

**Activity #6: Develop a NOAA Weather Radio awareness program.**

Analysis: Although not exclusively for protection from Tornado or High Wind events, the NOAA Weather Radio provides an excellent source of information regarding up to date weather related events. Awareness of this resource should be considered a priority in order to allow citizens to be well informed and therefore able to take appropriate shelter in advance of storm conditions.

Timeline: Long-term

Responsible Party: Bremer County Emergency Management

Related Hazard Mitigation Goal #: 2 and 3

**Activity #7: Expand weather spotter training.**

Analysis: Weather spotters often provide life saving information regarding tornado events to communities. By expanding the existing training program, the city and county will be able to increase the number of weather spotter's on-call and on-site during an extreme weather event. Through this program the City hopes to be able to increase the amount of warning time its residents receive prior to a tornado event.

Timeline: Long-term

Responsible Party: Waverly Fire Department, Bremer County EMA, City Council, Resident Volunteers

Related Hazard Mitigation Goal #: 2 and 3

**Activity #8: Research and secure grant dollars for shelter and safe room construction**

Analysis: The city has the ability to effectively research and secure grant dollars for the construction of shelters and safe rooms. There appears to be an overarching need for these facilities in the community. There are existing funding sources available for such projects. The city must make the decision to commit resources and pursue these dollars.

Timeline: Immediate

Responsible Party: City Council, City Staff

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #9: Encourage construction of additional storm shelters and tornado safe rooms**

Analysis: These structures will need to be strategically located in various areas of the city. City officials should assess the most vulnerable populations prior to construction. Homes without basements, multi-family dwellings, etc. should be given priority.

Timeline: Long-term

Responsible Party: City Council, City Engineer, Developers, Citizens

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #10: Retrofit current facilities to include tornado safe rooms**

Analysis: Wherever feasible, retrofitting of existing structures could be utilized as an effective method to reduce injury and loss of life.

Timeline: Long-term

Responsible Party: City Council, City Engineer, Private Property Owners

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #11: Enhance building code to include tornado safe rooms in newly constructed public facilities**

Analysis: Similar to retrofitting existing buildings, encouraging safe room construction into newly constructed facilities should be a priority. Integrating safe rooms into new construction is significantly more affordable than retrofitting and/or new safe room construction by itself.

Timeline: Long-term

Responsible Party: City Council, City Building Official, Developers

Related Hazard Mitigation Goal #: 2, 3, and 4

**Flood (Riverine & Flash) Mitigation****Activity #1: Consider replacing the existing power dam with an Inflatable Dam.**

**Analysis:** This concept involves the construction of a rubber inflatable dam in place of the current dam. This would allow the dam to be deflated during high water events thus allowing more water to escape downstream at a faster rate. Then, during normal flow, the dam could be inflated in order to maintain a pool.

There were two alternatives identified for the dam construction. The first required the construction of a 7.7-foot high dam. This alternative predicted that it would be able to contain a 100-year flood event almost entirely within the river channel. The second option called for the construction of a 5.5 foot dam with additional freeboard in the form of three foot high levees along the river. This would be a lower cost alternative while maintaining the view of the river of the community.

More details of this project can be found by referencing the 2001 and 2008 Waverly Flood Study prepared by Stanley Consultants Incorporated.

**Timeline:** Immediate

**Responsible Party:** City Council, City Engineer, Army Corps of Engineers, Stanley Consultants

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #2: Continue participation in the National Flood Insurance Program.**

**Analysis:** The City of Waverly has been a participating member in the National Flood Insurance Program (NFIP) since 1980. Continued participation in the NFIP is considered to be vital to the financial well being of the community. The flood insurance offered through this program provides needed financial relief to those who carry the insurance and are negatively affected by flood events.

Although there are enforcement costs to the community associated with meeting NFIP performance standards, often the increased costs are offset by other benefits such as insurance availability, and reduced potential for loss of life or property.

**Timeline:** Ongoing

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #3: Continue further development of and update of the Storm Water Management Program.**

**Analysis:** The development of a storm water management program is not yet required for cities the size of Waverly. This being said, storm water is an acknowledged concern for the city. In an attempt to address storm water issues the City has developed its own Storm Water Management Program.

Generally, storm water management programs should include several different elements. First, it should involve a public education. Second, the development of the program should require public involvement and participation. Third, steps would have to be taken to detect and eliminate illicit discharge from storm water drainage before it has entered its primary water body. Fourth, some sort of post construction storm water management program would need to be in place. Finally, pollution prevention/good housekeeping education and oversight should be provided for all municipal operations.

**Timeline:** Ongoing

**Responsible Party:** City Council, Public Works Director, City Engineer

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #4: Maintain, enforce, and update Zoning and Floodplain Ordinances as needed.**

**Analysis:** The Zoning Ordinance is also a reflection of the City's long term land use management program. Through zoning a city is able to restrict particular types of land use in certain areas. Appropriate zoning enforcement can also be used to direct growth to more appropriate areas where the chances of a flood hazard are substantially reduced. Furthermore the Zoning Ordinance can encourage the placement of parks, campgrounds, trails, and other green space activity closer to flood prone areas which may well correspond with recreation opportunities. These uses, while an asset to the community, are not likely to sustain long-term damage from flood events.

**Timeline:** Ongoing

**Responsible Party:** City Council, Building Inspector, Floodplain Manager

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #5: Ensure proper training and certification of Floodplain Manager(s).**

**Analysis:** Currently the city employs one individual who has the responsibility of ensuring that the Floodplain Ordinance is adhered to. The city should ensure that the individual(s) charged with this duty has up-to-date training and any necessary certifications so that proper enforcement of the ordinance is applied and accurate information can be relayed to interested parties.

