

NWIRP Strategic Plan Overview

Plan Development
Summary of Plan

NWIRP Strategic Plan Development (1/2)

Plan Development Considerations:

- Statutory requirements
- Previous windstorm research needs and roadmap documents
- Stakeholder input
- The Strategic Plan for the National Earthquake Hazard Reduction Program (NEHRP)

Statutory Requirements

Plan shall include the following (per PL 114-52):

- 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 each NWIRP agency role in achieving 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.

Windstorm Research Needs, Roadmaps, and other Documents

Key documents included:

- *Grand Challenges for Disaster Reduction, and Implementation Plans*, National Science and Technology Council, Subcommittee on Disaster Reduction, 2005 and 2008.
- *Hurricane Warning: The Critical Need for a National Hurricane Research Initiative*, National Science Board of the National Science Foundation, 2007.
- *Final Report: Workshop on Weather Ready Nation: Science Imperatives for Severe Thunderstorm Research*, 24-26 April, 2012, Birmingham AL, Sponsored by the National Oceanic and Atmospheric Administration and National Science Foundation,
- *Measurement Science R&D Roadmap for Windstorm and Coastal Inundation Impact Reduction*, NIST GCR 14-973-13, National Institute of Standards and Technology, 2014.
- *Windstorm Impact Reduction Implementation Plan*, National Science and Technology Council, 2006.

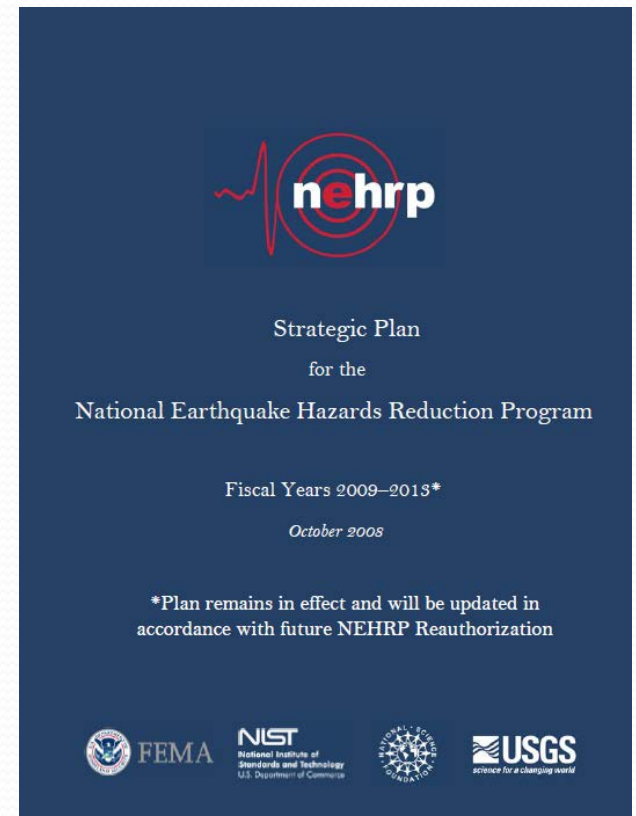
Stakeholder Input

NWIRP Strategic Planning Stakeholder's Workshop

- Held June 17, 2016, at NSF
- Over 80 participants from government, academia, and the private sector, including insurance and reinsurance companies, consultants, building product manufactures and trade associations, professional societies, and standards development organizations.
- Fourteen Federal agencies participated in the workshop, including
 - all of the agencies in the WWG,
 - Department of Homeland Security (DHS)
 - General Services Administration (GSA)
 - Nuclear Regulatory Commission (NRC)
 - United States Geological Survey (USGS)
 - Veterans Administration (VA)
- Gathered input through four invited presentations and 11 breakout sessions

NEHRP Strategic Plan

- NWIRP is modeled after the longstanding National Earthquake Hazard Reduction Program.
- NEHRP developed its latest Strategic Plan in 2008, facing many similar challenges as NWIRP does today
- The Windstorm Working Group decided to leverage the significant efforts involved in development of the NEHRP Strategic Plan, and adapt some of its elements for use with NWIRP



