



ECONOMIC ADJUSTMENT
DISASTER RECOVERY ASSISTANCE

PROJECT # 05-69-04689

AREA 15 REGIONAL PLANNING COMMISSION
P.O. Box 1110
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Area 15 EDD Disaster Recovery Strategy

Prepared under an Award from the
U.S. Department of Commerce
Economic Development Administration

This publication was prepared by the Area 15 Regional Planning Commission. The statements, findings, conclusions, and recommendations are those of the author and do not necessarily reflect the views of the Economic Development Administration.

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ABSTRACT

Area 15 Regional Planning Commission requested and received a grant of \$140,000 in November of 2008 from the Economic Development Administration (EDA) to hire a Flood Coordinator and develop a Disaster Recovery Strategy. The purpose of the Disaster Recovery Strategy and Flood Coordinator was to respond to the severe winter storms of 2007 and flooding of 2008.

- FEMA-1737-DR - Severe Winter Storms of December 10-11, 2007; and
- FEMA-1763-DR – Severe Storms, Tornadoes & Flooding of May 25 – August 13, 2008

The Area 15 Economic Development District (EDD) Disaster Recovery Strategy provides a framework for local jurisdictions to effectively and efficiently recover from the FEMA 1737 and 1763 disasters by developing long-term strategies to mitigate against future disaster impacts and repetitive losses. Specifically this plan will concentrate on the following:

Assessment	Assess damage and losses caused by the 2007 winter storms and 2008 spring flooding events.
Prioritization	Prioritize long term recovery goals, projects, and needs.
Education	Facilitate training and education to government officials & citizens for future disaster events.
Support	Assist communities in disaster recovery efforts by providing direct technical assistance or referring to other assistance.

EXECUTIVE SUMMARY

The purpose for this EDA Economic Adjustment Disaster Recovery Assistance is to support the Economic Development District (EDD) organization impacted by the Presidential Disaster Declarations FEMA-1763-DR and FEMA-1737-DR. Funding assistance is targeted to devising long-term economic redevelopment and implementation strategies to address economic development challenges caused by the disasters. The Area 15 Regional Planning Commission is the designated EDD organization for a ten (10) county geographic region in southern Iowa. All ten (10) counties within the Area 15 EDD are covered under either Disaster Declaration 1737 or 1763, including: Appanoose, Mahaska, Jefferson, Keokuk, Wapello, Davis, Lucas, Monroe, Wayne and Van Buren. The total population of the area is 140,206.

Upon funding, Area 15 EDD staff surveyed the local jurisdictions (city and county government bodies) to identify damages caused by the severe winter storms of 2007 and flooding/flash floods of 2008. The data was categorized into the following sectors:

- Business and Industry: industrial parks, central business districts, railroads, and agriculture industries.
- Housing: all types of housing units.
- Public Facilities: public buildings, parks and recreational trails.
- Public Works and Utilities: water distribution and treatment, wastewater collection and treatment, storm water collection, levees, electric, natural gas, communication.
- Transportation: streets, highways, bridges, rail, air.

Area 15 staff worked directly with local Emergency Management Coordinators and local governments to develop recovery and implementation strategies. This included the following activities:

- Compiling a needs assessment of, but not limited to, public infrastructure and facilities, multi-modal transportation systems, commercial/industrial, and residential properties in order to identify/inventory disaster recovery activities;
- Prioritizing projects for technical, planning, and/or financial assistance;
- Implementing recovery activities.

SECTION 1 DISASTER IMPACT

The Area 15 EDD covers a 4,891 square mile region in southeast Iowa serving Appanoose, Davis, Jefferson, Keokuk, Lucas, Mahaska, Monroe, Van Buren, Wapello, and Wayne counties. The severe winter storms of December 2007 (FEMA-1737-DR) and the subsequent flooding from May to August 2008 (FEMA-1763-DR) caused significant damage to infrastructure and personal property throughout the area. FEMA-1737-DR disaster declaration for the severe winter storms affected all ten counties in the Area 15 region, with each county receiving public assistance for this event. The FEMA-1763-DR disaster declaration impacted nine of the ten counties; all nine counties received public assistance while only eight of the counties were determined eligible for individual assistance.

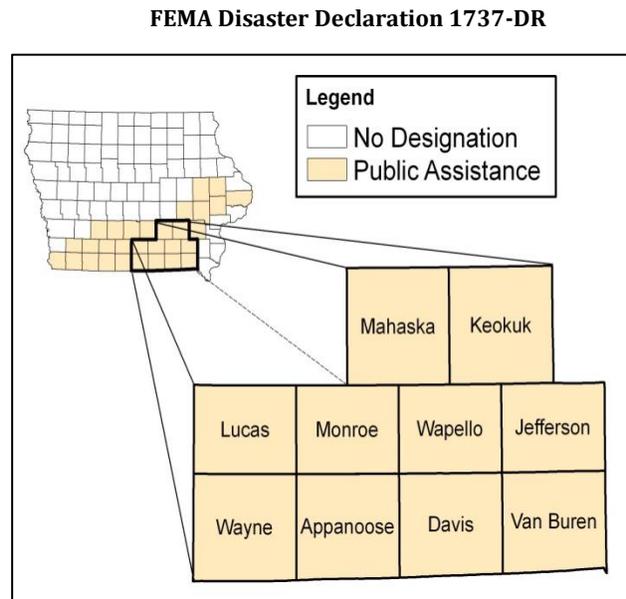
Natural disasters striking the Midwest and Iowa are not a new phenomenon. Between 1998 and 2008 there have been seven (7) FEMA disaster declarations for the Area 15 region in Iowa. Maps pertaining to these events can be found in Appendix A. Based upon the historic frequency and impact of natural disasters on the Area 15 EDD region, there is no question of if natural disasters will impact the region, but rather it is just a matter of when these events will recur.

<u>FEMA Disaster Declaration</u>	<u>Date</u>	<u>Counties Affected</u>
FEMA- 1763- DR Severe storms, tornados, flooding	8/26/2008	9/10
FEMA- 1737- DR Severe winter storms	1/04/2008	10/10
FEMA -1727- DR Severe storms, flooding	10/10/2007	6/10
FEMA -1688- DR Severe winter storms	03/26/2007	5/10
FEMA -1518- DR Severe storms, tornados, flooding	07/02/2004	6/10
FEMA -1367- DR Severe storms, flooding	06/06/2001	2/10
FEMA -1230- DR Severe weather, tornados, flooding	09/31/1998	7/10

FEMA-1737-DR – Severe Winter Storms

In December 2007 a severe winter storm crippled the state of Iowa, producing freezing rain, sleet, ice and snow. One week later federal, state, and local governments began to compile Preliminary Disaster Assessments (PDA). PDAs were collected over a four day period beginning December 18, 2007 and ending on December 21, 2007. The preliminary disaster estimate for the state of Iowa included 30 counties, and totaled approximately 16.4 million dollars. All ten counties in the Area 15 region were impacted by the severe winter weather disaster. Iowa Governor Culver requested a federal disaster declaration on December 21, 2007.

A federal disaster declaration was issued on January 4, 2008. This designation made each county identified in the disaster area eligible for the FEMA Public Assistance (PA) program. Through the PA program, FEMA provides supplemental federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures.



In addition to making public assistance available, the federal disaster declaration also made the Hazard Mitigation Grant Program (HMGP) assistance available to all counties in the State of Iowa. HMGP provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. Once a county has a hazard mitigation plan approved and in place it is eligible to apply to FEMA for funding of hazard mitigation projects.¹

Since the initial damage estimate of \$16.4 million statewide in early 2008, the actual amount of damages approved for federal funding has risen to approximately \$35.5 million dollars. The increase resulted from more accurate information from utilities and local governments as actual costs came in. The funding formula for FEMA-1737-DR was 75% federal, 10% state, with the remaining 15% coming from local sources. As of April 2010 the federal government has spent \$20,274,210 on recovery from this disaster. The Area 15 EDD Region received \$3,939,755 in public assistance, or 19% of the total spent by the federal government to date.²

¹ (FEMA, Iowa Severe Winter Storm – FEMA-1737-DR Declared January 4, 2008)

² (Thomas, 2010)

The damage caused by the severe winter storms was widespread throughout the Area 15 EDD region. The freezing rain, sleet, ice and snow impacted households, businesses, infrastructure, and utilities. Roads were impassable either due to thick layers of ice or to downed power lines, trees, and debris in the roadway. An estimated 65,000 people were without power for an average of 16 hours between December 11 and December 14, 2007³; those in rural areas were without electric service for as long as six days.⁴ Businesses and industry suffered economically due to the inability of employees to get to the workplace or lack of electric service to power their facilities.



Ice storm damage knocks down trees in Ottumwa

Public safety became a critical issue due to a number of factors, including:

- Lack of electric service to power critical public infrastructure and facilities such as water treatment and distribution systems, wastewater collection and treatment systems, emergency shelters, city halls and county courthouses, and human/social service centers.
- Ice and debris made driving treacherous and at times roads became impassable for everyone, including emergency vehicles.
- Households, especially those with special medical needs such as supplemental oxygen, may have been jeopardized due to the loss of electric service. Many homes were without heat due to loss of electric power to heating and the potential for other medical issues arising due to the extended power outage during the cold Iowa winter.
- Notification and response to life threatening or property protection situations. Ability to contact emergency and public safety personnel when land-line phone systems were interrupted by the severe winter storm. During this storm, many areas became completely isolated from all forms of electronic communication such as telephone, television, computers, and radio.

Figure 1 provides the estimates of damage from FEMA's Preliminary Damage Assessments (PDA) and compares it to the actual federal Public Assistance dollars that were obligated to the 10 counties in Region 15. Although total dollars for preliminary and actual are nearly equal, some counties received substantially more or less than preliminary damage estimates. Of the approximately \$2.95 million of obligated Public Assistance to local governments, over \$1.6 million was approved for road repairs.

In the area of permanent work, the majority of FEMA-1737-DR public assistance grant money was provided to public utility companies to repair and restore hundreds of miles of electrical distribution line and to repair and replace poles, cross arms, transformers, meters and associated hardware. Based on FEMA public assistance grant program reports, over \$10.3 million was obligated for utilities (not included in figure 1).

³ (Energy A. , 2009)

⁴ (Energy A. , 2009)

Figure 1 Preliminary Estimates vs. Actual Assistance for 2007 Winter Storms

COUNTY	Per Capita Impact	Population	Preliminary Damage Assessment	Actual Public Assistance Obligated
Appanoose	\$21.30	13,721	\$292,257	\$642,550
Davis	\$19.63	8,541	\$167,660	\$203,066
Jefferson	\$8.24	16,181	\$133,331	\$16,087
Keokuk	\$10.27	11,400	\$117,078	\$172,769
Lucas	\$67.87	9,422	\$639,471	\$339,466
Mahaska	\$10.63	22,335	\$237,421	\$202,001
Monroe	\$59.64	8,016	\$478,074	\$555,214
Van Buren	\$9.43	7,809	\$73,639	\$107,051
Wapello	\$12.29	36,051	\$443,067	\$398,402
Wayne	\$74.97	6,730	\$504,548	\$318,210
Total		140,206	\$3,086,547	\$2,954,816

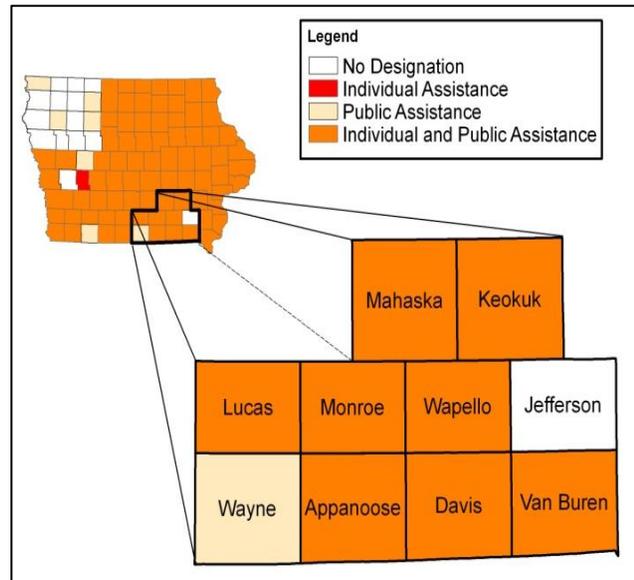
Source: FEMA

FEMA-1763-DR – Severe Storms, Tornadoes & Flooding

The severe winter storms addressed in disaster declaration FEMA-1737-DR helped set the stage for the events of the spring/summer of 2008. Debris removal, infrastructure repair, and emergency protective measures relating to FEMA-1737-DR were hindered by continued snowfall and winter weather patterns from January to April 2008. Typically, local authorities have six months to complete debris cleanup after a federal disaster declaration but that was delayed due to sustained freezing temperatures and snowfall through March 2008.

As the thaw cycle began, road surfaces deteriorated and debris laden ditches could not handle the ice and snow melt. Groundwater levels reach saturation peaks, and lakes, creeks, and dams reached flood stage levels. The spring rains in April/May 2008 only exacerbated this situation.

FEMA Disaster Declaration 1763-DR



Federal disaster declaration FEMA-1763-DR was issued on May 27, 2008. A total of 85 counties were declared federal disaster areas as a result of flooding, severe weather, and tornadoes.⁵ This designation qualified all counties in Area 15 for the FEMA Public Assistance program, excluding Jefferson County. Additionally all counties in Area 15 qualified for the FEMA Individual Assistance program, excluding Jefferson and Wayne.

The amount of damage to Iowa communities was extensive. Due to the extreme nature of the flooding that struck the state, the funding formula for federal disaster assistance was changed from the typical assistance model of: 75% federal, 10% state, and 15% local, to a revised model of: 90% federal, 10% state, and 0% local.

The amount of damage eligible for federal assistance (as of April 2010) is \$944,346,059. The maximum federal share that could go to local and state governments (90%) is \$853,414,957. As of April 2010, the federal government spent \$327,138,444 on disaster recovery efforts in Iowa. The Area 15 EDD region received \$10,099,823 in public assistance, or 3% of the total.⁶

Three major rivers cross the region: the Chariton, Skunk, and Des Moines. Each river reached flood stage in 2008. In many communities the 2008 floods were the second worst flood in recorded history, ranking only behind the Midwest floods of 1993.⁷ Approximately 59,000 people live within three miles of these major rivers in the Area 15 region, and 46,000 live within ½ mile of a FEMA designated

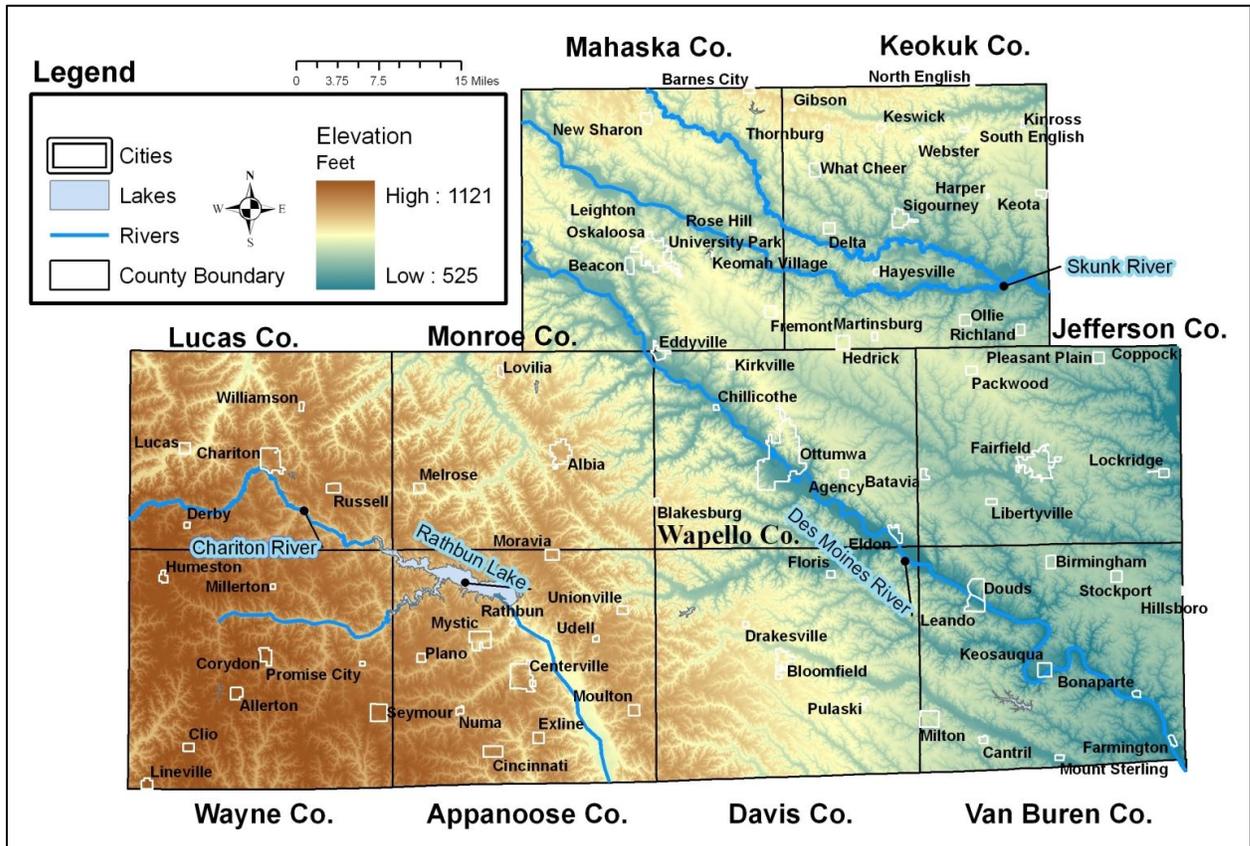
⁵ (FEMA, FEMA Marks One-Year Anniversary Of Iowa Disaster, 2009)

⁶ (Thomas, 2010)

⁷ (Advanced Hydrologic Prediction Service, 2010)

floodplain.⁸ Currently, the counties of Appanoose, Davis, Jefferson, Lucas, Monroe, and Wayne do not have floodplains mapped by FEMA. Figure 2 shows the rivers and proximity to incorporated cities.

Figure 2 Location Map of Area 15 Counties and Cities



Flooding damaged many areas of infrastructure including housing, business & industry, public works & utilities, and transportation. Many local roads, bridges, and railroads were closed due to excessive water and impassable conditions that persisted during the summer. Flooding caused damage to many homes and businesses, threatened public facilities, and services including electric and water. High groundwater and heavy rains wreaked havoc on public works infrastructure including overloading wastewater collection and treatment systems, and storm water systems. Sandbagging and emergency water control measures were necessary in order to divert disaster and protect lives and property. Every community along the Des Moines, Chariton, and Skunk rivers were affected by the 2008 floods.

⁸ (Commission, ESRI GIS Maps Created from Census statistics, 2010)

Skunk River

The Skunk River crested in Oskaloosa on June 12, 2008 at 24.61 feet; flood stage for the Skunk River near Oskaloosa is 20 feet.

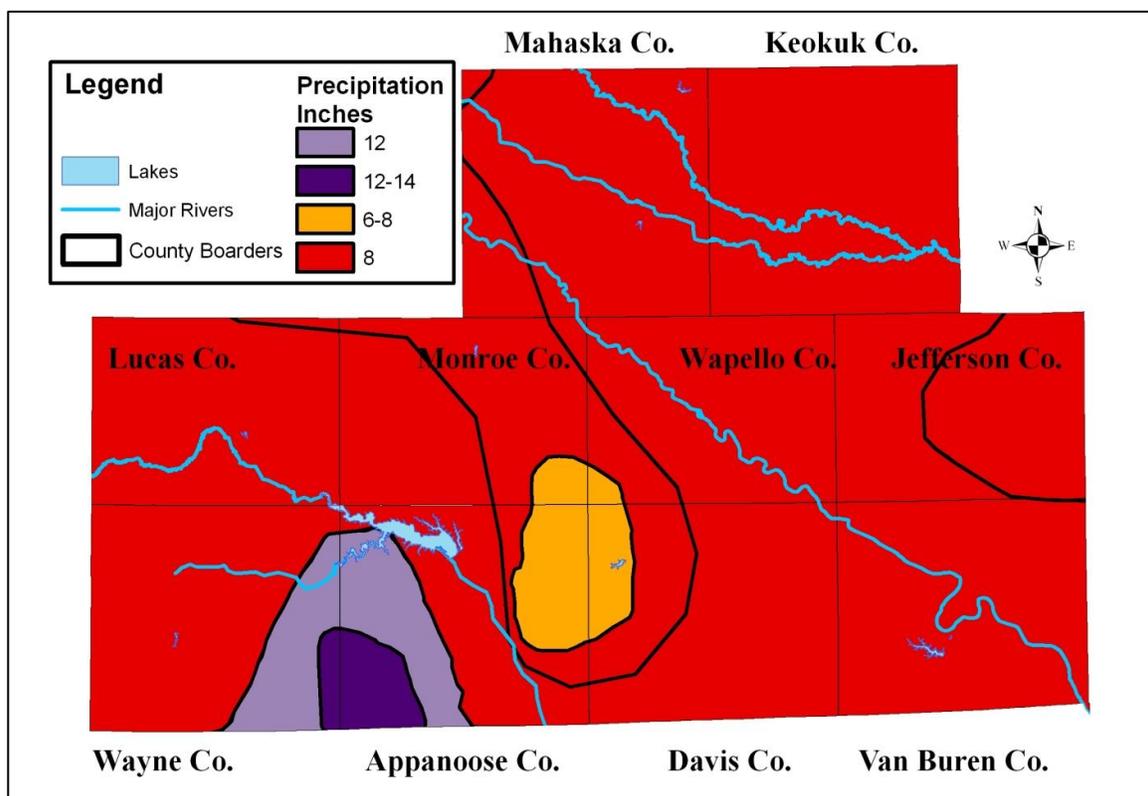
Des Moines River

The Des Moines River crested in Ottumwa on June 17, 2008 at 20.6 feet. Flood stage for the Des Moines River in Ottumwa is 11 feet. Further downstream and a day earlier the Des Moines crested in Keosauqua at 30.49 feet, flood stage for the Des Moines in Keosauqua is 22 feet.⁹

Chariton River

The Chariton River crested near Chariton on July 28, 2008 at 20.33 feet; flood stage is 18.00 feet. The Chariton River affects much of the western 4 counties of Area 15, including Appanoose, Monroe, Lucas, and Wayne counties. Flash flooding and surface water drainage was an issue in these counties during FEMA-1763-DR. Precipitation was well above average in June 2008 for the entire Area 15 region. Areas in Appanoose and Wayne Counties received as much as 12-14 inches of rain.

