

## **Executive Summary**

The State of Tennessee experienced floods and severe storms in 2011 that resulted in presidentially declared disasters. The flooding most impacted the communities in West and Middle Tennessee along the Mississippi and Tennessee Rivers and their streams and tributaries. Based on the disasters, Tennessee will assess critical points in the watersheds, floodplains, and rivers and design interventions that address flooding and earthquake preparedness and maximize opportunities for agriculture, tourism and recreation to preserve and enhance resiliency, safety and quality of life.

The “Rural By Nature” approach brings together federal, state, and local partners in a way that has not happened before to confer about disaster response, preparedness, and resiliency. This will allow the State to be proactive about the reduction of flood losses that will inevitably occur, to preserve the natural environmental and water resources that make the communities who they are, reduce the impacts of flooding downstream, promote economic development, tourism, agriculture, and recreation, and to strategically deploy resources to make the most impact.

This area of the state is distressed in terms of income and unemployment levels, sees a higher proportion of disasters, particularly flooding, sits on the New Madrid fault line, and has a natural environment that is largely still pristine. However, based on the risks of climate change, flooding and other disasters, and earthquakes, a comprehensive planning process must be implemented to ensure that the area is maintained for recreation, tourism and agriculture.

Partners in the initiative include the state departments of Economic and Community Development, Emergency Management, Environment and Conservation, Transportation, and the Governor’s Office; federal agencies including the Army Corps of Engineers and the Tennessee

Valley Authority; local partners including the affected communities, community groups, faith-based organizations, and local development districts; and private organizations.

The first initiative of the partnership is to collect data and analyze it to better understand the problems and learn what each partner brings to comprehending and addressing the issue. Then the partners will make a plan to deploy resources so that resiliency, recovery, impacts to the environment, and economic development are considered in policy and spending decisions.

**Factor 1: Phase 1 Capacity (25)**

a. 1. The Tennessee Department of Economic and Community Development (TNECD) Office of Federal Programs (OFP) will oversee the implementation of any projects or activities associated with these funds. TNECD currently oversees the CDBG and CDBG-DR programs for small cities through the OFP. The department has successfully completed over \_\_\_ CDBG projects through our “regular round” funds in the last three years; the annual allocation is approximately \$25 million. In addition, TNECD has received over \$130 million in CDBG-DR funds. Funds from 2008 and 2010 are more than 65% drawn down with no audit or monitoring findings from HUD for either the CDBG or CDBG-DR funds. Policies and procedures are in place to manage HUD funding and the staff has a high degree of knowledge of CDBG rules and regulations. The department also manages several other federal programs and other grant and loan programs. Staff have completed HUD trainings, attended conferences on HUD programs and have more than 65 years of direct program management experience with the CDBG program.

2. Over the last three years, TNECD has awarded over \_\_\_ grants to communities across the state through the CDBG program. The department has a manual with policies and procedures

that each grantee is required to follow. A risk assessment is conducted for each grantee, and each project is monitored on site and through desk reviews. The fiscal staff is also experienced with grant management and federal funding. If TNECD is invited to advance to Phase II of this program, an RFP will be issued for assistance with application development and management of any projects that are funded. TNECD has contracted with a company in the past to assist with the management of CDBG-DR funds, so they have experience with the process and have lessons-learned that will be applied. The state's procurement policies will be followed which match or exceed the federal procurement policies. TNECD legal and contracting staff as well as the OFP staff have experience with RFPs and the RFP process can be fast-tracked if necessary.

3. TNECD works with many of the partners on this effort, including the state and federal partners, on a daily basis. The department has worked with many of them on other large-scale grant applications and program implementations such as the Investing in Manufacturing Communities Partnership through EDA and other federal agencies. The department awards grants to subrecipients including the local governments participating in this project regularly through the OFP and other grant and loan programs for economic and community development. Currently TNECD has more than \$ M in grant and loan funding under management and the OFP manages \$ M of that. The OFP also works with non-profits through grant programs particularly with the Appalachian Regional Commission (ARC) and has experience working on projects with other states through the ARC and Delta Regional Authority.

4. The TNECD OFP was responsible for the development of the application. The department worked with partners from other state agencies including the Governor's Office, the Departments

of Environment and Conversation, Emergency Management, Transportation and others and with universities in the area. They also worked with local governments who have experienced severe flooding over the last few years and non-profits and foundations who work in disaster recovery, supporting vulnerable populations, and/or resiliency to develop the application. These partners have committed to assisting TNECD in the implementation of any projects and in the longer term task of increasing the state's resiliency to disasters including flooding and earthquakes but also to other economic and natural disasters and climate change.

b. 1. TNECD – As mentioned above, TNECD has vast experience with grant management, working with federal programs, CDBG and CDBG-DR in particular, and working with all of the partners. The department also has experience with economic development. TNECD is responsible for industry recruitment and expansion, job creation and expansion of entrepreneurship for the state. TNECD has had great success over the last four years and has been nationally recognized for that success, including being awarded State of the Year for 2013 and 2014 by *Business Facilities* magazine. The department's regional offices in the project area will assist with the economic development portion of any proposed projects.

