

Appendix L: Identified Manmade Hazards by the State of Missouri

Attack (Nuclear, Conventional, Chemical, and Biological) (Informational)

Description of Hazard

Of all the possible disasters and hazards we can imagine, a strategic nuclear, biological, or chemical attack could have the most devastating and far-reaching consequences. The use of these weapons against the United States is unlikely. Unfortunately, however, as long as such weapons exist, there is always a chance that they could be used. The potential for traditional war-related attacks, using conventional weapons, is a scenario that is more likely to occur, based on currently available information.

Although the threat of all-out nuclear war has been significantly reduced with the dissolution of the former Soviet Union, several scenarios still exist that might subject a jurisdiction to widespread radioactive contamination or high-levels of radiation exposure. When Phase II of the START II Treaty (passed by the U.S. Senate in 1996 and ratified by the Russian Duma in April 2000) is complete, it will allow its signatories, Russia and the United States, to maintain only between 3,000–3,500 actual (versus accountable in the START) strategic nuclear weapons each, a significant reduction from Cold War numbers. Five other nations have declared their nuclear capability and another five are suspected of having developed nuclear weapon technology, including trouble spots, North Korea and Iran. Additionally, 15 nation states have either had weapons or programs to develop nuclear weapons but have reportedly abandoned their efforts. Most have now signed the nuclear nonproliferation treaty. The U.S. Department of Defense estimates that as many as 26 nations may possess chemical agents or weapons, and an additional 12 may be seeking to develop them. The Central Intelligence Agency reports that at least 10 countries are believed to be conducting research on biological agents for weaponization.

While the threat of nuclear attack has diminished over the past several years, concerns over the use of chemical and biological warfare agents have increased. Recent events, such as the September 11, 2001, terrorist attacks on the World Trade Center buildings in New York City and the Pentagon in Washington DC, along with the anthrax-related attacks in 2001, have increased awareness of the vulnerability of the United States to future attacks involving chemical or biological warfare agents.

Historical Statistics

Between 960–1279 AD arsenical smoke (a form of chemical warfare) was used in battle during China's Sung Dynasty, and in 1346–1347, Mongols catapulted corpses (biological warfare) contaminated with plague over the walls into Kaffa (in Crimea), forcing besieged Genoans to flee.

During World War I (1915–1918), chemical and conventional weapons were used. The first poison gas, chlorine, was used by the Germans against Allied troops in 1915. The effects of the gas were devastating, causing severe choking attacks within seconds of exposure. The British subsequently retaliated with chlorine attacks of their own, although reportedly more British suffered than Germans, because the gas blew back into their own trenches. Phosgene was later used in the war because it caused less severe coughing, resulting in more of the agent being inhaled. Then, in September 1917, mustard gas was used in artillery shells by the Germans against the Russians. Mustard gas caused serious blisters, both internally and externally, several hours after exposure. In all, there were 1,240,853 gas-related casualties and 91,198 deaths from gas exposure during World War I.

During World War II (1941–1945), atomic (nuclear), chemical, and conventional weapons were used. Use of chemical weapons in World War II was not as prevalent as in World War I and was primarily limited to the Japanese Imperial Army. During the war, the Japanese used various chemical-filled munitions, including artillery shells, aerial bombs, grenades, and mortars, against Chinese military forces and civilians. Chemical agents used included phosgene, mustard, lewisite, hydrogen cyanide, and diphenyl cyanarsine. The war was brought to an abrupt end in 1945, when the United States dropped two atomic bombs on Japan: one on Hiroshima that obliterated the entire city and killed approximately 66,000 people and another on Nagasaki that destroyed about half the city and killed about 39,000 people.

During the Vietnam War (1964–1973), chemical and conventional weapons were used. Chemical weapons used during the Vietnam War are believed to have only involved tear agents used by the United States and possibly psychedelic agents, also by the United States. Although not directly used as warfare agents, toxic herbicides such as Agent Orange were commonly used as defoliants by the United States. Long-term exposure to Agent Orange, which contained the contaminant dioxin, was believed to cause illness and disease in humans.

In 1983, Iraq launched its first of 10 documented chemical attacks against Iran. The largest of these attacks was in February 1986, when mustard gas and the nerve agent tabun were used, impacting up to 10,000 Iranians. Although the exact number of chemical attacks implemented by Iraq during the war is unknown, the Iranian government estimates that more than 60,000 soldiers had been exposed to mustard gas and the nerve agents sarin and tabun by the time the war ended in 1988. Based on these data, the Iraqi chemical attacks during the Iran-Iraq war were the largest since World War I.

Although several isolated attacks involving biological agents have occurred over the last few decades, the most recent series of incidents in the United States that gained nationwide exposure occurred between early October and early December 2001, when five people died from anthrax infection, and at least 13 others contracted the disease in Washington,

DC; New York City; Trenton, New Jersey; and Boca Raton, Florida. Anthrax spores were found in a number of government buildings and postal facilities in these and other areas. Most of the confirmed anthrax cases were tied to contaminated letters mailed to media personalities and U.S. senators. Thousands of people were potentially exposed to the spores and took preventive antibiotics. Numerous mail facilities and government buildings were shut down for investigation and decontamination. In the wake of these incidents, federal, state, and local emergency response agencies across the United States responded to thousands of calls to investigate suspicious packages, unknown powders, and other suspected exposures. Fortunately, almost all of these incidents turned out to involve no actual biohazard.

Measure of Probability and Severity

Probability: Low

Severity: High

Attacks against the United States as a whole, and against individual states or local entities, can be categorized as originating from either domestic or international sources. However, because the impacts on life and property would largely be the same regardless of the source of such an attack, similar preparedness, response, and recovery activities apply.

Biological and chemical weapons have often been used to terrorize an unprotected population, instead of actual use as weapons of war. However, the potential damage that can occur in the event of such an attack is huge, particularly to human health.

A single nuclear weapon detonation could cause massive destruction, and all aforementioned types of attacks could cause extensive casualties. An all-out nuclear attack could affect the entire population in the vicinity of the impacted area. Some areas would experience direct weapons effects: blast, heat, and initial nuclear radiation. Other areas would experience indirect weapons effects, primarily radioactive fallout. As long as world leaders maintain rational thinking, the probability of an attack by a nation-state remains low, but does not rule out attack by a terrorist group.

Secondary effects of these attacks, which could severely stress the country, include lack of adequate shelter, food, water, health and medical facilities and personnel, and mortuary services; disruption of communication systems; and power outages. Because of the potential devastation and significant secondary effects caused by this type of attack, the severity is rated high.

Impact of the Hazard

The population is vulnerable to two separate categories of impacts associated with these types of attacks: direct and indirect. For more information on these impacts, which are often connected to terrorist-related activities, see Section Terrorism.

Direct Effects

These are effects directly associated with detonation or use of the weapon.

Conventional Weapons—Direct effects of conventional weapons generally are related to injuries inflicted by penetration of ammunition rounds or shrapnel from exploding ordnance (mortars, etc.). Injuries from shock waves/blast overpressure near the targets may also occur, along with damage caused by fires produced from incendiary warheads, grenades, and other munitions. In addition, some injuries may occur as a result of flying or falling debris where the weapons are used. Heavy artillery use can also damage roadways and buildings and disrupt utility services for lengthy periods of time.

Chemical and Biological Weapons—Direct effects of chemical weapons involve initial spread of agents and fragmentation of the weapons. Chemical agents are toxins used to produce neurological and pulmonary injuries or death. Biological agents are infectious microbes used to produce illness or death. They can be dispersed as aerosols or airborne particles directly onto a population, producing an immediate effect (a few seconds to a few minutes for chemical agents) or a delayed effect (several hours to several days for biological agents). Severity of injuries depends on the type and amount of the agent used and duration of exposure. Because some biological agents take time to grow and cause disease, an attack using this type of agent may go unnoticed for several days.

Nuclear Weapons—Direct effects include intense heat, blast energy, and high-intensity nuclear radiation. These effects generally will be limited to the immediate area of the detonation (up to 22 miles), depending on weapon size, altitude of burst, and atmospheric conditions.

Agroterrorism—The direct effect of agroterrorism is the intentional introduction of a contagious animal disease or fast spreading plant disease that affects livestock and food crops and disrupts the food supply chain. Agroterrorism could cause disease in livestock, crops, and in some cases (anthrax, or monkey pox, for example), humans. Diseases that can be transmitted to humans from animals are called zoonotic. It would not only require the agriculture industry to destroy livestock and food crops, but also affect the consumer confidence in the food supply resulting in tremendous economic damage for, potentially, an extended period. The food supply could be severely affected not only for the immediate area and the United States, but the world market, since the United States exports huge quantities of food to other nations. Recently, the federal government recognized the vulnerability of the agricultural/food supply industry and potential debilitation from a

terrorist incident and acted to protect the resources through presidential decision directives and encouraged complementary state and local actions.

Radiological Weapon—Direct effects of a radiological weapon are the same as a conventional high explosive, but with the added danger posed by exposure to radiological materials. A radiological dispersion device (RDD) or “dirty bomb” will contaminate an area by spreading radiological dust and debris over a large area.

Explosive Weapon (large amount of high explosive)—The direct results of an explosive weapon are immense destruction caused by the blast and could result in multiple fatalities. Instances of these effects include Oklahoma City, Kohbar Towers, the marine barracks in Lebanon, and the African Embassy bombings.

Indirect Effects

These are effects not directly associated with the detonation and use of the weapon.

Conventional Weapons—Unexploded ordnances throughout a battle zone or explosion hazards to those in the area can persist after warfare has ended. Many conventional munitions also contain toxic compounds that can leach into surrounding soils and groundwater if left in place.

Chemical and Biological Weapons—Indirect effects are generally limited to downwind areas. They can be geographically widespread and vary in intensity—depending on weapon size, type of chemical or biological agent, and wind patterns. The spread of these agents can contaminate food and water supplies, destroy livestock, and ravage crops.

Nuclear Weapons—When a nuclear weapon detonates, intense heat, blast, and overpressure will cause severe injuries and fatalities in the surrounding area and radiation poisoning at more distant locations. A detonation near or on the ground draws up large quantities of earth and debris into a mushroom cloud. This material becomes radioactive, and the particles can be carried by wind hundreds of miles before they drop back to earth as “fallout.” In an attack, many areas of the United States would probably escape fallout altogether or experience non-lifethreatening levels of radiation. However, because weather that determines where fallout will land is so unpredictable, no locality in the United States is free from risk of receiving deadly radiation levels after a strategic attack. Less than lethal exposures will result in longer-term effects on health and contamination of food, water, and food production.

Agroterrorism—Agroterrorism’s indirect effects are loss of breeding stock to replenish herds and flocks, loss of seed crops, and possibly loss of land use for a long period of time depending on the disease involved. Agroterrorism has a high probability of creating an economic disaster for states highly vested in food production, and potentially the nation.

Radiological Weapon—The indirect effect of an RDD is inability to use the contaminated area for a short to long period of time, depending on the identity of the radioactive material. Because radioactive material from an RDD can penetrate wood, asphalt, concrete, and masonry (and radioactive dust and particles can enter the smallest crevices), decontamination will be extremely difficult or impossible.

Explosive Weapon (large amount of high explosive)—The indirect effect of an explosive weapon is the fear, terror, and lasting psychological damage to survivors and other individuals.

The information in Table 2.14 is from the Impact Analysis of Potential for Detrimental Impacts of Hazards done for the Emergency Management Accreditation Program.

Table 2.14 EMAP Impact Analysis: Attack

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for protected personnel.
Health and Safety of Personnel Responding to the Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for trained and protected personnel.
Continuity of Operations	Damage to facilities/personnel in the area of the incident may require relocation of operations and lines of succession execution.
Property, Facilities, and Infrastructure	Damage to facilities and infrastructure in the area of the incident may be extensive for explosion, moderate to light for HazMat.
Delivery of Services	Disruption of lines of communication and destruction of facilities may extensively postpone delivery of services.
The Environment	May cause extensive damage, creating denial or delays in the use of some areas. Remediation needed.
Economic and Financial Condition	Local economy and finances adversely affected, possibly for an extended period of time.
Regulatory and Contractual Obligations	Regulatory waivers may be needed. Fulfillment of contracts may be difficult. Demands may overload ability to deliver.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

Even though the START treaty has reduced the overall number of nuclear weapons, and many chemical/biological weapons stockpiles have been destroyed, we must continue to plan for, and be prepared for, this type of hazard. In many ways, while the risk of a nuclear exchange by the super powers is greatly reduced, the potential risk of proliferation of weapons of mass destruction is greater than during the Cold War era.

While it may not be possible to prevent such an attack, steps can be taken to lessen the likelihood and the potential effects of an incident by implementing certain measures:

- Identifying and organizing resources
- Conducting a risk or threat assessment and estimating losses
- Identifying mitigation measures that will reduce the effects of the hazards and developing strategies to deal with the mitigation measures in order of priority
- Implementing the measures and evaluating the results (and keeping the plan up-to-date)

Civil Disorder

Description of Hazard

Civil disorder is a term that generally refers to groups of people purposely choosing not to observe a law, regulation, or rule, usually in order to bring attention to their cause, concern, or agenda. In Missouri, state statutes define civil disorder as “any public disturbance involving acts of violence by assemblages of three or more persons, which cause an immediate danger of or results in damage or injury to the property or person of any other individual.”

Civil disorder can take the form of small gatherings or large groups blocking or impeding access to a building or disrupting normal activities by generating noise and intimidating people. They can range from a peaceful sit-in to a full-scale riot in which a mob burns or otherwise destroys property and terrorizes individuals. Even in its more passive forms, a group that blocks roadways, sidewalks, or buildings interferes with public order. In the 1990s, abortion clinics, for example, were targets for these disruptive-type activities.

Throughout this country’s history, incidents that disrupted the public peace have figured prominently. The constitutional guarantees allow for ample expression of protest and dissent, and in many cases collide with the preamble’s requirement of the government “to ensure domestic tranquility.” Typical examples of such conflicting ideology include the protest movements for civil rights in the late 1960s and the Vietnam War protest demonstrations in the early 1970s. The balance between an individual’s and group’s legitimate expression of dissent and the right of the populace to live in domestic tranquility requires the diligent efforts of everyone to avoid such confrontations in the future.

In modern society, laws have evolved that govern the interaction of its members to peacefully resolve conflict. In the United States, a crowd itself is constitutionally protected under “the right of the people to peacefully assemble.” However, assemblies that are not peaceable are not protected, and this is generally the dividing line between crowds and mobs. The laws that deal with disruptive conduct are generally grouped into offenses that disturb the public peace. They range from misdemeanors, such as blocking sidewalks or challenging another to fight, to felonies, such as looting and rioting. Missouri law makes “promoting civil disorder in the first degree” a class C felony, according to Section 574.070 of the Revised Missouri Statutes. As stated in one provision of the law, “Whoever teaches or demonstrates to any other person the use, application, or construction of any firearm, explosive, or incendiary device capable of causing injury or death to any person, knowing or intending that such firearm, explosive or incendiary device be used in furtherance of a civil disorder, is guilty of promoting civil disorder in the first degree.”

Types of Crowds

A crowd may be defined as a casual, temporary collection of people without a strong, cohesive relationship. Crowds can be classified into four general categories:

- **Casual Crowd**—A casual crowd is merely a group of people who happen to be in the same place at the same time. Examples of this type include shoppers and sightseers. The likelihood of violent conduct is all but nonexistent.
- **Cohesive Crowd**—A cohesive crowd consists of members who are involved in some type of unified behavior. Members of this group are involved in some type of common activity, such as worshiping, dancing, or watching a sporting event. Although they may have intense internal discipline (e.g., rooting for a team), they require substantial provocation to arouse to action.
- **Expressive Crowd**—An expressive crowd is one held together by a common commitment or purpose. Although they may not be formally organized, they are assembled as an expression of common sentiment or frustration. Members wish to be seen as a formidable influence. One of the best examples of this type is a group assembled to protest something.
- **Aggressive Crowd**—An aggressive crowd is made up of individuals who have assembled for a specific purpose. This crowd often has leaders who attempt to arouse the members or motivate them to action. Members are noisy and threatening and will taunt authorities. They tend to be impulsive and highly emotional and require only minimal stimulation to arouse them to violence. Examples of this type of crowd include demonstrations and strikers.

Types of Mobs

A mob can be defined as a large disorderly crowd or throng. Mobs are usually emotional, loud, tumultuous, violent, and lawless. Like crowds, mobs have different levels of commitment and can be classified into four categories:

- **Aggressive Mob**—An aggressive mob is one that attacks, riots, and terrorizes. The object of violence may be a person, property, or both. An aggressive mob is distinguished from an aggressive crowd only by lawless activity. Examples of aggressive mobs are the inmate mobs in prisons and jails, mobs that act out their frustrations after political defeat, or violent mobs at political protests or rallies.

- **Escape Mob**—An escape mob is attempting to flee from something such as a fire, bomb, flood, or other catastrophe. Members of escape mobs have lost their capacity to reason and are generally impossible to control. They are characterized by unreasonable terror.
- **Acquisitive Mob**—An acquisitive mob is one motivated by a desire to acquire something. Riots caused by other factors often turn into looting sprees. This mob exploits a lack of control by authorities in safeguarding property. Examples of acquisitive mobs would include the looting in South Central Los Angeles in 1992, or food riots in other countries.
- **Expressive Mob**—An expressive mob is one that expresses fervor or revelry following some sporting event, religious activity, or celebration. Members experience a release of pent up emotions in highly charged situations. Examples of this type of mob include the June 1994 riots in Canada following the Stanley Cup professional hockey championship, European soccer riots, and those occurring after other sporting events in many countries, including the United States.

Although members of mobs have differing levels of commitment, as a group they are far more committed than members of a crowd. As such, a “mob mentality” sets in, which creates a cohesiveness and sense of purpose that is lacking in crowds. Thus, any strategy that causes individual members to contemplate their personal actions will tend to be more effective than treating an entire mob as a single entity.

Historical Statistics

Missouri

Fortunately, Missouri has not experienced a trend of consistent riotous behavior or disruptive civil disorder, as some other states have witnessed in the past several decades. While far from recent, Missouri’s most notable incident is the famous 1954 prison riot in Jefferson City, which stands as the state’s worst-case example of a full-scale riot. Other events in Missouri’s early history, as well as those from the late 1960s through this decade, indicate the state is not immune to riots, protests, and social upheaval, but no event caused the destruction that occurred during the 1954 prison riot. Some brief examples of Missouri’s riotous events are provided below.

In the spring of 1832, citizens in Jackson County began to show their hostility toward Mormon newcomers by stoning their houses. In July 1833, a public meeting to determine the Mormon question resulted in demands that no more Mormons be allowed to settle there, that Mormons already residing in the county move out immediately, and that the Mormon newspaper (the Evening and Morning Star) be suspended. When the Mormon settlers refused these demands, the citizens razed the newspaper office, threw the press in the Missouri River, and tarred and feathered two Mormons. The Mormons appealed their plight to Governor Daniel Dunking, who issued a decision denying any citizen the right to take into his own hands the redress of grievances. He recommended that the Mormons take their case to civil court to uphold their rights. Incensed by this action, about 50 armed men attacked a Mormon settlement called Big Blue near Independence on October 31, 1833, beating several of the men and destroying 10 homes. Hostilities continued the next two nights. On November 4, a band of citizens fought about 30 Mormons at Big Blue; three citizens, including one Mormon, were killed. Feeling they were outnumbered, most of the Mormons left the county as a result. The few who remained eventually left as well due to continued threats and hostilities.

In 1906, on the night before Easter Sunday in Springfield, a mob of 6,000, fueled by alcohol and rumors of a white woman’s rape, battered down the jailhouse doors and carried away three black men and hanged them in the town square. Within hours, new rumors spread that black neighborhoods were about to be destroyed. Hundreds of black people fled before the state militia arrived to restore order. In the months that followed, a grand jury indicted more than a dozen people for the hangings, and the story of the woman’s attack proved to be untrue. Only one person went to trial, however, and the jury deadlocked without reaching a verdict. In her book about the incident and its aftermath, “Many Thousand Gone,” Katherine Lederer notes that until 1906, Springfield had a thriving black population, but the population has never recovered.

On September 22, 1954, a full-scale riot broke out at the Men’s State Penitentiary in Jefferson City at about 6:00 p.m., after an inmate released several prisoners. The inmate had obtained keys from a guard by a ruse. At 7:00 p.m., all available state highway patrolmen were directed to report to the penitentiary as quickly as possible to quell the riot. Several buildings and vehicles were burning at that time, and some 500 inmates were loose, hurling bricks, yelling, and attempting to escape. Both chapels were ablaze, as well as several prison shops and factories. Seeing the fires, which were visible at dusk from about 20 miles away, prisoners at the Algoa reformatory and the women’s prison staged separate rebellions there. Damage to state property at those facilities was minimal, but at the main prison, only cell houses and buildings equipped with sprinklers survived. By 11:30 p.m., 285 patrolmen in 202 cars were on the scene, and by midnight, some 100 St. Louis policemen carrying submachine guns had arrived by special train. They surrounded cell houses B and C—the only halls in which guards were still held hostage. Highway patrolmen and arriving National Guardsmen took positions on rooftops overlooking the quadrangle—a yard between the larger cell houses. From that vantage point, they opened fire, seriously wounding many inmates in the exchange. Shortly after 7:00 a.m. the next day, the last guard taken hostage was released, and the rioters, having no alternative, gave up shortly thereafter. By mid-morning, 2,000 police officers and National

Guardsmen were on duty at the prison. When the riot was over, 3 inmates had been killed and 21 wounded by gunfire. One other prisoner was murdered by stabbing and beating, and eight others were injured in fighting with each other. Five buildings were completely destroyed, and two others partially destroyed, resulting in more than \$10 million in losses to state property.

On October 23, 1954, another riot occurred at the State Penitentiary while state troopers were still technically operating the institution. This melee was between white and black inmates and started over food. Bricks began to fly, followed by gunfire from the troopers. Approximately 35 prisoners were wounded in that incident.

On the evening of March 19, 1958, at the Alcoa Intermediate Reformatory, east of Jefferson City, quick action by then Governor James T. Blair and a contingent of state highway patrolmen with riot guns quelled a potential inmate uprising. The governor himself and the patrolmen entered the facility amid reports of unrest following the resignation of the institution's acting superintendent. When no trouble occurred, the troopers were removed after about two hours.

On April 9, 1968, the Kansas City Police Department requested the help of the Missouri Highway Patrol in quelling rioting, bombing, and looting in the eastern part of the city in the wake of the assassination of Martin Luther King, Jr. Over 200 officers reported to the staging area at District Four of the State Highway Department to receive their assignments and began patrolling the downtown area. Officers arrested numerous persons for charges ranging from curfew violations to felonious assault. They remained on duty for 10 days until peace was restored.

Twice in May 1969, demonstrations at Lincoln University in Jefferson City resulted in about 200 highway patrolmen being called to the scene to combat arson, sniper fire, and vandalism on campus. The Student Union was burned during those demonstrations.

On February 17, 1975, at Alcoa Intermediate Reformatory, a minor riot broke out, resulting in tear gas being thrown into dormitories at the institution. Three prison officials suffered minor injuries, and one inmate required stitches to close a wound. The incident resulted in about \$5,000 in property damage.

In December 1977 and January 1978 in Southeast Missouri, farmers making up an American Agricultural Movement staged demonstrations to protest what they felt were unfair prices for their products, as maintained by government price supports. The rallies continued through April 1978 with picketing, tractorcades, and stoppage of highway traffic throughout the area, despite high winds, ice, and snow. More than 300 farm tractors were involved in at least one of these actions. On January 11, highway patrol troopers on Interstate 55 near Hayti arrested seven farmers and charged them with failure to obey a reasonable request, assault, and damaging state property. Four others were arrested on I-55 near Caruthersville for driving their pickup trucks slowly side by side, preventing traffic from passing. Twenty-five farmers with their tractors were involved in a fracas with 12 officers near Hayti. Two patrol cars were damaged, and one officer sustained minor injuries when shoved by an irate farmer into the path of a road grader.

On April 29, 1992, in Warrensburg, racial tensions mounted following the announcement of the controversial Rodney King verdict. The Johnson County Emergency Operations Center was activated for several hours as police remained on alert status for a potential serious disturbance. Military police from nearby Whitman Air Force Base were also placed on standby alert status, but no major problems occurred.

United States

Incidents of civil disorder that erupted into violence are part of American history, spanning several centuries. In March 1770, just prior to the Revolutionary War, a riot occurred when Boston citizens jeered and taunted British soldiers and began throwing things at them during a demonstration. Five people were killed when the troops fired during the incident, which became known as "The Boston Massacre." Three years later, on December 16, 1773, a group of Boston citizens protested the British tax on tea by throwing it overboard. The "Boston Tea Party" was a harbinger of troubles that eventually led to the Revolutionary War.