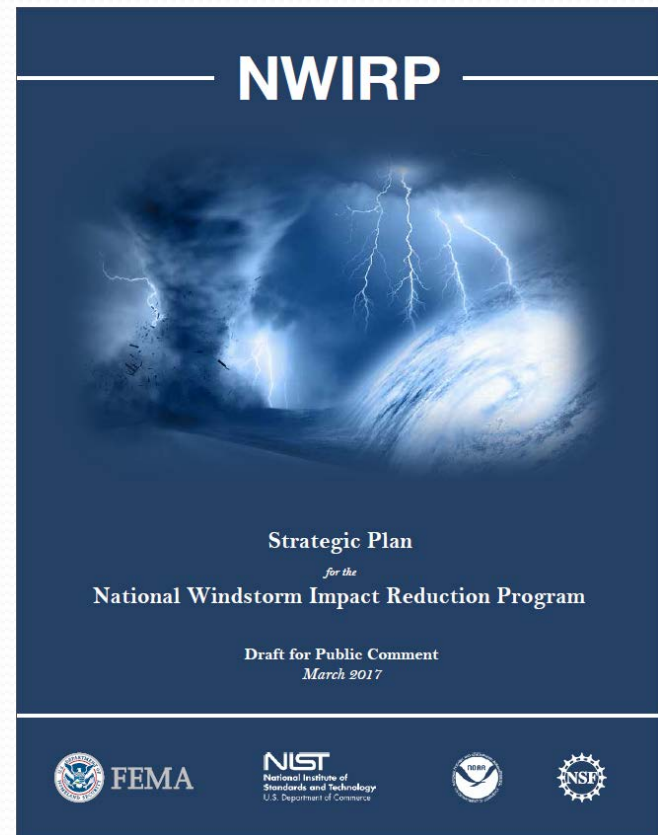
NWIRP Strategic Plan Development (2/2)

Plan Development Process

- Reviewed key documents
 - Research needs and roadmap documents
 - Previous NWIRP documents
 - Technical literature
- Obtained stakeholder input through workshop
- NIST developed the initial draft using the information described above, with input from the WWG, and contractor SME support and tech editing assistance
- The WWG then conducted two rounds of reviews/edits
- The Interagency Coordinating Committee conducted another review and additional edits, before release of the Public Comment Draft


NWIRP Strategic Plan: Draft for Public Comment

- Published March 14, 2017, following review and approval by the NWIRP Interagency Coordinating Committee (ICC)
- Comment period closed this week – NIST will be publishing the public comments shortly



NWIRP Strategic Plan: Path to Completion

- Solicit public comments – completed
- **National Advisory Committee on Windstorm Impact Reduction (NACWIR) review and recommendations**
- WWG considers public comments and NACWIR recommendations and revises the draft Plan as appropriate
- Interagency Coordinating Committee (ICC) review and approval of final Strategic Plan
- Interagency clearance of final Plan and submission to Congress



Additional
Stakeholder
Input

NWIRP Strategic Plan Summary

Main Elements of the Strategic Plan

- The Challenge
- NWIRP Vision and Mission
- NWIRP Participants and Roles
- Progress Assessment
- Goals and Objectives
- Strategic Priorities

The Challenge (1/2)

During the period from 1980 to mid-2016, windstorms caused over \$700 billion in economic losses and caused over 4,500 fatalities.¹

Every state in the country is exposed to windstorm hazards from one or more storm types, including tornadoes, thunderstorms, tropical cyclones, Nor'easters, winter storms, mountain downslope winds, and others.

