGOING strategies it has listed above.

6.3.1.5 City of Dearborn

2013 Mitigation Strategies:

1) Provide public officials and citizens with better awareness regarding issues facing ethnic diversity within the community (Hazard Addressed: All). Progress: ONGOING

2) Hire additional fire fighters and EMS personnel and provide funds for training those individuals as well as current public safety (Hazard Addressed: Fire/

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Hazmat Incidents). Progress: ONGOING

3) Provide funds to address the flooding issues in Dearborn (Hazard Addressed: Infrastructure Failure/Riverine and Urban Flooding). Progress: BEING EVALUATED

4) Address the issue of public safety personnel's inability to establish radio contact with their counterparts in the City of Detroit likelihood of an emergency involving both communities (Hazard Addressed: Hazmat Incidents). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Address the inability of Dearborn's public safety personnel and 911/Dispatch Operations Center to establish and maintain radio communications with their counterparts in surrounding communities, including the City of Detroit, in the event of an emergency involving the city of Dearborn and one or more of its surrounding communities (Hazard Addressed: ALL).

2) Establish a city-wide collaborative emergency management team involving public and private stakeholders. Partnership to include, but not limited to, local government officials, public safety personnel, hospital officials, schools, and major industry representatives. Also to include citizen preparedness before, during, and after a disaster-emergency (Hazards Addressed: All).

6.3.1.6 City of Dearborn Heights

2019 Mitigation Strategies:

1) Continue to coordinate with Wayne County, the State of Michigan and U.S. Army Corps of Engineers to find solutions to Ecorse Creek flooding issues (Hazards Addressed: Flooding).

2) Develop a more comprehensive public warning and information systems (Hazards Addressed: All).

6.3.1.7 City of Ecorse

2013 Mitigation Strategies:

1) Provide funding for hazmat training, so there is sufficient level of preparedness to respond to hazmat emergencies (Hazard Addressed: Hazmat Incidents). Progress: BEING EVALUATED

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2) Install tornado siren (Hazard Addressed: Tornadoes/Severe Weather). Progress: BEING EVALUATED

3) Provide funding to hire additional manpower for the public safety departments; to be able to properly respond to transportation accidents and criminal activities, as well as conducting necessary fire inspections and investigation. (Hazard Addressed: Criminal Acts, Transportation Accidents, Fire). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.8 City of Flat Rock

2013 Mitigation Strategies:

1) Address flooding (Hazards Addressed: Flooding).

2) Other Mitigation strategies are currently being reviewed for appropriateness.

1) Address flooding (Hazards Addressed: Flooding).

2019 Mitigation Strategies:

1) Continue work to implement mitigation strategies from the 2013 Plan.

6.3.1.9 Garden City

202013 Mitigation Strategies:

1) Provide funds to purchase generators; to be used in case of power outages at community shelters and City Hall (Hazard Addressed: Infrastructure Failure – Electrical, Severe Weather). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.10 City of Gibraltar

2013 Mitigation Strategies:

1) Provide funding to be used to elevate homes located in flood areas of the city (Hazard Addressed: Riverine and Urban Flooding). Progress: BEING EVALUATED

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2019 Mitigation Strategies:

- 1) Develop a railway incident hazardous material response plan that is specific to Gibraltar and surrounding downriver communities (Hazards Addressed: Hazmat Incidents)
- 2) Address problems of contaminated landfill leachate (Hazards Addressed: Public Health Emergencies, Hazmat Incidents)
- 3) Update and maintain consistency in evacuation and emergency response plans, particularly in relation to Fermi II Nuclear Plant and hazardous materials (Hazards Addressed: Hazmat Incidents, Public Health Emergencies).

6.3.1.11 Grosse Ile Township

2013 Mitigation Strategies:

- 1) Provide funding to improve or replace the county bridge linking Grosse Ile with the mainland. (Hazard Addressed: Hazmat Incidents). Progress: BEING EVALUATED

2019 Mitigation Strategies:

- 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.12 Grosse Pointe

2006 Mitigation Strategies:

- 1) Provide a solution to the problem of not being able to establish radio contact with the City of Detroit when faced with public safety emergencies (Hazard Addressed: All). Progress: COMPLETE
- 2) Provide funding for emergency power back-up systems in the event of outages (Hazard Addressed: Tornadoes/Severe Weather). Progress: COMPLETE

2019 Mitigation Strategies:

- 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.13 Grosse Pointe Farms

2006 Mitigation Strategies:

- 1) Provide funding to replace the water filtration system with a system that utilizes hydro liquid chloride (Hazard Addressed: Hazmat Incidents – Fixed Site). Progress: COMPLETE

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2) Provide a solution to the problem of not being able to establish radio contact with the City of Detroit when faced with public safety emergencies (Hazard Addressed: All). Progress: COMPLETE

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.14 Grosse Pointe Park

2013 Mitigation Strategies:

1) Provide a solution to the problem of not being able to establish radio contact with the City of Detroit (Hazard Addressed: All). Progress: BEING EVALUATED

2) Provide funding for generators to be used in cases of power outages. Determine the availability of necessary equipment to be used to clear streets that are blocked as a result of storms. Install a tornado siren within the community. Enhance the communities ability to properly prepare and respond to the needs of the community in the event of weather related emergencies (Hazard Addressed: Tornadoes/Severe Weather). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.15 Grosse Pointe Shores

2013 Mitigation Strategies:

1) The officials of Grosse Point Shores feel that they are sufficiently prepared to deal with emergencies within their community.

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.16 Grosse Pointe Woods

2013 Mitigation Strategies:

1) Provide necessary funds to be used to increase the capacities of the back-up power system located at the Municipal Building and at the Department of Public Works Pump Station. Provide a mobile generator that can be transported to emergencies at various locations within the community. (Hazard Addressed:

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Tornadoes/Severe Weather, Infrastructure Failure).
Progress: BEING EVALUATED

2) Provide funding for additional training for the Department of Public Safety. Provide funding to be used for coordinated regional training (Hazard Addressed: All). Progress: ONGOING

2019 Mitigation Strategies:

1) Replace outdated fire gear and other equipment (Hazards Addressed: All).

2) The City will continue with the ONGOING strategies it has listed above.

6.3.1.17 City of Hamtramck

2013 Mitigation Strategies:

1) Coordinate and plan for snow removal to increase street accessibility to emergency crews and residents (Hazard Addressed: Severe Weather – Winter)

2) Collect and maintain information about Hazmat sites, including on-site inspections and computerized record-keeping (Hazard Addressed: Hazmat Incidents)

2019 Mitigation Strategies:

1) The City will continue with the ONGOING strategies it has listed above

6.3.1.18 City of Harper Woods

2013 Mitigation Strategies:

1) Provide funds to hire additional personnel for the city's public safety departments. Provide additional hazmat equipment and training for these departments (Hazard Addressed: Hazmat Incidents – Transportation). Progress: ONGOING

2) Hire additional police officers to assist in combating civil disturbances and criminal activities within the community (Hazard Addressed: Criminal Acts). Progress: ONGOING

3) Provide a solution to the problem of not being able to establish radio contact with the City of Detroit when faced with public safety emergencies (Hazard Addressed: All). Progress: ONGOING

4) Monitor and remove trees that could be a hazard to power lines, and improve problem areas in the power grid to reduce the number of power failure incidents (Hazard

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Addressed: All).

2019 Mitigation Strategies:

1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.19 City of Highland Park

2013 Mitigation Strategies:

1) Hire additional manpower so that there is a sufficient level of preparedness to respond to major emergencies. Provide funding for training in hazmat response and arson investigations (Hazard Addressed: Hazmat Incidents/Arson). Progress: BEING EVALUATED

2) Provide resources needed to clear streets during and after winter storms (Hazard Addressed: Severe Weather/Winter Hazards). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.20 Huron Township

2013 Mitigation Strategies:

1) Install additional tornado sirens (Hazard Addressed: Tornadoes/Severe Weather). Progress: ONGOING

2) Require electrical companies to clear limbs and dead trees away from power lines (Hazard Addressed: Severe Weather/Severe Wind/Winter Hazards). Progress: ONGOING

3) Lessen the impact that floods have on people, property, and the environment (Hazard Addressed: Riverine Flooding). Progress: NOT COMPLETED – The Township has determined that flooding is not a substantial issue at this time.

2019 Mitigation Strategies:

1) The Township will continue with the ONGOING strategies it has listed above.

6.3.1.21 The City of Inkster

2013 Mitigation Strategies:

1) Hire additional manpower so that there is a sufficient level of preparedness to respond to all major emergencies. Provide a better safety departments and other city departments (Hazard Addressed: Severe Weather/Tornadoes, Structural Fire, Hazmat Incidents, All).

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Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.22 City of Lincoln Park

2013 & 2019 Mitigation Strategies:

1) Update emergency response plan for traffic and railroad accidents, particularly for hazardous material incidents adjacent to residential areas (Hazard Addressed: Hazmat Incident).

2) Development and implementation of training for police and schools on emergency response to an active killer incident (Hazard Addressed: Criminal Acts).

6.3.1.23 City of Livonia

2013 Mitigation Strategies:

1) Establish easements for stream access to clear log jams (Hazards Addressed: Flooding, Public Health). Progress: ONGOING

2) Create detention basins as proposed in the Storm Water Management Plan (Hazards Addressed: Flooding, Infrastructure failure). Progress: ONGOING

3) Create detention basins as proposed in the Storm Water Management Plan (Hazards Addressed: Flooding, Infrastructure failure). Progress: ONGOING

4) Educate vulnerable populations about how to care for themselves or obtain help during emergencies (Hazards Addressed: All). Progress: ONGOING

5) Distribute printed materials about preparing a family disaster preparedness kit (Hazards Addressed: All). Progress: ONGOING

6) Provide portable pumps, dump tanks, and suction hoses to supply a secondary water supply for firefighting during times of drought and power outages (Hazards Addressed: Fire, Infrastructure Failure, Severe Weather, Drought). Progress: ONGOING

7) Establish easements for stream access to clear log jams (Hazards Addressed: Flooding, Public Health).

8) Create detention basins as proposed in the Storm

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Water Management Plan (Hazards Addressed: Flooding, Infrastructure failure).

2019 Mitigation Strategies: 1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.24 City of Melvindale

2013 Mitigation Strategies: 1) Hire and train additional police and fire personnel to help in protecting the population and natural resources from adverse affects of hazardous material incidents and other emergencies (Hazard Addressed: Hazmat Incidents – Fixed Site and Transportation). Progress: BEING EVALUATED

2) Lessen the impact that flooding had on the people, property and environment of the City of Melvindale (Hazard Addressed: Infrastructure Failure, Riverine and Urban Flooding). Progress: BEING EVALUATED

2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.25 City of Northville

2013 Mitigation Strategies: 1) Replace emergency generator at City Hall and Fire Station to provide a reliable command center in the event of an emergency (Hazard Addressed: All). Progress: ONGOING

2) Improve interoperability of 800 Mhz communication system between municipalities (Hazard Addressed: All). Progress: ONGOING

3) Evaluate and implement measures to mitigate flooding (Hazard Addressed: Flooding). Progress: ONGOING

4) Establish a policy and place for evacuation of elderly residents from senior housing and rehabilitation centers (Hazard Addressed: Severe Weather – Summer and Winter, Tornadoes). Progress: ONGOING

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2019 Mitigation Strategies: 1) Continue to evaluate and implement 2013 mitigation measures

6.3.1.26 Northville Township

2013 Mitigation Strategies: 1) Install tornado sirens in the community (Hazard Addressed: Tornadoes). Progress: BEING EVALUATED

2) Provide an engineering study to lessen the impact that floods have on people, property, and the environment (Hazard Addressed: Flooding, Severe Weather). Progress: BEING EVALUATED

3) Provide necessary training and equipment to first responders (Hazard Addressed: All). Progress: ONGOING

4) Development and implementation of training for police and schools on emergency response to an active shooter incident (Hazard Addressed: Criminal Acts). Progress: ONGOING

2019 Mitigation Strategies: 1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.27 City of Plymouth

2013 Mitigation Strategies: 1) Request financial assistance from the railroad companies for the purchase of hazmat equipment. In addition, provide for advanced technology which will route emergency vehicles around congested railroad crossing when responding to emergencies (Hazard Addressed: Hazmat Incidents – Transportation). Progress: ONGOING

2) Provide an engineering study to lessen the impact that floods have on people, property, and the environment (Hazard Addressed: Flooding). Progress: ONGOING

3) Train emergency responders regarding hazardous material response (Hazard Addressed: Hazmat Incidents - Transportation) Progress: ONGOING

4) Train police in civil disturbance response together with Western Wayne Mobile Field Force (Hazard Addressed:

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Civil Disturbance). Progress: ONGOING

2019 Mitigation Strategies:

1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.28 Plymouth Township

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.29 Redford Township

2013 Mitigation Strategies:

1) Install additional tornado sirens (Hazard Addressed: Tornadoes/Severe Weather). Progress: BEING EVALUATED

2) Provide funding needed to establish a technical response unit to deal with all types of hazardous material accidents (Hazard Addressed: Hazmat Incidents – Fixed Site and Transportation). Progress: BEING EVALUATED

3) Township officials have also suggested that their ice arena could serve as a cooling center for elderly residents within the Township (Hazard Addressed: Severe Weather/Extreme Heat). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.30 City of River Rouge

2013 Mitigation Strategies:

1) Provide necessary training and equipment for public safety departments to better prepare their personnel in responding to weather related emergencies (Hazard Addressed: Severe Weather/Winter Hazards/Tornadoes). Progress: BEING EVALUATED

2) Provide funding to be used for training all departments in the area of homeland security. Provide additional protection against potential terrorist activities targeted at one of the community's vulnerable locations (Hazard Addressed: Terrorist). Progress: BEING EVALUATED

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2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.31 City of Riverview

2013 Mitigation Strategies: 1) Lessen the impact that floods have on people, property, and the environment. Insist that the community is notified when the floodgates are to be opened at Detroit Metro Airport. Reduce flooding in the City of Riverview, especially flooding of the Frank and Poet Drain (Hazard Addressed: Riverine and Urban Flooding). Progress: BEING EVALUATED

2) In cases of major emergencies, provide additional personnel to assist with evacuations. Address the need for better communication with the county for responding to the needs of the city during an emergency. Provide stockpiles of fuel, food and water to be used in cases of emergency (Hazard Addressed: Hazmat Incidents – Fixed Site and Transportation, Terrorism). Progress: BEING EVALUATED

2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.32 City of Rockwood

2013 Mitigation Strategies: 1) Install tornado sirens in the City of Rockwood (Hazard Addressed: Tornadoes). Progress: BEING EVALUATED

2) Provide resources to develop an efficient system of evacuation during emergencies within the city or in neighboring communities. Allocate funds to be used to purchase 911 warning system to alert citizens or potential emergencies (Hazard Addressed: Severe weather, Hazmat Incidents – Fixed Site and Transportation). Progress: BEING EVALUATED

3) Install shoreline restoration along the Huron River (Hazard Addressed: Shoreline Erosion). Progress: BEING EVALUATED

4) Establish oversight of Belleville Dam operations (Hazard Addressed: Flooding). Progress: BEING EVALUATED

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2019 Mitigation Strategies: 1) Continue to evaluate and implement 20103 mitigation strategies.

6.3.1.33 City of Romulus

2013 Mitigation Strategies: 1) Encourage family disaster planning (Hazard Addressed: All). Progress: ONGOING

2) Update GIS Database for infrastructure analysis (Hazard Addressed: Infrastructure Failure). Progress: ONGOING

3) Establish regional retention/detention ponds and upgrade sewer mains (Hazard Addressed: Flooding, Infrastructure Failure). Progress: ONGOING

4) Enforce requirement to loop water mains as per building codes (Hazard Addressed: Infrastructure Failure, Public Health). Progress: ONGOING

5) Expand early warning system and perform testing and monitoring (Hazard Addressed: Tornadoes). Progress: ONGOING

6) Inspect and maintain record of hazardous material facilities (Hazard Addressed: Hazmat Incidents). Progress: ONGOING

1) Coordinate with railway owners/operators for at-grade crossing separation, and to improve transportation planning (Hazard Addressed: Hazmat Incidents, Transportation Accidents). Progress: ONGOING

2) Develop traffic control options during power outage or signal damage (Hazard Addressed: Transportation Accidents). Progress: ONGOING

3) Establish and update shelter agreements within City and school buildings (Hazard Addressed: All). Progress: ONGOING

2019 Mitigation Strategies: 1) Continue to evaluate and implement 20103 mitigation strategies.

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6.3.1.34 City of Southgate

2013 Mitigation Strategies:

1) Provide additional back-up generators to be used during power outages. Establish emergency shelters to be used in instances of power outage and other emergencies requiring the relocation of the population, especially the elderly. Provide training in snow plowing and the removal of downed trees and branches (Hazard Addressed: Tornadoes/Severe Weather/Winter Hazards, Infrastructure Failure). Progress: BEING EVALUATED

2) Hire and train additional manpower so the city will be better prepared to respond to hazmat and all other types of emergencies. Provide funds for improved communication equipment so the public safety personnel can properly communicate between their departments and neighboring communities. (Hazard Addressed: Hazmat Incidents – Transportation, Multiple). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.35 Sumpter Township

2013 Mitigation Strategies:

1) Require the utility companies to remove trees and limbs that could fall on power lines. Provide funds to construct a storage building for emergency supplies (Hazard Addressed: Infrastructure Failure, Severe Weather). Progress: BEING EVALUATED

2019 Mitigation Strategies:

1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.36 City of Taylor

2013 Mitigation Strategies:

1) Develop a procedure between the City of Taylor, the surrounding communities, and Wayne County, for responding to hazmat and other emergencies within the various communities. Install a communication system that can be accessed by all communities without regard to the community they represent. Determine a better system of authority and control in regards to who should respond to these emergencies (Hazard Addressed: Hazmat Incidents – Fixed Site and Transportation, Transportation Accidents). Progress: BEING EVALUATED

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2) Provide funding to hire additional personnel and to purchase generators and heavy equipment to be used to clear streets of storm debris (Hazard Addressed: Severe Weather/Tornadoes). Progress: BEING EVALUATED

3) Provide a solution to the flooding that occurs at I-75 and Pelham Road (Hazard Addressed: Flooding). Progress: ONGOING

4) Continue outreach to schools and other members of the public about school and home safety, and adopt the program "do1thing.com" to promote emergency preparedness (Hazard Addressed: All).

5) Monthly testing of emergency alert system (Hazard Addressed: Tornadoes).

6) Coordinate with Public Safety and Health Departments to ensure that facilities that host special events and international visitors are meeting communicable disease prevention standards (Hazard Addressed: Public Health).

2013 Mitigation Strategies:

1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.37 City of Trenton

2013 Mitigation Strategies:

1) Provide closer cooperation between health officials and health organizations, school district management, and the City of Trenton Emergency Management Department, to reduce contagious diseases (Hazard Addressed: Public Health Emergencies). Progress: ONGOING

2019 Mitigation Strategies:

1) The City will continue with the ONGOING strategies it has listed above.

6.3.1.38 Van Buren Township

2013 Mitigation Strategies:

1) Install tornado sirens and implement an education program that increases the public's awareness of the vulnerability to tornadoes (Hazard Addressed: Tornadoes). Progress: ONGOING

2019 Mitigation Strategies:

1) The City will continue with the ONGOING strategy it has listed above.

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6.3.1.39 City of Wayne

2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.40 City of Westland

2013 Mitigation Strategies: 1) Provide funding for the installation of an electronic sign that can be activated to warn drivers of icy conditions on Ford Road at I-275. Purchase generators to provide electrical back-up during power outages. (Hazard Addressed: Severe Weather/Winter Hazards). Progress: BEING EVALUATED

2) Provide protective equipment to all municipal employees so they can be of assistance in hazmat emergencies. Upgrade radio equipment so it can be utilized to communicate with other communities (Hazard Addressed: Hazmat Incidents). Progress: BEING EVALUATED

2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.41 City of Woodhaven

2013 Mitigation Strategies: 1) Increases the city's preparedness for the Avian Flu Virus. Distribute information and initiate surveillance to detect human cases (Hazard Addressed: Public Health Emergencies). Progress: NOT STARTED

2) Provide funding for additional hazmat equipment. Develop a well-organized evacuation plan to be used in the likelihood of a hazmat or other emergency that requires the transfer or citizens (Hazard Addressed: Hazmat Incidents, Multiple). Progress: NOT STARTED

2019 Mitigation Strategies: 1) Mitigation strategies are currently being reviewed for appropriateness.

6.3.1.42 City of Wyandotte

2013 Mitigation Strategies: 1) Provide funding to hire additional manpower, purchase additional hazmat emergency equipment, and make available additional training for responding to hazmat emergencies (Hazard Addressed: Hazmat Incidents –

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Fixed Site). Progress: NOT STARTED

2) Provide a solution to sewer back-ups and basement flooding as a result of failures at the Wayne County Waste Water Treatment Facility (Hazard Addressed: Urban Flooding/ Infrastructure Failure). Progress: NOT STARTED

3) Develop a security plan and hazard mitigation procedures for all of the schools in the City (Hazard Addressed: Criminal Acts).

2019 Mitigation Strategies: 1) Other Mitigation strategies are currently being reviewed for appropriateness.

6.4 Alternatives Selected

The Advisory Committee reviewed over 240 mitigation strategies and identified 18 high-priority mitigation strategies for further consideration, based on input from the mitigation survey and workshop discussions. These strategies addressed the six highest priority hazards, and the top-ranked survey strategies, as well as additional strategies from the survey that were highlighted by committee members during the workshop.

Each of these mitigation strategies were rated according to the five evaluation criteria described in Sections 2 and 6 above. The results of the evaluation are provided in Table 6, along with the hazards that each strategy addresses.

From this evaluation, the following nine strategies were selected for development of Action Plans.

Criminal Acts: Mass Shooting(s)/Active Assailant(s)

1. Continue training in most current protocols and develop a process for requesting assistance from local and state law enforcement.

Infrastructure Failure

2. Identify, prioritize, and replace or renovate aging structures and equipment. Establish procedures to protect IT systems.

Public Health Emergencies

3. Stockpile vaccines and antidotes; train & equip volunteers to staff open/closed points of dispensing (PODs)
4. Develop and use mass media notification systems for public health emergencies (establish Wayne County geo-targeting/geo-fencing methods for notifications using Facebook, Nixle, Twitter, etc.)

Extreme Temperatures

5. Establish and build awareness of accessible heating/cooling centers in the community. Utilize all means available, including webs sites, social media, smart

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phone apps, mailers, etc. to inform public of impending weather threats and resources available, including heating & cooling shelters.

6. Educate the public regarding safe use of office and home space heaters, generators, smoke detectors & carbon monoxide detectors.
7. Catalog & map areas of vulnerable and other residents (unlicensed facilities, empty/vacant buildings, etc.). Provide outreach and transportation to vulnerable and normally hard-to-reach populations during extreme temperature events.

HazMat Incidents – Transportation

8. Utilize public warning systems and networks for public awareness and instructions in the event of hazardous materials incidents.

