



4 MITIGATION STRATEGY

44 CFR Requirement §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section presents the mitigation strategy updated by the Hazard Mitigation Planning Committee (HMPC) based on the risk assessment. The mitigation strategy was developed through a collaborative group process and consists of updated general goal statements to guide the jurisdictions in efforts to lessen disaster impacts as well as specific mitigation actions that can be put in place to directly reduce vulnerability to hazards and losses. The following definitions are based upon those found in FEMA publication 386-3, *Developing a Mitigation Plan* (April 2003):

- **Goals** are general guidelines that explain what you want to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. They are usually long-term, broad, policy-type statements.
- **Mitigation Actions** are specific actions that help achieve goals.

4.1 Goals

44 CFR Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

This planning effort is an update to an existing hazard mitigation plan. Therefore, the goals from the *2009 Polk County Hazard Mitigation Plan* were reviewed to determine if they are still valid. AMEC facilitated a discussion session with the HMPC during their second meeting to review and update the plan goals. To ensure that the goals are comprehensive and support State goals, the 2013 State Hazard Mitigation Plan goals were reviewed. AMEC also presented common categories of mitigation goals from other plans.

After discussion, the HMPC decided to that the 2009 goals were still valid, with one clarification. Goal 2 was revised to incorporate language about lessons learned from disasters and exercises and the new text is in italics. The plan update goals are:

1. Protect the public health, safety, and welfare by increasing public awareness of hazards and by encouraging collective and individual responsibility for mitigating hazard risks.
2. Improve capabilities, coordination, and opportunities at municipal and county levels to plan and implement hazard mitigation projects, programs, and activities, *including incorporation of lessons learned from previous events and exercises.*
3. Improve data collection, use, and sharing to reduce the impact of hazards.
4. Protect the most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.

4.2 Identification and Analysis of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

During the second meeting of the HMPC, the results of the risk assessment update were provided to the HMPC members for review and the key issues were identified for specific hazards. Meeting #2 concluded with an introduction to mitigation actions to prompt discussions within and among the jurisdictions about any new mitigation actions as well as on-going actions from the existing plans. In addition, AMEC provided the HMPC with information on the Iowa Homeland Security and Emergency Management Division's funding priorities and the types of mitigation actions generally recognized by FEMA.

The focus of Meeting #3 was to update the mitigation strategy. For a comprehensive range of mitigation actions to consider, the HMPC reviewed the following information during Meeting #3:

- Existing Actions submitted in the previous mitigation plan,
- Key Issues from Risk Assessment (top 10 hazards),
- State Priorities for Hazard Mitigation Assistance Grants,
- Public Opinion from Surveys, and
- FEMA's 6 Categories of Mitigation Actions.

In development of each jurisdiction's final mitigation strategy for submission to the plan, the jurisdictions were encouraged to review the details of the risk assessment to address vulnerabilities specific to their jurisdiction. They were also provided a link to the publication, *FEMA Mitigation Action Ideas, 2013*. This document was developed by FEMA to provide a resource that communities can use to identify and evaluate a range of potential mitigation actions for reducing risk to natural hazards and disasters.

The mitigation strategy update included a thorough review and status update of the existing actions. **Table 4.1** provides a summary of the number of actions that each jurisdiction identified in the previous plan. Please note that the public school districts were not included as officially participating jurisdictions in the previous plan. As a result, there are no previous actions for the school districts.

Table 4.1. Summary of Number of Actions in Previous Plan

Jurisdiction	# of Actions
Alleman	5
Altoona	5
Ankeny	18
Bondurant	8
Clive Count	6
Des Moines	18
Elkhart	5
Grimes	7

Jurisdiction	# of Actions
Johnston	10
Mitchellville	5
Pleasant Hill	15
Polk City	8
Polk County	10
Runnells	5
Urbandale	12
West Des Moines	10
Windsor Heights	7
Total	154

Source: 2009 Polk County Hazard Mitigation Plan

Prior to Meeting #3, the list of actions submitted in the previous plan was emailed to all members of the HMPC. Then at the third meeting, a print-out was provided to members of the HMPC with the actions submitted in the previous Hazard Mitigation Plan. Each jurisdiction was instructed to complete the column titled “2013 Action Status” with one of the following status choices:

- Completed,
- Not Started/Continue in Plan Update,
- In Progress/Continue in Plan Update, or
- Delete.

Of the 154 actions in the previous plan, 51 have been completed, 24 were deleted, and 86 were continued in the plan update (41 not started and 45 in progress). Appendix C contains the actions that were either completed or deleted from the mitigation strategy along with any applicable comments. The continued actions are discussed in additional detail, along with the new actions in **Section 4.3**.

The jurisdictions were encouraged to be comprehensive and include all appropriate actions to work toward becoming more disaster resistant. However, they were encouraged to maintain a realistic approach and were reminded that the hazard mitigation plan is a “living document”. As capabilities, vulnerabilities, or the nature of hazards that threaten each jurisdiction change, the mitigation actions can and should be updated to reflect those changes, including addition or deletion of actions, as appropriate.

As part of the meeting discussion, jurisdictions were instructed to consider the potential cost of each project in relation to the anticipated future cost savings. This type of discussion allowed the committee as a whole to understand the broad priorities and discussion of the types of projects most beneficial to all jurisdictions within Polk County.

4.3 Implementation of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent

to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

Jurisdictions were encouraged to meet with others in their community to finalize the actions to be submitted to the updated mitigation strategy. Throughout the discussion of the types of projects that the committee would include in the mitigation plan, emphasis was placed on the importance of a benefit-cost analysis in determining project priority. The Disaster Mitigation Act regulations state that benefit-cost review is the primary method by which mitigation projects should be prioritized. Recognizing the federal regulatory requirement to prioritize by benefit-cost, and the need for any publicly funded project to be cost-effective, the HMPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the Iowa State Hazard Mitigation Plan. Due to many variables that must be examined during project development, the benefit/cost review at the planning stage, will primarily consist of a qualitative analysis. For each action, the jurisdictions included a narrative describing the types of benefits that could be realized with implementation of the action. Where possible, the cost was estimated as closely as possible with further refinement to occur as project development occurs. Cost-effectiveness will be considered in additional detail when seeking FEMA Hazard Mitigation Assistance grant funding for eligible projects identified in this plan. At that time, additional information will be researched to provide for a quantitative benefit-cost analysis.

STAPLEE is a tool used to assess the costs and benefits, and overall feasibility of mitigation actions. STAPLEE stands for the following:

- **Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?
- **Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?
- **Aministrative:** Are there adequate staffing, funding, and maintenance capabilities to implement the project?
- **Political:** Will there be adequate political and public support for the project?
- **Legal:** Does your jurisdiction have the legal authority to implement the action?
- **Economic:** Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- **Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

To provide a mechanism for jurisdictions to prioritize actions a modified STAPLEE worksheet was completed by the jurisdictions for each new and continued action submitted for the updated mitigation strategy. **Figure 4.1** is a sample of the STAPLEE worksheet. All actions submitted to the plan are indicated with a high, medium, or low priority level based on the modified STAPLEE score.

Figure 4.1. Modified STAPLEE Worksheet

**POLK COUNTY
MULTI-JURISDICTIONAL
LOCAL HAZARD MITIGATION PLAN**

Action Title:	Jurisdiction:
Action ID:	

Note: Make sure the Action ID Matches the Action ID in the spreadsheet. Action ID format for new actions is Jurisdiction-# (Ex. Alleman-1, Alleman-2, etc.)

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		
T: Is it Technically feasible and potentially successful?		
A: Does the jurisdiction have the administrative capacity to execute this action?		
P: Is it Politically acceptable?		
L: Is there Legal authority to implement?		
E: Is it Economically beneficial?		
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		
Will historic structures be saved or protected?		
Could it be implemented quickly?		
STAPLEE Score		

Mitigation Effectiveness Criteria	Evaluation Rating	Score
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	
Mitigation Effectiveness Score		

Total Score (STAPLEE Score + Mitigation Effectiveness Score): _____

Local Priority Level: High (33+ points) Medium (20-32 points) Low (less than 20 points)

Completed by (name/title/phone #): _____

The mitigation action summary table presenting the summary of continuing and new mitigation actions for each jurisdiction is provided in **Table 4.2**. In addition to the 86 actions that were continued from the previous plan, 67 new actions were identified, for a combined total of 153 actions in this updated mitigation strategy. The Action ID for each action has been carried over from the 2009 plan. As a result of completed and deleted actions, the Action ID does not follow a sequential order. Following the action summary table, additional details are provided each continuing and new action in **Table 4.3**. The detailed table serves as the action plan describing how each action will be implemented and administered by the local jurisdiction. The section identifying benefits or losses avoided if the action is implemented is primarily a qualitative review at this time. A more detailed and quantitative benefit-cost analysis was discussed and will be performed prior to implementation of actions when additional detailed project cost information has been developed.

