

Exhibit E

Soundness of Approach

State of Iowa

a. Consultation

Consultation will occur at two levels: statewide for the larger watershed efforts, and within Dubuque for efforts to protect low-income housing from disaster events. The project team will encourage statewide stakeholder collaboration in forming site-specific project activities by conducting regional community roundtables in the identified target areas. Iowa will utilize the membership base of the State Hazard Mitigation Team and the Long-Term Recovery Taskforce to reach stakeholders with experience in these communities related to the State's requirements listed in 24 CFR 91.110 (a)-(e). Project partners will assist with the facilitation of these roundtables and provide the technical feedback to move the project development process forward. Throughout the consultation process, the project team will consider innovative ways to reach vulnerable populations with the goal of maximizing the visibility of the project-development process. Once the application program/projects are drafted, a public hearing and the required follow up activities will be completed.

At the urban scale, Dubuque will rely on a strong foundation of public/private partnerships and community engagement to ensure that implementation of the project includes all stakeholders and involves input from and outreach to all residents. Monthly meetings of project partners with structured agendas and assignments will ensure that all program partners are engaged and meeting the defined outcomes. The City's Community Engagement Toolkit will be used to identify stakeholder audiences, including traditionally marginalized population, communication strategies and opportunities for input and implementation.

Since 2008, IEDA and HSEMD have worked together to address flood risk reduction strategies across the State. This competition allows the State and its partners to engage in a holistic conversation about the stresses and shocks Iowa communities face during a hazard event. HSEMD, through the Long-Term Disaster Recovery Task Force and individual stakeholder visits, conducted a series of meetings discussing the current framework of disaster recovery efforts. These initial stakeholder conversations quickly revealed the complexity of water management systems related to flooding. Through these discussions several concerns came forward including water quality and quantity issues, the increasing impact of climate change and precipitation change, the current and growing list of impaired streams in the state, the loss of wetlands, the need for continued refinement and

support of conservation practices, additional attention to implementing the nutrient reduction strategy, increased incentives that make soil-building best management practices more attractive to landowners in priority watersheds, and ecosystem management issues including wildlife habitat and biodiversity.

Dubuque has also begun engaging stakeholders in its resiliency efforts. Since the beginning of the redesign of the Bee Branch Creek, the Washington, North End and Point Neighborhood residents and businesses have been primary partners. A 16-member community advisory committee collaborated with City staff and consultants on the daylighting of the Bee Branch Creek. A Bee Branch Communications Specialist has also been hired, whose primary job is to share information with the affected neighborhoods in a variety of formats and gather and respond to feedback and concerns of the neighborhood. Topics that have already been addressed as part of the Bee Branch project include infrastructure and creek design, recreation/amenity design and construction safety

The stakeholders for this project are a combination of local, state and federal government agencies, identified in Attachment D, who are involved in disaster recovery, hazard mitigation and watershed management initiatives. Advocacy and special interest groups for agricultural producers, environmental groups and small business have been involved in preliminary discussions regarding statewide resiliency efforts, and will continue to add value through the public participation process in site-specific project development.

HSEMD began working with the most impacted and distressed areas with unmet recovery needs through the Public Assistance Program. The participants include state government agencies, county government, municipal government, school districts, taxing districts, Indian Tribes, and private non-profits that perform services for the impacted communities. HSEMD coordinates disaster recovery and outreach through the Long-term Recovery Task Force. This multi-agency team coordinates assistance and works with the local communities to establish a continuum of care for the most affected community members. The Iowa Disaster Human Resource Council (IDHRC), also coordinated through HSEMD, works to address disaster response needs and the potential for disaster case management early in the disaster cycle.

Dubuque's stakeholders include the Visiting Nurses Association, Community Foundation of Greater Dubuque, Operation New View Community Action Agency, Crescent Community Health Center, Green Iowa

Americorps, the Dubuque Community School District, local utility providers, and various City departments. These entities have had substantial input on the development of this proposal, and will continue to collaborate on the implementation of the proposed program through monthly meetings, client recruitment and referrals, coordination of inspections and data collection, community outreach, and analysis of achievement and barriers.

Stakeholders for statewide resiliency efforts will be engaged through regional roundtable meetings. The emergency management commissions, made up of local municipal and county leadership, will collaborate with partners to publicize these events. Application and project materials will be posted online, and a series of conference calls will be organized to gather comments on project/program development.