Flooding – River/Shoreline

9. Identify and map, or update existing maps of, floodplains and flood prone areas. Leverage new ArcGIS online application with MI CIMS sponsored by Michigan State Police. Provide training for local jurisdiction use and access.

Table 6. Selected Mitigation Strategies and Associated Hazards

Top Hazards Addressed

| # | Mitigation Strategy | Rank | Infrastructure Failure - Water, Stormwater, Communications | Public Health Emergencies | Criminal Acts - Mass Shootings/Active Assailant(s) | Extreme Temperatures | Flooding - Urban/Riverine/Shoreline | Hazmat Incidents - Transportation |
|-------------------|---|------|--|---------------------------|--|----------------------|-------------------------------------|-----------------------------------|
| 33 | Replace or renovate aging structures and equipment. Establish procedures to protect IT systems. | 6 | ✓ | | | | ✓ | |
| 52 | Increase public awareness of the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies | 7 | | ✓ | | | | |
| 57 | Stockpile vaccines and antidotes in case of epidemic, chemical emergency, or biological or chemical weapons attack | 7 | | ✓ | | | | |
| 61 | Use mass notification, emerging alerting systems, and social media, for public health emergencies | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 71 | Develop a process for requesting assistance from local and state law enforcement in the event of Active Assailant | 1 | | | ✓ | | | |
| 73 | Continue training in most current protocol(s) [Active Assailant] | 15 | | | ✓ | | | |
| 77 | Identify and map, or update existing maps of, floodplains and flood prone areas using County's ArcGIS system. Provide training for local jurisdictions in use of and access to system. | 11 | | | | | ✓ | |
| 79 | Work with USACE, or other appropriate authorities to develop engineering plans to address flood prone areas | 11 | ✓ | | | | ✓ | |
| 161 | Establish and build awareness of accessible heating/cooling centers in the community Utilize all means available, incl webs sites, social media, smart phone apps, mailers to educate of impending weather threats, resources available, including heating & cooling shelters | 1 | | | | ✓ | | |
| 167 | Provide outreach to vulnerable populations during extreme temperature events Catalog & map areas of vulnerable residents (unlicensed facilities, empty/vacant buildings, etc.) | 11 | | | | ✓ | | |
| 169 | Educate the public regarding safe use of office and home space heaters, generators, smoke detectors & carbon monoxide detectors | 1 | | ✓ | | ✓ | | |
| 176 | Provide transportation to shelters for elderly, disabled, otherwise unreachable | 11 | ✓ | ✓ | | ✓ | ✓ | |
| 184 | Assure training, planning, and preparedness for hazardous material incidents along vulnerable, high risk roads and railways | 16 | | | | | | ✓ |
| 185 | Utilize public warning systems and networks for awareness and instructions | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Added in Workshop | Train & equip volunteers to staff open and closed PODs (Points of Dispensing) within the County | 1 | | ✓ | | | | |

7. County Action Items

7.1 Recommended Mitigation Actions

Wayne County's 2006 Hazard Mitigation Plan (HMP) included the following seven Action Items:

1. Establish an adequate number of warming and cooling centers throughout the county and develop minimum criteria for their operation. Provide relief and support to individuals and reduce risk of temperature-related illness during times of extreme temperatures.
2. Improve floodplain management and minimize potential effects of flooding. Encourage and promote regional watershed cooperation.
3. Distribute family emergency preparedness information.
4. Create evacuation plans and community awareness of them.
5. Improve emergency communication(s) between all county communities, including City of Detroit (not otherwise included in this Hazard Mitigation Plan).
6. Train and equip public health, hospital and responder personnel (Police/Fire/EMS, citizen corps, etc.) for readiness.
7. Review and evaluate Hazard Mitigation Plan (HMP) priorities and progress on an annual basis.
8. Develop an inspection plan and strategy to identify and abate all vacant, abandoned, and blighted structures near sensitive populations throughout the county, including SARA Title III sites.

Significant progress has been made on most of these action items between 2013 and 2019, including the following.

1. Wayne County has compiled a database of warming and cooling centers throughout the County and developed mechanisms for informing county residents regarding the dangers and likelihood of extreme temperatures, and regarding where to go for shelter during severe weather.
2. Wayne County mobilized a variety of resources in response to severe urban and riverine flooding in August 2014, and the resulting failure of stormwater and other infrastructure, which resulted in both state and federal major disaster declarations. During the writing of this report, Wayne County again faced incidents of urban, riverine, and coastal flooding. The County has also recently (2019) requested assistance from the US Army Corps of Engineers for Lake Erie coastal communities in response to high water levels in the Great Lakes.

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3. Family emergency preparedness information is now routinely distributed to county residents in all seasons and, as such, this Action Item is being removed for the 2019 HMP Update.
4. Wayne County continues to assist municipalities by directing evacuation and practice evacuation testing from its Emergency Operations Center (EOC), based on individual municipality evacuation plans.
5. Wayne County works with all Wayne County municipalities to ensure open lines of communications with first responders. Wayne County HS & EM has sent correspondence to all county communities and actively programs municipality radios so that all entities are able to communicate on an updated 800 Mega M.P.S.C.S. Radio system during emergencies. The County began a radio project in 2014/2015 and now provides radios to municipal first response agencies annually. As such, this Action Item is being removed for the 2019 HMP update.
6. Wayne County DHSEM polled fire chiefs in Wayne County concerning Action Item 8 from the 2013 HMP and we found that local communities are currently identifying and inspecting vacant, abandoned and blighted structures near sensitive populations and SARA Title III sites. The inspections are being done by fire marshals and building/ordinance personnel. This action item has been addressed by local communities as part of their everyday operations and, hence, is being removed from the 2019 HMP update.

The Wayne County Department of Homeland Security and Emergency Management continues to address weather related hazard threats (flooding, extreme temperatures, etc.) while also focusing attention and programs on new and emerging concerns such as cyber security and preparedness for active assailant incidents. Completed Action Plans from the 2013 Hazard Mitigation Plan have been replaced with new Actions and programs from 2013 addressing ongoing concerns have been incorporated into Action Plans developed in 2019.

The final Action Items developed to guide implementation of the selected mitigation strategies are presented below. Each Action Item includes a short description of the relevant hazard(s) and the strategy aimed to mitigate its impact. The agencies responsible for implementation, the general form of costs associated with each strategy, and the benefits are also listed for each Action Item.

The Action Items below have been selected and developed based upon the prioritization exercises and Advisory Committee discussions described previously. Implementation of each will be guided by an analysis of the benefits expected relative to program costs. Implementation will be determined, in part, based upon the availability of grant or shared funding; how well each Action Item fits within established programs, goals, and initiatives of the responsible agencies; and program needs identified through ongoing feedback from Wayne County municipal officials, emergency response staff and the Wayne County LEPC. Completion of all Action Items, unless otherwise noted, is anticipated within the first four years of the 5-year cycle for reviewing and updating the HMP. The order presented for the Action Items does not denote importance or priority.

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County Action Items

Action Item 1. Continue training in most current protocols for preventing and responding to Active Assailant incidents; develop a process for requesting assistance from local and state law enforcement.

Specific Hazard(s) Addressed: Criminal Acts - Mass Shootings/Active Assailant(s)

Specific Vulnerability(ies): Sites of concentrated, vulnerable populations; and emergency responders

Communities Affected/Benefited: All

Primary Responsibility: Wayne County Department of Homeland Security & Emergency Management, local emergency managers

Initiatives Needed: County and local emergency managers must develop a plan to proactively engage first responders (police/fire/EMS/emergency managers, etc.) and actively participate in ongoing tabletop, drills and live scenarios. Further, local officials must identify current mutual aid agreements and ensure interoperability between all units. Communities must also develop a protocol within those respective mutual aid groups should resources be depleted and additional assistance be needed. Assistance through Wayne County Department of Homeland Security & Emergency Management will be provided to activate additional resources.

Implementation Tasks: The County will survey agencies to determine training needs and find funding to acquire instruction to fill the training gaps. This may best be accomplished by assembling an advisory training committee to identify best practices to plan, review and reach out to communities to address training gaps. The committee should then analyze current mutual aid agreements and identify additional resources or agencies that can provide assistance. The committee may also meet with mutual aid managers to establish a protocol to request assistance that falls within the scope of existing plans.

Cost(s): Staff time to assemble and analyze mutual aid agreements, and to attend meetings, training, distribution of printing, mailing and electronic media.

Benefits: Greater involvement by the Wayne County Department of Homeland Security & Emergency Management and those agencies that are covered by the Emergency Operations Plan, resulting in improved familiarization with preparedness procedures and, ultimately, if called upon for such a hazard, to reduce injuries and loss of life.

Anticipated Funding Sources: Most initiatives could be absorbed by the individual municipalities based on their training needs through general budgets, Homeland Security Grants (UASI) and private industry.

Action Item 2. Identify, prioritize, and replace or renovate aging infrastructure and equipment including water,

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stormwater, and communications systems.
Establish procedures to protect IT systems.

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| <i>Specific Hazard(s) Addressed:</i> | <u>Infrastructure Failure - Water & Sewer Systems, Communications, Cyber Security.</u> |
| <i>Specific Vulnerability(ies):</i> | Important interceptors, lift stations, and key nodes in the systems |
| <i>Communities Affected/Benefited:</i> | All |
| <i>Primary Responsibility:</i> | Wayne County Department of Homeland Security & Emergency Management, Wayne County Department of Public Works, local emergency managers & public works departments |

Initiatives Needed: County and local public works officials will review locations of recent systems failures, systems exceeding their design lives, and those serving vulnerable populations. Using this information, key agencies will develop a list of priority systems and locations to be repaired, upgraded, or replaced. Associated budgets and schedules should be developed to facilitate systematic progress. Identify where the use of green infrastructure or conservation practices may yield storm water source reductions or otherwise reduce the overall strain on existing systems.

Implementation Tasks: The County will survey their own systems and local public works agencies to determine needs and priorities. Review of third party (e.g., SEMCOG, et al.) studies will aid in establishing sufficient budgets for immediate and long term needs.

Cost(s): Staff time to develop the necessary priority lists and to meet with other agencies to coordinate implementation.

Benefits: Reduced costs by addressing infrastructure needs before emergency situations arise. Long term gains in system efficiencies and reduced damages

Anticipated Funding Sources: Planning and prioritization may be absorbed within existing budgets of departmental managers and planners. Implementation costs may be provided through bonds, Michigan Drain Code (Chapters 8 & 20), Federal Homeland Security Hazard Mitigation funds, Army Corps of Engineers, Clean Michigan Initiative Grants, Clean Water State Revolving Loan Funds (may require state intervention), Community Development Block Grants, Strategic Water Quality Initiative, Great Lakes Program, Non-point Source Implementation Grants (319 program), Other MDEQ/EPA grants if available, Voter-approved millage, Court-ordered judgment levies, federal Flood Mitigation Assistance Program, Pre-Disaster Mitigation Program grants.

Action Item 3. Stockpile vaccines and antidotes for possible public health emergencies; Train and equip volunteers to staff open/closed points of dispensing (POD).

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Specific Hazard(s) Addressed: Public Health Emergencies - Mass inoculation of communicable diseases and/or biological agents.

Specific Vulnerability(ies): Areas where vulnerable populations (particularly children and the elderly) may congregate.

Communities Affected/Benefited: All

Primary Responsibility: Wayne County Public health Division

Initiatives Needed: Partner with service organizations (e.g., American Red Cross, American Heart Association, etc.) to design and provide mass training exercises. Conduct a single Point of Dispensing (POD) drill followed by one or more county-wide drills. Develop and use mass media notification systems for public health emergencies (establish Wayne County geo-targeting/geo-fencing methods for notifications using Facebook, Nixle, Twitter, etc.).

Implementation Tasks: Provide training for POD volunteers (by August 2020). Conduct an all-county drill to determine effectiveness and points of failure (by May 2021)

Cost(s): Training materials and up-to-date printed materials with each POD updated at least annually. Staff and other costs to provide training and drills.

Benefits: Trained and ready core of volunteers for emergencies. Evaluate program and ability to dispense timely and effectively.

Anticipated Funding Sources: Grant monies from FEMA and/or the Department of Homeland Security.

Action Item 4. Continue to build awareness of available/accessible warming and cooling centers in the community. Provide relief and support to individuals and reduce risk of temperature-related illness during times of extreme temperatures.

Specific Hazard(s) Addressed: Extreme temperatures (summer and winter)
Also valuable for infrastructure failure (communications, electric, water), flooding, and associated human health and safety incidents.

Specific Vulnerability(ies): Vulnerable, transient, and otherwise hard-to-reach populations that may not have access to normal means of communications.

Communities Affected/Benefited: All

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Primary Responsibility: Wayne County Health and Human Services and Department of Homeland Security & Emergency Management, in coordination with local Police, Fire, EMS, Housing, Public Health, and Human Services.

The governing body of each municipality will assign an Office of Primary Responsibility to reduce the threats and/or impacts of extreme temperatures on public health, safety and infrastructure. Depending upon conditions, suggested OPRs could include Police Chiefs, Fire Chiefs, or Public Service/Works Directors.

Initiatives Needed: Establish or improve communication capabilities, including websites, social media, in house apps (e.g. Nixle, others). Mail with utility bills, etc. Identify vulnerable populations: group homes, unlicensed facilities, 'squatters' in vacant buildings, others. Establish and build awareness of accessible heating/cooling centers in the community. Require a vacant building registration.

Implementation Tasks: Train responders to locate (and transport?) vulnerable populations. Utilize all means available, including webs sites, social media, smart phone apps, mailers, etc. to inform public of impending weather threats and resources available, including heating & cooling shelters. Other Tasks: educate the public regarding safe use of office and home space heaters, generators, smoke detectors & carbon monoxide detectors; catalog & map areas of vulnerable and other residents (unlicensed facilities, empty/vacant buildings, etc.). Provide outreach and transportation to vulnerable and normally hard-to-reach populations during extreme temperature events.

Cost(s): Websites already funded. Warming/cooling shelters and provisions. Staff time and materials to train responders.

Benefits: Simple, accepted, flexible. Programmatic cost savings as rescues are less costly than recoveries and more valuable to the community. Volunteers are force multipliers.

Anticipated Funding Sources: Most infrastructure concerns are basic housekeeping, an anticipated expense. Websites, as a communication medium, are expected and should be a general fund item. Basic Nixle is free, more advanced options have a modest fee. Community (in-house) smart phone apps slightly more expensive but very useful.

Action Item 5. Utilize public warning systems and networks for public awareness and instructions in the event of hazardous materials incidents. Provide additional Hazmat and other emergency training and equipment to first responders (including, but not limited to, fire, police & civilian responders).

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| <i>Specific Hazard(s) Addressed:</i> | Haz Mat Incidents - Transportation |
| <i>Specific Vulnerability(ies)</i> | High accident intersections and highways and others identified in Plan |
| <i>Primary Responsibility:</i> | City, Township, and Village first responders, and Wayne County Homeland Security |

Initiatives Needed: Develop strategy to utilize public warning systems and/or other communication channels including websites, social media, in house apps (e.g. Nixle, others) to notify the public of hazardous material incidents. Additionally, Wayne County Homeland Security and Emergency Management should continue facilitating hazmat and hazard/emergency response training programs for uniformed personnel. Training will include Incident Command System (ICS) procedures, hazmat response, and other emergency procedures/information required in disaster events. Wayne County HS & EM will continue to assess current training programs, identify additional training needs, establish a steering committee(s) to oversee implementation, and develop a charter (giving approval and support, announcement, definition of work, project activities).

Implementation Tasks: Specific tasks include: conducting a survey to assess current training programs and identify training needs, developing a plan of action and providing for training (either internal or through other venues), and informing local leaders and interested parties publicizing available training programs. Additional tasks include: identifying emergency messages needed and the method(s) required to deliver them to the public, and identifying National Incident Management System (NIMS) and ICS requirements, and providing these as needed.

Cost(s): Staff time; printing and postage costs; mileage for meetings; cost for contractors/instructors; overtime for students/backfill; and purchase of training materials and supplies.

Benefit(s): Protection of lives and the environment through enhanced response capabilities. All responders will have the same basic knowledge of the Incident Command System and how to work within this system to assure a smooth operation.

Anticipated Funding Source(s): County general fund, state and federal grants, and municipal assistance.

Action Item 6. Identify and map, or update existing maps of, floodplains and flood prone areas. Leverage new ArcGIS online application with MI CIMS sponsored by Michigan State Police. Provide training for local jurisdiction use and access. Improve floodplain management and minimize potential effects of flooding, and encourage and promote regional watershed cooperation.

Specific Hazard(s) Addressed: Flooding – Riverine/Shoreline (Great Lakes)/Urban

Wayne County Hazard Mitigation Plan

Revision Number/Date: 0/June 2019

Publication Date: June 17, 2019

Specific Vulnerability(ies): All communities with floodplain areas, such as Ecorse Creek (e.g., the Cities of Allen Park, Dearborn Heights, Ecorse, Inkster, Lincoln Park, Melvindale, Romulus, Southgate, Taylor, Westland, and Wyandotte). Coastal communities (i.e., Grosse Pointe Shores, Grosse Pointe Farms, Grosse Pointe, Grosse Pointe Park, Grosse Ile, Riverview, River Rouge, Ecorse, Wyandotte, Trenton, Gibraltar). Residential areas, roads and other infrastructure in repetitive loss flood zones.

Communities Affected/Benefited: All

Primary Responsibility: Wayne County Homeland Security and Emergency Management, coastal and riparian communities, US Army Corps of Engineers, Wayne County Department of Public Services

Initiatives Needed: Direct each community to identify, train and prepared to use the new MI CIMS ArcGIS online application for damage assessment. Manage a database of community point(s) of contact that have completed training on ArcGIS to lead damage assessment in their community or as part of county task force.

Implementation Tasks: Identify to Wayne County HSEMD a county-wide point of contact or point of contact to within each community to be trained in MI CIMS and ArcGIS. Wayne County in partnership with MSP – EMHSD will provide annual training on ArcGIS and MI CIMS; points of contact will lead damage assessment in their community or as part of county task force.

Cost(s): Community costs include staff time for training (estimated 1/2-day for initial training and 2 additional hours annually). County costs include staff time for an initial 24 hours to build database and schedule initial class, manage a database of community point(s) of contact that have completed training on ArcGIS to lead damage assessment in their community or as part of county task force (estimated at 8 hrs per 6 months). Consultant costs for plan updates and green infrastructure design. Land may need to be purchased for infrastructure and road retrofitting, potentially requiring resident and business relocation. Purchase of emergency generators and emergency flood relief pumps.

Benefits: Conduct Damage Assessment in MI CIMS. Support emergency requests for assistance. Better information about community assets along creeks, streams, rivers, and flood plains in county. More effective use of MI CIMS not just by Act 390 communities.

Anticipated Funding Sources: Existing staffing budgets, Michigan Drain Code (Chapters 8 & 20), Federal Homeland Security Hazard Mitigation funds, Army Corps of Engineers, Clean Michigan Initiative Grants, Clean Water State Revolving Loan Funds (may require state intervention), Community Development Block Grants, Strategic Water Quality Initiative, Great Lakes Program, Non-point Source Implementation Grants (319 program), Other MDEQ/EPA grants if available, Voter-approved millage, Court-ordered

Wayne County Hazard Mitigation Plan

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Publication Date: June 17, 2019

judgment levies, federal Flood Mitigation Assistance Program, Pre-Disaster Mitigation Program grants.

7.2 Plan Monitoring and Revision

The Wayne County Hazard Mitigation Plan Advisory Committee (HMPAC) will monitor this Plan on a regular basis. The HMPAC will consist of members of the Wayne County Department of Homeland Security & Emergency Management as well as representatives of the Wayne County communities and other stakeholders. Plan evaluation and maintenance is the responsibility of the County Emergency Management Coordinator.

The Plan will be reviewed by the HMPAC annually for progress on Action Items, changes in hazard history, and any known changes in vulnerability. Every two years, following review by the HMPAC, a description of Plan progress and any changes in circumstances or trends that may require revision to the Plan will be presented to the Wayne County Board of Commissioners. Meetings of the County Board of Commissioners to review and revise the HMP will be advertised to the public following Wayne County's normal public notice practices.

The Plan will be reviewed, updated, and revised, as necessary every five (5) years to maintain consistency with the changing community and hazard history, as well as the goals and objectives of the County.

7.2.1 Coordination with Other Plans and Programs

A Hazard Mitigation Plan is only a part of the emergency planning, mitigation, preparedness, response, and recovery process. Future coordination of this Plan with other activities in the County will be conducted by the Hazard Mitigation Plan Advisory Committee (HMPAC). Individual members of the HMPAC are to identify opportunities, within their respective departments or organizations, to incorporate this Plan into other County plans, programs, and in the County's annual budgeting process. Any opportunities that are identified will be referred back to the HMPAC as a whole, for consideration. By including representatives from many jurisdictions and inter-jurisdictional agencies who are each well-connected throughout the County, opportunities for coordination with other plans will be enhanced. Incorporating this Plan into other plans and programs will ultimately be at the discretion of the County department or organization which administers these plans or programs.

The Action Items listed above do not directly limit future development in hazard prone areas. Wayne County has limited powers related to land use and land use planning. Action Item #2, which focuses on reducing flood related damages, will likely need to include the purchase of repetitive loss structures within floodplains and subsequent land use controls for those properties. The Wayne County Department of Homeland Security & Emergency Management will work with the County Drain Commissioner and the Department of Environment to plan and implement floodplain management actions consistent with this Plan and to incorporate the findings and recommendations of specific on-going flood mitigation planning into future revisions of this HMP.

Wayne County Hazard Mitigation Plan

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Enabling legislation in Michigan has established a system of “Home Rule,” wherein land use planning and zoning power is given to local cities, villages, and townships. These municipalities will be encouraged to incorporate the findings and recommendations in this HMP into their individual land use master plans and zoning practices. Regional planning initiatives such as flood mitigation plans for Ecorse Creek and the Combined Downriver Watersheds, and the periodic review and revision of watershed plans for the Rouge River, Ecorse Creek, the Combined Downriver Watersheds, and the Lower Huron River also offer opportunities for incorporating the mitigation strategies and Action Items included here. By promoting the benefits of a coordinated planning process, and utilizing digital resources to foster connections whenever possible, the HMPAC will continue to play a vital role in creating opportunities for plan coordination.