Figure 3 Precipitation June 2008



Source: Midwest Climate Watch

⁹ (Advanced Hydrologic Prediction Service, 2010)

Public Works & Utilities

The flooding of 2008 caused damage to municipal water, wastewater, and storm water systems. Infrastructure was primarily damaged due to flooding and heavy storms that brought significant amounts of storm water into communities. Flooding also created problems for electric utilities. The ice storm events of December 2007 caused significant damage to the electric utilities in the Area 15 region.

Wastewater Collection and Treatment Systems

Many of the Region 15 communities' wastewater collection and treatment systems were indirectly impacted by flooding through inflow and infiltration. Inflow and infiltration is a term used to describe the flow of groundwater into either a storm or sanitary sewer system. Inflow and infiltration is caused by water flowing into sewer systems through cracks or openings in pipes and joints. The wet and snowy winter followed by a wet and rainy spring raised the region's water tables to the point where groundwater began to flow into sewer systems through joints, openings, and cracks. In Bonaparte, Douds, Farmington, and Keosauqua (all in Van Buren County) lift stations were temporarily shut down due to power failure, flooding, or inflow and infiltration. The cities of Bonaparte, Douds, Farmington, and Keosauqua were forced to set up temporary pumps to pump (overflow) the additional untreated sewer water onto streets or into rivers and streams to avoid basement sewer back-ups in homes and businesses.¹⁰

Problems of inflow and infiltration were reported in Centerville (Appanoose County), Chariton (Lucas County), and Humeston (Wayne County). High water tables and excessive rainstorms filled the wastewater systems and caused overloading. These cities were forced to release untreated wastewater from the treatment lagoons to avoid sewer back-ups into homes and businesses.

In Eddyville (Wapello County), floodwaters of the Des Moines River completely submerged the treatment lagoons. The impact of the disaster caused a loss of sanitary sewer service to the community for approximately 66 days in June and July 2008. Sewer back-ups were common in homes and businesses with basements. Additionally the wastewater collection system was overwhelmed by inflow and infiltration. This situation led to bypassing at the sewer lift station which could not pump to the flooded wastewater treatment facility. The temporary loss of the Eddyville lagoons caused significant environmental risk to communities downstream that were being overwhelmed by the same floodwater; one of those communities being Ottumwa which relies on the Des Moines River as its' source of potable water.

In Van Buren County, efforts were made to protect sewage pump stations in Farmington and Bonaparte. The location of these structures near the Des Moines River caused the need for sandbagging to protect floodwater from entering and damaging the infrastructure.

¹⁰ (Sievers, 10)

Stormwater Systems

Floodwaters and heavy storms resulted in damage to municipal storm water collection and drainage systems across the Area 15 region in 2008. Typically, larger communities in the Area 15 region, such as county seat towns and cities over 1,000 in population, have storm water collection systems. Smaller communities (under 1,000) generally have less developed systems such as ditches and driveway tubes or no system at all. Some small communities are situated on level ground with nowhere for storm water to drain.

The small communities of Birmingham (Van Buren County) and Fremont (Mahaska County) saw significant problems with storm water during the 2008 storms. Neither community has a formal storm water drainage system. Approximately 100 homes in the two cities experienced flooded basements. Both communities experienced street closures.

Eddyville encountered problems with the Des Moines River floodwaters entering its wastewater and storm water systems directly. In Eddyville, the city's storm water system was unable to discharge due to high groundwater and high floodwaters which caused backup of water into streets, yards, homes, and businesses. This also resulted in the city's wastewater collection system being overwhelmed by inflow and infiltration of groundwater and storm water. This impacted the city's wastewater treatment lagoons and resulted in overflows and bypassing of raw wastewater at the treatment facility. Additionally several streets in the city were closed in June and July due to standing water over the road that would not drain because of the non-functioning storm water system.

The city of Ottumwa, population 25,000, also had problems with its storm water collection system due to heavy flows of storm water into the drainage system, and high groundwater infiltration. Ottumwa is classified as a combined sewer overflow, CSO, community. Cities that are classified as a CSO have combined sanitary and storm sewer systems. When the weather is sunny and dry combined sewers work very well, treating all the water collected by the sewer system properly. When the weather is wet and rainy combined sewers do not work well handling the large increase in surface water entering the system (under-designed pipes) or the treatment of all the excess water entering the treatment plant or lagoon. The results of an under-designed sewer and treatment system are:



Stormwater being pumped into the Des Moines River in Ottumwa (FEMA - 1763 - DR)

- Inland flooding and sewer back-ups caused by water backing up into streets and basements
- Overflow of untreated wastewater and storm water into a local water way

In an effort to avoid inland flooding and sewer back-ups the city of Ottumwa began to dump large amounts of diluted raw sewage and rainwater directly into the Des Moines River. In storm sewers that were not combined a different problem began to occur directly behind the Ottumwa levee. Storm sewers not connected to the sanitary system that emptied into the Des Moines River through outlets in

the levee system were closed after river levels began to rise. The closed outlets stopped the backflow of the Des Moines River up into the storm sewer system, but had the unintended consequence of trapping storm-water inside the city. To keep up with the increased combined sewer flow and the trapped storm sewer water the city set up emergency pumps along the Des Moines River. 23 portable water pumps were used to pump water over the top of the levee system.¹¹

Drinking Water Systems

During the 2008 disasters, flooding caused major problems for municipal water systems in Ottumwa (Wapello County) and Oskaloosa (Mahaska County). In Ottumwa, the Ottumwa Water Works potable water supply was put at risk when combined storm and wastewater entered the drinking water pumping station and short circuited the drinking water pumps. This caused a lack of pressure in the city's entire drinking water system. The low pressure Ottumwa experienced was caused directly by the shutdown of water pumps located near the flooded sanitary and storm sewer systems.¹²

Oskaloosa's municipal water treatment and pumping station is located north of the city, along the Skunk River. Around June 12, 2008, the Skunk River began to threaten the Oskaloosa water treatment plant and pump station. The US Army Corps of Engineers assisted the city with sandbagging efforts to save the treatment plant.

¹¹ (Seals, 2010)

¹² (Seals, 2010)

Levees and Protective Structures

Levees and protective structures were essential to the protection of communities along the Skunk and Des Moines River during the flooding of 2008. Permanent levees have been built along the Des Moines River to protect the communities of Eddyville and Ottumwa in the Area 15 region, however communities such as Eldon, Keosauqua, Bonaparte, Bentonsport, and Farmington do not have such structures in place. As the Des Moines River entered flood stage in the region, areas immediately along the Des Moines River began to feel an impact. It was not immediately clear if the river would overtop the levees in Eddyville or Ottumwa. Sandbagging was necessary in communities along the Des Moines River including: Eddyville, Ottumwa, Eldon, Keosauqua, Bonaparte, Bentonsport, and Farmington.



**Downtown Ottumwa businesses are sandbagged
(FEMA - 1763 - DR)**

In downtown Ottumwa, the levee near the Bridgeview Center began to seep water due to the high level of the Des Moines River. The leaking water began to erode the earth directly behind the levee creating a chasm. The partial erosion threatened the levee's ability to prevent flood water from entering the south-side of Ottumwa. If this levee were to fail, 25% of the south-side of Ottumwa could flood and impact 5,000 homes and the John Deere manufacturing plant, a major employer for the city.¹³

The city of Ottumwa responded by backfilling the levee with sand and gravel to prevent further erosion. The backfilling of the Bridgeview levee was a temporary solution, and a permanent fix was not made. Today the risk of a levee failure in that location due to seeping water still exists.¹⁴ Temporary protective measures to reinforce and barricade structures and protect citizens from flood waters in Mahaska, Wapello, and Van Buren Counties cost over \$1.6 million dollars.¹⁵

In Eddyville, residents fought to protect their town from the overflowing Des Moines River by sandbagging on top of the levee. In downtown, lines of people worked together to form a human chain and passed sandbags to build the wall higher. With the release of water at Red Rock dam at 90,000 cubic feet per second, the wall was high enough to protect the city. The Corps of Engineers discussed releasing up to 115,000 cubic feet per second, fortunately that did not occur. The residents' efforts helped protect the city from the floodwaters.

¹³ (Seals, 2010)

¹⁴ (Stevens J. , 2009)

¹⁵ (Berg, 2010)

Sandbagging in Eldon occurred primarily along Chippewa Creek, a tributary to the Des Moines River. Residents and business owners worked to protect properties from the rising floodwaters. In Keosauqua residents sandbagged businesses, public facilities, and homes nearest to the river. A major sandbagging effort was undertaken in the commercial area of Bonaparte to protect the businesses and nearby homes. In Farmington, sandbagging was necessary to protect businesses, homes, and public works structures such as sewer pump stations.



Temporary sand wall built in Bonaparte (Van Buren County) during the 2008 flooding.

Electric Utility

The 2007 winter storms wreaked havoc on electric power in all counties in the Area 15 region. Ice, snow, and high winds combined to cause utility poles to break and power lines to come down. There are five electric providers that cover the Area 15 region as shown in figure 4. Below is a description of the damage reported by each provider.

Mid American Energy

- 4,750 customer outages; average outage: 18.1 hours.
- MidAmerican Energy did not provide information regarding money spent on repairs or applications for funding to FEMA or other agencies.

Note: these are averages, some customers may have had more than one outage during this period or their outage could have been much longer or shorter than 18 hours.¹⁶

Southern Iowa Electric Cooperative (SIEC)

- 2,196 customer outages; all outages restored within 24 hours.
- SIEC spent \$144,000 in 2007 and \$108,000 in 2008 for repairs to its electric transmission systems. SIEC has submitted a \$3,225,000 mitigation application to FEMA; proposed project would help strengthen the transmission system against future storms.

Note: it is unknown how long the average customer outage was for SIEC, only that all customer outages were repaired within 24 hours.¹⁷

Chariton Valley Electric Cooperative (CVEC)

- 3,500 customer outages; average outage time unknown, but some CVEC customers reported having no power for up to 6 days.
- CVEC has received FEMA approval for \$325,544 in financial assistance to assist in the restoration to transmission systems.

Note: it is unknown how long the average CVEC customer outage was, only that some customer outages were as long as 6 days.¹⁸

Alliant Energy

- 65,595 customer outages; average outage - 15.8 hours.
- Alliant Energy did not provide information regarding money spent on repairs or applications for funding to FEMA or other agencies.

Note: these are averages; some customer outages could have been much longer or shorter than 15.8 hours.¹⁹

Access Energy Cooperative

- Access Energy reported no significant impact as a result of the December 2007 severe winter storm events.

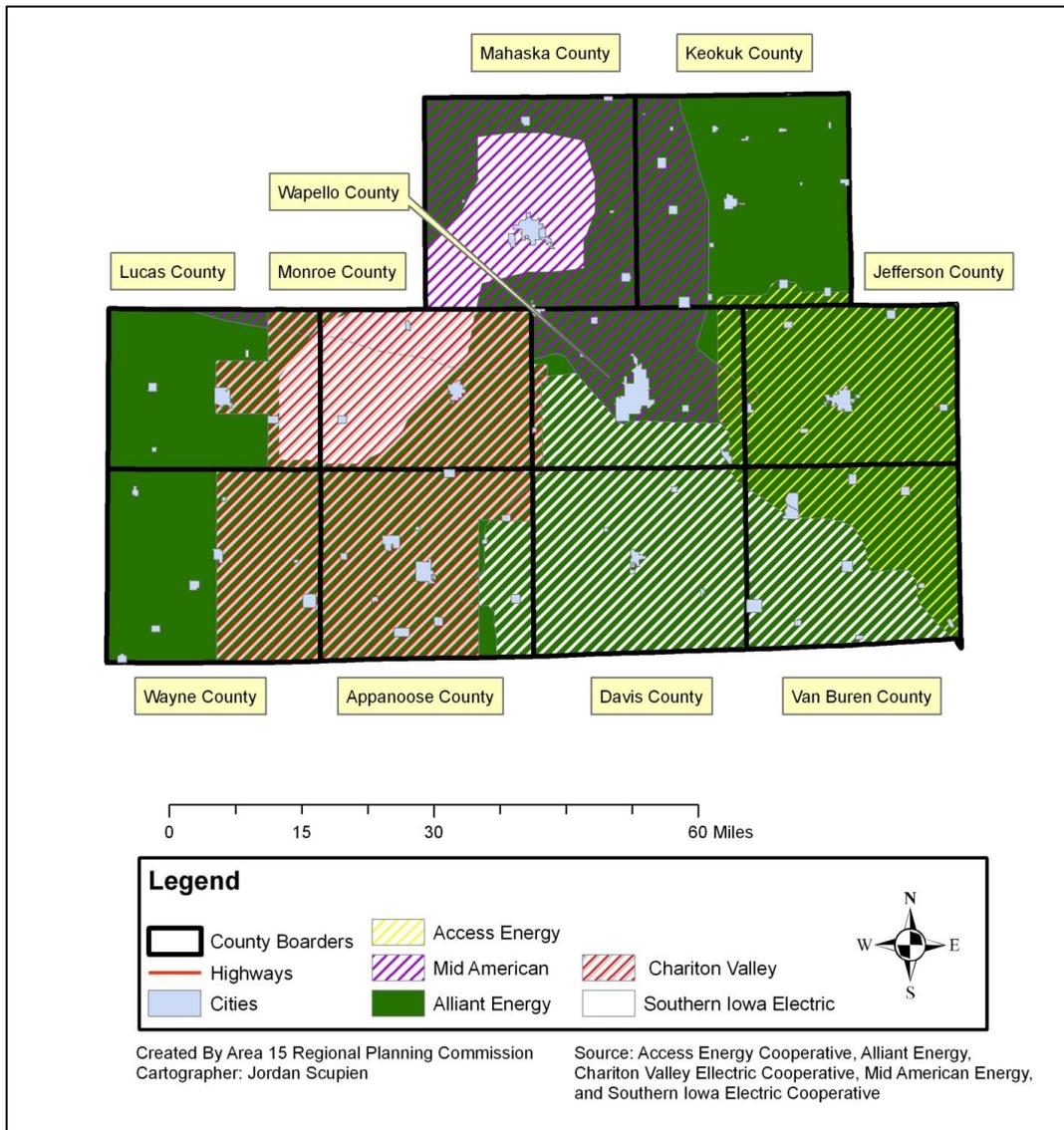
¹⁶ (Energy M. A., 2009)

¹⁷ (Kincart, 2009)

¹⁸ (Curtis, 2009)

¹⁹ (Energy A. , 2009)

Figure 4 Area 15 Regional Electric Provider Coverage Map



Natural Gas

Area 15 staff contacted all ten natural gas suppliers operating in the Area 15 region with questions about interruptions of service or damage received, and two responded.

Gas Companies Serving Area 15 region:

1. Alliant Energy and Interstate Power and Light
2. Amoco Oil
3. ANR Pipeline
4. Enterprise Product Operating
5. MidAmerican Energy
6. Montezuma Natural Gas
7. Moulton Municipal Gas Systems
8. Natural gas Pipeline Company of America
9. Northern Border Pipeline
10. Pipeline Operating Partnership

MidAmerican Energy - Gas

High water or the threat of high water along the Des Moines River forced 108 residential customers and three (3) commercial customers to have their gas shut off. 96 of the 108 residential customers were located in the Valley Village Trailer Court Park (Wapello County). 17 gas meters, 17 service regulators and eight automated meter reading devices were destroyed as a result of damage from flood waters. No other infrastructure damage occurred. The affected customers were in close proximity to the Des Moines River and were not protected from flood waters by a levee system.

Alliant Energy - Gas

Rising flood waters from the Des Moines River forced gas service to be shut down for approximately 103 total Alliant Energy gas customers in the Area 15 region. This included 76 customers in Eldon (Wapello County), 12 in Selma (Van Buren County), and 15 in Keosauqua (Van Buren County). No permanent damage occurred to the Alliant Energy gas pipeline system in the Area 15 region.²⁰

²⁰ (Sublett, 2009)

Transportation

The impact of the 2007 winter storms and 2008 severe storms/flood events on transportation infrastructure in Area 15 was extensive. Transportation infrastructure includes highways, roads, bridges, and other structures such as culverts. Heavy rains caused washouts and flooding of transportation infrastructure along many roads. Unpaved roads were damaged due to loss of gravel and washouts which de-stabilized the road beds. Many roadways were closed during flooding events. Unpaved roads were nearly impassable during ice events due to ineffectiveness of salt on gravel surfaces. Clearing these roads with snowplows removed much of the gravel base. The area also lost use of rail infrastructure during the 2008 floods; this had a negative impact on the industrial/commercial sectors that rely on rail for access to outside markets. Road closures and detours hampered the ability for people, emergency personnel, and goods to move into and out of the region. This resulted in a negative social and financial impact to the people, businesses, and communities in the region.

In order to collect information about the impacts of the disasters, Area 15 Regional Planning Commission staff contacted county engineers in the region to obtain general information on which roads were affected by each disaster. Figure 5 illustrates the damage to transportation infrastructure across the Area 15 region. It should be noted that not every county responded, and some counties provided more detailed information than others; therefore the map is only a partial estimate of the damages incurred.

During the 2008 flooding events, the eastern parts of the region experienced typical riverine flooding, while the western counties of Appanoose, Davis, Monroe, Lucas, and Wayne were damaged by flash flooding. Erosion of road beds and damage to road surfaces were the most prevalent types of road damage that occurred in the region. Erosion of roads in most areas was caused by ground saturation around road beds, or movement of surface water over, under, and around roads.

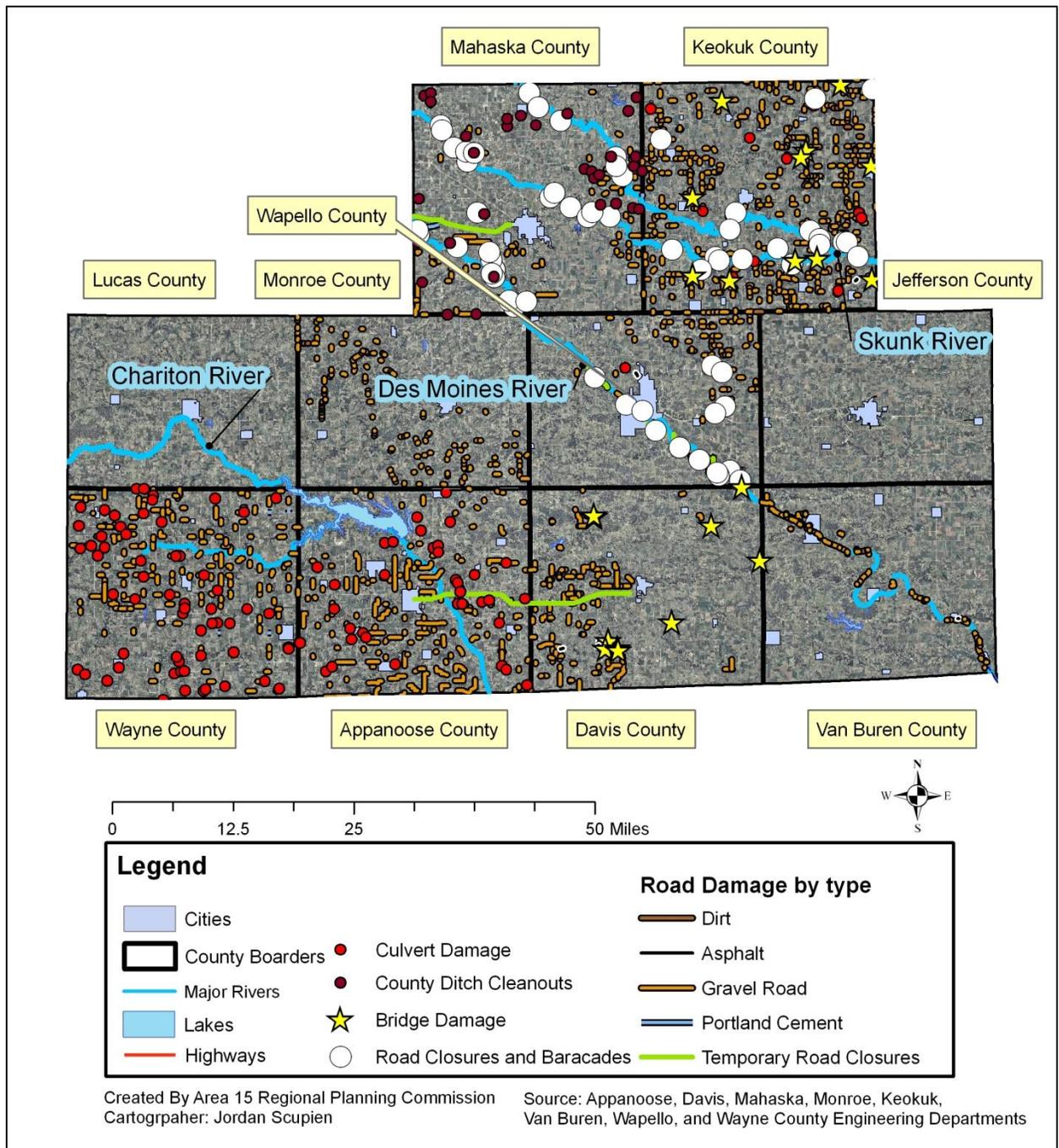
The western counties had significantly more damage to culverts due to large amounts of water washing through openings under roads. The orange areas on figure 5 illustrate places where surface water moved over road surfaces in low lying areas or in areas where roads acted as a levee between ditch systems. Many roads in this region have historically been designed to handle flood events. An example is near bridges, low points are designed to allow flash flooding in order to minimize damage to the bridge.²¹ This method of flood management is effective in minimizing expensive repair costs to bridges, but also creates a repetitive loss cycle each time the region experiences a flash flood or flood event.

