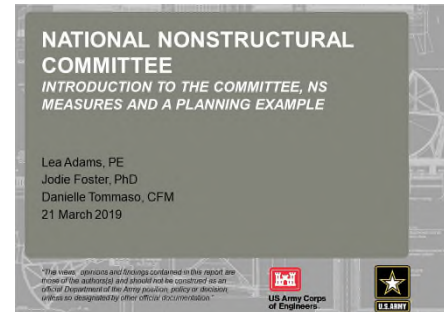


**National Nonstructural Committee and Nonstructural Measures
Planning CoP Webinar
March 21, 2019
Q&A Session**

The 21 March PCoP Webinar provided an update on nonstructural measures for Flood Risk Management (FRM) and Coastal Storm Risk Management (CSRМ) within USACE, presented by members of the USACE National Nonstructural Committee (NNC) – Ms. Lea Adams (Committee Chair, HEC), Ms. Danielle Tommaso (NAN), and Mr. Jodie Foster (SWF-RPEC). The presentation introduced the NNC and provided background on why USACE is involved with nonstructural measures. The presenters also gave an overview of nonstructural measures, walked through incorporation of nonstructural measures / alternatives in the USACE planning process, and highlighted an example project with a nonstructural focus. The goal of the presentation was to help PDT members working on FRM and CSRМ projects know what nonstructural measures are, how to incorporate them in planning studies, and where to access additional resources.



This summary of the Question / Answer session of the webinar is not a transcription; questions and responses have been edited and reordered for clarity.

Nonstructural Measure Implementation

How do nonstructural measures such as floodproofing and structure raising actually get implemented? During construction, does USACE contract with construction firms to implement the changes (e.g., “wet floodproof” or raise the houses), similar to how it would contract with construction firms to build levees and floodwalls?

This is an issue the Southwest Coastal Louisiana project delivery team is currently dealing with. The method outlined in the attendee’s question is the method the team assumes they’ll use for procurement and implementation. There are many ways to go about procurement and implementation, but federally-led implementation is the most typical way nonstructural measures are conducted. To provide more information and resources on this issue, the NNC is looking at compiling lessons learned and best practices on nonstructural measure procurement and implementation from teams throughout the country. These best practice guides will be available on the Nonstructural Working Group SharePoint site.

Is there any plan to test the historically-sensitive doors/windows so that they can be implemented in the future?

USACE does not currently mandate the use of any particular flood barrier products. The National Flood Barrier Testing and Certification Program was jointly established by USACE and the Association of State Flood Plain Managers (ASFPM), with testing occurring at the Engineer Research and Development Center’s (ERDC’s) labs in Vicksburg, MS. The program is voluntary and allows companies to have their temporary flood barrier products tested and certified; there are three products currently in the queue to be tested. No historically-sensitive products (e.g. doors/windows) have been requested to be tested by

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manufacturers to date. For more information on the testing program, please visit:

<http://nationalfloodbarrier.org/>

What should District Levee Safety Program Managers (LSPMs) know about nonstructural measures?

Nonphysical nonstructural measures are probably most appropriate for LSPMs to know about. LSPMs are likely already familiar with measures such as emergency action plans (EAPs), but one measure LSPMs should consider that they may not traditionally think of is vertical evacuation route planning. As an example, a recent nonstructural plan was developed for the Cherry Creek Dam in the Denver area, and the study project delivery team (PDT) discovered that vertical evacuation was one of the most promising means of reducing life loss.

Nonstructural Measure Economics

For clarification: the economic benefits of floodplain evacuation are the foregone flood benefits, PLUS the benefits of the new use of the land (i.e., recreation) and what can be used to quantify benefits?

This is correct. As a general rule, recreation benefits are limited to 50 percent, particularly if these benefits are needed for project justification. The [Planning Guidance Notebook \(PGN\)](#) states “there may be additional recreation benefits if they are not required for justification” (p. E-179). The PGN also states “for evacuation plans that are clearly formulated for flood damage reduction there is no limitation on the amount of recreation benefits, as may exist for structural projects” (p. E-84). Costs need to be considered when formulating recreation benefits. “For multipurpose projects that include nonstructural flood damage reduction, the cost of recreation associated with the non-structural flood damage reduction features may not exceed one-half of the total cost for flood damage reduction plus recreation” (E-182). Benefits from recreation are specified as monetary which meshes well with National Economic Development (NED) benefits derived from reducing flood risk economic damages. It is also used as a means of determining demand for recreation in terms of the willingness to pay for recreation. The PGN specifies three ways that these monetary benefits from recreation can be quantified including Travel Cost Estimate, Contingent Valuation, and Unit Day Value (pp. E-195-6).

It appears some nonstructural measures (e.g., floodproofing) are more difficult to estimate costs for during feasibility due to the great variation in costs between structures. Do we usually estimate costs based on historical nonstructural costs for similar structures from other studies/areas? Or should we assume X dollars per structure to raise/floodproof (based on some empirical evidence), and then multiply by the number of structures?

A best practice for cost estimation is to evaluate a representative sample of structures within a study area, then extrapolate to develop a cost estimate for the full study area. Some analysis is needed to determine which types of structures are most representative in a study area; for example: slab on grade residential structures, two-story commercial structures, or residential structures with a crawlspace or basement. The [NNC nonstructural matrix](#) is a tool that can narrow down the most promising nonstructural measures for each representative structure type, based on criteria such as hydraulics, structure type, and structure location. Once a measure is selected for each representative structure type, a cost estimate can be made and total cost estimate generated by extrapolation. Be aware that costs vary

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greatly from region to region, and costs from one region should not be blindly applied to another region. Because of this, project delivery teams should look to recently constructed projects by USACE and others for historic cost information.

Do we have good engineering data on converting impervious areas to pervious areas, and are we able to cost-share in these measures if we can show they reduce flood impacts?

The hydrologic effects of converting impervious areas to pervious areas are readily evaluated by a qualified hydrologist using standard methods. Presumably these features could be cost-shared similarly to other flood risk management features if they create a demonstrable reduction in flood impacts and are part of an alternative with positive net benefits.

Nonstructural Measures – For More Information

When is the FY2020 Nonstructural Measures for Flood Risk PROSPECT course scheduled?

The next [Nonstructural Measures for Flood Risk PROSPECT course](#) is scheduled for April 27 – May 1, 2020 in Alexandria, VA. The PROSPECT course number is 345.

Are the NWG and NNC dedicated only to flood risk? If so, who can we contact for help on nonstructural strategies in other business lines like ER?

The NNC and NWG are in place to assist with nonstructural activities across all business lines. Please contact the NNC with specific questions and we will do our best to assist you. The NNC's contact info can be found here: <https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/nfpc/>