Wayne County Hazard Mitigation Plan


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Appendix A. Public Meeting and Outreach Materials

Public Meeting Wayne County Hazard Mitigation Plan Update

Hazard Mitigation Plan Update





Public Meeting
April 23, 2019



Overview

- Introduction
- The Function of a Hazard Mitigation Plan
- The 2013 Wayne County Plan
- 2019 Wayne County Plan Update
- First workshop
 - Survey Results
- Second workshop
 - Survey Results

Introduction



Team

- Project Team
 - Wayne County Homeland Security
 - ASTI Environmental
- Advisory Committee
- Public

The Wayne County Plan
www.waynecountyhmp.com


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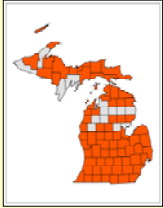
ASTI Environmental

Established in 1985
Over 90% Repeat/Referral
Over 7,000 projects in the United States
Projects in Canada, Mexico and the Czech Republic

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Project Locations



Public Meeting

Wayne County Hazard Mitigation Plan Update

Advisory Committee

- Local Communities
- County LEPC
- Schools
- Industry/Businesses
- Adjacent Communities

The Wayne County Plan
www.waynecountyhmp.com

Community Reps/Stakeholders



42 Communities

- Emergency Management Coordinators
- Local Leaders

Adjacent Communities
Industry and Business
Non-Government Organizations
Interested Individuals

The Wayne County Plan
www.waynecountyhmp.com

Hazard Mitigation Plans



What is a HMP?

A Hazard Mitigation Plan (HMP) will...

- identify hazards in the community,
- evaluate and highlight those hazards,
- provide mitigation alternatives

Hazard Mitigation Plans

What is a HMP?

The objectives of a Plan are to;

- reduce risks from natural, human, and technological hazards by focusing on those hazards,
- provide guidance when committing resources that will reduce the effects of hazards, and
- **provide a basis for technical assistance and funding**

Hazard Mitigation Plans

What is a HMP?

The Plan must comply with:

- the Disaster Mitigation Act of 2000,
- the Emergency Management Act,
- FEMA and Michigan Department of State Police guidance documents,
- and all applicable federal, state, and local regulations.

Hazard Mitigation Plans

Public Meeting

Wayne County Hazard Mitigation Plan Update

What is a HMP?

The Plan is only a part of the emergency planning, mitigation, preparedness, response, and recovery process. Must coordinate with:

- All existing plans and programs
- **Existing Plans can be included in the Final HMP by reference**

Hazard Mitigation Plans

Why Prepare A Plan?

- To save lives and protect property
- To preserve and protect an area's environment and economy
- To preserve and maintain an area's essential services and quality of life

Hazard Mitigation Plans

Why Prepare A Plan?

To provide information to citizens, businesses, and officials (including future emergency managers), for

- Planning
- Economic development
- Project development decisions
- Emergency Management

Hazard Mitigation Plans

Why Prepare A Plan?

To support hazard mitigation project implementation and **funding.**

- Identifies specific hazards
- Identifies specific vulnerabilities
- Documents mitigation options
- Demonstrates community involvement and support
- Part of an effective overall plan

Hazard Mitigation Plans

Considerations - Hazards

| 2006 Emphasis | 2013 Emphasis | 2019 Emphasis?? |
|-----------------------------|-------------------|-------------------------|
| Terrorism | Flooding | Flooding |
| Weapons of Mass Destruction | Earthquakes | Infrastruct./Subsidence |
| | Pipeline Ruptures | Changing Climate |
| | Nuclear Accidents | Cyber Attacks |
| | | Catastrophic Events |
| | | Active Assailant(s) |

Hazard Mitigation Plans

Considerations - Hazards

- Natural – 12 Total
- Technological – 14 Total
- Human Related – 14 Total

Hazard Mitigation Plans

Public Meeting

Wayne County Hazard Mitigation Plan Update

Considerations – Natural Hazards

- Celestial Impact
- Drought
- Earthquakes
- Erosion
- Extreme Temperature
- Fog
- Flooding
- Fire Hazards
- Invasive Species
- Subsidence
- Thunderstorms – Hail, Lightning, Severe Winds
- Tornadoes
- Winter Hazards – Ice, Sleet, Snowstorms

Hazard Mitigation Plans

Considerations – Technological Hazards

- Fires – Structural or Tires
- Flooding – Dam Failure/Urban
- Hazmat Incidents – Transportation or Fixed
- Infrastructure Failure –
Water/Sewer/Electric/Communications/Roads
- Nuclear Power Plants
- Oil, Petroleum & Natural Gas Accidents
- Subsidence – Mining or Infrastructure

Hazard Mitigation Plans

Considerations – Human Hazards

- Catastrophic Events/National Emergencies
- Civil Disturbance
- Criminal Acts – Active Assailant(s)
- Criminal Acts – Arson & Vandalism
- Gas/Oil Shortages or Supply Disruptions
- Information Technology Intrusion
- Public Health Emergencies
- Terrorism & Sabotage
- Transportation Accidents – Air/Road/Marine/Rail
- Weapons of Mass Destruction


Hazard Mitigation Plans

Considerations - Critical Assets


- Commercial Sites
- Hospitals/Response Facilities
- Industrial Sites
- Open Space
- Public Facilities
- Residential Areas
- Roads, Railroads, Bridges
- Utility Facilities
- Schools, Churches
- Sports/Entertainment Arenas
- Central Business Districts

Hazard Mitigation Plans

The Current Wayne County Plan



Circa 2013



Workshop Hazard Impact Ranking

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan |
|---|---------------|------------------|-------------|
| Thunderstorms - Severe Wind | 4 | 1 | 1 |
| Infrastructure Failure | 1 | 2 | 1 |
| Extreme Temperatures: Hot and Cold | 3 | 3 | 1 |
| Tornadoes | 2 | 4 | 1 |
| Hazmat Incidents - Transportation and Fixed | 7 | 5 | 2 |
| Winter Hazards - Ice and Sleet | 4 | 7 | 3 |
| Public Health Emergencies | 6 | 6 | 4 |
| Flooding - Urban | 9 | 8 | 4 |
| Flooding - Riverine | 9 | 9 | 4 |
| Transportation Acc. - Highway | 8 | 10 | 4 |

| Action Plan Assessment | | |
|------------------------|-----|------|
| Risk | 1-5 | 6-10 |
| 1-5 | 1 | 2 |
| 6-10 | 3 | 4 |

- Flooding (Non Dam)
- Hazmat Incidences—Transportation
- Infrastructure Failure
- Public Health Emergencies
- Tornadoes


Hazard Identification
Advisory Committee Meeting of October 12, 2005

Public Meeting

Wayne County Hazard Mitigation Plan Update


Action Plans

- Establish an adequate number of warming and cooling centers throughout the county and develop minimum criteria for their operation (capacity, oxygen, generators)
- Improve floodplain management by planning acceptable uses, involving drain commissioners, performing hydrologic studies, and including analyses in decisions

 Hazard Identification
Advisory Committee Meeting of January 30, 2013


Action Plans

- Distribute family emergency preparedness information
- Create evacuation plans and community awareness of those plans Improve emergency communication between communities, including the City of Detroit



 Hazard Identification
Advisory Committee Meeting of January 30, 2013

Action Plans

- Train and equip public health, hospital, and responder personnel (police/fire and citizen corps) for readiness
- Annual review and evaluation of HMP
- Develop an investigation program for all high hazard structures in the county (Large industrial and SARA Title III sites), particularly near sensitive populations
- Communication and Outreach

 Hazard Identification
Advisory Committee Meeting of January 30, 2013

The Wayne County Plan Update

The Process

- Prepare hazard history and community profile
- Identify significant hazards and risks
- Identify specific vulnerabilities

Hazard Mitigation Plans

The Process

- Identify hazard mitigation goals and objectives
- Suggest strategies to achieve mitigation goals and objectives
- Evaluate strategies using locally chosen criteria
- Select feasible strategies based on evaluation criteria

Hazard Mitigation Plans

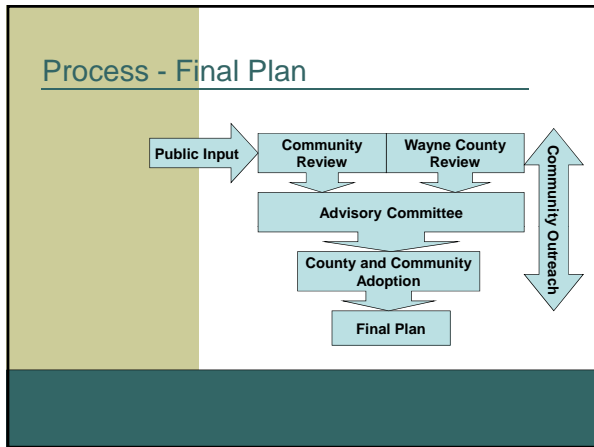
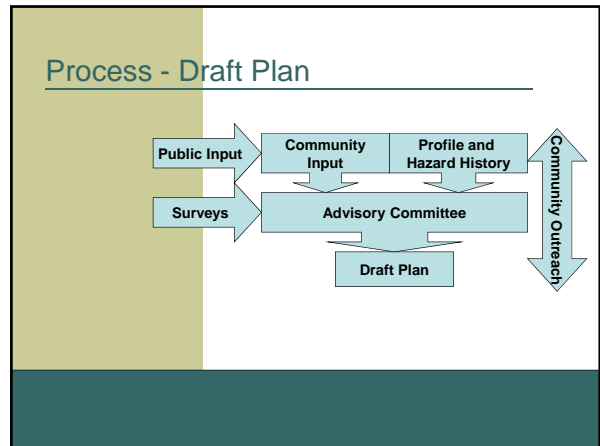
Public Meeting

Wayne County Hazard Mitigation Plan Update

The Process

- Propose specific action steps that will achieve desired objectives
- Prepare the plan
- Adopt the plan
- Implement the plan
- Monitor and update the plan

Hazard Mitigation Plans



- ### Process - Outreach
- Public
- Public meeting
 - Community announcements
 - Web page
 - Comment Form
 - General Information
 - Plan updates and Draft Plan
 - Phone and email contact information

- ### Process - Outreach
- Stakeholders
- Web page
 - Meeting agendas and summaries
 - Draft Plan Available

- ### Process - Outreach
- Advisory Committee
- Two Workshops
 - Three Surveys
 - Web page
 - Draft Plan
 - Action Plan Review
 - Draft Plan Review

Public Meeting

Wayne County Hazard Mitigation Plan Update

Hazard Ranking Criteria

| Criteria | Weighting |
|---------------------------|-----------|
| Loss of life and Injury | 15 |
| Infrastructure Failure | 8 |
| Geographic Area of impact | 7 |
| Ability to Recover | 7 |

Hazard Identification
Advisory Committee Meeting of March 14, 2019

Assets at Risk From Hazards

2019 Plan Update Survey Results (Average Value)

Based on Asset Class Characteristics estimate the effects of a hazard event to the listed criteria

| Asset to Consider | Asset Criticality | | | | Criticality | Rank |
|---------------------------------|---|------------------------|-------------------------|---------------------------|-------------|------|
| | Ability to Recover from Disaster/Incident | Infrastructure Failure | Loss of Life and Injury | Geographic Area of Impact | | |
| Commercial Sites | 1.00 | 1.00 | 2.50 | 1.00 | 54 | 10 |
| Hospital/Health Care Facilities | 5.00 | 5.00 | 5.00 | 5.00 | 100 | 1 |
| Industrial Sites | 2.50 | 2.50 | 2.50 | 2.50 | 50 | 5 |
| Open Space | 1.00 | 1.00 | 1.00 | 1.00 | 35 | 11 |
| Public Facilities | 2.50 | 2.50 | 2.50 | 2.50 | 25 | 13 |
| Residential Areas | 5.00 | 5.00 | 5.00 | 5.00 | 100 | 2 |
| Roads, Railroads, Bridges | 5.00 | 5.00 | 1.00 | 5.00 | 80 | 6 |
| Utility Facilities | 5.00 | 5.00 | 5.00 | 5.00 | 100 | 2 |
| Schools, Churches | 2.50 | 2.50 | 5.00 | 2.50 | 113 | 4 |
| Sports/Entertainment Areas | 1.00 | 1.00 | 5.00 | 1.00 | 80 | 6 |
| General Business Dist. | 1.00 | 1.00 | 5.00 | 1.00 | 50 | 8 |

For Ranking 1-5:
 >50 Highly Critical
 25-50 Med. Criticality
 <25 Low Criticality

Hazard Identification
Advisory Committee Meeting of March 14, 2019

Hazard History – Top 12

| Hazard | Annual Frequency | Frequency Rank |
|--|------------------|----------------|
| Transportation Accidents - Highway* | 55,001 | 1 |
| Criminal Acts - Vandalism* | 52,500 | 2 |
| Fire Hazards - Structural Fires | 4,207 | 3 |
| Fire Hazards - Wildfires | 1,640 | 4 |
| Criminal Acts - Arson* | 917 | 5 |
| Transportation Accidents - Marine | 10 | 6 |
| Thunderstorm Hazards - Severe Wind | 7 | 7 |
| Infrastructure Failure - Water System | 5 | 8 |
| Transportation Accidents - Rail | 3 | 9 |
| Petroleum and Natural Gas Pipeline Accidents | 2 | 10 |
| Thunderstorm Hazards - Hail | 2 | 10 |
| Winter Hazards - Snowstorms | 2 | 10 |

Hazard Identification

Survey Results - Top 14

2019 Plan Update Meeting Results

Concern About Impacts of Hazardous Events

| Hazard Event to Consider | Avg Rank (Overall) | Ability to Recover from Disaster/Incident | | | Loss of Life and Injury | Area of Impact | Hazard Rank | Workshop Rank |
|--|--------------------|---|-------------------------|---------------------------|-------------------------|----------------|-------------|---------------|
| | | Infrastructure Failure | Loss of Life and Injury | Geographic Area of Impact | | | | |
| Active Assault(s) | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Infrastructure Failure | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Public Health Emergencies | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Extreme Temperatures | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| HazMat Incidents - Transportation | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Flooding | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Internal Incidents - Transportation | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Thunderstorms - Hail, Lightning, Severe Wind | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Roads | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Commercial Sites | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Open Space | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Public Facilities | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Sports/Entertainment Areas | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Enter the Cell Value:
 High: 3
 Medium: 2
 Low: 1

Notes: additional and new assets
 Criticality based on severity of potential health/emergencies
 Combined water, storm, and sanitary sewer infrastructure
 Priority Matrix determined using matrix optimization method

High Impact: >24.0
 Med Impact: Between 15.7-24.0
 Low Impact: <15.0

Hazard Identification
Advisory Committee Meeting of March 14, 2019

Workshop Hazard Impact Ranking

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan Needed |
|---|---------------|------------------|--------------------|
| Infrastructure Failure - Water & Sewer Systems | 1 | 5 | 1 |
| Criminal Acts - Miss Shootings/Active Assault(s) | 3 | 2 | 1 |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water, Chemicals | 2 | 4 | 3 |
| Winter Hazards - Snow, Ice & Sleet | 8 | 2 | 2 |
| Criminal Acts - Vandalism and Arson | 12 | 1 | 2 |
| Extreme Temperatures - Extreme Hot or Cold | 5 | 6 | 3 |
| Flooding - Electrical Shortage | 4 | 10 | 3 |
| Internal Incidents - Transportation | 5 | 8 | 3 |
| Thunderstorms - Hail, Lightning, Severe Wind | 14 | 12 | 4 |
| Roads | 8 | 13 | 4 |
| Commercial Sites | 8 | 9 | 4 |
| Open Space | 8 | 11 | 4 |
| Public Facilities | 11 | 13 | 4 |
| Sports/Entertainment Areas | 13 | 11 | 4 |
| Transportation Accidents - Surface Road/Highways | 7 | 6 | 4 |

Action Plan Assessment:
 Rank: 1-5 (1-6-11)
 1-5: 1, 2
 6-11: 3, 4

Active Assault(s)
 Infrastructure Failure
 Public Health Emergencies
 Extreme Temperatures
 HazMat Incidents - Transportation
 Flooding

Hazard Identification
Advisory Committee Meeting of March 28, 2019

Workshop Hazard Impact Ranking

| Critical Asset | Criticality Rank | Asset Risk Rank | Vulnerability Rank |
|---------------------------------|------------------|-----------------|--------------------|
| Hospital/Health Care Facilities | 1 | 5 | 1 |
| Residential Areas | 2 | 3 | 1 |
| Schools, Churches | 4 | 2 | 1 |
| Roads, Railroads, Bridges | 6 | 4 | 2 |
| General Business Dist. | 6 | 1 | 2 |
| Industrial Sites | 5 | 6 | 3 |
| Utility Facilities | 2 | 7 | 3 |
| Commercial Sites | 10 | 6 | 4 |
| Open Space | 11 | 11 | 4 |
| Public Facilities | 9 | 10 | 4 |
| Sports/Entertainment Areas | 6 | 9 | 4 |

Vulnerability Assessment:
 Rank: 1-5 (1-6-11)
 1-5: 1, 2
 6-11: 3, 4

Hazard Identification
Advisory Committee Meeting of March 28, 2019

Public Meeting

Wayne County Hazard Mitigation Plan Update

Mitigation Goals

- Protect and preserve human health and well being
- Maintain and fortify critical assets, structures and infrastructure to preserve the quality of life.
- Ensure Interagency cooperation and coordination for preparedness
- Enhance emergency response capabilities (including and especially communications)
- Review and improve county-wide contingency plans for maintaining quality of life



Hazard Identification
Advisory Committee Meeting of March 14, 2019


Action Plans

Criminal Acts: Mass Shooting(s)/Active Assailant(s)
Continue training in most current protocols and develop a process for requesting assistance from local and state law enforcement.

Infrastructure Failure
Identify, prioritize, and replace or renovate aging structures and equipment. Establish procedures to protect IT systems.

Public Health Emergencies
Stockpile vaccines and antidotes; train & equip volunteers to staff open/closed points of dispensing (PODs)

Develop and use mass media notification systems for public health emergencies (establish Wayne County geo-targeting/geo-fencing methods for notifications using Facebook, Nixle, Twitter, etc.)




Hazard Identification
Advisory Committee Meeting of March 28, 2019

Action Plans

Flooding – River/Shoreline
Identify and map, or update existing maps of, floodplains and flood prone areas. Leverage new ArcGIS online application with MI CIMS sponsored by Michigan State Police. Provide training for local jurisdiction use and access.

HazMat Incidents – Transportation
Utilize public warning systems and networks for public awareness and instructions in the event of hazardous materials incidents.




Hazard Identification
Advisory Committee Meeting of March 28, 2019

Action Plans



Extreme Temperatures
Establish and build awareness of accessible heating/cooling centers in the community. Utilize all means available, including webs sites, social media, smart phone apps, mailers, etc. to inform public of impending weather threats and resources available, including heating & cooling shelters.

Educate the public regarding safe use of office and home space heaters, generators, smoke detectors & carbon monoxide detectors. Catalog & map areas of vulnerable and other residents (unlicensed facilities, empty/vacant buildings, etc.). Provide outreach and transportation to vulnerable and normally hard-to-reach populations during extreme temperature events.





Hazard Identification
Advisory Committee Meeting of March 28, 2019

Public Input

Contact Information

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 1.800.395.ASTI



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FOR IMMEDIATE RELEASE

WAYNE COUNTY HAZARD MITIGATION PLAN PUBLIC MEETING

BRIGHTON, MI, (April 4, 2019) — A public meeting to present an overview of the Hazard Mitigation Plan being updated for Wayne County, and for residents to provide input, will be held April 23, 2019 at 5:30 p.m. in Rooms 1 & 2 of the Heinz C. Prechter Educational & Performing Arts Center (EPAC), at the Wayne County Community College Downriver Campus, 21000 Northline Road, Taylor, Michigan. Additional information about the Plan is available at: <https://waynecountyhmp.com/> or by contacting Paul Rentschler, Project Manager, 800.395.ASTI or prentschler@asti-env.com.

This plan will provide a basis for identifying and managing hazards among the communities in the county, while complying with the requirements of the Disaster Mitigation Act of 2000, the Emergency Management Act, the Federal Emergency Management Agency (FEMA) and applicable federal, state, and local regulations.

###

About ASTI ENVIRONMENTAL

Since 1985, ASTI ENVIRONMENTAL has been an expert in Michigan's regulatory and physical environment. ASTI provides investigation, remediation, compliance and restoration services. As one of Michigan's most respected environmental consulting firms, ASTI delivers practical solutions to environmental challenges.

Healthcare-Dental

Assertive Community Treatment Specialist, RN Only, 2 Positions - Assertive Community Treatment Program. Salary Range: \$49,806 - \$67,416 annually, plus benefits. **Application Deadline: until filled.** General Statement of Duties: under the direction of the ACTP Supervisor; performs responsible tasks in providing comprehensive, intensive, off-site clinical services to Genesee Health System clients, assigned to the ACT Program; responsible for significant liaison and consultation work with ancillary agencies, courts, hospitals, the police and families, as well as direct intervention to clients assigned to the program; will not be assigned individual clients, as clients will be assigned to the team as a whole, thus, a good deal of sharing of information, feedback and teamwork is required; this is a 7-day-a-week, 24-hour coverage program and as such, persons will be required to have "on-call" time, where they may have to perform emergency interventions in person or otherwise, at odd hours; most client contacts will be off-site, either in clients' homes or mutually agreed upon sites; persons must be able to work effectively with minimal supervision; persons will need to facilitate the exchange of information between various programs, hospitals and interested parties; performs related work as required. For additional details on job duties and requirements, please log on to www.genhs.org. You can apply directly online or fax resume and transcripts to (810) 257-3755.

Emergency Department Director

Live and work where others vacation!! In Gaylord our emphasis is on outdoor recreation and quality of life. We enjoy a healthful climate, which is ideal for year-round sporting activities including golf, camping, boating, tennis, cross-country and downhill skiing, hunting, fishing, and more. Gaylord boasts a strong business community and award-winning schools.

Munson Healthcare Otsego Memorial Hospital is seeking candidates for an Emergency Department Director to join our dynamic team! This position is accountable for clinical and operational functions of the Emergency Department, including management of the trauma program and regional Medical Control Authority. The ideal candidate will be a Master's prepared Michigan licensed RN with 2-3 year's experience in an ED setting, enjoy working in a team-oriented environment, have strong interpersonal and communication skills and deliver exceptional customer service. MHC OMH offers an excellent benefit package including health, dental, vision, life and disability insurance; continuing education assistance; retirement and generous paid time off.

Applications, position details and additional career opportunities can be found on our website at: www.munsonhealthcare.org/omh Phone: 989-731-2493 Fax: 989-731-7792



Pharmacy Manager (Bronson, MI) - Maintain the pharmacy department according to professional standards & state/federal regs. Supervise prescription dispensing process, including maintaining & taking inventory & keeping accurate records. Review drug utilization of patients. Ensure high quality patient care & customer satisfaction & address any customer complaints or concerns. Interview, hire, & train pharmacy personnel. Oversee payroll, expense control & revenues from prescription sales. Send resume to: Bimal Patel, Bronson City Pharmacy LLC, 625 E. Chicago Street, Bronson, MI 49028.

Senior Manager, Heart Lung Platform; Terumo Cardiovascular Systems Corporation, Ann Arbor, MI. Plan, direct and coordinate engineering activities for development of new Class 2 heart-lung machine products within identified schedule, personnel, and budget constraints. Lead and manage cross-functional Product Development teams in design and development of new products and changes to existing heart-lung machine products. Create and manage overall budget for heart-lung platform engineering activities. Mail CV to R. Lockerman (ATTN: Sr. Mgr. HLP), Terumo Cardiovascular Systems Corporation, 6200 Jackson Rd., Ann Arbor, MI 48103.