TEMA – The Tennessee Emergency Management Agency is the state's disaster response and recovery department. They manage FEMA funds for disaster response, recovery and mitigation; coordinate the state departments and state and federal resources when an emergency or disaster occurs in the state; work with local and federal partners on disaster response and recovery; and serve as the state's hazard mitigation planners. TEMA has vast experience with disaster coordination and response; the state has had seven presidentially declared disasters since 2010 that covered more than half of the counties in one or more disaster.

TDEC – The Tennessee Department of Environment and Conservation’s mission is to protect and improve the quality of TN’s air, land and water. They manage federal funding from the EPA and state funding and develop and implement programs and initiatives that protect human health and the environment and support economic development and quality of life as well as manage the State Park system.

- The West Tennessee River Basin Authority is a division of TDEC that works with communities in W TN to manage the river system and prevent flooding. This organization has worked with the communities in the project area to develop projects related to flood control, restoration of water systems, and maintenance of the river basin. They have completed projects that support the efforts of the Rural By Nature proposal, will work with the partnership to continue projects that address the priorities and will guide the development of projects in several of the target areas.
- The Office of Policy and Planning conducts short and long term environmental policy and analysis, implements strategic planning and process management initiatives, works with partners to implement strategic initiatives and identifies innovative, cost-effective opportunities for state government to enhance the quality of life for TN citizens and natural environments. Policy and Planning will assist the Rural By Nature team in identifying projects and policies that can be implemented in the project area and across the state.

TDOT – The TN Department of Transportation maintains and constructs the state’s transportation network. The Office of Long Range Planning is in the process of completing a study on extreme weather and how it will affect the state that will guide the team’s discussion of the effects of climate change and possible mitigation activities.

Office of Governor Bill Haslam – The Governor’s office will participate in the planning efforts and project develop and will expand the ideas and policies throughout the state so that the efforts impact more than the proposed project area.

UM CERl – The Center for Earthquake Research and Information at the University of Memphis is committed to understanding the causes and consequences of earthquakes and addresses needs through research, education, seismic networks and dissemination of information.

DRA – The Delta Regional Authority works in the eight states of the lower Mississippi River delta including Tennessee. They are involved in disaster recovery and preparedness, especially related to earthquake preparedness. They will be involved with helping ensure the projects proposed in TN positively impact other delta states including Mississippi, Arkansas and Louisiana and in helping coordinate projects with the other states.

USDA-RD – The U.S. Department of Agriculture, Rural Development has a presence in each of the target areas through their area offices. They are involved with housing, energy, business development and community facility projects and programs, and their mission is to improve economy and quality of life in rural America. They will work with the team to identify specific projects and can provide technical assistance to communities. Also, their loan and grant programs could serve as matching funds for potential projects.

USACE – The U.S. Army Corps of Engineers has a long history of projects along the Mississippi and Tennessee Rivers that have helped to shape the river systems and prevent and control flooding in the area. They will work with the team to assess new approaches, provide data and implement projects in the project area and across the state that will support the team’s goals.

TVA – The Tennessee Valley Authority provides electricity across the state and provides flood control, navigation and land management for the TN River System and assists the state and local governments with economic development. They manage 33 reservoirs, 170,000 acres of public land, a visitor’s center, seven campgrounds, 30 dams, and seven locks serving 110 ports and terminals. They have extensive experience with the Tennessee River system and will guide project development and provide technical assistance to the team.

Local governments – The local governments in each of the target areas have provided support for this application and are an integral part of the team. They have assisted with public outreach and conducted public meetings with the TNECD staff. They were directly affected by flooding in 2011 and on several other occasions and still have unmet needs. They are committed to promoting resiliency in their communities.

Local Development Districts – The four local development districts (Northwest, Southwest, Memphis Area and South Central) work daily with the local governments to acquire grants for community and economic development, on local planning initiatives and on increasing intergovernmental cooperation and using resources more effectively. They have experience with grant management and will assist with project management.

Faith-based organizations – Faith-based organizations are participating in the Rural By Nature team. In rural Tennessee, almost all residents are members of a church and these organizations will assist the team in reaching vulnerable populations. See the Partner Documentation in the Appendix for more information on each of the organizations involved. The team will continue outreach to other faith-based organizations as the planning continues.

Foundations – Philanthropic foundations including the West Tennessee Healthcare Foundation, the Kirkland Foundation, Second Harvest Food Bank, Maddox Charitable Trust, Baptist Memorial Healthcare and SeedCo have committed to assisting the team in various ways. These foundations have long histories of working in the communities and work a many different areas of need. For example, the W TN Healthcare Foundation is a community foundation that has been involved with disaster recovery following tornadoes in W TN in 1999, 2003 and 2008. They coordinated volunteers, collected funds from individuals and nonprofits and rebuilt homes. See the Partner Documentation in the Appendix for more information on the roles and areas of expertise for the foundations.

2. The current team has been assembled based on their various areas of expertise. TN has never had such a wide-ranging group focused on disaster recovery and resiliency. The individual partners have experience working with one another, but this is the first time that they have worked together on an initiative. During the summer of 2015, the team will spend a day together planning how they can contribute to the Rural By Nature project and goals. At this meeting, members will work together to further develop the plan, determine additional information and data that are needed and begin to discuss potential projects. TNECD plans to expand the team to the rest of W TN and then across the state once there are some successes and more commitment to resiliency. Many of the departments and agencies have worked with each other and on large-scale grants and other projects. There is a trend in federal funding to move toward leveraging resources of various departments, TN has recognized this trend and has set up partnerships that prepare for cross-disciplinary work.

