National WINDSTORM Impact Reduction Program (NWIRP)

… a research and implementation partnership

Program Overview

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NWIRP

FEMA

NIST National Institute of Standards and Technology

NSF

NOAA

Background/Authorities

- NWIRP was initially established by P.L. 108-360, Title II, the National Windstorm Impact Reduction Act (NWIRA), enacted October 25, 2004.
- NWIRP was established as a coordinated Federal effort to achieve major measurable reductions in losses of life and property from windstorms.
- Lead Agency: OSTP
  Program Agencies: NSF, NOAA, NIST, FEMA

Public Law 114-52 Overview

- Public Law (PL) 114-52, enacted September 30, 2015, amends NWIRA to revise provisions governing NWIRP and moves the lead agency function to NIST.

- **Purpose:** To achieve major measurable reductions in the losses of life and property from windstorms through a coordinated Federal effort, in cooperation with other levels of government, academia, and the private sector, aimed at improving the understanding of windstorms and their impacts and developing and encouraging the implementation of cost-effective mitigation measures to reduce those impacts.

Program Components (1/2)

1. Understanding of Windstorms

- research to improve knowledge of and data collection on the impact of severe wind on buildings, structures, and infrastructure.

2. Windstorm Impact Assessment

- development of mechanisms for collecting and inventorying information on the performance of buildings, structures, and infrastructure in windstorms and improved collection of pertinent information from sources, including the design and construction industry, insurance companies, and building officials;
- R&D and technology transfer to improve loss estimation and risk assessment systems; and
- R&D and technology transfer to improve simulation and computational modeling of windstorm impacts.

Program Components (2/2)

3. Windstorm Impact Reduction

- development of improved outreach and implementation mechanisms to translate existing information and research findings into cost-effective and affordable practices for design and construction professionals, and State and local officials;
- development of cost-effective and affordable windstorm-resistant systems, structures, and materials for use in new construction and retrofit of existing construction; and
- outreach and information dissemination related to cost-effective and affordable construction techniques, loss estimation and risk assessment methodologies, and other pertinent information regarding windstorm phenomena to Federal, State, and local officials, the construction industry, and the general public.

NWIRP Lead Agency Role

National Institute of Standards and Technology (NIST)

- **Serve as Lead Agency (previously OSTP) – with primary responsibility for planning and coordinating NWIRP.**
  - Ensure the Program includes necessary components to promote implementation of windstorm risk reduction measures by Federal, State, and local governments, national standards & model building code organizations, architects and engineers, and others with a role in planning & constructing buildings & lifelines.
  - Support development of performance-based engineering tools, & work with appropriate groups to promote commercial application of such tools, including wind-related model building codes, voluntary standards, and construction best practices.
  - Request assistance of Federal agencies other than the Program agencies, as necessary to assist in carrying out the Act.
  - Coordinate all Federal post-windstorm investigations, to the extent practicable
  - When warranted by research or investigative findings, issue recommendations to assist informing development of model codes and provide information to Congress on the use of such recommendations.

NWIRP Program Agency Roles (1/2)

National Science Foundation (NSF)

- Support research in engineering and atmospheric sciences to improve understanding of behavior of windstorms and their impact on buildings, structures, and lifelines.
- Support research in economic and social factors influencing windstorm risk reduction measures.

National Oceanic and Atmospheric Administration (NOAA)

- Support atmospheric sciences research to improve understanding of behavior of windstorms and their impact on buildings, structures, and lifelines.

National Institute of Standards and Technology (NIST)

- In addition to the lead agency responsibilities, carry out R&D to improve model building codes, voluntary standards, and best practices for design, construction, and retrofit of buildings, structures, and lifelines.

NWIRP Program Agency Roles (2/2)

Federal Emergency Management Agency (FEMA)

- Support—
  - development of risk assessment tools and effective mitigation techniques;
  - windstorm-related data collection and analysis;
  - public outreach and information dissemination; and
  - promotion of the adoption of windstorm preparedness and mitigation measures, including for households, businesses, and communities, consistent with the agency's all-hazards approach.

- Work closely with national standards and model building code organizations, in conjunction with NIST, to promote implementation of research results and promote better building practices within the building design and construction industry, including architects, engineers, contractors, builders, and inspectors.

Strategic Planning (1/2)

- PL 114-52 provides requirements for Strategic Plan
- Plan shall include
  - Prioritized goals for NWIRP that will mitigate against loss of life and property from future windstorms;
  - Short-term, mid-term, and long-term research objectives to achieve those goals;
  - Description of the role of each NWIRP agency in achieving the prioritized goals;
  - Methods by which progress towards goals will be assessed; and,
  - Explanation of how NWIRP will foster transfer of research results into outcomes, such as improved model building codes.

Strategic Planning (2/2)

Approach

- Develop problem-focused draft Strategic Plan, in collaboration with NWIRP agencies, with stakeholder input from an NWIRP planning workshop .
- Draft Plan must be finalized, approved by the ICC, and submitted through NIST Congressional and Legislative Affairs for formal interagency review and approval.

Stakeholder Workshop

- One day duration
- Broad cross section from Federal and other levels of government, private sector, industry, and academia
- Tentative workshop date: June 17, 2016, at NSF in Arlington, VA

National Advisory Committee on Windstorm Impact Reduction (NACWIR) (1/2)

Assessments

- NACWIR shall offer assessments and recommendations on—
  1. trends and developments in the natural, engineering, and social sciences and practices of windstorm impact mitigation;
  2. the priorities of the Program's Strategic Plan;
  3. The coordination of the Program;
  4. the effectiveness of the Program in meeting its purposes;
  5. any revisions to the Program which may be necessary

Reports

- At least every 2 years, the Advisory Committee shall report to the Director on the assessments carried out under subsection (b) [above] and its recommendations for ways to improve the Program.

National Advisory Committee on Windstorm Impact Reduction (NACWIR) (2/2)

Composition

- At least 7 and no more than 15 members who are qualified to provide advice on windstorm impact reduction and represent related scientific, architectural, and engineering disciplines, none of whom may be employees of the Federal Government, including—
  1. representatives of research and academic institutions;
  2. industry standards development organizations;
  3. emergency management agencies;
  4. state and local government; and
  5. business communities including the insurance industry.

Termination

- Terminates on September 30, 2017.

Post-Windstorm Investigations (1/2)

Lead Agency Responsibility

- "Coordinate all Federal post-windstorm investigations, to the extent practicable"
- "Investigations" not defined in the legislation

Existing Coordination Activities

- FEMA and NOAA currently perform some pre- and post-windstorm coordination activities, mainly for data collection
- NOAA's Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) provides guidance for coordination of data acquisition and management
  - *National Plan for Disaster Impact Assessments: Weather and Water Data*
    - COASTAL Act Data Protocol (Landfalling Tropical Cyclones)
    - Tornado/Windstorm Data Protocol [to be developed]

Post-Windstorm Investigations (2/2)

Approach

- Identify currently unmet coordination needs, as well as opportunities to provide added value
- Develop and implement post-windstorm investigation coordination plan
- Leverage existing coordination mechanisms and resources, as appropriate