Professional

Metalsa Structural Products, Inc. has an opening for a Business Development Specialist Asia - Body & Chassis SBU at its Novi, MI office responsible for planning, quoting, developing & writing business winning proposals of new & profitable business for Metalsa in order to position company within the panel of providers for Metalsa Asia automotive clients. Requires Bachelor's degree & exp. Must be able to read, write & speak Mandarin Chinese fluently. Send resume to Metalsa Structural Products, ATTN: HR Specialist #1, 29575 Hudson Dr., Novi, MI 48377. No phone calls please.

Product Director (Labgoo US, Inc., Bloomfield Hills, MI) Guide Product Line Contribution Team as a business unit; responsible for increase of profitability of existing products. Reqs: Master's deg or foreign equiv in Business Admin, Mktg, or Mgmt + 2 yrs exp. Exp to incl analyzing & solving cyber security technology product issues. Mail resumes to 333 W San Carlos St, Ste 600, San Jose, CA 95110.

Senior Business Intelligence Analyst in Ann Arbor, MI: Responsible for designing and building analytics-based tools which are technically sophisticated yet easy to understand and use by business teams, in support of strategic initiatives and ongoing business processes for the company. Requires: (1) Masters + 3 yrs exp. OR (2) Bachelors + 5 yrs. exp. Please mail resume with cover letter to: XPO Enterprise Services, Inc., 13777 Ballantyne Corporate Pl., 4th Floor, Charlotte, NC 28277, Attn: Recruiting, Refer to job code 10449.

Strategic Staffing Solutions, L.C. seeks a **Product Manager** in Detroit, MI to manage relationships with customers, vendors, and other third parties as necessary. Reqs BS+5yrs exp.; Reports to company headquarters in Detroit, MI. Roving employee that will work at various unknown client sites throughout the US for up to 100% of the time. Must be willing to travel anywhere in the US and may be assigned to work at client sites across the US. For complete reas. & to apply, visit: <http://www.strategicstaff.com/get-a-job/> Job ID: 147226.

Sales-Marketing

Sales & Program Manager w/ ITT Motion Technologies America, LLC in Novi, Michigan. Responsible for dylng the brake pads bus w/ our customers. Spearhead product dvlpmnt projects from start to finish, incl the hot press process, thermal treatment oven, grinding of the pads, painting, & finishing & the rel. commercial activities & negotiations. Reas: Bach deg (U.S. or foreign equiv) in Engg, Industrial Engg, Production Engg or a rel field. 8 yrs of exp in Automotive Original Equipment Mfg or Car Mfg. Prior work exp must incl 4 yrs: Utilizing understanding of brake pads & relevant production techniques; Commercial & tech negotiation w/ car manufacturers; Utilizing understanding of tech reas pertaining to friction material & rel price positioning in the mkt; & exp w/ the mgmt of OEM & Car mfg sales accounts. Travel req for mng customer relationships for major & strategic accounts. **QUALIFIED APPLICANTS:** Please email resume to ITT_IP.Jobs@itt.com & ref requisition # 9223BR

Trades

Mold Shop Manager
Must be experienced with all aspects of machining, benching and assembly of foam molds, dunnage molds and blow molds. Benefits: Medical, Dental, Life Insurance, 401K and Paid Vacation. Please forward resume to: smlcare@regression.com or fax to: 248-477-0128

Assorted Items

all kinds of things...

Appliances

Commercial washer & dryer (equip only) Maytag washers/ 6 of 50lbs, 6 of 35lbs, 7 of 25lbs, 12 top loaders. Dryers/ 14, 2 stackers (28 total), 3 stack 50 lb (6 total) call Rocky for more details 586-604-9597 from 9am-7p

Professional War & Tactics

Sporting Goods

NFT bamboo fly rod, 3 piece with case, mint condition \$200, call 313-492-8217

Wanted to Buy

BUYING — Coin, sport cards & Stamp Collections. Call 248-471-4451 TOP \$\$\$

General Auctions

THE FOLLOWING STORAGE LOTS have been placed under a warehouseman's lien and will be sold at a public auction. The auction will be held at Grasse Pointe Storage Co., 11850 E. Jefferson, Detroit, MI on May 4, 2019 at 10:00 am. 313-822-4400. Preview at 9:00am.
HOUSEHOLD GOODS, OFFICE AND ESTATE ITEMS.
2851 Latasia Banks
3005 Howard Blood
1540 Paul Creasey
2505 Deborah Culler
1150 Hansen Hunter
3010 Rose Marchese
2838 Linda Marino
2795 Marina Gage
2878 Tasha Marshall
2789 Brian Masck
2993 Ronnie Mitchell
2868 Jacqueline Richards
2895 Tony Squirewell
2980 David Stefan
3120 Daniel Tappert
2567 Rodney Watts
2566 Sally/Requelle Wynn

Services

Personals
dating, entertainment...

Adult Dating

American Beauties
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Adult Entertainment

FIND YOUR SOUL MATE!
Call FREE! 313.668.3000

Voice Personals

WHERE REAL SINGLES MEET TO CHAT AND HAVE FUN! BROWSE AND REPLY FOR FREE 18+ GAY: 313-481-9303 STRAIGHT: 313-481-9304

Your Source

Legals
for the latest...

Legal Notices

NOTICE OF PUBLIC HEARING
Notice is hereby given that the Suburban Mobility Authority for Regional Transportation (SMART) has prepared the FY 2020 Annual Operating and Capital Budgets. The total estimated budgets include the following programs: 5307 Formula (\$27,232,949), 5307 LETC Governor's Apportionment (\$1,269,009), 5339 Formula (\$3,560,270), 5339 LETC Governor's Apportionment (\$107,996), CMAQ (\$877,891), 5310 SMART (\$4,509,095), 5310 Monroe and NOTA (\$277,925), 5311 Nonurban JARC (\$381,254), SDNT (\$325,000), Act 51 Operating (\$38,201,000), 5311 LETC Operating (\$220,300), and Other State Subsidized Services (Operating) (\$804,219). SMART ensures that the level and quality of transportation service is provided without regard to race, color, or national origin in accordance with the Title VI of the Civil Rights Act of 1964. For more information regarding our Title VI obligations or to file a complaint, please contact us at the below address. The proposed Capital and Operating budgets are on file at SMART, Buhl Building, 6th floor Receptionist, 535 Griswold Street, Detroit, MI 48226 and may be reviewed from Monday, April 22, 2019, through Wednesday, May 22, 2019, between the hours of 9:00 a.m. and 4:00 p.m. Written comments or written requests for a public hearing regarding the budgets must be received by Wednesday, May 22, 2019. If a hearing is requested, notice of the scheduled date, time and location will be provided at least 10 days in advance. Submittals should be mailed to the attention of Manager of Capital and Grant Programs, SMART, at the above address. Barring any changes made in response to the written comments, this document will become final. DET3512494 04/21/2019

Public Meeting on the Wayne County Hazard Mitigation Plan

When: 5:30 pm, April 23, 2019
Where: Rooms 3 & 2, Educational and Performing Arts Center, WCC Downriver Campus, 21000 Northline Road, Taylor, MI
Additional information: waynecountyhmp.com or 800.395.ASTI
Public Comment accepted through May 7, 2019
DET3513193 04/21/2019

State of Michigan }
County of Livingston } SS

Affidavit of Publication
IN
Michigan.com
The Detroit News & Free Press

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

RE: Public Meeting on the Wayne County Hazard Mitigation Plan
When: 5:30 pm, April 23, 2019

See attached.

Public Meeting on the Wayne County Hazard Mitigation Plan

When: 5:30 pm, April 23, 2019
Where: Rooms 1 & 2, Educational and Performing Arts Center, WCC Downriver Campus, 2100 Northline Road, Taylor, MI
Additional information:
www.waynecounty.org or 800.295.ASTI
Public Comment accepted through May 7, 2019
DET3513193 04/21/2019

Amy Schmidt (Amy Schmidt), being duly sworn, deposes and says that the above advertisement(s) appeared in Michigan.com - The Detroit News and Free Press on April 21, 2019. Invoice 3513193 and as an authorized employee of Michigan.com, he/she knows well the facts stated herein.

Dated: April 24, 2019

Notarized By:

Gina Anne Huff

Acting in the County of Livingston

GINA ANNE HUFF
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF LIVINGSTON
My Commission Expires March 9, 2023

Wayne County Hazard Mitigation Plan

Revision Number/Date: 0/June 2019

Publication Date: June 17, 2019

Appendix B. Public Comment and Input

Wayne County Hazard Mitigation Plan Update Survey #1

***1. Email Address**

Wayne County Hazard Mitigation Plan Update Survey #1

*2. What is the most significant natural hazard facing Wayne County?

- Drought
- Earthquake
- Extreme Temperatures - Extreme Hot or Cold
- Fire - Wildfires
- Flooding - Riverline or Shoreline
- Fog
- Invasive Species
- Subsidence - Natural
- Thunderstorms - Hail, Lightning, Severe Wind
- Tornadoes
- Winter Hazards - Snow, Ice & Sleet

Other (please specify)

Wayne County Hazard Mitigation Plan Update Survey #1

*3. What is the most significant technological hazard facing Wayne County?

- Fire - Scrap Tire
- Fire - Structural
- Flooding - Dam Failure
- Flooding - Urban
- Hazmat Incidents - Fixed Site
- Hazmat Incidents - Transportation
- Infrastructure Failure - Bridges, Roads, Overpasses, Structures
- Infrastructure Failure - Communications
- Infrastructure Failure - Electrical Systems
- Infrastructure Failure - Sanitary/Storm Sewers
- Infrastructure Failure - Water System
- Nuclear Power Plant Accidents
- Oil and Gas Well or Pipeline Accidents
- Subsidence - Mining

Other (please specify)

Wayne County Hazard Mitigation Plan Update Survey #1

*4. What is the most significant human hazard facing Wayne County?

- Civil Disturbance
- Criminal Acts - Vandalism and Arson
- Criminal Acts - Mass Shootings
- Information Technology Intrusion
- Gas/Oil Shortages or Supply Disruptions
- Public Health Emergencies - Pandemics, Epidemics, Contaminated Food/Water
- Terrorism/Sabotage
- Transportation Accidents - Air
- Transportation Accidents - Surface Roads/Highways
- Transportation Accidents - Marine
- Transportation Accidents - Rail
- Weapons of Mass Destruction

Other (please specify)

Wayne County Hazard Mitigation Plan Update Survey #1

***5. Please select the top 5 hazards from the list below (1 being most significant, 5 being least significant):**

| | 1 | 2 | 3 | 4 | 5 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Drought | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Earthquake | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Extreme Temperatures - Extreme Hot or Cold | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fire - Wildfires | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Flooding - Riverline or Shoreline | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fog | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Invasive Species | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Subsidence - Natural | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Thunderstorms - Hail, Lightning, Severe Wind | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tornadoes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Winter Hazards - Snow, Ice & Sleet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fire - Scrap Tire | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Fire - Structural | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Flooding - Dam Failure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Flooding - Urban | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hazmat Incidents - Fixed Site | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hazmat Incidents - Transportation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infrastructure Failure - Bridges, Roads, Overpasses, Structures | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infrastructure Failure - Communications | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infrastructure Failure - Electrical Systems | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infrastructure Failure - Sanitary/Storm Sewers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Infrastructure Failure - Water System | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Nuclear Power Plant Accidents | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Oil and Gas Well or Pipeline Accidents | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Subsidence – Mining | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Wayne County Hazard Mitigation Plan Update Survey #1

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Civil Disturbance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Criminal Acts - Vandalism and Arson | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Criminal Acts - Mass Shootings | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Information Technology Intrusion | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Gas/Oil Shortages or Supply Disruptions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Public Health Emergencies - Pandemics, Epidemics, Contaminated Food/Water | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Terrorism/Sabotage | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Transportation Accidents - Air | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Transportation Accidents - Surface Roads/Highways | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Transportation Accidents - Marine | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Transportation Accidents - Rail | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Weapons of Mass Destruction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Wayne County Hazard Mitigation Plan Update Survey #1

***6. Based on the size of the population impacted by a hazard event, indicate the top five assets that are most vulnerable by placing the numbers 1 (most important overall) to 5 (least important of the top five).**

| | 1 | 2 | 3 | 4 | 5 |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Commercial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hospitals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Industrial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Open Spaces | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Public Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Residential Areas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Roads, Bridges, Railroads | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Utility Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Schools and Churches | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sports/Entertainment Arenas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Central Business District | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Wayne County Hazard Mitigation Plan Update Survey #1

***7. Based on the impact to the environment caused by a hazard event, indicate the top five assets that are most vulnerable by placing the numbers 1 (most important overall) to 5 (least important of the top five).**

| | 1 | 2 | 3 | 4 | 5 |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Commercial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hospitals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Industrial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Open Spaces | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Public Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Residential Areas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Roads, Bridges, Railroads | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Utility Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Schools and Churches | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sports/Entertainment Arenas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Central Business District | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Wayne County Hazard Mitigation Plan Update Survey #1

***8. Based on the impact to economic activity caused by a hazard event, indicate the top five assets that are most vulnerable by placing the numbers 1 (most important overall) to 5 (least important of the top five).**

| | 1 | 2 | 3 | 4 | 5 |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Commercial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Hospitals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Industrial Sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Open Spaces | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Public Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Residential Areas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Roads, Bridges, Railroads | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Utility Facilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Schools and Churches | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sports/Entertainment Arenas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Central Business District | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

WCHMP 2nd Survey: County-Wide Hazard Mitigation Strategies

1. Name

2. Email Address

3. Hazard mitigation is defined as “any action taken to reduce or eliminate the long-term risk to human life and property from natural, technological, or human-related hazards.” Hazard events will occur, and at their worst result in injuries, death and/or destruction of property and infrastructure. The work done to minimize the impact of hazard events to life and property is called Hazard Mitigation. Often, these events occur in the same locations over time (i.e. flooding along rivers), and cause repeated damage. Because of this, Hazard Mitigation is often focused on reducing repetitive loss, thereby breaking the disaster cycle.

The following list of hazards was taken from priorities identified by Wayne community representatives in the March 14 workshop. Please note any specific mitigation strategies you feel County agencies should implement for any of these hazards, please use the text boxes below each hazard to describe those strategies.

Extreme Temperatures (Extreme Hot or Cold)

Flooding - Urban (stormwater

Flooding - Riverine or Shoreline

HazMat Incidents - Transportation

Infrastructure Failure - Water & Sewer Systems

Public Health Emergencies - Pandemics, Epidemics, Food/Water Contamination

Catastrophic Events/National Emergencies

Civil Disturbance

Thunderstorms- Hail, Lightning, Severe Win

Criminal Acts - Mass Shootings/Active Assailant(s)

Criminal Acts - Vandalism, Arson

Transportation Accidents - Roads/Highway

Tornadoes

Winter Hazards - Snow, Ice, Sleet

OTHER

4. The following Hazard Mitigation Strategies were selected as County Action Plans in the 2013 Wayne County HMP.

Please rate each of the following mitigation strategies for **county-wide** adoption: (Rating scale = Cannot Assess, No Longer Relevant/Not Important, Neutral, Important, Very Important)

| | Cannot Assess | No Longer Relevant/ Not Important | Neutral | Important | Very Important |
|---|-----------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| Develop a list of facilities in each jurisdiction that are available to serve as warming or cooling centers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Improve floodplain management and minimize potential effects of flooding; encourage and promote regional watershed cooperation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Distribute family emergency preparedness information | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Create evacuation plans and community awareness of those plans | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Improve emergency communication between all County communities, including the City of Detroit | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Train and equip public health, hospital, and responder personnel (police/fire/EMS, etc.) for readiness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Review and evaluate Hazard Mitigation Plan (HMP) priorities and progress on an annual basis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Develop an inspection plan and strategy to identify and abate all vacant, abandoned, and blighted structures near sensitive populations throughout the county, including Sara Title III sites | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. The following mitigation strategies have been taken from the Michigan Hazard Mitigation Plan, have been used by other Michigan communities, or have been suggested by Wayne County community representatives. Possible mitigation strategies are identified as general strategies, applicable to multiple hazards, or are listed under a specific hazard. Please note that some strategies may be applicable to multiple hazards, but we have attempted to avoid duplication to reduce the time it takes for the survey.

GENERAL MITIGATION STRATEGIES:

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|---|---|
| <input type="checkbox"/> Obtain communication boosters for deficient areas in county-wide communication network | <input type="checkbox"/> Keep roads and driveways accessible to vehicles and fire equipment - bridges should be able to support emergency vehicles, roads should be adequate for vehicles to turn and cross both ways |
| <input type="checkbox"/> Improve communications between municipalities, state, and regional agencies in case of mass event | <input type="checkbox"/> Establish emergency routing procedures for emergency vehicles to avoid road or bridge closures due to construction or emergency |
| <input type="checkbox"/> Identify transportation bottlenecks to ensure emergency vehicle access and access to region's hospitals | <input type="checkbox"/> Include safety strategies for severe weather events in driver education classes and materials |
| <input type="checkbox"/> Coordinate mutual aid assistance for failures in utility and communications systems (including 911) | <input type="checkbox"/> Create public/private cooperation plans for emergency response |
| <input type="checkbox"/> Encourage communities to acquire generators for backup power at critical facilities | <input type="checkbox"/> Erect signage for the AM station along roadways (complete with a flashing notification light set on a remote transmitter – when light is flashing tune to the radio station) directing the traveling public to tune into the station |
| <input type="checkbox"/> Encourage residents to develop family escape plan and disaster plans and supply kits | <input type="checkbox"/> Implement the Emergency Alert System (EAS) in Wayne County |
| <input type="checkbox"/> Ensure readiness at critical facilities (e.g., warming/cooling centers, water and wastewater treatment facilities, etc.) by obtaining adequate emergency power generators and requiring facilities to perform regular maintenance and equipment checks, pre-plan for fuel needs of existing and backup power sources | <input type="checkbox"/> Purchase and install a reverse 911 system for the county after researching the type of systems offered |
| <input type="checkbox"/> Develop mutual aid agreements for incident response | <input type="checkbox"/> Facilitate full NIMS compliance throughout Wayne County |
| <input type="checkbox"/> Improve agency coordination in response and planning activities | <input type="checkbox"/> Develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums and recreation areas, and other appropriate sites |
| <input type="checkbox"/> Disseminate public education materials (newsletters, pamphlets, articles, programs, web links, contact information) to explain key hazards, self and property protection measures warning and response systems currently in place | <input type="checkbox"/> Pre-plan for storm debris removal and management and implement system to provide heavy equipment for storm debris cleanup |

Other (please include your suggestions)

6. INFRASTRUCTURE FAILURE

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|--|
| <input type="checkbox"/> Coordinate mutual aid agreements with water hauling companies to have emergency supplies hauled into Wayne County | <input type="checkbox"/> Obtain equipment to detect hydrogen sulfide |
| <input type="checkbox"/> Utilize alternative 911 access through radio operators whose homes are specially marked for identification | <input type="checkbox"/> Obtain adequate supply of backup generators for emergency temporary power |
| <input type="checkbox"/> Develop programs/networks for contacting elderly or homebound persons during periods of infrastructure failure | <input type="checkbox"/> Utilize buried/protected power and utility lines |
| <input type="checkbox"/> Separate and/or expand sewer systems to handle anticipated stormwater volumes | <input type="checkbox"/> Install surge protectors on critical electronic equipment |
| <input type="checkbox"/> Create "rolling blackouts" in electrical systems that would otherwise fail due to overloads | <input type="checkbox"/> Detect and prevent/discourage illegal discharges into storm sewers from home footing drains, downspouts, and sump pumps |
| <input type="checkbox"/> Replace or renovate aging infrastructure and equipment | <input type="checkbox"/> Properly locate, design, and maintain water and sewer systems to insulate critical components from freezing |
| <input type="checkbox"/> Establish tree trimming program(s) to minimize power loss due to falling branches | <input type="checkbox"/> Use surge protectors on critical electrical equipment |
| <input type="checkbox"/> Establish procedures to protect cable/broadband internet systems | <input type="checkbox"/> Develop redundancy in utility and communication systems, especially "lifeline" systems |
| <input type="checkbox"/> Create and/or identify relief and response centers for impacted residents | <input type="checkbox"/> Increase public awareness and use of "MISS DIG" |

Other (please include your suggestions)

7. PUBLIC HEALTH EMERGENCIES

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|---|---|
| <input type="checkbox"/> Encourage residents to receive immunizations against communicable diseases | <input type="checkbox"/> Prevent public contact with contaminated sites or waters (including floodwaters) |
| <input type="checkbox"/> Improve ventilation in areas/facilities prone to crowding or that may involve exposure to contagions or noxious atmospheres | <input type="checkbox"/> Require pollution control, enforcement, and cleanup; proper disposal of chemicals & scrap materials |
| <input type="checkbox"/> Increase public awareness of radon dangers and what can be done to reduce radon concentrations in homes and buildings | <input type="checkbox"/> Educate residents regarding, and enforce, proper location, installation, cleaning, monitoring, and maintenance of septic tanks |
| <input type="checkbox"/> Develop stricter health codes regulating food storage in local restaurants | <input type="checkbox"/> Stockpile vaccines and antidotes in case of epidemic, chemical emergency, or biological or chemical weapons attack |
| <input type="checkbox"/> Demolish and clear vacant/condemned structures to prevent rodent infestations | <input type="checkbox"/> Utilize quarantines where applicable |
| <input type="checkbox"/> Maintain community public health system with sufficient disease monitoring and surveillance capabilities to adequately protect the population from large-scale outbreaks | <input type="checkbox"/> Create inter-hospital mutual aid pacts to assure communication and service delivery in the event of quarantine or outbreak |
| <input type="checkbox"/> Undertake brownfield and urban blight cleanup | <input type="checkbox"/> Continue to fund adequate food and sanitation inspections |
| <input type="checkbox"/> Increase public awareness of the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies | <input type="checkbox"/> Use public warning systems for public health communications |
| <input type="checkbox"/> Encourage community support of free and reduced-expense clinics and school health services | <input type="checkbox"/> Establish a program to identify and properly close abandoned water wells |

Other (please include your suggestions)

8. CRIMINAL ACTS-- MASS SHOOTINGS/ ACTIVE ASSAILANT(S)

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|---|
| <input type="checkbox"/> Work with public and private location managers to post signage for emergency entry and exist points, first aid stations, and shelter locations | <input type="checkbox"/> Devise credential systems indicating areas of access and purpose of activity on premises |
| <input type="checkbox"/> Define perimeters and areas that require access control, identify particularly sensitive or critical areas that require special access controls | <input type="checkbox"/> Develop response plans for key locations and conduct training exercises |
| <input type="checkbox"/> Conduct periodic background checks on all staff assigned to critical or sensitive areas | <input type="checkbox"/> Develop/employ text or Amber-Alert-like communication systems to notify public when an incident occurs or is suspected |
| <input type="checkbox"/> Review terminated employees' personnel files to determine if they pose a security risk; ensure they are removed from access systems | <input type="checkbox"/> Develop and disseminate education programs so that public learns warning signs, knows how to report suspicious behavior, and knows how to respond in the event of an active assailant incident |