3. The local development districts and the TNECD regional jobs base camps each work with multiple counties on long-range and community planning. They have developed area-wide

strategic plans for economic and community development, transportation plans, land use plans, etc. TDOT has long-range transportation plans as well. Through the Investing in Manufacturing Community Partnership, many of the partners have partnered on a federal program involving multiple federal agencies and many local and state partners. The IMCP team has created a board of directors and jointly applied for additional funds.

4. TNECD OFP works with affordable housing issues and on public engagement through the CDBG program, OFP also works with engineers and designers throughout the state on CDBG public works and infrastructure projects, and the regional offices focus on economic revitalization through job creation and entrepreneurship development. TDEC has regional offices in the project area that work to improve and protect environmental quality which is a critical part of the Rural By Nature program. The Research Division of TNECD and the Policy and Planning Office of TDEC as well as the UM CERI can provide data and data analysis. The team members have worked together on other projects and are prepared to quickly activate a project to benefit the citizens in the project area.

5. Between the partners at UM CERI, TDEC, TDOT and TEMA the state has begun to collect and analyze data on climate change. The team includes research and policy staff that have the capacity to understand future impacts of climate change and develop policy and projects to help the team incorporate the information into plans for projects as well as potential policy changes for the state and project area. The team works with engineers and other practitioners regularly who will work on project develop to ensure resiliency and outcomes are understood.

6. As a part of the Consolidated Planning team, the TNECD is the responsible agency for the development of the Analysis of Impediments to Fair Housing (AI) for the non-entitlement areas

of the state including the project area. The AI was completed in 2013 and has an analysis of racial and economic disparities, particularly as they relate to fair housing. The Tennessee Housing and Development Agency (THDA) conducts other studies and analysis throughout the year on economic inequality across the state. TNECD works closely with THDA as another member of the Consolidated Planning team and has access to their research as well as a way to partner with them for implementation of new programs, policies or projects.

7. The team will extend the partnership to qualified engineers and architects who understand resiliency concepts and will be able to ensure that the projects will impact the community's resiliency to future flooding, earthquakes, economic disasters and other disasters and disruptions.

8. The team continues to reach out to potential partners and expects to continue to grow throughout the planning process and into the project development and implementation project. As the project area comes to understand the concepts of resiliency and the importance of disaster preparedness, more interest is expected. With a wide array of partners, the team is confident that new partners can be recruited when and if needed. Additionally, the team plans to contract with a firm with experience in disaster resiliency and project management that can fill in gaps in the project team.

9. Both the state hazard mitigation planners and the state's department of transportation are a part of the project team and can assist with a benefit-cost analysis based on their experience with FEMA and DOT. As mentioned, the partnership will be extended to a firm with experience in similar projects and project planning.

c. 1. The team held public meetings in each of the counties that is a part of a target area. The meetings were advertised in regional and local papers and notifications were placed in areas of

the communities that serve the entire community or that are focused on serving various vulnerable populations including grocery stores, government buildings, social service agencies, etc. Local government leaders helped schedule and publicize the meetings. The local government leaders will be responsible for continuing the public input process. As the team gets closer to project development, more public input meetings will be held in each county in the target area. A concerted effort will be made to involve people in vulnerable populations and other members of the general public to ensure they have input into the projects.

2. Each community that completes an application for funding with CDBG-DR funds holds a public meeting that is advertised in a local paper for 14 days. Populations affected by the disaster are encouraged to attend the meetings and have input into the development of a project. Local government leaders and their representatives have received training from TNECD that explains the purpose of public meetings and how to increase attendance and participation.

3. Local development districts host public meetings on a regular basis and are experienced with working with diverse populations. The TNECD also hosts public meetings to plan for the CDBG program each year and has successfully developed Annual Action Plans that incorporates comments from many stakeholders.

d. 1. Each of the partners involved in the Rural By Nature team have worked on regional problems. Many of the Foundations work across W TN or Middle TN or across the state. The TNECD has regional offices and regional staff that are trained to recognize the trends across their region and plan how those can be leveraged or addressed by bringing together different partners. For example, each region of the state has a Regional Entrepreneurial Accelerator (REA) that is supported by TNECD. The REA in NW TN is focused on agriculture and innovations in

agriculture. Because that region of the state is so involved in agriculture, this quickly became their focus and this approach has made the REA in one of the most distressed and rural parts of the state on of the most successful and a model for other across the country.

2. The proposed project areas represent the highest risk of flooding and earthquakes in the state.

These areas have experienced severe floods many times including floods in 2010 and 2011 that were major disaster declarations. However, all of W and Middle TN often experiences the same floods; lessons learned from this program will be used in other parts of the state to help address their problems with flooding and increase their resiliency to floods and other potential disasters.

The Regional Watershed Map in the appendix shows the complexity and enormity of the potential for flooding in W TN and the Earthquake Potential Map shows what areas of the state will be most impacted by a major earthquake along the New Madrid fault line. The project team is involved in better understanding these realities and how projects affect other parts of the state and other states. As stated in the letters of support from MS, AR and Shelby County, TN, the project team is considering how the project affects other areas and how decreasing the impacts of flooding in our project area benefits others areas as well.