In Dubuque, the City will advance collaboration through a Collective Impact approach. The program will create stronger connections between existing housing, health, energy, workforce, community development, and education programs in order to work more effectively and efficiently. In addition to monthly meetings, project partners will provide regular updates to elected officials and boards of their respective organizations. These regular updates will ensure that any policy, program or budget decisions related to the project can be made in an informed, timely manner and receive the administrative and financial support necessary for success.

Through the Long-Term Recovery Task Force, regional case management organizations, non-profit advocacy groups, and state agencies were engaged in the risk assessment and vulnerability analysis. Additionally, The Sac and Fox Tribe of Mississippi are identified as a community with repetitive flooding events without sufficient resources to fully recover. HSEMD, IEDA and the Tribe established a working group to identify their most vulnerable areas at risk to flooding. From these conversations, the tribe is investigating their unmet recovery needs and how to build resiliency in their community. This includes continuing the process of joining NFIP. The State of Nebraska also contacted Iowa for a Missouri River Corridor concept, which is home to many low to moderate- income populations.

Many of the neighborhoods included in Dubuque's project include low-income populations. These residents have been involved since the inception of the project as described above. Dubuque employs a "reach-in" approach to working with groups that are not well connected to their community, participating in their existing activities to define challenges and opportunities for improvement and collaboration.

Throughout the consultation process, project partners met with various natural resources, environmental and agricultural advocacy groups to determine the status of progress in disaster resilience. The City of Dubuque and the Sac and Fox Tribe of the Mississippi also consulted with their vulnerable populations current to determine their unmet recovery needs.

For many people, rural and urban alike, it is not always obvious how land use management decisions can influence the flood risk vulnerability of residents and communities downstream. Community-supported water and transportation infrastructure can gain resiliency when decisions are made with a watershed mindset.

Neighborhood advocates have also recommended a specific partnership with landlord associations in implementation of this program. While structural issues may be one-time issues, the high rate of renters in the affected neighborhoods mean that recurring outreach to tenants will be needed. Ongoing outreach will ensure proper maintenance behaviors, and educate tenants who may be new to the area on how to respond in the event of a natural disaster. Additional education is also needed about financial support opportunities for renters who are not eligible for traditional housing assistance programs.

Iowa is considering and is in the process of discussing the indirect risks and vulnerabilities in the environment of our target areas. Project activities will be scoped with partners to further the development of healthy communities for all citizens. By addressing flooding at the watershed level, the potential for improved water quality including the reduction of nitrates in drinking water will greatly benefit residents. Sustainable land use, improvements in the food chain process, and open green spaces are all potential co-benefits.

Collaboration with stakeholders has shifted Iowa's traditional disaster recovery path from urban infrastructure-centered project development to the more holistic, integrated watershed systems management approach. This approach has the benefit of being a pathway to significant changes in water quantity, water quality, nutrient flow reduction, and land conservation practices. This approach benefits local municipal governments and utilities, and also engages private landowners and producers in developing solutions.

Concerns about the potential for gentrification have also been raised by stakeholders. Through policy, housing and self-sufficiency programs, small business investment, and careful attention to demographic and economic indicators, project partners will work to ensure that this is not an issue that comes to life.

b. Idea or Concept

The State of Iowa proposes an interagency coordination team composed of local, state, federal, and other water-related organizations and advocacy groups working collaboratively on various aspects of flood risk reduction activities. This interagency team will have a constantly evolving partnership that adapts to current needs and issues identified by the community. The team will provide a mechanism to communicate opportunities for collaboration throughout the state. By working with communities and local officials with a critical stake in watershed management, decisions will be directly connected to the needs of citizens.

For project development, this public-private partnership will work together to understand the needs of the area and leverage previous planning and modeling to scope activities. This could be a combination of engineered and incentive solutions based on the unmet recovery need in the community. The purpose of the HUD funding is to move communities farther along the path to flood resilience and develop several watershed models that can be implemented in other parts of the state. There is also potential to develop a model that could be utilized in any agriculturally-based state.

The State of Iowa is developing an approach that contains many moving pieces. It can be altered to best fit the needs of the communities identified in Exhibit B response during Phase 2. The approach discussed in this application is the natural extension of project work completed to date. There are many organizations involved in these activities that identified “gaps” in their initiatives that are part of this approach. The State is confident that the actions discussed as part of this framing exercise will develop into feasible and resilient projects.