Other (please include your suggestions)

9. FLOODING

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|--|
| <input type="checkbox"/> Identify and map, or update existing maps of, floodplains and flood prone areas | <input type="checkbox"/> Require anchoring manufactured homes to a permanent foundation (but with an option to move structures if necessary) |
| <input type="checkbox"/> Develop a layer to the county's mapping showing the areas downstream of dams to complement any structural inventory mapping that has been done. As such, county mappers can easily sum the potential losses in a single dam's susceptibility area | <input type="checkbox"/> Increase public awareness of the need for permits for building in floodplains |
| <input type="checkbox"/> Develop engineering plans to address flood prone areas | <input type="checkbox"/> Require detention/retention in new development |
| <input type="checkbox"/> Develop county-wide maps/lists of undersized culverts and pipe systems | <input type="checkbox"/> Establish plan to eliminate repetitive loss properties |
| <input type="checkbox"/> Remove woody debris from flood prone areas | <input type="checkbox"/> Assure new building sites are above base flood elevation |
| <input type="checkbox"/> Stockpile sandbags at strategic locations throughout the county | <input type="checkbox"/> Maintain all roadways no more than 1 foot below the base flood elevation |
| <input type="checkbox"/> Establish mutual aid agreements or contracts with sand suppliers to facilitate rapid filling of sandbags during flooding events. | <input type="checkbox"/> Establish standards to prevent erosion, including the use of native vegetation |
| <input type="checkbox"/> Dry flood-proof structures within known flood areas (strengthen walls, seal openings, use waterproof compounds/plastic sheeting on walls) | <input type="checkbox"/> Zone flood prone areas for open space and recreation |
| | <input type="checkbox"/> Implement road improvements to prevent washouts |
| | <input type="checkbox"/> Disseminate public education materials explaining wetland protection measures and benefits |
| | <input type="checkbox"/> Enforce stream and wetland dumping/fill regulations |

- | | |
|---|---|
| <input type="checkbox"/> Wet flood-proof structures within know flood areas (controlled flooding of structures to balance water forces and reduce structural collapse during floods) | <input type="checkbox"/> Identify community roads that area susceptible to flooding during times of heavy rainfall |
| <input type="checkbox"/> Provide supplies (e.g. ATVs, medical supplies, etc.) to local officials/residents to provide access to isolated areas in the county to supplement first responder capabilities. | <input type="checkbox"/> Encourage acceptable land use densities, coverage, and planning for particular soil types and capacities based upon runoff and absorption capabilities |
| <input type="checkbox"/> Provide assistance to the Federal Emergency Management Agency (FEMA), as requested, for the ongoing flood map modernization project | <input type="checkbox"/> Acquire, relocate, or condemn structures within floodplain or floodway areas |
| <input type="checkbox"/> Purchase the necessary software to run new digital FEMA flood maps once the flood map modernization project is complete | <input type="checkbox"/> Require/encourage communities to join the National Flood Insurance Program (NFIP) |
| <input type="checkbox"/> Provide training to local officials on the software purchased to run maps developed by the flood map modernization project | <input type="checkbox"/> Require/encourage communities to participate in the Community Rating System (CRS) |
| <input type="checkbox"/> Elevate flood prone structures above the 100-year base flood elevation | <input type="checkbox"/> Develop drainage easements for planned and regulated public use of private land for temporary water detention and drainage |
| <input type="checkbox"/> Maintain and/or strengthen dam structures. | <input type="checkbox"/> Provide backup generators and other measures (e.g., alarms, meters, etc.) for pump and lift stations in sanitary sewer systems, to ensure that drainage infrastructure is not impeded |
| <input type="checkbox"/> Construct, or elevate existing, roads or plan alternative roads that are unaffected by flooding. Make roads more flood resistant through better drainage and/or stabilization/armoring of vulnerable shoulders and embankments | <input type="checkbox"/> Establish a "green infrastructure" plan/program to link, manage, and expand existing parks, preserves, greenways, etc. |
| <input type="checkbox"/> Include discussion of safety strategies for flood areas in driver education classes and materials | <input type="checkbox"/> Develop an open space acquisition and/or land bank program for preserving flood hazard areas |
| <input type="checkbox"/> Stabilize eroding shorelines to minimize losses of infrastructure, danger to citizens | <input type="checkbox"/> Establish watershed-based planning initiatives to address flood hazards with neighboring communities |
| <input type="checkbox"/> Dredge and clear sediment and debris from drainage channels or harbors and from support bracing under bridges | <input type="checkbox"/> Limited allowable impervious surface within new development |
| <input type="checkbox"/> Raise low-lying bridges | <input type="checkbox"/> Develop a stream buffer ordinance to protect water resources and limit flood hazards |
| <input type="checkbox"/> Enforce basic building code requirements related to flood mitigation | <input type="checkbox"/> Link flood hazard mitigation objectives with U.S. EPA/MDEQ MS4 stormwater Initiatives |
| <input type="checkbox"/> Strengthen existing watershed councils | <input type="checkbox"/> Encourage the use of Low Impact Development (LID) techniques |
| <input type="checkbox"/> Participate in structural projects to channel water away from people and property | <input type="checkbox"/> Encourage the use of porous/permeable paving materials to reduce stormwater runoff and increase groundwater recharge |
| <input type="checkbox"/> Establish higher engineering standards for drain and sewer capacity | <input type="checkbox"/> Conduct cumulative impact analyses for multiple development projects within the same watershed/subwatershed |
| <input type="checkbox"/> Install/re-route /increase storm drain system capacity, including the separation of storm and sanitary systems | <input type="checkbox"/> Verify FEMA's repetitive loss inventory and develop a tracking database |
| <input type="checkbox"/> Preserve farmland and open space | <input type="checkbox"/> Develop a dam failure study and emergency action plan |
| <input type="checkbox"/> Elevate mechanical and utility devices above expected flood levels | <input type="checkbox"/> Inspect and repair dams on a regular basis |
| | <input type="checkbox"/> Develop real estate disclosure laws that identify homes located within the hydraulic shadows of dams |

- | | |
|---|---|
| <input type="checkbox"/> Develop emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, stadiums and recreation areas, and other appropriate sites | <input type="checkbox"/> Regulate development within the hydraulic shadows of dams |
| <input type="checkbox"/> Protect, and/or restore, wetlands and natural water retention areas | <input type="checkbox"/> Automate/install pumps and floodgates at dam sites |
| <input type="checkbox"/> Provide public education and flood warning systems | <input type="checkbox"/> Conduct NFIP community workshops to provide information and incentives for property owners to purchase flood insurance |
| <input type="checkbox"/> Monitor water levels with stream gauges and trained monitors | <input type="checkbox"/> Establish impact fees to help fund public projects mitigating impacts of land development |
| <input type="checkbox"/> Train local officials in flood control, flood plan management, flood proofing, etc. | <input type="checkbox"/> Install, reroute, or increase the capacity of storm drainage and/or flood storage systems |
| <input type="checkbox"/> Provide for traffic control and road closures in flooded areas | <input type="checkbox"/> Build earthen dikes around flood threatened critical facilities |
| <input type="checkbox"/> Maintain trained, equipped, and well-prepared search and rescue teams | <input type="checkbox"/> Ask residents to keep storm drains free of debris during storms (to reduce burden on Public Works crews) |
| <input type="checkbox"/> Control and secure loose materials, yard items, and stored objects in floodplains that otherwise be swept away, damaged or pose a hazard when flooding occurs | |
| <input type="checkbox"/> Require standard tie-downs for propane tanks | |
| <input type="checkbox"/> Purchase or transfer development rights to discourage development in floodplains | |
| <input type="checkbox"/> Use check valves, sump pumps, and backflow prevention in homes and buildings | |
| <input type="checkbox"/> Participate in regional/watershed cooperation | |
| <input type="checkbox"/> Other (please include your suggestions) | |

10. EXTREME TEMPERATURES

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|---|
| <input type="checkbox"/> Establish and build awareness of accessible heating/cooling centers in the community | <input type="checkbox"/> Utilize state and federal programs that assist low income families in home improvements that protect from extreme temperatures and increase efficiency |
| <input type="checkbox"/> Ensure adequate backup power generators for warming and cooling centers | <input type="checkbox"/> Minimize temperature impacts on utilities and infrastructure (including substations) |
| <input type="checkbox"/> Provide public information before extreme temperatures occur (i.e., spring & fall) | <input type="checkbox"/> Evaluate existing pipes for brittleness and replace as necessary and prudent |
| <input type="checkbox"/> Increase coverage and use of NOAA weather radios (public notification) | <input type="checkbox"/> Perform study to ensure redundancies in water systems |
| <input type="checkbox"/> Enforce heating and cooling requirements for landlords, especially those serving vulnerable populations | <input type="checkbox"/> Plan for excess capacity at area shelters |
| <input type="checkbox"/> Work with utility companies to allow special arrangements for those unable to pay heating bills | <input type="checkbox"/> Establish a program to address pavement buckling due to extreme temperatures |
| <input type="checkbox"/> Provide outreach to vulnerable populations during extreme temperature events | <input type="checkbox"/> Provide transportation to shelters for elderly or disabled |
| <input type="checkbox"/> Create insulation standards to protect from extreme temperatures and increase efficiency (especially in buildings housing vulnerable populations) | <input type="checkbox"/> Reduce urban heat island effects by planting trees around buildings, to shade parking lots, and along public rights-of-way |
| <input type="checkbox"/> Educate the public regarding safe use of office and home space heaters | |

Other (please include your suggestions)

11. HAZMAT INCIDENTS

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|---|
| <input type="checkbox"/> Improve driver education, traffic law enforcement, and transportation planning to balance the needs of hazardous material transporters with public safety | <input type="checkbox"/> Utilize public warning systems and networks |
| <input type="checkbox"/> Improve design, routing, and traffic control on problem roadways/areas | <input type="checkbox"/> Use ITS/IHS (Intelligent Highway Systems) technology |
| <input type="checkbox"/> Inspect and improve design at problem railway/roadway intersections | <input type="checkbox"/> Comply with and enforce USDOT/MDOT regulations regarding hazardous materials transport |
| <input type="checkbox"/> Enforce truck traffic weight and travel restrictions | <input type="checkbox"/> Ensure road closures and traffic control in accident areas |
| <input type="checkbox"/> Conduct a commodity flow study on the major roadways and railways of the county to determine what materials are flowing through the county | <input type="checkbox"/> Locate schools, nursing homes, and other special facilities away from major hazardous material transportation routes |
| <input type="checkbox"/> Assure training, planning, and preparedness for hazardous material incidents along roads and railways | <input type="checkbox"/> Create emergency response system to provide bus transportation away from sites of hazmat incidents |
| <input type="checkbox"/> Other (please include your suggestions) | |

12. The following strategies for **TRANSPORTATION ACCIDENTS** have been taken from the Michigan Hazard Mitigation Plan, have been used by other Michigan communities, or have been suggested by Wayne County community representatives. Possible mitigation strategies are identified as general strategies, applicable to multiple hazards, or are listed under a specific hazard. Please note that some strategies may be applicable to multiple hazards, but we have attempted to avoid duplication to reduce the time it takes for the survey.

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|---|---|
| <input type="checkbox"/> Address locations where trains block emergency routes for extend | <input type="checkbox"/> Enforce weight and travel restrictions |
| <input type="checkbox"/> Evaluate purchase of mass casualty trailer to assist in multiple vehicle accidents | <input type="checkbox"/> Use ITS/IHS (intelligent highway systems) technology |
| <input type="checkbox"/> Provide funding for additional traffic barricades | <input type="checkbox"/> Establish airport maintenance, security, and safety programs |
| <input type="checkbox"/> Provide additional training and equipment for responding to plane crashes | <input type="checkbox"/> Provide commercial operator training and skill enhancement programs |
| <input type="checkbox"/> Provide funding and training for water rescue | <input type="checkbox"/> Train, plan, and prepare for mass-casualty incidents involving all modes of transportation |
| <input type="checkbox"/> Perform railroad inspections and improve designs at problem railway/roadway intersections | <input type="checkbox"/> Maintain trained, equipped, and prepared search and rescue teams |
| <input type="checkbox"/> Conduct long-term planning that provides more connector roads for reduced congestion of arterial roads | |

Other (please include your suggestions)

13. **SEVERE WIND/ TORNADOES**

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|---|
| <input type="checkbox"/> Provide public education regarding the dangers of thunderstorms | <input type="checkbox"/> Provide weather monitors (not just NOAA weather radios) to schools and nursing homes and mobile home parks for severe wind warnings |
| <input type="checkbox"/> Increase training and use of weather spotters | <input type="checkbox"/> Conduct a shelter assessment for the purpose of identifying shelter facilities that could be used during or after severe wind events and/or severe winter storm conditions |
| <input type="checkbox"/> Utilize public early warning systems and networks | <input type="checkbox"/> Use structural bracing, window shutters, laminated glass in window panes, and hail-resistant shingles to minimize damage to private and public structures |
| <input type="checkbox"/> Perform tree trimming and maintenance to prevent limb breakage and to safeguard utility lines | <input type="checkbox"/> Identify facilities in need of tornado shelters |
| <input type="checkbox"/> Utilize buried/protected power and utility lines | |

Other (please include your suggestions)

14. SEVERE WEATHER -- WINTER

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|--|
| <input type="checkbox"/> Evaluate existing pipes for "brittleness" and replace as necessary and prudent | <input type="checkbox"/> Use snow fences or "living snow fences" to limit blowing and drifting snow over critical road segments |
| <input type="checkbox"/> Provide public education regarding severe winter weather hazards | <input type="checkbox"/> Conduct public building maintenance and educate homeowners regarding prevention of ice dam damage |
| <input type="checkbox"/> Require proper building/site design and code enforcement relating to snow loads, roof slope, snow removal and storage, etc. | <input type="checkbox"/> Conduct a shelter assessment for the purpose of identifying shelter facilities that could be used during or after severe wind events and/or severe winter storm conditions |
| <input type="checkbox"/> Facilitate farmer preparedness to address livestock needs/problems | <input type="checkbox"/> Educate residents on dangers of alternative heat sources (space heaters) when power is lost - to reduce risk of fire and carbon monoxide |
| <input type="checkbox"/> Pre-arrange shelters for stranded motorists/travelers, and others | <input type="checkbox"/> Educate homeowners and builders on how to protect their pipes, including letting faucets drip during extreme cold weather and locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls |
| <input type="checkbox"/> Maintain adequate road and debris clearing capabilities | |

Other (please include your suggestions)

15. SEVERE WEATHER -- SUMMER

Please indicate all of the following mitigation strategies that you would rate as high or very high priority. Please leave blank those you cannot assess or those that you feel are less important or unimportant:

- | | |
|--|--|
| <input type="checkbox"/> Increase coverage and use of NOAA Weather radio (detection and public notification) | <input type="checkbox"/> Encourage or require construction of concrete safe rooms for new construction of single and multi-family homes and shelter areas in mobile home parks, fairgrounds, shopping malls, and other vulnerable public areas |
| <input type="checkbox"/> Train, and increase the use of, weather spotters | |
| <input type="checkbox"/> Utilize public early warning systems and networks | <input type="checkbox"/> Enlist MSU Extension to recommend protective vegetation |
| <input type="checkbox"/> Include safety strategies for severe weather events in driver education classes and materials | <input type="checkbox"/> Install additional tornado sirens in community |
| <input type="checkbox"/> Use structural bracing, window shutters, laminated window glass, and hail resistant roof shingles to minimize damage to public and private structures | <input type="checkbox"/> Provide additional manpower to assist during and following storms |
| <input type="checkbox"/> Develop public education materials to explain property protection measures and insurance options | <input type="checkbox"/> Provide additional medical and confined space entry equipment |
| <input type="checkbox"/> Require proper anchoring of manufactured homes and exterior structures such as carports and porches | <input type="checkbox"/> Implement rapid damage assessment |
| <input type="checkbox"/> Secure loose materials, yard and patio items so that they cannot be blown about in high winds | <input type="checkbox"/> Install lightning protection devices in communities' communication infrastructure |
| | <input type="checkbox"/> Create a database to track those individuals at high risk of death, such as the elderly, homeless, etc. |

Other (please include your suggestions)

16. Please use the space below to ***suggest any other hazard mitigation strategies and/or to suggest specific locations in your community or Wayne County where mitigation is needed.***

In each case, please identify the hazard applicable to the mitigation strategy or location. A list of hazards is provided for your reference:

Natural Hazards:

Drought, Earthquake, Extreme Temperatures - Extreme Cold, Extreme Temperatures - Extreme Heat, Fire - Wildfires, Flooding - Riverine, Flooding - Shoreline & Erosion, Fog, Invasive Species, Subsidence - Natural, Thunderstorms - Hail, Thunderstorms - Lightning, Thunderstorms - Severe Wind, Tornadoes, Winter Hazards - Ice and Sleet, Winter Hazards - Snowstorms, Unpredictable Weather

Technological Hazards

Fire - Scrap Tire, Fire - Structural, Flooding - Dam Failure, Flooding - Urban, Hazmat Incidents - Fixed Site, Hazmat Incidents - Transportation, Infrastructure Failure - Bridges, Roads, Overpasses, Infrastructure Failure - Communications, Infrastructure Failure - Electrical Systems, Infrastructure Failure - Sanitary Sewer System, Infrastructure Failure - Storm Sewer System, Infrastructure Failure - Structural Collapse, Infrastructure Failure - Water System, Nuclear Power Plant Accidents, Oil and Gas Well Accidents, Petroleum and Natural Gas Pipeline Accidents, Subsidence - Mining

Human Hazards:

Civil Disturbance, Criminal Acts - Vandalism and Arson, Criminal Acts - Due to Economic Collapse, Criminal Acts - Mass Shootings, Centralized Planning in Lansing & Washington, DC, Unemployment and Underemployment, Information Technology Intrusion, Gas/Oil Shortages or Supply Disruptions, Public Health Emergencies - Pandemics and Epidemics, Public Health Emergencies - Contaminated Food/Water, Electromagnetic Pulse, Transportation Accidents - Air, Transportation Accidents - Highway, Transportation Accidents - Marine, Transportation Accidents - Rail, Transportation Accidents - Rail/Highway Crossings, Transportation Accidents - Surface Roads, Weapons of Mass Destruction

Survey #3 - Prioritizing Final Action Plans

1. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Stockpile vaccines and antidotes in case of epidemic, chemical emergency, or biological or chemical weapons attack"

| | High | Medium | Low | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Technical Feasibility | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cost Effectiveness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ability to Accomplish | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Effectiveness of Strategy (including downside risk) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Availability of Funding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Train & equip volunteers to staff open and closed PODs (Points of Dispensing) within the county"

| | High | Medium | Low | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Increase public awareness of the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Use mass notification, emergency alerting systems, and social media, for public health emergencies"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Improve communication & cooperation between county and municipalities and area hospitals/health facilities"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

6. Please rate the following italicized strategy for mitigating **Public Health Emergencies** according to how well it satisfies the five criteria listed below:

"Equip, train, & re-institute amateur radios/radio operators in hospitals"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. Please rate the following italicized strategy for mitigating the impact of **Infrastructure Failure** according to how well it satisfies the five criteria listed below:

"Replace or renovate aging structures and equipment. Establish procedures to protect IT systems."

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. Please rate the following italicized strategy for mitigating the impact of **Mass Shootings/Active Assailants** according to how well it satisfies the five criteria listed below:

"Continue training in most current protocol(s)"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. Please rate the following italicized strategy for mitigating the impact of **Mass Shootings/Active Assailants** according to how well it satisfies the five criteria listed below:

"Develop a process for requesting assistance from local and state law enforcement"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

10. Please rate the following italicized strategy for mitigating the impact of **Riverine/Shoreline Flooding** according to how well it satisfies the five criteria listed below:

"Identify and map, or update existing maps of, floodplains and flood prone areas using the County's ArcGIS system. Provide training for local jurisdictions in use of and access to system."

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. Please rate the following italicized strategy for mitigating the impact of **Riverine/Shoreline Flooding** according to how well it satisfies the five criteria listed below:

"Work with US Army Corps of Engineers or other appropriate authorities to develop engineering plans addressing flood prone areas"

| | High | Medium | Low | | |
|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

12. Please rate the following italicized strategy for mitigating the impact of **Extreme Hot or Cold Temperatures** according to how well it satisfies the five criteria listed below:

"Establish and build awareness of accessible heating/cooling centers in the community. Utilize all means available, including websites, social media, smart phone apps, mailers, etc. to educate of impending weather threats and available resources, including heating & cooling shelters."