Table 4.2. Mitigation Action Summary—Continuing and New Actions

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Polk County 8	Construction of Additional Storm Water Detention Basins and Channel Improvements to Polk County's "Hamilton Drain" Drainage District	Flash Flooding	New	Capital Improvement Plan	In Progress / Continue	Priority #1 Awarded Hazard Mitigation Funds in 2013 using \$7,422,000 HMGP, \$989,600 State, \$1,484,400 Local Funds	4	26	High
Polk County 9	Construct Martin Luther King Parkway extension from Euclid Ave. to I-80 with new Interchange on I-35/80	River Flooding	New	Capital Improvement Plan	In Progress / Continue	Priority #5 Still working to complete Environmental review of proposed roadway corridor.	4	21	High
Polk County 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue	Priority #4	2	24	High
Polk County 11	Construction of Storm Water Detention Basins, Buffer Strips, and Channel Improvements to Fourmile Creek through the Fourmile Creek Watershed Authority	Flash Flooding	Existing and New	Watershed Authority/Management Plan	NEW	Priority #2	4	25	High
Polk County 12	Construction of Storm Water Detention Basins, buffer Strips, and Channel Improvements to Mud, Camp, and Spring Creek watersheds through the Watershed Authority	Flash Flooding	New	Watershed Authority/Management Plan	NEW	Priority #3	4	24	High
Alleman 1	Update tornado warning system	Tornado	Both	Hazard Mitigation Plan	In Progress / Continue	update has been done but Alleman would like to add new sirens	4	28	Medium

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Alleman 3	Construct retention pond at Northeast 134	Flash Flooding	Existing	Capital Improvement Plan	Not Started / Continue	Plan to continue development would need retention pond. However, development plans have been tabled. This project is still a good idea if additional development occurs.	4	22	Medium
Alleman 6	Consider participation in the NFIP	River Flooding	both	Hazard Mitigation Plan-floodplain mgmt ordinance if adopted	New		2	27	Medium
Altoona 5	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		2	35	High
Ankeny 4	Construct safe room(s) at Mel Ray Mobile Park Home	Tornado	New	Hazard Mitigation Plan	Not Started / Continue	Private residential mobile home facility currently without safe room(s)	4	32	Medium
Ankeny 5	Construct safe room(s) at Autumn Ridge Mobile Home Park	Tornado	New	Hazard Mitigation Plan	Not Started / Continue	Private residential mobile home facility currently without safe room(s)	4	32	Medium
Ankeny 6	Sanitary sewer capacity improvements southeast area relief sewer	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	Last phase of multi-year project is scheduled to be completed.	4	37	High
Ankeny 7	Sanitary sewer capacity improvements Southeast 2nd Avenue trunk interconnect	Flash Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	37	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Ankeny 9	Sanitary sewer capacity improvements West Outfall Relief sewer	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	Project included in capital improvements program. Project is being designed at this time.	4	37	High
Ankeny 11	Storm sewer/channel improvements Southeast 4th Street and Wanda storm sewer	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	The majority of this project is completed. The last phase will be constructed in 2014/2015.	4	36	High
Ankeny 13	Storm sewer/channel improvements Tributary "A" Stream and Southeast Tributary to Four Mile Creek channel improvements	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	This project is approximately 50% completed at this time.	4	36	High
Ankeny 16	Storm sewer/channel improvements Four Mile Creek bank stabilization	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	This project is approximately 30% completed at this time.	4	31	Medium
Ankeny 17	Reconstruct storm water detention - Packard Pond improvements	Flash Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue	No project schedule at this time.	4	29	Medium
Ankeny 18	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing	NFIP Floodplain Management Program	In Progress / Continue	Participating in multi-jurisdictional Fourmile Creek Study. Assisting with providing floodway info for Firm map replacements.	2	33	High
Ankeny 19	Storm sewer / channel improvements - West First Street Storm Sewer Improvements	Flash Flooding	Existing	Hazard Mitigation Plan	NEW		4	31	Medium
Ankeny 20	Embankment stabilization - NW Irvinedale Drive	Sinkholes/Land slide	Existing	Hazard Mitigation Plan	NEW		4	29	Medium

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Ankeny 21	Reconstruct storm water detention - Wildflower Public Pond improvements	Flash Flooding	Existing	Hazard Mitigation Plan	NEW		4	29	Medium
Ankeny 22	Storm sewer/channel improvements - SE Creekview Drive Improvements	Flash Flooding	Existing	Capital Improvements Program	NEW		4	30	Medium
Ankeny 23	Construct safe room(s) at On With Life Care Facility	Tornado	New	Hazard Mitigation Plan	NEW		4	37	High
Bondurant 6	Generator at public safety building	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue	scheduled for Summer 2014	4	23	Medium
Bondurant 7	Generator for City Hall phones	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue	scheduled for Summer 2014	4	23	Medium
Bondurant 8	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	Not Started / Continue	scheduled for September 2014	1	23	Medium
Clive 1	Construction of three regional storm water detention facilities at: 100 Street and Indian Hills; 156 th Street and Hickman Road; Douglas Road and Berkshire Road	River Flooding	New	Hazard Mitigation Plan	In Progress / Continue	100th Street - 0% Complete/156th Street - 100% Complete/Douglas Road - 100% Complete	4	38	High
Clive 2	Acquisition of property along Walnut Creek as well as Little Walnut Creek to reduce repetitive loss potential	River Flooding	N/A	Hazard Mitigation Plan	In Progress / Continue		4	38	High
Clive 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		4	33	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Clive 7	Purchase and installation of an emergency backup generator at the Police and City Hall/Administration Building	River Flooding	New	Hazard Mitigation Plan	NEW		4	42	High
Clive 8	Outdoor Warning Siren replacement	Tornado	Existing	Hazard Mitigation Plan	NEW		4	38	High
Clive 9	Outdoor Warning Siren addition	Tornado	New	Hazard Mitigation Plan	NEW		4	38	High
Clive 10	Replace (2) flap gates with back flow systems on Swanson Blvd	River Flooding	Existing	Hazard Mitigation Plan	NEW		4	39	High
Clive 11	Stream bank stabilization along Walnut Creek	River Flooding	New	Hazard Mitigation Plan Walnut Creek Stabilization Study	NEW		4	38	High
Des Moines 9	Remove mitigated properties from repetitive loss property list	River Flooding	N/A	Hazard Mitigation Plan	In Progress / Continue	Handled with participation in the NFIP Community Rating System on an annual basis.	1	33	High
Des Moines 10	Pursue remedial flood mitigation actions associated with the Southeast Des Moines (SEDM) Levee, US 65	River Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue		4	42	High
Des Moines 18	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue	Continued enrollment in the NFIP along with CRS program as a 7 rating	2	33	High
Des Moines 19	Construct safe room(s) at Des Moines Municipal Housing Agency's multi-family units	Windstorms	Existing and New	Hazard Mitigation Plan	NEW		4	35	High
Des Moines 20	Harden single family home scattered site Public Housing units	Windstorms	Existing and New	Hazard Mitigation Plan	NEW		4	38	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Des Moines 21	Treatment and removal of ash trees in response to onset of Emerald Ash Borer (EAB)	Animal/Crop/Plant Disease	Existing	EAB Mitigation Plan	NEW	Removal began in 2010 & will continue through 2025	4	33	High
Des Moines 22	Des Moines River Flood Mitigation Improvements - Flood protection system improvements (levees, floodwalls, pump stations, etc.) to maintain FEMA accreditation despite increased flows identified in 2011 Des Moines River Regulated Flow Frequency Study.	River Flooding	Existing	Capital Improvement Plan	NEW		4	43	High
Des Moines 23	Hamilton Drainage Area Stormwater Improvements - Storm sewer conveyance improvements on Shawnee Avenue from 11th Street to 7th Street, and also storm sewer improvements from Shawnee Avenue and Columbia Street to Wright Street and Euclid Avenue to replace a deteriorating wooden box storm sewer.	Flash Flooding	Existing	Capital Improvement Plan	NEW		4	35	High
Des Moines 24	Leetown Creekway Stormwater Improvements - Increased storm sewer capacity between University Avenue and Dean Avenue and channel improvements from south of Dean Avenue to confluence with Fourmile Creek.	Flash Flooding	Existing	Capital Improvement Plan	NEW		4	35	High
Des Moines 25	Closes Creek Stormwater Improvements - Replace Culverts @ 30th Street and Jefferson Avenue. Storm sewer improvements along Maquoketa Drive.	Flash Flooding	Existing	Capital Improvement Plan	NEW		4	33	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Des Moines 26	Remove repetitive loss properties from flood prone areas	River Flooding	Existing	Hazard Mitigation Plan	NEW		4	36	High
Elkhart 1	Construct safe room at Elkhart Memorial Park	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue	NO BUILDING TO HAVE ONE YET	4	34	High
Elkhart 2	Construct safe room in NEW fire station	Windstorms	New	Capital Improvement Plan	NEW	Plan to include in new station when built	4	35	High
Elkhart 3	Generator for new fire station	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue	Plan for one in NEW Fire Station	4	34	High
Elkhart 4	Generator at city water plant	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue	Have a rental unit available if needed	4	31	Medium
Elkhart 5	Construct safe room at Elkhart Community Center	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue	Plan to add on or construct new building	4	33	High
Grimes1	Construct safe room at sports complex	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue		1	40	High
Grimes 2	Generators at City Hall	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue		2	33	High
Grimes 3	Generator at fire station	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue		2	33	High
Grimes 4	Warning siren northeast and southwest areas of city	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue		1	33	High
Grimes 5	Elevate bridge on North James Street, north of wastewater treatment plant	River Flooding	Existing	Capital Improvement Plan	In Progress / Continue	This has been added to the long term plans within the CIP	1	32	Medium
Grimes 7	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		2	33	High
Johnston 1	Improve communications to include list serve, mass telephone communications, and radio cable	Windstorms	Existing	Hazard Mitigation Plan	In Progress / Continue		1	41	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Johnston 2	Maintain contact with Pioneer/DuPont regarding potential hazards	Windstorms	Existing	Hazard Mitigation Plan	In Progress / Continue		1	35	High
Johnston 3	Generator at City Hall	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue		2	33	High
Johnston 4	Generator at fire station / police station	Windstorms	Existing	Hazard Mitigation Plan	In Progress / Continue		2	39	High
Johnston 5	Investigate repetitive loss property mitigation options regarding recently annexed area(s)	River Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		1	32	Medium
Johnston 7	Continue to work with Iowa DOT to eliminate flooding at Northwest Beaver Drive (water impounded since the 2008 flood may be affecting the water table and may be polluted)	River Flooding	N/A	Storm Water Management Plan	In Progress / Continue		4	35	High
Johnston 9	Conduct flood impact study on Merle Hay and Beaver Creek area	River Flooding	N/A	Hazard Mitigation Plan	In Progress / Continue		4	36	High
Johnston 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		4	37	High
Mitchellville 1	Improve ditch and culvert drainage in northwest part of town	Flash Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	30	Medium