The Area 15 region has over 7,000 miles of unimproved (gravel roads) that serve rural residents and agricultural businesses.²² During the 2007 severe winter storms these roads were covered in ice and snow. The only viable option for removing the ice from gravel roads was to scrape off the top layers of gravel since salt is not effective in melting ice on gravel surfaces. In the following spring the condition of these damaged roads continued to deteriorate. Rock that was scraped off the roads had been lost altogether or washed into ditches that began to clog with excess debris, slowing the movement of water. The slowed release of water through ditches allowed the roadbeds to become even more saturated, making road surfaces even more unstable.

²¹ (Folkerts, 2010)

²² (Commission, Area 15 GIS Maps and Statistics, 2010)

Figure 5 Damage Map of Transportation Infrastructure (2008 Spring Flooding)



There were a total of 31 road closures in Mahaska County due to flooding, 19 road closures were along the Skunk River and 11 were along the Des Moines River.²³ In Keokuk County 14 roads were barricaded and closed due to flooding along the Skunk River and 11 bridges were damaged. Culvert and road damage due to erosion on secondary roads was widespread in Keokuk County as well.²⁴

Most infrastructure in the region is not designed to handle flash flooding, therefore ditches filled quickly with storm water and began to wear away road beds, surfaces, and areas around culverts. This erosion created a large amount of debris that was deposited into storm sewers and ditches throughout the region. In Wayne County, alone 73 culverts were damaged or destroyed totaling \$392,125 in repair. The damage to transportation infrastructure in counties due to flash flooding was more than double the cost to counties with typical riverine flooding seen along the Des Moines and Skunk Rivers (see figure 14).

²³ (Stevens R. , 2010)

²⁴ (VanBuskirk, Keokuk County Engineering Records, 2009)

Business & Industry

The largest impact on businesses in the Area 15 EDD region was due to transportation infrastructure closures caused by the 2008 flooding. All rail service through the region was halted due to flooding. Railroads temporarily discontinued service beginning June 12, 2008, and were shut down for approximately two weeks. Railroads included: Burlington Northern Santa Fe, Union Pacific, Iowa Chicago & Eastern, and Amtrak service. Major commercial and industrial road systems were compromised due to short term flooding and safety issues. The major roads impacted include: Highway 92 (flooding between Oskaloosa and Knoxville), Highway 2 (flooding between Centerville and Bloomfield), and the Market Street Bridge in Ottumwa (closed due to safety issues). An undetermined amount of bridges and roads were also closed due to safety issues in the area.

According to the Iowa State University Center for Industrial Research and Service, there were several direct impacts to manufacturing companies during the floods of 2008. The number one issue affecting companies was workforce and the ability of employees to get to work because of flooding of their own homes or washed out bridges or roads. The second most reported issue was road transportation that prevented supplies or outgoing products from distribution. Closed roads led to long detours which increased transportation costs. Other impacts included loss of customers, loss of utilities (power and water), and damage to buildings, machinery and offices.

Housing

Damage to housing occurred primarily due to the heavy rains and flooding events of spring 2008. The heavy rain caused many basements to receive water damage due to a various reasons including: high groundwater, inflow and infiltration into wastewater systems, sewer back-ups, poor drainage, ponding or pooling of water in neighborhoods and streets. The damage was widespread across the Area 15 region and not isolated to river communities. The highest amount of damage was received in Wapello County which is the most populated county in the region and is bisected by the Des Moines River. Examples of damage incurred ranged from complete losses to loss of improvements and furnishings. Damage in Region 15 was enough that eight out of the ten counties were declared eligible under FEMA-1763-DR for the public assistance program with the exception of Jefferson and Wayne counties. Figure 6 illustrates the number of applicants by county for the public assistance program:

Figure 6 Individual Assistance Registrations

County	Registrations
Appanoose	97
Davis	54
Jefferson	Not eligible
Keokuk	72
Lucas	82
Mahaska	105
Monroe	55
Van Buren	88
Wapello	529
Wayne	Not eligible

Source: Iowa Homeland Security Emergency Management

Damage also occurred to housing as a result of the severe winter storm events 2007. Examples of damage included falling debris such as trees and limbs that were covered with ice and heavy snow. Lack of electricity in some areas caused problems with basement flooding due to inoperable sump pumps. The damage was not severe enough for any of the Area 15 region to be declared eligible for the FEMA individual assistance program.

Public Facilities

Public facilities includes buildings such as schools, libraries, fire houses, police stations city halls, and community centers. The flooding damages of spring 2008 caused damage to many public facilities across the Area 15 region. Figure 7 illustrates the damaged buildings as reported by FEMA:

Figure 7 Public Facility Damage

County	Building	Damage
Appanoose	Moulton High School and Middle School	Gymnasium flooring
Appanoose	Drake Public Library	Basement
Davis	Davis County High School	Interior
Davis	Davis County Hospital	Basement
Lucas	Chariton Airport	Hangar
Lucas	Radio Tower	Tower
Van Buren	Keosauqua Public Library	Floor and walls
Van Buren	High School	Utilities and alarm system
Van Buren	Harmony School	Ceiling, gym/stage/music room roof
Van Buren	Stockport Elementary	Walls in children's room
Van Buren	Bentonsport Shelter House	Walls, restroom
Wapello	Eldon City Hall	Basement
Wayne	Humeston Municipal Storage Building	Replace entire building

Source: FEMA

There were no reports of public facilities damaged by the winter storms of 2007.

SECTION 2 DISASTER RESPONSE AND RECOVERY

Federal response was swift to the winter storm events of 2007 and severe storm/flooding/tornado events of 2008. The timeline below illustrates response to each disaster.

- 12/10-12/11/2007 Winter storms occur in Iowa
- 12/21/2007 Iowa Governor Culver requests a major disaster declaration
- 1/4/2008 President Bush declares that a major disaster exists in the State of Iowa (FEMA-1737-DR)
- 1/4/2008 FEMA Public Assistance and Hazard Mitigation Grant Program made available to all 10 Area 15 region counties

- 5/25/2008 Severe storms, flooding and tornados begin in Iowa
- 5/26/2008 Governor Culver requests declaration
- 5/27/2008 President Bush declares that a major disaster exists in the State of Iowa (FEMA-1763-DR)
- 5/25-8/13/2008 Severe storms and flooding continues in Iowa, additional counties are added to the disaster declaration as events continue
- 8/28/2008 FEMA Public Assistance, Individual Assistance and Hazard Mitigation Grant programs are made available to nearly all Area 15 region counties (excluding Jefferson County)

These two federal disaster declarations marked the beginning of long term response for the region. The two major programs made available by FEMA for natural disaster declarations are the 1) Public Assistance (PA) grant program and 2) Individual Assistance (IA) grant program. The PA program is a comprehensive program that addresses many types of public works and improvements projects. The IA program is a more specific program that provides response for housing. The availability of either program is based on the the amount of damage received by a particular county that is included in a federal disaster declaration.

FEMA Public Assistance (PA) Grant Program

The Public Assistance (PA) Grant Program, funded by FEMA and the State of Iowa, is available to state and local governments and to certain nonprofit organizations, after a presidentially declared disaster. FEMA Public Assistance allows local governments and the state to respond and recover from disasters and to mitigate the impact of future disasters.

Through the PA program, FEMA provides supplemental federal disaster grant assistance. Grant projects are funded by multiple parties at the following rates: 75% federal, 10% state, and 15% local. Eligible expenses for public assistance include: debris removal, emergency protective measures, and repair, replacement or restoration of disaster-damaged, publicly-owned facilities and the facilities of certain Private Non-Profit (PNP) organizations to pre-disaster levels. The PA program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation

measures during the recovery process.²⁵ FEMA-1763-DR was granted special funding status due to the amount of damage; its funding rates are as follows: 90% federal, 10% state, and 0% local.

Figure 8 Public Assistance By County – FEMA -1737-DR (Winter Storms)

FEMA-1737	Emergency Work		Permanent Work					Total
	Debris Removal	Emergency Protective measures	Roads /bridges	Water Control Facilities	Buildings, Contents, Equipment	Utilities	Parks & Recreation	
Appanoose	\$496,583	\$172,501	\$187,650	-	-	-	-	\$856,734
Davis	\$24,775	\$50,332	\$187,223	-	-	\$8,425	-	\$270,755
Jefferson	\$12,931	\$8,519	-	-	-	-	-	\$21,450
Keokuk	\$12,428	\$75,898	\$142,033	-	-	-	-	\$230,359
Lucas	\$187,761	\$115,558	\$149,302	-	-	-	-	\$452,621
Mahaska	\$48,507	\$79,245	\$141,582	-	-	-	-	\$269,334
Monroe	\$208,572	\$123,112	\$393,957	-	-	-	\$14,644	\$740,285
Van Buren	-	\$51,441	\$91,293	-	-	-	-	\$142,734
Wapello	\$182,265	\$112,496	\$236,442	-	-	-	-	\$531,203
Wayne	\$138,922	\$50,910	\$218,447	-	\$4,176	\$11,825	-	\$424,280
Total	\$1,312,744	\$840,012	\$1,747,929	-	\$4,176	\$20,250	\$14,644	\$3,939,755

Source: Iowa Homeland Security 3/15/2010

Figure 9 Public Assistance by County FEMA -1763-DR (Spring Flooding)

FEMA-1763	Emergency Work		Permanent Work					Total
	Debris Removal	Emergency Protective Measures	Roads/ Bridges	Water Control Facilities	Building Contents, Equip.	Utilities	Parks & Recreation	
Appanoose	-	\$60,000	\$847,933	-	-	\$18,236	\$23,087	\$949,256
Davis	\$17,883	\$3,964	\$492,405	-	\$36,424	-	\$11,759	\$562,435
Jefferson	-	-	-	-	-	-	-	\$0
Keokuk	\$3,224	\$160,141	\$462,415	-	-	-	-	\$625,780
Lucas	\$3,719	\$19,676	\$778,601	\$3,004	\$7,568	-	\$42,492	\$855,060
Mahaska	\$208,375	\$44,101	\$357,683	-	-	\$6,782	\$200,834	\$817,775
Monroe	\$5,980	\$40,726	\$441,493	-	-	-	-	\$488,199
Van Buren	\$83,205	\$221,695	\$106,598	\$169,150	\$39,486	\$24,253	-	\$644,387
Wapello	\$335,184	\$1,413,028	\$615,944	\$1,685,049	\$23,463	\$117,449	\$51,795	\$4,241,912
Wayne	\$3,780	\$17,084	\$805,664	-	\$1,576	\$1,543	\$24,274	\$853,921
Total	\$661,350	\$1,980,415	\$4,908,736	\$1,857,203	\$108,517	\$168,263	\$354,241	\$10,038,725

Source: Iowa Homeland Security 3/15/2010

²⁵ (FEMA Assistance Grant Program, 2010)

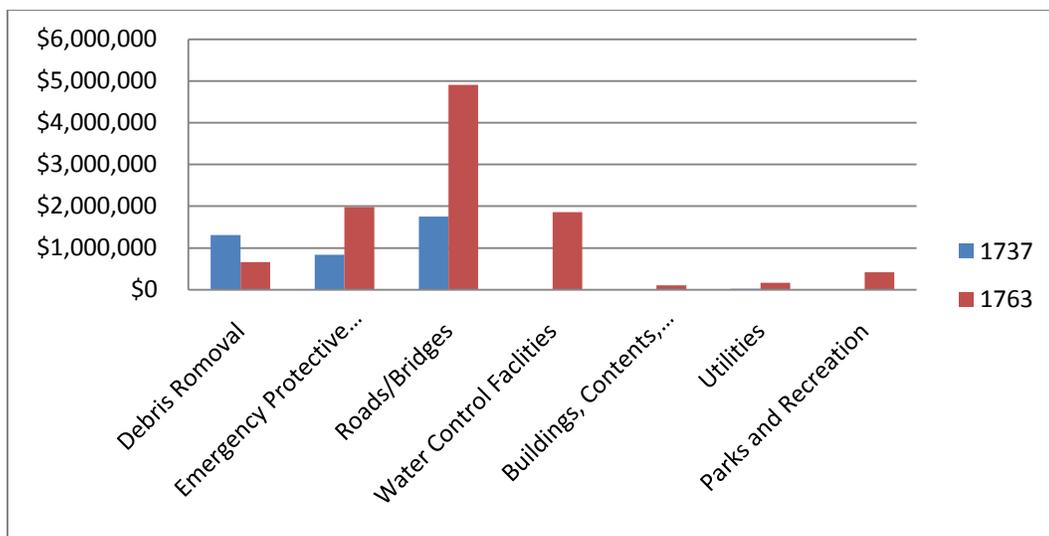
The Public Assistance Grant Program is administered through a coordinated effort between FEMA, the State of Iowa. Following a federal disaster declaration, assistance becomes available to those who have been affected.

Figures 8 and 9 show how much each county received in public assistance and what that assistance was used for. The tables show emergency work, permanent work, and totals for both the counties and region for each sub category for the winter storms of 2007 and spring flooding of 2008.

The amount of damage received from flooding in the region was more than double the amount of damage received for severe winter storms. The type of damage and the areas affected by these disasters also differ. Severe winter storm damage was relatively spread out across the region. Damage from flooding in 2008 was concentrated in Wapello County. Wapello County received four times the amount of damage for the spring flooding than any other county in the region.²⁶

Total public assistance dollars for the severe winter storms and flooding disasters that went to road and bridge infrastructure was \$6,656,665 dollars, and accounted for 43% and 48% of the total amount of public assistance that went out to communities for each disaster respectively.²⁷

Figure 10 Public Assistance Dollars by Use 1737-DR vs. 1763-DR



Source: Iowa Homeland Security Emergency Management, 4/8/2010

²⁶ (Security, 2010)

²⁷ (Berg, 2010)

Public Works & Utilities

Communities in the Area 15 EDD responded to the 2007 winter storm and 2008 flooding disaster problems quickly. Some communities that encountered storm water problems contacted local engineering firms to develop preliminary plans that identified problem areas and suggested options for permanent solutions. Others cities had more substantial problems with municipal utilities that were located in the floodplain; this caused loss of utility service for many days. The response was to contact local engineers to identify permanent solutions and with the help of area 15 staff, identify funding sources. Many cities required emergency pumps and generators to operate their municipal wastewater and stormwater systems. Portable pumps and generators were temporary and effective measures, however permanent solutions are needed.

Area 15 staff assisted several communities with identifying funding sources to help pay for municipal public works disaster recovery projects. Primary funding sources included the Community Disaster Grant funds (Iowa Homeland Security), Community Development Block Grant (CDBG) Disaster Recovery Funds (HUD/ Iowa Department of Economic Development). The following is a list of the communities and the projects that have been awarded funding. These six funded projects total \$8,059,120 in critical public infrastructure repairs and improvements.

City of Birmingham Storm and Sanitary Sewer Improvements

In Birmingham, the 2008 severe storms brought excessive inflow and infiltration into the sanitary wastewater collection system; this resulted in discharge of partially treated wastewater from the treatment lagoons. Additionally nearly all homes with basements received water damage due to pooling of storm water and inability of the city's storm water collection system to quickly drain and remove it. Approximately 60 homes and 6 businesses including the public library received water damage as a result of the disaster. Sewer back-ups were also a problem with these same homes. Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$807,000 in grant funds. The project will build 5,300 feet (25 blocks) of storm sewer and 5,545 feet (15 blocks) of sanitary sewer to serve the entire city by reducing sewer back-ups and basement flooding. Area 15 is administering the project.

City of Eddyville Sewer and Lagoon Improvements

In Eddyville, During the flooding of the Des Moines River in 2008, the city of Eddyville lost all sewer service for approximately 66 days. Fifteen years earlier, during the flooding of the Des Moines River in 1993, Eddyville experienced the same loss of service for 56 days. Both losses of sewer service were due to the flooding of Eddyville's sewer lagoons, which are located next to the Des Moines River. The flooding of Eddyville's lagoons not only caused a loss of service to the city, including sewer back-ups into resident's homes and businesses, but the release of raw sewage into the Des Moines River.

Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$4,091,000 in grant funds. This project will build a concrete floodwall surrounding the wastewater treatment lagoons, installation of a new storm water pump-over structure and controls, installation of a new high water pump lift station and force main, and replacement of 10,380 feet of sanitary sewer pipe. It will protect the city from future loss of sewer service and alleviate inflow and infiltration into the sanitary sewer collection system. The storm water pump system will help remove storm water from low areas of the city. Area 15 is administering the project.

City of Centerville Storm Sewer Rehabilitation

The flooding that occurred in Centerville in 2008 caused damage to homes, businesses, and private property. The damage to these structures could have been prevented if the current storm sewer system were rehabilitated. This project will repair storm sewers that were damaged during the floods of 2008 and prevent future flooding caused by the current storm sewer system. Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$605,120 in grant funds. The project will rehabilitate storm sewers in target areas of the city of Centerville where flood damage has previously occurred.

City of Fremont Storm Water

In Fremont 100 to 150 homes had sewer back-ups or flooding problems. Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$758,000 in grant funds. This project will build 10,450 feet of storm sewer, and 21 sewer intakes throughout the city of Fremont. Once complete, the new system will move storm water out of the problem areas and alleviate flooding issues and stop sewer back-ups and overflows due to storm water seeping into the system.

City of Sigourney Wastewater Improvements

In Sigourney, the 2008 severe storms brought excessive inflow and infiltration into the sanitary wastewater collection system; this resulted in discharge of partially treated wastewater from the treatment lagoons. Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$950,000 in grant funds. The project involves cleaning 19,300 linear feet of sanitary sewer, lining of 11,580 linear feet of sanitary sewer, inspecting 87 manholes, rehabilitation of 174 vertical feet of manholes, replacement of 176 manhole frames and covers, install 1 emergency generator for the Spring St. lift station, and installation of 2 variable frequency drives for the Spring Street lift station. The impact will improve public health by minimizing sewer backups and eliminate sewer bypassing.

City of Keosauqua Storm and Sanitary Sewer Improvements

In Keosauqua, the flooding of 2008, the main sewage lift station in Keosauqua could not keep up with the amount of water flowing into the system. This resulted in the system backing up and backing into people's basements. Area 15 staff assisted the city to apply for CDBG disaster recovery funds and received \$732,000 in grant funds. The project involves installation of a new lift station pump, 2 stationary generators, lining of sanitary sewer lines, storm sewer replacement, and lining of the 4th St. Culvert. Completion of the project will help maintain operation of the city's wastewater collection and treatment system and eliminate sewer treatment bypassing and discharge. It will also improve storm water drainage and removal from the downtown business district.

Levees and Protective Structures

Existing levees in the region helped hold back the floodwaters along the Des Moines River. Communities along the Des Moines and Skunk rivers responded to the rising river levels by sandbagging and reinforcing levees. Temporary walls were built in towns such as Bonaparte that prevented water from reaching businesses and critical infrastructure. The US Army Corps of Engineers and citizen volunteers were essential to the success of the sandbagging efforts in the region.

Electric Utility

The 2007 winter storm wreaked havoc on electric power in all counties in the Area 15 region. Ice, snow, and high winds caused power-line failures. There are five electric providers that cover the Area 15 region as shown in figure 4. Below is a description of the damage reported by each provider.

Mid American Energy

- MidAmerican Energy did not provide information regarding money spent on repairs or applications for funding to FEMA or other agencies.

Southern Iowa Electric Cooperative (SIEC)

- SIEC spent \$144,000 in 2007 and \$108,000 in 2008 for repairs to its electric transmission systems. SIEC has submitted a \$3,225,000 mitigation application to FEMA; proposed project would help strengthen the transmission system against future storms.

Chariton Valley Electric Cooperative (CVEC)

- CVEC has received FEMA approval for \$325,544 in financial assistance to assist in the restoration to transmission systems.

Alliant Energy

- Alliant Energy did not provide information regarding money spent on repairs or applications for funding to FEMA or other agencies.

Access Energy Cooperative

- Access Energy reported no significant impact as a result of the December 2007 severe winter storms event.

Natural Gas Utility

MidAmerican Energy - Gas

MidAmerican Energy was given permission on June 25, 2008 by the Wapello County Engineers Office, to restore gas service to the customers at Valley Village Trailer Court near Ottumwa. All trailer court customers that requested had their service restored that day. From June 25, 2008 to November 4, 2008 MidAmerican Energy restored gas service to the remaining affected customers as they became ready for service and MidAmerican Energy received authorization from either the Wapello County Engineers Office or the city of Ottumwa Health Department to restore gas service to the customer.

Total expenses for MidAmerican Energy to restore service were \$14,108. Of that amount \$9,150 was spent on labor, \$1,158 was spent on vehicle expenses, and \$3,800 was spent on damaged equipment.²⁸ MidAmerican Energy will continue to mitigate flood damage to facilities by monitoring flood conditions and shutting gas services off prior to flooding to minimize the possibility of flood waters entering distribution gas facilities.²⁹

Alliant Energy - Gas

Gas service was shut off to customers in several cities due to high water or the threat of high water, including: Eldon (76), Selma (12), and Keosauqua (15). Service was restored when flood waters receded. No permanent damage occurred to the Alliant Energy gas pipeline system in the Area 15 region.³⁰

²⁸ (Sublett, 2009)

²⁹ (Davis, 2009)

³⁰ (Sublett, 2009)

Transportation

The following table breaks the transportation infrastructure repairs into four categories: roads, bridges, culverts, and storm structures. Storm structures consist of ditches and storm sewers underneath or next to roads used to remove excess water.