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

13. Please rate the following italicized strategy for mitigating the impact of Extreme Hot or Cold Temperatures according to how well it satisfies the five criteria listed below:

"Provide outreach to vulnerable populations during extreme temperature events. Catalog & map areas of vulnerable and otherwise difficult to locate residents (unlicensed facilities, empty/vacant buildings, etc.)"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

14. Please rate the following italicized strategy for mitigating the impact of Extreme Hot or Cold Temperatures according to how well it satisfies the five criteria listed below:

"Educate the public regarding safe use of office and home space heaters, generators, smoke & carbon monoxide detectors"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. Please rate the following italicized strategy for mitigating the impact of **Extreme Hot or Cold Temperatures** according to how well it satisfies the five criteria listed below:

"Provide transportation to shelters for the elderly, disabled, and otherwise hard to reach populations"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

16. Please rate the following italicized strategy for mitigating the impacts of **Transportation Related HazMat Incidents** according to how well it satisfies the five criteria listed below:

"Assure training, planning, and preparedness for hazardous material incidents along vulnerable, high risk roads and railways"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

17. Please rate the following italicized strategy for mitigating the impacts of **Transportation Related HazMat Incidents** according to how well it satisfies the five criteria listed below:

"Utilize public warning systems and networks for awareness and instructions"

| | High | Medium | Low | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technical Feasibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cost Effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ability to Accomplish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effectiveness of Strategy (including downside risk) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Availability of Funding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Wayne County Hazard Mitigation Plan

Revision Number/Date: 0/June 2019

Publication Date: June 17, 2019

Appendix C. Workshop Materials

Agenda

Date: March 14, 2019

RE: Public Meeting
Wayne County Hazard Mitigation Plan Update (ASTI File No. 10943)

Meeting Objectives: Review HMP Purpose and Process, Hazard Identification & Prioritization

1. **Introductions**
2. **The Function of a Hazard Mitigation Plan**
3. **Overview of the Planning Process**
4. **Overview of 2013-2014 Plan**
5. **Confirm Goals**
6. **Update the Plan - Review & Rank Hazardous Events**
7. **Review & Rank Critical Assets** (time allowing)
8. **Next Survey - Due End of Day Monday, March 25**
9. **Next Workshop - March 28**

Summary of Current Plan – Hazard Ranking Comparison 2013 Plan
 Wayne County Hazard Mitigation Plan Update
 Workshop of March 14, 2019

| | Hazard | 2006 Historic Rank | 2013 Survey | | In 2006 | |
|--|---|--------------------------|-----------------------------------|--------------------------------|---------|-----------------------------|
| | | | Open Ended Question Rank | Ranking No. Times Listed | | Ranking Average Score |
| Natural Hazards | Drought | | | 25 | 28 | |
| | Earthquakes | | | 30 | 30 | |
| | Erosion - Shoreline | | | | | |
| | Extreme Temperatures: Extreme Cold | 12 | 23 | 4 | 12 | |
| | Extreme Temperatures: Extreme Heat | | 23 | 4 | 12 | |
| | Fires - Wildfires | 14 | | 30 | 30 | |
| | Flooding - Riverine | | 10 | 9 | 7 | |
| | Flooding - Shoreline | 14 | 10 | 9 | 7 | |
| | Fog | | | 30 | 30 | |
| | Invasive Species | | | 30 | 30 | |
| | Subsidence - Natural | | | 30 | 30 | |
| | Thunderstorms - Hail | 2 | 1 | 1 | 6 | |
| | Thunderstorms - Lightning | 2 | 1 | 1 | 6 | |
| | Thunderstorms - Severe Wind | 2 | 1 | 1 | 6 | |
| | Tornadoes | 19 | 3 | 2 | 8 | |
| Winter Hazards - Ice and Sleet | 19 | 2 | 3 | 9 | | |
| Winter Hazards - Snowstorms | | 2 | 3 | 9 | | |
| Technological Hazards | Fires - Scrap Tire | 25 | | 30 | 30 | |
| | Fires - Structural | 1 | 20 | 23 | 2 | |
| | Flooding - Dam Failure | 25 | | 30 | 30 | |
| | Flooding - Urban | 14 | | 6 | 19 | |
| | Hazmat Incidents - Transportation | 7 | 4 | 9 | 10 | |
| | Hazmat Incidents - Fixed | 19 | 9 | 12 | 5 | |
| | Infrastructure Failure - Bridges, Roads, Overpass | | 13 | 8 | 11 | |
| | Infrastructure Failure - All | | | | | |
| | Infrastructure Failure - Communications | | 16 | 25 | 1 | |
| | Infrastructure Failure - Electrical System | 11 | 6 | 12 | 23 | |
| | Infrastructure Failure - Sanitary Sewer System | 7 | 13 | 12 | 15 | |
| | Infrastructure Failure - Storm Sewer System | 7 | 13 | 12 | 15 | |
| | Infrastructure Failure - Water System | 3 | 16 | 12 | 12 | |
| | Nuclear Power Plants | 28 | 13 | 18 | 16 | |
| | Oil and Gas Well Accidents | 28 | 23 | 19 | 18 | |
| Petroleum and Natural Gas Pipeline Accidents | 14 | | 30 | 18 | | |
| Subsidence - Mining | 28 | | 30 | 30 | | |
| Subsidence - Technical | | | | | | |
| Human Related Hazards | Civil Disturbance | 13 | 3 | 23 | 2 | |
| | Criminal Acts (Vandalism and Arson) | 3 | 6 | 9 | 22 | |
| | Criminal Acts (Mass Shootings) | | 10 | 16 | 20 | |
| | Information Technology Intrusion | | 16 | 25 | 28 | |
| | Gas/Oil Shortages or Supply Disruptions | | | 25 | 23 | |
| | Public Health Emergencies | 28 | 6 | 6 | 17 | |
| | Pandemics and Epidemics | | | | | |
| | Contaminated Food/Water | | | | | |
| | Terrorism and Sabotage | | 20 | 19 | 12 | |
| | Transportation Acc. - Highway | 5 | 4 | 4 | 21 | |
| | Transportation Acc. - Rail | 19 | 20 | 16 | 21 | |
| | Transportation Acc. - Air | 7 | 10 | 19 | 23 | |
| | Transportation - Surface Roads | | | 4 | 21 | |
| | Transportation - Marine | | | 25 | 23 | |
| | Transportation Accidents - Rail/Highway Crossing | | | | | |
| Weapons of Mass Destruction | | | 19 | 27 | | |

Summary of Hazard Evaluation – First Survey Results for 2019 Update
Wayne County Hazard Mitigation Plan Update
Workshop of March 14, 2019

First Survey Results Open Question (N=57)

Natural Hazards

| Response | Count | % |
|---|--------------|--------------|
| Thunderstorms - Hail, Lightning, Severe Winds | 21 | 36.8 |
| Winter Hazards - Snow, Ice, Sleet | 14 | 24.6 |
| Flooding - Riverine or Shoreline | 11 | 19.3 |
| Tornadoes | 7 | 12.3 |
| Extreme Temperatures - Hot or Cold | 3 | 5.3 |
| Other - Severe Weather | 1 | 1.8 |
| | 57 | 100.0 |

Technological Hazards

| Response | Count | % |
|--|--------------|--------------|
| Infrastructure Failure - Bridges/Roads | 19 | 33.3 |
| HazMat Incidents - Transportation | 11 | 19.3 |
| Infrastructure Failure - Electrical | 9 | 15.8 |
| Flooding - Urban (stormwater) | 5 | 8.8 |
| Infrastructure Failure - Communications | 4 | 7.0 |
| Infrastructure Failure - Sanitary/Storm Sewers | 3 | 5.3 |
| Nuclear Power Plant Accidents | 2 | 3.5 |
| Oil, Petroleum, Natural Gas Well or Pipeline Accidents | 2 | 3.5 |
| Flooding - Dam Failure | 1 | 1.8 |
| HazMat Incidents - Fixed Sites | 1 | 1.8 |
| | 57 | 100.0 |

Human Hazards

| Response | Count | % |
|---|--------------|--------------|
| Public Health Emergencies - Pandemics/Epidemics/Contaminated Food/Water | 14 | 24.6 |
| Transportation Accidents - Roads | 11 | 19.3 |
| Catastrophic Events/National Emergencies | 10 | 17.5 |
| Criminal Acts - Mass Shooting/Active Assailant(s) | 10 | 17.5 |
| Civil Disturbance | 3 | 5.3 |
| Criminal Acts - Arson & Vandalism | 3 | 5.3 |
| Information Technology Intrusion | 2 | 3.5 |
| Gas/Oil Shortages or Supply Disruptions | 1 | 1.8 |
| Transportation Accidents - Air | 1 | 1.8 |
| Transportation Accidents - Rail | 1 | 1.75 |
| Other: Criminal Acts - Homicide/Robbery/Carjacking | 1 | 1.75 |
| | 57 | 100.0 |

Summary of Hazard Evaluation – First Survey Results for Update
Wayne County Hazard Mitigation Plan Update
Workshop of March 14, 2019

First Survey Results Hazards Ranked (N=57)

| Hazard | 2019 Survey | | | 2013 |
|--|--------------------------|--------------------------|-----------------------|------|
| | Open Ended Question Rank | Ranking No. Times Listed | Ranking Average Score | |
| Celestial Impact | | 38 | 39 | |
| Drought | | 27 | 30 | |
| Earthquake | | 37 | 37 | |
| Extreme Temperatures - Extreme Hot or Cold | 5 | 7 | 9 | 1, 5 |
| Fire - Wildfires | | 36 | 36 | |
| Flooding - Riverine or Shoreline | 3 | 21 | 6 | |
| Fog | | 33 | 31 | |
| Invasive Species | | 34 | 34 | |
| Subsidence - Natural | | 39 | 32 | |
| Thunderstorms - Hail, Lightning, Severe Wind | 1 | 1 | 3 | |
| Tornadoes | 4 | 6 | 7 | |
| Winter Hazards - Snow, Ice & Sleet | 2 | 2 | 12 | |
| Fire - Scrap Tire | | 35 | 35 | |
| Fire - Structural | | 23 | 20 | |
| Flooding - Dam Failure | 9 | 28 | 33 | |
| Flooding - Urban | 4 | 12 | 16 | 6 |
| Hazmat Incidents - Fixed Site | | 18 | 11 | 3 |
| Hazmat Incidents - Transportation | 2 | 9 | 15 | |
| Infrastructure Failure - Bridges, Roads | 1 | 3 | 8 | |
| Infrastructure Failure - Communications | 5 | 15 | 5 | 4 |
| Infrastructure Failure - Electrical Systems | 3 | 8 | 1 | 4 |
| Infrastructure Failure - Sanitary/Storm Sewers | 6 | 13 | 2 | |
| Infrastructure Failure - Water System | | 11 | 13 | 4 |
| Nuclear Power Plant Accidents | 7 | 14 | 21 | |
| Oil and Gas Well or Pipeline Accidents | 8 | 25 | 14 | |
| Subsidence - Mining or Infrastructure | | 29 | 38 | |
| Catastrophic Events/National Emergencies | 3 | 16 | 24 | |
| Civil Disturbance | 5 | 19 | 22 | |
| Criminal Acts - Mass Shootings/Active Assailant(s) | 4 | 5 | 19 | |
| Criminal Acts - Vandalism and Arson | 5 | 20 | 27 | |
| Criminal Acts - Homicide/Robbery/Carjacking | | | | |
| Gas/Oil Shortages or Supply Disruptions | 7 | 30 | 18 | |
| Information Technology Intrusion | 6 | 17 | 29 | |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water | 1 | 4 | 23 | 2 |
| Terrorism/Sabotage | | 26 | 17 | |
| Transportation Accidents - Air | 7 | 22 | 10 | |
| Transportation Accidents - Marine | | 32 | 28 | |
| Transportation Accidents - Rail | 7 | 31 | 26 | |
| Transportation Accidents - Surface Roads/Highways | 2 | 10 | 4 | |
| Weapons of Mass Destruction | | 24 | 25 | |

Summary of Hazard Evaluation – First Survey Results for Update
 Wayne County Hazard Mitigation Plan Update
 Workshop of March 14, 2019

First Survey Results Hazards Ranked (N=44)

| Population Impact | Count | Rank | Average | Rank |
|-----------------------------|--------------|-------------|----------------|-------------|
| Central Business District | 22 | 8 | 3.6 | 10 |
| Commercial Sites | 18 | 9 | 3.4 | 9 |
| Hospitals | 48 | 1 | 2.6 | 2 |
| Industrial Sites | 11 | 10 | 3.3 | 7 |
| Open Spaces | 8 | 11 | 4.4 | 11 |
| Public Facilities | 30 | 3 | 3.4 | 8 |
| Residential Areas | 26 | 5 | 2.4 | 1 |
| Roads, Bridges, Railroads | 25 | 6 | 2.9 | 5 |
| Schools and Churches | 41 | 2 | 2.9 | 4 |
| Sports/Entertainment Arenas | 24 | 7 | 2.7 | 3 |
| Utility Facilities | 28 | 4 | 3.0 | 6 |

| Environmental Impact | Count | Rank | Average | Rank |
|-----------------------------|--------------|-------------|----------------|-------------|
| Central Business District | 13 | 10 | 4.08 | 10 |
| Commercial Sites | 19 | 8 | 3.95 | 9 |
| Hospitals | 39 | 1 | 2.49 | 2 |
| Industrial Sites | 25 | 7 | 2.12 | 1 |
| Open Spaces | 17 | 9 | 3.35 | 8 |
| Public Facilities | 35 | 2 | 3.17 | 6 |
| Residential Areas | 33 | 4 | 2.73 | 3 |
| Roads, Bridges, Railroads | 28 | 6 | 2.75 | 4 |
| Schools and Churches | 31 | 5 | 3.35 | 7 |
| Sports/Entertainment Arenas | 10 | 11 | 4.1 | 11 |
| Utility Facilities | 35 | 3 | 2.77 | 5 |

| Economic Impact | Count | Rank | Average | Rank |
|-----------------------------|--------------|-------------|----------------|-------------|
| Central Business District | 38 | 2 | 2.66 | 2 |
| Commercial Sites | 43 | 1 | 2.72 | 3 |
| Hospitals | 23 | 8 | 2.96 | 5 |
| Industrial Sites | 37 | 3 | 3.03 | 6 |
| Open Spaces | 2 | 11 | 4.5 | 11 |
| Public Facilities | 24 | 7 | 3.46 | 8 |
| Residential Areas | 15 | 10 | 3.2 | 7 |
| Roads, Bridges, Railroads | 29 | 4 | 2.38 | 1 |
| Schools and Churches | 16 | 9 | 3.5 | 9 |
| Sports/Entertainment Arenas | 25 | 6 | 3.68 | 10 |
| Utility Facilities | 27 | 5 | 2.96 | 4 |

Hazard Impact Goals Worksheet Number 1
 Wayne County Hazard Mitigation Plan Update
 Workshop of March 14, 2019

Objective: To identify the top three criteria for evaluating hazard event impacts in Wayne County.

Thought Questions: What are the top priorities for the community when considering hazard impacts? What do the community leaders represent as important? What are the top priorities for emergency response agencies when considering hazard impacts? What are the top challenges facing the County when a hazard occurs?

Individual Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Group Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |

Example Criteria

Population Impacted
 Area Impacted
 Economic Cost for Recovery
 Loss of Life
 Loss of Property
 Damage to Infrastructure
 Time to Recover to Pre-Incident Levels
 Ecological Impact

Impact to Critical Response Facilities
 Business Interruption
 Infrastructure Failure
 Transportation Disruption
 Ability to Provide Health Care
 Economic Impact

Hazard Impact Goals Worksheet Number 3
 Wayne County Hazard Mitigation Plan Update
 Workshop of March 14, 2019

Objective: To evaluate if the survey ranking makes sense.

Thought Questions: Look not only at the individual ranking, but also look across rows and down columns. Do the absolute values reflect reality? Do the relative values reflect reality?

Ranking

- 3 = High
- 2 = Medium
- 1 = Low

| | Asset Criticality | | |
|-------------------------------|---|--|--|
| | Based on Asset Class Characteristics estimate the effects of a hazard event to the listed criteria | | |
| Asset to Consider | | | |
| Commercial Sites | | | |
| Hospitals/Response Facilities | | | |
| Industrial Sites | | | |
| Open Space | | | |
| Public Facilities | | | |
| Residential Areas | | | |
| Roads, Railroads, Bridges | | | |
| Utility Facilities | | | |
| Schools, Churches | | | |
| Sports/Entertainment Arenas | | | |
| Central Business Dist. | | | |

Hazard Impact Goals Worksheet Number 5
 Wayne County Hazard Mitigation Plan Update
 Workshop of March 14, 2019

Objective: To determine the overall consequence of a hazard event for each asset.

Ranking

- 3 = High
- 2 = Medium
- 1 = Low

| Hazard | Consequences of Hazardous Event at the Asset | | | | |
|--------|--|-------------------------------|---------------|------------|-------------|
| | Comm. Sites | Hospitals/Response Facilities | Indust. Sites | Open Space | Public Fac. |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Hazard | Consequences of Hazardous Event at the Asset | | | | | |
|--------|--|--------------------|--------------|-------------------|--------------------|--------------------|
| | Resid. Sites | Roads, RR, Bridges | Utility Fac. | Schools, Churches | Sports/Ent. Arenas | Central Bus. Dist. |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |

Hazard Definitions

Wayne County Hazard Mitigation Plan Update

Civil Disturbance

A public gathering or prison uprising which disrupts essential functions and results in unlawful behavior such as rioting or arson. This event involves a large number of people and requires a significant response effort by law enforcement and/or emergency responders.

Criminal Acts - Arson

The willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling, public building, motor vehicle, or personal property of another.

Criminal Acts - Vandalism

The willful or malicious destruction, injury, disfigurement, or defacement of any public or private property, real or personal, without consent of the owner or person having control.

Drought

An extended period of time with significantly low precipitation levels that usually occurs during planting and growing seasons.

Earthquake

The sudden movement or motion in the earth caused by an abrupt release of slowly accumulating strain, which results in ground shaking, surface faulting, or ground failures.

Extreme Cold

A prolonged period of extreme low temperatures, usually accompanied by snowstorms, sleet and ice storms or hail.

Extreme Heat

A prolonged period of extreme high temperatures, often accompanied by conditions such as high humidity, high winds and lack of rain.

Fire Hazards - Forest/Field Fire

A fire within an open space, forested area, brush or grassed area, or wild land. Does not include prescribed fires.

Fire Hazards - Scrap Tire Fires

Fires which occur at a location where scrap tires are being stored for processing, recycling, or re-use.

Fire Hazards - Structural Fires

A fire of any origin which ignites one or more structures, often results in loss of life and/or property.

Flooding – Dam Failure

The failure of an impoundment located in a river, stream, lake or other waterway resulting in downstream flooding.

Flooding - Riverine

The periodic occurrence of overbank flows of rivers and streams resulting in partial or complete inundation of the adjacent floodplain.

Flooding - Shoreline

Shoreline erosion hazards typically involve the loss of property as sand or soil is removed by water action and is carried away over time.

Flooding – Urban

The overflow of storm sewer systems, usually caused by inadequate drainage following heavy rainfall or rapid snowmelt.

HazMat Incidents – Fixed Site

An uncontrolled release of a hazardous material originating from a building, structure, or fixed equipment which is capable of posing a risk to life, health, safety, property or the environment.

HazMat Incidents - Transportation

An uncontrolled release of a hazardous material during transport which is capable of posing a risk to life, health, safety, property or the environment.

Infrastructure Failure

(Includes Water, Sanitary Sewer, Storm Sewer, Electrical and Emergency Communications)

The failure of a critical public or private utility infrastructure which results in a short-term loss of service.

Nuclear Power Plant Accidents

An actual or potential release of radioactive material at a nuclear facility in a quantity sufficient to constitute a threat to the health and safety of offsite populations.

Oil and Gas Well Incidents

An oil or gas well incident could involve an uncontrolled release of oil or natural gas, or a release of hydrogen sulfide gas, a by-product of production wells.

Petroleum and Natural Gas Pipeline Accidents

An uncontrolled release of petroleum or natural gas from transmission or distribution pipelines.

Public Health Emergencies

A widespread and/or severe epidemic, incident of contamination, or other situation that presents a danger to or otherwise negatively impacts the general health and well being of the public.

Subsidence - Mining

Lowering or collapse of the land surface due to loss of subsurface support in mining areas.

Subsidence - Natural

The lowering or collapse of the land surface due to loss of subsurface support. Generally caused by drainage of organic soils, underground fluid withdrawal, underground mining, natural compaction, sinkholes and hydrocompaction (collapsible soils).

Terrorism/Sabotage

An intentional, unlawful use of force, violence or subversion against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political, social, or religious objectives.

Thunderstorm Hazards - Hail

Conditions where atmospheric water particles from thunderstorms form into rounded or irregular lumps of ice that fall to the earth.

Thunderstorm Hazards - Lightning

The discharge of electricity from within a thunderstorm.

Thunderstorm Hazards - Severe Wind

Winds greater than 58 miles per hour, not including tornadoes, are classified as windstorms.

Tornadoes

A violently rotating column of air extending downward to the ground from a cumulonimbus cloud.

Transportation Accident – Air

A crash or other accident involving passenger transportation aircraft, does not include recreational aircraft.

Transportation Accidents - Highway

A crash or other accident involving public passenger transportation, does not include private auto transportation.

Transportation Accident – Highway/Rail Crossings

A crash or other accident involving which occurs at public, at-grade railroad crossings and involves the collision of an automobile and railcar.

Transportation Accident – Marine

A crash or other marine accident involving passenger transportation, does not include public or private recreational accidents.

Transportation Accident – Rail

A crash or other accident involving passenger or freight rail systems, does not include accidents which result in a HazMat response.

Winter Hazards - Ice and Sleet Storms

Freezing rain is rain that freezes on contact with surfaces causing a coating of ice on exposed surfaces.

Winter Hazards - Snowstorms

A period of rapid accumulation of snow accompanied by high winds and cold temperatures.

Weapons of Mass Destruction

Weapons intended to cause widespread damage and high number of casualties. Typically fall into four categories: 1) missiles, 2) biological weapons, 3) nuclear weapons, or 4) chemical weapons.

Critical Asset Definition Wayne County Hazard Mitigation Plan Update

FOR PLANNING PURPOSES, WHAT SHOULD BE CONSIDERED A CRITICAL FACILITY?

The list of assets that are most important to protect, as well as the criticality of any given facility, can vary widely from community to community. Thus, there is no universal definition of a critical facility. For planning purposes, a jurisdiction should determine criticality based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions.

FEMA's Public Assistance Guide (FEMA 322) states that "A critical facility is a structure that, if flooded, would present an immediate threat to life, public health, and safety. Critical facilities include the following examples:

- Emergency service facilities and equipment (fire stations; police stations; emergency operations centers, shelters, and schools; custodial facilities, such as jails and juvenile detention centers; hospitals, nursing homes, and other health care facilities; rescue squads; public works facilities, etc.).
- Communications networks (telephones, emergency service radio systems, repeater sites and base stations, television and radio stations, etc.).
- Water supply system/facilities, to include waste water treatment.
- Utilities (power plants, substations, power lines, oil, natural gas, electric power, and communication systems; etc.)
- Transportation networks (roads, bridges, airports, rail terminals, maritime ports).
- Hazardous material facilities.

FEMA Funding Wayne County Hazard Mitigation Plan Update

Items Funded By FEMA - Hazard Mitigation Grant Program (HMGP) Project Eligibility

Projects may be of any nature that will result in protection to public or private property. Eligible projects under the HMGP include, but are not limited to:


1. **Property Acquisition** and **Structure Demolition/Relocation** for floodplain protection;
2. **Structure Elevation** in compliance with federal, state, and local ordinances;
3. **Mitigation Reconstruction** of damaged buildings, outside of the floodway or high-risk erosion areas, to minimize future damage;
4. **Dry Floodproofing** of residential and non-residential buildings;
5. **Minor Flood Control** projects to reduce the frequency or severity of flooding (e.g., modification of culverts or creation of storm water detention/retention);
6. **Localized Flood Control** projects to protect specific critical facilities;;
7. **Structural and Nonstructural Retrofitting** of facilities to eliminate the risk of future damage and to protect inhabitants;
8. **Safe Room Construction** for protection from tornadoes, hurricanes, or other high wind events;
9. **Infrastructure Retrofits** to reduce risks to utilities, roads and bridges;
10. **Vegetative Management** and programs such as:
 - Defensible space for wildlife;
 - Ignition-resistant construction;
 - Hazardous fuels reduction;
11. **Post-Disaster Code Enforcement** that supports reconstruction efforts;
12. **State discretionary projects** (5% set aside funding), that fund mitigation actions consistent state goals and objectives and local mitigation plans, but that otherwise may be difficult to prove cost effectiveness using standard benefit cost analysis.