**Timeline:** Ongoing

**Responsible Party:** City Council, Flood Plain Official

**Related Hazard Mitigation Goal #:** 2, 3, and 4

**Activity #6: Continue acquisition and removal of structures from the floodplain.**

**Analysis:** The Hazard Mitigation Planning committee recognized this alternative as a necessity to minimizing future flood damage in the community. Recent acquisitions have already greatly reduced potential damage that could be inflicted by future flood events. Although past programs have been successful with 10 structures having been acquired in the flood zone already, many more properties that have been identified for possible buyout have yet to be purchased due to insufficient funding.

The City of Waverly intends on continuing the pursuit of funding necessary to remove more flood-prone structures. The City proposed in December of 2008 to buy out 74 homes primarily located in the floodway and 100-year flood plain. Funding is being pursued through FEMA and Iowa Homeland Security Emergency Management. The buyout program is suspected to begin in the Spring/Summer of 2009.

**Timeline:** Long-Term

**Responsible Party:** City Council, IEMD, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #7: Flood proof structures in the 100-year floodplain.**

**Analysis:** Although it may be a less desirable alternative, it is still considered a possibility for those structures that are immovable or for those homeowners who do not wish to relocate. Many people may not be aware of some of the measures that have to be taken to flood proof a facility. As a result, efforts should be made to educate the general public as to their options.

**Timeline:** Long-term

**Responsible Party:** City Council, Homeowners, Building Inspector, Floodplain Manager, IEMD, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #8: Replace or increase capacity of the 3<sup>rd</sup> Street Bridge.**

**Analysis:** This alternative was considered due to the bridge holding water back from flowing downstream and out of the community during the 1999 and 2008 flooding. The Iowa DNR has specific regulations that state new bridges must have three-foot clearance between the 50 year flood stage and the lowest point on the bridge. According to the 2001 Waverly Flood Study, that makes the replacement of this bridge at its current location, more necessary. At that time numerous alternatives were actually being studied. These alternatives include leaving the bridge as it currently is, raising the current structure, change the bridge to pedestrian use only, or build an entirely new structure at an alternative location. More details of this project can be found by referencing the 2001 & 2008 Waverly Flood Study prepared by Stanley Consultants Incorporated.

The City is currently developing a plan for the 10<sup>th</sup> Avenue SE extension which would include a crossing over the Cedar River.

**Timeline:** Long-term

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #9: Construct a levee, floodwall, or other flood protection system in Kohlmann Park.**

**Analysis:** This alternative is attractive due to the fact that it is estimated that this project could protect as many as 400 homes that were flooded during the 1999 and 2008 flood events. The negative aspects of this particular project are primarily based upon the concern of sacrificing the natural aesthetics of the riverside park. The levee design, as described in the 2001 Waverly Flood Study, calls for the levee to be built three feet above the 100-year flood level. This would ultimately result in an eight-foot embankment being constructed in the park. The construction of this embankment would virtually eliminate the view of the river, result in the destruction of most of the trees in the park, and require the placement of fill in the floodway. Again, more details of this project can be found by referencing the 2001 Waverly Flood Study prepared by Stanley Consultants Incorporated.

**Timeline:** Long-range

**Responsible Party:** City Council, Army Corps of Engineers, IDNR, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #10: Construct floodwalls along the east bank of the river across from Kohlmann Park.**

**Analysis:** The placement of floodwalls along the east bank of the river, across from Kohlmann Park would likely result in the benefit of protecting approximately 25 homes from flooding. This alternative would require the construction of a wall, in two segments, from the powerhouse to the City Civic Center Building embankment and then from the north end of that embankment to the railroad embankment. More details of this project can be found by referencing the 2001 Waverly Flood Study prepared by Stanley Consultants Incorporated

**Timeline:** Long-range

**Responsible Party:** City Council, Army Corps of Engineers, IDNR, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #11: Implement projects identified for the Cedar Lane Bike Path.**

**Analysis:** Two options were identified for the Cedar Lane Bike Path in the 2001 Waverly Flood Study. The first option was to widen Cedar Lane by 14 feet. The second option called for the construction of a 14-foot wide bench at the approximate 5-year flood level. The construction of the bike trail would provide an excellent addition to existing facilities for recreational purposes. These two options were initially discouraged by the Department of Natural Resources because both alternatives would likely require fill to be placed in the floodway. Construction methods that would satisfy floodplain requirements and still provide adequate facilities are being explored.

**Timeline:** Long-range

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity#12: Construct a dike and levee system in SE Waverly, near SE 7<sup>th</sup> Avenue**

**Analysis:** Southeastern Waverly is in dire need of flood protection. The area near SE 7<sup>th</sup> flooded to 500 year flood event levels in 2008. Many homes had water on the first floor. Creating a dike and levee system will protect these homes at certain flood levels if constructed properly. At a minimum a dike and levee system offers some protection where there is currently none.

**Timeline:** Immediate

**Responsible Party:** City Council, City Engineer, Army Corps of Engineers, FEMA, IDNR

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity#13: Enhance and maintain storm sewer capacity**

**Analysis:** Enhancing storm sewer capacity will mitigate many negative flooding impacts on the community. During the 2008 flood, there were reports that several homes would have never gotten water in the home if the storm sewer capacity could have handled the excess water from the flood. Several homes were damaged from the flood water backing up in the storm sewer and into basements.

**Timeline:** Ongoing

**Responsible Party:** City Council, City Engineer

**Related Hazard Mitigation Goal #:** 1, 3, and 4

**Activity#14: Create a Regional Watershed Management Plan to address flooding concerns (wetland areas, detention ponds, etc.)**

**Analysis:** The primary challenge to creating a regional watershed management plan will be developing an overall consensus along the entire watershed. Nevertheless, to comprehensively reduce the negative impacts of flooding and achieve desirable results it is going to take a collective effort on the part of all jurisdictions both up stream and down.