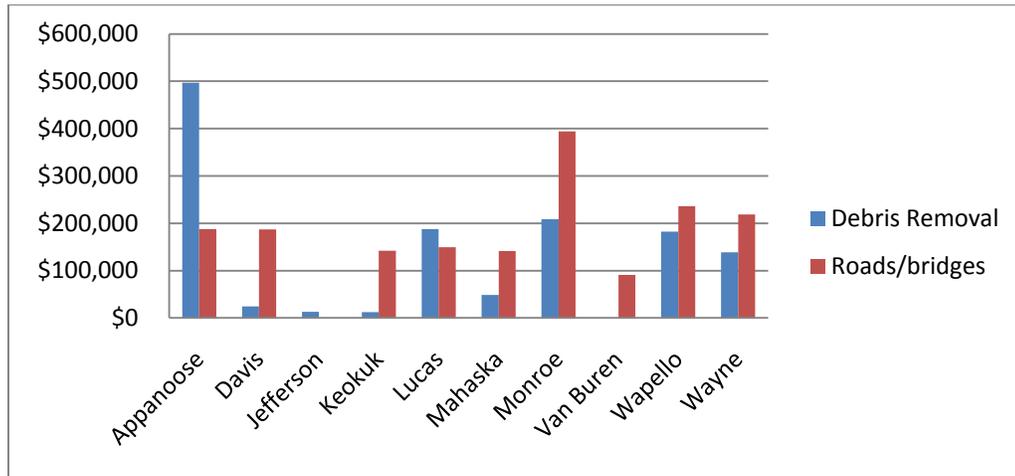
Figure 11 Transportation Infrastructure Repair Costs

Des Moines/Skunk Rivers (Riverine Type flooding)					
County	Roads	Bridges	Culverts	Storm Structures	Total
Keokuk	\$233,270	\$150,139	\$79,005	\$0	\$462,414
Mahaska	\$305,730	\$0	\$0	\$51,953	\$357,683
Van Buren	\$69,805	\$36,793	\$0	\$0	\$106,598
Wapello	\$596,895	\$0	\$19,049	\$0	\$615,944
Total	1,205,701	\$186,932	\$98,054	\$51,953	\$1,542,639
Chariton River (Flash Type Flooding)					
County	Roads	Bridges	Culverts	Storm Structures	Total
Appanoose	\$606,783	\$127,320	\$282,056	\$2,702	\$1,018,861
Davis	\$251,489	\$81,712	\$159,204	\$0	\$492,405
Lucas	\$427,784	\$37,250	\$307,389	\$0	\$772,423
Monroe	\$371,091	\$3,348	\$67,054	\$0	\$441,493
Wayne	\$335,779	\$66,561	\$392,125	\$11,199	\$805,664
Total	\$1,992,926	\$316,192	\$1,207,828	\$13,901	\$3,530,846

Source: Iowa Homeland Security 3/3/2010

The removal of ice on roads caused a significant amount of rock loss on unimproved gravel surfaces. The surfaces of gravel roads were scraped off to remove thick sheets of ice that had covered many side roads. In the spring, the damage caused to side roads became more pronounced as the surfaces of roads began to thaw. Roads that had lost significant amounts of gravel continued to deteriorate from normal wear and tear of vehicles and continued erosion from weather and saturated roadbeds.

Figure 12 Debris Removal and Road/Bridge Repair After Winter Storms



Source: Iowa Homeland Security 4/8/2010

The following table breaks the transportation infrastructure repairs into four categories: roads, bridges, culverts, and storm structures. Storm structures consist of ditches and storm sewers underneath or next to roads used to remove excess water. The Winter Storm table (in blue) was not broken into four categories.

Figure 13 Repairs to Infrastructure After Winter Storms

	Roads & Bridges	Culverts	Storm Structures	Total
Appanoose	\$187,649	N/A	N/A	\$187,649
Davis	\$187,223	N/A	N/A	\$187,223
Jefferson	\$0	N/A	N/A	\$0
Keokuk	\$142,032	N/A	N/A	\$142,032
Lucas	\$149,301	N/A	N/A	\$149,301
Mahaska	\$141,582	N/A	N/A	\$141,582
Monroe	\$393,957	N/A	N/A	\$393,957
Van Buren	\$91,293	N/A	N/A	\$91,293
Wapello	\$236,441	N/A	N/A	\$236,441
Wayne	\$218,446	N/A	N/A	\$218,446
Total	\$1,747,924	\$0	\$0	\$1,747,924

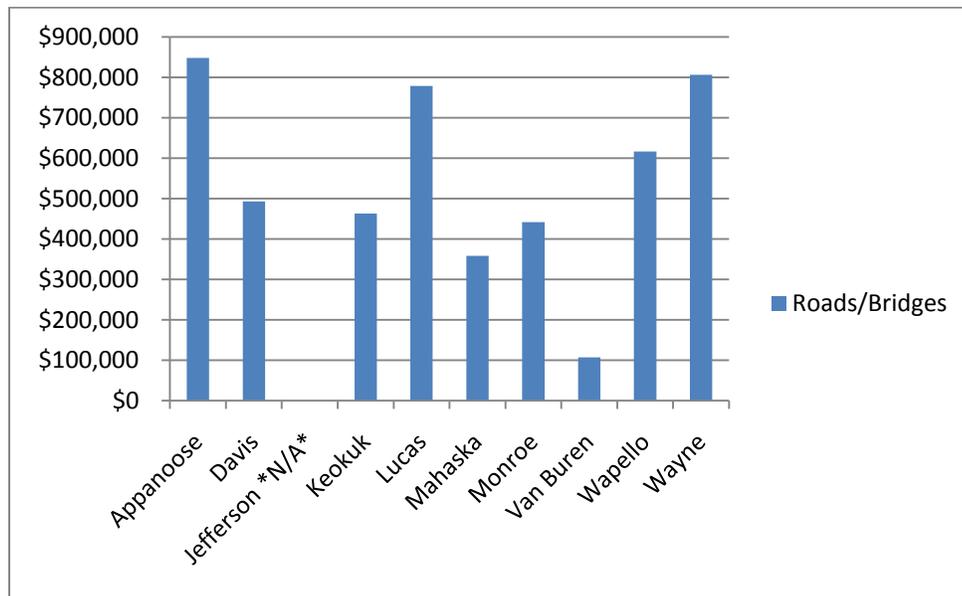
Source: Iowa Homeland Security 4/8/2010

In the eastern six counties of the Area 15 region (Davis, Jefferson, Keokuk, Mahaska, Van Buren, and Wapello), rivers played a bigger role in the destabilization of road beds, damage to bridges, and temporary road closures. Areas along the Des Moines and Skunk rivers experienced temporary closures of roads and bridges due to high water. Throughout the entire region funding for preventative and long term maintenance is an issue. County engineers list the following maintenance actions as ways to improve road reliability and mitigate future losses due to flooding:

1. Raise road beds in low laying areas.
2. Widen, deepen, and clean ditch systems.
3. Install larger culverts to increase water flow and lower erosion.
4. Install rip-rap along streams and road beds known to erode.
5. Funding to pave gravel roads that have higher traffic volume.

Below is a graph showing how much each county received in federal funds for road repair due to FEMA- 1763-DR (Flooding).

Figure 14 Repairs to Bridge and Roads After Spring Flooding



Source: Iowa Homeland Security 4/8/2010

Business & Industry

Area 15 Regional Planning Commission developed and sent out a disaster recovery survey in response to the 2007 severe winter storms and 2008 flooding that impacted the region. A total of 88 surveys were sent out to local communities, 44 communities responded back. The business section of the survey asked four questions: 1) the name of the business, 2) the cause of disruption, 3) the duration of the closure, and 4) whether the business closure was temporary or permanent. The results of the business section of the 2008 Disaster Recovery Survey can be seen in figure 15.

Figure 15 Business Impacts and Closures Due to Flooding

Location	Business Name	Cause of Closure	Time	Status
Jefferson County				
Packwood	Pilot Grove Savings Bank	Loss of Power	2.5 Days	Temporary
Packwood	Packwood Locker	Loss of Power	2.5 Days	Temporary
Van Buren County				
Bonaparte	Bonaparte Retreat	Flooding	2 Weeks	Temporary
Bonaparte	Addie May Fudge Factory	Flooding	2 Weeks	Temporary
Bonaparte	Bonaparte Mercantile	Flooding	2 Weeks	Temporary
Bonaparte	Elliot Service	Flooding	2 Weeks	Temporary
Bonaparte	Masons Pub	Flooding	2 Weeks	Temporary
Bonaparte	Cottonwood Corner	Flooding	2 Weeks	Temporary
Bonaparte	Bonaparte Pottery	Flooding	2 Weeks	Temporary
Keosauqua	Wasko Hardware	Flooding	3-5 Days	Temporary
Keosauqua	Mysty's Malt	Flooding	3-5 Days	Temporary
Keosauqua	Circle B	Flooding	3-5 Days	Temporary
Wapello County				
Blakesburg	Blakesburg Oil	Loss of Power	3 Days	Temporary
Eldon	Dave's hardware	Flooding	5 Months	Temporary
Ottumwa	Alliant Energy	Flooded Streets	2 Weeks	Temporary
Ottumwa	Blackwell Tire	Flooded Streets	2 Weeks	Temporary
Ottumwa	Dance Inc.	Flooded Streets	2 Weeks	Temporary
Ottumwa	Crescent Electric	Flooded Streets	2 Weeks	Temporary
Ottumwa	Colormasters	Flooded Basement	2 Weeks	Temporary
Ottumwa	Ottumwa Coaches	Flooded Streets	2 Weeks	Temporary
Ottumwa	Cargill Meat Solutions	Potential Flooding	2 Days	Temporary
Wayne County				
Millerton	Restaurant	Loss of Power	1 Day	Temporary

Source: 2008 Community Survey, Area 15 RPC

Small Business Administration (SBA) Business Loans

Iowans who registered with FEMA for disaster assistance could apply to the U.S. Small Business Administration (SBA) for additional long-term recovery assistance. The SBA provided low-interest disaster loans for eligible businesses to cover disaster damage to real and personal property.

Figure 15 shows the number of temporary business closures, loan applications that were either declined, withdrawn, or funded, and the amount approved in each county.

Figure 16 SBA Business Loans

County	Temporary Closures	Applications	Declined	Withdrawn	Funded	Approved
Appanoose	0	3	2	1	0	\$0
Davis	0	2	1	1	0	\$0
Jefferson	0	1	0	1	0	\$0
Keokuk	3	3	3	0	0	\$0
Lucas	0	4	2	1	1	\$22,600
Mahaska	2	4	2	1	1	\$31,600
Monroe	1	2	0	1	1	\$75,000
Van Buren	15	6	4	1	1	\$16,200
Wapello	2	10	6	2	2	\$236,100
Wayne	0	0	0	0	0	\$0
TOTAL	23	35	20	9	6	\$381,500

Source: SBA 5/11/2010

Jumpstart Business

The Jumpstart program provided financial assistance to businesses suffering physical damage or economic loss due to the 2008 tornado, floods, and storm disasters. The maximum award was a \$50,000 loan, plus an additional \$5,000 for energy-efficient appliances.

The Area 15 region completed two successful Business Jumpstart applications for local businesses worth \$17,500; the businesses were located in Wapello and Van Buren Counties.³¹

³¹ (Commission, Public Assistance DR 1737, 1763, 2010)

Iowa Workforce Development Small Business Disaster Recovery Grant Program

Small businesses, family farms and non-profit organizations impacted by the 2008 spring flooding could apply for a grant of up to \$5,000 to repair damages. A total of six businesses in the Area 15 region, all located in Bonaparte, applied for business disaster grants through Iowa Workforce Development. The total amount in grants awarded was \$24,217.³²

Emergency Public Jobs Program for Unemployed Workers

Iowa has received a National Emergency Grant (NEG) designed to hire Iowa workers who have lost their jobs due to the flooding and tornadoes. The NEG creates temporary jobs to assist in clean-up and restoration efforts.

The Iowa Workforce Development office that serves Area 15 hired 93 temporary workers to assist in clean-up after the 2008 floods. A total of \$929,200 was paid out to temporary workers under this program in the region.³³

All business inquiries received by Area 15 were guided through the Business Jumpstart Program or directed to recovery and business redevelopment assistance programs administered by other agencies.

The list below shows the number of individuals/businesses successfully assisted by Area 15 RPC and other recovery organizations.

Figure 17 Business Assistance by Program

Number Assisted	Type	Amount
6	SBA Business Loans ³⁴	\$381,000
5	Small Business Disaster Recovery Grants ³⁵	\$24,217
2	Business Jumpstart Loans ³⁶	\$17,500
93	Emergency Public Jobs Program ³⁷	\$929,200
106		\$1,351,917

³² (Clark II, 2010)

³³ (Clark II, 2010)

³⁴ (Wynne, 2010)

³⁵ (Clark II, 2010)

³⁶ (Authority, Consolidated Report for the Economic Emergency Funds Appropriated Relating to Disaster Recovery (HF 64) State Jumpstart 1/2/3 & Express Funding Programs Report by Disaster-Affected County, 2009)

³⁷ (Clark II, 2010)

Agriculture

Emergency Conservation Program (ECP)

The United States Department of Agriculture (USDA) Farm Service Agency (FSA) Emergency Conservation Program (ECP) provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters. ECP is administered by state and county FSA committees.

Land Eligibility, re-imbusement rates, and eligible projects under ECP

For land to be eligible, the natural disaster must create new conservation problems that, if untreated, would:

- Impair or endanger the land.
- Materially affect the land's productive capacity.
- Be too costly for an individual owner or business to repair without state and federal assistance.

ECP program participants receive cost-share assistance of up to 75 percent to implement approved emergency conservation practices. ECP program participants may implement emergency conservation practices, such as:

- Remove debris.
- Restore fences and conservation structures.
- Other conservation measures that may be authorized by county, state, and federal FSA committees on a case by case basis.

Nine counties in the Area 15 EDD region requested implementation of the ECP program. 810 individuals applied for and received ECP grants totaling \$1.8 million dollars.³⁸ The breakdown of applicants and funding can be seen in figure 18.

Figure 18 Emergency Conservation Program Assistance

County	Approved Applications	Total
Appanoose	0	\$0
Davis	59	\$68,750
Jefferson	160	\$349,086
Keokuk	198	\$334,689
Lucas	31	\$77,842
Mahaska	66	\$287,496
Monroe	40	\$28,667
Van Buren	79	\$199,159
Wapello	124	\$350,493
Wayne	53	\$106,022
Total	810	\$1,802,204

Source: Iowa Farm Service Agency State Office 7/6/2010

³⁸ (Holcombe, 2010)

Housing

Homeowners and renters in the region impacted by the two disasters were directed to financial assistance programs. These programs included: FEMA Individual Assistance, FEMA Housing Assistance, FEMA Other Needs Assistance, Jumpstart Iowa Housing Assistance, and the Small Business Administration Home Loans program.³⁹

FEMA Individual Assistance Program

Individual assistance is available to qualified individuals and businesses for grants and loans. The individual assistance program is administered by FEMA and the Iowa Homeland Security and Emergency Management Division. It is divided into two different programs 1) Housing Assistance, and 2) the Other Needs Assistance. Housing assistance is offered to home owners with property damage. The other needs program is offered to renters living in damaged housing. Housing and other needs assistance offer grants up to \$28,800 to renters and homeowners with eligible, disaster related damages.⁴⁰

Figure 19 shows the impact of these programs in the Area 15 region. A total of 1,082 individuals registered for individual assistance and 60 applied for additional assistance through Jumpstart Housing, 152 individuals applied for an SBA loan.

Figure 19 FEMA Individual Assistance

County	Registrations	Housing Assistance	Other Needs Assistance	Total
Appanoose	97	\$208,697	\$4,272	\$212,969
Davis	54	\$166,904	\$5,113	\$172,017
Keokuk	72	\$102,766	\$2,578	\$105,344
Lucas	82	\$131,082	\$6,696	\$137,778
Mahaska	105	\$540,899	\$32,188	\$573,087
Monroe	55	\$73,071	\$2,275	\$75,346
Van Buren	88	\$131,215	\$11,660	\$142,875
Wapello	529	\$2,089,497	\$98,640	\$2,188,137
Wayne	0	\$0	\$0	\$0
Total	1,082	\$3,444,131	\$163,422	\$3,607,553

Source: Iowa Homeland Security & Emergency Management 5/10/2010

In cases where individual assistance was not enough to cover the costs of damaged property, individuals were able to apply for additional funds through a Small Business Administration (SBA) home loan and/or a Jumpstart housing forgivable loan through the local COG. Eligibility and approval for SBA loans was determined by SBA. Eligibility for the Jumpstart program required a FEMA registration number.

³⁹ (Authority, Consolidated Report for the Economic Emergency Funds Appropriated Relating to Disaster Recovery (HF 64) State Jumpstart 1/2/3 & Express Funding Programs Report by Disaster-Affected County, 2009)

⁴⁰ (Berg, 2010)

Small Business Administration (SBA) Home Loans

Iowans who have registered with FEMA for disaster assistance may be eligible for additional long-term assistance from the U.S. Small Business Administration (SBA). The SBA provides low-interest disaster loans for eligible homeowners and renters to cover disaster damage to real and personal property. Figure 20 shows the SBA assistance in the region.

Figure 20 Small Business Administration Housing Loans

County	Applications	Declined	Withdrawn	Funded	Approved
Appanoos	7	6	0	1	\$10,300
Davis	4	2	0	2	\$18,500
Jefferson	0	0	0	0	\$0
Keokuk	5	2	1	2	\$101,300
Lucas	11	9	0	2	\$10,300
Mahaska	11	2	3	6	\$156,800
Monroe	3	1	1	1	\$120,300
Van Buren	13	7	1	5	\$87,200
Wapello	97	48	12	37	\$1,487,900
Wayne	0	0	0	0	\$0
TOTAL	151	77	18	56	\$1,992,600

Source: Small Business Administration 5/11/2010

Jumpstart Iowa Housing Assistance Program

The Jumpstart Iowa Housing Assistance Program helps disaster-affected homeowners make a down payment on a new house, repair their current disaster-affected home, or maintain their mortgages while waiting for a potential "buyout" from FEMA. The maximum award through Jumpstart is a \$60,000 loan forgiven if the homeowner continues to own and occupy the home for 5 years. The program is administered at the state-level through the Iowa Finance Authority (IFA) and the Iowa Department of Economic Development (IDED) and at the local level by the 17 Councils of Government (COGs) and Entitlement Cities. The Area 15 EDD region is currently served by two COGs for Jumpstart Iowa Housing: Area 15 Regional Planning Commission and Chariton Valley Planning and Development. The Area 15 Regional Planning Commission 'adopted' Marion County to provide assistance to individuals for the Jumpstart Iowa program because it is not served by a COG. Through this cooperation, Area 15 RPC assisted five Marion County households in receiving Jumpstart loans. A total of 58 Jumpstart Iowa Housing Assistance loan applications were received in the region; 36 applicants were eligible and funded for a total amount of \$631,763.

Public Facilities

There was no damage to public facilities reported as a result of the winter storms. However the 2008 flooding events damaged many public facilities in the Area 15 region. Public buildings such as schools, city halls, municipal buildings, and park buildings all received damage. Information obtained through the community survey identified parks and recreational land damage in 16 of the 44 communities that responded. The range of estimates for damage was from \$2,200 from Packwood and \$50,000 from Ottumwa. Half of the communities (8) that received parks and recreational land damage had completed all repairs by the time the 2008 Disaster Recovery Survey was returned to Area 15 RPC on January 23, 2009.⁴¹ FEMA funded 12 city/county governments to make repairs to park land and infrastructure under public assistance.⁴²

Figure 21 illustrates the payments made by FEMA under the public assistance program for buildings in Area 15:

Figure 21 Public Assistance for Buildings

County	Building	PA Funding
Davis	Davis County High School	\$28,092
Davis	Davis County Hospital	\$6,158
Lucas	Chariton Airport Hanger	1,284
Lucas	Radio Tower	6,284
Van Buren	Bentonsport Campground	9,315
Van Buren	Bentonsport Greefhouse	4,117
Van Buren	Bentonsport Shelter House	1,419
Van Buren	Bonaparte – Municipal	2,661
Van Buren	Douds Community	4,370
Van Buren	Keosauqua Public Library	2,127
Van Buren	High School	4,718
Van Buren	Harmony School	1,028
Van Buren	Stockport Elementary	416
Wapello	Eldon City Hall	2,475
Ottumwa	Lagoon pumping station	16,794
Ottumwa	Emergency response boat	1,802
Ottumwa	Finley pump station	2,392
Wayne	Humeston Municipal Storage Building	1,576

Source: FEMA

⁴¹ (Commission, Area 15 RPC 2008 Disaster Recovery Strategy, 2009)

⁴² (Berg, 2010)

SECTION 3 SCOPE OF WORK

The following section contains the Area 15 EDD Scope of Work that was established for the development of the disaster recovery strategy. This scope of work was designed as the framework for Area 15 response. Below each work activity are the actions that have been taken to complete the scope of work.

A. Design disaster recovery plans

- 1. Create, implement, and review existing disaster recovery plans.**
 - All ten Existing local Emergency Operations Plans (EOP), and two existing Hazard Mitigation Plans have been reviewed by the Area 15 EDD.
 - Jurisdictions that do not have plans Hazard Mitigation Plans were offered technical assistance to develop Hazard Mitigation Plans, three plans are currently under development by Area 15 RPC, five plans are being developed by other entities in the Area 15 EDD region. Area 15 EDD is in the process of developing Hazard Mitigation Plans for Jefferson, Keokuk, and Mahaska Counties.
 - There were no difficulties in locating or reviewing completed Disaster Plans. All current plans are either located at Area 15 RPC or Local EMC offices.
- 2. Offer disaster recovery or prevention walk-through 'audits' to cities/counties to identify and discuss disaster related issues.**
 - The Area 15 EDD's outreach and data collection activities that were implemented immediately after the disaster events were:
 - Surveyed (78) communities and (10) county governments to determine level and extent of damage.
 - Met with (11) local engineers and (7) emergency management coordinators to determine immediate public facilities/infrastructure recovery projects
 - Area 15 EDD Staff met with local officials in every county (10) to identify local needs and prioritize improvement projects for long-term disaster recovery. Project lists developed for the region can be seen in appendix H of this report.