3. The target areas of the Rural By Nature program are extremely rural and have several vulnerable populations including high numbers of LMI individuals, a high percentage of elderly people and a high number of unemployed or underemployed people (see MID URN documentation). By focusing on reducing threats to the area at the same time as protecting the watersheds and expanding economic development opportunities through agriculture and tourism, the vulnerable populations in the area will benefit and they have played an important role in the development of partners for the project and the overall focus of the team.

4. The Rural By Nature team is currently being established. The letters of support in Appendix XX show the depth of the partnership currently, but as the team sees additional needs, new partners are added. This is the first time that a multi-disciplinary team has worked on disaster resiliency in TN. Many team members have been working on some aspect of disaster response or economic resiliency for many years, but this project spurred the development of a team that is completely focused on disaster resiliency. This will have long-term benefits for the state and has an opportunity to impact the project area and the state in future disasters like those experienced in 2011 and those that the state will experience.

**Factor 2: Phase 1 Need/Extent of the Problem**

a. 1. The Rural By Nature proposal is a response to flooding and major storm disasters that occurred across the state in 2011. The team has selected 3 project areas made up of 9 target areas to focus on for this funding opportunity.

Project Area 1: Mississippi River Flooding Area – These counties border the MS River and regularly experience flooding. As shown in the Regional Watershed Map in Appendix XX, most of the water in W TN – rainfall and the creeks, streams and tributaries – flows into the MS River and through these target areas. These areas were flooded and declared major disasters in 2010 and 2011 – Lake County experienced 3 disasters in 2011. 2010 and 2011 were some of the worst floods on record for these counties. These target areas are also some of the most distressed in the state. Each of the counties qualifies under the most distressed characteristic of unemployment levels of 125% of the national average and some of the levels are as high XXX% of the national average in individual census tracts. The areas are also recognized by HUD as having an LMI population of more than 50%. According to the Delta Regional Authority, these counties are all

considered distressed and according to TNECD, Lake and Lauderdale counties are Tier 3 counties and Dyer County is a Tier 2 community. This is the department's evaluation of distress and the level of incentives available for job creation in the county; Tier 3 is the most severely distressed. Even four years after the disasters, unmet needs can still be documented. TN received only \$4.2M after the disasters in 2011 to be used outside of Shelby County. This was not enough to address the needs in the MS River counties and the 65 other declared counties. See Appendix B for data related to the MID URN qualifications for each of the 5 target areas that make up this project area. Additionally, the northern counties in this project area are closest to the New Madrid fault line and all of the counties are likely to experience liquefaction and flooding in the event of an earthquake; this puts them at very high risk for that type of disaster.

Project Area 2: Madison County – This project area also experienced severe flooding in 2011. The target area is highly distressed in terms of LMI populations and unemployment levels. Some of the areas most likely to be impacted by flooding have the highest numbers of vulnerable populations including low income, unemployed people and racial minorities. Despite several flood control projects that have been extremely successful in the area, there are still unmet needs related to flooding as evidenced by XXX. See Appendix B for the MID URN data for this target area.

Project Area 3: Tennessee River Flooding Area – This project area encompasses portions of the counties of Hickman, Perry and Wayne. These counties experienced severe flooding in 2010 and 2011 along the TN River as well as throughout the streams and tributaries that cover the counties. See the Regional Watershed Map in Appendix XX for a visual reference of the number of rivers present in this area. These areas also qualify under the distressed category of unemployment levels of more than 125% of the national average and many of them also have

high numbers of LMI populations. Because of the high levels of distress and the high impact of multiple disasters in just a few years and the low availability of 2013 CDBG-DR funds, there is still a high level of unmet need in this project area. See Appendix B for the MID URN documentation for the area.

These project areas were selected for several reasons. First, they represent counties on each of the main rivers and in separate watersheds; the differences of the watersheds as depicted in the Regional watershed map bring different needs and solutions for flooding. Second, the target areas encompass extremely rural areas, areas with small towns and a more urban area. All experience flooding and are at risk of earthquakes but they will need different strategies to address the flooding. Third, the areas vary in economic development. Lake County has a high reliance on tourism with Reelfoot Lake; other counties in the MS River Target Area are highly dependent on agriculture. In Madison County, the main economic driver is industry, and in the TN River counties, there is a reliance on timber. Lessons learned from the diverse target areas can be applied to similar areas across the region and across the state as well as in other states along the rivers.

2. Tennessee is a risk of severe storms, floods, tornadoes, droughts and earthquakes and almost all of the risks are predicted to intensify in strength and frequency due to climate change. The state has recognized that these disasters are already happening more often (particularly flooding) and that building back infrastructure and other impacted systems is not effective.

3. Each of the target areas is part of a county that was impacted by the flooding and cannot be completely separated from the rest of the county. Similarly, the project areas are a part of larger watersheds that share risks and demographics. TNECD accepted applications for funding from

declared disaster communities in 2011. Although only \$4.2M was available for 65 counties and therefore applications were limited to \$250,000, TNECD received XX applications requesting XX in funds from the areas represented in the Regional Watershed Map. See the Unemployment and LMI information in Appendix for a comparison of the unemployment rates and LMI percentages in the overall project area as compared to the rest of the state.

b. 1. In each of Tennessee's three project areas there exists a lengthy history of flooding, and the incidence and impact is only growing. Of the 62 federally declared disasters for the state since 1953, 45 of those disasters explicitly address damages caused by flooding; chances are some of the other disaster declarations including severe storms and heavy rains also resulted in flooding as well. Each of the eight counties containing the project target areas were affected by a minimum of ten of these disaster declarations, meaning these areas will be impacted by almost one out of every four flood-related federally declared disasters.

