



Factor 5 – Long-Term Commitment Exhibit G

RESILIENT

SHELBY

Shelby County, Tennessee
Greenprint for Resilience
National Disaster Resilience Competition
Phase Two – October 27, 2015
[ExhibitGLongTermShelbyCOTN.pdf](#)

EXHIBIT G: FACTOR 5 - LONG-TERM COMMITMENT

Update on Phase 1 Commitments. In the Phase 1 application, Shelby County outlined several areas of long-term commitments that have progressed significantly.

GREENPRINT: Following the development of the GREENPRINT plan, Hyde Family Foundations, a local philanthropy, gifted \$157,000 over two years to MSCOS to fund the continuation of a coordinator position to transition GREENPRINT from plan to implementation. The implementation of GREENPRINT is directly tied to resilience of the county and region with respect to investing in connecting, restoring, and preserving green space and the associated co-benefits. Matching this grant, the Greater Memphis Chamber has committed to raise \$57,000 over two years to support the coordinator position. The Coordinator position has been filled since the submittal of the Phase 1 application and implementation continues.

Additionally, many municipalities and counties have officially adopted the GREENPRINT since the Phase 1 application was submitted. To date, 18 municipalities and counties across three states have made the GREENPRINT an official plan in their jurisdiction. On November 16, entities that have endorsed or adopted the GREENPRINT will participate in a GREENPRINT Summit that is open to the public. Local leaders and partners will provide updates on the status of their implementation projects, and a series of panels and presentations will share best practices on green infrastructure networks from across the country as well as local greenways in various stages of development.

Flood Mitigation: The City of Memphis is conducting drainage studies over the next two years for each of the 17 drainage basins within the municipal boundaries. One was complete prior to the publication of the NOFA. Seven of these studies are underway or will be complete

after one year of award, including three that are part of the activities proposed in the Greenprint for Resilience project. As the intent of the project is to replicate these strategies for “*making room for the river*” across Shelby County, the remaining drainage studies in Memphis are a precursor to future watershed and resilience projects toward replication and phasing of the NDRC project concept. This long-term commitment totals \$3.5 million by end of 2016.

Additionally, several dams in Shelby County are under review by USDA to determine the need for a retrofit or a full replacement. One dam retrofit is complete. One dam, Mary’s Creek #9, is currently being retrofitted to better withstand seismic activity and improved hydraulic function at a cost of approximately \$609,796. The retrofit will protect at the 500 year event level, with a 30” freeboard from the top of the dam to the water level. Without the retrofit, the dam is at risk of failure, likely from heavy rainfall or seismic activity, which would place approximately 1,800 people in the watershed at risk. Three additional dams, Mary’s Creek #4, 10, and 11, are currently under review. This initiative is led by the CBA, a division of the state of Tennessee.

Wolf River Conservancy: Since Phase 1, the Wolf River Conservancy has earned national recognition by the Land Trust Accreditation Commission. This prestigious status signifies WRC’s conservation strategy for the Wolf River watershed is well-designed, implementable, and long-lasting. WRC protected 13,500 acres prior to the publication of the NOFA. Since publication, WRC has protected 481 acres in the Wolf River watershed at a cost of \$1.22 million following the conservancy’s science-based land conservation strategy. Acquisition of properties for conservation purposes upstream in the Wolf River watershed provides critical long-term resilience for activities downstream proposed in the **Wolf River** activity of this application. WRC will protect an additional 900 acres through 2016 at a cost of \$2 million.



Ready Shelby: The Ready Shelby community preparedness initiative educates and works with communities to prepare and respond to disasters. Ready Shelby is a collaborative initiative with support by Shelby County Government, all municipalities within the county, and the Assisi Foundation to improve emergency preparedness. The goals of the initiative are to educate Shelby County residents on how to prepare for an emergency, with specific attention given to the first 72 hours after an emergency, and to partner with public, private, faith-based, and non-profit sectors to share the guidelines and the overall importance of emergency preparedness with Shelby County residents. Ready Shelby is a public awareness and education campaign to provide a rallying cry that inspires everyone to take positive, simple steps towards being prepared.

Since October 2014, Ready Shelby has reached 100,000 households with public awareness materials and reached an additional 5,000 people through their events. They have spent \$750,000 on this awareness initiative since October 2014. In 2016, Ready Shelby will reach another 100,000 households with awareness materials.