B. Provide Education/Training

- 1. Provide insight to cities/counties about availability of disaster recovery programs, services, and planning tools.**
 - The Area 15 EDD provided immediate information on the availability of recovery programs and funding and continues to provide this assistance on an on-going basis. Information is provided through electronic and print bulletins, quarterly newsletters, publication in newspapers of eligibility requirements and deadlines for programs, electronic updates sent out to local officials giving information on current assistance available, and direct contact through meetings and phone calls.
- 2. Provide training about how to include disaster considerations when making decisions about purchasing (or building) new equipment, facilities, services, infrastructure, and other systems.**
 - FEMA HAZUS GIS flood maps were created and designed by Area 15 EDD staff to show projected floodplains in five counties FEMA has not formerly surveyed. Half of

the Area 15 EDD region is not mapped for floodplains by FEMA, this tool can be used as a resource to unmapped communities to make more well informed disaster considerations and decisions when improving infrastructure and purchasing equipment.

- The development of the Area 15 Disaster recovery Strategy has included meetings where staff met with local officials to prioritize long-term projects for recovery in all 10 counties. Each county has recognized vulnerable areas and people to take into account during the development of these projects. Project lists developed for each county can be seen in appendix H of this report.
- Training local officials to consider disaster considerations was not seen as an achievable goal since Area 15 staff did not have a demand for workshops. To meet this objective Area 15 staff took a different approach, informing local governments of their options and providing technical expertise.

3. Provide assistance to individuals about availability of disaster recovery programs and services.

- Information is disseminated through (4) bulletins per year, (4) newsletters per year, the Area 15 website, and direct contact with individual inquiries over the phone and through E-mail.
- Individuals are also referred to other public/private programs and services that may be able to provide additional or supplemental recovery assistance.

C. Affected Community Assistance

1. Develop a status database of cities/counties that have been affected by disaster events.

- The locations of critical infrastructure: roads, bridges, rail, pipelines, water, and sewer facilities have been mapped out using GIS and are available in excel and word formats. The locations, damage, and status of infrastructure has been collected by Area 15 staff through meetings with local engineers and contact with state and federal agencies, including: FEMA, NRCS, IDNR, IFA, IDED, and RIO.
- Developing a status database of city and county damages and assistance provided has been a challenge. Many communities did not respond to Area 15's surveys or request for information, and there was not a lot of continuity between cities or counties that did respond with information about disaster damage and assistance.

2. Maintain a database of information of programs available to assist communities.

- Area 15 EDD continues to maintain and update its database of information on programs available to communities. As guidelines, criteria or updates become available; information is published via print media, websites, and through direct contact.

3. Provide affected communities with information about recovery tools available.

- Preliminary data was gathered by Area 15 EDD through surveys to assess the damage received by each community in the region (78) cities (10) counties.
- Jurisdictions and individuals that contacted the Area 15 EDD were assisted in identifying relevant recovery programs and the application processes.
- Information on all recovery programs available is continually updated and distributed on a regular basis through newsletters, bulletins, and directly to Area 15 members

and other interested parties informing them of funding opportunities from various programs.

4. Apply for funding on behalf of affected cities/counties

- The Area 15 EDD staff has assisted communities in accessing Community Disaster Grant funds from Iowa Homeland Security and Community Development Block Grant (CDBG) Supplemental/Disaster Recovery funds (DHUD). Area 15 staff have written five (5) successful grants and are administering six (6) grants worth over eight million dollars approved by granting agencies to assist communities with disaster recovery and mitigation activities.
- The Area 15 EDD staff has assisted five (5) communities in accessing Hazard Mitigation grants (HMGP) from the Federal Emergency management Agency (FEMA). Area 15 EDD staff has successfully submitted five (5) notice of intent (NOI) forms to fund and construct tornado safe-rooms.

5. Develop/maintain a library of recovery support and emergency response procedures.

- The Area 15 EDD has reviewed each county's Emergency Operations Plan (EOP) (10 total) and individual county emergency response procedures. Available paper and electronic copies of these procedures and plans have been collected by Area 15 EDD staff. As future plans are updated and electronic copies become available, Area 15 will continue to update this database.

D. Infrastructure Recovery & Vulnerability

1. Identify infrastructure needs for development or repair to assist with recovery and subsequently work to overcome damage.

- Contacted all five (5) electricity providers in the region to document damage and to electric infrastructure and disruption in service to businesses and individuals.
- Mitigation actions electric providers are taking was also documented
- Met with engineers and public works officials and collected information on damaged roads and utilities.
- Public officials were asked to compile a list of projects that would address flooding and winter weather issues that disrupted service to individuals and communities. An estimated \$71 million dollars worth of projects were gathered by Area 15 RPC staff. Lists for each county can be found in appendix H of this report.
- Contacted all ten (10) pipeline owners that transport and distribute natural gas to communities. Underground infrastructure was located and damaged/temporary gas shut offs were documented.
- Contacted all seven (7) public and privately owned railroad companies that operate tracks in the Area 15 EDD region to document damages and temporary closures of service.

2. Identify potential areas of vulnerability as they relate to potential infrastructure damage in future disasters and work to resolve the vulnerable areas.

- Areas that have been damaged by past flooding and winter weather events have been identified and are located in the Area 15 Disaster Recovery Strategy.
- Future projects that will mitigate against flooding and winter weather have been created and are in the Area 15 Disaster Recovery Strategy Appendix H.

- Information on damages and future mitigation projects has been gathered by Area 15 staff from multiple sources: county engineers, elected officials, and EMC coordinators. Additional information on the support and funding of repairs and improvements has been gathered from state and federal sources: IFA, IDED, NRCS, IDNR, FEMA, and Homeland Security.
- Identifying public infrastructure that was damaged or in need of public assistance was not a challenge but was time consuming. Area 15 staff did have difficulties in obtaining information on private utilities that received damage during both the winter weather and flooding disasters.

E. Affected Business Assistance

1. Develop a status database of businesses that have been affected by disaster events.

- The Small Business Administration, SBA, has provided information on loan assistance given to (2) local businesses.
- Iowa Workforce Development, IWD, has provided information on loan assistance given to businesses.
- (22) Businesses that were temporarily closed due to flooding and winter weather have been documented in the Area 15 2008 Disaster Recovery Survey.

2. Maintain a database of information of programs available to assist businesses.

- Area 15 EDD continues to maintain and update information on disaster recovery programs, including: eligibility requirements, program status, and how to apply for assistance.
- A list of programs available to businesses for recovery has been created, and put into the Long Term Recovery Plan under Appendix A.

3. Provide affected businesses with information about recovery tools available.

- Provided information to interested businesses on funding opportunities for programs Area 15 administered. Two (2) business Jumpstart loans were approved in the region, totaling \$17,500.
- Area 15 EDD guided affected businesses through the application process of the programs it administered. Area 15 also referred businesses seeking additional assistance to other entities that were offering assistance to businesses.

4. Assist affected businesses with disaster recovery strategy development and implementation to assure that recovery procedures are effective for the restoration of key corporate resources and for the resumption of critical business processes.

- Area 15 will be offering to help businesses develop business continuity plans. A template for a business continuity plan has been provided by Region XII and the efforts of continuity planning have been discussed at the state-wide recovery coordinators meeting.

5. Apply for funding on behalf of affected businesses.

- All business inquiries received by Area 15 EDD were directed to all available recovery and business redevelopment assistance programs.

6. Maintain a library of recovery support and business resumption and emergency response procedures.

- The Area 15 EDD Disaster Recovery Strategy will address the local, state, and federal recovery response to affected businesses. The Disaster Recovery Strategy will promote the development of individualized emergency response procedures for businesses.
- There was not a huge impact on businesses in the region due to flooding or winter weather. Area 15 did record (22) temporary business closures in the region. Area 15 was not able to gather a large amount of business disruption information; however this difficulty is probably because there was not a lot of damage reported.

F. Economic Development for Recovery

1. Identify and implement strategies to address areas of business/ industrial impact caused by the disaster event and develop strategies to address them.

- The Area 15 EDD has recognized transportation infrastructure as having the largest negative impact on businesses and industry in the region.
- The disaster recovery strategy address infrastructure areas of vulnerability and areas communities have identified as needing improvement or repair.
- There was not a big disaster impact on businesses in the region. Businesses that were impacted reported losses of power or threat of flooding for being temporarily closed.
- Measurable information for business recovery efforts was difficult to obtain.

G. Mapping and Database

1. GIS application of Businesses in Floodplain/floodway.

- Area 15 EDD is continuing to use GIS to fill the gaps in floodplain/floodway information provided by FEMA.
- The floodplains for Area 15 have been defined by FEMA, however many areas have not been mapped out by FEMA to locate flood risks. In cases where FEMA has not defined the floodplain, Area 15 has created an approximation of the floodplain using HAZUS (a disaster model program provided by FEMA that runs on GIS software) that projects flooding events and risk. FEMA or Area 15 flood maps have been overlaid with local maps of infrastructure and assets/investments, both public and private to determine risk and vulnerability. Area 15 has approximated losses to businesses, buildings, infrastructure, and personal property for future flooding events using HAZUS. HAZUS has generated very basic losses for the 100, 200, and 500 year flooding events. HAZUS and FEMA flood maps can be found in Appendix D FEMA & HAZUS Maps.

2. Inventory of Business and Employment.

- A list of leading employers and number of employees has been created and is located in Appendix E.

3. Map of Threats.

- Area 15 EDD has created a base layer of information showing the geographic layout of assets and threats to the region. Areas at increased risk or vulnerability are identified. Areas and structures that are vital to the region's health, safety, wellbeing, and economic success have been located. A map of known repetitive threats have been depicted through flood modeling with HAZUS, FEMA floodplain maps, and feedback from officials on damages incurred by past events.
- Area 15 did not have difficulties creating a GIS database, however it took a significant amount of time to develop.

H. Establish Partnerships

1. Coordinate a regional meeting of Emergency Management Coordinators; hold regular meetings to discuss disaster recovery and prepare for future disasters.

- Meetings have been held with all seven (7) Emergency management Coordinators to discuss and review all ten (10) Emergency Operations Plans (EOPs) and two (2) FEMA approved Hazard Mitigation Plans (HMPs).
- Meetings with all ten (10) county and two (2) municipal engineers have been held to look at the structural damage each area of the region has received and to develop a list of structural priorities for disaster recovery.

2. Create reciprocal agreements to gain assistance in case of future disasters.

- Currently there is a state wide reciprocity agreement, Iowa Mutual Aid Compact (IMAC), between all emergency recovery agencies in Iowa. Information on IMAC can be found in the Iowa Code Section 29C.22.
- A list of reciprocity agreements between communities has been created, a copy of the current reciprocity agreements can be accessed by request to the Area 15 RPC office. A copy of the 28E agreements (used to create the reciprocity list) is also available upon request to the Area 15 RPC office, 28E records were obtained from the State of Iowa Secretary of State Office.

3. Work with the Iowa Homeland Security and Emergency Management Division and the State of Iowa's Rebuild Iowa Office to coordinate available resources.

- Area 15 continues to communicate with FEMA personnel and compile information on level and distribution of FEMA assistance throughout the region.
- Area 15 EDD continues to receive updates from the Rebuild Iowa Office (RIO), about programs, funding, and other assistance available for recovery through the RIO quarterly reports, newsletters, and weekly updates.
- Area 15 EDD continues contact with Iowa Homeland Security personnel to gather information on public and individual assistance received.
- Area 15 EDD will work with Iowa Homeland Security and FEMA in the future to implement proposed hazard mitigation projects identified in this strategy.
- Area 15 continues to work on establishing partnerships with other agencies; this is a long term goal that will take time to develop. Area 15 has not encountered any difficulties with this goal yet.

SECTION 4 REGIONAL IMPLEMENTATION STRATEGY

Definitions

Recovery. Recovery begins after a community is hit by a natural disaster the process of recovering begins. Recovery can be broken down into three phases: immediate, short-term, and long-term. Each phase in the recovery process serves a different purpose and has different priorities. The focus of the Area 15 EDD Disaster Recovery Strategy will be on long-term recovery.

Immediate Response. Immediate response begins during or immediately after a natural disaster and involves the action of saving lives that are in direct danger, preventing lives from becoming endangered, and reducing hazards to life and property. Examples might include rescuing people from floods or fires, building temporary levees to contain floods, and evacuating people before their lives become endangered by disasters.

Short-term Recovery. Short-term recovery begins after the threat to lives and property has been contained. Short-term recovery can last anywhere from 0 to 18 months after a disaster event (depending on severity). It involves restoring basic amenities and services that preserve the health, safety and wellbeing of citizens in an area.⁴³ Specific short-term recovery strategies may include but are not limited to the following:

- Re-entry into the affected area
- Concise damage assessment
- Restoring essential utilities
- Debris removal
- Providing shelter to displaced residents

Long-term Recovery. Long-term recovery begins when the threat to life is over and basic services and amenities have been restored, a person's health safety and wellbeing are secure. Long-term recovery focuses on complete recovery/restoration of services and opportunities to people and businesses. Long-term recovery aims to prepare people for future disaster events. It also aims to improve economic and social well-being before disaster events occurred.⁴⁴ Specific long-term recovery operations may include but are not limited to the following:

- Restoring and reconstructing public facilities
- Repairing infrastructure
- Restoring all utility service
- Reviewing and implementing hazard mitigation measures
- Restoring economic, social, and institutional activities

⁴³ (Miller, 2007)

⁴⁴ (Miller, 2007)

Priorities

1. **Safety of People.** Public safety is the main priority during and after a disaster strike. It is the goal of this plan to prioritize response and recovery activities. This goal will be accomplished by:
 - Protecting lives and assets in the long-term by identifying areas of high risk and working to reduce exposure to risk.
 - Improving communication and disaster response between government agencies.

3. **Social Restoration.** Social restoration involves restoring a community’s ability to fulfill basic needs: food, water, shelter, and sanitation. Full social restoration occurs when basic needs are met, the threat to life and property has passed, and normal functions of society resume.⁴⁵ It is the goal of this plan to speed up social restoration in the future by improving communication between agencies that respond to disasters.

3. **Economic Restoration.** Economic restoration involves restoring households and businesses to pre-disaster economic conditions.⁴⁶ It is the goal of this plan to maximize economic restoration by minimizing future economic risk. This goal will be accomplished by:
 - Working to strengthen public and private infrastructure to withstand future disasters.
 - Work with communities to develop hazard mitigation projects that will minimize negative economic impacts to business, industry, and citizens in the future.

4. **Physical Restoration.** Physical restoration involves returning the physical and natural environment to pre-disaster condition. The physical restoration of disaster stricken property is the most visible aspect of a recovery and requires significant time, energy, and money. It is the goal of this plan to promote sustainable physical restoration.⁴⁷ This goal will be achieved by doing the following:
 - Working with local governments and businesses to rebuild in a sustainable way by offering financial and technical expertise.
 - Developing projects and securing funds to improve the health safety and well being of the Area 15 region.

⁴⁵ (Miller, 2007)

⁴⁶ (Miller, 2007)

⁴⁷ (Miller, 2007)

Goals and Objectives

The Area 15 EDD has identified the following goals for regional disaster recovery and response to FEMA-1737-DR and FEMA-1763-DR: The goals are: Infrastructure, Housing, Business, and Hazard Mitigation.

Goal 1. Infrastructure Recovery

Objective: To facilitate the repair of public infrastructure necessary for the health, safety, and welfare of the general public. Including but not limited to: water, wastewater, storm water, roads, bridges, gas and electric utility, public buildings, and public communication.

Actions Taken

1. Establish Partnerships.

- a) Teamed with federal and state agencies to coordinate delivery of disaster assistance funding programs.
- b) Formed disaster recovery partnership with EDA.
- c) Partnered with Iowa Department of Economic Development to help deliver the CDBG Disaster Recovery Program funds.
- d) Teamed with Iowa Homeland Security to help deliver the FEMA Hazard Mitigation Assistance program.
- e) Communicated with local emergency management coordinators (EMC's) to identify damages and potential projects.

2. Collect Information.

- a) Disaster Recovery Survey. Staff prepared a survey form and mailed it to all 78 communities in the Area 15 region. The survey asked questions about damage to infrastructure and loss of public services, business impact, and potential projects.
- b) County-wide Meetings. Arranged meetings with key government officials in each of the ten Area 15 counties to identify damage to infrastructure, loss of public service, and recovery steps taken.
- c) Mitigation Survey. Staff prepared and mailed a survey form to all ten counties in Area 15. The form consisted of asking participants to rank types of mitigations actions that were most important.

3. **Provide Information.** Area 15 office acted as a clearinghouse for information on all disaster recovery programs and assistance available from Federal and State agencies. Information was provided on the Area 15 RPC website, newsletters. An e-mail system was used to immediately pass along news breaking information to all communities and key officials on the RPC group list. Staff attended meetings with local officials to discuss programs and potential projects.

4. **Prepare Applications.** Area 15 RPC staff worked directly with communities that requested assistance to collect information and identify funding sources for projects. Applications were prepared and submitted to funding agencies by Area 15 RPC staff.

5. **Administer Programs.** Area 15 RPC staff are administering projects that were awarded funding for disaster recovery projects.

Goal 2. Housing Recovery

Objective: To facilitate repair and replacement of housing stock that was damaged during the FEMA-1737-DR and FEMA-1763-DR disaster events.

Actions Taken

1. **Establish Partnerships.** Formed agreement with the Iowa Finance Authority and Southern Iowa Council of Governments (Super-COG) to administer the Jumpstart Iowa Program.
2. **Provide Information.** Area 15 office acted as a clearinghouse for information on housing recovery programs and assistance available from Federal and State agencies. Information was provided through the Area 15 RPC website, newsletters, meetings, and other methods. An e-mail system was used to immediately pass along news breaking information to all communities and key officials on the RPC group list.
3. **Accept Applications.** Area 15 RPC office accepted applications for the Jumpstart Iowa program.
4. **Administer Programs.** Reviewed Jumpstart applications and determined eligibility based on program guidelines. Collected information and documentation from applicants. Provided direct financial assistance to qualifying households.

Goal 3. Business Recovery

Objective: To assist with business continuation for those affected by FEMA-1737-DR and FEMA-1763-DR disaster events.

Actions taken:

1. **Establish Partnerships.**
 - a) Formed agreement with the Iowa Department of Economic Development and Southern Iowa Council of Governments (Super-COG) to administer the Jumpstart Iowa Program.
 - b) Small Business Development Center. Collaborated with SBDC to assist businesses impacted by the disaster events.
 - c) Local economic development organizations. Communicated with local economic development organizations to assist businesses impacted by the disaster events.
2. **Provide Information.** Area 15 office acted as a clearinghouse for information on housing recovery programs and assistance available from Federal and State agencies. Information was provided through the Area 15 RPC website, newsletters, meetings, and other methods. An e-mail system was used to immediately pass along news breaking information to all communities, economic development organizations and key officials on the RPC group list. Referrals of businesses to available funding resources.
3. **Refer Businesses.** Directly referred businesses to available funding resources.

Goal 4. Hazard Mitigation

Objective: To reduce the impact of future severe storms, tornados, and flooding events

Actions Taken

1. Establish Partnerships.

- a) Teamed with federal and state agencies to coordinate delivery of disaster assistance funding programs.
- b) Partnered with Iowa Department of Economic Development to help deliver the CDBG Disaster Recovery Program funds.
- c) Teamed with Iowa Homeland Security to help deliver the FEMA Hazard Mitigation Assistance program.
- d) Teamed with Iowa Department of Natural Resources to coordinate SRF loan program with federal disaster recovery funds.
- e) Communicated with local emergency management coordinators (EMC's) to identify damages and potential projects.

2. Collect Information.

- a) County-wide Meetings. Arranged meetings with key government officials in each of the ten Area 15 counties to identify damage to infrastructure, loss of public service, and recovery steps taken. Discussed mitigation strategies. Discussed update of FEMA county-wide hazard mitigation plans.
- b) Mitigation Survey. Staff prepared and mailed a survey form to all ten counties in Area 15. The form consisted of asking participants to rank types of mitigations actions that were most important. Actions for protection and improvement projects were prioritized. See appendix C.

3. Provide Information.

Area 15 office acted as a clearinghouse for information on disaster recovery programs and assistance available from Federal and State agencies. Information was provided on the Area 15 RPC website, newsletters. An e-mail system was used to immediately pass along news breaking information to all communities and key officials on the RPC group list.

4. Prepare Applications and Administer Projects.

Area 15 RPC staff worked directly with communities that requested assistance to collect information and identify funding sources for projects. Applications were prepared and submitted to funding agencies by Area 15 RPC staff.

- Prepared and submitted 5 notice of intents to FEMA for tornado safe rooms
- Prepared and submitted one CDBG housing buyout application (approved and now administering); total \$26,000.
- Prepared and submitted 6 CDBG disaster recovery applications (all approved and now administering); total of \$8,059,120.

5. Prepare Plans.

Area 15 RPC has developed two multi-jurisdictional hazard mitigation plans that have been approved by FEMA for Wapello and Davis Counties. Eight multi-jurisdictional plans are currently under development; RPC is currently developing plans for Jefferson, Keokuk, and Mahaska counties.