These target areas are especially vulnerable to repeat instances of flooding with the amount of existing floodplain. Approximately 10.5% of the state is covered by floodplain. In the counties where the target areas are located, 25.5% is covered by floodplain, and that number grows to almost 35% of the target areas themselves existing in floodplain (See Floodplain Map in Appendix ). When combining the amount of floodplain with the frequency of major flooding in these areas, not to mention the countless instances that are not part of a federally declared disaster, the threat and vulnerability is greatly increased.

A major concern and constant problem is the amount of debris and natural deposits that create blockages in many rivers in and around the target areas, which exacerbates the impact of flooding. Once flooding occurs, the relatively flat topography and soft, silty soils, especially in

Mississippi River project area, do not allow the water to disperse quickly. Instead, the ground saturates quickly and holds water, slowly decreasing the water elevations over the course of several days.

These target areas are also threatened because of the vulnerability of the residents. All 9 target areas have a collective unemployment rate of 15.6%, 288.6% of the national unemployment rate of 5.4%. The target areas also collectively have 40,000 people, 25.6% living below the poverty line. These areas are heavily distressed, and when major flooding occurs, the timber and agricultural industries that these residents rely on are some of the first to feel impacts.

2. The general demographics, employment, and poverty information are derived from the American Community Survey 2013 5-Year Estimates. At the census tract level, the ACS provides the best available data for rural counties. Population projections were developed by Tennessee State Data Center. Center for Business and Economic Research Industry data has been gathered from the Census Bureau, Bureau of Labor and Statistics, and TNECD's Research Department. Disaster impact data has been provided by the Federal Emergency Management Agency, the Tennessee Emergency Management Agency, the Tennessee Department of Environment and Conservation, disaster grant applications, engineering reports, and local governments.

3. According to both the U.S National Climate Assessment (NCA) and the Intergovernmental Panel on Climate Change (IPCC) the global climate is warming and the frequency of heavy precipitation events is very likely to increase in the United States. The NCA also expects to see an increase in seasonal droughts, a decrease in water availability, and a decrease in crop yields in the future for the Southeastern United States. All of these factors are incredibly important to the

defined target areas. The increased frequency of seasonal droughts combined with the increased frequency and heavy precipitation events will reasonably result in greater instances of flash flooding and heavy runoff, which can increase pollution in the rivers from brownfield runoff and a degradation of agricultural land.

Over the next 50 years the eight counties in the project areas are collectively anticipated to grow by almost 108,000 people; however, over 85,000 people will reside in either Madison or Tipton County. The concentration of growth in these two counties is not surprising, as both are currently part of MSAs and are more urban or suburban in nature. Even with growth over 100,000 people and a collective growth rate of 36.74%, these eight counties fall well short of the 53.45% growth rate the State as a whole expects. In light of the relatively slower rate growth for the project area counties, with the exception of Madison and Tipton counties, major demographic and industrial changes seem unlikely. These counties will still be rural and likely still be dependent on agriculture and logging sectors.

Considering the expectation of a consistent physical and economic environment in the majority of these target areas, the need of disaster resilience and adaptability is only heightened. However, these communities are presented an interesting opportunity and are positioned to adapt well to a changing climate. With the great amount of undeveloped agricultural and forested land available, these target areas have the opportunity to develop a resilient approach and system to cope with the increased flash flooding and decreased water availability by capturing and storing the water, limiting damage and providing potential irrigation for agricultural use. These communities are ahead of the curve due to the relative lack of a built environment in some cases, meaning a “blank slate” for innovative flood control development.

FEMA has estimated that floodplain in riverine environments will grow nationally 45% by 2100, and 70% of the 45% (or 31.5%) will be caused by climate changes, not population migration and the built environment. According to the USGS, the occurrence of a “100-year flood”, while statistically relevant, is really a game of chance. When coupled with recent historical flood events, these target areas will flood again and likely more frequently. The “unknown” is when and how often.

The major unmet need for disaster recovery in this area is degraded quality of infrastructure, especially water and sewer systems. The floods and severe storms only exacerbated the existing issues with inflow and infiltration that these rural communities have been dealing with due to the aging infrastructure. Many of these communities experienced sewer system overflows and system failure due to the amount of storm water that inundated the wastewater treatment system. Some communities are still suffering from impacts of the storms and flooding; others have done some reconstruction, but only to the preexisting level of quality without being able to take future resiliency into account.

Being able to better handle and cope with the sheer amount of water during a flood will help these communities tremendously move forward with being resilient to flood-related disaster events. The overall plan is to set the key infrastructure in place to manage the flooding so that capacity breaches and sewer system failures do not occur.

The purpose and goal of this project is to make not only the target areas, but the region better prepared and more resilient in the face of a severe weather event. While risks are greater for some than others, those risks are location based more than a specific demographic class. This project is addressing riverine flooding so naturally residents and business-owners located more

closely to a river or tributary are at greater risk of flooding. Special note is being made that low-income classes historically tend to live closer to flood zones due to the lower property value and a greater affordability of land. The residents in these rural areas are very tied to the land they own, and the result of this project hopes to slow the flooding and mitigate the impact, allowing these citizens to continue living on their property and not have to essentially run relocation program.