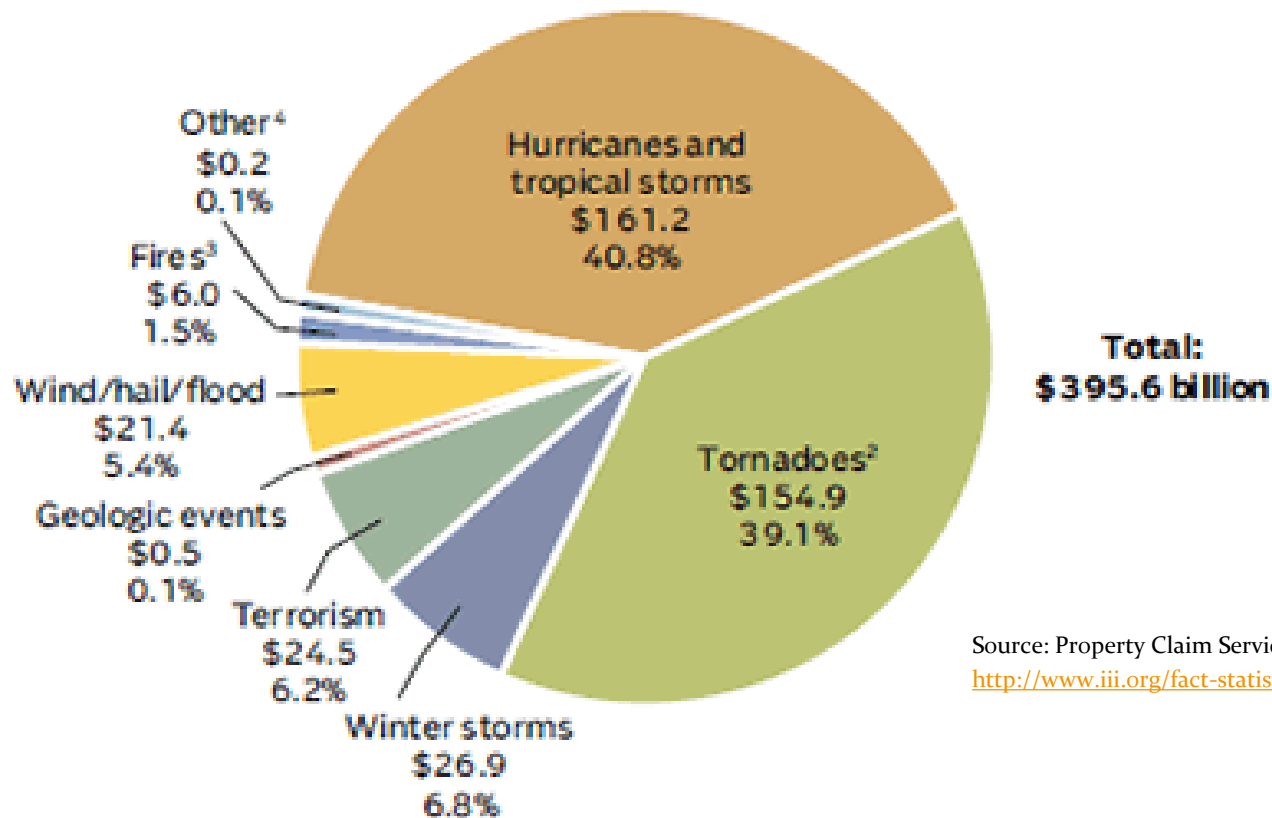
Windstorm losses have been increasing rapidly in recent years. Costs associated with hurricanes are forecast to increase more rapidly than the growth of the economy.²

¹NOAA National Centers for Environmental Information, U.S. Billion-Dollar Weather and Climate Disasters, 1980-2016 <https://www.ncdc.noaa.gov/billions/events>.

²Potential Increases in Hurricane Damage in the United States: Implications for the Federal Budget, CBO, June 2016 <https://www.cbo.gov/publication/51518>.

