



Understanding the NCLS Recommendations: Expand and Maintain the National Levee Database

The Need for a National Levee Database

Although we do know that there are levees in all 50 states, the total number, location, and condition of many of the nation's levees – and the population and property they protect – remain unknown. Preliminary estimates indicate there may be more than 100,000 miles of levees across the United States, with tens of millions of people living and working behind them.

In order to make better flood risk management decisions, we must understand more fully the situation under which we are living—namely the location and condition of our nation's levees. Because watercourses do not adhere to political boundaries, data collection on the location and condition of levees must be conducted in a consistent and comprehensive manner across the nation.

In 2006, under the umbrella of the National Flood Risk Management Program, the U.S. Army Corps of Engineers (USACE) created its Levee Safety Program with the mission to assess the integrity and viability of levees and recommend actions to assure that levee systems do not present unacceptable risks to the public, property, and environment. With funding from the FY 2006 Flood Control and Coastal Emergencies appropriations, USACE launched a major effort to create a National Levee Database (NLD) as a key component of the new Levee Safety Program. Prior to the development of the NLD, there was no existing national database for levees that could be used in assessing and managing their condition, location, level of protection, or maintenance activities.

The National Levee Safety Act of 2007 (33 USC 3303, Section 9004), authorized funding specifically for the National Levee Database and directed the USACE to include location information of all Federal levees as well as any information provided by state and local governmental agencies for non-federal levees, information on the general condition of each levee, and an estimate of the number of structures and population at risk and protected by each levee.

The NLD is designed to include all necessary attributes of levees and floodwalls relevant to levee design, construction, operations, maintenance, repair, inspections, and potential for failure. The database is designed to require data on certain minimum attributes to ensure nationwide consistency, but also includes many additional optional fields useful for informing levee management decisions. In addition, the NLD contains population data, which will allow for the assessment of the potential life loss and economic and property consequences of any overtopping or breach.

Tools being developed for the NLD will allow stakeholders, such as state and local agencies and levee owners/operators, to load, view, modify, and share project-related data, documentation, and information. USACE is also developing decision-making tools for project planning, design, and implementation.

The National Committee on Levee Safety

Congress created the National Committee on Levee Safety to “develop recommendations for a national levee safety program, including a strategic plan for implementation of the program.” The NCLS adopted the vision of “an involved public and reliable levee systems working as part of an integrated approach to protect people and property from floods,” and has been working toward this goal since October 2008.

The NCLS recommendations for a National Levee Safety Program are based on three central concepts:

- Leadership via a National Levee Safety Commission that provides for state delegated programs, national technical standards, risk communication, and coordination of environmental and safety concerns;
- Strong levee safety programs in and within all states that, in turn, provide oversight and critical levee safety processes; and
- A foundation of well-aligned federal agency programs and processes.

For more information on the NCLS and its recommendations for a National Levee Safety Program, please visit: <http://www.iwr.usace.army.mil/ncls>

Needed Expansion of the National Levee Database

The NLD currently includes only levee systems in the USACE Levee Safety Program, approximately 14,000 miles of the estimated 100,000 total miles of levees in the United States. Data in the NLD has been populated through a detailed inventory and the inspection of all the levees in the USACE Levee Safety Program, funded by a one-time \$90 million appropriation through the American Recovery and Reinvestment Act of 2009.

The integration of levee data collected by FEMA's National Flood Insurance Program (NFIP) into the NLD, currently underway, will increase the total number of miles of levee systems in the NLD and add important data points about those levees.

An inventory of all the nation's levees is the first step in understanding this important aspect of flood risk management; it is important to know what levees are out there and their condition, including public and private levees. Then, we can assess the reliability of these levees, quantify the population, and public and private property behind these levees, and prioritize where limited public funds should be spent.

To be meaningful and of greatest use, the NLD must contain all germane information needed to make informed decisions and assessments as to the status and reliability of the nation's levees and levee systems. Until we have baseline information, gathered through both inspections and post-flood performance data, we will not be able to efficiently or cost effectively:

- ❖ Identify the most critical levee safety issues;
- ❖ Quantify the nation's risk exposure and true costs of maintaining levees;
- ❖ Focus priorities for future funding; or
- ❖ Provide data for risk-based assessments.

The National Committee on Levee Safety's Recommendations

Recognizing the critical importance of a complete inventory of the nation's levees, the National Committee on Levee Safety (NCLS) has recommended the expansion of the existing federal National Levee Database (NLD) to include inventory and inspection of federal levees (e.g., federally constructed, non-federally operated and maintained levees) as well as the inventory and inspection of all the nation's levees, as defined by the NCLS, on a periodic cycle, not to exceed 10 years (Recommendation 2). All data generated and collected should be incorporated into the NLD.

Specifically, the NCLS recommends that:

- ❖ The NLD includes levee performance data, for example how a levee performs during and after a flood event;
- ❖ The NLD include periodic inventory and inspection updates. An initial inventory and inspection of all the nation's levees should be done by USACE, but maintained by states on an ongoing basis;
- ❖ USACE develop guidelines related to both the open and limited dissemination of data in the NLD in cooperation with the Department of Homeland Security, states, and levee owners/operators;

NCLS Definition of a Levee

A manmade barrier (embankment, floodwall, or structure) along a watercourse constructed for the primary purpose to provide hurricane, storm, and flood protection relating to seasonal high water, storm surges, precipitation, and other weather events; and that normally is subject to water loading for only a few days or weeks during a year.

Levees also may be embankments, floodwalls, and structures that provide flood protection to lands below sea level and other lowlands and that may be subject to water loading for much, if not all, portions of the year, but that do not constitute barriers across watercourses or constrain water along canals.

This levee definition does not apply to shoreline protection or river bank protection systems such as revetments, barrier islands, etc.

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- ❖ All state and local governments provide minimum basic information on levees in their jurisdiction for inclusion in the NLD, including location information (including global information system information) and the general condition of each levee, set out in the National Levee Safety Act;
- ❖ Section 9004 of the National Levee Safety Act be amended to require all state and local agencies to provide data necessary to complete the NLD (such participation is now voluntary); and
- ❖ Public and private organizations with interest and/or expertise in levee safety be invited to peer review the NLD and the types of information used in the database.

Due to the urgency of understanding the location and condition of the nation's levees, NCLS recommends that Congress act now to expand current USACE authorities and funding to conduct a one-time inventory and inspection of all the nation's levees and expand the federal efforts to include performance data.

Because the NCLS recommends that the NLD include information on all of the nation's levees, not just those participating in the USACE Levee Safety Program, they also recommend that once the National Levee Safety Commission is created, responsibility for maintenance of the NLD and collection of state updates should be conducted by the Commission.

Next Steps for Populating the National Levee Database

The NCLS is currently working with USACE to develop a roll-out plan for soliciting voluntary levee data for the NLD from Federal, state, and local agencies, levee owners and operators, and non-governmental organizations. The NCLS and USACE recognize that there are many challenges to relying on voluntary contributions of data for the NLD, including tight budgets, concerns about data security and how USACE will use the data, and access to and control of the data for non-federal agencies once it is incorporated into the NLD. The importance of better understanding the location and condition of the nation's levees makes it critical that we overcome these challenges.