On May 4, 1886, another violent event occurred in Haymarket Square in Chicago when a confrontation took place between police and strikers at the McCormick reaper works. A bomb was thrown and a gun battle erupted, during which seven police officers and four workers were killed. Many police and civilians were also injured in what became known as the "Haymarket Square Riot."

Controversy over civil rights and the unpopular war in Vietnam during the 1960s and 1970s resulted in one of the most turbulent periods in American history. During this same time, major riots occurred in Los Angeles (1965); Detroit (1967); Chicago (1968, during the Democratic National Convention); Santa Barbara, California (1970); East Los Angeles (1970 and 1971); and Attica, New York (1971, during a major prison riot). Violent rioting once again erupted across the country on April 29, 1992, when four police officers were acquitted after being accused of beating a black suspect (Rodney King). Also in recent years, issues such as abortion, gay rights, immigration, and gun control have generated great public debate and resulted in many mass assemblies and demonstrations.

Measure of Probability and Severity

Probability: Low

Severity: Low to High

Across the nation, police reports reflect a fairly steady rate of theft, mugging, arson, and homicide incidents. But these criminal acts do not amount to “riots.” In their article on “Understanding Riots” published in the *Cato Journal* (Vol. 14, No 1), David D. Haddock and Daniel D. Polsby note that a large crowd itself is not an incipient riot merely because it assembles a great many people. Haddock and Polsby explain that “starting signals” must occur for civil disorder to erupt; these starting signals include certain kinds of high profile events. In fact, incidents can become signals simply because they have been signals in the past. In Detroit, for example, Devils Night (the night before Halloween) has in recent years become a springboard for multiple, independent, and almost simultaneous acts of arson. With any conventional triggering event, such as news of an assassination or unpopular jury verdict, crowds form spontaneously in various places as word of the incident spreads, without any one person having to recruit them. But since not every crowd threatens to evolve into a riot, the authors reason that a significant number of people must expect and desire that the crowd will become riotous. In addition, “someone has to serve as a catalyst—a sort of entrepreneur to get things going.” A typical action is the breaking of a window (a signal that can be heard by many who do not necessarily see it). Someone will throw the first stone, so to speak, when he calculates the risk of being apprehended has diminished to an acceptable level. This diminished risk is generally based on two variables—the size of the crowd relative to the police force and the probability that others will follow if someone leads. The authors conclude that once someone has taken a risk to get things started, the rioting will begin and spread until civil authorities muster enough force to make rioters believe they face a realistic prospect of arrest.

Nationwide, riots are apt to be a recurrent, if unpredictable, feature of social life. Without question, Missouri will continue to experience future episodes of marches, protests, demonstrations, and gatherings in various cities and communities that could lead to some type of disruptive civil disorder. However, based on the state’s general history of civil disturbance and the various human factors noted above, the probability that such incidents will develop into full-scale riots is considered low.

Regarding penal institutions, much has been done in Missouri and other states to alleviate living conditions, which are underlying factors in many riots (prison overcrowding, poor treatment of inmates, lack of grievance procedures, etc.). The state has been building new prisons for several years and expanding facilities to create more space and otherwise improve facilities for its inmate population. As of September 15, 2005, 31,185 inmates were housed in the 20 state correctional centers.

Should Missouri experience future incidents of disruptive civil disorder or rioting, the severity of a given event could range from low to high, depending on many factors. A spirited demonstration that gets out of hand may result in several arrests, minor damage to property (police vehicles with broken windows, etc.), some injuries, and manpower/overtime costs for police, fire, and other response services. To a greater extent, the threat of urban or intercity riots has the potential for millions of dollars in property damage, possible loss of life, and serious injuries, and extensive arrests. Sustaining police at the scene for extended periods, and possibly mobilizing state highway patrol and National Guard units, can add to the extensive manpower costs. Still, such riots tend to be confined to a single site or general area of a community rather than multiple locations or several areas of the state at the same time. Once a riot has occurred, police in other cities are generally on standby for possible riotous conditions and are better able to alleviate potential disturbances before they develop into full-scale riots.

Impact of the Hazard

When rioting does break out, it generally proves extremely difficult for first-responder law enforcement authorities to quell the mob promptly. The rules of constitutional law set stringent limits on how police officers can behave toward the people they try to arrest. Restraint also plays a crucial part in avoiding any action that “fans the flames.” Initial police presence is often undermined because forces may be staffed below the peak loads needed to bring things back under control. As a result, the riot may continue until enough state police or National Guard units arrive to bolster the arrest process and subsequently restore order. In many cases, damage to life and property may already be extensive.

Table 2.15 EMAP Impact Analysis: Civil Disorder

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Localized impact expected to be severe for unprotected personnel and moderate to light for protected personnel.
Health and Safety of Personnel Responding to the Incident	Localized impact expected to be severe for unprotected personnel and moderate to light for protected personnel.
Continuity of Operations	Damage to facilities/personnel in the area of the incident may require temporary relocation of operations.
Property, Facilities, and Infrastructure	Localized impact to facilities and infrastructure in the area of the incident. Some severe damage possible.
Delivery of Services	Localized disruption of lines of communication and destruction of facilities may postpone delivery of some services.
The Environment	May cause extensive damage in isolated cases and some denial or delays in the use of some areas. Remediation needed.
Economic and Financial Condition	Local economy and finances adversely affected, possibly for an extended period of time, depending on damage.
Regulatory and Contractual Obligations	Regulatory waivers may be needed. Fulfillment of some contracts may be difficult. Impact may reduce deliveries.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

In the wake of numerous urban riots in the late 1960s and beyond, a unique approach in law enforcement began to emerge as a viable means to reduce the risk of such future riots. Known as “community policing,” its philosophy rests on the belief that reducing and controlling serious crime requires the police to pay renewed attention to all problems that allow serious crime to occur. In its comprehensive report following the devastating 1967 Detroit riot for example, the Kerner Commission noted that police “cannot, and should not, resist becoming involved in community service matters.” The benefits to law enforcement and public order, the commission says, include the following:

- Because of their “front-line position” in dealing with ghetto problems, police will be better able to identify problems in their community that may lead to disorder.
- They will be better able to handle incidents requiring police intervention.
- Willing performance of such work can gain police the respect and support of the community.
- Development of nonadversary contacts can provide the police with a vital source of information and intelligence concerning the communities they serve.

In his paper entitled “Preventing Civil Disturbances: A Community Policing Approach,” Michigan State University professor Robert C. Trojanowicz says community policing can reduce the potential for riots beyond simply reducing racial

tensions between the police and the black community. The organizational strategy of community policing, he writes, “requires freeing some police officers from the isolation of the patrol car, so they can work directly in the community and enlist them as partners in the process of policing themselves. It addresses the need that everyone in the United States deserves to live in a safe and stable community, free of drugs and violence, and reminds us that “until we are all safe, no one is safe.” Four basic ways community policing can help in riot prevention, the author says, are as follows: – It provides a means of gathering superior intelligence that allows us to identify areas at risk, the level of threat in those areas, and weaknesses and strengths within the community. – It provides the police with a way to address those weaknesses, which often include crime, violence, drugs, fear of crime, disorder, neighborhood decay, and juveniles at risk. – It reaches out to law-abiding people in the community and involves them in the police process, serving as the vital link required to enlist their help in actively promoting order and stability.

It reduces the overall risk to riots by improving the relations between the police and the black community.

A community policing officer (CPO), the author notes, is a full-fledged law enforcement officer who makes arrests but is further challenged to find new ways to address old problems. CPOs act as community advocates for needed neighborhood services (prompt trash pickup, demolition of abandoned buildings, etc.) and serve as community liaison to public and private agencies, Trojanowicz writes. “This can mean linking troubled families to affordable counseling services, linking the homeless to shelter, or tapping local business to provide donated supplies for projects to beautify the area.” The initiatives are bounded only by the collective imagination of the CPO and the people in the community and their local needs, the author concludes.

Hazardous Materials Release (Fixed Facility and Transportation Accidents)

Description of Hazard

A hazardous material is any substance or material in a quantity or form that may pose a reasonable risk to health, the environment, or property. The category hazardous materials include incidents involving substances such as toxic chemicals, fuels, nuclear wastes and/or products, and other radiological and biological or chemical agents. For the purposes of this Hazard Analysis section, only accidental or incidental releases of hazardous materials from two different kinds of incidents are addressed: fixed facility incidents and transportation-related accidents. In consideration of recent worldwide and national events, incidents involving terrorism or national attacks, which involve hazardous materials of any type, are addressed in Terrorism, Attack, and Special Events.

Generally, with a fixed facility, the hazards are pre-identified, and the facility is required by law to prepare a risk management plan and provide a copy to the local emergency planning committee (LEPC) and local fire departments. Missouri Tier II forms must also be filed with the Missouri Emergency Response Commission at SEMA. For specific site plans, each county LEPC is required by law to maintain a copy of these plans.

The exact location of a hazardous materials accident is not possible to predict. The close proximity of railroads, highways, airports, waterways, pipelines, and industrial facilities to populated areas, schools, and businesses could put a large number of individuals in danger at any time. In addition, essential service facilities, such as police and fire stations, hospitals, nursing homes, and schools near major transportation routes in the state are also at risk from a potential hazardous materials incident.

Federal Highway Administration statistics indicate that 1 of 10 motor vehicles is engaged in the transport of hazardous materials of some type. The U.S. Army Corps of Engineers also indicates that over 9,000 tons of petroleum products and over 200,000 tons of chemicals and related products are shipped annually by river barge via the Missouri River between Omaha and Kansas City.

Previous estimates have indicated that, nationwide, over four billion tons of hazardous materials are shipped each year by various transportation modes. Approximately 20 flights each day out of Lambert Airport in St. Louis carry nuclear medicines, and Tri-State Motor Transit Company of Joplin has approximately 25 shipments of high explosives each week.

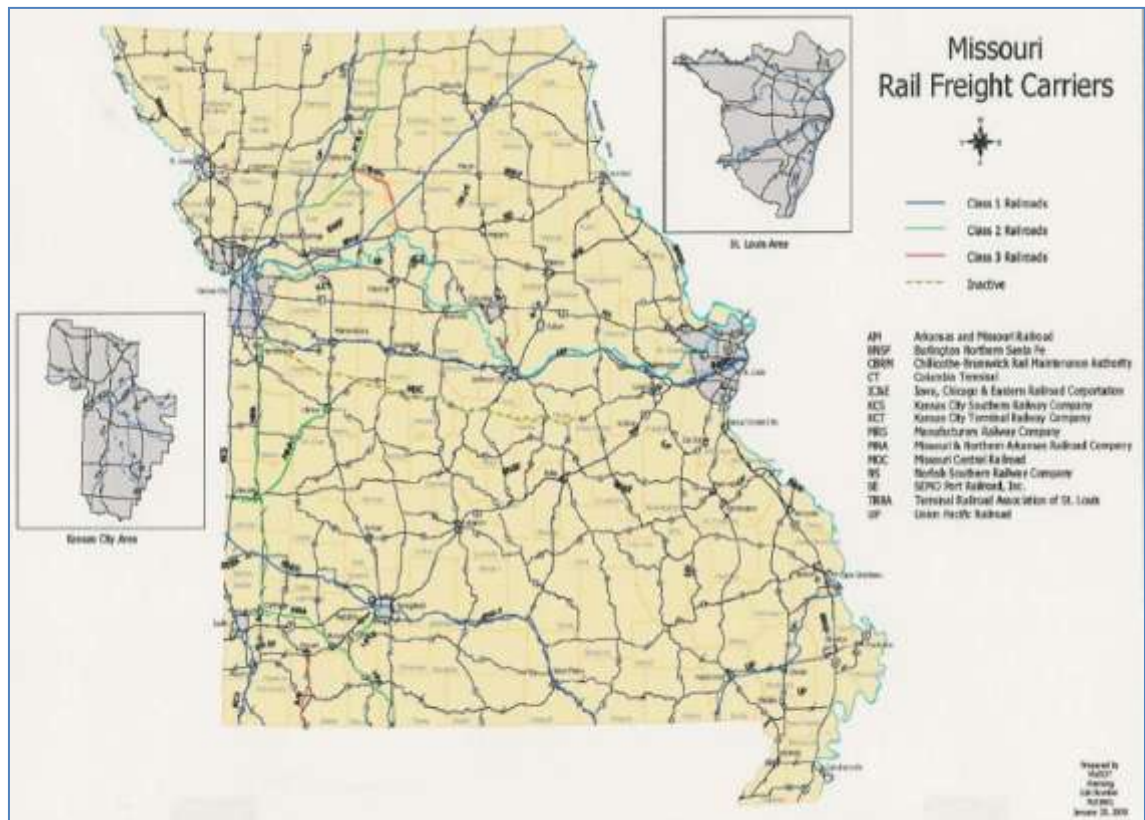
Missouri is also at risk because of the highway system and geographical location. With Interstate highways such as I-29, I-35, I-44, I-55, and I-70, Missouri offers premium routes for commercial carriers traversing the continental United States. Even arterial highways in Missouri, such as U.S. Highways 71, 13, 63, 54, and 61 are maintained to provide more favorable traveling conditions than in other central states. Also, the locations of nuclear facilities in relation to mines and fuel processing plants result in shipments of radioactive products and wastes across Missouri.

Missouri is at the crossroads for rail and truck transport of nuclear waste to the Yucca Mountain, Nevada, test site. Truck shipments alone will affect 25 different states, 266 counties, and two Indian reservations. This will be a potentially large waste shipping campaign from as many as 19 nuclear reactors through other corridor states to Nevada.

The railroad systems in Missouri transport voluminous types and amounts of hazardous materials on their 6,351 miles of rails that traverse the state (see Figure 2.14). Though individual cars may be placarded to reveal contents such as hazardous materials, only estimates can be obtained concerning volumes of such materials, because only the interstate traffic is counted or measured. Interstate shipments are accounted for where they originate and terminate.

Increased use and transport of materials across the country has created serious problems for emergency services personnel. Many factors can increase the magnitude of an otherwise simple transportation accident into an incident of potential hazard to high numbers of people. Following are potential factors to be considered:

Figure 2.14
Missouri Rail Freight Carriers System Map



- Over 14,000 different chemicals are estimated as being shipped by the various transportation modes. Some types of highly toxic chemicals do not require placarding if shipped in quantities of less than 1,000 pounds, even though lesser quantities could devastate a small town.
- Only a few emergency response organizations in the larger cities and counties near the more metropolitan areas have had training for handling peacetime radiological problems. With recent federal grants and programs in place to provide funding for training, exercises, and equipment for state Homeland Security Response Teams and local responders, the general capabilities of hazardous materials response personnel and teams statewide is expected to improve. Refer to Section Terrorism for more information on this topic.
- There is a general lack of intelligence reports regarding activity of possible terrorists.

Other scenarios involve nuclear terrorism and faulty reentry of nuclear-equipped satellites to earth (such as COSMOS 954 in 1978 and SKYLAB in 1980). However, transport of radioactive materials presents the most probable scenario for a radiological incident. The U.S. Department of Energy is currently shipping radioactive waste by truck to repositories in Texas and Utah. These trucks cross Missouri through St. Louis and Springfield on I-270 and I-44.

The federal government has encouraged development of long-term repositories for spent fuel and other high-level radioactive wastes, and for transuranics (known as TRU waste), at Yucca Mountain, Nevada, and Carlsbad, New Mexico, respectively. Speculations have suggested that up to 3,600 shipments per year may go to these facilities, depending on several variables.

A large number of hazardous material shipments come from two corporations in Missouri. Tyco/ Mallinckrodt Medical in Maryland Heights (St. Louis County) and Tri-State Motor Transit in Joplin (Jasper County). Tyco/Mallinckrodt Medical is one of the largest manufacturers of radiopharmaceuticals in the world. Tri-State is one of the largest single private carriers of radioactive materials in the world, in addition to transporting all classes of explosive materials and other toxic and hazardous materials.

Missouri is a transportation hub. The interstate corridors of I-44, I-70, and I-55 are the most commonly used for truck transport. U.S. Highway 36 crosses the northern counties, while U.S. Highway 60 crosses the southern counties. U.S. Highways 71, 13, 65, and 63 are also well-traveled north-south arterial routes.

Although there are railroads throughout Missouri, the UP route between St. Louis and Kansas City is the most used for large radioactive material shipments. Combined, the switching yards at St. Louis and Kansas City process more of these transcontinental trains than any other yards in the country.

During any radiological emergency, regardless of the cause, local officials and emergency responders will likely require state or federal support in the detection, monitoring, and analysis of radiological data for decision-making.

In 1990, the Agency for Toxic Substances and Disease Registry (ATSDR) of the Centers for Disease Control and Prevention (CDC) began funding selected state health departments to participate in the Hazardous Substances Emergency Events Surveillance (HSEES) system. Missouri was added to this effort in fiscal year 1994 and became the twelfth participating state. The Missouri Department of Health and Senior Services (DHSS) administers Missouri's HSEES participation. The goal of this surveillance project is to provide data in an effort to reduce injuries and deaths to first responders, employees, and the general public from hazardous substance emergencies.

Beginning in 2002, a newly updated data-collection form, approved by the Office of Management and Budget, went into effect. For each event, information was collected about the event, substance(s) released, victims, injuries, and evacuations.

HSEES defines hazardous substances emergency events as uncontrolled or illegal releases or threatened releases of hazardous substances. Events involving releases of only petroleum are not included. Events are included if (1) the amount of substance released (or that might have been released) needed (or would have needed) to be removed, cleaned up, or neutralized according to federal, state, or local law; or (2) the release of a substance was threatened, but the threat led to an action (for example, evacuation) that could have affected the health of employees, emergency responders, or members of the general public.

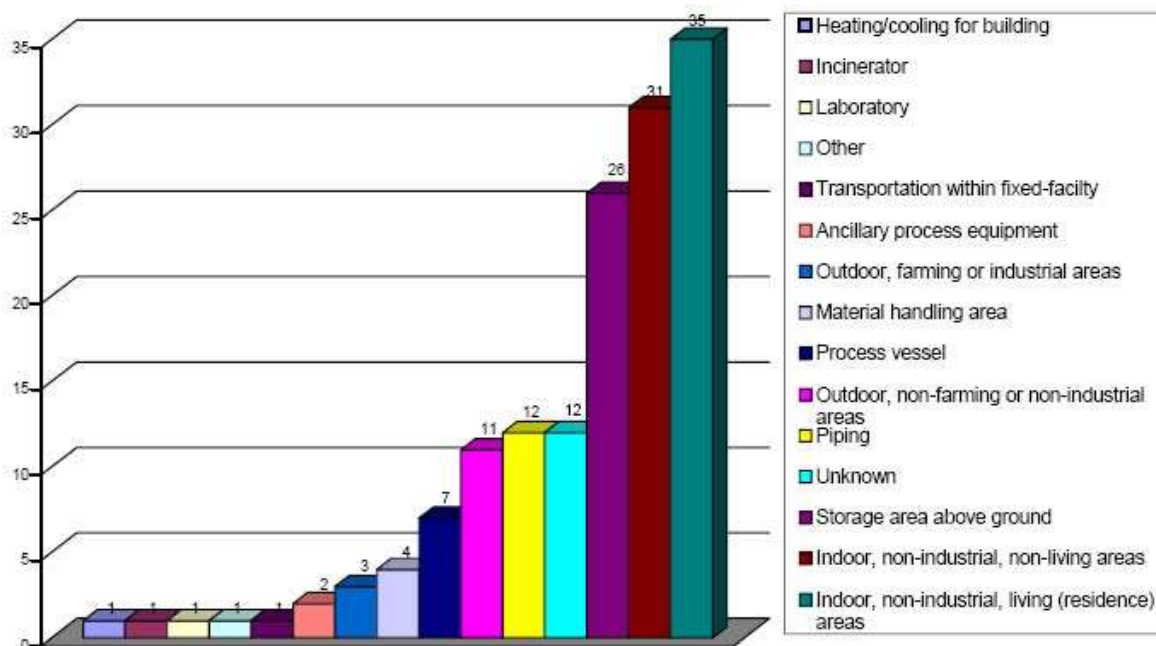
Various data sources were used to obtain information about these events. These sources included, but were not limited to, Missouri Department of Natural Resources (DNR), U.S. Coast Guard, National Response Center, DHSS Bioterrorism Surveillance, U.S. Department of Transportation Hazardous Materials Information System, Missouri State Highway Patrol, private companies, and Missouri Press Clipping Bureau (media). Census data were used to estimate the number of residents in the vicinity of the events. All data were computerized using a web-based data entry system provided by ATSDR.

Historical Statistics

The DNR's Environmental Emergency Response (EER) Section receives most of the environmental emergency response reports in Missouri. All environmental emergencies may be reported, 24 hours a day, to (573) 634-2436. In fiscal year 2006, 2,493 reports were received by DNR/EER.

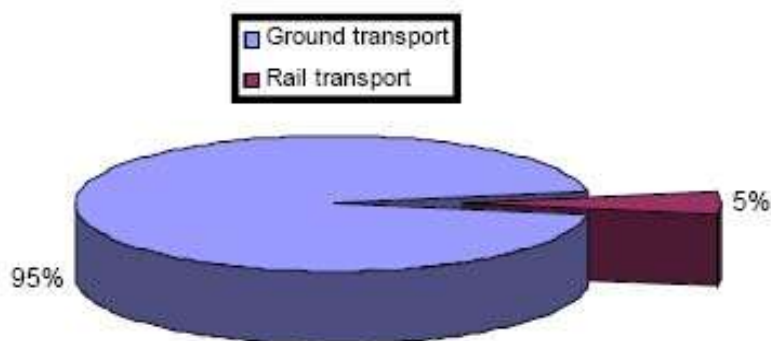
During 2004, a total of 300 events were reported to the Missouri Department of Health and Human Services. A total of 148 (49 percent) events occurred in fixed facilities. For each fixed-facility event, one or two types of area or equipment involved in the fixed facility where the event occurred could be selected. Of all 148 fixed-facility events, 134 (91 percent) reported one type of area and 2 (1 percent) reported a combination of two area types. Type of area was not reported for 12 (8 percent) events. Among events with one type of area reported, the main areas were classified as follows: 35 (26 percent) indoor, nonindustrial, living (residence) areas; 31 (23 percent) indoor, nonindustrial, nonliving areas; and 26 (19 percent) storage area above ground (i.e., warehouse, tank, storage shed) (See Figure 2.15).

Figure 2.15
Areas of Fixed Facilities Involved in Events



Of the 152 transportation-related events, 144 (95 percent) occurred during ground transport (e.g., truck, van, automobile, or tractor) and 8 (5 percent) involved transport by rail (Figure 2.16). No events involved water, air, or pipeline transportation modes. Most (86 percent) ground transportation events involved trucks. The largest proportions of transportation-related events occurred during unloading of a stationary vehicle or vessel (65 [43 percent]) and from a moving vehicle or vessel (38 [25 percent]). Of the 152 transportation-related events, 33 (22 percent) involved a release en route that was later discovered at a fixed facility.

Figure 2.16
Distribution of Transportation-Related Events, by Type of Transport



Source: Missouri Department of Health and Senior Services Hazard Substances Emergency Events Surveillance

Factors contributing to the events consisted of primary and secondary entries. Primary factors were reported for 288 (96 percent) events. Of the reported primary factors, most (29 Percent) fixed facility and most (38 percent) transportation-related events involved human error.

Of the 299 events involving actual releases, 253 (85 percent) involved the release of one substance. Two substances were released in 12 (4 percent) of the events, and approximately 34 (11 percent) involved the release of more than two

substances. Fixed-facility events were more likely than transportation events to have two or more substances released in an event (24 percent versus 7 percent).

In 253 (84 percent) events, only one substance was released. The most commonly reported categories of substances were other inorganic substances, volatile organic compounds, and acids. The individual substances most frequently released were ammonia, hydrochloric acid, mercury, and acetone (see Table 2.16). The substance categories most commonly released in fixed-facility events were other inorganic substances (54 [24 percent]), acids (38 [17 percent]), and volatile organic compounds (37 [16 percent]). In transportation-related events, the most common substance categories released were volatile organic compounds (35 [20 percent]), acids (25 [14 percent]), and other inorganic substances (25 [14 percent]).