The rural communities in the target areas have an increased vulnerability due to the lower incomes, higher poverty, and higher unemployment than other areas of the State and the nation. Living in these small towns and rural counties is generational with very little population migration (northern Madison and southern Tipton County being the exceptions). Many businesses rely on natural resources in these communities, tying the vibrancy and resiliency of the land to livelihoods of the people who live here.

The West Tennessee River Basin Authority (WTRBA) works within the 21 counties of west Tennessee managing and maintain its rivers and streams. WTRBA also has been working to develop innovative river management solutions to enhance the resiliency of the region's waterways while reducing maintenance efforts and degradation and erosion. In one Madison County project WTRBA restored a creek that was highly unstable, covered with invasive Kudzu, and was a threat to infrastructure existing downstream. The restoration included elements such as returning the stream to a natural state with ability to meander, reviving degrading wetlands and riparian habitats, reintroducing native plant species, and including infiltration basins. All of these elements are natural flood control measures that will benefit and natural environment and make the areas adjacent to the stream safer and more resilient.

### **Factor 3: Phase 1 Soundness of Approach**

1. Collaboration with the citizens in the Rural By Nature program communities is an important part of the application. The project team has already completed a series of public meetings and other consultations regarding this proposal. Please see the Consultation Summary in Appendix J for a complete listing of the consultations.

A series of four public meetings were held in the overall project areas in early 2015 to obtain information on unmet needs and potential target areas and to inform local leadership about the funding opportunity. More than 100 people including elected leaders, grant writers, EMS directors, utility leaders and citizens attended the meetings. The invitation was sent to all mayors, EMS directors, CDBG administrators and other elected officials.

Following those meetings and when the target areas were determined, a public meeting was held in each of the target area communities. Those meetings were advertised in the local papers and on the TN CDBG website. Information about the meetings was sent to partners in the area including Human Resource Agencies who helped notify vulnerable populations of the meetings, and notices of the meetings were hung in prominent places in the communities.

The project team has had several conference calls and staff from TNECD have met with all of the partners to gauge their interest, discuss potential target areas, explain the program, and plan for continued partnership.

2. The primary stakeholders for this project are the citizens of the affected target areas and the larger project area and the partners in the Rural By Nature program. For more information on the specific partners and their role in the state and this project, see Factor 1.b.1. TNECD could not have developed this proposal without their assistance. Many of the partners work with the

citizens in the project area and the vulnerable populations daily. They were aware of the unmet needs and areas of distress in their communities and had firsthand knowledge of the areas that were most impacted. As the team continues to the project development stage, there will be more public meetings in the communities to assess the project ideas and ensure that they fit the needs and desires of the communities. In the past, CDBG-DR projects have been selected by communities and each community applied for a single project. Communities did not work together on project development and did not have a robust plan for assessing the desires of the community members for disaster recovery. TNECD has seen that this is not the most effective way to plan for disaster recovery and that it does not foster resilient planning. Therefore, there will be a concerted effort to involve the other partners and the community members and vulnerable populations in this effort.

3. Many of the stakeholders were able to show the team how potential projects would affect other communities and other stakeholders. For example, the W TN River Basin Authority has a list of potential projects, so does the USACE, and each of the communities has a list of needed repairs and projects that are vital to keeping up with the demand for public services, etc. At the public meetings, these groups were able to sit in the same room and discuss the projects, figure out what projects were on multiple lists and begin conversations about how various sources of funding could be combined to complete high priority projects. The team also talked with Shelby County about our proposal and how it fits in with their proposal and how it complements the work that they will be doing. Each member of the partnership has a mission and directive from their agency or their community and this has begun a look at how those overlap, complement each other and can be supported by other agencies and partners.

4. The project team has identified brownfields in the project area with the help of TDEC, and the communities have a good knowledge of how the disasters have and will impact their water and wastewater treatment facilities. Flooding often overloads the treatment facilities and communities often apply for CDBG-DR funds in TN to repair equipment damaged by flooding or to better prepare their facilities for future flooding or to address other damage in their system. This is a major concern for the communities and for the project team. Continuing to fix damaged systems is not an effective use of disaster funding and after seeing multiple disasters and repeated flooding the communities are looking for more sustainable ways to prevent damage, live through floods and keep their communities safe and with functioning public services.

5. The stakeholders completely determined the target areas, they had input into this proposal and they will be responsible for the development of potential projects as the application progresses to Phase II. The first public meetings held involved the mayors and other elected officials. During and after those meetings, the locals presented information on the areas of their communities that were most impacted and had remaining unmet needs. Partners also attended those meetings and brought projects that they are working on in the area as well as information on how their programs can assist. Then, public meetings were held in each target area community to hear from community members on their needs and ideas. See the Consultation Summary in Appendix I for more information on the specific consultations completed.