Through collaboration with partners including the IFC, Iowa Water Center, DNR, and IDALS, the project is framing water quantity issues in a way that also impacts water quality and land conservation practices. HSEMD will continue to approach program implementation from the perspective of achieving as many benefits from the work as possible. The staffing and technical capability of partner organizations will strengthen the team’s ability to maximize these results. Additionally, this program structure is modeled on past projects in the CDBG program. This will assist in quickly addressing all programmatic issues related to environmental review and human health with site-specific project implementation.

The work underway in The Nature Conservancy’s Ecosystem Services Study is identifying, analyzing and

mapping ecosystem services using modeling to highlight opportunities for watershed management projects that could yield multiple environmental and economic benefits. Service modeling includes flood-risk/damage mitigation, nutrient filtration/reduction to improve water quality, the provision of habitat to support game and wildlife species, and the reduction of soil loss and sediment delivery to stream and rivers. These detailed models provide a better understanding of the physical relationship between land use changes and the resulting hydrologic impact. Hydrologic changes result in measurable changes in flood stages and structure losses at downstream urban areas such as the City of Cedar Rapids. Spatial location of conservation practices is also an important factor in mitigating urban flood risk.

Project activities in Dubuque will also create links between water quality and public health (decreased mold-related asthma cases and lead poisoning), workforce development and education outcomes (decreased work and school absenteeism related to health conditions). Improving the quality of housing in impacted neighborhoods will improve the quality of life for residents. As part of the Smarter, Sustainable Dubuque initiative, the City and its partners are exploring an integrated multi-sectoral data-based and analytical approach/tool that could be used for the comparative assessment of interventions to improve resiliency and track these co-benefits.

The project will engage mostly rural communities in flood-resilience activities. These communities have limited access to federal and state funding for disaster recovery projects. Current water management systems were not designed to handle increasing precipitation levels, the increased intensity of storm events, and the increased velocity of water from farmlands and streambeds. These systems will not improve without collaborative, comprehensive planning and engineered changes to the landscape in the watershed.

National research shows that low-income and minority individuals can be most vulnerable to climate change events due to instability of income, lack of resources and lack of connection to outreach efforts. The project's focus on urban resiliency efforts in Dubuque will demonstrate that, through the engagement of neighborhood associations, landlords and business associations, targeted efforts can help distressed residents and small businesses prepare for and respond to disaster events.

Promoting an understanding of the relationship between soil quality and flooding has been underway in

Iowa for decades. As part of this project, agricultural and urban residents will need to engage in a holistic approach that balances land use changes. Urban development usually means faster water delivery to a river which may cause soil erosion and change the channel geometry. By working within a watershed approach, these types of cause and effect relationships can be fully explored.

The project's urban resiliency activities also provide benefits beyond flood prone neighborhoods. By serving the homes in Dubuque's Bee Branch Watershed, the project is creating a holistic, resident-centered model that can be implemented in any home in the city. While targeted towards Bee Branch Watershed residents, education about topics such as sustainable home management and disaster preparation and response will reach all Dubuque neighborhoods. As such, a culture of resiliency and preparedness will be instituted.

Iowa transportation systems connect rural and urban communities. From the 8 sub-county areas with unmet infrastructure recovery needs, project activities will be scoped to provide future community resilience to flooding. For example, after flooding events, residents experienced long detours to work, businesses incurred additional costs to transport goods, fuel consumption increased, and some residents were forced to relocate to other communities due to a lack of suitable housing. Agricultural producers were left with heavy silt deposits on soil, impacting crop production and further depleting economic resources. A resilient disaster recovery for all target areas will focus on the strengthening of these sectors by understanding their connections.

HSEMD will work within the watersheds to resolve vulnerabilities and address unmet needs. A cross-disciplinary team will work regionally to resolve needs within the watershed. The partnerships needed to be successful in this approach are in place and expanding through the identification of project areas. By creating a multi-jurisdictional approach to unmet recovery needs, the risk of jurisdictional conflict will be minimized. Hazard mitigation, watershed and land conservation planning are all done on the multi-jurisdictional level. The groups that develop these plans engage local decision-makers in the planning process, expediting the implementation of actions. Agreements with partners will be developed upon project and program activity selection. Dubuque will also work with an established multi-sectoral team to meet the unmet needs of affected residents and businesses. Partners will sign an agreement that defines individual organization roles, protocol for assessments and interventions, contractor standards, and data collection and reporting needs.