Figure 2.17

Primary Factors Reported as Contributing to Events, by Event Type

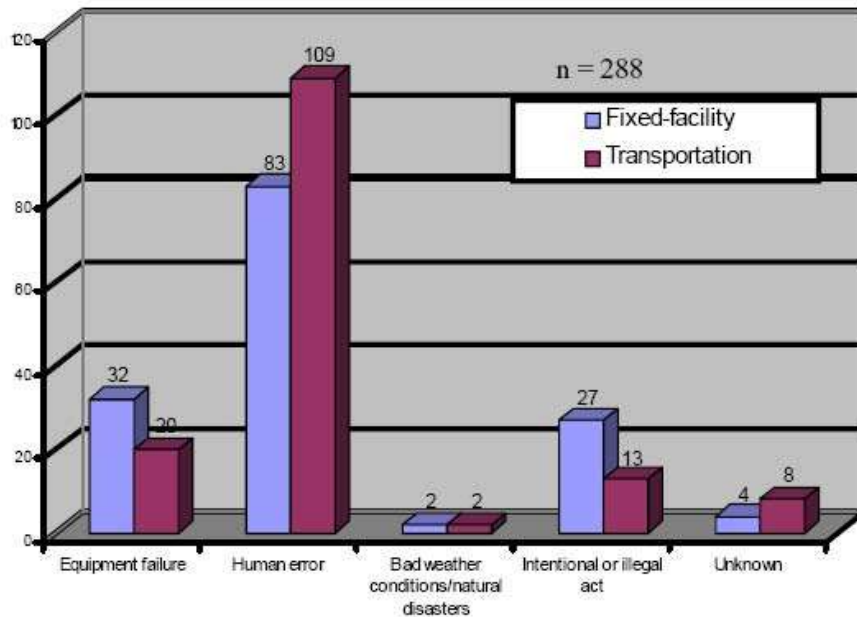


Table 2.16 10 Most Frequent Substances Involved in Events

Number	Standardized Substance Name	Frequency
1	Ammonia	43
2	Hydrochloric Acid	26
3	Mercury	23
4	Acetone	20
5	Phosphorus	19
6	Sulfuric Acid	19
7	Sodium Hydroxide	15
8	Methamphetamine Chemicals NOS*	13
9	Ethyl Ether	11
10	Proteat	10
Total		199

The number of events by month ranged from 14 (5 percent) in October to 39 (13 percent) in April, with the largest proportions occurring from March through May. The proportion of events ranged from 15 to 20 percent during weekdays and 6 percent during weekend days. Of all 278 (93 percent) events for which time of day or time category was reported, 30

percent occurred from 6:00 a.m. to 11:59 a.m., 28 percent from 12:00 p.m. to 5:59 p.m., 18 percent from 6:00 p.m. to 11:59 p.m., and the remainder during the early hours of the day.

A total of 140 victims were involved in 94 (31 percent) of the events. Of these 94 events, 73 (78 percent) involved only one victim, and 13 (14 percent) involved two victims. Of all victims, 105 (75 percent) were injured in fixed-facility events. Fixed-facility events were more likely to have three or more victims per event (6 percent) than were transportation-related events (2 percent).

Police officers (77 [55 percent]) constituted the largest proportion of the population groups injured, followed by employees (48 [34 percent]) (Figure 2.18). In fixed-facility events, 54 emergency response personnel were injured. All of those were police officers. Police officers were injured more frequently in fixed-facility events (70 percent) than in transportation-related events (30 percent) (Figure 2.19).

Figure 2.18

Number of Victims, by Population Group and Type of Event

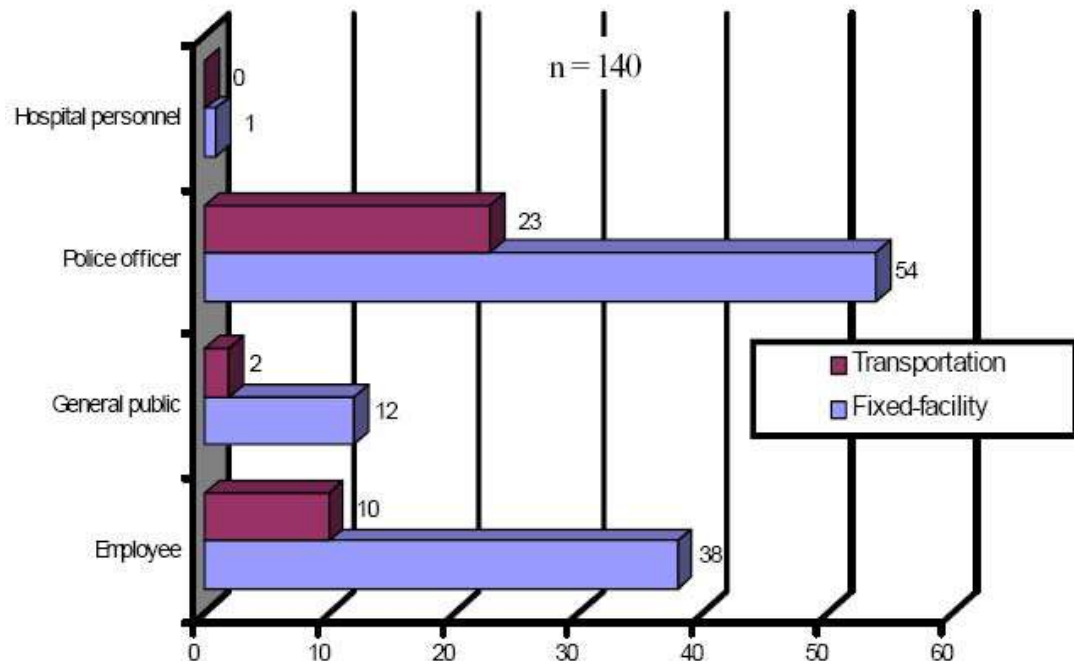
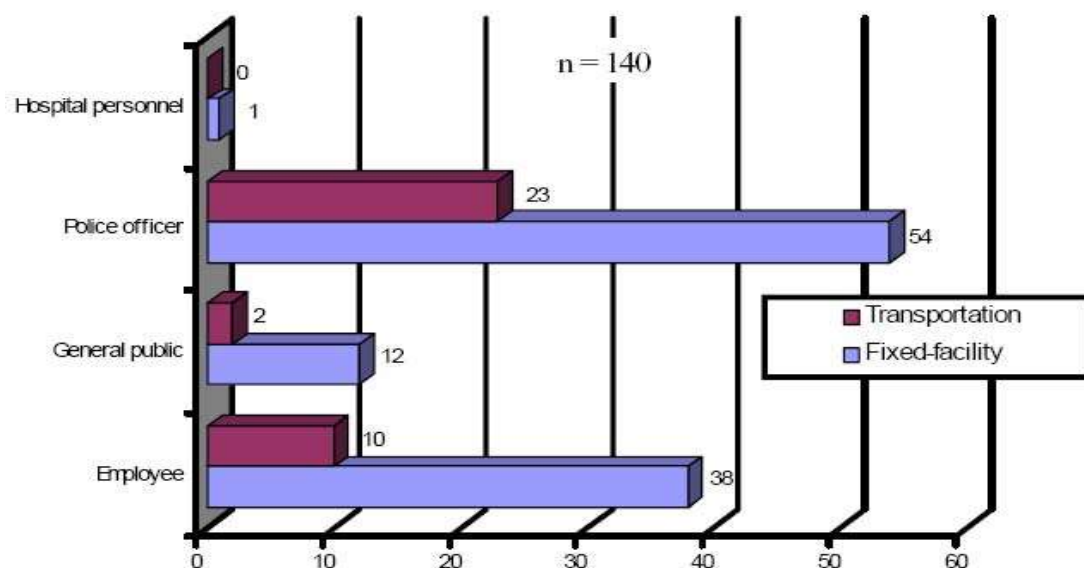


Figure 2.19
Distribution of Responders Injured in Transportation-Related Events, by Type of Event



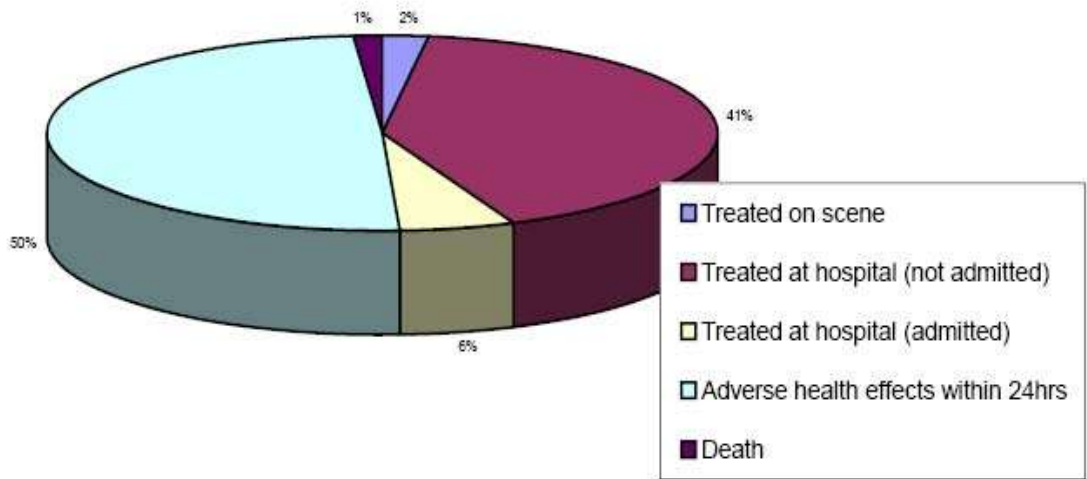
Source: Missouri Dept. of Health and Senior Services Hazardous Emergency Events Surveillance System

Victims were reported to sustain a total of 203 injuries or symptoms. Some victims had more than one injury or symptom. Of all reported injuries/symptoms, the most common injuries/symptoms in fixed-facility events were respiratory irritation (61 [37 percent]), headache (42 [26 percent]), and dizziness/central nervous system symptoms (18 [11 percent]). In transportation-related events, headache (20 [53 percent]), trauma (7 [18 percent]), and respiratory irritation (6 [16 percent]) were reported most frequently. None of the trauma injuries in transportation-related events were substance-related; these injuries resulted from a chain of events, such as a motor vehicle accident leading to the release of a hazardous substance and not from exposure to the substance itself.

Of the 140 victims, 69 (50 percent) had adverse health effects within 24 hours and 58 (41 percent) were treated at a hospital (not admitted). Two (1 percent) deaths were reported (see Figure 2.20). There were no events in which the severity was unknown.

Only one event involved more than 10 injured people. Eleven employees were taken to the emergency room after coming in contact with chemical fumes. An aerosol can of brake parts cleaner and a duct liner adhesive, used to clean machinery, reacted together to cause a fume. The two different industrial chemicals were being used simultaneously and they produced a respiratory irritant. The employees were taken to a medical facility where they were decontaminated and treated for respiratory problems, nausea, and dizziness. One employee fainted. Police, fire, emergency management personnel, and emergency medical personnel were called to the scene and the area was ventilated.

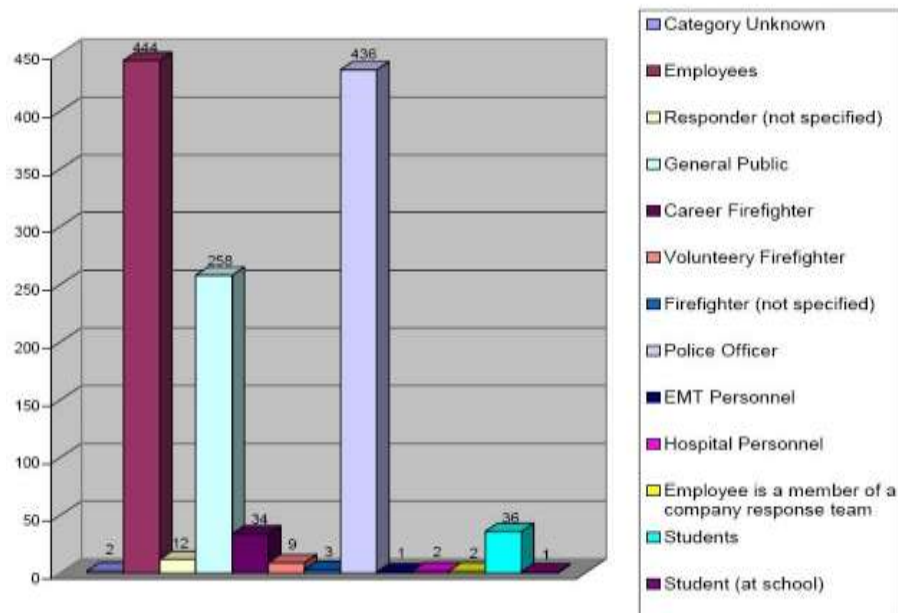
Figure 2.20
Injury Disposition



Respiratory irritation has consistently been the most frequently reported injury. Employees continue to be the most commonly reported victims of acute chemical releases. However, responders constitute a large proportion of the victims as well (Figure 2.21). The number of injured responders has decreased from 115 in 2002 to 77 in 2004. This decrease likely results from less police officers injured when responding to events involving the manufacture of methamphetamine. This may be a result of increased awareness and training for methamphetamine lab seizures among state and local law enforcement.

The number of deaths associated with acute hazardous substances events has decreased in recent years. Many of these deaths were attributed to nonchemical circumstances causing the events (e.g., a multiple vehicle accident resulting from high-speed travel of a truck pulling an ammonia tank).

Figure 2.21
Number of Victims, by Category and Year

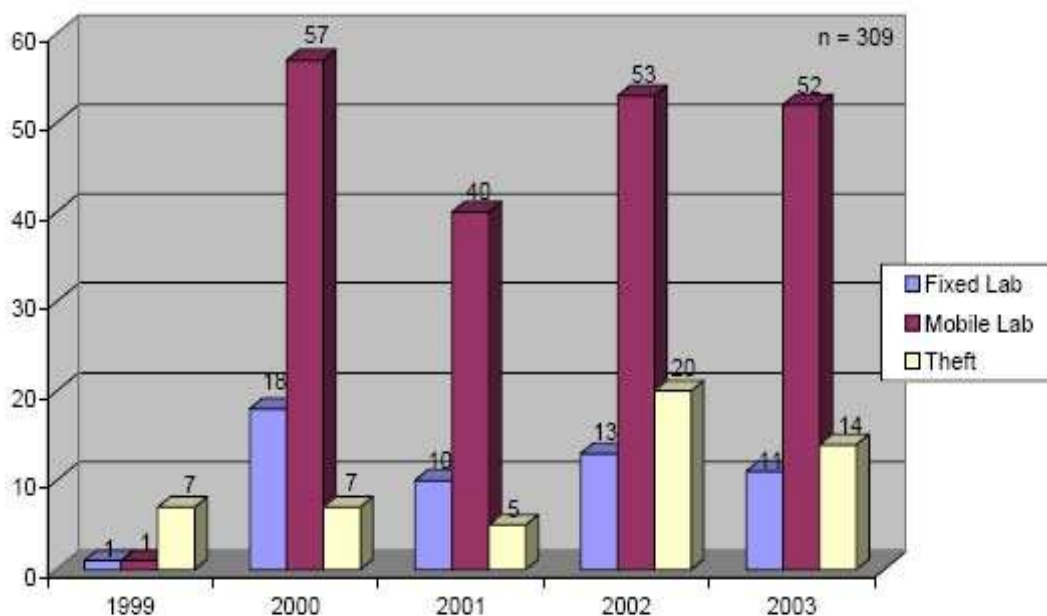


Between 1999 and 2003, local, state, and federal officials reported 9,160 seizures of methamphetamine labs, dumpsites, and locations of inactive labs in Missouri—more than any other state in the nation.

Missouri reported a total of 309 HSEES events related to methamphetamine for between 1999 and 2003. The largest proportion of events occurred in fixed facilities. Each methamphetamine event was categorized into the type of situation such as theft, fixed-lab (private residence, abandoned lab), and mobile lab. There were 203 (66 percent) fixed labs, 53 (17 percent) mobile labs, and 53 (17 percent) events in which chemicals were stolen from an agricultural facility (Figure 2.22).

Figure 2.22

Methamphetamine Related-Events Situation, by Year

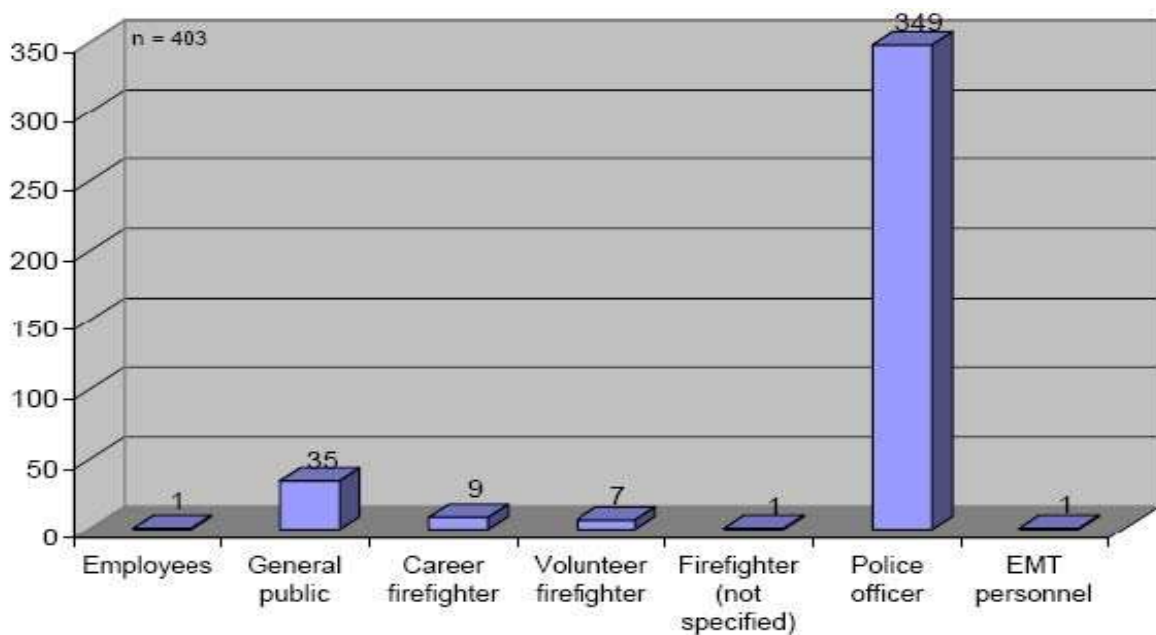


Source: Missouri Department of Health and Senior Hazardous Substances Emergency Events Surveillance System

In the 254 methamphetamine events involving injuries, respiratory symptoms consistently have been most frequently reported. The number of deaths associated with events continues to suggest the need to evaluate not only the danger posed by methamphetamine substances, but also the circumstances surrounding the events (e.g., insufficient personal protection against adverse health effects). Police officers continue to be the most commonly reported victims of methamphetamine emergency events.

Figure 2.23

Number of Methamphetamine-Related Victims, by Victim Category



Between 1994 and 2004, the largest proportion of events occurred in fixed facilities (see Table 2.17). The number of reported transportation-related events increased from 1998 to 2003, and then decreased in 2004. The decrease is partially due to fewer reports from the U.S. Department of Transportation's Hazardous Materials Information System. The number of substances released has been inconsistent over the years and continues to fluctuate. The percentage of events with victims was highest in 2002 (32 percent) and lowest in 1995 (3 percent). The average percentage of events with victims between 1994 and 2004 was 17 percent.

Table 2.17
Cumulative Data, by Year*

Year	Type of Event		Total	No. Substances Released	No. of Victims	No. Deaths	Events with Victims	
	Fixed Facility	Transportation					No.	%**
1994	137	67	204	231	32	1	15	7%
1995	172	156	328	360	13	1	9	3%
1996	109	51	160	175	59	2	12	8%
1997	113	70	183	216	23	1	13	7%
1998	145	51	196	197	24	2	17	9%
1999	166	125	291	312	71	3	23	8%
2000	199	162	361	486	197	14	103	29%
2001	145	160	305	369	157	3	79	26%
2002	201	193	394	501	307	5	127	32%
2003	225	205	430	575	217	3	135	31%
2004	148	152	300	403	140	2	94	31%
Total	1,760	1,392	3,152	3,825	1,240	37	627	20%

Source: Missouri Department of Health and Senior Services Hazardous Substances Emergency Events Surveillance System

*Numbers in the table may differ from those reported in previous years because of adjustments in HSEES qualification requirements for events.

**Percentage of events with victims.

Measure of Probability and Severity

Fixed Facility Accidents

Probability: Moderate

Severity: Moderate

Transportation Accidents

Probability: High

Severity: Moderate

Note: While there have been more documented fixed facility accidents, the probability is ranked greater for transportation accidents due to the potential for more incidents to occur, but inability to predict exactly where these incidents will occur. The severity to the environment will vary in every case depending on the amount, type, and method of release. Close coordination between the Missouri Department of Natural Resources, the U.S. Environmental Protection Agency (EPA), the local jurisdiction, and the spiller (responsible party) is required to ensure that potential impacts to public health and the environment are adequately addressed.

Hazardous Materials Fixed-Facility Accident

The probability of occurrence is rated as moderate. With the new regulations from EPA and the Occupational Health and Safety Administration, along with more stringent state laws and employee awareness training, this rating may be lowered to low or raised to high based on past performance. This rating means the probability of occurrence is possible during the expected lifetime of the facility.

The severity of consequences is rated as moderate but may be either low or high depending on the type and amount of chemical released. This means the chemical is expected to move into the surrounding environment at a concentration sufficient to cause serious injuries and/or death, unless prompt and effective corrective actions are taken. Injuries and/or death would be expected only for personnel exposed over an extended period or when individual personal health conditions create complications.

Hazardous Materials Transportation Accident

The probability of occurrence is rated as high because of the large volume of hazardous materials being hauled over the highways and railways. This rating means that the probability of occurrence is considered sufficiently high as to assume that an event will occur at least once within any mode of transportation (including water, pipeline, and air) during a three-year HSEES reporting period.

The severity of the consequences is rated as moderate, but may be either low or high depending on the location of the accident and the time of day. This rating means injuries and/or death are expected only for exposed personnel over extended periods of time or when individual personal health conditions create complications.

Impact of the Hazard

The entire State of Missouri is susceptible to this type of hazard, depending on a number of factors such as the type of chemical, amount released/spilled, method of release, location of release, time of day, and weather conditions.

This hazard could have a significant impact on the public health, the environment, private property, and the economy.

The impact of this type of disaster will likely be localized to the immediate area surrounding the incident. The initial concern will be for people, then the environment. If contamination occurs, the spiller is responsible for the cleanup actions and will work closely with the Missouri Department of Natural Resources, EPA, and the local jurisdiction to ensure that cleanup is done safely and in accordance with federal and state laws.

Local government (county or municipal) is more often directly impacted by radiological incidents than state or federal government. Local responders are generally the first on scene for any incident. Therefore, they have the responsibility for treating any injured victims and transporting them to a hospital for more complete medical care. Also, local first responders have the initial responsibility for controlling exposure of emergency workers and the public to any radioactive materials and to contain the spread of radioactive contamination as much as possible. While cleanup of any actual spill of radioactive materials rests with the shipper (in most cases), local responders may be required to provide site control for several hours until the responsible parties arrive on the scene.

A past survey was completed of Missouri fire departments across the state, asking their perception of their own capabilities to respond to a radiological incident. Of the 433 departments surveyed, only 118 responded. Of those, 21 believed they could adequately handle a radiological incident until proper authorities arrive.

This indicates that pockets of adequate radiological response capabilities are available throughout the state. However, the main transportation corridors have some gaps. It is also clear that more training needs to be encouraged along these corridors. The same consideration must be given to any county located under commercial flyways or where it might be possible for a fallen satellite to leave a contaminated "footprint" (COSMOS 954 left a 200-mile footprint in the Northwest Territory of Canada in 1978).

Table 2.18 Impact Analysis: Hazardous Materials

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Localized impact expected to be severe for plume area and moderate to light for other adversely affected areas.
Health and Safety of Personnel Responding to the Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for protected personnel.
Continuity of Operations	Damage to facilities/personnel in the area of the incident may require temporary relocation of some operations.
Property, Facilities, and Infrastructure	Localized impact to facilities and infrastructure in the plume area of the incident, possibly for extended period.
Delivery of Services	Localized disruption of roads and/or utilities may postpone delivery of some services.
The Environment	Localized impact expected to be severe for plume area. Remediation required.
Economic and Financial Condition	Local economy and finances adversely affected, possibly for an extended period of time, depending on damage, extent of cleanup, and length of investigation.
Regulatory and Contractual Obligations	Regulatory requirements must be fulfilled. Fulfillment of some contracts may be difficult. Impact may reduce deliveries.
Reputation of or Confidence in the Entity	Localized impact expected to primarily adversely affect HazMat source owner and local entities.