b. 1. The Rural By Nature project team has primarily focused thus far on understanding the watersheds and the different needs of the project areas. The partners have spent time getting to know one another better and understand which each partner is already doing and how our efforts can be coordinated and improved upon through working together. There are some ideas for potential projects. The MS River project area is considering buyouts in the most flood prone and

low income area and have been examining ways to allow the rivers to flood and how to lessen the damage from the flooding that will inevitably occur. The W TN River Basin has done several flood protection projects in Madison County over the last few years that have been highly successful. It would be beneficial for those to be replicated in more parts of the target area. The TN River project area has recognized that they need a way to repair their streams and rivers and to maintain them so that they can withstand heavy rains and storms without flooding. The partners are not committed to any of these projects; the team realizes that as more work is done to understand the flooding and how climate change will affect the flooding, potential, innovative projects that have not been considered in the past may be found. In the past, CDBG-DR funds have been used primarily for repairs from the storms and floods and have not been focused on improving resiliency. These activities have been beneficial to the communities and do not need to be replaced, but this partnership and funding opportunity have allowed the state to investigate new ideas and solutions that were not possible with only \$4M dollars in CDBG-DR funding.

2. The Rural By Nature proposal incorporates economic development into the heart of the concept. An important aspect of the proposal as can be seen on the maps of the overall project area is that this area is rural and largely preserved and pristine and largely agricultural. However, the area is also distressed and there are few economic development opportunities. The proposal recognizes these realities and seeks to work with them. The team wants to ensure that agriculture is protected and that the flood (and relatedly earthquake) losses are lowered, and the team recognizes the economic development opportunities of tourism and entrepreneurship development that are associated with protecting the environment.

The project team has begun to work with experts in several areas that will assist with the application moving forward. TNECD contains the state's national flood insurance program and

they have participated in the project by helping us understand the floodplain. The team has begun to work with architects and engineers on understanding the impacts of the disasters. The development districts are the organizations that assist with regional planning for many of these communities. The CDBG program staff understand the regulations regarding relocation and acquisition. TDEC coordinates the state's brownfield remediation program and has a policy office that is working with climate change data. The team is also continuing to expand as more agencies become interested in the work and as the team sees the need for additional area of expertise to be represented.

3. The majority of the businesses in the Rural By Nature project area are small businesses and many are related to agriculture which is often most impacted by flooding and climate change. Tourism and entrepreneurship are the main economic development focus of the proposal and those industries are also dominated by small businesses. The proposal team seeks to understand more precisely how these residents and businesses will be affected and final project proposals will incorporate their feedback and ideas.

4. Working with river systems as large as the MS River and TN River will naturally impact the communities and states downstream. The project team has made an effort to involve other communities and states in the planning process. The team works closely with Shelby County, the remaining county bordering the MS River in TN and an eligible applicant. The two applicants have committed to working together as the application proceeds, and they attended a public meeting held by TNECD. Additionally, the team has reached out to other states including Arkansas and Mississippi and has partnership commitments from them. Ultimately, the Rural By Nature team would like to see the communities along the river learn to live with flooding and

learn the ways that could be beneficial to their communities which would ease the impacts of the floods downstream as well.

5. Shelby County is the only large metropolitan area in the overall project area; many of the job opportunities and much of the commerce is in Memphis and Shelby County. The communities have always been a partner with Shelby County because of their role in the region, and any projects north of Shelby County will affect them. Madison County is the next largest metropolitan area and is another center of commerce and is a partner for the region.

6. The Rural By Nature team recognizes that these vulnerabilities have been impacting the region for many, many years and that if addressing them were easy, it would have already been done. However, this is the first time that a partnership involving so many of the players from the local governments to regional, state and federal agencies have been involved. The team is committed to expanding to include others who can assist, particularly faith-based organizations and non-profits in the community who have an established relationship with vulnerable populations and with other state and federal agencies that have access to additional data and funding. See the partner documentation in Appendix for more information on the partners and their role in the team. No formal agreements have been established at this time, but the team is moving toward that. The team currently has buy-in from each of the local governments affected by the project proposal, and they are committed to working together to obtain funding and develop projects that are beneficial across the region. In the past, CDBG-DR funds have been given to individual local governments without regard to how one project may affect another area. The communities realize that this is changing and that there is now a more holistic perspective on disaster recovery funding and that there is a need to include resiliency.

7. Tennessee has not been focused on resiliency in the past. After a major disaster, the focus has been on recovery and getting the communities and their housing and infrastructure back to working order. TNECD has contributed to this mindset with the awarding of CDBG-DR funds. Other organizations like TEMA and TDEC have been focused on mitigation and resiliency, but they have not had the support of the other Rural By Nature team members. This is a significant change for TN, and it is one to be excited about. TNECD is committed to allocating any future disaster recovery funds in a new way, and the team will continue to work with each other on projects and planning for projects after this program is complete. Incorporating discussions of climate change is also new for many parts of the state. The project team will make an effort to communicate the risks of climate change (more frequent flooding, more droughts, more temperature extremes, etc.) to those most likely to be affected in ways that will be easy for them to understand and relate to. XX communities in the project area participate in the NFIP and have for many years. This program has benefitted them in many ways. Each county in the project area has a hazard mitigation plan that addresses risks from disasters and the likely impacts of climate change in their community.

#### **Factor 4: Phase 1 Leverage and Outcomes**

a. 1. The Rural By Nature approach seeks long-term solutions to the flooding risks in TN. The team understands that part of the reality of being on large river systems is that the rivers will flood; the team is seeking ways to lessen the impacts of the flooding by putting in systems that can capture the water so that there is less impact on housing, business and infrastructure. The Regional Watershed Map in Appendix shows the amount of water in the overall project area, and how the streams and rivers interact with each other and the rest of the community. Heavy rains and severe storms are a significant part of the flooding risk in the overall project area as well.