The Challenge (2/2)

INFLATION-ADJUSTED U.S. INSURED CATASTROPHE LOSSES BY CAUSE OF LOSS, 1995-2014 (2014 \$ billions)



Source: Property Claim Services (PCS®), a Verisk Analytics® business.
<http://www.iii.org/fact-statistic/catastrophes-us>

NWIRP Vision and Mission

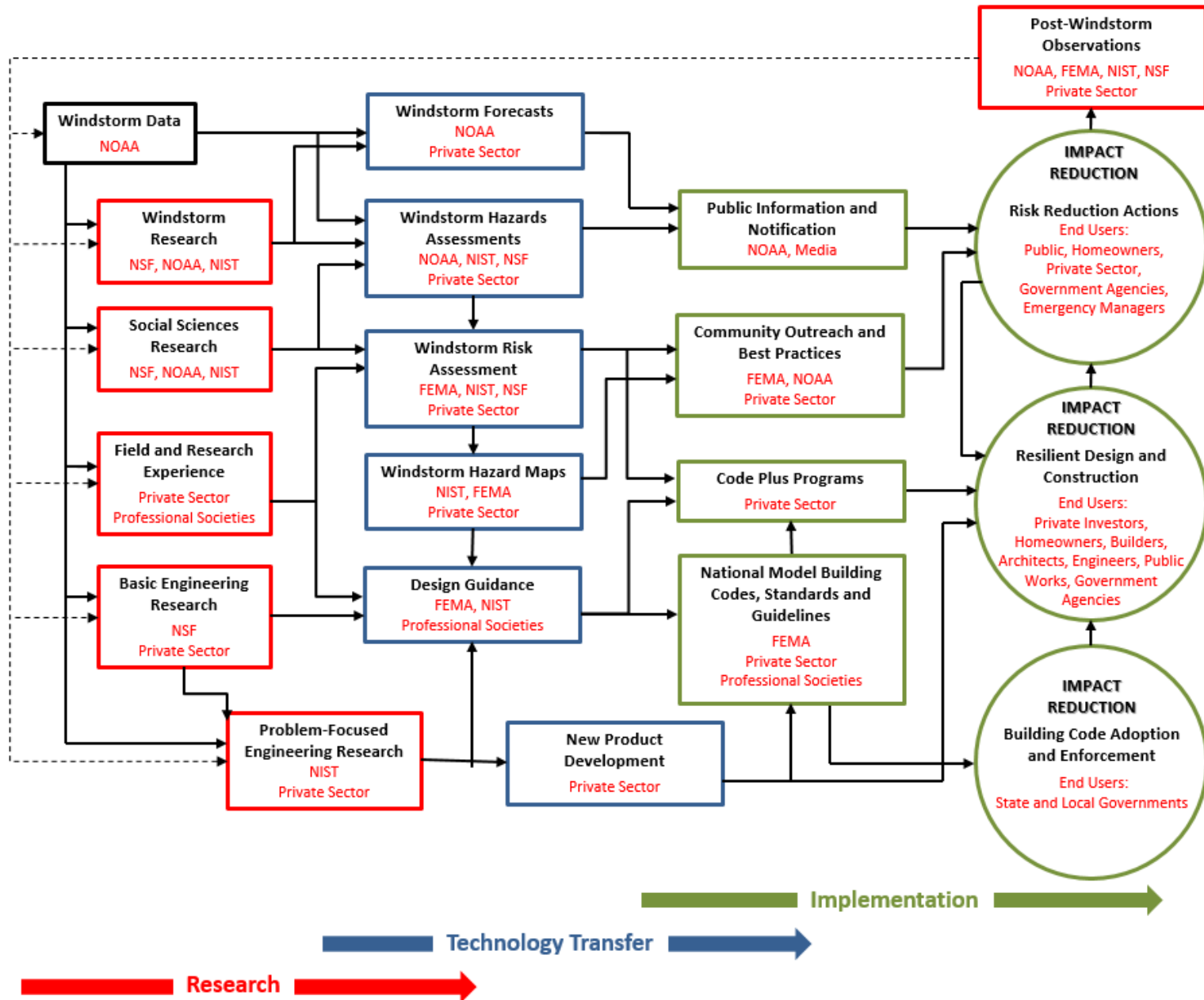
The NWIRP Vision is:

A nation that is windstorm-resilient in public safety and economic well-being.