Synopsis

Any disaster or emergency incident, such as an earthquake or a flood, could result in additional concerns when it involves hazardous materials. For example, during the floods of 1993, a large propane tank farm in St. Louis was threatened by rising floodwaters, forcing evacuations of nearby residents in several areas. Another hazardous materials incident related to the 1993 floods involved an on-going ammonia release from the La Roche Industries, Inc., facility near Crystal City, Missouri, caused by power failure and failure of the cooling system on a large ammonia tank, which ultimately resulted in off-gassing of ammonia through the tank's pressure relief check valves. The ammonia cloud over the plant led to a declaration of restricted air space in the plant vicinity for several days.

In addition, thousands of chemical containers ranging from household products and 55-gallon drums to 10,000-gallon fuel storage tanks were displaced statewide as a result of the flood damage. A federal disaster declaration was issued, the Federal Response Plan (FRP) was implemented, and Emergency Support Function #10—Hazardous Materials Annex was activated to support the statewide response to hazardous materials incidents like these and others that resulted from the flooding.

Each emergency event will need to be evaluated on an incident-specific basis, and top priority must be given to the protection of the public, then the environment, and lastly property.

Tier II Forms are filed and maintained by the Missouri Emergency Response Commission at SEMA. Site-specific plans are on file with each county's local emergency planning commission. Transportation and evacuation routes are addressed in each county emergency operations plan. See Section on Utilities for the natural gas pipeline map. The SEMA Homeland Security Response Teams Map, included in Section Terrorism, indicates 28 existing or proposed Homeland Security Response Teams for Missouri. A few of these teams include hazardous materials response teams with enhanced capabilities for response to weapons of mass destruction incidents, including incidents involving nuclear or radiological

materials, biological agents, and chemical agents. The SEMA Terrorism Program should be contacted to determine the capabilities of these Homeland Security Response Teams in specific areas.

Mass Transportation Accidents

Description of Hazard

For the purpose of this study, mass transportation is defined as the means, or system, that transfers large groups of individuals from one place to another. This profile addresses only transportation accidents involving people, not materials. Thus, mass transportation accidents include public airlines, railroad passenger cars, metro rail travel, tour buses, city bus lines, school buses, riverboat casinos, and other means of public transportation.

Missouri serves as a transportation crossroad for the United States. Missouri, being centrally located in the nation, is a natural hub for many major airlines and other types of tourist and business travel. Many cross-country travelers use Missouri terminals to connect with transport changes. The state's airways, railways, and highways are used as nonstop thoroughfares as well.

In 1993, Missouri's largest city, St. Louis, began operating a MetroLink rail transportation system. Before service began, ridership was projected at 12,000 per day. In August 1993, during the system's first month of operation, between 20,000 and 35,000 rode the MetroLink each day. In July 1994, the average weekday ridership topped 42,000. The MetroLink carried nearly 9 million customers during its first year of operation. During 1997 and 1998, 54.2 million residents rode public transportation, with MetroLink ridership continuing to grow, averaging 44,500 per day. During Independence Day celebrations on July 4, 1999, the MetroLink moved 160,833 passengers. Normally, the largest numbers of people are transported during the morning and evening rush hours.

Amtrak, the state's major passenger rail carrier, uses tracks that cross the entire state from east to west. Although Amtrak has experienced a decline in passengers during this decade, it continues to carry a large number of passengers daily. The peak periods are related to holidays or special events.

Branson, Missouri, which is located close to the state's southwestern border, has become one of this state's major tourist attractions. It ranks high among the nation's top attractions. Because Branson is a small community, tourists are more visible there than in Kansas City and St. Louis. The city has been expanding its services (number of hospital beds, fire equipment, and ambulances) and is able to provide more assistance than other small communities in the state.

Tour bus travel in the state is on the increase. With Branson continuing to expand, more bus traffic can be expected. The Passenger Carrier Inspection Division of the Missouri Department of Transportation has developed a comprehensive passenger carrier safety inspection program. Passenger carrier safety is a primary concern for the division because Missouri, and especially Branson, is among the top tourist destinations in North America. Division inspectors conduct safety inspections at destinations or carrier terminals when buses do not have passengers on board.

The threat of a terrorist attack on any mass transit system is real in Missouri. On July 7, 2005, there were four explosions in the London Underground during morning rush hour: first hit was a commuter train in London's financial district that killed 7; second hit was a commuter train at King's Cross Station that killed 21; third hit was a commuter train west of King's Cross that killed 5 people; and fourth hit was a double-decker tourist bus near King's Cross Station. Scotland Yard determined that Islamic extremists were the suicide bombers. This attack exemplifies the hazard that exists for any mass transportation system in the world.

The division has two classifications of passenger carriers: for-hire and private. For-hire passenger carriers provide service to the general public and are required to register with the division. Private carriers provide passenger service in furtherance of a commercial enterprise. Examples include, but are not limited to, hotel courtesy buses, airport passenger shuttle services, buses operated by professional musicians, and buses for civic and other groups such as scout groups where no fees are collected.

The definition of a passenger carrier varies somewhat depending on whether the operation is entirely intrastate or interstate. The Federal Highway Administration's Office of Motor Carriers defines interstate passenger carrier as any vehicle designed to transport more than eight passengers, including the driver, across state boundaries. The administration defines an intrastate passenger carrier as any vehicle (not operated as a taxi or otherwise exempt) designed to transport more than six passengers, including the driver, within the state.

Historical Statistics

Commercial motor vehicles have been involved in a significant number of Missouri traffic accidents. Statistics from the Missouri State Highway Patrol Statistical Analysis Center show that in 2005 10.3 percent of all traffic accidents involved a commercial motor vehicle. Of fatal traffic accidents, 16.2 percent involved a commercial motor vehicle. A total of 214 persons were killed and 5,728 were injured in commercial motor vehicle-related accidents in 2005. Commercial motor vehicles are defined as trucks having six or more tires on the power unit, buses or school buses having occupant capacities of 16 or more, and vehicles displaying hazardous materials placards. In 2005, accidents involving buses and school buses resulted in six fatalities.

Table 2.19 shows 2001–2003 nationwide statistics of fatality rates by mode of travel.

Table 2.19 Fatality Rates by Mode of Travel, 2001-2003 (Average Deaths per 100 Million Passenger Miles) Highway Vehicle Occupants and Transit Passengers

Type of Vehicle	Death Rate
Airlines	0.02
Automobiles	.77
Vans, SUVs, Pickup Trucks	.76
Heavy, Light, and Other Rail Vehicles	Not reported
Intercity and Commuter Railroads	0.03
Intercity Buses	0.02
Transit Buses	0.03

Source: Injury Facts, National Safety Council, 2005-2006

Measure of Probability and Severity

Probability: Moderate

Severity: Moderate

A major accident can occur at any time, even though all safety precautions are in place. Based on the latest available information, the probability and severity of a mass transportation accident are both rated as moderate.

Impact of the Hazard

A mass transportation accident, which could include those involving buses, could burden a local jurisdiction's available medical services. To minimize this problem, mutual aid agreements with adjoining jurisdictions should be developed between ambulance services and the hospitals. This type of hazard could involve hazardous materials or a fire, which would compound the impacts of the incident. Severe weather could also hamper response efforts.

Table 2.20 Impact Analysis: Mass Transportation Accident

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Localized impact expected to be severe for incident area and moderate to light for other adversely affected areas.
Health and Safety of Personnel Responding to the Incident	Adverse impact expected to be moderate to light for trained, equipped, and protected personnel.
Continuity of Operations	Damage to facilities/personnel in the area of the incident may require temporary relocation of some operations.
Property, Facilities, and Infrastructure	Localized impact to facilities and infrastructure in the area of the incident. Some severe damage possible.
Delivery of Services	Localized disruption of roads and/or utilities caused by incident may postpone delivery of some services.
The Environment	Localized impact expected to be severe for incident areas and moderate to light for other areas affected by smoke or HazMat remediation.
Economic and Financial Condition	Local economy and finances may be adversely affected, depending on damage and length of investigation.
Regulatory and Contractual Obligations	Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may temporarily reduce deliveries.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

Missouri serves as transportation crossroads for the United States. Branson, Missouri, which is located close to the state's southwestern border, has become a major tourist attraction. Because Branson is a small community, tourists represent a large portion of the population. To meet the needs posed by the large number of tourists, the city has been expanding its services (number of hospital beds, fire equipment, ambulances, etc.) and is able to provide more assistance than other communities of its size. A mass transportation accident could burden a local jurisdiction's available medical services. To minimize this problem, mutual aid agreements should be developed between ambulance services and hospitals of adjoining jurisdictions. The risk of this type of incident is moderate.

Public Health Emergencies/Environmental Issues

Description of Hazard

Public health emergencies can take many forms—disease epidemics, large-scale incidents of food or water contamination, or extended periods without adequate water and sewer services. There can also be harmful exposure to chemical, radiological, or biological agents, and large-scale infestations of disease-carrying insects or rodents. The first part of this section focuses on emerging public health concerns and potential pandemics, while the second part addresses natural and human-caused air and water pollution.

Public health emergencies can occur as primary events by themselves, or they may be secondary to another disaster or emergency, such as tornado, flood, or hazardous material incident. The common characteristic of most public health emergencies is that they adversely impact, or have the potential to adversely impact, a large number of people. Public health emergencies can be worldwide or localized in scope and magnitude.

In particular, two public health hazards have recently emerged as issues of great concern, with far reaching consequences. One pertains to the intentional release of a radiological, chemical, or biological agent, as a terrorist act of sabotage to adversely impact a large number of people. The second hazard concerns a deadly outbreak (other than one caused by an act of terrorism) that could kill or sicken thousands of people across the county or around the globe, as in the case of the Spanish Flu epidemic of 1918–1919.

Whether natural or manmade, health officials say the threat of a dangerous new strain of influenza virus in pandemic proportions is a very real possibility in the years ahead. Unlike most illnesses, the flu is especially dangerous because it is spread through the air. A classic definition of influenza is a respiratory infection with fever. Each year, flu infects humans and spreads around the globe. There are three types of influenza virus: Types A, B, and C. Type A is the most common, most severe, and the primary cause of flu epidemics. Type B cases occur sporadically and sometimes as regional or widespread epidemics. Type C cases are quite rare and hence sporadic, but localized outbreaks have occurred. Seasonal influenza usually is treatable, and the mortality rate remains low. Each year, scientists estimate which particular strain of flu is likely to spread, and they create a vaccine to combat it. A flu pandemic occurs when the virus suddenly changes or mutates and undergoes an “antigenic shift,” permitting it to attach to a person’s respiratory system and leave the body’s immune system defenseless against the invader.

Environmental concerns addressed in this profile focus on air and water pollution, because contamination of those media can have widespread impacts on public health and devastating consequences. Particular issues of primary concern associated with sources of air and water pollution change over time depending on recent industrial activity, economic development, enforcement of environmental regulations, new scientific information on adverse health effects of particular contaminants or concentrations, and other factors.

Historical Statistics

Influenza Pandemics

Epidemic influenza, an age-old infectious disease, kills several thousand men and women in the United States every year. Since the early 1900s, three lethal pandemics have swept the globe, although none have compared to the infamous Spanish Flu event of 1918–1919, which killed more than 20 million people. The 1957 Asian Flu and the 1968 Hong Kong Flu also were killers, although they were not nearly as virulent as the 1918 strain. The 1957 epidemic killed about 70,000 people in the United States, mostly the elderly and chronically ill. Another 34,000 Americans died from the 1968 epidemic. While both of these latter epidemics cost many lives, neither was as severe as the Spanish Flu of 1918, which claimed more than 700,000 lives in the United States alone. Its primary victims were mostly young, healthy adults. In addition to those three pandemics, several “pandemic scares” have occurred.

Spanish Flu of 1918-1919

In 1918, when World War I was in its fourth year, another threat began that rivaled the war itself as the greatest killer in human history. The Spanish Flu swept the world in three waves during a two-year period, beginning in March 1918 with a relatively mild assault.

The first reported case occurred at Camp Funston (Fort Riley), Kansas, where 60,000 soldiers trained to be deployed overseas. Within four months, the virus traversed the globe, as American soldiers brought the virus to Europe. The first wave sickened thousands of people and caused many deaths (46 died at Camp Funston), but it was considered mild compared to what was to come. The second and deadliest wave struck in the autumn of 1918 and killed millions. At Camp Funston alone, there were 14,000 cases and 861 deaths reported during the first three weeks of October 1918.

Outbreaks caused by a new variant exploded almost simultaneously in many locations, including France, Sierra Leone, Boston, and New York City, where more than 20,000 people died that fall. The flu gained its name from Spain, which was one of the hardest hit countries. From there, the flu went through the Middle East and around the world, eventually returning to the United States along with the troops.

Of the 57,000 Americans who died in World War I, 43,000 died as a result of the Spanish Flu. At one point, more than 10 percent of the American workforce was bedridden. By a conservative estimate, a fifth of the human race suffered the fever and aches of influenza between 1918 and 1919 and 20 million people died.

In 1918, Missouri’s influenza death rate was 293.83 per 100,000 people, for a total of 9,677 deaths statewide from that cause alone. That figure represents 18.6 percent of Missouri’s total deaths that year. While the cause of the Spanish Flu remains somewhat a mystery, the epidemic was generally traced to pigs on Midwest farms, which then spread the deadly

virus to farm families. As fall crops were ready for harvest in 1918, there were no field hands to get the crops in, thereby creating an agricultural disaster as well.

A third wave of the Spanish Flu, much less devastating than its predecessors, made its way through the world in early 1919 and then died out. Missouri's flu death rate in 1919 dropped to less than half that of the previous year (107.21 per 100,000), and by 1921, it was reduced to 87.24 deaths per 100,000 people, state statistics show.

Asian Flu of 1957

This flu pandemic was first identified in February 1957 in the Far East. Unlike the Spanish Flu, the 1957 virus was quickly identified, and vaccine production began in May 1957. A number of small outbreaks occurred in the United States during the summer of 1957, with infection rates highest among school children, young adults, and pregnant women; however, the elderly had the highest rates of death. A second wave of infections occurred early the following year, which is typical of many pandemics.

Hong Kong Flu of 1968

This influenza pandemic was first detected in early 1968 in Hong Kong. The first cases in the United States were detected in September 1968, although widespread illness did not occur until December. This became the mildest pandemic of the twentieth century, with those over the age of 65 the most likely to die. People infected earlier by the Asian Flu virus may have developed some immunity against the Hong Kong Flu virus. Also, this pandemic peaked during school holidays in December, limiting student-related infections.

Flu Scares: Swine Flu of 1976, Russian Flu of 1977, and Avian Flu of 1997

Three notable flu scares occurred in the twentieth century. In 1976, a swine-type influenza virus appeared in a U.S. military barracks (Fort Dix, New Jersey). Scientists determined it was an antigenically drifted variant of the feared 1918 virus. Fortunately, a pandemic never materialized, although the news media made a significant argument about the need for a Swine Flu vaccine.

In May 1977, influenza viruses in northern China spread rapidly and caused epidemic disease in children and young adults. By January 1978, the virus, subsequently known as the Russian Flu, had spread around the world, including the United States. A vaccine was developed for the virus for the 1978–1979 flu season. Because illness occurred primarily in children, this was not considered a true pandemic.

In March 1997, scores of chickens in Hong Kong's rural New Territories began to die—6,800 on three farms alone. The Avian Flu virus was especially virulent, and made an unusual jump from chickens to humans. At least 18 people were infected, and six died in the outbreak. Chinese authorities acted quickly to exterminate over one million chickens and successfully prevented further spread of the disease.

Avian Flu (H5N1)

The current avian flu (H5N1) is a Type A influenza virus that occurs mainly in birds and is highly contagious among birds. Since December 2003, H5N1 infections in animals have been reported in Asia, Africa, the Pacific, Europe, and the Near East. H5N1 does not usually infect people, but a small number of human cases have been associated with these animal outbreaks and most are attributed to direct or close contact with infected poultry or contaminated surfaces. According to the Centers for Disease Control and Prevention, infection in humans is very serious with an approximately 50 percent mortality rate to date. Cases of transmission of H5N1 from human-to-human have been documented but are rare, and there is no evidence of transmission beyond one person.

Scientists are concerned that as H5N1 continues to evolve, it could make humans more susceptible to infection. Since humans have little or no immune protection against H5N1, such a change could spark an influenza pandemic with potentially high rates of illness and death. Two of four antiviral medications used for treating the flu have already proven ineffective against H5N1. Researchers are working to produce alternative treatments.

Novel Influenza A

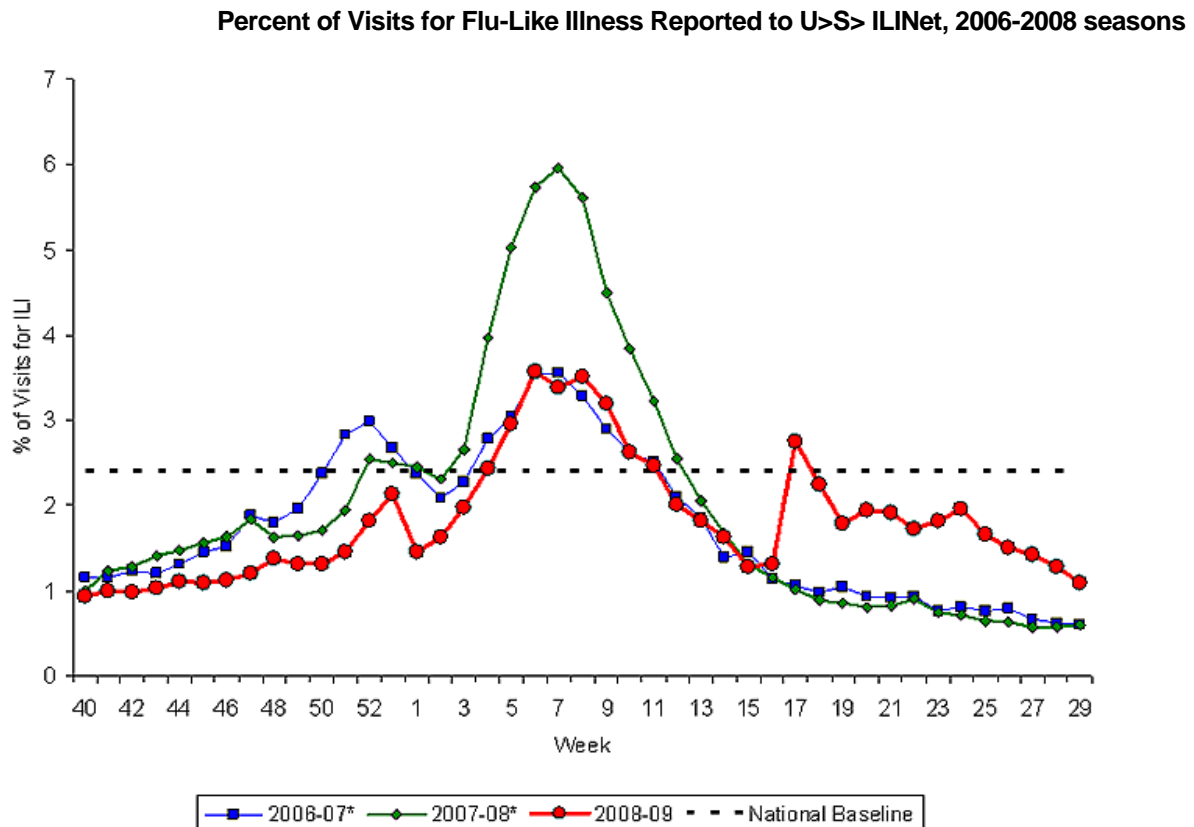
Novel influenza A (H1N1) is a new flu virus of swine origin that first caused illness in Mexico and the United States in March and April, 2009. It's thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread, mainly through the coughs and sneezes of people who are sick with the virus, but it may also be spread by touching infected objects and then touching your nose or mouth. Novel H1N1 infection has been reported to cause a wide range of flu-like symptoms, including fever, cough, sore throat, body aches, headache, chills and fatigue. In addition, many people also have reported nausea, vomiting and/or diarrhea.

The first novel H1N1 patient in the United States was confirmed by laboratory testing at CDC on April 15, 2009. The second patient was confirmed on April 17, 2009. It was quickly determined that the virus was spreading from person-to-person. By June 19, 2009, all 50 states in the United States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands have reported novel H1N1 infection.

This virus is resistant to 2 of the 4 antiviral treatments and spreads readily during any time of year. The risk population seems to be under the age of 65 and those with compromised health. Given ongoing novel H1N1 activity to date, CDC anticipates that there will be more cases, more hospitalizations and more deaths associated with this pandemic in the

United States over the summer and into the fall and winter of 2009-2010. The novel H1N1 virus, in conjunction with regular seasonal influenza viruses, poses the potential to cause significant illness with associated hospitalizations and deaths during the U.S. influenza season.

Figure 2.24



*There was no week 53 during the 2006-07 and 2007-08 seasons, therefore the week 53 data point for those seasons is an average of weeks 52 and 1.

Other Diseases of Public Health Concern

Smallpox

Smallpox is a contagious, sometimes fatal, infectious disease. There is no specific treatment for smallpox disease, and the only prevention is vaccination. Smallpox is caused by the variola virus that emerged in human populations thousands of years ago. It is generally spread by face-to-face contact or by direct contact with infected bodily fluids or contaminated objects (such as bedding or clothing). A person with smallpox is sometimes contagious with onset of fever, but the person becomes most contagious with the onset of rash. The rash typically develops into sores that spread over all parts of the body. The infected person remains contagious until the last smallpox scab is gone. Smallpox outbreaks have occurred periodically for thousands of years, but the disease is now largely eradicated after a worldwide vaccination program was implemented. After the disease was eliminated, routine vaccination among the general public was stopped. The last case of smallpox in the United States was in 1949.

It should be noted that after recent terrorist events in the United States, there is heightened concern that the variola virus might be used as an agent of bioterrorism. For this reason, the U.S. government is taking precautions for dealing with a smallpox outbreak. For further information on this issue, see the section on Terrorism.

St. Louis Encephalitis

In the United States, the leading type of epidemic flaviviral encephalitis is St. Louis encephalitis (SLE), which is transmitted by mosquitoes that become infected by feeding on birds infected with the virus. SLE is the most common mosquito-transmitted pathogen in the United States. There is no evidence to suggest that the virus can be spread from person to person.

Between 1964 and 2005, there were 4,651 confirmed cases of SLE in the United States. Seventy-five of these cases were in Missouri. According to the U.S. Geological Survey, there was one case of SLE in Missouri in 2006. It should be noted, however, that less than 1 percent of SLE infections are clinically apparent, so the vast majority of infections remain undiagnosed. Illnesses range from mild headaches and fever to convulsions, coma, and paralysis. The last major outbreak of SLE occurred in the Midwest from 1974 to 1977, when over 2,500 cases were reported in 35 states. The most recent outbreak of St. Louis encephalitis was in 1999 in New Orleans, Louisiana, with 20 reported cases. The disease is generally milder in children than in adults, with the elderly at highest risk for severe illness and death. Approximately 3 to 30 percent of cases are fatal; no vaccine against SLE exists.

Meningitis

Meningitis is an infection of fluid that surrounds a person's spinal cord and brain. High fever, headache, and stiff neck are common symptoms of meningitis, which can develop between several hours to one to two days after exposure. Meningitis can be caused by either a viral or bacterial infection; however, a correct diagnosis is critically important, because treatments for the two varieties differ. Meningitis is transmitted through direct contact with respiratory secretions from an infected carrier. Primary risk groups include infants and young children, household contact with patients, and refugees. The disease is of most concern in Africa, where 213,658 cases were reported during 1996–1997, with 21,830 deaths. In the United States, periodic outbreaks continue to occur, particularly among adolescents and young adults. About 2,600 people in the United States get the disease each year. According to the Missouri Department of Health and Senior Services, there were 28 cases in Missouri in 2005. Generally, 10 to 14 percent of cases are fatal, and 11 to 19 percent of those who recover suffer from permanent hearing loss, mental retardation, loss of limbs, or other serious effects. Two vaccines are available in the United States.

Lyme Disease

Lyme disease was named after the town of Lyme, Connecticut, where an unusually large frequency of arthritis-like symptoms was observed in children in 1977. It was later found that the problem was caused by bacteria transmitted to humans by infected deer ticks, causing an average of more than 16,000 reported infections in the United States each year (however, the disease is greatly under-reported). Lyme disease bacteria are not transmitted from person to person. Following a tick bite, 80 percent of patients develop a red “bulls-eye” rash accompanied by tiredness, fever, headache, stiff neck, muscle aches, and joint pain. If untreated, some patients may develop arthritis, neurological abnormalities, and cardiac problems, weeks to months later. Lyme disease is rarely fatal. During early stages of the disease, oral antibiotic treatment is generally effective, while intravenous treatment may be required in more severe cases.