Resilience is the ability to anticipate, prepare for and adapt to changing conditions and withstand, respond to and recover rapidly from disruptions. Iowa will continue to support disaster resilience activities and work toward developing a framework for urban to rural communities. This approach compliments the President's Climate Action Plan and will require multi-disciplinary expertise to develop improved water systems management so communities can mitigate, prepare for, respond to, and recover from hazard events more rapidly. The State of Iowa has committed to creating a more resilient state through several programs. The State's housing acquisition program has purchased and permanently removed over 2,900 homes from the floodplain since 1993. The DNR is currently engaged in a statewide flood map modernization program utilizing high resolution LiDAR, and creating depth and velocity grids for the vast majority of the state.

Six communities within the state participate in the CRS program, with two others in the process of joining. Of the participating communities, only the City of Iowa City is among the areas that have been identified as most impacted and distressed in the Phase 1 application. Additionally, Iowa has 25 other communities that, although not in the CRS program, enforce higher floodplain development standards than the minimum required by the NFIP. Of these, five communities, Bernard, Chelsea, Clinton, Independence, and Pottawattamie County, are identified as most impacted and distressed in the Phase 1 application. The State of Iowa also has minimum floodplain development regulations that exceed the NFIP's minimum floodplain standards, including requiring the lowest floor of all new, substantially improved/damaged structures to be at least one foot above base flood elevation, and requiring that structures identified as having a "maximum flood potential", meaning that they are critical facilities or serve a critical need within their communities, be protected to at least one foot above the 500 frequency flood. Additionally, because of state floodplain requirements, the DNR calculates the base flood elevation for most floodplain development located in unnumbered A Zones within the state, regardless of whether or not the community participates in the NFIP.

The Iowa State University's Climate Science Program has completed several studies on climate change, including Dr. Eugene S. Tackle's 2011 paper titled: *Assessment of Potential Impacts of Climate Changes on Iowa Using Current Trends and Future Projections*. Over the last 30 years, annual temperature increases, extreme precipitation events, and increases in humidity have impacted our communities and economy.

Understanding these risks and vulnerabilities provides guidance in addressing our unmet needs.

Since 2006, the Dubuque City Council has identified becoming a more sustainable and resilient city as its top priority. The Sustainable Dubuque vision, as defined by a citizen task force, is as follows: *“Dubuque is a viable, livable and equitable community. We embrace economic prosperity, environmental integrity, and social/cultural vibrancy in order to create a sustainable legacy for generations to come.”* This vision has become the lens through which all decisions are made by the City. The vision is defined by twelve sustainability principles which include Community Design, Green Buildings, Healthy Air, Clean Water, Smart Energy Use, Community Health and Safety, and Community Knowledge.

More recently, Dubuque has engaged its partners in an effort to utilize data to transition to a more outcomes-oriented decision-making model. Many data sets are available to assist in this endeavor: historical weather data; financial and budget data that identifies the public and private economic costs of severe rain events to the community; national data that projects more frequent, severe temperature and precipitation events as a result of climate change; public health data that shows the impact of poor air quality and poor housing conditions on individuals; and more qualitative data that shows the personal impact to vulnerable populations during and after severe weather events. The key to the *Smarter, Sustainable Dubuque* initiative is synthesizing this vast amount of data into targeted, actionable key performance indicators that drive the City’s resiliency work.

The City was the first community in Iowa to join the NFIP in 1971 and has regulated floodplain development since 1990. The City has never approved a variance from NFIP requirements and has not allowed a single residential structure to be built in any flood hazard area. The only new structures built in flood hazard areas have been commercial structures elevated and/or flood proofed in compliance with NFIP requirements.

In 2013, the Dubuque City Council adopted the 50 percent by 2030 Community Climate Action & Resiliency Plan, a targeted approach to reducing greenhouse gases 50 percent below 2003 levels by 2030. As a result of recommendations in that plan, Dubuque had already reduced its emissions five percent by 2011. In addition, Dubuque is focused on incorporating actions to remain resilient in the face of climate change into its community planning process. The Bee Branch Watershed Project is a model for this proactive approach.