CITY OF SPRINGFIELD
National Disaster Resilience Program
CDBG-NDR Grant #B-13-MS-25-0002
Period of Performance January 1, 2016 to September 30, 2022

Proposed Modification
May 3, 2019

Background

The City of Springfield participated in the two-part National Disaster Resilience Competition and received an award of $17 million pursuant to its response to the Phase Two Notice of Funding Availability, FR-5800-N-29A2. The City's October 27, 2015 response identified proposed projects to be funded, and a number of projects were selected by the U.S. Department of Housing and Urban Development for award.

In the City's work toward implementation of the funded projects, it has identified one project which is facing unforeseen circumstances which is making the project more complex than originally anticipated, leading to the possibility that the City will not be able to complete the project during the grant period of performance. Working with its engineering consultant, the City has identified a modification to the original project which would reduce the cost and which can be accomplished within the grant period of performance. The modified project will provide the same benefits as the original project.

October 27, 2015 Application Proposed Project

One of the projects proposed and awarded funding through Springfield's NDRC application was a two-part project, which would restore/harden the high-hazard-potential mechanical dam at Watershops Pond and create a clean redundant energy source by re-introducing hydropower at the dam site.

The dam restoration and improvements are needed to decrease the risk of catastrophic flooding to low-income neighborhoods below the Watershops Pond dam, after the dam sustained damage from the City's 2011 tornado (DR-1994) and from extraordinary amount of storm debris from the October 2011 snow storm (DR-4051). In addition to hardening the dam from failure, the project will also facilitate adjustment of pond levels, allowing for significant water level decrease in advance of a predicted heavy rainstorm in order to increase pond capacity for water storage.

In conjunction with dam restoration and hardening, the City's original proposal included restoration of previously-existing hydropower at the dam. Hydropower had once powered the Springfield Armory location at the site, but had not been operational since the Armory was closed in 1968. The creation of hydropower was in response to the City's frequent loss of power due to winter storms. The hydropower would provide clean and redundant energy to the nearby Brookings Elementary School, a new facility built after the original school sustained tornado damage. The new school was designed and built with the capacity to be transformed into a community center/disaster response location, a use which is particularly supported by the

existence of a continuous energy source which would not be interrupted by damage to the power lines and grid.

Unforeseen Challenges with the Hydropower Project
At the time of the original application, the City had completed a preliminary feasibility study and submitted a permit application with the Federal Energy Regulatory Commission (FERC). Following approval, the City undertook a more extensive analysis. The additional analysis indicated that the cost of the project would be greater than originally anticipated. It also identified the very likely delay anticipated due to property acquisition and multiple layers of permitting, environmental and engineering variables, which would make project completion by September 2022 challenging. The City's recent experience with property acquisition for other disaster recovery projects supports the conclusion that this is likely to take significantly longer than what was anticipated when the City submitted its original NDR proposal.

Proposed Modification: Replace Hydropower with Solar
In response to the unforeseen challenges with the original proposal, the City proposes that the clean and redundant energy portion of the project be changed from hydropower to solar. This modification would still include restoration/hardening for the dam at Watershops Pond, but would substitute construction of a photovoltaic (PV) and energy storage system at the Brookings Elementary School for the original hydropower portion of the project.

The energy component of the modified project would incorporate installation of PV systems and energy storage at Brookings School. PV panels would be mounted on the school roof and atop a carport on the site of the school, with an on-site battery storage system. The system would be owned and operated by the City and would provide ongoing energy to Brookings School. With the on-site battery storage, the system would enable the school to have energy even if utility lines are down.

The City would procure a contractor for the purchase and installation of the PV and energy storage system.

The modification of the project from hydropower to solar preserves the benefits of the original project, which were: creation of clean and redundant energy; power to the Brookings School, even when the grid or utility lines are down; and repair of the Watershops Pond dam to protect the low-income neighborhood located below the dam.

Threshold Requirements
The City notes that the proposed modification continues to meet the Threshold Requirements of the Phase Two NOFA, as described below.

I. ELIGIBLE APPLICANT
HUD designated the City of Springfield, MA as an eligible applicant to the NDR.

II. ELIGIBLE COUNTY
Springfield is located in Hampden County, MA, which is listed as a most impacted and distressed County in HUD's Appendix A.

III. MOST IMPACTED AND DISTRESSED TARGET AREA(S)
Springfield is located in Hampden County, MA, which is listed as a most impacted and distressed County in HUD's Appendix A.

IV. ELIGIBLE ACTIVITY
The proposed modified program includes CDBG-eligible activities under the category of Public Facilities and Improvements.

V. RESILIENCE INCORPORATED
The project modification provides the same outcomes in support of increased resilience: protection against flooding and capacity to operate critical services in the event of a disaster. The modified project will also reduce utility costs at the Brookings School.

VI. NATIONAL OBJECTIVE
The Benefit to Low-to-Moderate Income Persons National Objective continues to apply for the modified project.

VII. OVERALL BENEFIT
The City estimates that 100% of the cost of this project will benefit the LMI population. Following the modification, the City still expects that 75% of its overall CDBG-DR program will benefit the LMII population.

VIII. ESTABLISH TIE-BACK
The project modification has the same tie-back to the City's five qualified disasters as the original project.

Restoration/hardening of Watershops Pond dam: Tie-back to direct damage to dam from tornado, DR-1994, and extraordinary amount of storm debris from DR-4051.

Clean redundant energy: Tie-back to repeated and extensive power loss during storm events, DR-1994, DR-4028, DR-4051, and DR-4110.

IX. BENEFIT-COST ANALYSIS
The benefit-cost ratio of the original project was calculated at 2.44. The project modification improves the ratio, because the project cost is significantly lower, while the project produces more energy. The table below provides the estimates for these factors:

	Project Cost	Annual energy production value
Hydropower + dam hardening	$5,637,000	$98,200
Solar + dam hardening	$4,150,000	$100,493

The remaining values in the original benefit-cost analysis do not change with the proposed modification.

X. CDBR-NDR APPLICANT CERTIFICATIONS
The required certifications still apply.

XI. UNMET RECOVERY NEEDS
The City's original proposal included the following description of unmet infrastructure recovery needs: Unmet infrastructure needs resulting from the multiple disasters that Springfield sustained (DR-1959, DR-1994, DR-4028, DR-4051, and DR-4110) are the reconstruction of roads damaged by repair vehicles after the storms and repair/replacement of the City's flood control drainage system. The funding gap for these projects is $6,375,975 and there have been no funds identified to address the gap.