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Mitchellville 2	Backup power generator for police/fire station	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue		4	28	Medium
Mitchellville 3	New roof for police/fire station	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue		4	28	Medium
Mitchellville 4	Re-wiring the electrical system for police/fire station	Windstorms	Existing	Hazard Mitigation Plan	In Progress / Continue	Everything is complete except what feeds into the air conditioning	4	23	Medium
Mitchellville 5	New siren on east edge of town	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue		4	33	High
Mitchellville 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	New		4	37	High
Pleasant Hill 1	Generators for lift stations: 6400 Southeast 6 th Street; Northeast 80 th Street; Vandalia Road; Harbor Lake Drive, and Southeast 60 th Street	Windstorms	Existing	Capital Improvement Plan	In Progress / Continue		4	22	High
Pleasant Hill 2	Flood mitigation planning elevation of southeast connector so water passes underneath – current road is in flood zone	River Flooding	New	Hazard Mitigation Plan	In Progress / Continue		4	19	Medium
Pleasant Hill 3	Creation of storm water utility (with taxing and bonding authority)	Flash Flooding	N/A	Hazard Mitigation Plan	Not Started / Continue		2	19	Medium

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Pleasant Hill 4	Relocation of and construction of new fire station	Windstorms	New	Capital Improvement Plan	Not Started / Continue		4	11	High
Pleasant Hill 5	Relocation of gas pumps for city vehicles which are in flood zone	River Flooding	New	Hazard Mitigation Plan	In Progress / Continue		4	14	High
Pleasant Hill 6	Safe room incorporation into new city facilities	Windstorms	New	Hazard Mitigation Plan	In Progress / Continue		4	18	High
Pleasant Hill 7	Regional detention facility at northeast 80 th Street	Flash Flooding	New	Future Land Use Plan, Comprehensive Plan	In Progress / Continue		4	16	High
Pleasant Hill 8	Enhance combined development of Des Moines Area Regional GIS Partnership	Flash Flooding	N/A	Ongoing Project	In Progress / Continue		3	21	Medium
Pleasant Hill 10	Construction of new culvert at Little Four Mile Creek Drive 4400 block	Flash Flooding	New	Hazard Mitigation Plan	Not Started / Continue		4	18	High
Pleasant Hill 12	Pursue remedial flood mitigation actions associated with the South East Des Moines (SEDM) Levee, US 65	River Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue		4	19	High
Pleasant Hill 15	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		2	33	High
Polk City 1	Safe Room for: police department/fire department/ community center/city hall/ visitors at area lakes	Tornado	Existing	Capital Improvement Plan	Not Started / Continue		4	36	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Polk City 2	Safe room for sports complex	Tornado	New	Capital Improvement Plan	Not Started / Continue		4	36	High
Polk City 3	Advocate for structural enhancements to Mile Long Bridge to bring to current DOT standards	River Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue	On state hwy, not responsibility of city	2	36	High
Polk City 5	Raise levee elevation for sewer treatment facility on East Broadway Street	River Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	42	High
Polk City 6	Advocate for expanding pumping capacity for sewer treatment facility pumping to Saylorville Reservoir	River Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue		2	40	High
Polk City 7	Raise wellheads and associated electrical for Polk City Well Field on North 3 rd Street and East Northside Drive	River Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	33	High
Polk City 9	Storm sirens at Hugg Drive and Westside Drive	Tornado	New	Hazard Mitigation Plan	Not Started / Continue		1	39	High
Polk City 10	Lining of public sewers to mitigate infiltration of the main pump.	Flash Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	39	High
Polk City 11	Culvert at N 3rd -Bedshed Drive to mitigate water running over the road flooding buildings	Flash Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	29	Medium
Polk City 13	Join the National Flood Insurance Program	River Flooding	New Existing	Hazard Mitigation Plan	NEW		2	33	High
Runnells 2	Backup power generator for community center at 108 Brown Street	Tornado	New	Hazard Mitigation Plan	Not Started / Continue	Working on community betterment grant of Polk Co.	4	22	Low
Runnells 3	Document electronic backup for city critical documents	Tornado	N/A	Hazard Mitigation Plan	Not Started / Continue		3	19	Low