**Timeline:** Ongoing

**Responsible Party:** Army Corps of Engineers, IDNR, FEMA, City Council, City Staff, County EMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #15: Monitor and enforce drainage regulations on residential, commercial and industrial developments**

**Analysis:** Whenever possible, drainage should be reduced by the appropriate agencies monitoring and enforcing drainage regulations. This activity not only reduces flooding, decreases run-off, and also contributes to a reduction in pollution in our streams, lakes, and rivers.

**Timeline:** Ongoing

**Responsible Party:** City Council, City Engineer, Planning Commission

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #16: Consider dredging the river**

**Analysis:** Although not currently viewed as a long term solution for the city, dredging the river could maintain a higher water volume for a limited period of time. In the future this could become more of a viable option if run-off and flood plain management is conducted at a regional watershed level.

**Timeline:** Long-term

**Responsible Party:** City Council, City Engineer, Army Corps of Engineers, IDNR, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #17: Dry Run Creek obstruction and flash flooding analysis and mitigation activities (3<sup>rd</sup> Street Bridge Removal, Cedar River Trail Bridge Removal, etc.)**

**Analysis:** Flooding in Dry Run Creek is a re-occurring problem in need of attention. Stanley Consultants studied this area after the flood of 2008. Removing structures and debris that impede flood waters from flowing freely was discussed as one strategy. Other methods included widening and deepening Dry Run Creek in order to increase its water volume in the event of a flood.

**Timeline:** Immediate

**Responsible Party:** City Council, City Engineer, Army Corps of Engineers, IDNR, FEMA

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #18: Purchase removable, portable flood barriers**

**Analysis:** Removable, portable flood barriers offer the City a potentially affordable flood mitigation measure for some areas of the community. Another positive aspect of these barriers is that they act as an alternative to constructing permanent flood barriers which would jeopardize the aesthetic appearance of the river.

**Timeline:** Immediate

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 1, 2, 3, and 4

**Activity #19: Create a flood mitigation and evacuation brochure**

**Analysis:** The purpose of this brochure would be to provide emergency information and public education on the safety procedures and evacuation requirements that should be followed in the event of a flood emergency.

**Timeline:** Immediate

**Responsible Party:** City Council, City Staff

**Related Hazard Mitigation goal #:** 1, 2, 3 and 4

**Activity #20: Develop a flood response protocol for response, sand bagging and evacuation procedures**

Analysis: The purpose of this protocol would be to provide an emergency plan for safety, sandbagging, and evacuation procedures that should be followed in the event of a flood emergency.

Timeline: Immediate

Responsible Party: City Council, City Staff

Related Hazard Mitigation goal #: 1, 2, 3 and 4

**Activity #21: Continue to study additional mitigation alternative for SE Waverly**

Analysis: Flooding is a re-occurring problem in SE Waverly. Any and all feasible activities which have the potential to mitigate negative flooding impacts should be researched and potentially implemented.

Timeline: Long term

Responsible Party: City Council, City Staff

Related Hazard Mitigation goal #: 1, 2, 3 and 4

**Transportation Mitigation****Activity #1 Continue to provide necessary training to Fire Department personnel, Police Department personnel, first responders and ambulance crews.**

Analysis: In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques.

Timeline: Ongoing

Responsible Party: Fire Department, Police Department, Ambulance Service, City Council, First Responders

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #2 Maintain existing Mutual Aid Agreements with surrounding communities for mutual aid fire assistance.**

Analysis: The City of Waverly currently holds several agreements with surrounding communities to provide and be provided mutual assistance in times of disaster. The communities within Bremer County have been and should continue to cooperate to ensure mutual assistance to one another.

Timeline: Ongoing

Responsible Party: City Council, County Fire Association, County Police Association, Ambulance Department

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #3: Educate local residents about safe driving techniques.**

Analysis: Nearly all of the transportation events that occur in Waverly are the result of individual traffic accidents. Injuries resulting from traffic accidents can often be diminished by educating drivers about existing laws and safe driving techniques.

Timeline: Ongoing

Responsible Party: Police Department

Related Hazard Mitigation Goal #: 2 and 3

**Activity #4: Enforce existing laws**

Analysis: This mitigation activity is an ongoing activity for the City of Waverly's Police Department. Waverly Police officers are fully capable of upholding and enforcing the law and should continue to do so.

Timeline: Ongoing

Responsible Party: Police Department

Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #5: Manage traffic lights for emergency purposes**

Analysis: The ability to manage the traffic lighting system enhances the community's ability to respond in the event of an emergency. The end goal of this activity is to allow emergency vehicles to pass traffic freely with minimal interference.

Timeline: Long-term

Responsible Party: City Engineer, Police Department, Fire Department

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #6: Upgrade current traffic signals (integrate pedestrian friendly features, ADA friendly features, and alternative lighting schemes)**

Analysis: Integrating pedestrian or ADA friendly traffic light features offers a significant benefit to the public. Furthermore, the chance of a vehicle-pedestrian accident may be reduced greatly.

Timeline: Long-term

Responsible Party: City Engineer

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #7: Research railway concerns**

Analysis: At any given time, rail cars carry a number of materials that could be potentially harmful to humans, animals and nature should the train derail and the material be spilled. The City should understand what to do and who is to do what in these events. A railway protocol may be needed to provide the appropriate agencies basic guidelines to work within during these events.

Timeline: Long-term

Responsible Party: City Engineer, City Council

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #8: Study and consider the 10<sup>th</sup> Avenue extension**

Analysis: The need for the 10th Avenue South extension became apparent during the 2008 flooding when all there of the bridges across the Cedar were unusable. If an emergency would have occurred Police and Fire would have had to travel an extended route to get to citizens in need. With this extension a larger bridge will be built with the intention of it being able to be used during a high water event. This additional route will also alleviate traffic significantly in the downtown area.