The Rural By Nature program specifically intends to preserve the land and to promote economic development through tourism and entrepreneurship development. Although the team has not yet begun the discussion of possible projects, the outcomes will involve increasing greenspace and recreation opportunities, protecting homes and businesses possibly through buyouts, improving the tourism opportunities located along the river as well as Reelfoot Lake and promoting entrepreneurship and small business development of the rural residents.

2. The project team realizes that a funding opportunity like this one will likely never come along again and the projects must take into account how they will be maintained and expanded to other areas of the state. And, in order to fulfill the goals of the Rural By Nature team, the projects must take environmental considerations into account. The team recognizes that much of the project area is pristine and undeveloped and how that is an asset to economic development and that it must be protected.

3. Some of the target areas are blighted parts of the community. The team plans to work with the community members in these areas to understand how they would like to see the development of their communities progress and how flood protection measures can be incorporated, likely through greenspace and recreation area development. The potential projects will also focus on economic development in low income, high unemployment level areas. For example, Lake County is one of the most distressed areas of the state with approximately 50% of the population as LMI. The county has one of the largest tourist attractions in the state – Reelfoot Lake, a lake that was created in the earthquakes of 1811 and 1812. With the flooding in 2011, the lake has experienced an influx of Asian Carp. They have nearly taken over the lake and the number of fishing licenses purchased has decreased by 50% (See Appendix for more information.). A project that involves restoration and protection of Reelfoot Lake and assistance to the small

business owners of tourist businesses near the lake would have co-benefits of protecting the natural environment, increasing tourism, assisting entrepreneurs and small-business owners, and decreasing the impacts of future flooding. Additionally, these impacts from the flooding were not fully known until three to four years after the floods occurred.

4. Ultimately the Rural By Nature team will know the success of the project after the next flood or when an earthquake occurs. If the projects decrease the impacts of floods on the housing, businesses and infrastructure of the communities in the project area as compared to the floods in 2010 and 2011, then the projects will be successful. However, in the short term, the team will also measure number of businesses assisted, acreage converted to greenspace or recreation, number of property buyouts, etc. Mid-term impacts will look at the number of visitors to the area, increase in tourism revenue, and increase in small business startups.

b.1. Many of the partners who are noted in Appendix XX and Factor 1.b.1. are already involved in disaster recovery and resiliency work in the project area communities. For example, TEMA works with the communities on mitigation planning and disaster response and recovery and will be able to work with the communities as they continue to implement resiliency projects. TNECD through the CDBG and CDBG-DR programs as well as other federal programs such as the Delta Regional Authority, will continue to work with the communities to maintain and expand the programs. It is a priority for the CDBG program to focus any future disaster recovery funds on projects that have a resiliency component and on expanding the successful and efforts of this program to other parts of the state. The team believes that the focus on decreasing the impacts of flooding and on earthquake preparedness will continue to attract new partners and potential funders from the state, federal, non-profit and private sectors. The team will stay involved in recruiting partners and funding.

2. The economic co-benefits including the focus on tourism and entrepreneurship development will attract funding from other state and federal programs including the TN Department of Tourist Development, UDSA-RD and TDEC. TNECD supports the Regional Entrepreneurship Accelerators in the project areas and they will be able to provide assistance to the entrepreneurs and small businesses along with the SBDC's in the area. The team will use projects already planned and in the development stage from the USACE and the W TN River Basin Authority. These are partners in collecting and understanding data, developing sound projects and, potentially in funding opportunities.

The major cost savings associated with the projects will be decreased post-disaster spending. However, a potential project could be developing innovative sewer system repairs and ways to address inflow and infiltration to sewer systems during floods and storms. Those projects would result in lower maintenance to sewer systems. Finding ways to allow for flooding with lower impacts on communities or to allow the rivers, streams and tributaries to accept more water will also have economic benefits for communities.

3. The overall project area, W TN, has similar economic characteristics (low income, high unemployment) and experiences very similar disasters (as shown in Appendix XX). When the projects in the project areas can be shown to be effective, the Rural By Nature project team will work to use available funding through federal and state programs to expand the projects throughout West and Middle TN where flooding frequently occurs. One of the advantages of the project areas is that both of the major watersheds and both rural and more urban areas are included which makes transferring the lessons learned to other communities more effective.

c. Please see the Leverage Documentation in Appendix, showing commitment in excess of \$250,000, for information on projects that are already underway or that will be completed that support the Rural By Nature program. The projects, which are funded at the local, state and federal levels are examples of how the team will use current and future resources and funding to address the issues and opportunities identified by the team to increase resiliency. Instead of “one off” projects that do not consider the big picture, the projects in the future will be more focused on understanding how a project will impact flooding, disaster preparedness and resiliency. This is a new commitment and focus for TN.

#### **Factor 5: Regional Coordination and Long-term Commitment**

The development of the Rural By Nature team was the first step toward resiliency for the state of TN. This is the first time that a group representing so many local, state, federal and non-profit leaders has come together to look at resiliency and disaster response and preparedness. The team has already started to see how each individual group’s work in the past contributes to the team’s plans and is committed to considering resiliency in the future.