The NWIRP Mission is:

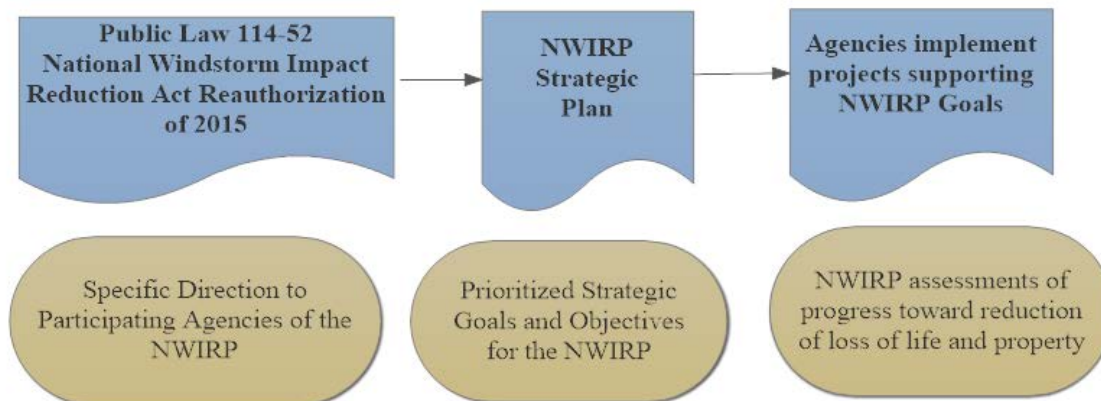
To achieve major measurable reductions in the losses of life and property from windstorms through a coordinated Federal effort, in cooperation with other levels of government, academia, and the private sector, aimed at improving the understanding of windstorms and their impacts and developing and encouraging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

Impact Reduction Process, Participants, and Roles



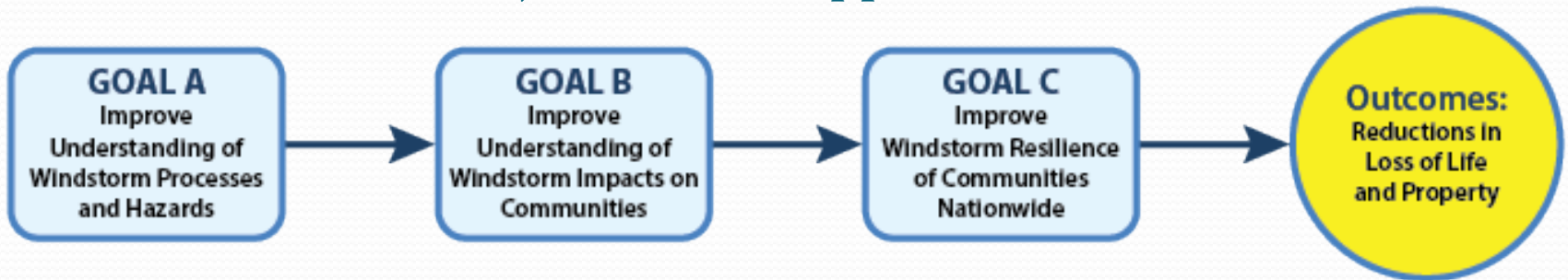
Progress Assessment

- The ultimate success for NWIRP will be the achievement of major reductions in loss of life and property from windstorms.
- An intermediate success measure will be slowing the rapid rate of growth in property losses.
- Developing the data and metrics to better understand and document current losses and improve tracking of future losses is the focus of Strategic Priority 1, including nuances such as consideration of growth in population and wealth.
- NWIRP will assess and report progress through its biennial reports to Congress. The progress reports will include descriptions of Program agencies' activities supporting NWIRP, and information on how these actions have and will continue to contribute to the reduction in loss of life and property.