Timeline: Immediate

Responsible Party: City Engineer

Related Hazard Mitigation Goal #: 2, 3, and 4

**Communications Failure Mitigation****Activity #1 Upgrade radio communications equipment as needed.**

Analysis: Two-way radios are a standard means of communication between city departments. Outdated radio communication equipment could potentially hinder the city's response time and/or the provision of necessary services in the event of a hazard emergency. Continually upgrading radio communications systems would increase the city's ability to respond as needed to a hazard situation.

Timeline: Ongoing

Responsible Party: E911 Board, City Council, City Staff

Related Hazard Mitigation Goal #: 2, 3 and 4

**Activities #2 Regularly review and amend Fire, Medical, and Hazardous Material response standard operating procedures.**

Analysis: Regular review of the standard operations regarding disaster response is a necessary step in ensuring that the appropriate measures are taken in time of disaster. Plans should be reviewed to ensure the maximum level of response and the plans should be coordinated so as not to interfere or overlap responsibilities between responsible parties, unless that is the intent of the plans.

Timeline: Ongoing  
 Responsible Party: Fire Department, Police Department, Ambulance Department, Waverly Municipal Hospital, NE Iowa Response Group  
 Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #3 Work in conjunction with Bremer County to acquire a shared Mobile Command Center.**

Analysis: A second command sight should be available in case the primary sight is rendered unusable for any number of reasons. This would help to ensure coordination in times of disaster, particularly if the primary site is affected or if it is cut off from one side of the river to the other. A mobile or second command center would meet this need and could be transported to disaster sites, thereby increasing communications and emergency response efficiency.

Timeline: Long-term  
 Responsible Party: Fire Department, Police Department, Ambulance Service, City Council, County Board of Supervisors, E911 Board  
 Related Hazard Mitigation Goal #: 4

**Activity #4: Continue to develop and maintain Crisis Communication Plan**

Analysis: The Crisis Communication Plan should be a comprehensive plan that addresses all hazards and every possible situation that may occur in the event of a hazard. Maintenance of this document will need to be completed regularly, including before, during and after every hazard event.

Timeline: Ongoing  
 Responsible Party: Fire Department, Police Department, City Staff, County EMA  
 Related Hazard Mitigation Goal #: 4

**Activity#5: Enhance coordination of disaster plans in the community**

Analysis: Utilizing all resources in the event of a hazard enhances the ability of the entire community to respond to a hazard in addition to returning the community to pre-disaster conditions. The more people know and are involved the more they can contribute to a situation.

Timeline: Ongoing  
 Responsible Party: City Staff, Police Department, Fire Department, County EMA  
 Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Watershed Pollution Mitigation**

**Activity #1 Continue to follow monitoring requirements set forth by the Iowa Department of Natural Resources (IDNR)/Environmental Protection Agency (EPA).**

Analysis: The IDNR and EPA have set forth requirements for the monitoring of city wells and water systems. This monitoring will serve to notify the community of any contamination of its water supply. The Waverly Public Works Department has consistently complied with all monitoring requirements. The City of Waverly intends on continuing its well and water monitoring system into the future.

Timeline: Ongoing  
 Responsible Party: Public Works Department  
 Related Hazard Mitigation Goal #: 1 and 2

**Activity #2: Continue further development of and update of the storm water management program.**

Analysis: The development of a storm water management program is not yet required for cities the size of Waverly. This being said, storm water is an acknowledged challenge for the city. In addition, it is possible that development of a storm water management program will be a requirement in the not so distant future.

A storm water management program would include several different requirements. First, it would involve a public education. Second, the development of the program would require public involvement and participation. Third, steps would have to be taken to detect and eliminate illicit discharge from storm water drainage before it entered its primary water body. Fourth, some sort of post construction storm water management would need to be in place. Finally, pollution prevention/good housekeeping education and oversight would need to be provided for all municipal operations

Timeline: Ongoing

Responsible Party: City Council, Public Works Director, City Engineer

Related Hazard Mitigation Goal #: 1, 2, and 3

**Activity #3: Continue Wastewater Facility Storm Water Program.**

Analysis: The City currently has in place a Wastewater Facility Storm Water Program to address issues concerning the infiltration of storm water into the wastewater system. This program should be continued into the future.

Timeline: Ongoing

Responsible Party: City Council, Public Works Director, City Engineer

Related Hazard Mitigation Goal #: 1, 2, and 3

**Fire Mitigation**

**Activity #1 Continue to provide necessary training to Fire Department personnel, Police Department personnel and ambulance crews.**

Analysis: In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques. The City plans to offer this training on an annual basis in the future.

Timeline: Ongoing

Responsible Party: Fire Department, Police Department, Ambulance Service,

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #2 Maintain existing and purchase new firefighting equipment as needed.**

Analysis: The City recognizes the importance of providing necessary equipment to its emergency response departments. Provision of updated and necessary equipment helps to ensure that emergency personnel are prepared to respond to hazard events and are equipped with the most current emergency response equipment.

Timeline: Ongoing

Responsible Party: Fire Department, City Council

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #3 Upgrade radio communications equipment as needed.**

Analysis: Two-way radios are a standard means of communication between city departments. Outdated radio communication equipment could potentially hinder the city's response time or the provision of necessary services in the event of a hazard emergency. Continually upgrading radio communications systems would increase the city's ability to respond as needed to a hazard situation.

Timeline: Ongoing

Responsible Party: E911 Board, City Council, City Staff

Related Hazard Mitigation Goal #: 2, 3 and 4

**Activity #4 Maintain existing Mutual Aid agreements with surrounding communities for mutual aid fire assistance.**

Analysis: The City of Waverly currently holds several agreements with surrounding communities to provide and be provided mutual assistance in times of disaster. The communities within Bremer County have been and should continue to cooperate to ensure mutual assistance to one another.

Timeline: Ongoing

Responsible Party: City Council, County Fire Association, County Police Association, Ambulance Department

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activities #5 Systematically review, make necessary improvements to, and enforce building code requirements.**

**Analysis:** Building codes are constantly changing. Therefore, in order to enforce standards for the protection of life, limb, property, environment, and for the safety and welfare of the general public, building codes should be occasionally updated. This will allow the codes to reflect the safest known construction methods without restricting growth.