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Runnells 5	Development of new lagoon at sewer station to mitigate overflow in high rains	Flash Flooding	New	Hazard Mitigation Plan	Not Started / Continue		4	19	Low
Runnells 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	New		2	33	High
Urbandale 10	Replace one warning sirens at City Hall	Tornado	New	Hazard Mitigation Plan	In Progress / Continue	in progress	1	38	High
Urbandale 12	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue	In Progress/Continue in Plan Update	2	33	High
Urbandale 13	Fire Station No. 42: Expansion of Living Quarters	Structural Fire	Existing	URB CIP# BU06-01	NEW	This project is going out to bid in January	2	35	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Urbandale 14	Fire Station No. 43: Construction and Satellite Police	Structural Fire	New	URB CIP# BU07-01	NEW	This project in under study and City is exploring cost reduction opportunities. Scheduled for 2018.	2	35	Medium
Urbandale 15	Parks and Public Works Maintenance Facility: 94th Street / 95th Street and Hickman Road	Winter Storm	Existing	URB CIP# BU11-01	NEW	in progress	2	37	High
Urbandale 16	Parks and Public Works Satellite Field Maintenance Facility: 170th Street and Waterford Road	Winter Storm	New	URB CIP# BU02-01	NEW	Continue in plan	2	37	High
Urbandale 17	Elevated bridge at 156 th and Walnut Creek	Flash Flooding	Existing	URB CIP# BR02-02	NEW	Scheduled for 2015	1	37	High
Urbandale 18	Fire: Truck Replacement	Structural Fire	Existing	URB CIP# EQ12-03	NEW	This project is planned replacement of a fire truck that will be reaching the end of useful life.	2	35	High
Urbandale 19	Traffic Signal Preemption	Structural Fire	New	URB CIP# TE11-01	NEW	This project is being developed with implementation being phased in over several years.	2	35	High
Urbandale 20	100th Street Bridge at I-35/80	Transportation Incident	Existing	URB CIP# BR06-11	NEW	Starting design in 2014	1	34	High
Urbandale 21	Drainage Improvements-Variou Locations	Flash Flooding	Existing	URB CIP# SS02-01	NEW	in progress	1	34	High
Urbandale 22	Oakwood Drive Channel Improvements	Flash Flooding	Existing	URB CIP# SS13-03	NEW	in progress	1	34	High
Urbandale 23	73rd Place Storm Drainage Improvement	Flash Flooding	Existing	URB CIP# SS11-01	NEW	in progress	1	36	High
Urbandale 24	Interchange Modifications and Collector Distributor Connections- Interstate 35/80 and Highway 141 / NW Urbandale Drive / Meredith Drive	Transportation Incident	Existing	URB CIP# ST06-03	NEW	in progress	2	36	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Urbandale 25	100th Street Interchange at I-35/80	Transportation Incident	Existing	URB CIP# ST06-11	NEW	in progress	2	36	High
Urbandale 26	Rocklyn Creek North of Urbandale Ave.	Flash Flooding	Existing	URB CIP# SS14-02	New	Under development	1	38	High
Urbandale 27	Traffic Signal Battery Backup Program	Infrastructure Failure	Existing	URB CIP# TR14-01	NEW	in progress	1	33	High
West Des Moines 3	Extending levee system at Raccoon River Park to Westerly City Boundaries	River Flooding	New	DPW Planning Analysis	Not Started / Continue		4	26	High
West Des Moines 4	Elevation of I-35 Bridge over Raccoon River and Highway 28 Bridge over Raccoon River to mitigate washout	River Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	21	High
West Des Moines 5	Pursue remedial flood mitigation actions associated with the Southeast Des Moines (SEDM) Levee, US 65	River Flooding	Existing	Hazard Mitigation Plan	Not Started / Continue		4	29	High
West Des Moines 7	Lining of public sewers in the Valley Junction Area to mitigate infiltration at the Main Pump-2 Phases	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue		4	32	High
West Des Moines 8	Lining of public sewers in the Fairmeadows Creek Area to mitigate infiltration of the main pump	Flash Flooding	Existing	Hazard Mitigation Plan	In Progress / Continue		4	32	High
West Des Moines 9	Construct safe room at City Hall for IT assets and infrastructure	Windstorms	Existing	Hazard Mitigation Plan	In Progress / Continue		4	26	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
West Des Moines 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		2	32	High
Windsor 1	Install residential check valves at Washington Avenue and 70 th Street	Flash Flooding	Existing	Storm Water Management Plan	Not Started / Continue		4	30	Medium
Windsor 2	replace storm sewer intakes	Flash Flooding	Existing	Storm Water Management Plan	In Progress / Continue		4	30	Medium
Windsor 5	Harden City Hall to meet FEMA 361 Community Shelter Specifications	Windstorms	Existing	Hazard Mitigation Plan	Not Started / Continue		4	30	Medium
Windsor 6	Identify potential future shelter sites	Windstorms	New	Hazard Mitigation Plan	Not Started / Continue		4	28	Medium
Windsor 7	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	River Flooding	Existing and New	NFIP floodplain mgt. program	In Progress / Continue		1	32	Medium
Windsor 8	Walnut Creek bank stabilization	River Flooding	Existing	Storm Water Management Plan	NEW		4	32	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Windsor 9	Saferoom at Colby Park and DPW	Tornado	New	Hazard Mitigation Plan	NEW		4	28	Medium
Windsor 10	Install generator at Community and Events Center	Windstorms	New	Hazard Mitigation Plan	NEW		4	28	Medium
Ankeny Schools 1	Multi-purpose Safe Rooms District Wide	Tornado	Both	Hazard Mitigation Plan	NEW		4	36	High
Ankeny Schools 2	Safety Glass	Tornado	Both	Hazard Mitigation Plan	NEW		4	41	High
Ankeny Schools 3	Back-up Facility Generators	Tornado	Both	Hazard Mitigation Plan	NEW		4	31	Med
Bondurant-Farrar Schools 4	Purchase NOAA Emergency Radios for Morris elementary and the other three buildings, totaling 10.	Tornado	Existing and New	Hazard Mitigation Plan	NEW	Starting this action Spring of 2014	4	32	Medium
DCG School District 1	Construction of saferooms in existing or new school buildings	Tornado	Existing and New	Hazard Mitigation Plan	NEW		4	33	High
Des Moines Schools 1	Construct new gymnasium as a safe room- Moore Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 2	Construct a multipurpose room as a safe room- Cowles Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 3	Construct a multipurpose room as a safe room- Findley Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Des Moines Schools 4	Construct a multipurpose room as a safe room- Howe Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 5	Construct a multipurpose room as a safe room-Jackson Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 6	Construct a multipurpose room as a safe room-Jefferson Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 7	Construct a multipurpose room as a safe room-Lovejoy Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 8	Construct a multipurpose room as a safe room-Madison Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 9	Construct a multipurpose room as a safe room-Studebaker Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Des Moines Schools 10	Construct a multipurpose room as a safe room-Wright Elementary	Tornado	Existing	Hazard Mitigation Plan	NEW		1	42	High
Johnston Schools-1	Construct safe room/building for outside sports complex	Tornado	New	Hazard Mitigation Plan	New		4	37	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
Johnston Schools-2	Storm sewer improvements North of the High School to prevent flooding in athletic buildings, practice and parking	Flash Flooding	Existing	Storm Water Management Plan	New		4	26	Medium
North Polk Schools-1	Conduct Needs analysis and feasibility study for safe rooms at Central Elementary and North Polk Junior/Senior High School	Tornado	Existing	Hazard Mitigation Plan	In Progress / Continue	Alleman 5 Action ID in 2009 plan	1	17	High
Southeast Polk School District-1	Contraction of Multi-purpose Safe Rooms District Wide	Tornado	New	Capital Improvements Plan	NEW		4	38	High
Urbandale School District 1	NOAA Weather Radios at District Buildings	Tornado	Existing	Hazard Mitigation Plan	NEW		4	38	Medium
Urbandale School District 2	Move Generator from Middle School to Jensen Elementary	Infrastructure Failure	Existing	Hazard Mitigation Plan	NEW		4	33	Medium
West Des Moines Community School District 1	Installation of FEMA compliant safe rooms/areas in nine elementary school buildings.	Tornado	Existing	Hazard Mitigation Plan	NEW		4	40	High
West Des Moines Community School District 2	Installation of FEMA compliant safe rooms/areas in two Jr. High buildings and one Freshman High School .	Tornado	Existing	Hazard Mitigation Plan	NEW		4	40	High
West Des Moines Community School District 3	Installation of generator(s) to serve the FEMA compliant safe rooms/areas in nine elementary buildings.	Tornado	Existing	Hazard Mitigation Plan	NEW		4	36	High

Action ID	Mitigation Project / Activity Description	Primary Hazard Addressed	Existing or New Structures	Planning / Implementation Mech.	2013 Action Status	2013 Action Status Comment	Goal #	STAPLEE Score	Priority
West Des Moines Community School District 4	Installation of generator (s) to serve the FEMA compliant safe rooms/areas in two Jr. High buildings and one Freshman High School.	Tornado	Existing	Hazard Mitigation Plan	NEW		4	36	High