SECTION 5 REGIONAL RECOVERY

The following recovery strategy has been designed to address preparations for and mitigation of future disasters in the Area 15 region. This strategy is designed to address the region as a whole, and individual communities likely to be impacted by future disasters and their respective residents, businesses, and local officials. The strategies will serve as a roadmap to help facilitate preventative and mitigative activities.

Regional Strategy

Encourage the use of pre-disaster mitigation planning in all Area 15 region cities and counties.

1. Ensure all cities and counties have a FEMA approved pre-disaster hazard mitigation plan.
 - a. Provide technical assistance help write and adopt plans.
 - b. Assist counties and cities with implementation of pre-disaster hazard mitigation plans.
 - c. Identify priority projects for funding assistance applications and work with city officials to pursue implementation.
 - d. Contact cities/counties annually to update the status of implementation of the disaster mitigation plans.
2. Become actively involved in each of the county emergency management commissions.
 - a. Appoint Area 15 RPC staff as an ex-officio member to each of the county emergency management commission.
 - b. Provide technical assistance to include disaster considerations when making decisions about purchasing (or building) new equipment, facilities, services, infrastructure, and other systems.
3. Employ and sustain knowledgeable staff at Area 15 RPC to provide hazard mitigation and disaster recovery planning assistance to the region.
 - a. Provide technical assistance to write hazard mitigation plans.
 - b. Provide technical assistance to write and administer grant applications.
4. Disseminate information to communities as quickly as possible.
 - a. Utilize a mass e-mail list.
 - b. Encourage all cities and counties to have an e-mail address.

Community Strategy

Provide technical assistance to communities most likely to be impacted by future disasters.

1. Identify all communities most vulnerable to river flooding in the Area 15 region.
2. Implement disaster mitigation plans
3. Prepare for future disaster recovery
 - a. Utilize the Area 15 RPC community disaster survey tool and database.
 - b. Collect damage information after a disaster strikes for residential, business, and infrastructure.
 - c. Conduct annual reviews and surveys of communities regarding the status of disaster plan implementation activities.
 - d. Facilitate dialogue of hazard mitigation projects and needs.

APPENDIX A DISASTER ASSISTANCE PROGRAMS

Programs for Individuals:

Jumpstart Iowa Housing Assistance Program

- Administered through the IDED, the Iowa Finance Authority, Councils of Governments and Entitlement Cities.
- This program helps homeowners make a down-payment on a new house, repair their current home, or maintain their mortgages. The maximum award for down-payment assistance and repair/rehabilitation assistance is a \$60,000 loan which will be forgiven if the homeowner stays in the house for five (5) years.
- Information can be found at: <http://www.rio.iowa.gov/resources/jumpstart.html>

Iowa Unmet Needs Disaster Grant Program

- Administered by the Iowa Department of Human Services and local Long-Term Recovery Committees.
- The Iowa Unmet Needs Disaster Grant program reimburses eligible households with an income at or below 300% of the federal poverty level for disaster-related expenses. Assistance is capped at \$2,500 for unreimbursed expenses and current unmet needs incurred due to the disaster.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/individuals.html#iundgp>

FEMA Individual Assistance (IA) Program

- Administered by FEMA and Iowa Homeland Security and Emergency Management Division.
- The Individuals and Households Program, Commonly referred to as Individual Assistance, offers grants up to \$28,800 to renters and homeowners with eligible, disaster related damages.
- Information can be found at: http://www.fema.gov/media/fact_sheets/individual-assistance.shtm

US Small Business Administration (SBA) Loans

- Administered by the Small Business Administration.
- Iowans who have registered with FEMA for disaster assistance may apply to the U.S. Small Business Administration (SBA) to help recover from the disasters. The SBA provides low-interest disaster loans for eligible homeowners, renters and non-farm businesses to cover disaster damage to real and personal property.
- Information can be found at: <http://www.sba.gov/services/disasterassistance/>

Project Recovery Iowa Crisis Counseling

- Administered by the Iowa Department of Human Services and local/regional counseling agencies.
- Iowans have access to Project Recovery Iowa, a mental health program that provides free crisis counseling to those affected by the natural disasters of 2008.
- Information can be found at: <http://www.tickettohope.org/>

Emergency Public Jobs Program for Unemployed Workers

- Administered by Iowa Workforce Development.
- Iowa has received a National Emergency Grant (NEG) designed to hire Iowa workers who have lost their jobs due to the flooding and tornadoes. The NEG creates temporary jobs to assist in the clean-up and restoration efforts.
- Information can be found at: <http://www.iowaworkforce.org/recovery/ep-jobs.htm>

Property/Structural Acquisition (Buyouts)

- Administered by local city and county governments.
- Property or structural acquisition is the purchase of property from private citizens by a government entity as part of a hazard mitigation plan. Local, state or federal funds are used to buy property in areas that are at high risk in order to reduce or eliminate long-term risk to life and property from a hazard event, such as flooding.

Disaster Unemployment Assistance (DUA)

- Administered by Iowa Workforce Development.
- DUA provides unemployment benefits and re-employment services to individuals who have become unemployed because of the disasters.
- Information can be found at: <http://www.iowaworkforce.org/ui/dua.htm>

Programs for Agriculture & Rural Residents:

Emergency Conservation Program

- Administered by local Farm Service Agency committees.
- USDA Farm Service Agency's (FSA) Emergency Conservation Program (ECP) provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures in periods of severe drought.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/agriculture.html>

Farm Service Agency Emergency Loans for Disasters

- Administered by local Farm Service Agency committees.
- USDA's Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters, or quarantine.
- Information can be found at:
www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=efl

Non-insured Crop Disaster Assistance Program

- Administered by local Farm Service Agency committees.
- USDA Farm Service Agency's Non-insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of un-insurable crops when low yields, loss of inventory or prevented planting occurs due to natural disasters.
- Information can be found at:
http://www.rio.iowa.gov/resources/assistance/agriculture.html#non-insured_crop

Rural Development Disaster Assistance

- In areas affected by natural disasters, USDA Rural Development can help existing Rural Development borrowers who are victims of a disaster. Rural Development's regular Business and Utilities Programs can help business owners and communities affected by natural disasters.
- Information can be found at: <http://www.rurdev.usda.gov/rd/disasters/disassistance.html>

Emergency Watershed Protection (EWP) Program

- The purpose of the Emergency Watershed Protection (EWP) program is to undertake emergency measures, including the purchase of flood plain easements, for runoff retardation and soil erosion prevention to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood or any other natural occurrence is causing or has caused a sudden impairment of the watershed.
- Information can be found at: <http://www.ia.nrcs.usda.gov/news/EWPFPE.html>

Wetlands Reserve Program (WRP)

- The Wetlands Reserve Program (WRP) is a program to develop and implement a conservation plan for restoration of wetlands previously altered for agricultural use. Eligible land is that which has been owned for one year and that could be restored to wetland conditions.
- Information can be found at:
<http://www.ia.nrcs.usda.gov/programs/wetlandreserveprogram.html>

Programs for Businesses & Non-Profits:

Iowa Workforce Development Small Business Disaster Recovery Grant Program

- Administered by Iowa Workforce Development.
- Small businesses, family farms and non-profit organizations impacted by the 2008 summer disasters can now apply for a grant of up to \$5,000 for damages incurred from last year's floods and tornadoes.
- Information can be found at:
www.rio.iowa.gov/news/releases/2009/040709_small_business_grant.html

Business Rental Assistance Program

- Administered by Iowa Department of Economic Development, Councils of Government and Entitlement Cities.
- This program provides financial assistance to eligible businesses located in or planning to locate in a business rental space that was physically damaged by the 2008 natural disasters. Assistance will be in the form of rental assistance to help offset building rental lease payments for a minimum of six months, not to exceed a total award amount of \$50,000.
- Information can be found at:
http://www.iowalifechanging.com/jumpstart/business_rental.aspx

US Small Business Administration Loans

- Administration by the Small Business Administration.
- Businesses who have registered with FEMA for disaster assistance may apply to the SBA to help recover from the disasters. The SBA provides low-interest disaster loans for eligible non-farm businesses to cover disaster damage to real and personal property and economic injury.
- Information can be found at: <http://www.sba.gov/services/disasterassistance/>

Iowa Workforce Development Small Business Disaster Recovery Grant

- Administration by Iowa Workforce Development.
- Small businesses, family farms and non-profit organizations impacted by the 2008 summer disasters can now apply for a grant of up to \$5,000 for damages incurred from last year's floods and tornadoes.
- Information can be found at:
www.rio.iowa.gov/news/releases/2009/040709_small_business_grant.html

Jumpstart Iowa Small Business Assistance Program

- Administration by Iowa Department of Economic Development, Councils of Government and Entitlement Cities.
- This program provides financial assistance to businesses suffering physical damage or economic loss due to the 2008 tornado, floods, and storm disasters. The maximum award is a \$50,000 loan, plus an additional \$5,000 for energy-efficient appliances.
- Information can be found at: <http://www.rio.iowa.gov/resources/jumpstart.html>

Community Economic Betterment Assistance (CEBA) Program

- Administered by Iowa Department of Economic Development.
- This program provides loans or forgivable loans for disaster recovery. For disaster recovery, businesses may request a waiver of one or more program requirements provided such requirement is non-statutory. Award amounts will be determined on project -by-project basis.
- Information can be found at: http://www.iowalifechanging.com/business/ceba_edsa.aspx

High Quality Job Creation (HQJC) Program

- Administered by Iowa Department of Economic Development.
- A business seeking tax credits and/or refunds may apply to the Iowa Department of Economic Development (IDED) for assistance through the High Quality Job Creation (HQJC) Program. For disaster recovery, businesses may request a waiver of the average county wage calculation.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/businesses.html#hqjc>

EDA Revolving Loan Funds

- Administered by the Economic Development Administration (EDA).
- The EDA's Revolving Loan Funds (RLF) is used to encourage small business development and expansion by local manufacturers. This program provides local businesses with the opportunity to access low interest loans up to \$100,000.

Programs for Landlords:

Small Project Rental Rehabilitation Assistance

- Administration by Iowa Department of Economic Development, Councils of Government and Entitlement Cities.
- This program offers assistance to landlords with rental properties affected by the 2008 tornadoes, storms and flooding. This program assists projects of seven units or fewer. Maximum assistance per unit shall not exceed \$24,999 and CDBG Supplemental assistance shall not exceed \$37,500 per unit
- Information can be found at:
www.rio.iowa.gov/resources/assistance/landlords.html#small_project

Large Project Rental Rehabilitation Assistance

- This program assists projects of eight units or more. This activity does not include those projects for which low income housing tax credits are also sought or that comprise the financial resources of the proposed project's budget. The maximum assistance per unit (on the hard cost of rehabilitation) shall not exceed \$24,999 in CDBG Supplemental funds and in no case shall the total CDBG Supplemental assistance exceed \$37,500 per unit (i.e., inclusive of all costs).
- Information can be found at:
www.rio.iowa.gov/resources/assistance/landlords.html#large_project

Programs for Communities:

Public Assistance (PA) Program

- Administered by FEMA and Iowa Homeland Security and Emergency Management Division.
- The Public Assistance program is available to state and local governments and to certain non-profit organizations, and allows them to respond and recover from disasters and to mitigate the impact of future disasters.
- Information can be found at: <http://www.fema.gov/government/grant/pa/index.shtm>

Hazard Mitigation Grant Program (HMGP)

- Administered by FEMA and Iowa Homeland Security and Emergency Management Division.
- The Hazard Mitigation Grant Program (HMGP) provides funds to local governments to implement long-term hazard mitigation measures, including property acquisition, safe rooms, and other Mitigation measures designed to minimize the impact of future emergency events.

Iowa Finance Authority (IFA) Public Facilities and Infrastructure Assistance

- Administered by the Iowa Finance Authority.
- Communities whose water and wastewater systems were impacted by the natural disasters may be eligible for assistance from the State Revolving Fund (SRF). SRF Construction Loans fund public drinking water and wastewater infrastructure projects for cities and utilities. These loans have a low interest rate of 3 percent and term of up to 20 years.
- Information can be found at:
www.iowafinanceauthority.gov/en/water_quality_programs/srf_construction_loans/

Community Disaster Grant (CDG) Program

- Administered by Iowa Homeland Security and Emergency Management Division.
- The Community Disaster Grant (CDG) Program is a \$22 million disaster relief program established by House File 64 and signed into law on Feb. 2, 2009. Program funds are awarded to eligible cities and counties. The grants are to be used for disaster -related costs not yet covered by other federal or non-federal resources.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/communities.html#cdg>

Community Disaster Loan (CDL) Program

- Administered by FEMA and Iowa Homeland Security and Emergency Management Division.
- Community Disaster Loans can be made to any local government in need of financial assistance to perform essential services.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/communities.html#cdl>

Jumpstart Infrastructure Assistance Program

- Administered by the Iowa Department of Economic Development.
- This program provides assistance to cities and counties for the purposes of disaster relief, long-term recovery and restoration of infrastructure directly related to the consequences of recent disasters.
- Information can be found at:
http://www.iowalifechanging.com/jumpstart/jumpstart_iowa.aspx

Programs for Contractors & Developers

Single-Family Unit Production (New Construction) Program

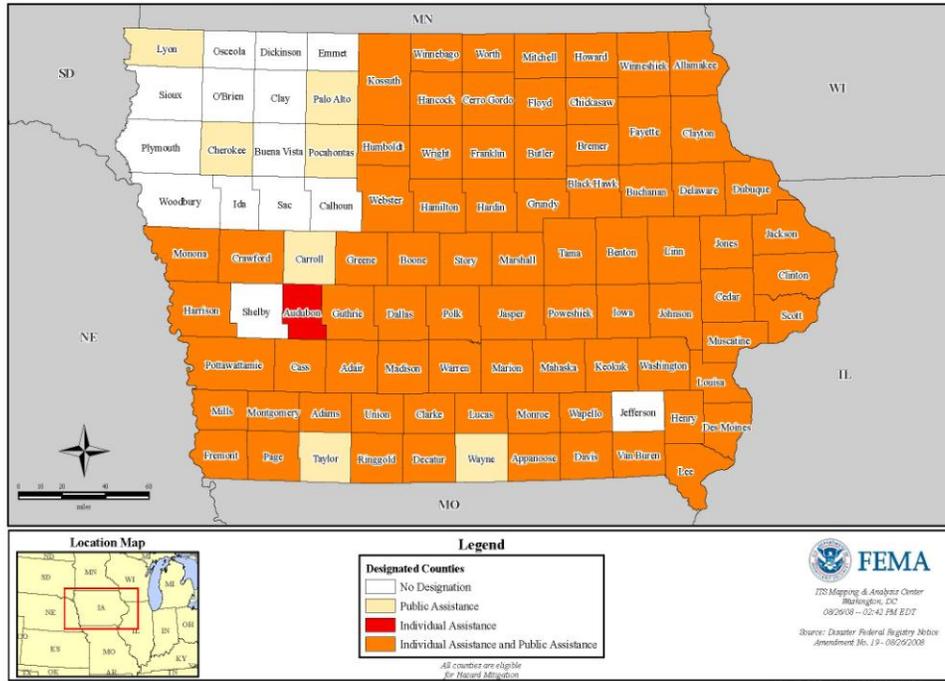
- Administration by Iowa Department of Economic Development, Councils of Government and Entitlement Cities.
- This program works to replace housing stock in Iowa communities and regions affected by the 2008 disasters.
- Information can be found at:
www.rio.iowa.gov/resources/assistance/developers.html#single_family

Low-Income Housing Tax Credit (LIHTC) Program

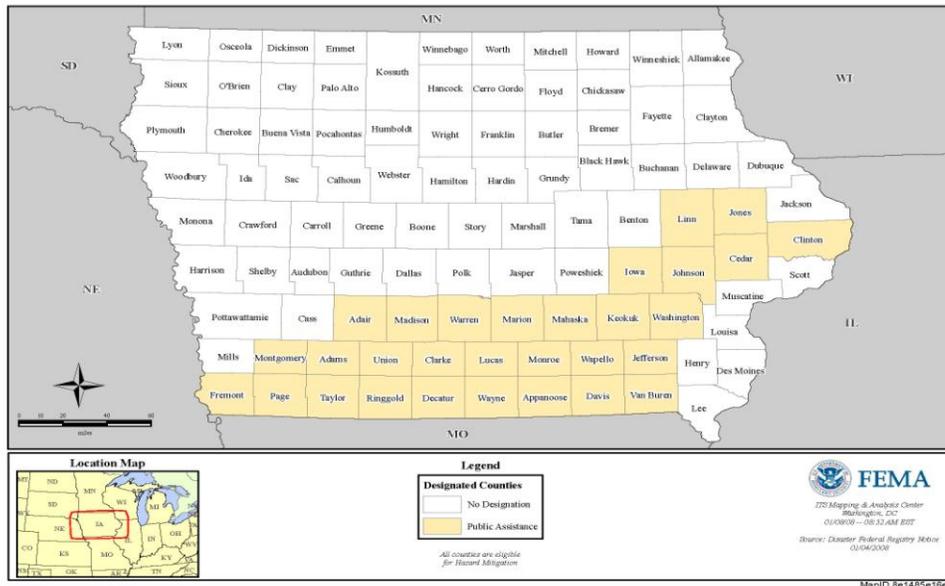
- Administered by Iowa Finance Authority.
- This program creates an incentive for developers to invest in the development of rental housing for individuals or families of fixed or limited incomes.
- Information can be found at:
<http://www.rio.iowa.gov/resources/assistance/developers.html#lihtc>

APPENDIX B DISASTER DECLARATION MAPS

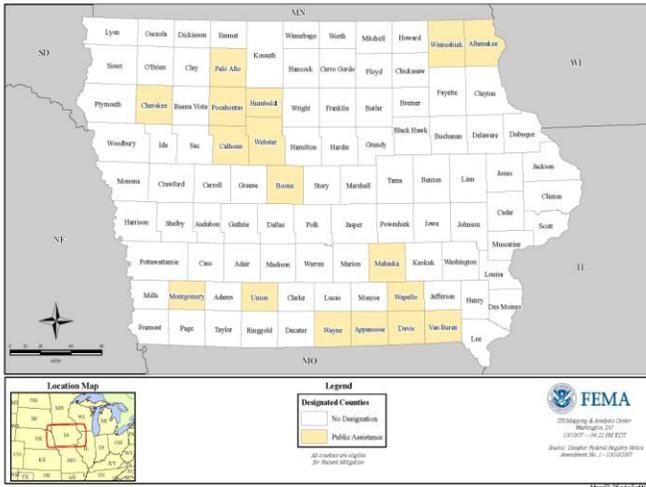
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Disaster Declaration as of 08/26/2008



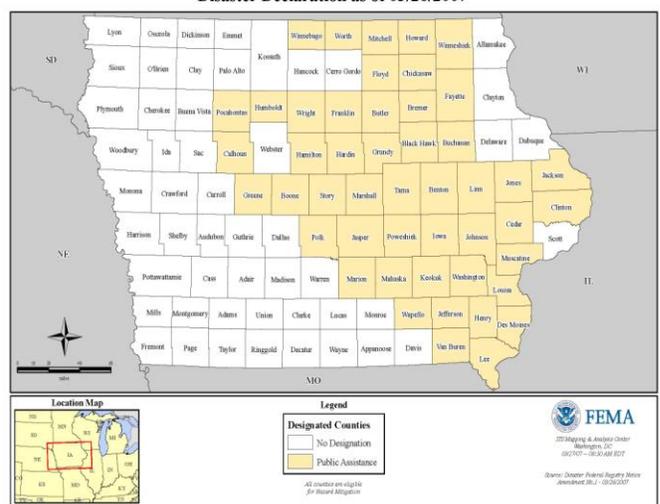
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Disaster Declaration as of 01/04/2008



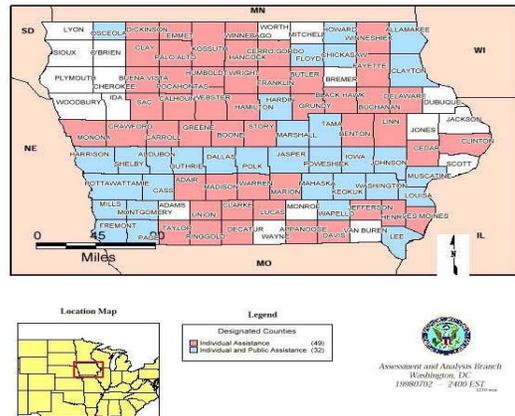
FEMA-1727-DR, Iowa
Disaster Declaration as of 10/10/2007



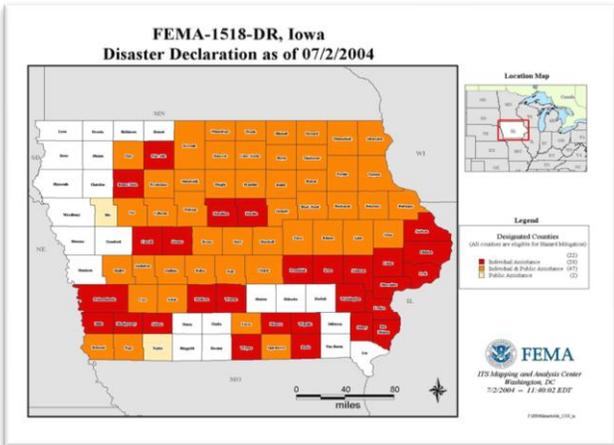
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Disaster Declaration as of 03/26/2007



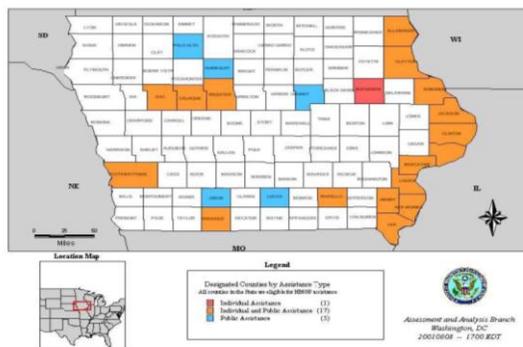
FEMA-1230-DR, Iowa
As of August 31, 1998



FEMA-1518-DR, Iowa
Disaster Declaration as of 07/2/2004



FEMA-1367-DR, Iowa
as of June 6, 2001



APPENDIX C RECOMMENDATIONS

The Area 15 EDD organization/staff has been recognized as the regional local, state and federal clearinghouse for information, planning, programming and service delivery for the past 35 years. Additionally, several EDD staff members were previously involved in the delivery of regional recovery program services resulting from the 1993 flood disaster declaration. Based upon these capacities, the Area 15 EDD was well poised to implement EDA's task for development of a Long-Term Disaster Recovery Strategy in response to the disaster events of 2008. Area 15 RPC has developed the following list of: obstacles, recommendations, and accomplishments

Area 15 RPC has compiled the following list of obstacles and recommendations for the state of Iowa and the Area 15 EDD region. The statewide list was compiled by Area 15 with input from all Councils of Governments (COG) working on disaster recovery. The Recommendations and Obstacles list was created, discussed, and approved by all participating Disaster Recovery Coordinators at the monthly statewide Disaster Recovery Meetings held in Urbandale from May 7th to July 9th 2010. The Obstacles and Recommendations List is broken down into six categories: funding, communication and coordination, timing of assistance, business assistance, standardized assistance, and plan integration. Area 15 RPC has also developed a local obstacles and recommendations list. The local obstacles and recommendations list represents local issues and proposed solutions that are specific to the Area 15 EDD region.