**Timeline:** Ongoing

**Responsible Party:** City Council, Building Inspector

**Related Hazard Mitigation Goal #:** 2, 3, and 4

**Activity #6 Enforce City guidelines for burning.**

**Analysis:** The City currently has enforced guidelines that regulate open burning within the city limits. Proper enforcement of the guidelines will help prevent large fire events causing property damage and injury or fatalities as well as protect air quality in the community. The City will continue to enforce these guidelines and update them as needed.

**Timeline:** Ongoing

**Responsible Party:** Police Department, City Council, Fire Department

**Related Hazard Mitigation Goal #:** 2 and 3

**Activity #7 Create an annual fire inspection program for commercial and industrial properties.**

**Analysis:** An annual fire inspection of all commercial and industrial properties, conducted by the City Building Inspector and Fire Chief would help mitigate future fires.

**Timeline:** Long-term

**Responsible Party:** City Council, Building Inspector, Fire Department

**Related Hazard Mitigation Goal #:** 2 and 3

**Activity #8 Create a bay at and alternate site that can serve as an emergency storage site for emergency vehicles.**

**Analysis:** During an extreme flooding or other events, it is possible that the bridges in the city could become impassable due to safety considerations. In this instance, the east side of the city would be cut off from fire and ambulance service. Creation of an emergency vehicle bay in an alternate site would provide an area to keep vehicles in the event of a large flood or other similar events.

**Timeline:** Long-term

**Responsible Party:** City Council, Police Department, Fire Department, Ambulance Department

**Related Hazard Mitigation Goal #:** 1, 2, and 3

**Activity #9 Continue to install and update surge protectors on major electric lines.**

**Analysis:** Power surge is an additional hazard often associated with thunderstorm events. Power surges can be the result of lightning strikes or power failures, including fires that may occur subsequent to a lightning strike. This can be a hazard for residents individually and for the city as a whole, especially if communications are disabled. In addition, power surges that occur during thunderstorms can cause property damage to a variety of equipment and structures. By installing surge protectors on the major electrical lines, the city will be reducing the chance that a thunderstorm event could cause a power surge.

The city utility, Waverly Light and Power has already installed a number of surge protectors on its major lines. Continuation of this program would be a beneficial mitigation technique.

**Timeline:** Ongoing

**Responsible Party:** Waverly Light and Power

**Related Hazard Mitigation Goal #:** 2 and 3

**Activity #10 Purchase new generators to provide emergency power in times of need.**

**Analysis:** Currently, the city maintains generators as an emergency backup at the fire department and law center. In addition, the public works department has one portable generator for use in emergency situations. Purchasing additional generators would help to ensure continued communications during and after a disaster.

Timeline: Long-term  
 Responsible Party: City Council  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #11: Create and Participate in an annual fire inspection program

Analysis: A main duty of the Fire Department is to safeguard life and property from the hazards of fire. A proactive attempt to ensure the safety of and all multi-family apartment buildings. If a fire code violation were found during inspection, an order of correction could be issued to correct the problem and a re-inspection date would be scheduled to guarantee compliance. The Fire Department would also keep all records for each inspected building.

Timeline: Ongoing  
 Responsible Party: City Council, Fire Department  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #12: Develop a comprehensive list of alternative routes for different fire scenarios

Analysis: In any given fire situation a number of unpredictable obstacles are presented to the local Fire Department. Road maintenance, unusable bridges or any other barrier justifies the need for a list of alternative routes. This issue became apparent in the 2008 flooding when all three of the bridges across the Cedar River were closed due to high water levels. If a fire would have started it would have been useful for the Fire Department to know the next quickest route to the other side of town. Obviously, the route list must be updated regularly.

Timeline: Immediate/Ongoing  
 Responsible Party: City Council, City Staff, Fire Department  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #13: Enhance communication amongst the private sector, public sector, media outlets and citizens

Analysis: Enhancing communication amongst all sectors is very valuable in the event of a hazard. An effective communication network is able to keep citizens out of harms way and allow Police and Fire to deal with situations accordingly without interference. In addition, increasing awareness aids the ability of other entities such as hospitals or ambulance services to prepare accordingly for the situation.

Timeline: Ongoing  
 Responsible Party: City Council, Fire Department, Police Department  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #14: 10<sup>th</sup> Avenue South Extension

Analysis: The need for the 10th Avenue South extension became apparent during the 2008 flooding when both bridges across the Cedar were unusable. If an emergency would have occurred Police and Fire would have had to travel an extended route to get to citizens in need. With this extension a larger bridge will be built with the intention of it being able to be used during a high water event. This additional route will also alleviate traffic significantly in the downtown area.

Timeline: Immediate  
 Responsible Party: City Engineer  
 Related Hazard Mitigation Goal #: 2, 3, and 4

### Expansive Soils Mitigation

#### Activity #1: Educate the public on potential hazards

Analysis: Preserving the public's safety and security can not be done any more effectively or efficiently than simply educating them on issues. Increase awareness of the hazards existence may motivate citizens to take precautionary actions which are beneficial to the entire community.

Timeline: Ongoing  
 Responsible Party: City Council, City Engineer, County Conservation, DNR, Citizens  
 Related Hazard Mitigation Goal #: 3 and 4

**Activity #2: Utilize water sampling as required**

Analysis: Utilizing sampling techniques may provide a better understanding of specific types of soils in particular locations. Understanding why certain soils expand may also allow developers and builders to adjust building practices and ultimately mitigate long-term damage. The Bremer County 2008 soil sample survey could serve as an excellent resource in mitigating the negative impacts of expansive soils in the City of Waverly.