*Denotes Actions related to continued compliance with the NFIP

Table 4.3. Mitigation Action Implementation Strategy—Continuing and New Actions

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Polk County 8	Construction of Additional Storm Water Detention Basins and Channel Improvements to Polk County's "Hamilton Drain" Drainage District	None- moving forward	DPW	Iowa Homeland Security & Emergency management, FEMA	75% HMGP, 10% State, 15% Polk County Hamilton Drainage District Funds	\$11 million	Mitigate damages caused by flooding by providing stormwater detention and channel improvements	One Year
Polk County 9	Construct Martin Luther King Parkway extension from Euclid Ave. to I-80 with new Interchange on I-35/80	Environmental Clearance/Study/Funding	DPW	Area Cities, Iowa DOT, Federal Highway Administration.	Federal Highway STP Funds, Polk County Funds	\$40 Million	Mitigate flooding over road, better traffic flow	10 years
Polk County 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	Area Cities	Existing Resources	N/A	Availability of Flood Insurance to residents and businesses in the City and proactive management of any future development in floodplain areas to minimize risk.	N/A
Polk County 11	Construction of Storm Water Detention Basins, Buffer Strips, and Channel Improvements to Fourmile Creek through the Fourmile Creek Watershed Authority	Funding	DPW	15 Watershed Authority members, including Cities, Counties, and Soil Conservation Districts.	State Grants, local funds, HMGP	\$40 Million	Mitigate damages caused by flooding by providing stormwater detention and channel improvements	10 years
Polk County 12	Construction of Storm Water Detention Basins, buffer Strips, and Channel Improvements to Mud, Camp, and Spring Creek watersheds through the Watershed Authority	Funding	DPW	11 Watershed Authority members, including Cities, Counties, and Soil Conservation Districts.	State Grants, local funds, HMGP	\$25 Million	Mitigate damages caused by flooding by providing stormwater detention and channel improvements	10 years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Alleman 1	Update tornado warning system	funding	Mayor/City Council	Iowa Homeland Security and Emergency Management; Polk County Emergency Management	HMGP 5%	TBD	Improve the City's ability to provide outdoor warning of severe weather, enabling residents to take life-saving action.	5 years
Alleman 3	Construct retention pond at Northeast 134	funding	Mayor/City Council	Iowa Homeland Security and Emergency Management; Iowa Department of Natural Resources	HMGP, FMA, PDM, General Fund	TBD	Reduce damages to existing structures as well as prevent damage to future structures that may be constructed in area slated for potential development	10 years
Alleman 6	Consider participation in the NFIP	Staff Time	Mayor/City Council	Iowa Department of Natural Resources	No funding necessary	N/A	Allow owners of existing structures to purchase flood insurance, offsetting any flood damage to structures as well as provide a mechanism for the City to regulate any future development in designated floodplains	2 years
Altoona 5	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Flooding, infrastructure damage, property damage, erosion	Ongoing
Ankeny 4	Construct safe room(s) at Mel Ray Mobile Park Home	Lack of funding, space and authority	City Manager's Office	Mel Ray Ownership	PDM, HMGP	TBD by engineer	Personal loss to residents and other occupants from tornado / wind dangers	Four Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Ankeny 5	Construct safe room(s) at Autumn Ridge Mobile Home Park	Lack of funding, space and authority	City Manager's Office	Autumn Ridge Ownership	PDM, HMGP	TBD by engineer	Personal loss to residents and other occupants from tornado / wind dangers	Four Years
Ankeny 6	Sanitary sewer capacity improvements southeast area relief sewer	Construction difficulties	Public Works	None	HMGP	\$100,000 (remaining work)	Property damage to residents	One Year
Ankeny 7	Sanitary sewer capacity improvements Southeast 2nd Avenue trunk interconnect	Construction difficulties	Public Works	None	PDM, HMGP	\$250,000	Property damage to residents	One Year
Ankeny 9	Sanitary sewer capacity improvements West Outfall Relief sewer	Construction difficulties, property acquisition	Public Works	None	Sewer Enterprise Funds	\$1.79 Million	Property damage to residents due to sanitary sewer backups	One Year
Ankeny 11	Storm sewer/channel improvements Southeast 4th Street and Wanda storm sewer	Construction difficulties, property acquisition	Public Works	None	Stormwater Enterprise Funds	\$175,500 remaining	Property damage and erosion damage avoided	One Year
Ankeny 13	Storm sewer/channel improvements Tributary "A" Stream and Southeast Tributary to Four Mile Creek channel improvements	Construction difficulties, property acquisition	Public Works / Municipal Utilities	None	Stormwater Enterprise Funds	\$1.9 Million	Additional property damage and erosion damage avoided	Two Years
Ankeny 16	Storm sewer/channel improvements Four Mile Creek bank stabilization	Construction difficulties, property acquisition	Public Works / Municipal Utilities	None	PDM, HMGP	\$250,000	Additional property damage and erosion damage avoided	Three Years
Ankeny 17	Reconstruct storm water detention - Packard Pond improvements	Property acquisition, deep trench excavation	Public Works	Private Resident	PDM, HMGP	\$200,000	Downstream flooding and stream erosion	Four Years
Ankeny 18	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	Multi-agency funding required, property acquisition	City Manager's Office	IDNR, FEMA	Existing Resources	N/A	Flooding, infrastructure damage, property damage, erosion	Ongoing

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Ankeny 19	Storm sewer / channel improvements - West First Street Storm Sewer Improvements	Construction difficulties, property acquisition	Public Works	None	Stormwater Enterprise Funds	\$3.3 Million	Flooding, property damage and erosion damage avoided	Four Years
Ankeny 20	Embankment stabilization - NW Irvinedale Drive	Construction difficulties, earth stabilization issues	Public Works	None	Stormwater Enterprise Funds, PDM, HMGP	\$250,000	Flooding, property damage and erosion damage avoided	Four Years
Ankeny 21	Reconstruct storm water detention - Wildflower Public Pond improvements	Construction difficulties, access to site	Public Works	None	PDM, HMGP	\$275,000	Residential flooding, downstream flooding and erosion	Four Years
Ankeny 22	Storm sewer/channel improvements - SE Creekview Drive Improvements	Construction access, maintaining access	Public Works	None	Stormwater Enterprise Funds, PDM, HMGP	\$1.8 Million	Flooding of commercial and industrial businesses avoided	Four Years
Ankeny 23	Construct safe room(s) at On With Life Care Facility	Lack of funding, space and authority	City Manager's Office	Private Care Provider	PDM, HMGP	TBD by Engineer	Personal loss to facility residents from tornado / wind dangers	Four Years
Bondurant 6	Generator at public safety building	None	City Administrator	Polk County	Local Tax Levy	\$3,000	Allows for continued operations during power outages.	6 months
Bondurant 7	Generator for City Hall phones	None Identified	City Administrator	None Identified	Local Tax Levy	\$3,000	Allows for continued operations during power outages.	6 months
Bondurant 8	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	City Administrator	IDNR, FEMA	Existing Resources	N/A	regulatory, prevents flooding and property loss	Ongoing
Clive 1	Construction of three regional storm water detention facilities at: 100 Street and Indian Hills; 156 th Street and Hickman Road; Douglas Road and Berkshire Road	Funding	City Administrator	n/a	General Funds/Storm Water Fund, HMGP, PDM, FMA	\$250,000-\$500,000	Storm water runoff damage, downstream flooding	3-5 Years for remaining facility

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Clive 2	Acquisition of property along Walnut Creek as well as Little Walnut Creek to reduce repetitive loss potential	Funding	City Administrator	n/a	General Funds/Storm Water Fund, HMGP, PDM, FMA, RFC, SRL	\$1 million	Storm water runoff damage	Ongoing
Clive 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	n/a	Floodplain Manager	FEMA, State	Existing Resources	N/A	Reduce loss of life and property due to flooding.	Ongoing
Clive 7	Purchase and installation of an emergency backup generator at the Police and City Hall/Administration Building	Funding	City Administrator	FEMA, State	FEMA, General Fund	\$100,000	Capability to manage and respond to emergency situations.	2 Years
Clive 8	Outdoor Warning Siren replacement	Funding	Fire Department	FEMA, State	FEMA, General Fund	\$15,000	Advance warning to community	3 Years
Clive 9	Outdoor Warning Siren addition	Funding	Fire Department	FEMA, State	FEMA, General Fund	\$25,000	Advance warning to community	4-5 Years
Clive 10	Replace (2) flap gates with back flow systems on Swanson Blvd	Funding	Public Works	FEMA, State	FEMA, General Fund	\$100,000	Prevent flooding	2 Years
Clive 11	Stream bank stabilization along Walnut Creek	Funding	Community Development	Corps of Engineers, DNR	FEMA, General Fund, Storm Water Utility Fund, State Grants	3,700,000	25,000 feet of unstable bank	3-5 Years
Des Moines 9	Remove mitigated properties from repetitive loss property list	Interdepartmental communication	Community Development Department	Engineering Department	Existing Staff Resources	TBD by Engineer	Lower insurance premiums	One Year
Des Moines 10	Pursue remedial flood mitigation actions associated with the Southeast Des Moines (SEDM) Levee, US 65	Land acquisition, permitting, funding	Public Works Department	IDOT, USACE	PDM, HMGP	TBD	Impacts levee certification for SE Des Moines Levee which protects portions of Des Moines and Pleasant Hill including the Wastewater Reclamation Facility.	TBD