In the United States, Lyme disease is mostly found in the northeastern, mid-Atlantic, and upper north-central regions, and in several counties in northwestern California. In 2005, 23,305 cases of Lyme disease were reported to the Centers for Disease Control and Prevention. According to the DHSS, in 2005, Missouri showed a decreasing trend for the occurrence of Lyme disease with 17 cases, the lowest since 1998 when 12 cases were reported. There have been no reported cases of Lyme disease that originated in Missouri.

West Nile Virus

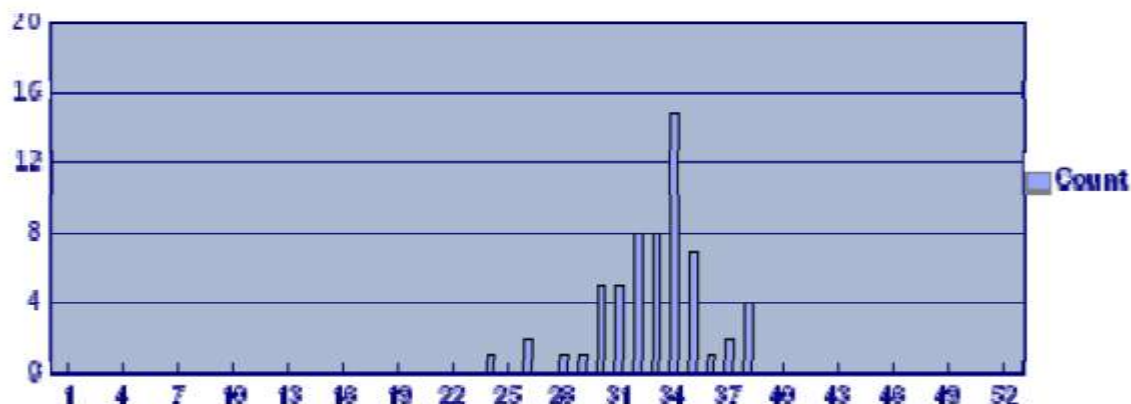
West Nile virus is a flavivirus spread by infected mosquitoes and is commonly found in Africa, West Asia, and the Middle East. It was first documented in the United States in 1999. Although it is not known where the U.S. virus originated, it most closely resembles strains found in the Middle East. It is closely related to St. Louis encephalitis and can infect humans, birds, mosquitoes, horses, and other mammals.

Most people who become infected with West Nile virus will have either no symptoms or only mild effects. However, on rare occasions, the infection can result in severe and sometimes fatal illness. There is no evidence to suggest that the virus can be spread from person to person.

An abundance of dead birds in an area may indicate that West Nile virus is circulating between the birds and mosquitoes in that area. Although birds are particularly susceptible to the virus, most infected birds survive.

The continued expansion of West Nile virus in the United States indicates that it is permanently established in the Western Hemisphere. According to the U.S. Geological Survey, there were approximately 4,219 cases of West Nile Virus in the United States in 2006; including 62 in Missouri (see Figure 2.25). Note: As of July 2009 there were no cases of West Nile in Humans for the year. See U.S. Geological Survey, Disease Maps.

Figure 2.25
Human Cases of West Nile Virus by Week—Missouri, 2006



Source: U.S. Geological Survey, Disease Maps 2006

Severe Acute Respiratory Syndrome

Severe acute respiratory syndrome (SARS) is a respiratory illness that has recently been reported in Asia, North America, and Europe. Although the cause of SARS is currently unknown, scientists have detected in SARS patients a previously unrecognized coronavirus that appears to be a likely source of the illness.

In general, humans infected with SARS exhibit fevers greater than 100.4°F, headaches, an overall feeling of discomfort, and body aches. Some people also experience mild respiratory symptoms. After two to seven days, SARS patients may develop a dry cough and have trouble breathing.

The primary way that SARS appears to spread is by close person-to-person contact; particularly by an infected person coughing or sneezing contaminated droplets onto another person, with a transfer of those droplets to the victim's eyes, nose, or mouth. The global outbreak of 2003 was contained. There were no confirmed cases in Missouri.

Environmental Issues

Although Missouri has never had an environmental disaster of large proportions, there are many instances where hazardous substances can impact the environment with considerable consequences to either air or water. Floods often temporarily interrupt community water supplies, creating the need for emergency potable water for thousands of people. In July 1993, for example, St. Joseph's municipal water plant was forced to shut down for an extended period when contaminated floodwater threatened to enter the system. Floodwaters also disrupt wastewater treatment facilities, resulting in the discharge of raw or improperly treated sewage.

Periodically, water pollutants cause fish kills in Missouri streams, and excessive air pollutants associated with smog in large metropolitan areas create public health problems.

Air Pollution

Air quality in Missouri is monitored at 72 stations throughout the state. These stations are maintained by the U.S. Environmental Protection Agency (EPA), and state and local authorities. These stations can be divided into three separate groups: National Air Monitoring Stations, State and Local Air Monitoring Stations, and Special Purpose Monitors. These monitors measure suspended particulate, ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead. Lead is of particular interest because Missouri's lead industry produces about 90 percent of the new lead in the nation. The three large lead smelters in Missouri (near Herculaneum) have their own monitoring network operated by the company that runs the smelters. The state monitors the network to ensure proper function, and all data are forwarded to the EPA. The EPA maintains a list of facilities that release the most toxic chemicals each year. Missouri's top 10 facilities for 2003 are shown in Table 2.21. The top 10 chemicals released in the state are shown in Table 2.22. Although the top releases are not in this county, air pollution affects those with compromised health. The state has issued standards for emissions and the Joplin MPO is affected by those standards. Reduction strategies are being implemented, such as the trolley system to eliminate

vehicle usage downtown. For more information on Missouri's Air Pollution Control Program, contact the Missouri Department of Natural Resources.

Table 2.21 Top 10 Facilities in Missouri Showing Greatest Releases (2003) (All figures are in pounds)

Facility	County	On-Site Releases			Off-Site Releases		Total**
		Air	Land	Water	POTW*	Disposal	
Buick Mine/Mill	Iron	54,678	15,349,076	10,305	0	0	15,414,059
Brushy Creek Mine/Mill	Reynolds	37,630	12,427,640	4,384	0	0	12,469,654
Fletcher Mine/Mill	Reynolds	32,295	10,126,988	2,560	0	0	10,161,843
Doe Run Co. Herculaneum Smelter	Jefferson	57,888	8,208,719	240	1,230	19,237	8,286,331
Doe Run Recycling Facility	Iron	20,227	0	421	0	5,261,770	5,282,418
Doe Run Co. Glover Smelter	Iron	35,230	3,807,803	35	0	193	3,843,261
Royal Oak Ent., Inc., Ellsinore, MO	Carter	3,512,016	0	0	0	0	3,512,016
Sweetwater Mine/Mill	Reynolds	9,262	3,341,743	585	0	0	3,351,590
AmerenUE Labadie Power Plant	Franklin	786,901	1,713,177	0	0	0	2,500,078
Craig Industrial	Shannon	2,385,936	0	0	0	0	2,385,936

Source: Missouri Toxic Resources Inventory Database 2003

Notes:

*Releases to POTWs (publicly owned treatment works) of metals or metal compounds only

**None of the values in this table include Dioxin or Dioxin-like compounds

**Table 2.22 Top 10 Chemicals Reported in Missouri
(2003) (All figures are in pounds)**

Chemical	On-Site Releases			Off-Site Releases		Total*
	Air	Land	Water	POTW*	Disposal	
Zinc Compounds	553,007	25,138,975	15,374	68,052	702,026	26,477,434
Lead Compounds	223,255	20,405,171	3,008	1,166	4,513,911	25,145,345
Methanol	7,875,144	5	197	489,842	267	7,875,613
Barium Compounds	168,729	6,637,807	12,150	3	139,526	6,958,216
Copper Compounds	17,730	5,577,786	1,674	1,144	82,715	5,681,049
Hydrochloric Acid ("acid aerosols" only)	3,224,821	5	0	5	0	3,224,826
Aluminum (fume or dust)	6,627	2,426,093	0	0	104,000	2,536,720
Nitrate Compounds	1,024	1,528	2,409,312	2,440,385	4,081	2,415,945
Hydrogen Fluoride	2,315,016	0	0	0	0	2,315,016
Xylene (mixed isomers)	1,892,014	0	5	288	2,131	1,894,150

Source: Missouri Toxic Resources Inventory Database 2003

Water Pollution

The Missouri Department of Natural Resources also maintains the state's water quality management plan and has developed individual plans for each drainage basin in Missouri. Those drainage basins may be divided into the following geographic categories: Upper Mississippi River tributaries, Lower Mississippi River tributaries, Missouri River tributaries north of the Missouri River, Missouri River tributaries south of the Missouri River, White River tributaries, and Arkansas River tributaries.

There are 22,203.1 miles of classified Missouri streams (i.e., permanently flowing streams or streams that maintain permanent pools during dry weather). Of these waters, 50 percent (11,120.1 miles) meet clean water goals for all recognized uses. There are 183.2 miles that are not able to be assessed. For the remaining 10,899.8 miles of water, water quality is seriously affected to the point that at least one recognized use of the waterbody has been lost.

There are 293,759 acres of classified lakes in Missouri. Of that area, 71 percent (209,368 acres) meet clean water goals for all recognized uses. There are 70 acres that are not able to be assessed. For the remaining 84,321 acres, water quality is seriously affected to the point that at least one recognized use of the waterbody has been lost.

According to the 2004 Water Quality Report, state concerns include the following:

- Channelization has caused aquatic habitat degradation in 17 percent of Missouri's streams and contributes to flooding, high water velocities, and streambank erosion as they try to recreate their natural sinuosity.
- Eutrophication of large, recreationally important reservoirs continues to be a concern.
- Mercury levels in fish in Missouri appear to be increasing over time.
- Abandoned lead-zinc mines and their tailings continue to impact waters decades after mining has ceased.
- Additional ground water protection measures are needed.
- There are 370 Class I confined animal feeding operations in Missouri.
- The data on fish that have been collected and the data on invertebrates that are still being collected indicate that many of these communities throughout the state are suffering from degraded quality of aquatic habitat.

Throughout all urban areas of the state, continuing suburban development impacts streams by the direct loss of stream channels, by shortening, culverting, and removing riparian areas, and by other impacts associated with development and increased stormwater flows.

For more information on Missouri's Water Pollution Control Program, contact the Missouri Department of Natural Resources at (573) 751-1300.

Identifying Pollution Hazard Areas

Local emergency management officials should identify pollution hazard areas so that in case of a natural disaster, recovery steps will not be delayed. Pollution of public drinking water, for example, can cause severe problems with reentry and recovery. If alternate sources of safe drinking water can be identified, or relocation of water intakes can eliminate polluted drinking water, then recovery can be quicker, and local resources can be used to address other problems.

With the increases in motor vehicle registrations throughout the state, the levels of nitrocarbon emissions will naturally rise. Combinations of smog and carbon monoxide levels will also increase. In sufficient quantities, these pollutants can have deleterious effects on the health of thousands of Missourians.

Special Events

National Special Security Events

A number of factors are taken into consideration when designating an event as a national special security event (NSSE), including the following:

- **Anticipated attendance by dignitaries**—Events that are attended by officials of the United States Government and/or foreign dignitaries may create an independent federal interest in ensuring that the event transpires without incident and that sufficient resources are brought to bear in the event of an incident.
- **Size of the event**—A large number of attendees and participants generally increase the security requirements. In addition, larger events are more likely to draw the attention of terrorists or other criminals, particularly those interested in employing weapons of mass destruction.
- **Significance of the event**—Some events have historical, political, and/or symbolic significance that may heighten concern about possible terrorist acts or other criminal activity.

When an event is designated as an NSSE, the Secret Service assumes its mandated role as the lead federal agency for the design and implementation of the operational security plan and coordinator for all federal resources deployed to maintain the level of security needed for the designated events. The Federal Bureau of Investigation (FBI) serves as the lead agency responsible for intelligence and law enforcement operations as well as statutory federal criminal investigations. The goal of such an operation is to prevent terrorist attacks and criminal acts.

Once an event is designated as an NSSE, the Secret Service employs existing partnerships with federal, state, and local law enforcement and public safety officials to coordinate provision of a safe and secure environment for the event and those in attendance. Resources used as part of past NSSE operational security plans that could be deployed for upcoming NSSE designated events include physical infrastructure security fencing and barricades, special access accreditation badges, K-9 teams, and other security technologies.

The Secret Service is responsible for planning, directing and executing federal security operations at designated NSSE's. It also provides federal, state, and local law enforcement partners who provide substantial, critical support to the protective mission with the necessary guidance and training regarding their role in the overall operational security plans.

The Emergency Preparedness and Response division within the U.S. Department of Homeland Security could preposition some combination of the following assets: the Domestic Emergency Support Team, Urban Search and Rescue teams, national Emergency Response Teams, the Nuclear Incident Response Team, the Strategic National Stockpile and Mobile Emergency Response System. The specific package will be tailored for each individual event based on coordination with other federal agencies, state and local jurisdictions, available local resources, mutual aid agreements, and other event-specific requirements.

Special Event Homeland Security (SEHS) Levels

Managed by the U.S. Department of Homeland Security, the Interagency Special Events Working Group (SEWG) is the core of an interagency process that involves various federal agencies. Within the SEWG, federal departments and agencies provide input and recommendations concerning special events based on their respective authorities, responsibilities, and fields of expertise. The SEWG is co-chaired by designees from DHS headquarters, the Secret Service, FEMA, and the FBI and is currently made up of representatives from over 40 federal departments and agencies that have responsibilities and/or association with special events security and incident management. The SEWG develops the

Prioritized List of Special Events, recommends special event homeland security (SEHS) levels, and is the single forum that ensures comprehensive and coordinated federal interagency awareness of and support to designated special events.

The Prioritized List of Special Events is the single interagency resource delineating domestic events, activities, or meetings that do not rise to the level of a National Security Special Event, but which nevertheless are significant. Using a risk-based approach to weigh vulnerabilities and consequences against threats, the SEWG develops the Prioritized List of Special Events from event recommendations submitted by each state, territory, and the District of Columbia. The events are categorized into one of the four SEHS levels using objective criteria including but not limited to size, threat, symbolic or political significance, duration, location, number and type of attendees, media coverage, dignitary participation, proximity of critical infrastructure, and state and local capabilities. Federal support is scaled according to the SEHS level. SEHS-IV only requires maintaining federal situational awareness of the event while a wide variety of federal prevention, protection, and response resources may be provided for SEHS-I events. Events that do not reach the threshold of SEHS-IV are not included on the list. The SEHS levels are defined as follows:

- **SEHS-I**—An event of large magnitude and significant national and/or international importance requiring significant federal support and situational awareness. This designation requires the appointment of a federal coordinator and the development of an integrated federal support plan.
- **SEHS-II**—An event of medium magnitude and average national and/or international importance requiring federal support and situational awareness. This designation also requires the appointment of a federal coordinator and the development of an integrated federal support plan.
- **SEHS-III**—An event of low magnitude and low national and/or international importance requiring limited federal support and situational awareness. Monitoring and federal coordination for support are accomplished through the Homeland Security Operations Center (HSOC) and the SEWG.
- **SEHS-IV**—An event that requires federal awareness but does not warrant direct federal support or involvement. DHS may assist state and local jurisdictions by providing training and exercise opportunities through existing and/or tailored programs. The HSOC will maintain awareness of the event.

Description of Hazard

Significant special events may include any type of event where large groups of people are gathered together, regardless of the cause or purpose of the event, where expanded security and other resources are required above and beyond the resources typically available to local and/or state government. In such instances, event sponsors, in conjunction with local and state authorities, are responsible for coordinating the event and requesting federal assistance, if necessary.

Special events may be motivated by political, economic or social causes, as in the case of inaugurations, state of the union addresses, and summit conferences, or by recreational causes, as with the Olympics and other major sporting events (Super Bowl, World Series, etc.). Special events may also include large holiday events such as the annual Fair St. Louis 4th of July Celebration, where large numbers of people crowd onto the Mississippi Riverfront in St. Louis.

The perception of inherent dangers and threats facing this country and Missouri has changed significantly since the terrorist attacks of September 11, 2001. In keeping with the framework of the National Response Plan, the Missouri State Emergency Operations Plan should consider special events as described herein. The following historical statistics section details some of the potential impacts on security and medical resources that a special event could have.

Anytime a large number of people are congregated in one area, an incident resulting from just about any of the hazards detailed in this Hazard Analysis could have devastating impacts. For example, consider the impact a sudden, severe hailstorm could have on the population visiting the Fair St. Louis, which well over one million people usually attend each year. A hailstorm such as this struck the north St. Louis County area in April 2001, causing thousands of dollars of damage to residences and vehicles. This storm produced baseball-size (and larger) hailstones, which killed many pets and nearly all the waterfowl residing at local park ponds. An incident such as this could have devastating impacts if it were to suddenly strike the fairgrounds with over 250,000 people in attendance and without shelter (not to mention the potential impact a terrorist attack incident could impose at such an event). Medical services would likely be overwhelmed with the number of injuries.

Historical Statistics

Atlanta, Georgia, Centennial Olympic Park Bombing

On Saturday July 27, 1996, Georgia Bureau of Investigation (GBI) agents in Atlanta were dispatched to the Centennial Olympic Park for what seemed like a routine public disturbance call on the ninth day of the 1996 Summer Olympics. Apparently, some rowdy partygoers had been creating a scene at the event.

By the time GBI agents arrived, the partiers were gone. However, a security guard pointed out another problem: a green knapsack left unattended under a nearby bench. Because of the suspicious nature of the situation, a bomb diagnostic team was called as officers attempted to keep people away from the area without creating a panic. They were unaware that a warning call had been made to 911 emergency dispatchers.

About 20 minutes later, as agents were assessing the situation and continuing to attempt to steer people away from the abandoned bag, it blew up with a powerful explosion. The blast killed one visitor and injured more than 100. All of the law officers at the scene were injured except for one. A Turkish cameraman died of a heart attack while covering the explosion.

FBI said of this incident, "The fatal bombing in Atlanta was a terrorist attack aimed at thousands of innocent persons gathered at the Olympic Park." This blast was the worst attack on an Olympic Games since 11 Israeli athletes were killed by Palestinian guerrillas at the 1972 games in Munich, Germany.

St. Louis, Missouri, Papal Visit

Pope John Paul II visited St. Louis, Missouri, on January 26 and 27, 1999. This pastoral visit included 30 hours of speeches, parades, prayer services, and a papal mass for about 104,000 people at the St. Louis America's Center, which filled every available seat in the center, including the Edward Jones Dome and adjoining convention exhibit hall. This mass is billed as the largest U.S. indoors gathering ever and was designated a National Special Security Event.

This two-day series of events also included a welcome address by President Bill Clinton and ceremonial farewell meeting with Vice-President Al Gore and was attended by many state officials, including Missouri Governor Mel Carnahan. Event activities were spread throughout the St. Louis metropolitan area, from the Lambert-St. Louis International Airport to the downtown area and the grounds of the Gateway Arch on the Mississippi Riverfront.

This was undoubtedly the largest single special event to occur in Missouri in recent years, with security concerns reaching to national and international levels. Close coordination between local, state, and federal law enforcement agencies is required to provide adequate security measures for events like this. The potential for hazards from mass transportation accidents was also elevated for this event, as one quote said, "Seemingly every school bus in the region was enlisted to transport people from suburban pickup points down into St. Louis America's Center for the papal mass." Fortunately, this event was conducted without any major incidents.

St. Louis, Missouri, World Agricultural Forum Conference

The Hyatt Regency Hotel at Union Station in St. Louis hosted the World Congress meeting of the World Agricultural Forum May 18 to 20, 2003. The forum brought together agriculture industry leaders and world leaders to discuss the future of global agriculture. Mindful of Seattle's experience with violent protestors who disrupted the World Trade Organization (WTO) meeting there in December 1999, St. Louis police were braced for any possible problems that could arise from hundreds or even thousands of protestors descending on St. Louis for this event.

Four Seattle police officers were invited to St. Louis to talk about what happened at the 1999 WTO event (50,000 demonstrators overwhelmed 400 Seattle officers and protestors smashed windows and vandalized cars as police fought back with rubber bullets and tear gas). Washington, DC, police were also invited to St. Louis to share their experiences with riots during protests of major global conferences in their city. Although St. Louis police were not anticipating the same level or intensity of violence as in Seattle, they did have intelligence reports that some visitors would be in St. Louis who were involved in the Seattle protests and other demonstrations.

Another conference, called Biodevastation 7, was scheduled immediately prior to the World Agricultural Forum (May 16 to 18, 2003) in St. Louis, which involved a gathering of opponents to genetic engineering. An organizer with the group had indicated that 200 to 800 people were expected to attend the Biodevastation 7 conference and that there would be 200 to 2,000 protestors at the World Agricultural Forum.

During this time period, in nearby Creve Coeur, Missouri, extra police were also on hand at the Monsanto property for the annual Creve Coeur Days. Monsanto, an agriculture industry leader, is a host of the annual celebration, which includes carnival rides and game booths on its property. Creve Coeur police coordinated a plan with St. Louis police to gather information about possible protest at this event. A local international security consulting firm was in charge of security for the World Agricultural Forum conference. They worked with St. Louis police and other law enforcement agencies to prepare for possible protests at the event. Close coordination between these agencies helped to ensure that St.

Louis was prepared to provide adequate security for the event and the international visitors to the city. Other than a couple of minor incidents between police and activists in the days leading up to the conference, no incidents were reported. A protest outside the conference on May 18 drew only a few hundred demonstrators, all peaceful, and only a handful of demonstrators were present during the event's two days.

The following are recent events in Missouri considered for SEHS designation requiring significant state and local resources:

- St. Louis, May 2004, World Agricultural Forum Regional Congress
- St. Peters, June 2004, U.S. Olympic diving trials
- Clayton, October 2004, presidential debate
- St. Louis, October 2004, Major League Baseball World Series
- St. Louis, April 2005, National Collegiate Athletic Association Division I Men's Basketball Four Tournament

Measure of Probability and Severity

Probability: Low to Moderate

Severity: Low to High

Missouri will undoubtedly host future special events that will require significant security and other emergency planning considerations. The overall probability that a disastrous incident from any cause would occur in conjunction with a designated special event or special security event is considered low to moderate. The probability for an incident to occur during any particular special event is really a function of the hazards previously detailed in this Hazard Analysis and the probability of the independent occurrences of these hazards. However, special events will unfortunately continue to be likely targets for protests, rioting, and terrorist attacks in the United States. Refer to the measure of probability and severity discussions on the other hazards for more specific considerations.

The severity of incidents occurring in conjunction with designated special events could range from low to high, depending on many factors. The severity of these incidents will be a function of the number of people attending these events and the type and severity of the specific hazards that affect the events. Considerations of severity could range from a hoax bomb scare or terrorist threat where no one is physically injured and without any property damage to a full-scale disaster affecting a large number of people gathered at one time with mass injuries and property damage by natural, accidental, terrorist, or criminal causes. Refer to the measure of probability and severity discussions on the other hazards for more specific considerations.

Impact of the Hazard

As with the measure of probability and severity, the potential impact of hazards occurring in association with any special event must be evaluated as a function of the specific hazard that could cause the impact on a large number of people attending any event. Refer to the impact of the hazard discussions in other hazard profiles for more hazard-specific impact considerations. Certainly, the potential impact of any hazard can be multiplied several-fold when it affects a large number of people all at once.

Table 2.23 Impact Analysis: Special Events

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	May be severe for unprotected personnel and moderate to light for protected personnel in incident area.
Health and Safety of Personnel Responding to the Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel.
Continuity of Operations	Danger to personnel in the area of the incident may require relocation of operations and lines of succession execution.
Property, Facilities, and Infrastructure	Facilities and infrastructure in the area of the incident may be denied until incident resolved.
Delivery of Services	Localized disruption of roads and/or utilities caused by incident may postpone delivery of some services.
The Environment	Localized adverse impact depending on the nature of the incident.
Economic and Financial Condition	Localized adverse impact depending on the nature of the incident.
Regulatory and Contractual Obligations	Localized adverse impact depending on the nature of the incident.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

Adapted from the National Response Plan (NRP): The perception of inherent dangers and complex threats facing this country and the potential consequences they could have on the American way of life has changed significantly since the terrorist attacks of September 11, 2001. These threats cross a broad spectrum of contingencies from acts of terrorism to natural disasters to other manmade hazards (accidental or intentional). Because all carry the potential for severe consequences, these threats must be addressed with a unified national effort. A new paradigm for incident management is required. This philosophy has been the mandate for change leading to development of the NRP.