Timeline: Long-term

Responsible Party: City Engineer, County Conservation, DNR, NRCS

Related Hazard Mitigation Goal #: 3 and 4

**Activity#3: Map vulnerable areas**

Analysis: Identifying vulnerable locations will allow the City to enforce building and zoning ordinances which will mitigate long term damage to public and private infrastructure that may occur otherwise.

Timeline: Ongoing

Responsible Party: City Engineer

Related Hazard Mitigation Goal #: 4

**HAZMAT Mitigation****Activity #1: Continue to provide necessary training to Fire Department personnel, Police Department personnel, First Responders, and ambulance crews.**

Analysis: In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques. The City plans to offer this training on an annual basis in the future.

Timeline: Ongoing

Responsible Party: Fire Department, Police Department, Ambulance Service,

Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #2: Provide hazardous materials education for industry and community, including household chemical education.**

Analysis: It is the City's belief that educating the public about hazardous chemicals will hopefully result in fewer hazardous chemical events. Knowledge regarding common hazardous chemicals and the proper disposal methods will aid residents in making the correct disposal decisions regarding their household chemicals. In addition, providing similar information to local industry will aid business owners in making the proper decisions regarding the disposal of commercial hazardous wastes.

Timeline: Ongoing

Responsible Party: Fire Department, Bremer County Emergency Management

Related Hazard Mitigation Goal #: 2 and 3

**Activity #3: Continue to work with Tri-County Drug Task Force regarding methamphetamine lab detection and clean-up.**

Analysis: The City's partnership with the Tri-County Drug Task Force provides the emergency services departments in the city with an invaluable asset. The Task Force provides clean-up services in the event that a methamphetamine lab is found in the city. This eliminates the City's need to provide expensive training and equipment to its fire and police departments and provides an important resource for the community. The City plans to continue this partnership into the future.

Timeline: Ongoing

Responsible Party: City Council, Fire Department, Ambulance Service, Police Department, Tri-County Drug Task Force

Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #4: Maintain existing Mutual Aid Agreements with surrounding communities for mutual aid assistance.**

Analysis: The City of Waverly currently holds several agreements with surrounding communities to provide and be provided mutual assistance in times of disaster. The communities within Bremer County have been and should continue to cooperate to ensure mutual assistance to one another.

Timeline: Ongoing  
 Responsible Party: City Council, County Fire Association, County Police Association, Ambulance Department  
 Related Hazard Mitigation Goal #: 2, 3, and 4

### Dam Failure Mitigation

#### Activity #1: Continue to make necessary inspections and repairs to existing dam.

Analysis: The City currently inspects the dam on an annual basis. This helps to ensure that any potential problems are spotted and corrected in a timely manner.  
 Timeline: Ongoing  
 Responsible Party: Waverly Light and Power, City Council  
 Related Hazard Mitigation Goal #: 1, 2, and 3

#### Activity #2: Consider replacing the existing power dam with an Inflatable Dam.

Analysis: This concept involves the construction of a rubber inflatable dam in place of the current dam. This would allow the dam to be deflated during high water events thus allowing more water to escape downstream at a faster rate. Then, during normal flow, the dam could be inflated in order to maintain a pool.  
 There were two alternatives identified for the dam construction. The first required the construction of a 7.7-foot high dam. This alternative predicted that it would be able to contain a 100-year flood event almost entirely within the river channel. The second option called for the construction of a 5.5 foot dam with additional freeboard in the form of three foot high levees along the river. This would be a lower cost alternative while maintaining the view of the river of the community.  
 More details of this project can be found by referencing the 2001 and 2008 Waverly Flood Study prepared by Stanley Consultants Incorporated.  
 Timeline: Immediate  
 Responsible Party: City Council, City Engineer, Army Corps of Engineers, Stanley Consultants  
 Related Hazard Mitigation Goal #: 1, 2, and 3

### Grass/ Wild Land Fires Mitigation

#### Activity #1: Educate the Public

Analysis: The public must understand the dangers of a grass or wild land fire. These hazards have the ability to consume life and property within a matter of minutes. The ability for the local fire department to contain and extinguish one of these fires is limited. By educating the public and helping them to understand when to burn, how to burn safely and who to contact in the event of an emergency is vital to the community's safety and security.  
 Timeline: Ongoing  
 Responsible Party: City Council, City Staff  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #2: Identify Alternative Water sources

Analysis: These types of fires typically happen in areas located outside of city limits or just on the fringe. Traditional water hydrants are often unavailable for use in these areas. To effectively contain and extinguish these fires a water source will be needed. Preparing ahead of time by creating a list of these sources will better enhance the ability of the Fire Department to deal with these events.  
 Timeline: Long-term  
 Responsible Party: City Engineer, Fire Department, Police Department  
 Related Hazard Mitigation Goal #: 2, 3, and 4

#### Activity #3: Equip and train appropriate organizations for a hazard

Analysis: The ability to effectively act and continue normal operations in the event of a hazard, with minimal error, depends heavily on an organizations training and equipment capacity.  
 Timeline: Ongoing  
 Responsible Party: City Council, Fire Department, Police Department,  
 Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #4: Maintain Mutual Aid Agreements**

**Analysis:** In the event of an extremely dangerous and uncontrollable hazard the local Fire Department may need assistance from surrounding fire departments to effectively contain and extinguish a grass of wild land fire. The objective of the fire department is to preserve as much life and property as feasibly possible. Reaching out for mutual aid is an effective strategy to achieve this objective.

**Timeline:** Long-term

**Responsible Party:** Fire Department, Police Department, County EMA

**Related Hazard Mitigation Goal #:** 2, 3, 4, and 5

**Activity #5: Maintain Fire Department equipment and personnel training**

**Analysis:** In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques. The City plans to offer this training on an annual basis in the future.