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Des Moines 18	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Community Development Department	Engineering Department	Existing Resources	N/A	Availability of Flood Insurance to residents and businesses in the City and proactive management of any future development in floodplain areas to minimize risk.	Ongoing
Des Moines 19	Construct safe room(s) at Des Moines Municipal Housing Agency's multi-family units	Space constraints	Housing Services Department	Engineering Department	City General Operating Fund / Disposition Proceeds	TBD	Reduce injuries and property damage	TBD
Des Moines 20	Harden single family home scattered site Public Housing units	Space constraints	Housing Services Department	Engineering Department	City General Operating Fund / Disposition Proceeds	TBD	Reduce injuries and property damage	TBD
Des Moines 21	Treatment and removal of ash trees in response to onset of Emerald Ash Borer (EAB)	EAB insect not yet discovered in city. Cost of treatment and removal. Logistics of treating 5800 and removing 7200.	Public Works Department	MidAmerican Energy Corp. and Tree Des Moines TreeKeepers	City General Operating Fund, Storm Water Utility Fund	\$9.6 million	Avoid excess rainfall runoff	Eleven Years
Des Moines 22	Des Moines River Flood Mitigation Improvements - Flood protection system improvements (levees, floodwalls, pump stations, etc.) to maintain FEMA accreditation despite increased flows identified in 2011 Des Moines River Regulated Flow Frequency Study.	USACE permitting, funding	Public Works Department	USACE	Stormwater Utility, USACE, Iowa Flood Mitigation Program	\$20 million	Impacts FEMA accreditation of three City of Des Moines operated Corps of Engineer levees that protect the downtown area.	Five Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Des Moines 23	Hamilton Drainage Area Stormwater Improvements - Storm sewer conveyance improvements on Shawnee Avenue from 11th Street to 7th Street, and also storm sewer improvements from Shawnee Avenue and Columbia Street to Wright Street and Euclid Avenue to replace a deteriorating wooden box storm sewer.	None Identified	Public Works Department	None Identified	Stormwater Utility	\$12 million	Improvements to be designed to reduce risk of property damage due to flash flooding up to the 1% annual chance flood event	Six Years
Des Moines 24	Leetown Creekway Stormwater Improvements - Increased storm sewer capacity between University Avenue and Dean Avenue and channel improvements from south of Dean Avenue to confluence with Fourmile Creek.	None Identified	Public Works Department	None Identified	Stormwater Utility	\$9.5 million	Improvements to be designed to reduce risk of property damage due to flash flooding up to the 1% annual chance flood event	Five Years
Des Moines 25	Closes Creek Stormwater Improvements - Replace Culverts @ 30th Street and Jefferson Avenue. Storm sewer improvements along Maquoketa Drive.	None Identified	Public Works Department	None Identified	Stormwater Utility	\$5 million	Improvements to be designed to reduce risk of property damage due to flash flooding up to the 1% annual chance flood event	Five Years
Des Moines 26	Remove repetitive loss properties from flood prone areas	Owner resistance, funding	Engineering Department	Community Development Department	HMGP, CDBG, local funds, state funds	\$5 million	Reduce injuries and property damage	Ten Years
Elkhart 1	Construct safe room at Elkhart Memorial Park	Need new building	Mayor	Community	PDM, HMGP, Community donations	TBD by Engineer	Safety of residents	Five Years
Elkhart 2	Construct safe room in NEW fire station	Looking for suitable location	Mayor	Fire Grants, Community	PDM, HMGP, Grants, Community Donations	>\$250,000	Place of safety in case of storms	Five Years
Elkhart 3	Generator for new fire station	Cost	Mayor	Community	HMGP 5%, City funds, Donations	<\$250,000	Safe room heat in Winter	Five Years
Elkhart 4	Generator at city water plant	Cost	Mayor	Community	HMGP 5%, Community funds	<\$250,000	Loss of water source for fires	Two Years
Elkhart 5	Construct safe room at Elkhart Community Center	Cost	Mayor	Community	PDM, HMGP	TBD by Engineer	Place of safety in case of storms	Five Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Grimes1	Construct safe room at sports complex	Cost	City Administration	Possibly one of the ball leagues	PDM, HMGP	TBD by Engineer	Injury or death of park attendees unable to find shelter	Three Years
Grimes 2	Generators at City Hall	Costs	City Administration	None	HMGP 5%	<\$250,000	City services being interrupted	Three Years
Grimes 3	Generator at fire station	Costs	City Administration	None	HMGP 5%	<\$250,000	Delay in emergency response, freeze damage to equipment	Three Years
Grimes 4	Warning siren northeast and southwest areas of city	Securing property and power supply	City Administration	None	HMGP 5%	<\$250,000	Providing residents advanced warning of an approaching storm	18 months
Grimes 5	Elevate bridge on North James Street, north of wastewater treatment plant	Right of way acquisition	City Administration	DOT	Capital Improvement, HMGP	\$500,000	Emergency access to homes & school. Reduced flooding	Five Years
Grimes 7	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Regulation of future construction in floodplain areas and availability of flood insurance in City limits	Ongoing
Johnston 1	Improve communications to include list serve, mass telephone communications, and radio cable	None	Public Safety Department	Media outlets	Existing Staff Resources	<\$250,000	Provide real time notification to residents in an emergency	Ongoing
Johnston 2	Maintain contact with Pioneer/DuPont regarding potential hazards	None	Public Safety Department	Pioneer	Existing Staff Resources	<\$250,000	Provide & receive real time notifications regarding health, safety, or security concerns.	Ongoing
Johnston 3	Generator at City Hall	Costs	City Administration	None	HMGP 5%	<\$250,000	City services being interrupted	Two Years
Johnston 4	Generator at fire station / police station	Costs	Public Safety Department	None	HMGP 5%	<\$250,000	Delay in emergency response, freeze damage to equipment	Two Years
Johnston 5	Investigate repetitive loss property mitigation options regarding recently annexed area(s)	Obtaining information	Community Development	Assessors office & FEMA	Existing Staff Resources	<\$250,000	Helping to reduce future problems	Five Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Johnston 7	Continue to work with Iowa DOT to eliminate flooding at Northwest Beaver Drive (water impounded since the 2008 flood may be affecting the water table and may be polluted)	Intergovernmental cooperation	Community Development	DOT, Army Corp of Engineers	Existing Staff Resources, HMGP, PDM, FMA	<\$250,000	Reduce or eliminate property damage, maintain roadways lost due to flooding	Five Years
Johnston 9	Conduct flood impact study on Merle Hay and Beaver Creek area	Costs	Community Development	DOT, Army Corp of Engineers	PDM if it results in projects	<\$250,000	Reduce or eliminate property damage, maintain roadways lost due to flooding	Five Years
Johnston 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Mitigate damages to new development in floodprone areas as well as allow residents and businesses to purchase flood insurance.	Ongoing
Mitchellville 1	Improve ditch and culvert drainage in northwest part of town	funding	City Manager/City Engineer	Iowa Homeland Security and Emergency Management	Bond funds, CDBG, HMGP, PDM	TBD by engineer	Prevent flooding to nearby outbuildings and basement in nearby residences	One Year
Mitchellville 2	Backup power generator for police/fire station	funding	Fire Chief	Iowa Homeland Security and Emergency Management	General Funds, Blake Trust Account, HMGP 5%	\$30,000	Provide backup power to police/fire critical services	2 years
Mitchellville 3	New roof for police/fire station	funding	Fire Chief	None	Blake Trust Account	\$5,000	Avoid additional damages to structure and contents	One year
Mitchellville 4	Re-wiring the electrical system for police/fire station	funding	Fire Chief	None	General Fund, Blake Trust Account	\$3,500-\$4,000	Needs to be completed before generator can be installed	One Year
Mitchellville 5	New siren on east edge of town	funding	City Manager	Iowa Homeland Security and Emergency Management	General Funds, HMGP 5%	\$20,000	Provide advanced outdoor warning for citizens to take shelter	One Year

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Mitchellville 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Mitigate damages to new development in floodprone areas as well as allow residents and businesses to purchase flood insurance.	Ongoing
Pleasant Hill 1	Generators for lift stations: 6400 Southeast 6 th Street; Northeast 80 th Street; Vandalia Road; Harbor Lake Drive, and Southeast 60 th Street	Not all lift stations lifted are actively in use, budget & time restraints	City Public Works	City Council, City Manager	Capital Improvement Plan Funds, HMGP 5%	\$40,000 per generator	Reduce physical damage to structures	One Year
Pleasant Hill 2	Flood mitigation planning elevation of southeast connector so water passes underneath – current road is in flood zone	Time & budget restraints	City of Des Moines City Manager	City Council, City Manager, City of Des Moines	N/A, PDM if results in a fundable project	\$100 million for entire project	Flooding potential is reduced and potential damage to structures is minimized	Five Years
Pleasant Hill 3	Creation of storm water utility (with taxing and bonding authority)	Politically & socially difficult to increase user fees	Newly Created Stormwater Utility Agency	stormwater coordinator, city council, community development	N/A	\$40-50,000	Stormwater system is kept current to avoid any losses due to flooding, back ups, or other stormwater related issues	Two to Five Years
Pleasant Hill 4	Relocation of and construction of new fire station	time and budget restraints	City Fire	City Fire, City Council, Funding sources,	Capital Improvement Plan Funds	TBD by engineer	More adequate services for fire employees could produce faster response times, better equipment storage, loss of life, prevention of damages	Three Years
Pleasant Hill 5	Relocation of gas pumps for city vehicles which are in flood zone	land acquisition,	Public Works	City Council	HMGP, FMA, PDM	TBD by engineer	Provide continued access to public vehicles during an emergency event	Three Years
Pleasant Hill 6	Safe room incorporation into new city facilities	time and budget restraints	Community Development	City Council, City Staff, funding agencies	HMGP, PDM	TBD by engineer	Minimize loss of life	N/A
Pleasant Hill 7	Regional detention facility at northeast 80 th Street	time and budget restraints	City Public Works	Regional entities, City Council, City Manager	N/A	\$4 million	reduce flooding risks and potential damage to structures	One Year