State Obstacles and Recommendations List from COGs

Funding

Obstacles

1. Lack of sustainable funding from State or Federal sources to promote and provide for on-going preparedness and recovery activities.
2. Administration costs provided for disaster recovery programs was not sufficient.

Recommendations

1. Implement a framework for recovery programs that is sensitive to the timing of disaster response and recovery activities:
 - Provide immediate assistance to homeowners and businesses to return to their homes and businesses.
 - Supplement ongoing recovery activities with long range planning after immediate disaster response has been addressed.
2. Provide continuous funding to EDD/COGs for on-going disaster response and hazard mitigation activities to assure local jurisdictions have immediate access to the professional, trained staff necessary for the following activities:
 - Update disaster recovery and response plans;
 - Implement disaster recovery and mitigation projects; and,
 - Provide immediate response to local, State, or Federal disaster events.

Communication and Coordination

Obstacles

1. Working with newly established and temporary or interim offices was a challenge.
2. Lack of continuity and frequent turnover in personnel in State and Federal agencies, particularly contract inspectors.
3. Federal assistance programs did not coordinate with COG's or local officials when providing individual assistance to disaster-affected homeowners.
4. Information from FEMA and IHSEMD was not available during the immediate recovery effort, including the locations of issues and disaster-affected individuals.
5. Lack of communication between Local, State, and Federal agencies with COG staff and local officials. Programs and information were released without properly notifying those working with the flood recovery effort.
6. Disaster affected individuals and businesses were largely unaware of their eligibility for disaster assistance programs.
7. The general public did not understand the consequences of accepting assistance from multiple recovery programs and its effect on duplication of benefits.
8. There were difficulties in the collection of regional disaster data that was consistent with the recovery actions of local municipalities, state, and federal entities.
9. Jurisdictions and agencies were slow to provide meaningful data related to the disaster declarations of 2008.

Recommendations

1. Immediate activation of EDD/COG staff as local partners in all State/Federally designated disaster recovery activities. As a partner, EDD/COG staff should accompany and participate with State/Federal personnel during all state or federally declared disaster damage assessments.
2. State and Federal agencies need to share information with the local level disaster assistance support organizations.
3. Communication between all public agencies needs to be kept open. Information and training regarding new programs need to be offered to help the disaster recovery coordinator complete their job more efficiently.
4. Existing organization's capacity for disaster recovery should be evaluated before creating new agencies with potential overlapping responsibilities.
5. State and Federal organizations should refrain from issuing press releases on available disaster funds until program guidance has been provided to COG's and local governments.
6. COGs, Long-Term Recovery Coalitions, and other local organizations should be utilized to disseminate information and programs to homeowners and businesses

Timing of Assistance

Obstacles

1. Funding for immediate recovery efforts were delayed.
2. The timeline to expend all funding without restrictions rushed homeowners to make decisions.

Recommendations

1. The State should expedite the release of funds or make the process of receiving funds simpler for future disaster recovery efforts.
2. Application deadlines should reflect individual needs and the organization's ability to process applications.
3. Programs and funding need to be activated and implemented quickly to respond to disasters.

Business Assistance

Obstacles

1. Inability to gather small business disaster assistance needs unless the business directly contacted the EDD/COG.
2. State and Federal programs are slow to identify the types of small business assistance available.
3. The training made available to disaster recovery coordinators for business assistance was designed for larger businesses in urban settings; many businesses and communities did not fit into this profile.

Recommendations

1. State and Federal governments should identify categories of small business assistance so businesses will know potential sources of assistance that exist.
2. Promote the benefits of business continuity and disaster planning to businesses.
3. Business assistance training for disaster recovery coordinators should also be designed for rural communities and small businesses.

Standardized Assistance

Obstacles

1. Rules for disaster recovery programs and eligibility requirements from State and Federal sources were inconsistent and unclear.
2. Each agency that provides disaster assistance funding has different regulations and requirements which make the programs a challenging to administer.

Recommendations

1. Develop and adopt a standardized form and/or checklist for disaster assessment to be available to local governments in order to gather comprehensive information necessary to document damages. Such a form/checklist will facilitate local jurisdictions in documenting locations, cost estimates, and other pertinent information necessary for public assistance reimbursement processing.
2. Information to disaster recovery assistance for individuals and businesses should be simplified, organized, and delivered in a more efficient way.
3. Provide clear guidance to disaster-affected individuals, businesses and grant administrators on program rules and Duplication of Benefits (DOB) restrictions at the time of application. Reevaluate and standardize current Duplication of Benefits (DOB) standards to ensure that disaster-affected homeowners and businesses are not penalized for accepting funds immediately following disasters
4. Standardize disaster-related assistance from State and Federal sources with the following framework:
 - Create a standardized application for each disaster-affected group including homeowners, businesses, and governmental entities.
 - Provide access to standardized application to all applicable organizations and funding sources.
 - Unify disparate funding sources into one pool of disaster-related funding
 - Standardize disaster-related assistance from state and federal sources.

Plan Integration

Obstacles

1. County Emergency Managers have plans in place on how to handle immediate disaster events. However, there is no long-term recovery plan in place to recover from disasters.

Recommendations

1. County Emergency Operations Plans (EOP) and Multi-Hazard Mitigation Plans need to be better integrated into a coherent whole that eliminates the duplication of efforts.
2. Integration of FEMA approved Hazard Mitigation Plans, EDA Disaster Recovery Plans, and any other similar plans that relate to disaster response and recovery into the mandatory county Emergency Operations Plan. In cases where multiple plans overlap, the most recently approved federal and state plan should be incorporated into Emergency Operation Plans.

Local Obstacles and Recommendations List from Area 15

Obstacles

1. **Limited Staff Resources:** As a result of the two (2) disaster declarations in 2008 (severe winter storms and severe storms/floods/flash floods) the Area 15 EDD staff had to immediately respond to the task of helping local governments and individuals in accessing technical and financial recovery assistance. In order to provide this assistance EDD staff had to interrupt pre-existing work programs and activities. This impediment hindered completion of various programs and activities underway thus creating a backlog of important assistance projects.
2. **Delay in Coordination:** Funding for disaster coordination did not become available until November 1st 2008, 13 months after the Severe Winter Storm disaster in December 2007 and the 2008 flood event occurred approximately from May 24th 2008 to August 2008. After that length of time many of the initial assistance programs have ended and the window of opportunity to gather in-depth, detailed information has passed. It has been difficult to obtain specific damage assessments from FEMA and many of the local jurisdictions do not have complete copies of such assessments. In some instances, FEMA damage assessment teams arrived in communities without advance notification. This resulted in local jurisdictions being ill prepared to provide complete, comprehensive information. Additionally, several jurisdictions noted different FEMA teams visiting the communities to gather duplicate information without knowledge of data previously provided to the original FEMA damage assessment representatives.
3. **Delay in Assistance to the Area 15 EDD:** In response to the issuance of the disaster declarations and implementation by the state, EDD staff began to immediately gather data, provide information, act on requests for assistance, and initiate State Jumpstart program service delivery. All of these activities were undertaken by the EDD utilizing existing staff resources. The EDD did not receive financial assistance to provide for additional support staff until five (5) months after the flood event disaster declaration. Even after the commitment of financial assistance it was still several months before the EDD was able to locate and hire the qualified support staff necessary to assist in recovery program efforts and strategy development processes.
4. **Finding funds for proposed projects:** The Area 15 EDD Disaster Recovery Strategy has successfully documented locally proposed mitigation and improvement projects. However, almost all of these proposals do not have a funding source to develop the: engineering, environmental, and feasibility studies needed to secure loans and grants.
5. **Coordination with local communities:** The Area 15 region has many smaller cities that do not have E-mail, Fax machines, or answering machines to take voice messages. Many of these smaller cities also do not have full time staff or regular hours of business; this has made the dissemination of information slow and at times difficult.
6. **Communication with Emergency Management Coordinators (EMCs)** The Area 15 RPC has had mixed success in sharing information and resources with its local Emergency Management Coordinators and Commissions. EMCs have not notified the RPC of disaster recovery meetings held in local communities or when FEMA and Homeland Security personnel visit an area to do damage assessments. The exclusion of RPC staff has made the administration of recovery programs more difficult during recovery.

Recommendations

1. **Immediate recognition and funding of EDD/COGs:** to provide adequate staffing levels to support recovery programs, technical assistance, grant writing, and project implementation activities.
2. **Development of start-up grant program:** The development of a start-up grant program would solve many of the issues that face project proposals in the Area 15 region. A start-up grant would give local communities the resources needed to develop engineering plans, environmental studies, and feasibility studies needed to apply for multiple grant and revolving loan funds from different regional, state, and federal sources.
3. **Encouraging small cities to invest in communication equipment:** Area 15 RPC will encourage all cities in the region to have a local E-mail address that they will check on a regular basis. E-mail accounts can be set up for free and are very useful in disseminating information quickly to a wide audience.
4. **Inclusion of RPC in disaster planning and response:** The Area 15 RPC would like to be involved with Homeland Security, FEMA, and local Emergency Management Coordinators when they conduct disaster assessments or have disaster recovery meetings. To facilitate consistent communication the RPC would like to become a nonvoting member of all Emergency Management Commissions in the region.

Floods of 2010 FEMA-1930-DR

There is an unmet need in the Area 15 region for long-term disaster recovery and mitigation. This is demonstrated by the sheer amount of mitigation projects communities were able to identify for long term recovery.

The threat of severe winter storms and flooding has not gone away. On July 29, 2010, President Obama declared federal disaster FEMA-1930-DR due to severe storms, flooding, and tornadoes. All of Area 15 was included in this declaration except Jefferson county.

Numerous communities experienced flash flooding that impacted transportation, housing, and business. The flooding impacted the Des Moines, Skunk, and Chariton rivers.



The Skunk River was at or above flood stage **Des Moines River Flood Damage: (Shaver, 2010)** (20 ft.) in Oskaloosa from: March 11-21, May 14-16, and sporadically from June 13 to July 2, 2010.⁴⁸ Basement and sewer back-ups occurred in Eddyville again, flooding basements with 8-10 inches of raw sewage.⁴⁹ On June 22 the Des Moines River at Eddyville reached flood stage (61 ft.) and crested at 68.9 feet on August 11 2010. This was the third highest flood level in Eddyville's history, behind the 1993 and 2008 floods.⁵⁰ The Des Moines River reached flood stage (11 ft.) in Ottumwa in late June and crested on August 11, 2010 at 20.4 feet (major flood stage is 15 ft.).⁵¹ Several homes along the Des Moines River in Wapello County were evacuated due to flooding.⁵² The Market Street bridge was closed for safety.

The Chariton River and Rathbun Lake experienced flooding in 2010 due to torrential rains. The National Weather Service in Centerville measured 7.1 inches of rainfall on July 19, 2010. The Chariton River near Moulton rose from 26 to 36 feet over a 72-hour period on July 19 as a result of this rainfall; flood stage is 35 ft. at this location.⁵³ Upstream, Rathbun Lake began to overflow into its spillway on July 21 and 22, prompting the evacuation of residents in low lying areas directly downstream. Many roads and bridges became impassible due to road washouts. The water treatment plant in Centerville was partially flooded.⁵⁴

The impact and full costs of the 2010 floods remain unknown until flood waters recede, damage assessments are made, and local governments begin to make repairs.

⁴⁸ (Center U. A., 2010)

⁴⁹ (Center U.A., 2010)

⁵⁰ (Center U. A., 2010)

⁵¹ (Service, Advanced Hydrologic Prediction Service (Des Moines River Near Ottumwa), 2010)

⁵² (Shaver, 2010)

⁵³ (Service, Advanced Hydrologic Prediction Service (Chariton River Near Moulton), 2010)

⁵⁴ (Milner, 2010)

APPENDIX D SURVEY TOOLS AND RESULTS

Area 15 EDD Disaster Recovery Survey Results

2008 Disaster Recovery Survey

City or County: _____ Date: _____

Person completing survey: _____

Phone: _____ FAX: _____ Email: _____

Other contact Person for additional information? _____

For all questions, please circle response or fill in the blank.

Do you have an existing disaster recovery plan? Yes No

If yes, when was the plan last updated? _____

Roads, Streets & Bridges

Were any of your streets or roads damaged by the 2008 disasters? Yes No

If yes, please list the affected segments and comment on the damage that was done:

Street	Percentage of Repairs Complete
_____	_____
_____	_____
_____	_____

Were any roads closed during these disasters? Yes No

If yes, what was the duration of any closures (days/weeks/etc)? _____

Were your bridges affected the 2008 disasters? Yes No

If yes, please list the affected bridge and comment on the damage that was done:

Bridge	Percentage of Repairs Complete
_____	_____
_____	_____
_____	_____

Water, Sewer & Storm Water

Was your sewer system damaged or disrupted by the 2008 disasters? Yes No

1

If yes, please describe the damage or disruption to your sewer system.

Have any of the damages been repaired? Yes No

If yes, what percentage of the repair projects has been completed? _____ %

Has sewer system service been fully restored? Yes No

Have you identified any improvements to help prevent this problem from happening in the future? Yes No

Was your storm water system damaged or disrupted by the 2008 disasters? Yes No

If yes, please describe the damage or disruption to your storm water system.

Have any of the damages been repaired? Yes No

If yes, what percentage of the repair projects has been completed? _____ %

Has the storm water system been fully restored? Yes No

Have you identified any improvements to help prevent this problem from happening in the future? Yes No

Was your drinking water system damaged or disrupted by the 2008 disasters? Yes No

If yes, please describe the damage or disruption to your drinking water system.

Have any of the damages been repaired? Yes No

If yes, what percentage of the repair projects has been completed? _____ %

Has your drinking water system been fully restored? Yes No

Have you identified any improvements to help prevent this problem from happening in the future? Yes No

Who provides your drinking water? _____

Utilities (electric, natural gas, telephone)

Who is your electric provider? _____

During the disasters, did your community experience any disruptions in electric services? Yes No

Who is your natural gas provider? _____

During the disasters, did your community experience any disruptions in gas services? Yes No

Who is your phone service provider? _____

During the disasters, did your community experience any disruptions in phone services? Yes No

2

Parks and Recreation

Were any of your public parks and recreational lands affected by the 2008 disasters? Yes No

Do you have plans to repair the damage? Yes No

If repairs are underway, what percent complete are they? _____ %

Do you have cost estimates for the repairs needed? Yes No

Housing

Were any of your housing units damaged or destroyed in the 2008 disasters? Yes No

If yes, circle affected areas on the enclosed map. Also, estimate the number of units affected: # of units _____

Were any of the housing damages a result of storm water and/or sewer system problems? Yes No

If yes, have the storm water and/or sewer system problems been corrected? Yes No

Are there plans to prevent future housing issues related to storm water and/or sewer systems? Yes No

Have any of the impacted housing units been relocated, bought out, condemned or in need of repair assistance?

Yes	No
-----	----

If yes, please estimate how many have been:

Relocated # of units _____	Bought out # of units _____
Condemned # of units _____	In need of repair # of units _____

Critical Facilities

Were any of the following damaged or destroyed by the 2008 disasters?

Police Stations	Yes	No
Fire Stations	Yes	No
Hospitals	Yes	No
Clinics	Yes	No
Schools	Yes	No
Nursing Homes	Yes	No
Other Government Facilities (city hall, post office, etc.)	Yes	No

If yes, describe damage, estimated cost of repair for facilities and if any actions have been taken to prevent future occurrences.

3

Public Services

Did you experience any disruption of the following services during the 2008 disasters?

Police departments/personnel	Yes	No
Fire departments/EMTS/First Responders	Yes	No
Public Transit	Yes	No
Emergency Communication (911, police/fire dispatch/etc.)	Yes	No
Rail Services (closure of rail lines, freight or passenger service interruption, etc.)	Yes	No
Air Services (closure of local airport, freight/cargo/passenger service interruption, etc.)	Yes	No

If yes, describe duration (in terms of days or hours) of disruption, level of damage, estimated cost of repair to services and if any actions have been taken to prevent future occurrences.

Business and Industry

Were any of your local retail or commercial businesses and industries temporarily/permanently disrupted or shut down by the disasters?

Yes	No
-----	----

If yes, name the business/industry that was affected and how were they affected. What was the duration of the impact to the business? Also describe the type of disruption that affected your business.

BUSINESS	CAUSE OF DISRUPTION	DURATION (hrs/days/weeks)	Temporary or Permanent?
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please provide the name(s) of a contact at the above-mentioned of the impacted businesses and/or industries:

Business: _____ Contact: _____

Business: _____ Contact: _____

Business: _____ Contact: _____

If you have any questions while completing this survey, please contact Area 15 RPC offices. Phone: 641-684-6551. Please submit no later than **January 23rd, 2009**.

Please MAIL or FAX the completed survey to: Area 15 RPC
P.O. Box 1110
Ottumwa, IA 52501
FAX # 641.684.4894

THANK YOU !!! for your assistance and cooperation.

4

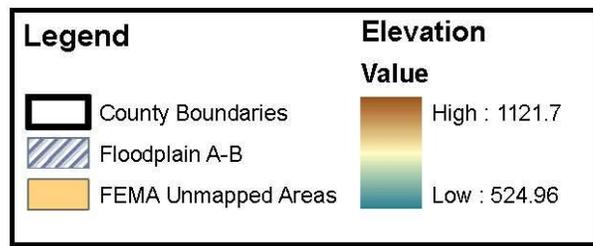
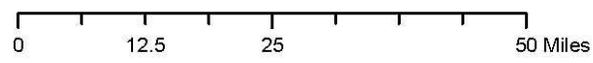
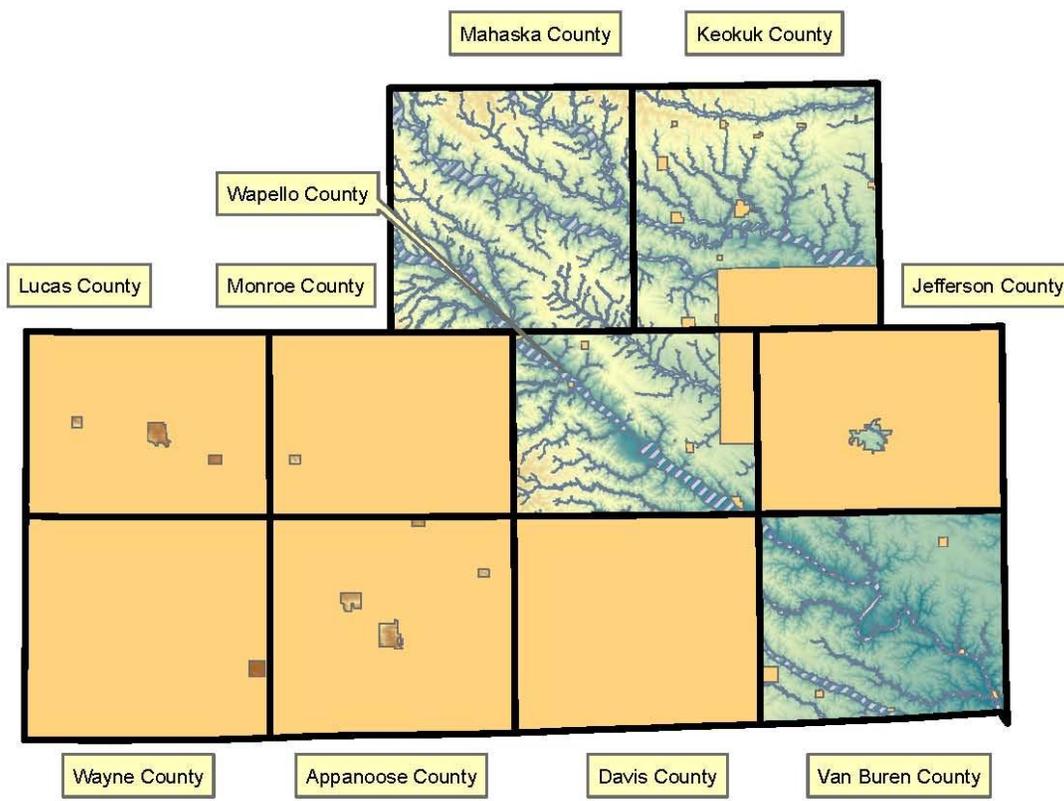
	Lucas Co.	Madaska Co.	Monroe Co.	Van Buren Co.	Mapello Co.	Wayne Co.
Disaster recovery plan?
Streets or roads damaged?	Y	Y	Y	Y	Y	Y
Streets or roads closed?	Y	Y	Y	Y	Y
Bridges affected?	Y	Y	Y	Y	Y
Sewer system damaged/disrupted?	Y	Y	Y
Sewer system damages repaired?	Y	Y	Y
Sewer system fully restored?	Y	Y	Y
Storm water system damaged/disrupted?	Y	Y	Y
Storm water system damages repaired?	Y	Y	Y
Storm water system fully restored?	Y	Y	Y
Water system damaged/disrupted?
Water system damages repaired?
Water system fully restored?
Electric services disrupted?	Y	Y	. . . . .	. . . . .	Y	Y
Natural gas services disrupted?
Phone services disrupted?	Y	. . . . .	. . . . .	Y	Y
Public parks/recreational lands damaged?	Y	. . . . .	. . . . .	Y	Y	Y
Plans to repair damage to parks/rec.	Y	. . . . .	. . . . .	Y	Y	Y
Housing stock damaged/destroyed?	Y	Y	Y
Housing damages from storm water/sewer?	Y	Y	Y
Relocated, buy out, condemned, repair?	Y	Y	Y
Critical Facilities damaged/destroyed?	Y	Y	Y
Public Services disruption?	Y	Y
Business & Industry disruption/shut down?	Y	Y	Y