This section has been added to the Hazard Analysis in keeping with the framework of the NRP. The NRP is designed as an “all-hazards/all-disciplines” plan and considers hazards under the full range of possible contingencies, including natural disasters, accidents, civil/political incidents, terrorist/criminal incidents, and significant events/designated special events. Significant special events are any type of event where large groups of people are gathered and expanded security and other resources are required above and beyond the resources typically available to local or state government. Special events may be motivated by political, economic, or social causes, as in the case of inaugurations, state of the union addresses, and summit conferences, or they may be motivated by recreational causes as with major sporting events or designated holiday events.

Regardless of the purpose or cause, special events will place a large number of people in one area at one time. Anytime people are crowded together in one place, an incident resulting from just about any of the hazards detailed in this Hazard Analysis could have compounded and devastating impacts. In such instances, event sponsors, in conjunction with local and state authorities, are responsible for coordinating the event and requesting assistance at the federal level, if necessary. Local and state authorities are responsible for coordinating requirements from the organization sponsoring an event and determining resource shortfalls and submitting resource requests, through the existing structures and mechanisms, to the national level for consideration. Event sponsors are responsible for developing concepts for conducting the event, identifying resource requirements necessary to support the event, and submitting resource requests to local and state governments for consideration.

Terrorism

Description of Hazard

Terrorism, as defined by the Federal Bureau of Investigation (FBI), is “the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” The effects of terrorism can vary significantly, including loss of life, injuries to people and properties, and disruptions in services (e.g., water supplies, public transportation, and communications).

According to the FBI, there are two primary types of terrorism:

- **Domestic Terrorism** involves groups or individuals whose terrorist activities are directed at elements of our government of populations without foreign direction.
- **International Terrorism** involves terrorist activity committed by groups or individuals who are foreign-based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries.

Forms of Terrorism

Terrorism can take place in various forms, depending on the technological means available to the terrorist group, the nature of the issue motivating the attack, and the points of weakness of their target. Potential terrorist actions include the following:

- **Bombings**—Bombings have long been used in terrorist attacks and probably represent the most “traditional” form of terrorism. These types of incidents range from small-scale letter bombs to large-scale attacks on specific buildings. Other bomb-related incidents frequently involve “suicide bombers,” who sacrifice themselves for their cause.
- **Airline Attacks**—In the past, terrorist acts involving aircrafts were generally restricted to hijackings and bombings. However, the attacks on the World Trade Center buildings in New York City in 2001 brought a new avenue to light—the use of commercial aircrafts to attack infrastructure targets. Surface-to-air missile attacks also present a threat to U.S. aircrafts.
- **Weapons of Mass Destruction (WMD) Attacks**—WMD attacks usually involve nuclear weapons or biological or chemical agents. Chemical and biological agents are infectious microbes or toxins used to produce illness or death. They can be dispersed as aerosols or airborne particles directly onto a population, producing an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). Severity of injuries depends on the type and amount of the agent used and duration of exposure. Because some biological agents take time to grow and cause disease, an attack using this type of agent may go unnoticed for several days.
- **Infrastructure Attacks**—These types of attacks can impact various potential targets, including water distribution systems and treatment plants, utility companies and services, emergency services, gas and oil production facilities, telecommunications centers, transportation terminals, media facilities, government buildings, and religious institutions.
- **Cyberterrorism**—Cyberterrorism pertains to attacks on computer-based systems that are designed to spread disinformation and propaganda, deny service to legitimate computer users, spread electronic viruses to corrupt vital data, or cause critical infrastructure outages.
- Political conflicts that have led to attacks on cyber systems include clashes between India and Pakistan, Israel and the Palestinians, the North Atlantic Treaty Organization, and Serbia.
- **Agroterrorism**—Agroterrorism involves intentional contamination of commercial produce or meat supplies. Because the United States supplies approximately 16 percent of the world’s meat, 40 percent of its soybeans, and 41 percent of its corn, a deadly fungus or bacteria could be devastating. Of the 222 possible bioterrorism attacks that have occurred worldwide in the twentieth century, only 17 of these targeted commercial livestock or plants, according to the Institute for National Strategic Studies.
- **Arson**—Intentional fires have caused extensive damage during terrorist-related incidents in the past. These types of incidents may also be associated with bombings and usually target specific structures, such as churches. Although deliberately set fires have been reported at 15 churches in Missouri, none have been determined to be hate crime-related or terrorist-related incidents.

- **Kidnappings/Assassinations**—Kidnappings and assassinations may also be terrorist-related incidents, but because these events generally involve few individuals, their effect on emergency management operations may be minimal in terms of response.

Domestic Terrorism

According to the FBI, domestic terrorist groups represent interests that span the full spectrum of political and economic viewpoints, as well as social issues and concerns. The current domestic terrorist threat comes primarily from white supremacists, black separatists, animal rights/environmental terrorists, anarchists, antiabortion extremists, and self-styled militia.

- **White Supremacists or Right-Wing Terrorists**—Right-wing terrorist groups often adhere to the principles of racial supremacy and embrace antigovernment, antiregulatory beliefs. Generally, extremist right-wing groups engage in activities that are protected by constitutional guarantees of free speech and assembly. Examples of this type of group include Aryan Nations, the Order, and Posse Comitatus. Missouri has seen some activity from these groups in the past few years. According to the Southern Poverty Law Center, Missouri has two extremist groups operating within its borders. Although a state statute against paramilitary training exists, one of these groups is also known to have such a facility in Missouri. In addition, several special gatherings of extremist groups have taken place within the state in recent years.
- **Black Separatists**—United States-based black separatist groups follow radical variants of Islam and in some cases express solidarity with al-Qa’ida and other international terrorist groups.
- **Animal Rights and Environmental Terrorists**—Operating under the umbrella of the Animal Liberation Front and Earth Liberation Front, these terrorists use a variety of tactics against their targets, including arson, sabotage/vandalism, theft of research animals, and the occasional use of explosive devices.
- **Anarchists**—The potential for violence by anarchists and other emerging revolutionary groups, such as the Anarchist Black Cross Federation (ABCF), will continue to be an issue for law enforcement. The stated goals of the ABCF are “the abolishment of prisons, the system of laws, and the capitalist state.” The ABCF believes in armed resistance to achieve a stateless and classless society. The ABCF has continued to organize, recruit, and train anarchists in the use of firearms.
- **Antiabortion Extremists**—The FBI investigates antiabortion groups. Potential violent antiabortion extremists linked to terrorism ideologies or groups pose a current threat.

International Terrorism

The United States continues to face a formidable challenge from international terrorism. In general terms, the international terrorist threat can be divided into three categories: loosely affiliated extremists operating under the radical jihad movement, formal terrorist organizations, and state sponsors of terrorism. Each of these categories, which represent threats to U.S. citizens and interests both abroad and at home, are described below:

- **Loosely Affiliated Extremists**—These are motivated by political or religious beliefs, and pose the most urgent threat to the United States.
- **Formal Terrorist Organizations**—These organizations are typically autonomous and have their own infrastructures, personnel, financial arrangements, and training facilities.
- **State Sponsors of Terrorism**—This category includes countries known to sponsor terrorism and to view it as a tool of foreign policy. Currently, the U.S. Department of state recognizes seven countries in this category: Iran, Iraq, Sudan, Libya, Syria, Cuba, and North Korea.

Foreign Terrorist Organizations (FTOs) are foreign organizations that are designated by the secretary of state in accordance with Section 219 of the Immigration and Nationality Act, as amended by the Antiterrorism and Effective Death Penalty Act of 1996. A list is compiled every two years. The current list of FTOs, released in October 2005, designates the following organizations:

- Abu Nidal Organization (ANO)
- Abu Sayyaf Group
- Al-Aqsa Martyrs Brigade

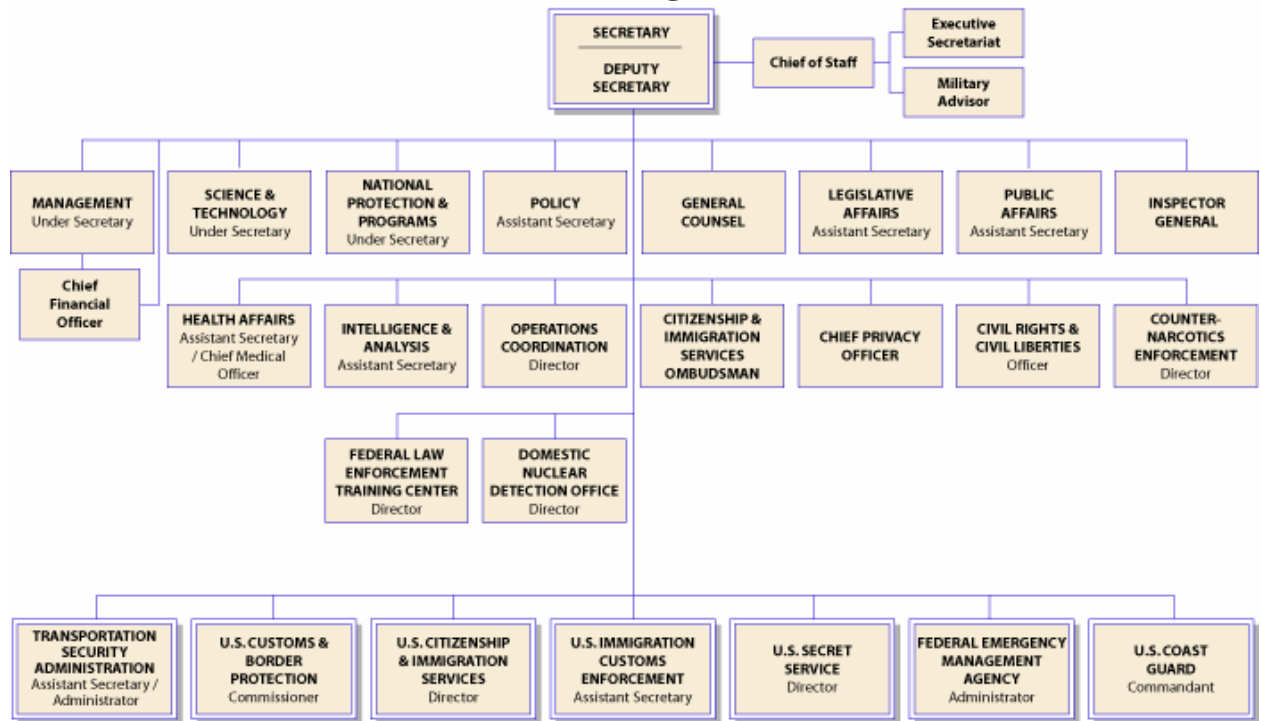
- Ansar al-Islam
- Armed Islamic Group (GIA)
- Asbat al-Ansar
- Aum Shinrikyo
- Basque Fatherland and Liberty (ETA)
- Communist Party of the Philippines/New People's Army (CPP/NPA)
- Continuity Irish Republican Army
- Gama'a al-Islamiyya (Islamic Group)
- HAMAS (Islamic Resistance Movement)
- Harakat ul-Mujahidin (HUM)
- Hizballah (Party of God)
- Islamic Jihad Group
- Islamic Movement of Uzbekistan (IMU)
- Jaish-e-Mohammed (JEM) (Army of Mohammed)
- Jemaah Islamiya organization (JI)
- al-Jihad (Egyptian Islamic Jihad)
- Kahane Chai (Kach)
- Kongra-Gel (KGK, formerly Kurdistan Workers' Party, PKK, KADEK)
- Lashkar-e Tayyiba (LT) (Army of the Righteous)
- Lashkar i Jhangvi
- Liberation Tigers of Tamil Eelam (LTTE)
- Libyan Islamic Fighting Group (LIFG)
- Moroccan Islamic Combatant Group (GICM)
- Mujahedin-e Khalq Organization (MEK)
- National Liberation Army (ELN)
- Palestine Liberation Front (PLF)
- Palestinian Islamic Jihad (PIJ)
- Popular Front for the Liberation of Palestine (PFLP)
- PFLP-General Command (PFLP-GC)
- al-Qa'ida
- Real IRA
- Revolutionary Armed Forces of Colombia (FARC)
- Revolutionary Nuclei (formerly ELA)
- Revolutionary Organization 17 November
- Revolutionary People's Liberation Party/Front (DHKP/C)
- Salafist Group for Call and Combat (GSPC)
- Shining Path (Sendero Luminoso, SL)
- Tanzim Qa'idat al-Jihad fi Bilad al-Rafidayn (QJBR) (al-Qaida in Iraq) (formerly Jama'at al-
- Tawhid wa'al-Jihad, JTJ, al-Zarqawi Network)
- United Self-Defense Forces of Colombia (AUC)
- The following groups of concern have not been designated as FTOs, but many have been
- designated under other U.S. government counterterrorism authorities.
- Al-Badhr Mujahedin (al-Badr)
- Al-Ittihad al-Islami (AIAI)
- Alex Boncayao Brigade (ABB)
- Anti-Imperialist Territorial Nuclei (NTA)
- Army for the Liberation of Rwanda (ALIR)
- Cambodian Freedom Fighters (CFF)
- Communist Party of India (Maoist)
- Communist Party of Nepal (Maoist)/United People's Front
- Democratic Forces for the Liberation of Rwanda (FDLR)
- East Turkistan Islamic Movement (ETIM)
- First of October Antifascist Resistance Group (GRAPO)
- Harakat ul-Jihad-I-Islami (HUJI)

- Harakat ul-Jihad-I-Islami/Bangladesh (HUJI-B)
- Hizb-I Islami Gulbuddin (HIG)
- Hizbul-Mujahedin (HM)
- Irish National Liberation Army (INLA)
- Irish Republican Army (IRA)
- Islamic Army of Aden (IAA)
- Islamic Great East Raiders–Front (IBDA-C)
- Islamic International Peacekeeping Brigade (IIPB)
- Jamaatul-Mujahedin Bangladesh (JMB)
- Jamiat ul-Mujahedin (JUM)
- Japanese Red Army (JRA)
- Kumpulan Mujahedin Malaysia (KMM)
- Lord’s Resistance Army (LRA)
- Loyalist Volunteer Force (LVF)
- New Red Brigades/Communist Combatant Party (BR/PCC)
- People Against Gangsterism and Drugs (PAGAD)
- Rajah Solaiman Movement (RSM)
- Red Hand Defenders (RHD)
- Revolutionary Proletarian Initiative Nuclei (NIPR)
- Revolutionary Struggle (RS)
- Riyadus-Salikhin Reconnaissance and Sabotage Battalion of Chechen Martyrs (RSRSBCM)
- Sipah-I-Sahaba/Pakistan (SSP)
- Special Purpose Islamic Regiment (SPIR)
- Tunisian Combatant Group (TCG)
- Tupac Amaru Revolutionary Movement (MRTA)
- Turkish Hizballah
- Ulster Defense Association/Ulster Freedom Fighters (UDA/UFF)
- Ulster Volunteer Force (UVF)
- United Liberation Front of Assam (ULFA)

Government Authority

After the attacks on September 11, 2001, parts of 22 domestic agencies were consolidated into one department, the U.S. Department of Homeland Security (DHS), to protect the nation against future terrorist threats. Roles of those agencies include analyzing threats and intelligence, guarding national borders and airports, protecting critical infrastructure, and coordinating response efforts for future emergencies. Many feel the creation of DHS is the most significant transformation of the U.S. government in the last 50 years. The current organization of DHS is illustrated in Figure 2.26.

Figure 2.26
DHS Organization



The FBI is the lead federal agency for investigating terrorism. The FBI is authorized to open an investigation whenever “facts or circumstances reasonably indicate that two or more persons are engaged in an enterprise for the purpose of furthering political or social goals wholly or in part through activities that involve force or violence and a violation of the criminal laws of the United States.” In any given year, the FBI engages in approximately 24 full-scale domestic terrorism investigations. The FBI maintains a state-of-the-art computer database known as the Terrorist Information System, which contains information on known or suspected terrorist groups and individuals. The system contains information on over 200,000 individuals and over 3,000 organizations.

An essential weapon in the battle against terrorists is the Joint Terrorism Task Force (JTTF). A national JTTF, located at FBI Headquarters, includes representatives from the U.S. Department of Defense, U.S. Department of Energy, FEMA, Central Intelligence Agency, Customs Service, Secret Service, and the Immigration and Naturalization Service. Additionally, there are 66 local JTTFs where representatives from federal agencies, state and local law enforcement personnel, and first responders work together to track down terrorists and prevent acts of terrorism in the United States. There are two JTTFs in Missouri, one in Kansas City and one in St. Louis.

After terrorist-related events, communities may receive assistance from state and federal agencies operating within the existing Integrated Emergency Management System. FEMA is the lead federal agency for supporting state and local response to the consequences of terrorist attacks.

Historical Statistics

The following section highlights noteworthy terrorist-related threats and actual attacks that have occurred in the United States since 1970.

In 1972, members of a U.S. fascist group called Order of the Rising Sun were found in possession of 30 to 40 kilograms of typhoid bacteria cultures, which they planned to use to contaminate water supplies in Chicago, St. Louis, and other large Midwestern cities.

In 1984, two members of an Oregon cult headed by Bhagwan Shree Rajneesh cultivated *Salmonella* bacteria and used it to contaminate restaurant salad bars in an attempt to affect the outcome of a local election. Although approximately 751 people became ill and 45 were hospitalized, there were no fatalities.

In February 1993, an improvised bomb exploded in a rental van parked on the second level of the World Trade Center’s parking basement. The bomb contained approximately 1,200 to 1,500 pounds of a homemade fertilizer-based explosive, urea nitrate. The blast produced a crater 150 feet in diameter and five floors deep. Although the motive for the

attack was never confirmed, it is believed that the suspect who masterminded the bombing was either backed by a loose network of militant Muslims or directed by Iraq. The incident, which killed 6 people and injured more than 1,000, was the most significant international terrorist act that had ever been committed on U.S. soil at that time.

In April 1995, a massive bomb exploded inside a rental truck parked near the Murrah Federal Building in Oklahoma City, destroying half the nine-story building and killing 168 people. The incident was traced to Timothy McVeigh, who was convicted of the bombing and executed by lethal injection in June 2001. He was the first federal prisoner to be executed in 38 years. McVeigh was a survivalist who believed individual rights (e.g., gun control) were being deprived by government agencies. Consequently, he was convinced he acted to defend the Constitution and saw himself as a crusader and hero. This was the worst terrorist event, either domestic or international in origin that had ever occurred in the United States at that time.

In March 1995, four members of the Minnesota Patriots Council, a right-wing militia organization advocating the violent overthrow of the U.S. government, were convicted of conspiracy charges under the Biological Weapons Anti-Terrorism Act of 1989 for planning to use ricin, a lethal biological toxin. The four men allegedly conspired to assassinate federal agents who served papers on one of them for tax violations.

In May 1995, a member of the neo-Nazi organization Aryan Nations was arrested in Ohio on charges of mail fraud. He allegedly misrepresented himself when ordering three vials of freeze-dried *Yersinia Pestis*, the bacteria that causes bubonic plague, from a Maryland biological laboratory.

In October 1995, the Amtrak Sunset Limited passenger train derailed near Hyder, Arizona. It was determined that the train track had been sabotaged, causing the train to derail and topple 30 feet from a bridge. A letter signed by the Sons of Gestapo was left at the scene. One person was killed and 83 others were injured in this incident.

In November 1995, members of the Tri-States Militia (a group composed of militia from at least 30 states) were arrested after being linked to five would-be terrorists whose bomb plots were thwarted by federal and state law enforcement agencies. The plots involved blowing up the Southern Poverty Law Center, offices of the Anti-Defamation League, federal buildings, abortion clinics, and gay community locations.

In December 1995, an Arkansas man was charged with possession of ricin in violation of the Biological Weapons Anti-Terrorism Act. The man was arrested and subsequently hanged himself in his jail cell the next day.

In July 1996, a pipe bomb exploded in Atlanta's Centennial Olympic Park as the city was hosting the summer Olympic Games. One person was killed and dozens were wounded. It was later determined that the bomb had been planted by Eric Robert Rudolph, who was also suspected of being responsible for a double bombing at the Sandy Springs Professional Building in Atlanta in January 1997 and a double bombing at the Otherside Lounge in Atlanta in February 1997. Rudolph was arrested in May 2003 after five years on the run. He is a former soldier and survivalist with extreme right-wing views and is also reported to have ties to white supremacist groups.

At about 8:45 a.m. on September 11, 2001, a hijacked commercial airliner struck the North Tower of the World Trade Center in New York City. Shortly after 9:00 a.m., another hijacked aircraft crashed into the South Tower. Approximately 3,000 people were killed in the incident, and about 7,000 more were injured. Emergency responders entered the towers to assist with evacuation of the occupants and perform search and rescue and fire-suppression activities. The towers then collapsed, killing hundreds of responders, including top leaders of the Fire Department of New York City (FDNY) who had been in charge at the scene. A total of 450 responders were killed, including 23 from the New York City Police Department, 343 from FDNY, and 74 from the Port Authority of New York and New Jersey. Approximately 320 emergency responders were treated for injuries or illnesses at five nearby hospitals; others were treated at temporary triage stations. Responders and backup supplies were dispatched from all over the country, including 20 FEMA Urban Search and Rescue (USAR) task forces.

A second attack occurred on September 11, 2001, when a hijacked airliner crashed into the western side of the Pentagon building in Washington, DC, killing 125 people on the ground and 64 people on the plane. Area hospitals treated 88 injured people. The crash damaged or destroyed three of the five interior concentric "rings" of the Pentagon building. The section where the plane hit had been recently renovated and many offices were empty or were being used for storage at the time. Local responders arrived immediately, and other agencies, including five USAR teams, came to assist. The Arlington County Fire Department set up an incident command system and coordinated the emergency response. The rescue and recovery phase lasted 11 days, and on September 21, Arlington County transferred responsibility for the incident and site management to the FBI. No responders were killed.

Between early October and early December 2001, five people died from anthrax infection, and at least 13 others contracted the disease in Washington, DC; New York City; Trenton, New Jersey; and Boca Raton, Florida. Anthrax spores were found in a number of government buildings and postal facilities in these and other areas. Most of the confirmed anthrax cases were tied to contaminated letters mailed to media personalities and U.S. senators. Thousands of people were potentially exposed to the spores and took preventive antibiotics. Numerous mail facilities and government buildings were shut down for investigation and decontamination.

In the wake of these incidents, federal, state, and local emergency response agencies across the United States responded to thousands of calls to investigate suspicious packages, unknown powders, and other suspected exposures.

Almost all of the incidents turned out to involve no actual biohazard. Nevertheless, emergency responders typically treated each call as a potentially serious health and safety risk. During this tense time, in Missouri, the Department of Health and Senior Services (DHSS) issued numerous health alert advisories to local officials and the public, providing guidance on how to handle anthrax or suspicious letters and packages during a time of extremely heightened tensions. DHSS also instituted a surveillance system, contacting health providers to obtain public health information twice weekly, while also working to improve the public health infrastructure, information sharing, health communication networks, and hospital surge capabilities.

Measure of Probability and Severity

Probability: Moderate

Severity: Low to High

The threat of terrorism in the United States remains a concern. Over the past few years, the level of acts committed in the United States has increased steadily. According to the FBI, two known or suspected terrorist acts were recorded in the United States in 1995, 3 in 1996, 4 in 1997, 5 in 1998, and 12 in 1999. In addition to the 12 acts in 1999, an additional 7 planned acts of terrorism were prevented in the United States.

Although several different extremist groups have been identified in Missouri, there have been no indications of any specific recent terrorist activities. The potential does remain, however, for new extremist and/or terrorist groups to move into the state at any time.

An open society such as ours, which depends on technology for its continued smooth operation, remains a potential target for terrorists. Large cities with a variety of news media outlets probably represent the most likely locations for terrorist acts because terrorists generally want their acts to reverberate in the news media and reach the largest audience possible. Since Missouri does not have large media markets compared to some states, it is not as likely a target for terrorist activity as those other states. However, the Oklahoma City bombing debunked the idea that rural America is completely safe from terrorists.

With this in mind, it appears that a terrorist attack could occur in Missouri; the probability of such an attack is moderate. This is a change from low probability that was noted in the 2004 plan, but the HMPT concurred during a planning team meeting that the probability should be raised to moderate. This probability is not based just on historical incidents in Missouri, but takes into account that the nation has been on a high or elevated threat level since 2001, as discussed in the following paragraphs.