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Pleasant Hill 8	Enhance combined development of Des Moines Area Regional GIS Partnership	time restraints, skill capabilities & financial resources	Community Development, City of Des Moines IT	Metro Cities, Des Moines IT	City Budget, HMGP 5%	<\$250,000	Provide accurate and reliable data for emergency professionals to provide immediate and successful responses	Five Years
Pleasant Hill 10	Construction of new culvert at Little Four Mile Creek Drive 4400 block	time and budget restraints	Department of Public Works	City Engineer	HMGP, FMA, PDM	\$150,000	reduce flooding risks and potential damage to structures	One Year
Pleasant Hill 12	Pursue remedial flood mitigation actions associated with the South East Des Moines (SEDM) Levee, US 65	time and budget restraints	Iowa DOT, USACE and others TBD	City Council	PDM, HMGP	TBD	reduce flooding risks and potential damage to structures	TBD
Pleasant Hill 15	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Mitigate damages to new development in floodprone areas as well as allow residents and businesses to purchase flood insurance.	Ongoing
Polk City 1	Safe Room for: police department/fire department/ community center/city hall/ visitors at area lakes	Funding	City Administration	None Identified	City General Fund, Safe Room Grant, HMGP, PDM	TBD by engineer	Provide refuge for life safety during tornado events	10 Years
Polk City 2	Safe room for sports complex	Funding	City Administration	None Identified	City General Fund, Safe Room Grant, HMGP, PDM	TBD by engineer	Provide refuge for life safety during tornado events	10 Years
Polk City 3	Advocate for structural enhancements to Mile Long Bridge to bring to current DOT standards	Not within our jurisdiction	City Administration	None Identified	Iowa DOT, US DOT	N/A	Mitigate interruption of this key access point	Ongoing
Polk City 5	Raise levee elevation for sewer treatment facility on East Broadway Street	Funding	City Administration/ Public Works	None Identified	City	TBD by engineer	Mitigate potential flood damage to sewer treatment facility	15 years
Polk City 6	Advocate for expanding pumping capacity for sewer treatment facility pumping to Saylorville Reservoir	Not within our jurisdiction	City Administration/ Public Works	None Identified	N/A	N/A	Mitigate flood damages caused by sewer backup	Ongoing

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Polk City 7	Raise wellheads and associated electrical for Polk City Well Field on North 3 rd Street and East Northside Drive	Funding	City Administration/ Public Works	None Identified	City	TBD by engineer	Mitigate potential damage to wellheads and electrical components from flooding	Five - 10 Years
Polk City 9	Storm sirens at Hugg Drive and Westside Drive	Funding	City Administration/ Public Works	None Identified	City	TBD by engineer	Provide advance outdoor warning of severe weather to allow residents to take shelter	Five Years
Polk City 10	Lining of public sewers to mitigate infiltration of the main pump.	Funding	City Administration/ Public Works	None Identified	City	TBD by engineer	mitigate damage to the pump as well as damages that could occur if pump is non-operational	Five Years
Polk City 11	Culvert at N 3rd -Bedshed Drive to mitigate water running over the road flooding buildings	Funding	City Administration/ Public Works	None Identified	City	TBD by engineer	Mitigate water going over the road	Five Years
Polk City 13	Join the National Flood Insurance Program	Staff Time	City Administration	Iowa Dept. of Natural Resources	N/A	N/A	This will enhance the City's ability to regulate development in floodplain areas as well as allow residents and businesses to purchase flood insurance	One Year
Runnells 2	Backup power generator for community center at 108 Brown Street	funding,	Mayor's Office		HMGP 5%	\$ 30,000.00	Provide alternate power during power outages for community center which can be used during various hazard events such as extreme cold, extreme heat, etc.	One Year
Runnells 3	Document electronic backup for city critical documents	time constraints, funding	Mayor's Office	Summit-software programs	General Funds	TBD	Provide for continuity of government if primary documents are lost	One Year
Runnells 5	Development of new lagoon at sewer station to mitigate overflow in high rains	funding,	Mayor's Office	Msa Professionals Des Moines water Works	sewer funds, CDBG grants	\$ 250,000.00	Prevent overflow of sewage during flash flooding. This may also help prevent sewer backup in basements.	Five years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Runnells 6	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Mitigate damages to new development in floodprone areas as well as allow residents and businesses to purchase flood insurance.	Ongoing
Urbandale 10	Replace one warning sirens at City Hall	pending obtaining an easement	Fire Department	None Identified	HMGP 5%	\$18,000	improved warning	this year
Urbandale 12	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	VERY poor quality of existing FEMA maps	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Private property losses, public infrastructure losses, and potential injuries and deaths from periodic flooding	Ongoing
Urbandale 13	Fire Station No. 42: Expansion of Living Quarters	None Identified	Fire Department	None Identified	GOB	\$11,96,500	Enhance emergency services	In progress
Urbandale 14	Fire Station No. 43: Construction and Satellite Police	None Identified	Fire Department and Police Department	investigating opportunities	GOB / Voter approved bond	\$2,420,000	Enhance emergency response	Five years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Urbandale 15	Parks and Public Works Maintenance Facility: 94th Street / 95th Street and Hickman Road	None Identified	Department of Engineering and Department of Public Works	None Identified	TIF	\$12,320,000	improved efficiencies, response times	In progress
Urbandale 16	Parks and Public Works Satellite Field Maintenance Facility: 170th Street and Waterford Road	None Identified	Department of Engineering and Department of Public Works	None Identified	GOB	\$2,392,500	improved efficiencies, response times	Five years
Urbandale 17	Elevated bridge at 156 th and Walnut Creek	Corps & DNR permitting	Department of Engineering and Department of Public Works	None Identified	Capital Improvements	\$1.7 million	damage from flooding, transportation issues	Two Years
Urbandale 18	Fire: Truck Replacement	None Identified	Fire Department	None Identified	Capital Improvements	\$500,000	Replace outdated equipment	Three years
Urbandale 19	Traffic Signal Preemption	None Identified	Department of Engineering and Department of Public Works	None Identified	GOB	\$672,000	improved efficiencies, response times	In progress
Urbandale 20	100th Street Bridge at I-35/80	FHWA Approval	Department of Engineering and Department of Public Works	State of Iowa	Federal/State and TIF	\$7,700,000	improved efficiencies, response times and traffic flow and evacuation routes	Two years
Urbandale 21	Drainage Improvements- Various Locations	DNR permitting	Department of Engineering and Department of Public Works	None Identified	GOB/Storm Water Utility	\$1,250,000	improve drainage/creek erosion	In progress
Urbandale 22	Oakwood Drive Channel Improvements	Corps/DNR	Department of Engineering and Department of Public Works	None Identified	FEMA/GOB	\$749,000	Property protection - public/private (homes)	In progress
Urbandale 23	73rd Place Storm Drainage Improvement	None Identified	Department of Engineering and Department of Public Works	None Identified	Grants and local funds	\$2,760,000	Property protection - public/private (homes)	In progress