Member Community #19

High Damage/Priority Concern Reported

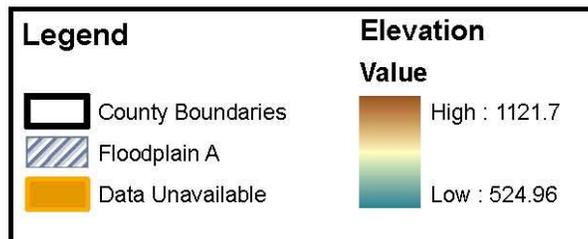
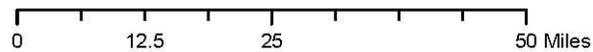
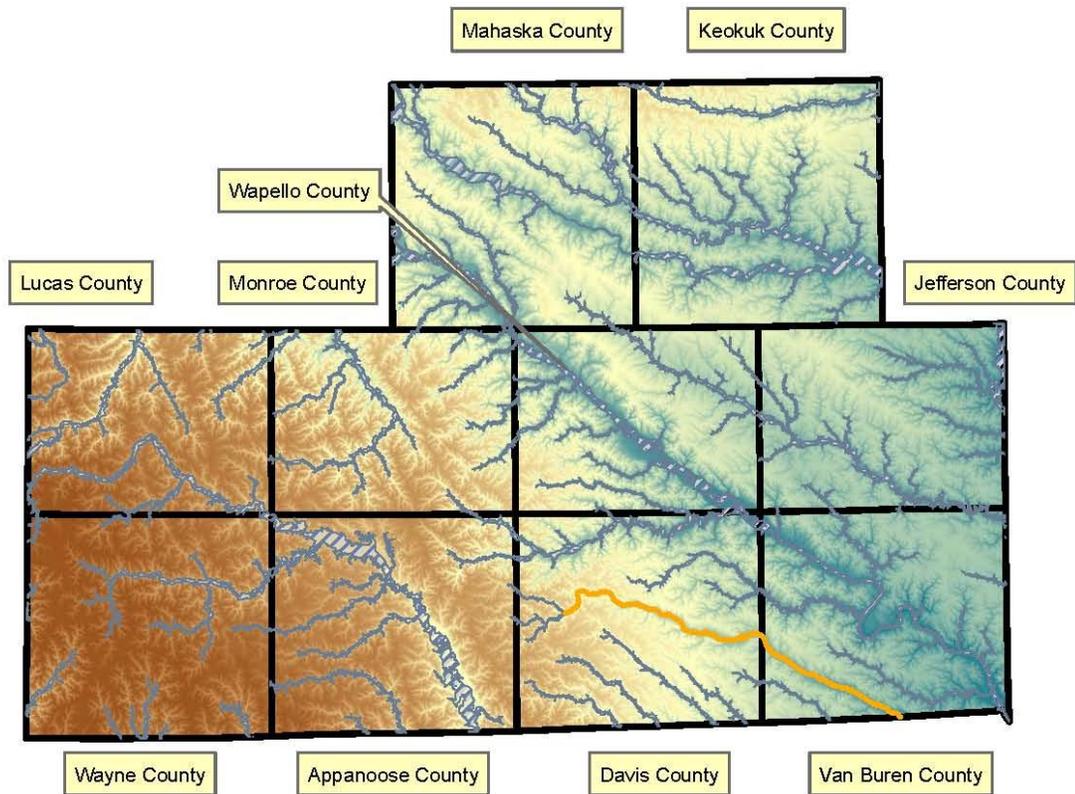
APPENDIX E FEMA & HAZUS MAPS

FEMA Designated Floodplain Area 15



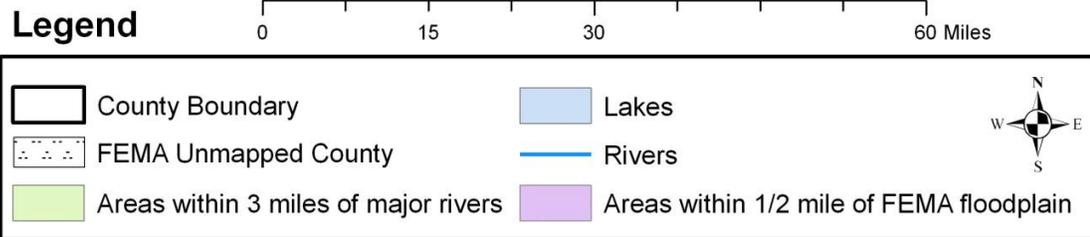
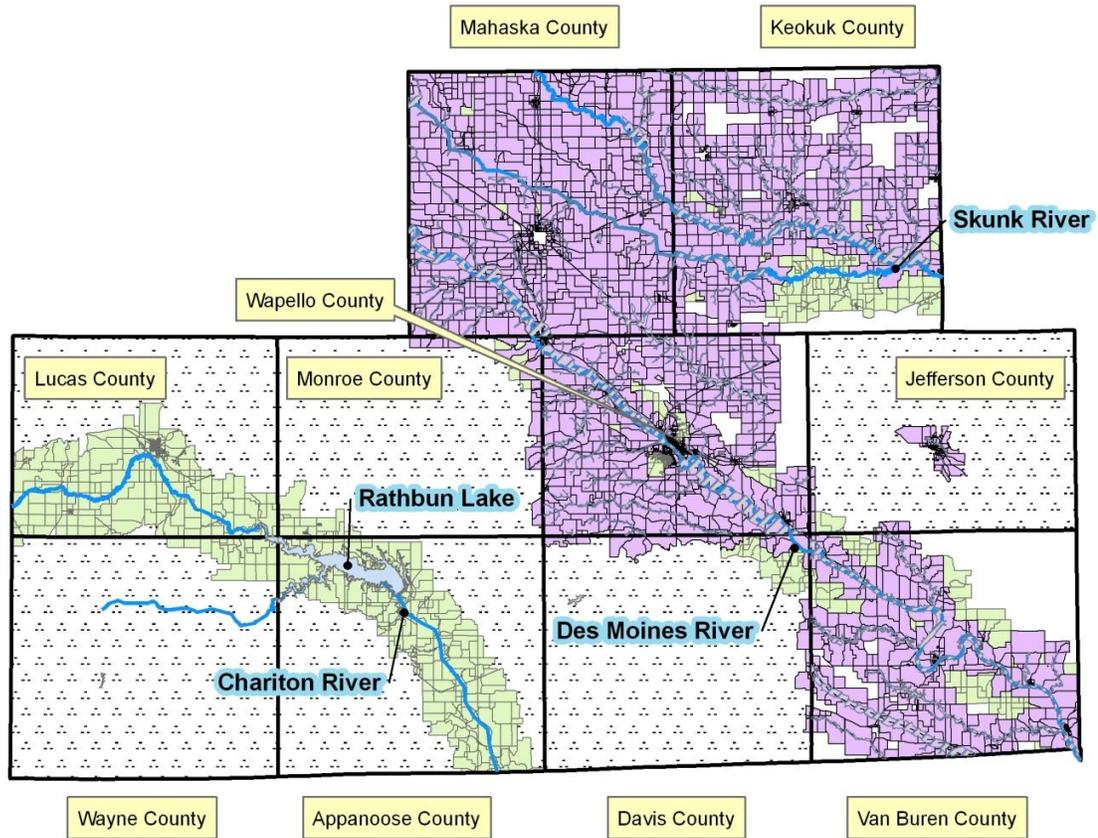
Created By Area 15 Regional Planning Commission

HAZUS Designated Floodplain Area 15



Created By Area 15 Regional Planning Commission

Areas near Major Rivers & Floodplains



Created By Area 15 Regional Planning Commission
 Cartographer: Jordan Scupien

Sources: FEMA, U.S. Census Bureau

APPENDIX F AREA 15 EDD MAJOR EMPLOYERS

Appanoose County		Mahaska County	
Curwood	350	CLOW Valve Company	500
Wells Manufacturing	190	Mahaska Health Partnership	436
Barker Company	180	MUSCO Lighting	229
Honey Creek Resort	170	William Penn University	240
Alliant Energy	150	Cunningham, Inc.	100
Iowa Steel and Wire	95	Mahaska Bottling	100
Davis County		Monroe County	
Davis County Schools	200	Cargill, Inc.	540
Davis County Hospital	192	Ajinomoto	181
Performance Pipe	90	AYM, Inc.	105
Bloomfield Care Center	90	Quicktron, Inc.	105
Bloomfield Foundry	65	RELCO Locomotives	100
Jefferson County		Van Buren	
Dexter Apache Holdings	426	Barker Company, LTD	362
Cambridge Investments	247	Van Buren County Hospital	210
Jefferson County Hospital	233	Van Buren Community Schools	180
Maharishi University	200	Riverside Plastics	93
Agri-Industrial Plastics	135	Good Samaritan Center	80
Harper Brush Works, Inc.	118	Barker Wire Products	40
FALCO	105	Wapello County	
Nelson Company	88	Cargill Meat Solutions	2,300
Schaus Vorhies/Paint-Line	85	Ottumwa Regional Health Center	1,000
Keokuk County		John Deere – Ottumwa Works	950
Sigourney Community Schools	110	Ottumwa Community Schools	700
Keokuk County Health Center	90	Indian Hills Community College	368
Bender Foundry Service	50	Winger Company	297
Duro-Last Roofing	40	Dr. Pepper/Snapple	200
Wayne County		Al-jon, Inc.	115
Wayne County Hospital	131	Lucas County	
Voltmaster Battery	130	Hy-Vee, Inc.	1,200
Neely Manufacturing	110	Johnson Machine Works	100
Shivvers	90	Stratford Homes	50

APPENDIX G PUBLIC DOCUMENTATION CHECKLIST

EXACT location description for facility(s)/infrastructure:

Urban: A street address, community name, name of the intersecting streets the project is in-between.

Rural: latitude and longitude, township, range, section, road number, plat & quarter section

The damage description and dimensions:

- Describe the pre-disaster facility function.
- Describe the disaster-related damage to the facility.
- Describe the repairs necessary to repair the facility to its pre-disaster condition.

Descriptions will include:

- Photos** of areas damaged prior to any cleanup or repairs.
- Dimensions** of the site and the damaged area.(Sketches, Site Plans)
- Extent** of damage and repairs necessary.

Damage description examples:

Bad Example - Unacceptable: Two classroom buildings sustained water damage.

Good Example - Acceptable: Floodwater inundated two classroom buildings that serve 250 students, to a depth of two feet, damaging drywall, tile flooring, and books in all 14 rooms.

- Scope of Work:** Must describe the necessary work to repair the facility(s)/infrastructure to pre disaster condition. The work should be specified in quantifiable (length, width, height, depth, capacity) dimensions and type of material (brick, wood, asphalt, timber deck bridge) terms.

Scope of work examples:

Bad Example – Unacceptable: 100'L x 75'W section of gym floor sustained water damage when facility was inundated with 6' of floodwater. Restore to pre-disaster design.

Good Example - Acceptable: 100'L x 75'W section of gym floor in an elementary school sustained water damage when the facility was inundated with 6' of floodwater. Sand and refinish 100'L x 75'W gym damaged area using 0.25" thick flooring; repaint lines for basketball court (100 sq. ft. of surface area).

Retain these documents for three (3) years after a disaster event occurs.

Project justification documents recommended:

- site maps
- photographs
- sketches
- calculations
- measurements
- insurance documentation
- force account summary sheets
- appropriate codes and standards
- permits and clearances

APPENDIX H PROPOSED PROJECTS

Proposed Infrastructure Projects

As part of the Disaster Recovery Strategy for the Area 15 EDD Region, communities were asked to identify infrastructure projects that would improve the area and mitigate against future flooding and winter weather damages. The following tables and maps list the projects communities have submitted.

County	City	Project	Cost	Map ID	Status
Appanoose	Cincinnati	Generator for emergency shelter site.	n/a	5	Proposed
	Cincinnati	New community storm shelter.	n/a	5	Proposed
	Cincinnati	Debris disposal plan.	n/a	5	Proposed
	Cincinnati	Acquisition of buildings.	n/a	5	Proposed
	Exline	Generator for the emergency shelter.	n/a	4	Proposed
	Exline	New storm shelter for vulnerable populations.	n/a	4	Proposed
	Exline	Maintenance of older buildings.	n/a	4	Proposed
	Moravia	Improve/replace storm warning system.	n/a	1	Proposed
	Moravia	Storm water management ordinance.	n/a	1	Proposed
	Moravia	Generator for storm shelter.	n/a	1	Proposed
	Moravia	Assess/improve fire hydrants.	n/a	1	Proposed
	Moravia	Tree trimming ordinance.	n/a	1	Proposed
	Moulton	Improve/replace early storm warning system.	n/a	3	Proposed
	Mystic	Acquisition of buildings.	n/a	8	Proposed
	Numa	Generator for storm shelter.	n/a	6	Proposed
	Numa	Improve/replace early storm warning system.	n/a	6	Proposed
	Numa	Weather radios for households.	n/a	6	Proposed
	Plano	Generator for emergency shelter site.	n/a	7	Proposed
	Rathbun	Weather radios for households.	n/a	9	Proposed
	Udell	Establishing evacuation plans.	n/a	2	Proposed
Udell	Generator for emergency shelter site.	n/a	2	Proposed	
Udell	Weather radios for households.	n/a	2	Proposed	
Davis		Replace 2 bridges, raise, re-grade. Hill Blvd	\$1,500,000	1	Proposed
		Raise, re-grade four miles of road. Wheat Ave.	\$2,000,000	2	Proposed
		Water Storage Project. Falcon Blvd	\$4,000,000	3	Proposed
		Grade, rock, dike Quail Ave. north of Floris	\$1,300,000	4	Proposed
		pave two and a half miles. Indigo Ave.	\$1,300,000	5	Proposed
		Replace 2 bridges, grade, rock 2 miles. Ice Ave.	\$1,500,000	6	Proposed
		Replace 2 Bridges, grade 1 mile. Shale Ave.	\$1,000,000	7	Proposed
		Replace bridge, grade rock 2 miles. 250th St.	\$1,300,000	8	Proposed
		Replace 2 Bridges, grade 1.5 miles. Jade Ave.	\$1,300,000	9	Proposed
		Grade rock 1.5 miles. Nickel Ave.	\$750,000	10	Proposed
		Replace, grade rock for 1 mile. Yoke Blvd.	\$1,300,000	11	Proposed
		Replace pipe, grade rock 1 mile. 160th St. Tulip Ave., Urchin Blvd.	\$650,000	12	Proposed
Jefferson		Raise 0.8 miles of road.	n/a	1	Proposed
	Fairfield	Increase height of levy at treatment plant.	n/a	2	Proposed

County	City	Project	Cost	Map ID	Status
Keokuk		Additional barricades and signs	\$10,000		Proposed
		Flood Gauges – 15 gauges	\$15,000		Proposed
		Brush control, stream/soil stabilization, debris removal.	\$821,000		Proposed
		Raise roads, deepen ditches, add rock to roads	\$1,196,000		Proposed
		Raise Road Grade (Specific Projects)	\$540,000		Proposed
		Add rock on 500 miles of local gravel roads.	\$2,600,000		Proposed
		Bridge/culvert replacement	\$8,810,000		Proposed
		Backup generator for main shop (Sigourney)	\$20,000		Proposed
		Brush control Annual Maintenance Increase	\$200,000	Annually	Proposed
Lucas	Chariton	New storm shelter for Northwest Park.	n/a	1	Proposed
	Chariton	Add storm warning system for north edge of city.	n/a	1	Proposed
	Chariton	Generators for all storm shelter sites.	n/a	1	Proposed
	Derby	early storm warning system.	n/a	4	Proposed
	Derby	Weather radios for homes	n/a	4	Proposed
	Derby	Generator for storm shelter site.	n/a	4	Proposed
	Derby	Address vacant/collapsed structures.	n/a	4	Proposed
	Lucas	Generator for emergency shelters.	n/a	2	Proposed
	Lucas	Demolition of buildings	n/a	2	Proposed
	Russell	Improved/replace early storm warning system.	n/a	3	Proposed
	Russell	Address vacant/collapsed buildings.	n/a	3	Proposed
	Russell	Generator for storm shelter site.	n/a	3	Proposed
Mahaska		Bank Stabilization County road G71	n/a	1	Proposed
		Bank Stabilization River Road Bell Fountain	n/a	4	Proposed
		Raise grade, increase drainage Queens Ave.	n/a	6	Proposed
		Road build up/drainage -Crookham Bottom Road	n/a	8	Proposed
		Raise road 1-2 feet (one mile) Galeston Avenue	n/a	10	Proposed
		Drainage Study/dig out Spring Creek	n/a	11	Proposed
		City/County grapple truck, chainsaws, chipper	n/a	15	Proposed
		4 x 4 Vehicles	n/a	20	Proposed
	Oskaloosa	Storm Sewer & road reconstruction 3rd Avenue	n/a	2	Proposed
	Oskaloosa	Portable Generator	n/a	3	Proposed
	Oskaloosa	Storm Water Master Plan City/County	n/a	5	Proposed
	Oskaloosa	Storm Water Improvements High Ave. to S. 1st St.	n/a	7	Proposed
	Oskaloosa	Bank Stabilization -South I St. and South M St.	n/a	9	Proposed
	Oskaloosa	Bridge repair, reconstruction North Plant Bridge	n/a	11	Proposed
	Oskaloosa	Storm Water Improvements - A Avenue- L Street	n/a	13	Proposed
	Oskaloosa	Storm Water Improvements - 9th Ave., Market, 2nd St.	n/a	14	Proposed
	Oskaloosa	Storm Water Repairs - Community Stadium	n/a	16	Proposed
	Oskaloosa	Replacement of Storm Siren System (9 total)	n/a	17	Proposed
	Oskaloosa	Outdoor Storm Shelters	n/a	18	Proposed
	Oskaloosa	Surge protection, back-up power packs	n/a	19	Proposed
	Oskaloosa	Radios (for Interoperability between PD, FD,PW)	n/a	21	Proposed

County	City	Project	Cost	Map ID	Status
Monroe	Albia	Address vacant/collapsed structures.	n/a	1	Proposed
	Melrose	Generator for storm shelter site.	n/a	2	Proposed
	Lovilia	Generator for storm shelter site.	n/a	3	Proposed
Van Buren		Section 1 Road repair	n/a	1	Proposed
		Section 2 Road repair	n/a	2	Proposed
		Section 3 Road repair	n/a	3	Proposed
		Section 4 Road repair	n/a	4	Proposed
		Section 5 Road repair	n/a	5	Proposed
		Section 6 Road repair	n/a	6	Proposed
		Section 7 Road repair	n/a	7	Proposed
		Section 8 Road repair	n/a	8	Proposed
	Keosauqua	Sanitary sewer lining/replacement on 19 blocks	n/a	3	Proposed
	Keosauqua	Ditches cleaned, deepened, or reconstructed.	n/a	3	Proposed
	Keosauqua	Storm sewer intakes/replacement	n/a	3	Proposed
	Keosauqua	Major street Repairs	n/a	3	Proposed
	City of Milton	Ditch work along roadway (20 blocks)	\$4,500	4	Proposed
	City of Milton	Clean out waterway (8 blocks)	\$4,000	4	Proposed
	City of Milton	Street Repair – (5 blocks)	\$27,935	4	Proposed
	Selma/ Douds	Levee construction along the Des Moines River.	n/a	1	Proposed
	Stockport	Purchase and install of back-up generators	n/a	2	Proposed
	Stockport	Construction of community shelter/safe room	n/a	2	Proposed
	Stockport	Construction of safe room	n/a	2	Proposed
	Stockport	Clean sewage lagoon and install rip-rap.	n/a	2	Proposed
Stockport	Install PVC to replace clay pipe sewer lines.	n/a	2	Proposed	
Stockport	Construct/repair wastewater lift station.	n/a	2	Proposed	
Stockport	Culvert replacement, construct of storm sewers.	n/a	2	Proposed	
Wapello		Raise Walnut Road.	\$100,000		Proposed
		Replacement of 12 bridges.	\$4,200,000		Proposed
Wapello	Ottumwa	North side box sewer repair.	\$10,000,000	1	Proposed
	Ottumwa	Blake’s Branch trunk line – north side interceptor.	\$9,000,000	2	Proposed
	Ottumwa	Repair levees at boil areas	\$525,000	3	Proposed
	Ottumwa	Install permanent storm water pump stations.	\$5,000,000	4	Proposed
	Ottumwa	Flood gates at 2nd St. and Harrows Branch.	\$223,000	5	Proposed
	Ottumwa	Extend low river headwall (Municipal parking lot).	\$93,000	6	Proposed
	Ottumwa	Flood gates at BNSF rail line.	\$47,000	7	Proposed
	Ottumwa	Remove Race Bridge.	\$110,000	8	Proposed

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