Port of Memphis Upgrades: The Port of Memphis is a major employer and economic engine for the Mid-South. The Port has used its planning efforts to incorporate resilience to flooding and drought into its future capital expansions; however, those expansions will not be completed until after 2016. Port facilities and adjacent employers are in close proximity to the *South Cypress Creek* activity area, and provide economic opportunities for residents of the South Cypress Creek and adjacent neighborhoods.

a. Lessons learned. Shelby County has already begun to demonstrate lessons learned in the process of developing its proposal in a number of ways. Since the NOFA was published, Shelby County has formalized its approach to incorporating resilience through the formation of the

Shelby County Resilience Council (SCRC). However, the SCRC's formation can be thought of a mid-way point in the larger resilience initiative for the county. The extensive planning and engagement process for GREENPRINT has put concepts like *"making room for the river"*, stormwater management, and recreational trails in many residents' minds; indeed, citizens contributed heavily to the development of the GREENPRINT. Shelby County citizens are informed, engaged, and ready for new ways of living with rivers that pose risk, but hold so much opportunity for the future. The NDRC process, and the formation of the Greenprint for Resilience projects, has cemented this approach in Shelby County. The lessons learned through the development of Greenprint for Resilience are that scalable, replicable activities to achieve reduced risk and increased community benefits are possible as the GREENPRINT network develops over the next 25 years. Because the SCRC has been formalized, these conversations, involvement, and inclusion have clear leadership and direction, not just for implementation of the Greenprint for Resilience, but for all future projects in Shelby County.

The community-wide shared understanding and buy-in of the GREENPRINT and the Greenprint for Resilience may lead to an increased willingness to accelerate implementation through additional funding sources. The GREENPRINT outlines funding options, including federal and state grants, local revenue options of bonds, property tax levies, and sales taxes as possible options for accelerating implementation. For example, if sales taxes were raised by 1/8 of one cent in each of the four counties, \$420 million could be raised over 20 years at an annual cost of \$18.49 per household. While sales tax increases are not currently proposed in Shelby County, this may be an option in the future. The pursuit of a dedicated funding source for the continued implementation of the GREENPRINT provides a critical opportunity to leverage resources for resilience activities in the future.



b. Legislative action. Shelby County Mayor Mark Luttrell, Jr. signed an order to create the Shelby County Resilience Council (SCRC) on July 27, 2015. Additionally, 18 jurisdictions have officially adopted the GREENPRINT since its completion in November 2014.

Since the NOFA's release, the City of Memphis has developed a project delivery manual for an existing Complete Streets policy at a cost of \$48,000. The manual was funded through the HUD Regional Planning Grant awarded to Shelby County for the GREENPRINT. This manual includes design guidelines for streets that include safe accommodations for vehicular, pedestrian, bicycle, and transit users of all ages and abilities. The final draft is currently under review and is expected to be brought to City Council for adoption in 2016. Once complete, all street improvements will be required to consult the manual for design and engineering treatments.

c. Raising standards. After the qualifying disaster in 2011, Shelby County took swift action to raise the elevation requirements for construction in floodplains from one foot to two feet. This action passed in 2012, after the qualifying disasters in 2011 and prior to the publication of the NDRC NOFA. Future upgrades to construction standards will be considered as part of the Regional Resilience Plan proposed as an activity in this application.

d. Resilience actions related to plan updates or alignment. Shelby County has led the way in alignment; the years of work to create the GREENPRINT plan provides a foundation for resilience work in the region. The proposed NDRC project, Greenprint for Resilience, is designed to both meet URN from 2011 and address the strategic directions outlined in the GREENPRINT. Additionally, supporting studies such as the Big Creek Watershed and the Inland Ports Resiliency studies reinforce the work of the GREENPRINT and the NDRC process.

Shelby County continues to implement the GREENPRINT, published in November 2014. At the time of publication, 51 miles of trail existed in the region. Within one year of NDRC award announcement, Shelby County will add 22 miles of trails, including the Hampline, Fletcher Creek Greenway, Wolf River Greenway, Shelby Farms Greenline Extension and Park Trails, Germantown Greenway, and the Harahan Bridge – the key link between Tennessee and Arkansas in the GREENPRINT network.

Several of the GREENPRINT’s short-term targets for action will be met over the next year. The Complete Streets Design Manual, part of the legislative commitment to resilience, will be brought to the Memphis City Council for adoption in 2016. A regional coordination agency for long-term administration of the GREENPRINT is in the process of being formed; this will also be complete in 2016. A regional food system assessment, funded through two HUD Sustainable Communities Grants, was completed in May 2015 in coordination with the East Arkansas Planning and Development District. An inventory of equitable access to parks, greenways, and waterways will be completed in 2016. This inventory will provide key data for equitable expansion, scaling, and replication of the Greenprint for Resilience project concepts into more LMI communities in the region.