Because of the potential for future terrorist-related incidents, a national security alert system was developed to disseminate information regarding the risk of terrorist acts to federal, state, and local governments and to the American people. This system, known as the Homeland Security Advisory System (HAAS), is based on five color-coded threat conditions, which are summarized in Table 2.24.

Table 2.24
Homeland Security Color Codes

Color	Level of Threat	Description
Red	Severe	Severe risk of terrorist attack
Orange	High	High risk of terrorist attack
Yellow	Elevated	Significant risk of terrorist attack
Blue	Guarded	General risk of terrorist attack
Green	Low	Low risk of terrorist attack

Threat conditions are assigned by the secretary of Homeland Security in consultation with the attorney general and other appropriate federal agency heads, including other members of the Homeland Security Council. Threat conditions may be set for the entire nation or a particular geographic area or industrial sector. The assigned threat conditions are reviewed at regular intervals to determine whether adjustments are warranted.

SEMA is currently developing guidelines for implementing the HAAS at the local level, with recommended actions for each threat condition. When completed, those guidelines will be available on SEMA's web site.

Should Missouri experience a terrorist attack, the severity of such an attack could range from high to low depending on the attack. For instance, if a building was blown up and no lives were lost, the severity of the attack would be low. However, if a terrorist group decided to contaminate a large urban area's water supply with a poisonous chemical, the severity of the attack could be very high due to the number of people directly affected by the poisoned water, as well as

damage to that community's sense of well-being. An attack of this nature could easily result in mass hysteria and insecurity concerning the government's ability to protect its citizens.

Impact of the Hazard

As stated above, terrorist acts could easily undermine the confidence that people have in their own security and in their government's ability to protect them from harm. For example, instructions to make bombs are readily accessible to potential terrorists (including via the Internet), and the materials for their construction are readily available. Because bombs can be made so easily, the threat of a bomb should not be taken lightly. The threat of a bomb can disrupt a community almost as effectively as an actual bomb, while creating far fewer risks for the persons making the threat. Therefore, no matter how large or small the incident, a terrorist act can have a major impact on a community.

Table 2.25
Impact Analysis: Terrorism

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for protected personnel.
Health and Safety of Personnel Responding to the Incident	Adverse impact expected to be severe for unprotected personnel and moderate to light for trained and protected personnel.
Continuity of Operations	Damage to facilities/personnel in the area of the incident may require relocation of operations and lines of succession execution.
Property, Facilities, and Infrastructure	Facilities and infrastructure in the area of the incident may be extensive for explosion, moderate to light for HazMat.
Delivery of Services	Disruption of lines of communication and destruction of facilities may extensively postpone delivery of services.
The Environment	May cause extensive damage, creating denial or delays in the use of some areas. Remediation needed.
Economic and Financial Condition	Local economy and finances adversely affected, possibly for an extended period of time, depending on damage and length of investigation.
Regulatory and Contractual Obligations	Regulatory waivers may be needed. Fulfillment of contracts may be difficult. Demands may overload ability to deliver.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

The trend toward high-profile, high-impact attacks has corresponded with growing concerns over the potential use of weapons of mass destruction (WMD). Between 1997 and 2000, the FBI investigated 779 WMD-related reports, generally involving individuals or small groups. The vast majority of these cases were found to be false or fabricated reports. The biological toxin ricin and the bacterial agent anthrax are emerging as the most prevalent agents involved in those investigations. In 2000, 90 of 115 biological threats investigated by the FBI involved threatened use of anthrax. Given the potential for inflicting large-scale injury or death, the efforts of international and domestic terrorists to acquire WMDs remain a significant concern and priority of the FBI.

A terrorist can attack a society in many ways. Therefore, people must prepare for such an incident. In response to these terror threats, Missouri Governor Matt Blunt selected Mark James to be director of the Department of Public Safety. To improve and assist in the homeland security efforts, Governor Blunt signed an executive order formalizing the merger of homeland security responsibilities into the Department of Public Safety. Mr. James will chair a 17-member council made up of directors from other state departments and agencies. These include the State Emergency Management Agency, Department of Health and Senior Services, Department of Transportation, Department of Agriculture, Department of

Natural Resources, Department of Economic Development, Missouri State Highway Patrol, Missouri State Water Patrol, Missouri National Guard, Missouri State Fire Marshall, Missouri State Public Service Commission, chief information officer of the state, and three members appointed by the governor. This council will ensure that proper homeland security plans are in place at local and state levels while also examining how homeland security grant funds can best be coordinated and expedited. The council will also prepare an emergency preparedness plan for Governor Blunt's review by January 1, 2006. This plan will include recommendations for structural changes and develop policies and procedures to implement up-to-date response capabilities. It will also recommend improvements to the homeland security grant reimbursement process.

The SEMA Homeland Security Response Teams Map (Figure 2.27) indicates locations of 29 existing or proposed Homeland Security Response Teams for Missouri. A few of these teams include hazardous materials response teams with enhanced capabilities for response to WMD incidents, including incidents involving nuclear or radiological materials and biological and chemical agents. The SEMA Terrorism Program should be contacted to fully determine the capabilities of the Homeland Security Response Teams in specific areas.

Figure 2.27 Homeland Security Response Teams for Missouri



Figure 2.28

Bioterrorism / Emergency Response Team (BERT)



The Bioterrorism / Emergency Response Team (BERT) was formed in late 2002 when the Missouri Department of Health and Senior Services (DHSS) received a grant from the Centers for Disease Control and Prevention (CDC) for bioterrorism preparedness.

The grant divided Missouri into nine regions, following the Highway Patrol's region divisions. Southwest Missouri's Highway Patrol Region D became "Homeland Security Planning Region D."

In 2006 grants were redistributed, giving each county in Region D the opportunity to hire its own bioterrorism preparedness staff.

Now, Vernon, Barton, Dade, Jasper and McDonald counties are served by Regional Planner Lawrence "Mac" McKeough working out of Joplin.

Polk and Dallas counties are served by Regional Planner Theron Becker working out of Bolivar.

Lawrence, Barry and Taney counties are served by Planner/Regional Epidemiology Specialist Robert Niezgoda, working out of Branson.

Greene County is served by Regional Planner JD Slaughter and Regional Epidemiology Specialist Linda DeGraffenreid. Administrative Assistant Anita Eddy also works out of Springfield.

Cedar, Christian, Hickory, Newton, St. Clair, Stone and Webster counties have acquired their own planning and epidemiology services.

Public Health Information Specialist Jaci McReynolds and Volunteer Educator/Coordinator Rebecca Ray both work out of Springfield and serve all 18 counties in Region D.

Members of the Bioterrorism / Emergency Response Team (BERT) work with key partners in the counties they represent, such as Local Public Health Agencies (LPHA), Emergency Management, Local Emergency Planning Committees (LEPC), law enforcement, fire, Emergency Medical Services (EMS), hospitals, federally qualified health centers, homeland security response teams, schools and other partners on emergency planning efforts.

BERT's goals are to improve preparedness for a bioterrorism event or other public health emergency. Mitigation, planning and exercising are all important components of BERT's work.

Following the tornado disaster in southwest Missouri in May 2003, the influenza vaccine shortage of 2004 and Hurricanes Katrina and Rita in 2005, bioterrorism planning was used effectively to aid in regional response, disaster relief, supply dispensing and recovery efforts. These examples emphasize that bioterrorism planning efforts can also apply to other emergencies in an "all hazards" approach.

Utilities (Interruptions and System Failures)

Description of Hazard

Utility interruptions and failures may involve electrical power, natural gas, public water, and communications systems. A combination of these utility systems, exist virtually throughout the state. Many utilities are localized and serve only one community, while other utilities serve a regional area. Utilities are often dispersed over a wide area, and many have facilities located throughout their service area. For example, many electric companies have multiple generating facilities, which can redistribute power via transmission lines as they are connected to load stations. Therefore, power can be redistributed, if needed, so that power is lost to as limited an area as possible. Many water companies have some type of back-up systems such as water impoundments, other deep wells, or hook-up arrangements with other water companies. Similar switching and rerouting capabilities may exist with communications and natural gas utilities. Utility systems exist everywhere and are subject to damage from digging, fire, traffic accidents, and severe weather, including flooding and other day-to-day events. Many utilities use emergency batteries or generators to provide back-up power for high priority equipment.

Historical Statistics

Because utilities exist everywhere in the state, damage to utilities may occur frequently. This may be due to a backhoe cutting a buried line, an accident involving a motor vehicle, a flood, or other severe weather. Many of these interruptions or failures go unreported to the Public Service Commission (PSC), and no definitive reporting system exists. Therefore, limited statistical information is available.

During the flood of 1993, telecommunications companies proved their adaptability by using cellular service to replace wire line service in areas where service could not be restored in a timely manner. One local exchange company (LEC) used a trailer with cellular pay phones where the land lines were interrupted. Another company temporarily replaced analog subscriber carrier service with site-based cellular service. Short-haul portable microwave was also used to replace copper lines lost during the flood.

On January 30, 2002, a severe ice storm struck portions of western and northern Missouri, leaving devastation and darkened homes and businesses. Many news articles referred to this ice storm as the worst in Missouri's history. During the ice storm, ice accumulated on any object that was at or below freezing, and the weight of the ice broke utility poles, conductors, tree limbs, and other objects that could not withstand the weight of the ice. Ice accumulations over an inch were reported in many areas. Many tree branches could not withstand the added weight of the ice and fell to the ground, striking whatever was in their path. Cars, homes, streets, properties, and electric power facilities were recipients of the falling trees and limbs. When the ice began to melt, the falling ice caused additional outages. Some electric customers experienced outages more than once during that period, as power was restored but interrupted again by falling limbs.

At the peak of outages, over 400,000 customers were without power. Within three days, most of these customers were returned to service, but many customers in more heavily damaged areas were without power for over a week. Utilities affected by the ice storm quickly mobilized all of their available crews and sought outside assistance. Work crews from 16 different states came to western Missouri in an effort to rapidly restore power to as many customers as possible.

On July 19 and 20, 2006, severe storms with high winds and possible tornado activity struck St. Louis and the counties of St. Louis, Dent, Iron, Jefferson, Oregon, St. Charles, and Washington. As a result of the storms approximately 500,000 AmerenUE customers were without electrical power. Over 3,600 utility workers from AmerenUE and outlying utility companies were involved in restoration efforts, the largest in company history. High priority projects included restoring power to 14 nursing homes, cooling stations, hospitals, city services, and utility and fuel terminals. Compounding the problems, a heat advisory with heat index values as high as 104°F plagued recovery efforts for several weeks.

Measure of Probability and Severity

Probability: High

Severity: Low

Because utilities exist throughout the state and are vulnerable to interruptions or failures, there is a high probability that this hazard may occur at anytime or anyplace throughout the state. In many cases, these are small isolated events, well within the capabilities of the local utility to address. Therefore, the degree of severity of these day-to-day events may be considered low.

Due to long-range planning, regulation, and diligence of the utility operators, major interruptions resulting in a high degree of severity are few and far between. Recent regulatory, planning, and structural initiatives designed to minimize interruptions and failures are listed below.

Impact of the Hazard

Utility outages and interruptions can be localized or region wide. Their greatest impact is generally on the very young or elderly, who can be expected to have greater health risks associated with resultant loss of heating/cooling systems and with the loss of medical equipment that requires a power source. Loss of communications can also adversely affect the provision of emergency services, making it difficult to contact the services for emergency assistance. In addition, utility outages can cause significant problems within the financial community, should there be a long-term loss of their data communications.

Communications

In 1990, the telecommunications staff of the PSC requested that LECs submit plans for disaster recovery. Every LEC in the state submitted a plan that lists practices and procedures for any kind of disaster, natural and manmade. The PSC has recommended to the telecommunication industry that in the event of an emergency, the various companies and emergency agencies should coordinate a single point of contact for emergency situations.

In order to mitigate the damage of earthquakes or other disasters, the LECs added bracing to all their central offices for their switching equipment and batteries. Since earthquakes or other disasters may affect electrical service, which is essential for operations, many companies have obtained on-site generators or made contingency arrangements to acquire them in a disaster. Such generators would be needed prior to exhaustion of emergency battery supplies, which may last about eight hours. During the flood of 1993, one LEC provided emergency power to a central office, which was isolated by flood waters. This was accomplished by driving a flat bed truck through the water with a diesel generator mounted on the bed. The generator was fueled by boat.

Vulnerability of buried telecommunications cables has always been a problem. Cables may be subject to accidental or intentional cuts. However, legislation and mitigation procedures have been taken to prevent such events. Senate Bills 214 and 264 provided for the existence of a company called "One Call," which locates and marks buried utilities. Currently, most LECs in the state have their facilities on record with One Call. Anyone planning any subsurface digging, drilling, or plowing of any kind is advised and encouraged to use One Call. Additional steps to prevent cutting of buried telecommunication cables include clearly marking cable routes with above ground pedestals and poles, as well as patrolling the routes by vehicle and air. In addition to these precautions, most companies are presently building fiber rings for the fiber optic routes to protect continuity of service in the event of an accidental cut.

Since floods pose a threat to telephone service, most companies with buried cables in floodplains are replacing conventional telephone pedestals with flood resistant telephone pedestals, which protect the cables during floods of short duration.

Electrical Service

Electrical utilities in Missouri prepare for disasters and power outages by developing written plans to follow when abnormal events cause extensive outages to customers. Power outages caused by severe weather have prompted the creation of tree trimming plans to ensure above ground power lines are free of potential limbs that could fall on power lines and cause interruptions of power if knocked down. In addition, ongoing reviews of emergency plans and training for such events have been implemented. During the 2002 ice storm that struck western and northern Missouri, many customers were unable to contact affected utilities by telephone because there were not enough utility representatives to respond to all customer calls. Therefore, an automated system was developed to allow customers to input information to the computer that

automatically generates work orders for service calls. The PSC also advised utility companies to provide feedback to customers that their outage report was recorded.

Natural Gas

All natural gas system operators in the state operate under the jurisdiction of the PSC. These operators must comply with the commission's pipeline safety regulations, which include emergency response procedures to pipeline emergencies and natural disasters. Natural gas system operators have plans on file with the PSC. Part of these plans includes indexes of utilities and their locations in the state.

In 1989, House Bill 938 provided the commission with additional legal power to enforce the Pipeline Safety Regulations. In 1990, due in part to the Iben Browning earthquake projection, all utilities were mandated by the commission to develop natural disaster plans (to include potential impacts of earthquakes) and file the plans with the commission. The commission also developed its own plan to respond to a disaster causing an interruption or failure of a utility service. The Iben Browning earthquake projection created a new awareness for the necessity for such disaster response and recovery plans. Several natural gas companies have since stored emergency equipment and survival rations in protected locations. This also resulted in a new demand for excess flow and motion sensing valves on natural gas service lines. Operators also reviewed, updated or increased their mutual aid agreements with other utilities and contractors.

Figure 2.29

Major Interstate Natural Gas Pipelines in Missouri



In 1990, Senate Bills 214 and 264 required all owners and operators of underground pipeline facilities to participate in the One Call notification center. These bills altered the original Chapter 319 Damage Prevention Act and added a penalty clause. This participation provides for the location of underground pipelines after notification by the excavator and before any excavation work begins.

Table 2.26 Impact Analysis: Utilities

Subject	Detrimental Impacts
Health and Safety of Persons in the Area at Time of Incident	Localized impact expected to be moderate to severe for special needs population and moderate to light for others.
Health and Safety of Personnel Responding to the Incident	Nature of hazard expected to minimize any serious damage to property equipped and trained personnel.
Continuity of Operations	Unlikely to necessitate execution of the Continuity of Operations Plan, although some temporary relocation may be needed.
Property, Facilities, and Infrastructure	Impact on facilities and infrastructure dependent upon the nature of the incident (i.e. electric, water, natural gas, communication disruptions).
Delivery of Services	Disruption of utilities may postpone delivery of some services and require repairs to resume services.
The Environment	Localized adverse impact depending on the nature of the incident.
Economic and Financial Condition	Local economy and finances may be adversely affected, depending on damage.
Regulatory and Contractual Obligations	Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may temporarily reduce deliveries.
Reputation of or Confidence in the Entity	Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective.

Synopsis

Utility companies are generally well prepared to deal with day-to-day outages. The earthquake threat to statewide and multistate utilities is the greatest concern to the integrity and operability of Missouri's utilities. Severe weather causes more frequent local, and occasionally widespread, utility outages. Manmade incidents, accidental or intentional, could significantly impact utility service. Planning, regulation, mitigation, and mutual aid are all just a few tools available to reduce, speed recovery from, and prevent utility interruptions and failures.

Assessing Vulnerability and Estimating Potential Losses

Information for vulnerability was derived from inventory data associated with FEMA's loss estimation software HAZUS-MH MR 2 (May 2006). Building inventory counts are based on the 2000 census data adjusted to 2002 numbers using the Dun & Bradstreet Business Population Report. Inventory values reflect 2005 valuations, based on RSMeans (a supplier of construction cost information) replacement costs. Population counts are 2005 estimates from the U.S. Census Bureau.

Appendix M: STAPLEE Sheets, Scoring Actions from all Entities

STAPLEE ACTION EVALUATION TABLE: Airport Drive																								Total Score		
Alternative Actions	STAPLEE Criteria Considerations																									
	1 Low Impact					2 Medium Impact					3 High Impact															
	S (Social)		T (Technical)			A (Administrative)			P (Political)		L (Legal)			E (Economic)				E (Environmental)								
	Community Impact	Access to Services	Effect on Population Segmentation	Feasibility	Long Term Solutions	Secondary Impacts	Staffing	Funding Allocation	Material Over- all ations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Growth	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on Threatened Species	Effect on Wildlife Habitat	Consistent with Community Environmental Goals	Consistent with Federal Laws	
Action AD-1																										
NFIP Compliance	3		1	3	3	2	3	1	2	2	1	2	3	3	3	3	1	1	1	2	1		1	3	3	48
Action AD-2																										
Active Building Code Enforcement	3		3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1		2	3	1	54
Action AD-3																										
Active Code Enforcement	3		3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1		2	3	1	54
Action AD-4																										
NIMS Training	3		2	3	3	3	2	1	1	3	1	3	3	3	1	3	1	1	1	1	1		1	3		45
Action AD-5																										
Portable Electric Generators	3		3	3	3	3	2	2	2	2	1	2	1	1	2	3	3	2	2	1	1		3	2	1	48
Action AD-6																										
Public Education by Newsletter	3		2	3	2	2	2	2	2	2	1	2	1	1	1	2	1	1	1	1	1		1	1	1	36
Action AD-7																										
Promote Private Insurance	3		2	2	2	2	2	1	1	2	1	2	1	1	1	2	1	1	1	1	1		1	1	1	33
Action AD-8																										
Continue Stormwater Drainage Projects	3		3	1	3	3	2	2	2	2	1	2	1	2	1	3	3	1	1	3	1		2	1	1	44
Action AD-9																										
Promote Stormwater regulations & practices	2		2	2	1	1	2	1	1	2	1	2	2	2	2	3	2	1	1	3	1		2	1	1	38
Action AD-10																										
Promote NOAA weather radios and safe rooms	2		2	1	3	3	1	1	1	1	1	2	1	1	1	3	1	1	1	1	1		1	1	1	36
Action AD-11																										
Encourage residents & businesses to clean up creek	2		3	1	3	3	1	1	1	1	1	1	1	2	1	3	1	1	1	3	3		1	1	1	33
Action AD-12																										
Develop Emergency Management Plan	2		3	2	3	2	3	3	3	1	1	1	2	2	2	3	3	1	3	2	1		1	1	1	44
Action AD-13																										
Plan for future increase of fire hydrants	2		3	2	3	3	3	3	3	1	1	3	1	1	1	3	3	1	3	1	1		1	1	1	45

STAPLEE ACTION EVALUATION TABLE: City of Alba, Missouri																									Total Score
Alternative Actions	STAPLEE Criteria Considerations																								
	1 Low Impact						2 Medium Impact						3 High Impact												
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)												
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws		
Action Alba-1 NFIP - Continue Compliance	3	2	3	3	3	1	1	1	3	3	3	3	3	1	3	1	1	1	1	1	1	3	3	48	
Action Alba-2 Grant funding application for shelter	3	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	2	3	2	2	2	63	
Action Alba-3 Grant funding application for water tower power source	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69	
Action Alba-4 Storm siren expansion	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69	
Action Alba-5 Grant funding application for back up power source at city hall.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69	
Action Alba-6 Hazard education	2	2	2	3	3	3	3	2	3	3	3	3	3	3	3	2	3	3	1	1	3	2	3	59	
Action Alba-7 Portable generators	3	3	3	3	3	3	2	3	3	3	2	3	3	2	3	3	2	3	1	1	1	3	3	59	
Action Alba-8 Public awareness	3	2	1	2	2	2	2	1	2	2	2	2	2	2	2	1	2	2	1	1	1	2	2	41	
Action Alba-9 Expanded training	2	3	3	3	2	3	3	3	3	2	2	2	3	1	3	2	3	2	1	1	1	1	3	52	

STAPLEE ACTION EVALUATION TABLE: <u>Carl Junction</u>																									Total Score				
Alternative Actions	STAPLEE Criteria Considerations																												
	1 Low Impact				2 Medium Impact				3 High Impact																				
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)				E (Environmental)														
	Effect on Community Development	Effect on Population Segmentation	Technically Feasible	Long-Term Solutions	Secondary Impacts	Staffing	Funding Allocation	Mainten- ance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMA e Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws						
Carl Jct-1 Enforce Floodplain Ordinance	3	2	3	3	2	3	3	2	3	3	3	3	3	3	3	2	3	2	2	2	3	3	3	62					
Carl Jct-2 Active Building Code Enforcement	2	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	2	2	2	2	3	3	62					
Carl Jct-3 Active Code Enforcement	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	2	2	3	2	64					
Carl Jct-4 NIMS Training	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	64					
Carl Jct-5 Public Education with Flyers	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	64					
Carl Jct-6 Do Fire Checks	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	62					

STAPLEE ACTION EVALUATION TABLE: Carterville																							
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact					2 Medium Impact					3 High Impact												
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)		E (Economic)			E (Environmental)							
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Action Carterville 1 NFIP Compliance	3	2	3	3	3	1	1	1	3	3	3	3	3	1	3	1	1	1	1	1	3	3	48
Action Carterville 2 storm shelter/safe room grant	3	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	2	3	2	2	48
Action Carterville 3 Water system generator grant	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
Action Carterville 4 City hall generator grant	3	3	3	3	3	2	2	1	3	3	3	2	3	2	2	2	3	3	3	3	3	3	61
Public education	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	52
Action Carterville 6 All hazards training	2	2	2	3	3	3	3	2	3	3	3	3	3	3	3	2	2	3	1	1	3	2	58
Action Carterville 7 Storm siren expansion	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
Action Carterville 8 Portable generator grant	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
Expanded training for all departments	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
Action Carterville 10 Increased training between school and police department	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69

STAPLEE ACTION EVALUATION TABLE: City of Carthage																								Total Score
Alternative Actions	STAPLEE Criteria Considerations																							
	1 Low Impact						2 Medium Impact						3 High Impact											
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)						
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws	
Carthage - 1																								
NFIP - Continue Compliance	2	2	2	2	2	2	2	3	2	2	1	2	2	1	3	2	2	2	3	1	1	2	3	46
Carthage - 2																								
Active Building Code Enforcement	2	2	2	2	3	2	2	2	3	2	2	2	2	2	3	2	2	2	2	1	1	2	2	47
Carthage - 3																								
Active Code Enforcement	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	1	1	2	2	46
Carthage - 4																								
Promote Private Insurance	1	1	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	1	1	1	1	2	1	36
Carthage - 5																								
Continue Stormwater Drainage Projects	2	2	2	3	2	2	3	3	2	2	2	2	2	2	3	3	2	3	2	1	1	2	2	50
Carthage - 6																								
Promote Stormwater regulations and practices	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	45
Carthage - 7																								
Promote NOAA weather radios and safe rooms	2	2	2	3	2	2	1	2	2	2	2	1	2	1	3	2	2	1	1	1	1	2	2	41

STAPLEE ACTION EVALUATION TABLE: <u>Carytown</u>																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact						2 Medium Impact						3 High Impact										
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)										
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Action 1																							
Raise Public Awareness	2	3	3	3	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
Action 2																							
Portable electric generator for safe room	2	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
Action 3																							
Encourage reverse 911	2	3	3	3	3	3	3	3	3	2	1	2	3	3	3	3	3	3	3	3	3	3	3