Table 4: Eligible Activities by Program


| Eligible Activities | | | | | |
|--|---|---|---|---|---|
| 1. Mitigation Projects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Demolition | ✓ | ✓ | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Relocation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Structure Elevation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mitigation Reconstruction | | | | | ✓ |
| Dry Floodproofing of Historic Residential Structures | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dry Floodproofing of Non-residential Structures | ✓ | ✓ | ✓ | ✓ | |
| Minor Localized Flood Reduction Projects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Structural Retrofitting of Existing Buildings | ✓ | ✓ | | | |
| Non-structural Retrofitting of Existing Buildings and Facilities | ✓ | ✓ | | | |
| Safe Room Construction | ✓ | ✓ | | | |
| Infrastructure Retrofit | ✓ | ✓ | | | |
| Soil Stabilization | ✓ | ✓ | | | |
| Wildfire Mitigation | ✓ | ✓ | | | |
| Post-Disaster Code Enforcement | ✓ | | | | |
| 5% Initiative Projects | ✓ | | | | |
| 2. Hazard Mitigation Planning | ✓ | ✓ | ✓ | | |
| 3. Management Costs | ✓ | ✓ | ✓ | ✓ | ✓ |

Advisory Committee Workshop Wayne County Hazard Mitigation Plan Update

Hazard Mitigation Plan Update





Workshop 1: March 14, 2019



Overview

- Introduction
- The Function of a Hazard Mitigation Plan
- The 2013 Wayne County Plan
- The Wayne County Plan Update
- First workshop
- Survey Results

Introduction



Confidentiality

- Contact Information Confidential
- But You Will Be Listed in the Plan
- Workshop Sources Confidential
- Secure Version of Final Document
- Critical Assets
- Critical Infrastructure

Teams

- Project Team
 - Wayne County Homeland Security
 - ASTI Environmental
- Advisory Committee
- Local Communities
- Stakeholders
- Public



The Wayne County Plan
www.wchmp.com

ASTI Environmental

Established in 1985
Over 90% Repeat/Referral
Over 11,000 projects in the United States
Projects in Canada, Mexico and the Czech Republic


1.800.395.2784 • www.asti-env.com

Investigations • Compliance
Remediation • Restoration



Project Locations

Michigan Offices: Detroit, Grand Rapids, Brighton



Advisory Committee Workshop

Wayne County Hazard Mitigation Plan Update

ASTIEnvironmental

| | | | |
|----------------------|---|---|---|
| <i>Investigation</i> |  |  |  |
| <i>Restoration</i> |  |  |  |
| <i>Remediation</i> |  |  |  |
| <i>Compliance</i> |  |  |  |

Contact Information

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 Brighton, Michigan 48116
 Phone 810.225.2800 x 226
 Fax 810.225.3800
 prentscher@asti-env.com

Advisory Committee

- Local Communities
- County LEPC
- Schools
- Industry/Businesses
- Adjacent Communities

The Wayne County Plan
www.wchmp.com

Community Reps

42 Communities

- Emergency Management Coordinators
- Local Leaders



The Wayne County Plan
www.wchmp.com

Stakeholders

- 42 Communities
 - Mayors, Managers
- Adjacent Communities
- Industry and Business
- Non-Government Organizations
- Interested Individuals

The Wayne County Plan
www.wchmp.com

Hazard Mitigation Plans

Advisory Committee Workshop

Wayne County Hazard Mitigation Plan Update

What is a HMP?

A Hazard Mitigation Plan (HMP) will...

- identify hazards in the community,
- evaluate and highlight those hazards,
- provide mitigation alternatives

Hazard Mitigation Plans

What is a HMP?

The objectives of a Plan are to;

- reduce risks from natural, human, and technological hazards by focusing on those hazards,
- provide guidance when committing resources that will reduce the effects of hazards, and
- **provide a basis for technical assistance and funding**

Hazard Mitigation Plans

What is a HMP?

The Plan must comply with:

- the Disaster Mitigation Act of 2000,
- the Emergency Management Act,
- FEMA and Michigan Department of State Police guidance documents,
- and all applicable federal, state, and local regulations.

Hazard Mitigation Plans

What is a HMP?

The Plan is only a part of the emergency planning, mitigation, preparedness, response, and recovery process. Must coordinate with:

- All existing plans and programs
- **Existing Plans can be included in the Final HMP by reference**

Hazard Mitigation Plans

Why Prepare A Plan?

To save lives and protect property
To preserve and protect an area's environment and economy
To preserve and maintain an area's essential services and quality of life

Hazard Mitigation Plans

Why Prepare A Plan?

To provide information to citizens, businesses, and officials (including future emergency managers), for


- Planning
- Economic development
- Project development decisions
- Emergency management

Hazard Mitigation Plans

Advisory Committee Workshop

Wayne County Hazard Mitigation Plan Update

Why Prepare A Plan?



To support hazard mitigation project implementation and **funding**.

- Identifies specific hazards
- Identifies specific vulnerabilities
- Documents mitigation options
- Demonstrates community involvement and support
- Part of an effective overall plan

Hazard Mitigation Plans

The Process

- Prepare hazard history and community profile
- Identify significant hazards and risks
- Identify specific vulnerabilities

Hazard Mitigation Plans

The Process

- Identify hazard mitigation goals and objectives
- Suggest strategies to achieve mitigation goals and objectives
- Evaluate strategies using locally chosen criteria
- Select feasible strategies based on evaluation criteria


Hazard Mitigation Plans

The Process


- Propose specific action steps that will achieve desired objectives
- Prepare the plan
- Adopt the plan
- Implement the plan
- Monitor and update the plan

Hazard Mitigation Plans

The Current Wayne County Plan



Circa 2013-14



Hazard Ranking Criteria

| Criteria | Weighting |
|--|-----------|
| Health, Safety and Welfare of the Public | 6 |
| Loss of life and Injury | 8 |
| Population Impacted | 4 |

Hazard Identification
Advisory Committee Meeting of January 30, 2013

Advisory Committee Workshop Wayne County Hazard Mitigation Plan Update

Hazard History – Top 15

| Hazard Event | Ranking |
|---|---------|
| Transportation Accidents - Highway | 1 |
| Criminal Acts - Vandalism | 2 |
| Fire Hazards - Structural Fires | 3 |
| Criminal Acts - Arson | 4 |
| Fire Hazards - Wildfire | 5 |
| Thunderstorm Hazards - Severe Wind | 6 |
| Thunderstorm Hazards - Hill | 7 |
| Transportation Accidents - Rail | 8 |
| Transportation Accidents - Marine | 9 |
| Infrastructure Failure - Water Systems | 10 |
| Winter Hazards - Snowstorms | 11 |
| Infrastructure Failure - Electrical Systems | 12 |
| Extreme Temperatures - Extreme Cold | 13 |
| Extreme Temperatures - Extreme Heat | 14 |
| Flooding - Dam Failure | 15 |
| Flooding - Riverine | 15 |
| Flooding - Urban | 15 |
| Winter Hazards - Ice & Sleet | 15 |

Hazard Identification
Advisory Committee Meeting of January 30, 2013

Workshop Hazard Impact Ranking

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan Needed |
|---|---------------|------------------|--------------------|
| Flooding - Urban | 7 | 2 | 2 |
| Hazmat Incidents - Fixed | 3 | 6 | 3 |
| Public Health Emergency | 2 | 5 | 1 |
| Infrastructure Failure - Communication and Elec | 4 | 7 | 3 |
| Infrastructure Failure - Water Systems | 4 | 1 | 1 |
| Severe Weather Summer | 1 | 4 | 1 |
| Severe Weather Winter | 6 | 2 | 2 |

- Flooding (Non Dam)
- Hazmat Incidences—Transportation
- Infrastructure Failure
- Public Health Emergencies
- Tornadoes

| Action Plan Assessment | |
|------------------------|------|
| Risk | Rank |
| 1-5 | 1-4 |
| 6-7 | 3-5 |

Hazard Identification
Advisory Committee Meeting of January 30, 2013

Assets at Risk From Hazards

| Critical Asset | Criticality Rank | Asset Risk Rank | Vulnerability |
|-------------------------------|------------------|-----------------|---------------|
| Commercial Sites | 11 | 5 | 2 |
| Hospitals/Response Facilities | 2 | 1 | 1 |
| Industrial Sites | 5 | 8 | 3 |
| Open Space | 6 | 11 | 4 |
| Public Facilities | 9 | 4 | 2 |
| Residential Areas | 1 | 2 | 1 |
| Roads, Railroads, Bridges | 4 | 10 | 3 |
| Utility Facilities | 3 | 3 | 1 |
| Schools, Churches | 10 | 7 | 4 |
| Sports/Entertainment Venues | 8 | 9 | 4 |
| Central Business Dist. | 7 | 5 | 2 |

| Vulnerability Assessment | |
|--------------------------|-------------|
| Risk | Criticality |
| 1-5 | 1-5 |
| 6-11 | 3-4 |

Hazard Identification
Advisory Committee Meeting of January 30, 2013

Considerations - Hazards

| 2006 Emphasis | 2013 Emphasis | 2019 Emphasis?? |
|-----------------------------|-------------------|-------------------------|
| Terrorism | Flooding | Flooding |
| Weapons of Mass Destruction | Earthquakes | Infrastruct./Subsidence |
| | Pipeline Ruptures | Changing Climate |
| | Nuclear Accidents | Cyber Attacks |
| | | Catastrophic Events |
| | | Active Assailant(s) |


Considerations - Hazards


Natural – 17 Total
 Technological – 17 Total
 Human Related – 15 Total

List of Hazards (attached)

Hazard Definitions (attached)

The Wayne County Plan Update





Advisory Committee Workshop

Wayne County Hazard Mitigation Plan Update

Process - Outreach

Public

- One public meeting- Draft Plan
- Community announcements
- Web page
 - Comment Form
 - General Information
 - Plan updates and Draft Plan

Process - Outreach

Stakeholders

- Newsletters
- Web page
 - Meeting agendas and minutes
- Draft Plan Available

Process - Outreach


Advisory Committee

- Two Workshops
- Two Surveys
- Web page
 - Draft Plan
- Telephone/Email Input
- Draft Plan Review

First Workshop




Meeting Agenda



- Identify and rank hazard events
- Rank critical assets
- Analyze threats
- Identify specific vulnerabilities
- Begin discussing mitigation alternatives

First Meeting
March 14, 2019

Keep in Mind

- Analyze threats
 - R = VxPxC
 - vulnerability, probability, consequence
- Importance:
 - Fear ≠ Risk
- Consequence:
 - Typical not Worst Case
- Specific Hazard Definitions
- The End Game: Mitigation ≠ Response

First Meeting
March 14, 2019

Advisory Committee Workshop

Wayne County Hazard Mitigation Plan Update

Keep in Mind

Decision Assisting Tool
Not A
Decision Making Tool

First Meeting
March 14, 2019

Review Goals

Saving lives & protecting property
Preserving & protecting the area's
environment & economy
Preserving & maintaining the
area's essential services &
quality of life

From 2013 Workshops

Review Goals

To retain access to Federal
Emergency Management
Agency (FEMA) funding for the
County and its communities by
complying with Section 104 of
the Disaster Mitigation Act of
2000 (42 USC 5165)

From 2013 Workshops

Review Goals

To provide a basis for identifying
and mitigating hazards that
affect the County and its
communities

From 2013 Workshops

Review Goals

To develop a method to
incorporate hazard identification
and mitigation into the planning
process of the County and its
communities

From 2013 Workshops

Review Goals

Protect & preserve human health & well-being
Maintain & fortify critical assets, structures, &
infrastructure to preserve quality of life
Ensure interagency cooperation & coordination
for preparedness
Enhance emergency response capabilities (incl.
& especially communications)
Review & improve county-wide contingency plans for
maintaining quality of life

From 2013 Workshops



Advisory Committee Workshop Wayne County Hazard Mitigation Plan Update

The Heavy Lifting - Worksheets

- Hazard Ranking
- Critical Assets
- Hazard Likelihood and Consequences

First Meeting
March 14, 2019

Assessment

Survey Results – Open Question

57 Respondents
35 Communities/
Agencies

| Natural Hazards | | | |
|---|-------|-------|--|
| Response | Count | % | |
| Thunderstorms - Hail, Lightning, Severe Winds | 21 | 36.8 | |
| Winter Hazards - Snow, Ice, Sleet | 14 | 24.6 | |
| Flooding - Riverine or Shoreline | 11 | 19.3 | |
| Tornadoes | 7 | 12.3 | |
| Extreme Temperatures - Hot or Cold | 3 | 5.3 | |
| Other - Severe Weather | 1 | 1.8 | |
| | 57 | 100.0 | |

Survey Results – Open Question

| Technological Hazards | | | |
|---|-------|-------|--|
| Response | Count | % | |
| Infrastructure Failure - Bridges/Roads | 19 | 33.3 | |
| HazMit Incidents - Transportation | 11 | 19.3 | |
| Infrastructure Failure - Electrical | 9 | 15.8 | |
| Flooding - Urban (stormwater) | 5 | 8.8 | |
| Infrastructure Failure - Communications | 4 | 7.0 | |
| Infrastructure Failure - Sanitary/Storm Sewers | 3 | 5.3 | |
| Nuclear Power Plant Accidents | 2 | 3.5 | |
| Oil, Petroleum, Natural Gas Well or Pipeline Accident | 2 | 3.5 | |
| Flooding - Dam Failure | 1 | 1.8 | |
| HazMit Incidents - Fixed Sites | 1 | 1.8 | |
| | 57 | 100.0 | |

Survey Results – Open Question

| Human Hazards | | | |
|---|-------|-------|--|
| Response | Count | % | |
| Public Health Emergencies - Pandemics/Epidemics/Contaminated Food/Water | 14 | 24.6 | |
| Transportation Accidents - Roads | 11 | 19.3 | |
| Catastrophic Events/National Emergencies | 10 | 17.5 | |
| Criminal Acts - Miss Shooting/Active Assailant(s) | 10 | 17.5 | |
| Civil Disturbance | 3 | 5.3 | |
| Criminal Acts - Arson & Vandalism | 3 | 5.3 | |
| Information Technology Intrusion | 2 | 3.5 | |
| Gas/Oil Shortages or Supply Disruptions | 1 | 1.8 | |
| Transportation Accidents - Air | 1 | 1.8 | |
| Transportation Accidents - Rail | 1 | 1.75 | |
| Other: Criminal Acts - Homicide/Robbery/Carjacking | 1 | 1.75 | |
| | 57 | 100.0 | |

Hazard Mitigation Planning Workshop#2

WAYNE COUNTY HAZARD MITIGATION PLAN

The 2nd workshop to update Wayne County's
Hazard Mitigation Plan will be held

March 28, 2019
10 a.m. to 2 p.m.

in the Ray Mix Room, Wayne County Community
College Downriver Campus, 21000 Northline Road,
Taylor, Michigan. Additional information about
the Plan and planning process is also available at:

www.waynecountyhmp.com

Or by contacting:

Paul Rentschler, Project Manager

800.395.ASTI

or prentschler@asti-env.com

The workshop will be facilitated by Paul Rentschler, an ecologist and planner with ASTI Environmental. Mr. Rentschler has been assisting communities develop Hazard Mitigation Plans and seek federal funding for mitigating natural, technological, and human-created disasters since 2003. He has developed or updated FEMA-approved Hazard Mitigation Plans for Canton Township, the Cities of Allegan and Kentwood, and Allegan, Oakland, and Wayne Counties.

Phone: 800.395.ASTI
Fax: 810.225.3800
10448 Citation, #100
Brighton, MI 48116
prentschler@asti-env.com
www.waynecountyhmp.com

Agenda

Date: March 28, 2019

RE: **Second Advisory Committee Meeting**
Wayne County Hazard Mitigation Plan Update (ASTI File No. 10943)

Agenda

| Item # | Subject |
|--------|---------|
|--------|---------|

1. **Overview** - 10:00 A.M.
2. **Review of Hazard Identification Process** (see summary sheets)
 - Hazards Ranking
 - Top Hazards for Consideration
3. **Critical Assets**
4. **Mitigation Goals and Objectives**
 - Workgroups (see worksheets)
 - Overall Selection
5. **Evaluation Criteria**
 - Workgroups (see worksheet)
6. **Mitigation Survey Results**
 - Results of Surveys
 - Top Mitigation Strategies (see summary sheets and Attachments)
 - Discussion of Additional Mitigation Strategies
7. **Mitigation Selection**
 - Combining Mitigation Strategies with Goals and Objectives and Evaluation Criteria
8. **Action Plan Selection**
 - Specific Strategies to Address
 - Development of Action Plan (see example worksheet)
 - Roles and Responsibilities
9. **Homework**
 - **Action Plans due April 11, 2019**
10. **Homework**
 - **Comments on DRAFT HMP due April 26, 2019**

Summary of Hazard Evaluation – Initial Advisory Committee Meeting

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Criteria for Hazards

- Loss of Life and Injury (weighted at 15)
- Infrastructure Failure (weighted at 8)
- Population Impacted (weighted at 7)
- Ability to Recover from Incident (weighted at 7)

Hazard Ranking

Hazard Selection at the Advisory Committee Meeting

| 2019 Hazards to Consider | Open Ended | Listing | Average | Notes |
|---|---------------|---------|---------|-------|
| | Question Rank | Rank | | |
| Thunderstorms - Hail, Lightning, Severe Wind | 1 | 1 | 3 | |
| Winter Hazards - Snow, Ice & Sleet | 2 | 2 | 12 | |
| Infrastructure Failure - Bridges, Roads | 1 | 3 | 8 | |
| Infrastructure Failure - Electrical Systems | 3 | 8 | 1 | |
| Criminal Acts - Mass Shootings/Active Assaults | 4 | 5 | 19 | |
| Public Health Emergencies - Pandemics, Epidemics | 1 | 4 | 23 | |
| Transportation Accidents - Surface Roads/Highways | 2 | 10 | 4 | |
| Infrastructure Failure - Sanitary/Storm Sewers | 6 | 13 | 2 | |
| Infrastructure Failure - Communications | 5 | 15 | 5 | |
| Extreme Temperatures - Extreme Hot or Cold | 5 | 7 | 9 | |
| Civil Disturbance | 5 | 19 | 22 | |
| Criminal Acts - Vandalism and Arson | 5 | 20 | 27 | |

| | | 2019 Survey | | | 2013 |
|---------------------------------------|--|--------------------------|--------------------------|-----------------------|------|
| Hazard | | Open Ended Question Rank | Ranking No. Times Listed | Ranking Average Score | |
| Natural Hazards | Celestial Impact | | 38 | 39 | |
| | Drought | | 27 | 30 | |
| | Earthquake | | 37 | 37 | |
| | Extreme Temperatures - Extreme Hbt or Cold | 5 | 7 | 9 | 1, 5 |
| | Fire - Wildfires | | 36 | 36 | |
| | Flooding - Riverine or Shoreline | 3 | 21 | 6 | |
| | Fog | | 33 | 31 | |
| | Invasive Species | | 34 | 34 | |
| | Subsidence - Natural | | 39 | 32 | |
| | Thunderstorms - Hail, Lightning, Severe Wind | 1 | 1 | 3 | |
| | Tomatoes | 4 | 6 | 7 | |
| | Winter Hazards - Snow, Ice & Sleet | 2 | 2 | 12 | |
| Technological Hazards | Fire - Scrap Tire | | 35 | 35 | |
| | Fire - Structural | | 23 | 20 | |
| | Flooding - Dam Failure | 9 | 28 | 33 | |
| | Flooding - Urban | 4 | 12 | 16 | 6 |
| | Hazmat Incidents - Fixed Site | | 18 | 11 | 3 |
| | Hazmat Incidents - Transportation | 2 | 9 | 15 | |
| | Infrastructure Failure - Bridges, Roads | 1 | 3 | 8 | |
| | Infrastructure Failure - Communications | 5 | 15 | 5 | 4 |
| | Infrastructure Failure - Electrical Systems | 3 | 8 | 1 | 4 |
| | Infrastructure Failure - Sanitary/Storm Sewers/Water | 6 | 13 | 2 | |
| | Infrastructure Failure - Water System | | 11 | 13 | 4 |
| | Nuclear Power Plant Accidents | 7 | 14 | 21 | |
| | Oil and Gas Well or Pipeline Accidents | 8 | 25 | 14 | |
| Subsidence - Mining or Infrastructure | | 29 | 38 | | |
| Human Related Hazards | Catastrophic Events/National Emergencies | 3 | 16 | 24 | |
| | Civil Disturbance | 5 | 19 | 22 | |
| | Criminal Acts - Mass Shootings/Active Assailant(s) | 4 | 5 | 19 | |
| | Criminal Acts - Vandalism and Arson | 5 | 20 | 27 | |
| | Criminal Acts - Homicide/Robbery/Carjacking | | | | |
| | Gas/Oil Shortages or Supply Disruptions | 7 | 30 | 18 | |
| | Information Technology Intrusion | 6 | 17 | 29 | |
| | Public Health Emergencies - Pandemics, Epidemics, Food/Water | 1 | 4 | 23 | 2 |
| | Terrorism/Sabotage | | 26 | 17 | |
| | Transportation Accidents - Air | 7 | 22 | 10 | |
| | Transportation Accidents - Marine | | 32 | 28 | |
| | Transportation Accidents - Rail | 7 | 31 | 26 | |
| | Transportation Accidents - Surface Roads/Highways | 2 | 10 | 4 | |
| | Weapons of Mass Destruction | | 24 | 25 | |
| Additional Hazards to Consider | Opicid Crisis - MI 8th in the Nation in Deaths | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Summary of Hazard Evaluation – Initial Advisory Committee Meeting
 Wayne County
 Hazard Mitigation Plan Update
 From Workshop of March 14, 2019

2019 Plan Update Meeting Results

| Hazard Events to Consider | Avg Rank | Concern About Impacts of Hazardous Events | | | Geographic Area of Impact | Hazard Sum | Workshop Rank |
|---|----------|---|------------------------|-------------------------|---------------------------|------------|---------------|
| | | Ability to Recover from Disaster/Incident | Infrastructure Failure | Loss of Life and Injury | | | |
| Extreme Temperatures - Extreme Hot or Cold | | 1 | 2 | 2 | 3 | 74 | 5 |
| Flooding - Riverine or Shoreline | | 2 | 3 | 1.5 | 2 | 74.5 | 4 |
| Thunderstorms - Hail, Lightning, Severe Wind | | 1 | 1 | 1 | 1 | 37 | 14 |
| Tornadoes | | 2 | 1 | 2 | 1 | 59 | 8 |
| Winter Hazards - Snow, Ice & Sleet | | 1 | 2 | 1 | 3 | 59 | 8 |
| Flooding - Urban | | 3 | 2 | 1 | 1 | 59 | 8 |
| Hazmat Incidents - Transportation | | 2 | 2 | 2 | 2 | 74 | 5 |
| Infrastructure Failure - Water & Sewer Systems | | 3 | 3 | 2 | 3 | 96 | 1 |
| Catastrophic Events/National Emergencies | | 2 | 1 | 1 | 3 | 58 | 11 |
| Civil Disturbance | | 2 | 1 | 1 | 1 | 44 | 13 |
| Criminal Acts - Mass Shootings/Active Assailant(s) | | 3 | 1 | 3 | 1 | 81 | 3 |
| Criminal Acts - Vandalism and Arson | | 1 | 1 | 2 | 1 | 52 | 12 |
| Public Health Emergencies - Pandemics, Epidemics, Food/Water, Opioid Crisis | | 3 | 1 | 3 | 3 | 96 | 2 |
| Transportation Accidents - Surface Roads/Highways | | 1 | 2 | 2 | 1 | 60 | 7 |

| | |
|--------|----------------------|
| | Enter the Cell Value |
| High | 3 |
| Medium | 2 |
| Low | 1 |

| |
|---|
| Notes - additions and removals |
| Opioid Crisis explicitly part of Public Health Emergencies |
| Combined water, storm, and sanitary sewer infrastructure |
| Priority levels determined using Jenk's optimization method |

| | | |
|---------------|---|-------------------|
| Highly Impact |  | ≥74.6 |
| Med. Impact |  | Between 52.1-74.5 |
| Low Impact |  | ≤52 |