Additionally, the GREENPRINT set several targets for school gardens and native landscaping demonstration projects that will be met in 2016. The number of school gardens increases from 54 as of November 2014, with 75 new gardens expected by fall 2016. Nine sites in Shelby County have added green stormwater infrastructure this year, with one other site in progress, up from five sites prior to the publication of the GREENPRINT. This includes rain gardens at three city schools and four rain gardens at a Shelby County administrative building.



Additionally, MSCOS will hold ten educational sessions on benefits and financing options for rain gardens in 2016, education not previously offered in Shelby County.

The SCRC has taken action to incorporate studies in progress into this NDRC application, and in particular, to incorporate resilience into planned and existing projects. For example, in 2014, the Big Creek Watershed Investigation Report was conducted to evaluate historical flooding east of U.S. Highway 51 on Big Creek, extending into the upper reaches of Crooked Creek and two tributaries, Casper Creek and North Fork Creek. Recommendations from the study included converting cropland to a less intensive use such as pastureland to reduce sediment loss, constructing a floodwater control structure in Tipton County, and performing channel improvements throughout the watershed. Additional proposed benefits include elimination of 2-year flood event from the watershed, elimination of 100-year flood event for North Fork Creek, and reducing the number of acres flooded annually by 85%. This watershed study forms the basis for one of the activities included in this application. Shelby County's Hazard Mitigation Plan is currently being updated, with an estimated completion date of November 2015. The plan's current draft references the Greenprint for Resilience as an area for plan alignment, along with multiple economic development and transportation plans. ([Shelby County Hazard Mitigation Draft 2016 Page 54 E](#))

Shelby County will begin several important plans over the next several months, building on partnerships developed and formalized through the NDRC process. Memphis-Shelby County is a pilot area for the Urban Adaptation Assessment, a partnership between the Kresge Foundation and the University of Notre Dame Global Adaptation Index (ND-GAIN). This project will provide an adaptation measurement solution by building a framework to assess

climate adaptation on an urban scale, allowing for informed decisions about infrastructure, land use, water resources management, transportation, and other policy and funding issues. Memphis-Shelby County was selected as a pilot area in June 2015, and this work will be directly linked to the SCRC's implementation work of both the GREENPRINT and NDRC activities. The initial assessment process will be completed by Notre Dame in May 2016.

MSCOS will be conducting a greenhouse gas inventory, setting greenhouse gas reduction targets, and developing a climate action plan. This initiative on climate adaptation has developed as a result of Memphis Mayor A C Wharton and the City of Memphis joining the United Nations Compact of Mayors. The greenhouse gas inventory will be completed by May 2016. Reduction targets and climate action plan are expected in 2017.

Shelby County is examining the ways tree canopy affects resilience and community health. The proposed Big Creek activity involves a reduction in trees. Shelby County is committed to offsetting this reduction by developing a tree canopy plan, building off of an urban tree canopy assessment developed by WRC and CAESER designed to identify highest priority areas for new planting, creation of new green infrastructure, and the reduction in the heat island effect. The tree canopy plan will guide the planting of roughly 250,000 new trees across the county in priority areas. The tree canopy plan will be developed with a landscape architecture studio from Mississippi State University. Extreme heat events are frequently mentioned in the National Climate Assessment as vulnerability for Shelby County. Replanting directly addresses the urban heat island effect by prioritizing canopy within the county. In addition, Shelby Farms Park Conservancy's (SFPC) master plan calls for the planting of one million trees in the park and surrounding area to support the goal of a greener Memphis.



e. Resilience actions related to financing and economic issues. Shelby County and all municipalities within the county, including Memphis, have dedicated funding towards stormwater projects. The fees that pay into this stormwater fund total over \$27 million each year. The stormwater program includes best management practices for monitoring and controlling stormwater pollution. Engineering methods are employed for stormwater systems design, management of systems operations, floodplain and watershed management plans, and implementation and enforcement of ordinances. The control of the quantity and quality of storm water is a major factor in enhancing the resilience in Shelby County.

Additional flood mitigation projects will be constructed over the next year to support larger goals of reducing repetitive flood losses in Shelby County. The CBA is working with USDA to implement an Environmental Quality Incentives Program (EQIP) to plan and implement soil, water, and plant conservation infrastructure in Shelby County. There are currently four EQIP structures; five new structures will be completed at a cost of \$48,700. An example is a two acre retention basin designed to protect 15 homes flooded during localized 100-year rain events; this basin will be completed in 2016. The CBA has a ten year program for grade control structures at 51 sites. Prior to the publication of the NOFA, three grade control structures existed. By the end of 2016, seven more will be completed at an estimated cost of \$288,000, with a goal of completing at least five structures per year.