STAPLEE ACTION EVALUATION TABLE: Duenweg																									Total Score
Alternative Actions	STAPLEE Criteria Considerations																								
	1 Low Impact				2 Medium Impact				3 High Impact																
	S (Social)		T (Technical)			A (Administrative)			P (Political)		L (Legal)			E (Economic)			E (Environmental)								
City of Duenweg	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws		
Action Duenweg 1 NFIP Continue Compliance	3	1	3	3	3	1	1	1	2	3	3	3	3	1	3	2	1	3	1	1		1	3	3	49
Action Duenweg 2 Lead & Zinc Mining Wastes	3	1	3	3	3	1	1	1	3	3	3	3	3	1	3	1	3	1	3	1		3	3	3	53
Action Duenweg 3 Hazardous/ Explosives Materials	3	3	3	3	3	1	1	1	3	3	3	3	3	1	3	1	3	1	3	1		3	3	3	55
Action Duenweg 4 Hazardous Weather-Safe Room/ Storm Shelter	3	3	3	3	3	1	1	2	3	3	3	3	3	1	2	3	2	3	1	1		1	1	3	52
Action Duenweg 5 Active Building Code Enforcement	2	3	3	3	3	1	1	1	3	3	2	3	3	3	3	1	3	1	2	1		2	2	3	52
Action Duenweg 6 Stormwater Study	3	3	3	3	2	1	1	1	3	3	3	3	3	1	3	3	2	3	3	1		1	3	3	55
Action Duenweg 7 Emergency Generators	3	2	3	3	3	1	1	2	3	3	3	3	3	1	3	2	1	2	1	1		1	1	1	47
Action Duenweg 8 Public Education	3	3	3	3	3	2	1	2	3	3	3	3	3	1	3	1	3	1	1	1		1	1	1	49

STAPLEE ACTION EVALUATION TABLE: City of Duquesne																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact							2 Medium Impact							3 High Impact								
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)		E (Economic)				E (Environmental)						
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
Duquesne - 1																							
Enforce stormwater Ordinance	2	2	2	2	2	2	2	3	2	2	2	2	2	1	3	2	2	2	3	1	1	2	3
Duquesne - 2																							
Active Building Code Enforcement	2	2	2	2	3	2	2	2	3	2	2	2	2	2	3	2	2	2	2	1	1	2	2
Duquesne - 3																							
Active Code Enforcement	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	1	1	2	2
Duquesne - 4																							
Promote Private Insurance	1	1	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	1	1	1	2	1	
Duquesne - 5																							
Plan Road Cleanup	2	2	2	3	2	2	3	3	2	2	2	2	2	2	3	3	2	1	2	1	1	2	
Duquesne - 6																							
Expand Fire Hydrant Coverage	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	

STAPLEE ACTION EVALUATION TABLE: Fidelity																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact							2 Medium Impact							3 High Impact								
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)			E (Economic)				E (Environmental)					
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land /Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Fidelity - 1																							
Active Building Code Enforcement	3	3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1	2	3	1
Fidelity - 2																							
Active Code Enforcement	3	3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1	2	3	1
Fidelity - 3																							
Portable Electric Generators	3	3	3	3	3	2	2	2	2	1	2	1	1	2	3	3	2	2	1	1	3	2	1
Fidelity - 4																							
Promote Private Insurance	3	2	2	2	2	2	1	1	2	1	2	1	1	1	2	1	1	1	1	1	1	1	1
Fidelity - 5																							
Promote NOAA weather radios and safe rooms	2	2	1	3	3		1	1	1	1	2	1	1	1	3	1	1	1	1	1	1	1	1
Fidelity - 6																							
Develop Emergency Mangement Plan	2	3	2	3	2	3	3	3	1	1	1	2	2	2	3	3	1	3	2	1	1	1	1

City of Jasper																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact							2 Medium Impact					3 High Impact										
	S (Social)	T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)			E (Environmental)										
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
City of Jasper-1																							
Adopt NFIP	2	3	3	2	2	2	1	2	2	2	2	2	2	3	1	2	1	2	2	1	3	3	47
City of Jasper-2																							
Tornado Shelter	2	2	2	2	2	1	3	2	2	2	2	2	2	1	2	3	2	3	2	1	2	3	46
City of Jasper-3																							
Code Enforcement	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	3	1	2	1	2	3	43

STAPLEE ACTION EVALUATION TABLE: Jasper County, Missouri																								
Alternative Actions	STAPLEE Criteria Considerations																							
	1 Low Impact							2 Medium Impact							3 High Impact							Total Score		
	S (Social)	T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)							
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Shifting	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws	
Action 1																								
Continue NFIP Compliance	2	3	3	3	3	3	2	2	2	1	2	3	3	3	3	3	3	3	3	3	3	3	3	59
Action 2																								
Increase GIS ability	2	3	3	3	2	1	3	2	3	3	3	3	3	1	3	1	3	1	3	1	1	3	3	54
Action 3																								
Inventory County Emergency Response Services	3	1	3	3	1	1	1	2	3	3	3	3	3	1	3	1	1	1	1	1	3	3	3	48
Action 4																								
Educate Public on impacts of Major Disease Outbreak	1	3	3	3	1	1	1	1	3	3	3	3	3	1	3	1	1	1	1	1	3	3	3	45
Action 5																								
Promote Community Shelters in existing manufactured/mobile home parks	3	1	3	3	1	1	1	1	3	3	2	3	3	1	3	3	1	3	1	1	3	3	3	48
Action 6																								
All hazards education for Mitigation, Preparedness, Response & Recovery	3	3	3	3	1	2	3	2	3	3	3	3	3	1	3	1	1	1	1	1	3	3	3	51
Action 7																								
Educate Public on Impacts of Severe Weather	3	3	3	3	1	3	3	3	3	3	3	3	3	1	3	1	1	1	1	1	3	3	3	53
Action 8																								
Increase Warning System Coverage to the most feasible extent	3	3	3	3	1	3	1	3	3	3	3	3	3	3	3	3	1	3	1	1	3	3	3	57
Action 9																								
Install and Promote use of Reverse 911	3	3	3	3	3	3	2	3	3	3	3	3	3	1	3	1	1	2	1	1	3	3	3	55

STAPLEE ACTION EVALUATION TABLE: City of Joplin, Missouri																							
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact							2 Medium Impact							3 High Impact								
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)				
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Action 1 Continue NFIP Compliance	2	3	3	3	3	3	2	2	2	1	2	3	3	3	3	3	3	3	3	3	3	3	59
Action 2 "No-rise" Ordinance	2	3	3	3	2	1	3	2	3	3	3	3	3	1	3	1	3	1	3	1	1	3	54
Action 3 Inventory County Emergency Response Services	3	1	3	3	1	1	1	2	3	3	3	3	3	1	3	1	1	1	1	1	3	3	48
Action 4 Educate Public on impacts of Major Disease Outbreak	1	3	3	3	1	1	1	1	3	3	3	3	3	1	3	1	1	1	1	1	1	3	45
Action 5 Promote Community Shelters in existing manufactured/mobile home parks	3	1	3	3	1	1	1	1	3	3	2	3	3	1	3	3	1	3	1	1	1	3	48
Action 6 All hazards education for Mitigation, Preparedness, Response & Recovery	3	3	3	3	1	2	3	2	3	3	3	3	3	1	3	1	1	1	1	1	1	3	51
Action 7 Educate Public on Impacts of Severe Weather	3	3	3	3	1	3	3	3	3	3	3	3	3	1	3	1	1	1	1	1	1	3	53
Action 8 Increase Warning System Coverage to the most feasible extent	3	3	3	3	1	3	1	3	3	3	3	3	3	3	3	3	1	3	1	1	1	3	57
Action 9 Promote use of Reverse 911	3	3	3	3	3	3	2	3	3	3	3	3	3	1	3	1	1	2	1	1	1	3	55

STAPLEE ACTION EVALUATION TABLE: La Russell																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact						2 Medium Impact				3 High Impact												
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)				E (Environmental)								
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
La Russell-1 Apply for Storm Siren	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
La Russell-2 Arrange for Shelter for Residents	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
La Russell-3 Develop Emergency Mgt Plan	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69

Neck City																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact						2 Medium Impact						3 High Impact										
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)				E (Environmental)								
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
Neck City-1																							
Adopt FEMA Floodplain program by ordinance	3	3	3	3	3	1	1	1	3	3	3	3	3	3	3	3	3	3	3	1	3	3	59
Neck City-2																							
Apply for funding to assist with building tornado shelter.	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	2	1	1	3	62
Neck City-3																							
Promote NOAA weather radios and Reverse 911	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	3	63
Neck City-4																							
Public Education of Businesses, homeowners, and residents through a community newsletter	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	3	63
Neck City-5																							
Develop Public Works Department	3	3	3	3	3	3	2	3	3	3	3	3	3	3	2	2	3	3	2	1	2	3	61
Neck City-6																							
Portable Electric Generators	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	3	63

STAPLEE ACTION EVALUATION TABLE: Oronogo																									Total Score
Alternative Actions	STAPLEE Criteria Considerations																								
	1 Low Impact				2 Medium Impact				3 High Impact																
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)				E (Environmental)										
	Effect on Community	Effect on People	Effect on Environment	Effect on Infrastructure	Effect on Economy	Effect on Society	Effect on Culture	Effect on Health	Effect on Safety	Effect on Quality of Life	Effect on Public Services	Effect on Private Services	Effect on Government Services	Effect on Non-Profit Services	Effect on Religious Services	Effect on Educational Services	Effect on Healthcare Services	Effect on Social Services	Effect on Cultural Services	Effect on Recreational Services	Effect on Transportation Services	Effect on Utilities Services	Effect on Telecommunications Services	Effect on Information Services	
Action Oronogo-1																									
NFIP Compliance	3	1	3	3	2	3	1	2	2	1	2	3	3	3	3	1	1	1	2	1	1	3	3		
Action Oronogo-2																									
Active Building Code Enforcement	3	3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1	2	3	1		
Action Oronogo-3																									
Active Code Enforcement	3	3	3	3	3	3	1	2	3	1	3	2	3	2	3	2	3	1	3	1	2	3	1		
Action Oronogo-4																									
NIMS Training	3	2	3	3	3	2	1	1	3	1	3	3	3	1	3	1	1	1	1	1	1	1	3		
Action Oronogo-5																									
Portable Electric Generators	3	3	3	3	3	2	2	2	2	1	2	1	1	2	3	3	2	2	1	1	3	2	1		
Action Oronogo-6																									
Public Education by Newsletter	3	2	3	2	2	2	2	2	2	1	2	1	1	1	2	1	1	1	1	1	1	1	1		
Action Oronogo-7																									
Promote Private Insurance	3	2	2	2	2	2	1	1	2	1	2	1	1	1	2	1	1	1	1	1	1	1	1		
Action Oronogo-8																									
Continue Stormwater Drainage Projects	3	3	1	3	3	2	2	2	2	1	2	1	2	1	3	3	1	1	3	1	2	1	1		
Action Oronogo-9																									
Promote NOAA weather radios and Reverse 911	2	2	1	3	3	1	1	1	1	1	2	1	1	1	3	1	1	1	1	1	1	1	1		
Action Oronogo-10																									
Encourage residents & businesses to clean up creek	2	3	1	3	3	1	1	1	1	1	1	1	2	1	3	1	1	1	3	3	1	1	1		

STAPLEE ACTION EVALUATION TABLE: City of Purcell																								Total Score
Alternative Actions	STAPLEE Criteria Considerations																							
	1 Low Impact							2 Medium Impact							3 High Impact									
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)		E (Economic)			E (Environmental)								
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws	
Purcell - 1																								
NIMS training	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	1	1	1	1	3	
Purcell - 2																								
Public Education	2	2	2	3	3	3	3	2	3	3	3	3	3	3	3	2	3	3	1	1	3	2	3	
Purcell - 3																								
Promote Reverse 911	3	3	3	3	3	3	3	3	3	2	2	3	3	3	2	2	2	2	2	2	2	2	2	
Purcell - 4																								
Apply for funding for generator for Water	3	3	3	3	3	3	2	2	3	3	3	2	2	2	3	2	3	1	1	1	3	3	2	
Purcell - 5																								
Storm siren expansion	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1	1	2	

STAPLEE ACTION EVALUATION TABLE: City of Sarcouxie																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact							2 Medium Impact							3 High Impact								
	S (Social)		T (Technical)			A (Administrative)		P (Political)		L (Legal)			E (Economic)			E (Environmental)							
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Sarcouxie -1																							
Reverse 911 awareness and access																							0
Sarcouxie -2																							
Emergency Shelter / Fire Station																							0
Sarcouxie -3																							
Emergency Power Supply Water Towers																							0
Sarcouxie -4																							
Emergency Power Supply Sewer System																							0
Sarcouxie -5																							
Emergency Power Supply City Hall / PD																							0
Sarcouxie -6																							
NIMS Training Continuation																							0
Sarcouxie -7																							
Emergency Operation Plan Update & Implementation																							0
Sarcouxie -8																							
Stormwater Program Implementation																							0
Sarcouxie -9																							
Emergency Shelter At Local Mobile Home Park																							
Sarcouxie -10																							
Emergency Power Supply Nursing Home																							0

STAPLEE ACTION EVALUATION TABLE: Waco																									Total Score
Alternative Actions	STAPLEE Criteria Considerations																								
	1 Low Impact							2 Medium Impact							3 High Impact										
	S (Social)		T (Technical)			A (Administrative)		P (Political)		L (Legal)			E (Economic)				E (Environmental)								
	Community Acceptance	Effect on Population Segment	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on Wetlands	Effect on HAZMAT Sites	Consistent with Federal Laws	Consistent with Community Environmental Goals	
Waco-1																									
Apply for funding for saferoom	3	3	3	3	3	2	2	2	3	3	3	3	3	3	2	2	3	2	3	2	3	3	3	3	
Waco-2																									
Promote NOAA weather radios and Reverse-911	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Waco-3																									
Public Education at Yearly Cleanup	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	

Alternative Actions	STAPLEE Criteria Considerations																							Total Score	
	1 Low Impact							2 Medium Impact							3 High Impact										
	S (Social)		T (Technical)			A (Administrative)		P (Political)		L (Legal)		E (Economic)			E (Environmental)										
Number your action and insert your action. EX. Action: City-1 (NFIP) (The table will add for you. I will print this for your file	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws		
NFIP - Continue Compliance		2	2	1	2	1	1	2	1	3	3	3	1	2	1	3	2	2	3	1	1	1	2	2	43
Apply for Funding assistance for a Saferoom(s)		3	3	3	3	2	1	3	1	3	3	3	2	2	1	3	3	3	3	1	1	1	2	2	53
Apply for Funding assistance for Portable Electric Generator(s)		3	3	3	3	3	1	3	2	3	3	3	3	3	1	3	3	3	3	2	1	3	3	3	64
Apply for Funding assistance for Storm Siren Expansion		3	2	2	2	2	1	2	2	3	3	3	2	3	1	3	3	3	3	3	1	3	3	3	59
Stormwater Study		3	3	3	3	3	2	1	1	3	3	3	2	2	1	3	2	3	3	3	1	3	3	3	60
Public Education of Businesses, homeowners, and residents		3	3	3	2	2	1	2	1	3	3	3	3	3	1	3	1	2	2	1	1	1	3	3	51
Apply for Funding assistance for flood control projects and stormwater upgrades		3	3	3	3	2	1	3	2	3	3	3	3	3	1	3	3	3	3	3	2	2	3	3	63
Apply for Funding assistance for Emergency Power Backup for City Hall & Public Works		3	2	3	3	2	1	3	2	3	3	3	3	3	1	3	3	3	3	1	1	1	3	3	57
Apply for Funding assistance for Saferoom for mobile home park(s)		3	3	3	3	2	1	3	2	3	3	3	3	3	1	3	3	3	3	2	1	1	3	3	59
Active Code enforcement		3	3	3	2	2	3	3	2	3	3	3	3	3	2	3	2	3	1	1	1	1	3	3	57

STAPLEE ACTION EVALUATION TABLE: AVILLA SCHOOL DISTRICT																						Totals
Alternative Actions	STAPLEE Criteria Considerations																					
	1 Low Impact 2 Medium Impact 3 High Impact																					
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)				E (Environmental)			
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals
Action Avilla School 1																						
Safe-room for each location		3	3	3	3	3	2	2	3	1	3	3	3	3	3	3	3	3	3	3	3	3
Action Avilla School 2																						
Educate students and parents of hazards with informational flyers		2	3	3	3	3	2	3	2	1	2	3	3	3	3	3	2	3	3	3	3	3
Action Avilla School 3																						
Increase awareness of students and teachers with campus drills and		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3
Action Avilla School 4																						
Educate staff and students on Shelter in-Place procedures																						
		3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	3	3	3	3	3
Action Avilla School 5																						
Educate staff and students on Building Evacuation procedures																						
		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3
Action Avilla School 6																						
Educate staff and students on Lock-down procedures		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3
Action Avilla School 7																						
Educate staff on Bomb Threat Assessment and Response		2	3	3	3	3	3	3	3	1	2	3	3	3	3	3	3	3	3	3	3	3
Action Avilla School 8																						
An Emergency Response Team made up of school staff members for each		3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	2	3	3	3	3

STAPLEE ACTION EVALUATION TABLE: <u>Carl Junction School</u>																										
Alternative Actions	STAPLEE Criteria Considerations																							Total Score		
	1 Low Impact					2 Medium Impact					3 High Impact															
	S (Social)		T (Technical)			A (Administrative)			P (Political)		L (Legal)			E (Economic)				E (Environmental)								
	Effect on Community	Effect on Population Segment	Feasibility	Long-Term Sustainability	Secondary Impacts	Staffing	Funding Allocation	Material Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on Wildlife Habitats	Consistent with Federal Laws	Consistent with Community Environmental Goals			
Action CJ-1 Conduct Campus Safety Drills	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	1	1	1	1	3	57			
Action CJ-2 Conduct Lock down drills	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	1	1	3	3	3	63			
Action CJ-3 Create list of staff with medical training.	3	3	3	2	3	3	2	2	3	3	3	3	3	3	3	2	3	2	1	1	1	1	54			
Action CJ-4 Monitor and Educate Disease Outbreaks	3	3	3	3	3	3	2	3	3	3	3	3	2	3	2	3	2	3	3	3	3	3	65			

STAPLEE ACTION EVALUATION TABLE: Carthage R-9 School District																								
Alternative Actions	STAPLEE Criteria Considerations																						Total Score	
	1 Low Impact						2 Medium Impact						3 High Impact											
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)			E (Economic)				E (Environmental)						
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals		Consistent with Federal Laws
Carthage R-9 School District #1 Buddy Room System	2	3	3	3	3	3	1	1	1	1	2	1	1	1	3	1	1	1	1	1	1	1	3	39
Carthage R-9 School District #2 Tornado Safety Procedures	3	3	3	3	3	3	1	1	3	1	3	2	2	1	3	1	1	1	1	1	1	1	3	45
Carthage R-9 School District #3 Intruder lock-down procedures	3	3	3	3	3	3	1	1	3	1	3	1	2	1	3	1	1	1	1	1	1	1	2	43
Carthage R-9 School District #4 Family Reunification	3	3	3	3	3	3	1	1	3	2	3	1	2	1	3	1	1	1	1	1	1	1	1	43
Carthage R-9 School District #5 REMS Training	3	3	3	3	3	3	2	2	3	2	3	1	2	1	3	2	1	1	1	1	1	1	2	47
Carthage R-9 School Safety/Emergency Lighting	3	3	3	2	3	1	2	2	1	3	1	1	1	3	2	1	1	1	1	1	1	1	1	39
Carthage R-9 School Safe room/shelter	3	3	3	3	3	2	2	3	2	1	3	1	2	1	3	3	2	3	1	1	1	1	3	50

STAPLEE ACTION EVALUATION TABLE: Jasper R-V School District																								
Alternative Actions	STAPLEE Criteria Considerations																							
	1 Low Impact 2 Medium Impact 3 High Impact																							
	S (Social)		T (Technical)			A (Administrative)		P (Political)			L (Legal)		E (Economic)			E (Environmental)								
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws	
Jasper School - 1 Apply for funding to assist with providing a saferoom for the school district.	2	3	3	3	3	1	2	2	2	1	3	1	2	1	3	3	1	3	1	1	3	3	48	
Jasper School - 2 Educate students and parents of hazards with informational flyers	3	2	3	1	1	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	3	3	48
Jasper School -3 Backup generator to provide electricity to central office, cafeteria, and sump pumps.	3	1	3	3	1	1	1	3	3	3	3	3	3	1	3	1	1	1	1	1	1	3	3	47
Jasper School -4 Increase awareness of students and teachers with campus drills and training	3	3	3	2	3	1	3	3	3	3	3	3	3	1	3	1	1	1	1	1	1	3	3	52

STAPLEE ACTION EVALUATION TABLE: Joplin School District																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact						2 Medium Impact						3 High Impact										
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)			E (Economic)			E (Environmental)					
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
Action Joplin Schools-1 Safe-room for each location	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	3	3	3	3	3	3	3	65
Action Joplin Schools-2 Educate students and parents of hazards with informational flyers	2	3	3	3	3	3	2	3	2	1	2	3	3	3	3	3	2	3	3	3	3	3	62
Action Joplin Schools-3 Increase awareness of students and teachers with campus drills and training	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Joplin Schools-4 Educate staff and students on Shelter-in-Place procedures	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	3	3	3	3	3	64
Action Joplin Schools-5 Educate staff and students on Building Evacuation procedures	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Joplin Schools-6 Educate staff and students on Lock-down procedures	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Joplin Schools-7 Educate staff on Bomb Threat Assessment and Response	2	3	3	3	3	3	3	3	3	1	2	3	3	3	3	3	3	3	3	3	3	3	65
Action Joplin Schools-8 An Emergency Response Team made up of school staff members for each location	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	2	3	3	3	3	63

STAPLEE ACTION EVALUATION TABLE:Sarcoxie School District																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
			1 Low Impact		2 Medium Impact		3 High Impact																
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)										
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
Sarcoxie Schools-1 Saferooms	3	3	3	3	3	1	1	2	3	1	3	3	3	1	3	1	1	1	1	1	3	3	48
Sarcoxie Schools-2 Disease	3	3	3	3	3	2	1	1	3	3	3	3	3	1	3	1	1	1	1	1	3	3	50
Sarcoxie Schools-3 Disaster preparedness	3	3	3	3	3	3	1	2	3	3	3	3	3	1	3	1	1	1	1	1	3	3	52

STAPLEE ACTION EVALUATION TABLE: Webb City School District																							
Alternative Actions	STAPLEE Criteria Considerations																						Total Score
	1 Low Impact						2 Medium Impact						3 High Impact										
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)		E (Environmental)										
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required		Effect on Land/Water	Effect on Endangered Species	Effect on Hazardous / Waste Sites	
Action Webb City Schools Safe-room for each location	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	3	3	3	3	3	3	3	65
Action Webb City Schools-2 Educate students and parents of hazards with informational flyers	2	3	3	3	3	3	2	3	2	1	2	3	3	3	3	3	2	3	3	3	3	3	62
Action Webb City Schools 3 Increase awareness of students and teachers with campus drills and training	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Webb City Schools 4 Educate staff and students on Shelter-in-Place procedures	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	3	3	3	3	3	64
Action Webb City Schools 5 Educate staff and students on Building Evacuation procedures	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Webb City Schools Educate staff and students on Lock-down procedures	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67
Action Webb City Schools Educate staff on Bomb Threat Assessment and Response	2	3	3	3	3	3	3	3	3	1	2	3	3	3	3	3	3	3	3	3	3	3	65
Action Webb City Schools An Emergency Response Team made up of school staff members for each location	3	3	3	3	3	3	2	2	3	1	3	3	3	3	3	2	3	2	3	3	3	3	63

STAPLEE ACTION EVALUATION TABLE: Missouri Southern State University																							Total Score
Alternative Actions	STAPLEE Criteria Considerations																						
	1 Low Impact			2 Medium Impact			3 High Impact																
	S (Social)		T (Technical)		A (Administrative)		P (Political)		L (Legal)		E (Economic)			E (Environmental)									
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Shifting	Funding Allocation	Maintenance/ Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	
Action MSSU-1 Mass Notification	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	1	2	3	3	65	
Action MSSU-2 EOP Update	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	2	3	1	2	3	3	62	
Action MSSU-3 Education	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	1	3	3	3	66	
Action MSSU-4 Engineering and design	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	67	

Appendix N: Community Public Hearings or Open Meetings

The following pages are copies of the city's, town's and village's public hearing or open meeting agendas, minutes and sign-in sheets allowing comments from citizens.