**Timeline:** Ongoing

**Responsible Party:** Fire Department, Police Department, Ambulance Service,

**Related Hazard Mitigation Goal #:** 2, 3, 4, and 5

**Activity #6: Maintain Intergovernmental cooperation (i.e. cost sharing\_)**

**Analysis:** In the event of a grass/wild land fire that impacts multiple jurisdictions, intergovernmental cooperation essential. Cost sharing will ease the associated burdens inflicted upon the jurisdictions city/county staff and officials by such an event. Full recovery will be better and more quickly achieved in a collective effort.

**Timeline:** Ongoing

**Responsible Party:** Fire Department, Police Department, City Council

**Related Hazard Mitigation goal #:** 2, 3, 4, and 5

**Excessive Heat Mitigation****Activity #1 Establish local "Cooling Sites" for at risk populations such as the elderly and/or disabled.**

**Analysis:** Many at risk groups such as the elderly, disabled and others may not be able to afford the needed cooling systems for their homes. These persons would be at extreme risk for illness, injury, or death in the event of an extreme heat event. By establishing local "Cooling Sites" in the community, the city would be providing a shelter for those in need during the event, thereby reducing the risk to the community and mitigating the effects of the hazard.

**Timeline:** Long-term

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 2 and 3

**Explosion Mitigation****Activity #1: Continue to provide necessary training to Fire Department personnel, Police Department personnel, First Responders, and ambulance crews.**

**Analysis:** In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques. The City plans to offer this training on an annual basis in the future.

**Timeline:** Ongoing

**Responsible Party:** Fire Department, Police Department, Ambulance Service,

**Related Hazard Mitigation Goal #:** 2, 3, 4, and 5

**Activity #2: Maintain existing 28E agreements with surrounding communities for mutual aid fire assistance.**

Analysis: The City of Waverly currently holds several agreements with surrounding communities to provide and be provided mutual assistance in times of disaster. The communities within Bremer County have been and should continue to cooperate to ensure mutual assistance to one another.

Timeline: Ongoing

Responsible Party: City Council, County Fire Association, County Police Association, Ambulance Department

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #3: Encourage local utilities to upgrade equipment used to locate and identify underground utility lines.**

Analysis: Puncture of underground utility lines, especially gas lines, can result in an explosion and fire. By upgrading equipment to include the latest technology, utility providers can help prevent these types of accidents by more accurately identifying underground utility lines.

Timeline: Ongoing

Responsible Party: Iowa One Call

Related Hazard Mitigation Goal #: 2 and 3

**Activity #4: Upgrade radio communications equipment as needed.**

Analysis: Two-way radios are a standard means of communication between city departments. Outdated radio communication equipment could potentially hinder the city's response time or the provision of necessary services in the event of a hazard emergency. Continually upgrading radio communications systems would increase the city's ability to respond as needed to a hazard situation.

Timeline: Ongoing

Responsible Party: E911 Board

Related Hazard Mitigation Goal #: 2, 3 and 4

**Activity #5: Purchase new generators to provide emergency power in times of need.**

Analysis: Currently, the city maintains generators as an emergency backup at the fire department and law center. In addition, the public works department has one portable generator for use in emergency situations. Purchasing additional generators would help to ensure continued communications during and after a disaster.

Timeline: Long-term

Responsible Party: City Council

Related Hazard Mitigation Goal #: 2, 3, and 4

**Terrorism Mitigation Activities****Activity #1: Review and update Incident Command process as needed.**

Analysis: Standard review of the Incident Command process would ensure the city emergency response units were prepared for any emergency and/or hazard events that may occur.

Timeline: Ongoing

Responsible Party: Fire Department, Police Department, Ambulance Service, Public Works Department, City Employees, City Council

Related Hazard Mitigation Goal #: 2, 3, 4 and 5

**Activity #2: Evaluate current terrorism mitigation efforts.**

Analysis: In an effort to identify terrorism mitigation needs, the city must evaluate current efforts. Once this is done, areas of need can be identified and addressed appropriately. The City will continue to evaluate its terrorism mitigation efforts on an ongoing basis into the future.

Timeline: Ongoing

Responsible Party: City Council, Public Works Department, Fire Department, Police Department, Ambulance Service, Bremer County Emergency Management.

Related Hazard Mitigation Goal #: 2 and 3

**Activity #3: Increase measures taken to protect and the city's critical infrastructure.**

**Analysis:** The City water system and sanitary sewer system are aspects of the community that are vulnerable to terrorism. Terrorism aimed at those facilities could have a detrimental effect on the entire community, resulting in property damage, multiple injuries, or fatalities. Protection of these facilities by a number of means is the ideal; however, many protection methods require funding the city does not have available. The City feels that installing video cameras at well sites and water treatment plant would serve to protect those sites from potential terrorist activities. The City will continue to explore funding sources aimed at the protection of critical sites and facilities from terrorism.

**Timeline:** Ongoing

**Responsible Party:** City Council, Public Works Department

**Related Hazard Mitigation Goal #:** 2 and 3

**Earthquake Mitigation****Activity #1: Systematically review, make necessary improvements to, and enforce building code requirements.**

**Analysis:** Building codes are constantly changing. Therefore, in order to provide minimum standards for the protection of life, limb, property, environment, and for the safety and welfare of the general public, building codes should be occasionally updated. This will allow the codes to reflect the safest known construction methods without restricting growth.

**Timeline:** Ongoing

**Responsible Party:** City Council, Building Inspector

**Related Hazard Mitigation Goal #:** 2, 3, and 4

**Activity #2: Improve public awareness of proper steps to be taken in the event of an earthquake.**

**Analysis:** Public officials should develop a plan of action to ensure public awareness of the necessary precautions that should be taken in the event of an earthquake. Such a plan may include a short lesson provided through the local school system to children. Other ideas commonly used for public awareness include pamphlets and public notices.

**Timeline:** Ongoing

**Responsible Party:** Bremer County Emergency Management

**Related Hazard Mitigation Goal #:** 2 and 3

**Drought Mitigation****Activity #1: Enforce City/County guidelines for burning.**

**Analysis:** The City currently enforces guidelines that regulate open burning within the city limits. Proper enforcement of the guidelines will help prevent large fire events causing property damage and injury or fatalities. The City will continue to enforce these guidelines and update them as needed.