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Urbandale 24	Interchange Modifications and Collector Distributor Connections-Interstate 35/80 and Highway 141 / NW Urbandale Drive / Meredith Drive	Funding/FHW A	Department of Engineering and Department of Public Works	Fed/State & local (Grimes)	Federal/State and TIF	\$51,000,000	Transportation issues, safety, improved access	Three years+
Urbandale 25	100th Street Interchange at I-35/80	Funding/FHW A	Department of Engineering and Department of Public Works	FHWA/Johnston /State	Federal/State and TIF	\$8,750,000	Transportation issues, safety, improved access	Five years
Urbandale 26	Rocklyn Creek North of Urbandale Ave.	funding	Floodplain Manager	FEMA	Federal/State/GOB	\$60,000	reduce damage from flash flooding	Two years
Urbandale 27	Traffic Signal Battery Backup Program	None Identified	Department of Engineering and DPW	contiguous communities/State	Federal/State/GOB	\$79,000,	back signals for traffic safety	This year
West Des Moines 3	Extending levee system at Raccoon River Park to Westerly City Boundaries	Cost	Department of Public Works	USACE, IDNR	City Bonds as match for Federal funds	\$9.0 million	Flooding of industrial and residential properties	Six Years
West Des Moines 4	Elevation of I-35 Bridge over Raccoon River and Highway 28 Bridge over Raccoon River to mitigate washout	Cost	Iowa DOT	None	N/A	TBD by engineer	Closure of critical regional transportation route	Six Years
Wes Des Moines 5	Pursue remedial flood mitigation actions associated with the Southeast Des Moines (SEDM) Levee, US 65	Cost	Iowa DOT, USACE and others TBD	None	PDM, HMGP	TBD	Closure of critical regional transportation route	TBD
West Des Moines 7	Lining of public sewers in the Valley Junction Area to mitigate infiltration at the Main Pump-2 Phases	Cost, workload	Department of Public Works	EPA, IDNR	PDM, HMGP	\$810,000 / Phase 1 \$785,000 / Phase 2	Property damage due to sewer backup. Capacity deficiencies at WWTP.	One Year
West Des Moines 8	Lining of public sewers in the Fairmeadows Creek Area to mitigate infiltration of the main pump	Cost, workload	Department of Public Works	EPA, IDNR	PDM, HMGP	\$2.3 million	Property damage due to sewer backup. Capacity deficiencies at WWTP.	Five Years
West Des Moines 9	Construct safe room at City Hall for IT assets and infrastructure	Cost, existing infrastructure	Department of Public Works	IHSEMD, FEMA	General Funds	\$90,000	Loss of critical local government database and communication devices, including citizen access	Five Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
West Des Moines 10	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	Potential property and life safety losses due to poor planning and flood water anticipation.	Ongoing
Windsor 1	Install residential check valves at Washington Avenue and 70 th Street	funding	Sanitary Sewer District	None Identified	Sewer Fund	\$2,000 per home	prevent water back-up in homes	One Year
Windsor 2	replace storm sewer intakes	None Identified	Department of Public Works	None identified	Stormwater Utility Fund	\$5,000 per intake	improves flow of runoff	Two Years
Windsor 5	Harden City Hall to meet FEMA 361 Community Shelter Specifications	funding	Fire Department	None Identified	PDM, HMGP	TBD by engineer	life safety, regulatory	Five Years
Windsor 6	Identify potential future shelter sites	funding	Fire Department	None Identified	Department Salaries	<\$250,000	life safety	Five Years
Windsor 7	Continue to comply with the NFIP by enforcing floodplain management ordinance, including regulating/ monitoring new construction and substantial improvements in the SFHA; and participating in floodplain identification and mapping.	None Identified	Floodplain Manager	IDNR, FEMA	Existing Resources	N/A	regulatory, prevents flooding and property loss	Ongoing
Windsor 8	Walnut Creek bank stabilization	access to property	DPW/Engineering	FEMA/DPW/Contractors	HMGP, WIRB Grant	TBD by engineer	erosion, property loss	Ongoing
Windsor 9	Saferoom at Colby Park and DPW	funding	Department of Public Works	FEMA	HMGP	TBD by engineer	life safety	Two Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Windsor 10	Install generator at Community and Events Center	funding	Department of Public Works	FEMA	HMGP	TBD by engineer	life safety, operational continuity	Two Years
Ankeny Schools 1	Multi-purpose Safe Rooms District Wide	Cost	Safety Manager	None Identified	PDM, HMGP	TBD by engineer	Life/Survivability	Six Years
Ankeny Schools 2	Safety Glass	Cost	Safety Manager	None Identified	PDM, HMGP	\$120,000	Life/Property	2 Years
Ankeny Schools 3	Back-up Facility Generators	Cost	Safety Manager	None Identified	PDM, HMGP	TBD by engineer	Network Systems/Vital Data	Four Years
Bondurant-Farrar Schools 4	Purchase NOAA Emergency Radios for Morris elementary and the other three buildings, totaling 10.	NA	School Board	School Foundation	Existing Resources	\$400.00-\$500.00	Advanced warning for life threatening situations	One Year
DCG School District 1	Construction of saferooms in existing or new school buildings	Funding	School Board	Iowa Homeland Security and Emergency Management, FEMA	LOST (Local Option Sales Tax), PPEL (Voted Equipment Levy), HMGP, PDM	\$1 Million to \$2 Million (TBD)	Life Safety	Ongoing
Des Moines Schools 1	Construct new gymnasium as a safe room- Moore Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	1.5 Years
Des Moines Schools 2	Construct a multipurpose room as a safe room- Cowles Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five years
Des Moines Schools 3	Construct a multipurpose room as a safe room- Findley Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 4	Construct a multipurpose room as a safe room- Howe Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
Des Moines Schools 5	Construct a multipurpose room as a safe room-Jackson Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 6	Construct a multipurpose room as a safe room-Jefferson Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 7	Construct a multipurpose room as a safe room-Lovejoy Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 8	Construct a multipurpose room as a safe room-Madison Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 9	Construct a multipurpose room as a safe room-Studebaker Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Des Moines Schools 10	Construct a multipurpose room as a safe room-Wright Elementary	Funding	Operations Department	Iowa Homeland Security and Emergency Management Division, FEMA	HMGP, PDM, PPEL, SWP	TBD by engineer	Life Safety of students and staff sheltered in saferoom areas	Five Years
Johnston Schools-1	Construct safe room/building for outside sports complex	funding	School Board	Iowa Homeland Security and Emergency Management	PDM, HMGP	TBD by engineer	protect students and faculty from injury or death as a result of tornado events	Four Years
Johnston Schools-2	Storm sewer improvements North of the High School to prevent flooding in athletic buildings, practice and parking	funding	School Board	City of Johnston	PDM, HMGP	TBD by engineer	Prevent flood damage to athletic buildings, practice fields and parking areas	Two Years

Action ID	Mitigation Project/Activity Description	Obstacles to Implementing	Responsible Office	Partners	Potential Funding Source	Cost Estimate	Benefits	Timeline
North Polk Schools-1	Conduct Needs analysis and feasibility study for safe rooms at Central Elementary and North Polk Junior/Senior High School	Funding	DPW/School Board	N/A	Existing Staff Resources	<\$250,000	N/A	Four Years
Southeast Polk School District-1	Contraction of Multi-purpose Safe Rooms District Wide	funding	Building and Grounds Department	Polk County Emergency Management	PDM, HMGP, bonds, sales tax, PPEL	\$400,000 to \$1,000,000 per school	Life Safety of students and staff	2 to 10 years
Urbandale School District 1	NOAA Weather Radios at District Buildings	funding	Building and Grounds	None Identified	General Funds	\$1,000	Ensure information on watches and warnings issued is received by personnel at all bodings in district to take necessary measures to shelter students and staff and/or make decisions regarding modifications to dismissal	One Year
Urbandale School District 2	Move Generator from Middle School to Jensen Elementary	None	Building and Grounds	None Identified	General Funds	\$3,500	Provide back-up power in the event of outage	One Year
West Des Moines Community School District 1	Installation of FEMA compliant safe rooms/areas in nine elementary school buildings.	funding	School Board	FEMA, IA HSEMD	Sales Tax Proceeds, PPEL, Grants	TBD (Project Designer)	protect lives of students at school buildings	Five Years
West Des Moines Community School District 2	Installation of FEMA compliant safe rooms/areas in two Jr. High buildings and one Freshman High School .	funding	School Board	FEMA, IA HSEMD	Sales Tax Proceeds, PPEL, Grants	TBD (Project Designer)	ensure operation of electricity in saferooms during power outage situations	Five Years
West Des Moines Community School District 3	Installation of generator(s) to serve the FEMA compliant safe rooms/areas in nine elementary buildings.	funding	School Board	FEMA, IA HSEMD	Sales Tax Proceeds, PPEL, Grants	TBD (Project Designer)	protect lives of students at school buildings	Five Years
West Des Moines Community School District 4	Installation of generator (s) to serve the FEMA compliant safe rooms/areas in two Jr. High buildings and one Freshman High School.	funding	School Board	FEMA, IA HSEMD	Sales Tax Proceeds, PPEL, Grants	TBD (Project Designer)	ensure operation of electricity in saferooms during power outage situations	Five Years

Acronyms: DPW = Department of Public Works; HMGP = Hazard Mitigation Grant Program; PDM = Pre-disaster Mitigation grant; FMA = Flood Mitigation Assistance; CDBG = Community Development Block Grant; TIF=Tax Increment Financing; GOB = General Obligation Bond; TBD = To Be Determined; PPEL = Physical Plant and Equipment Levy; SWP = Schoolwide Program