2019 Plan Update Survey Results

| Asset to Consider | Asset Criticality Ranking | | | Sum |
|-------------------------------|-----------------------------|---------------------------|-----------------------------|-------|
| | Size of Population Impacted | Impact to the Environment | Impact to Economic Activity | |
| Commercial Sites | 3.44 | 3.95 | 2.72 | 10.11 |
| Hospitals/Response Facilities | 2.60 | 2.49 | 2.96 | 8.05 |
| Industrial Sites | 3.27 | 2.12 | 3.03 | 8.42 |
| Open Space | 4.38 | 3.35 | 4.50 | 12.23 |
| Public Facilities | 3.37 | 3.17 | 3.46 | 10.00 |
| Residential Areas | 2.42 | 2.73 | 3.20 | 8.35 |
| Roads, Railroads, Bridges | 2.88 | 2.75 | 2.38 | 8.01 |
| Utility Facilities | 3.04 | 2.77 | 2.96 | 8.77 |
| Schools, Churches | 2.85 | 3.35 | 3.50 | 9.70 |
| Sports/Entertainment Arenas | 2.67 | 4.10 | 3.68 | 10.45 |
| Central Business Dist. | 3.55 | 4.08 | 2.66 | 10.29 |

| | |
|---------------------------|--|
| Notes | Notes |
| Yellow indicates top five | Answers are based on the 2019 survey results, average value. Lower values indicate greater importance (Descending Scale 1-5). |

Summary of Hazard Evaluation – Initial Advisory Committee Meeting

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Workshop Hazard Impact Ranking

2013 Workshop Results

| Hazard Event | Workshop Rank | Hazard Risk Rank | Action Plan Needed |
|--|---------------|------------------|--------------------|
| Flooding - Urban | 7 | 2 | 2 |
| Hazmat Incidents - Fixed | 3 | 6 | 3 |
| Public Health Emergency | 2 | 5 | 1 |
| Infrastructure Failure - Communication and Ele | 4 | 7 | 3 |
| Infrastructure Failure - Water Systems | 4 | 1 | 1 |
| Severe Weather Summer | 1 | 4 | 1 |
| Severe Weather Winter | 6 | 2 | 2 |

2005 Workshop Results

| Hazard Event | Hazard Impact Rank | Hazard Risk Rank | Hazard Assessment |
|---|--------------------|------------------|-------------------|
| Flooding - Urban | 9 | 8 | 4 |
| Flooding - Riverine | 9 | 9 | 4 |
| Hazmat Incidents - Transportation and Fixed | 7 | 5 | 2 |
| Infrastructure Failure | 1 | 2 | 1 |
| Thunderstorms - Severe Wind | 4 | 1 | 1 |
| Public Health Emergencies | 6 | 6 | 4 |
| Extreme Temperatures: Hot and Cold | 3 | 3 | 1 |
| Tornadoes | 2 | 4 | 1 |
| Transportation Acc. - Highway | 8 | 10 | 4 |
| Winter Hazards - Ice and Sleet | 4 | 7 | 3 |

| Action Plan Assessment | | |
|------------------------|------|------|
| | Rank | |
| Risk | 1-5 | 6-10 |
| 1-5 | 1 | 2 |
| 6-10 | 3 | 4 |

Summary of Hazard Evaluation – Initial Advisory Committee Meeting
 Wayne County
 Hazard Mitigation Plan Update
 From Workshop of January 30, 2013

Assets at Risk from Hazards

2013 Workshop Results

| Critical Asset | Criticality Rank | Asset Risk Rank | Vulnerability |
|-------------------------------|------------------|-----------------|---------------|
| Commercial Sites | 11 | 5 | 2 |
| Hospitals/Response Facilities | 2 | 1 | 1 |
| Industrial Sites | 5 | 8 | 3 |
| Open Space | 6 | 11 | 4 |
| Public Facilities | 9 | 4 | 2 |
| Residential Areas | 1 | 2 | 1 |
| Roads, Railroads, Bridges | 4 | 10 | 3 |
| Utility Facilities | 3 | 3 | 1 |
| Schools, Churches | 10 | 7 | 4 |
| Sports/Entertainment Arenas | 8 | 9 | 4 |
| Central Business Dist. | 7 | 5 | 2 |

2005 Workshop Results

| Critical Asset | Asset Criticality | Asset Risk Rank | Vulnerability |
|-------------------------------|-------------------|-----------------|---------------|
| Commercial Sites | 7 | 6 | 4 |
| Hospitals/Response Facilities | 2 | 2 | 1 |
| Industrial Sites | 10 | 7 | 4 |
| Open Space | 11 | 11 | 4 |
| Public Facilities | 7 | 8 | 4 |
| Residential Areas | 3 | 1 | 1 |
| Roads, Railroads, Bridges | 5 | 5 | 1 |
| Utility Facilities | 1 | 3 | 1 |
| Schools, Churches | 4 | 4 | 1 |
| Sports/Entertainment Arenas | 7 | 10 | 4 |
| Central Business Dist. | 6 | 9 | 4 |

| Vulnerability Assessment | | |
|--------------------------|-------------|------|
| | Criticality | |
| Risk | 1-5 | 6-11 |
| 1-5 | 1 | 2 |
| 6-11 | 3 | 4 |

Goals Worksheet

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Objective: To identify the top goals for hazard mitigation in Wayne County.

Thought Questions: What are the top five priorities for the community when considering hazard mitigation? What do the community leaders represent as important? Consider the types of hazards that are most important, and the assets and locations that are most vulnerable. Your answer should reflect your best estimate of the administration or your organization's constituency.

Individual Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Group Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Example Goals

Improve, Encourage, Enhance, Maintain, Protect, or Preserve...

Identify, Create...

Goals Worksheet

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Goals from 2013 Plan

2.1 Plan Goals and Objectives

The general goals of any Hazard Mitigation Plan include: saving lives and protecting property, preserving and protecting an area's environment and economy, and preserving and maintaining an area's essential services and quality of life. This Plan includes these general goals. In addition, specific goals of this Plan are:

- To retain access to FEMA funding for the County and its communities by complying with Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165)
- To provide a basis for identifying hazards that affect the County and its communities
- To develop a method to incorporate hazard identification and mitigation into the planning process of the County and its communities

Through the hazard mitigation planning process presented in this Plan, Advisory Committee members also identified specific goals and objectives, consistent with the overall planning process and supported by specific mitigation strategies, to do the following:

- Protect and preserve human health and well being
- Maintain and fortify critical assets, structures and infrastructure to preserve the quality of life.
- Ensure interagency cooperation and coordination for preparedness
- Enhance emergency response capabilities (including and especially communications)
- Review and improve county-wide contingency plans for maintaining quality of life
- Coordinate response to disasters occurring in Wayne County that overwhelms the resources of local communities
- Communication goal from Wayne County USE goals & objectives

Evaluation Criteria Worksheet

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Objective: To identify five criteria, consistent with County Goals, to be used to evaluate mitigation strategies.

Thought Questions: Based on the Goals and Objectives, how will mitigation strategies be evaluated? What are the key considerations in choosing a strategy for Wayne County?

Individual Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Group Worksheet

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Example Criteria

Ability to accomplish

Availability of outside funding

Community acceptance

Consistency with existing plans and programs

Consistency with mitigation goals

Cost effectiveness (FEMA Requirement)

Downside risk

Equitable distribution of services

Economically Justifiable

Environmentally Sound

Leadership effort required

Non-discriminatory (EO12898 compliant)

Protection of Critical Response Facilities

Socially Equitable

Specific mitigation goals

Technical feasibility (FEMA Requirement)

Definitions for Mitigation Evaluation Criteria

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Be technically feasible. (The project must use design and construction methods and materials that are approved, codified, recognized, fall under standard or accepted level of practice, or otherwise are determined to be generally accepted by the design and construction industry.)
Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster. This must be demonstrated by documenting that the project:

1. Addresses a problem that has been repetitive, or a problem that poses a significant risk if left unsolved;
2. Will not cost more than the anticipated value of the reduction in both direct damages and subsequent negative impacts to the area if future disasters were to occur;
3. Has been determined to be the most practical, effective, and environmentally sound alternative after consideration of a range of options;
4. Contributes, to the extent practicable, to a long-term solution to the problem it is intended to address; and
5. Considers long-term changes to the areas and entities it protects, and has manageable future maintenance and modification requirements.

Mitigation Strategies - Vulnerabilities/FEMA Funded

Wayne County

Hazard Mitigation Plan Update

From Workshop of March 14, 2019

Objective: To finalize the list of mitigation strategies to include in the Plan. To preserve access to funding, this list should be as complete as possible. (Refer to Table at end of handout)

Thought Questions: Have the most significant hazards been addressed? Have specific vulnerable areas been adequately considered? Have mitigation strategies that are eligible for FEMA funding been considered? Are there general strategies that are part of the County's overall plans that are not included? Are there some categories (see list below) that have not been adequately applied?

Individual Worksheet - Specific Vulnerabilities

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Group Worksheet - Specific Vulnerabilities

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Individual Worksheet -FEMA Funded

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

Group Worksheet - FEMA Funded

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

FEMA Funding Wayne County Hazard Mitigation Plan Update

Items Funded By FEMA - Hazard Mitigation Grant Program (HMGP) Project Eligibility

Projects may be of any nature that will result in protection to public or private property. Eligible projects under the HMGP include, but are not limited to:

1. **Property Acquisition** and **Structure Demolition/Relocation** for floodplain protection;
2. **Structure Elevation** in compliance with federal, state, and local ordinances;
3. **Mitigation Reconstruction** of damaged buildings, outside of the floodway or high-risk erosion areas, to minimize future damage;
4. **Dry Floodproofing** of residential and non-residential buildings;
5. **Minor Flood Control** projects to reduce the frequency or severity of flooding (e.g., modification of culverts or creation of storm water detention/retention);
6. **Localized Flood Control** projects to protect specific critical facilities;;
7. **Structural and Nonstructural Retrofitting** of facilities to eliminate the risk of future damage and to protect inhabitants;
8. **Safe Room Construction** for protection from tornadoes, hurricanes, or other high wind events;
9. **Infrastructure Retrofits** to reduce risks to utilities, roads and bridges;
10. **Vegetative Management** and programs such as:
 - Defensible space for wildlife;
 - Ignition-resistant construction;
 - Hazardous fuels reduction;
11. **Post-Disaster Code Enforcement** that supports reconstruction efforts;
12. **State discretionary projects** (5% set aside funding), that fund mitigation actions consistent state goals and objectives and local mitigation plans, but that otherwise may be difficult to prove cost effectiveness using standard benefit cost analysis.

Table 4: Eligible Activities by Program

| Eligible Activities | | | | | |
|--|---|---|---|---|---|
| 1. Mitigation Projects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Demolition | ✓ | ✓ | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Relocation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Structure Elevation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mitigation Reconstruction | | | | | ✓ |
| Dry Floodproofing of Historic Residential Structures | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dry Floodproofing of Non-residential Structures | ✓ | ✓ | ✓ | ✓ | ✓ |
| Minor Localized Flood Reduction Projects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Structural Retrofitting of Existing Buildings | ✓ | ✓ | | | |
| Non-structural Retrofitting of Existing Buildings and Facilities | ✓ | ✓ | | | |
| Safe Room Construction | ✓ | ✓ | | | |
| Infrastructure Retrofit | ✓ | ✓ | | | |
| Soil Stabilization | ✓ | ✓ | | | |
| Wildfire Mitigation | ✓ | ✓ | | | |
| Post-Disaster Code Enforcement | ✓ | | | | |
| 5% Initiative Projects | ✓ | | | | |
| 2. Hazard Mitigation Planning | ✓ | ✓ | ✓ | | |
| 3. Management Costs | ✓ | ✓ | ✓ | ✓ | ✓ |

Action Plan Worksheet
Wayne County
Hazard Mitigation Plan Update
From Workshop of March 14, 2019- **Due April 11, 2019**

Mitigation Strategy Description (What do you want to accomplish?):

-

Specific Hazards Addressed:

Primary Responsibility (Person and Department):

Initiatives Needed (What changes must be made, or new programs started, to make this work?):

| <u>Item</u> | <u>By Date</u> |
|-------------|----------------|
| • | |
| • | |

Implementation (What milestone tasks will you need to accomplish to get it done?):

| <u>Task</u> | <u>Date</u> |
|-------------|-------------|
| • | |
| • | |

Assessment (Provide a general description of the economic costs and benefits.):

| <u>Costs (List categories: example – staff time, printing, etc.)</u> | <u>Benefits</u> |
|--|-----------------|
| • | • |
| • | • |

Anticipated Funding Sources (How will you cover the costs?):

-

Wayne County Hazard Mitigation Plan

Revision Number/Date: 0/June 2019

Publication Date: June 17, 2019

Appendix D. Example Community Resolution for Plan Adoption

SAMPLE Resolution No. _____

ADOPTION OF THE WAYNE COUNTY HAZARD MITIGATION PLAN

WHEREAS, the mission of **(insert community name here)** includes the charge to protect the health, safety, and general welfare of the people of **(insert name of community here)**; and

WHEREAS, **(insert community name)**, Michigan is subject to flooding, tornadoes, winter storms, and other natural, technological, and human hazards; and

WHEREAS, and the Wayne County Department of Homeland Security and Emergency Management and the Wayne County Local Emergency Planning Committee, comprised of representatives from the County, municipalities, and stakeholder organizations, have prepared a recommended Hazard Mitigation Plan that reviews the options to protect people and reduce damage from these hazards; and

WHEREAS, **(insert community name)** has participated in the planning process for development of this Plan, providing information specific to local hazard priorities, encouraging public participation, identifying desired hazard mitigation strategies, and reviewing the draft Plan; and

WHEREAS, the Wayne County Department of Homeland Security and Emergency Management, with the Wayne County Local Emergency Planning Committee (LEPC), has developed the WAYNE COUNTY HAZARD MITIGATION PLAN (the "Plan") as an official document of the County and establishing a County Hazard Mitigation Coordinating Committee, pursuant to the Disaster Mitigation Act of 2000 (PL-106-390) and associated regulations (44 CFR 210.6); and

WHEREAS, the Plan has been widely circulated for review by the County's residents, municipal officials, and state, federal, and local review agencies and has been revised to reflect their concerns; and

NOW THEREFORE BE IT RESOLVED by the **(insert community name and governing body here)** that:

1. The Wayne County Hazard Mitigation Plan (or section(s) of the Plan specific to the affected community) is/are hereby adopted as an official plan of **(insert Community name here)**.
2. The **(insert name of position)** is charged with supervising the implementation of the Plan's recommendations, as they pertain to **(insert community name here)** and within the funding limitations as provided by the **(insert community governing body)** or other sources.
3. The **(insert name of position)** shall give priority attention to the following action items recommended in portions of the Plan specific to **(insert community name)**:
 - a. _____ (Recommendation _____, Section _____, page _____)
 - b. _____ (Recommendation _____, Section _____, page _____)
 - c. _____ (Recommendation _____, Section _____, page _____)

Passed by the **(insert community name and governing body here)** on **(insert date)**.

Signature

Signature

Vote:

Yes _____

No _____

ASTI ENVIRONMENTAL
ENVIRONMENTAL INVESTIGATION, REMEDIATION, COMPLIANCE AND
RESTORATION PROJECTS THROUGHOUT THE GREAT LAKES SINCE 1985.

OUR SERVICES INCLUDE:

- **ASBESTOS, LEAD, MOLD, AND RADON ASSESSMENTS**
- **BROWNFIELD/GREYFIELD REDEVELOPMENT ASSISTANCE**
- **DEVELOPMENT INCENTIVES AND GRANT MANAGEMENT**
- **ECOLOGICAL ASSESSMENTS AND RESTORATION**
- **ENVIRONMENTAL ASSESSMENTS AND IMPACT STATEMENTS**
- **ENVIRONMENTAL OPPORTUNITIES ASSESSMENT**
- **GIS MAPPING**
- **HAZARD MITIGATION PLANNING**
- **MINING AND RECLAMATION ASSISTANCE**
- **REMEDIATION IMPLEMENTATION, OPERATION AND MAINTENANCE**
- **PHASE I ESA AND ENVIRONMENTAL DUE DILIGENCE ASSESSMENTS**
- **REGULATORY COMPLIANCE AND PERMITTING**
- **SOIL AND GROUNDWATER ASSESSMENTS**
- **SOIL AND GROUNDWATER REMEDIATION**
- **STORAGE TANK COMPLIANCE AND CLOSURE**
- **THREATENED AND ENDANGERED SPECIES SURVEYS**
- **WATERSHED AND STORMWATER MANAGEMENT PROGRAMS**
- **WETLAND DELINEATION, PERMITTING, MITIGATION AND BANKING**

TAB

APPENDIX Q: TRAINING & AFTER- ACTION REPORTS

TAB

APPENDIX R: FORMS



PUBLIC INFORMATION RELEASE

Check as appropriate: District/District-wide School

Date: ___/___/___ Time: _____

NOTE: If this is used as a script, read only those items checked. Make no other comments.

(Check off, fill in, and cross off as appropriate.)

- _____ has just experienced a(n) _____
- The (students/employees) [(are being) or (have been)] accounted for.
- No further information is available at this time.
- Emergency medical services [(are here) or (are on the way) or (are not available to us)].
- Police [(are here) or (are on the way) or (are not available to us)].
- Fire Dept./paramedics [(are here) or (are on the way) or (are not available to us)].
- _____ [(are here) or (are on the way) or (are not available to us)].
- Communication center(s) for parents (is/are) being set up at _____ to answer questions about individual students.
- Communication center(s) for families (is/are) being set up at _____ to answer questions about individual employees.
- Injuries have been reported at _____ and are being treated at the site by _____ (staff/professional medical responders).
- _____ (#) reported injured.
- Students have been taken to a safe area, and are with _____ [(classroom teachers/staff) or _____].
 - _____ (#) Students have been taken to the local emergency room for treatment of serious injury.
 - Parents of injured students should go to the emergency room at: _____
 - _____ (#) Confirmed deaths have been reported at: _____
 - Names cannot be released until families have been notified.
- Structural damage has been reported at the following sites: _____ .
- Release restrictions: No Yes
- If yes, what? _____

Released to the public as Public Information Release #: _____ (Date/Time: ___/___/___, _____:_____AM/PM)



STUDENT ACCOUNTING FORM

| | |
|-----------------------------|-------------------|
| Room No. _____ | Date _____ |
| Enrolled per Register _____ | Reported by _____ |
| Not in School Today _____ | Received by _____ |
| Present Now _____ | |

1. Students or classroom volunteers elsewhere (off campus, left in room, other location, etc.)

| Name | Location | Problem |
|------|----------|---------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

2. Students on playground needing more first aid than you can handle:

| Name | Location | Problem |
|------|----------|---------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Additional comments: (report fire, gas/water leaks, blocked exits, structural damage, etc.)

INSTRUCTIONS for Use of Operations Log

This command post information sheet is intended to serve as a guide for schools to use in emergencies and for exercising their school ALL HAZARDS emergency plan. As with any tool, proper instruction and familiarization with the document should take place prior to use in an emergency. Schools may find the need to adapt this form to their particular organization's need.

PURPOSE: The purpose of the operations log is self evident. This form is designed for the school official to make a running log of the events that occur during an incident. It is highly recommended that key persons involved in the incident operations all be provided and utilize the operations log during emergency drills, exercises and actual events. For those persons involved in fast paced actions and decision making the use of a scribe or assistant to log the action occurring is almost an essential criterion to being successful in recording all of the events during an incident. In fact, the incident commander may want to have a person responsible for recording all radio traffic (outgoing and incoming) along with a person recording the face to face and phone conversations and reports.

Incident Information: This section is used to report the type of incident, time reported and location of the incident.

Position Information: This section is used to record the information regarding the person and position who will record their actions and directions on the operations log sheet. If a scribe is assigned the scribe's name will also be placed on the operations log noting the time the scribe began their actions since it may be different than the time the ICS person started to complete the form on their own.

Notifications and Activities: This section of the operations log is used to record key notifications made by school personnel. These blocks are only completed by the person making the notifications. If someone else made the notification it would not be logged on your operations log sheet. Districts and schools may wish to customize this form by pre-printing the specific name of the utility company and phone numbers onto the form in advance of an emergency. A specific reminder is made regarding the Media notifications. School personnel are reminded that any press release is to be approved by the incident commander prior to dissemination.

Log Entries: The bottom portion on the front sheet of the operation log, and the continuation sheets, is set up in a two column format. The first column is used to record the time of the activity, event or notification. The second column is used to record a brief narrative of the actual activity, event or notification. Generally

EXAMPLE:

| NAME: James D. PRINCIPAL _____ Position/Function: School Incident Commander _____ | |
|---|--|
| Time | ACTIVITY or EVENT |
| 09:36 | School Evacuation Completed |
| 09:39 | Fire Department arrived on scene |
| 09:42 | Fire Chief requested building HVAC plans – Mr. Rupert provided them |

For information, technical assistance or customized training and exercises for your school please contact the Center for Safe Schools.

safeschools@csc.csiu.org

or telephone

(717) 763-1661



Form #11 – PUBLIC INFORMATION WORKSHEET

Check off, fill in, and cross off as appropriate

___ Name of School Site: _____

___ Date: _____ Time: _____

NOTE: If this is used as a script, read only those items checked. Make no other comments.

(School Name) _____ has just experienced a(n) _____

___ The (students/staff) [(are being) or (have been)] accounted for.

___ No further information is available at this time.

___ Emergency medical services [(are here) or (are on the way) or (are not available)].

___ School Police/Local Police [(are here) or (are on the way) or (are not available to us)].

___ Fire Department/paramedics [(are here) or (are on the way) or (are not available to us)].

_____ [(are here) or (are on the way) or (are not available)].

___ Communication center(s) (is/are) being set up at _____ to answer questions.

___ Communication center(s) for families of students and employee/s (is/are) being set up at _____ to answer questions about individual students and staff and reunification plans.

___ Injuries have been reported at _____ and are being treated at the site by (staff/professional medical responders). (#) _____ reported injured.

___ Students have been taken to a safe area, _____, and are with (classroom teachers/staff) or (_____)].

___ (insert #) Students/Staff have been taken to the local emergency room for treatment of serious injury.

___ Families of injured students/staff should go to the emergency room at _____.

___ Confirmed deaths have been reported at _____.

Names cannot be released until families have been notified.

___ Structural damage has been reported at the following sites: _____.

___ Release restrictions: ___ No ___ Yes

If yes, what?

Released to the public as Public Information Release # _____

Date/Time: _____