**Timeline:** Ongoing

**Responsible Party:** Police Department

**Related Hazard Mitigation Goal #:** 2 and 3

**Activity #2: Purchase new generators to provide emergency power in times of need.**

**Analysis:** Currently, the city maintains generator as an emergency backup at the fire department and law center. In addition, the public works department has one portable generator for use in emergency situations. While the fire department and law center generators are adequate, the public works department's generator is not large enough to meet all its needs. The generator is large enough to power some lift stations, but not large enough to power the main lift station or water treatment plant. In addition, the communications center are city hall are currently without generators. Purchasing additional generators would better enable the city to address electricity needs in the event of a power failure.

**Timeline:** Long-term

**Responsible Party:** City Council

**Related Hazard Mitigation Goal #:** 2, 3, and 4

**Disease Mitigation****Activity #1: Educate the community about dangerous human and animal diseases.**

Analysis: Human and/or animal diseases can have a devastating effect on a community. Knowledge about the causes, symptoms, and response to diseases can reduced the threat of disease and increase community reaction time in the event of a disease outbreak.

Timeline: Ongoing

Responsible Party: Bremer County Health Department

Related Hazard Mitigation Goal #: 2 and 4

**Activity #2: Adhere to the County's current Quarantine Plan**

Analysis: A quality Quarantine Plan will enable the appropriate agencies to isolate communicable diseases and prevent uncontrolled spreading of the disease through the community. This protocol will effectively minimize harm and injury to the community as a whole.

Timeline: Ongoing

Responsible Party: County Health Department, Hospitals, County EMA

Related Hazard Mitigation Goal #: 2 and 4

**Activity #3: Adhere to the current FAD (Foreign Animal Disease) Plan**

Analysis: The primary challenge to maintaining the current FAD plan will be continually reviewing and updating the plan as new FAD's become applicable to the community. A number of variables should be considered when developing this plan including all modes of transportation and agricultural practices.

Timeline: Ongoing

Responsible Party: County EMA, County Health Department

Related Hazard Mitigation Goal #: 2 and 4

**Activity #4: Implement training and exercises for appropriate agencies and personnel**

Analysis: Adequate training and exercises may include: practicing protocols, identifying concerns, correcting concerns, practicing corrections, budgeting for correct protocols and purchasing appropriate equipment needed to effectively execute the protocols.

Timeline: Ongoing

Responsible Party: County EMA, Hospitals, Fire Department, Police Department, County Health Department

Related Hazard Mitigation Goal #:

**Activity #5: Evaluate equipment and personnel capacity**

Analysis: In the past the City has been active in providing necessary training to its emergency service personnel. This training helps to ensure that emergency personnel are prepared to respond to hazard events and are trained in the most current emergency response techniques. The City plans to offer this training on an annual basis in the future..

Timeline: Ongoing

Responsible Party: County EMA, Hospitals, Fire Department, Police Department, County Health Department

Related Hazard Mitigation Goal #: 4

**Nuclear Hazard Mitigation****Activity #1: Review and update Incident Command process as needed.**

Analysis: Standard review of the Incident Command process would ensure the city emergency response units were prepared for any emergencies and/or hazard events that may occur.

Timeline: Ongoing

Responsible Party: Fire Department, Police Department, Bremer County Emergency Management

Related Hazard Mitigation Goal #: 2, 3, 4, and 5

**Activity #2: Determine possible sheltering locations to be used in the event of a nuclear emergency.**

Analysis: Due to the city's distance from the Duane Arnold Nuclear Facility in Palo, it is estimated that in the event of a disaster event at the facility, the city may serve as a site for those persons living near the facility who have to relocate due to fallout. The City should determine possible sheltering locations that could be used in the event of such a disaster.

Timeline: Long-term

Responsible Party: City Council, Police Department, Bremer County  
Emergency Management

Related Hazard Mitigation Goal #: 2, 3, and 4

**Riot/Violent Demonstration Mitigation****Activity #1: Ensure police and other public safety officials have proper training.**

Analysis: In the event of a civil disturbance, it would be important that the emergency response personnel had received the proper training and could adequately respond to such an event.

Timeline: Ongoing

Responsible Party: Police Department

Related Hazard Mitigation Goal #: 2, 3, and 4

**Activity #2: Purchase specialized equipment**

Analysis: In the event of riot/violent demonstration specialized equipment will enable law enforcement to better protect themselves as well as the public.

Timeline: Ongoing

Responsible Party: Police Department, City Council

Related Hazard Mitigation goal #: 2, 3, 4, and 5

**Sinkhole Mitigation Activities****Activity #1: Educate city personnel and the public regarding sinkholes.**

Analysis: Should a large sinkhole occur, it would be important for city personnel to know how to respond to sinkholes and for the public to know whom to contact in the event they should discover a sinkhole within city limits.

Timeline: Ongoing

Responsible Party: Iowa Department of Natural Resources

Related Hazard Mitigation Goal #: 2 and 3

**Levee Failure Mitigation****Activity #1: Educate the public**

Analysis: Currently no man-made levees exist in the City limits of Waverly. However, future flood mitigation activities could lead to the implementation of these structures. When and if levees are built in Waverly, city staff, officials and the public will need to be educated on proper response procedures.

Timeline: Ongoing

Responsible Party: City Engineer, City Council

Related Hazard Mitigation goal #: 2 and 4

**Bridge Failure Mitigation****Activity #1: Continue bridge inspection program.**

Analysis: The City currently inspects the three city bridges on an annual basis. This helps to ensure that any potential problems are spotted and corrected in a timely manner.

Timeline: Ongoing

Responsible Party: City Engineer

Related Hazard Mitigation Goal #: 2 and 3