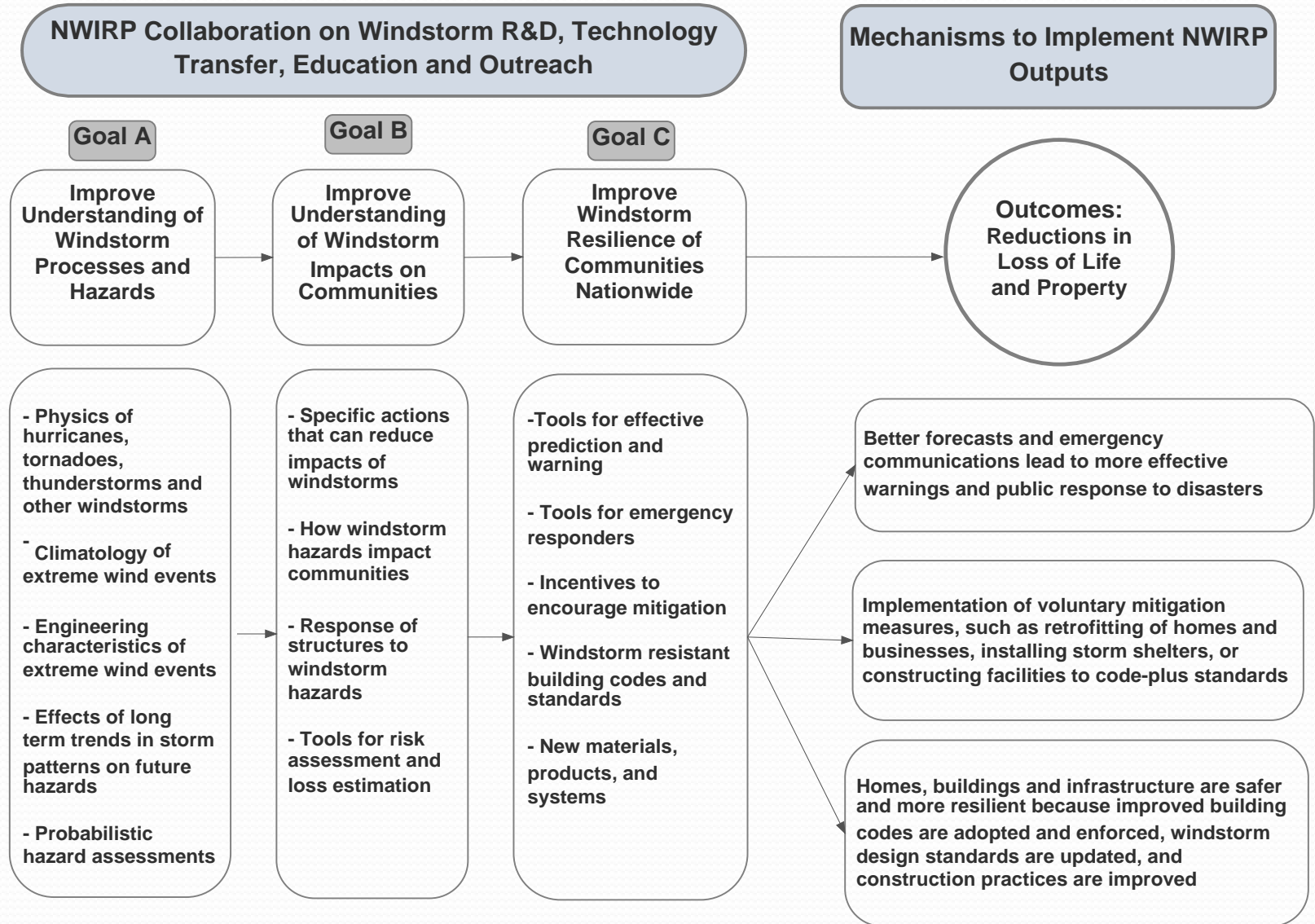
NWIRP Goals and Objectives

- The Plan establishes three overarching, long-term Strategic Goals, with 14 associated objectives, to support the mission



- Implementation strategies and anticipated outcomes for each goal are provided in Chapter 2.
- These Strategic Goals and objectives provide a framework for Program agencies, in collaboration with other Federal agencies, State and local governments, academia and the private sector, to work toward the ultimate objective - reduction of loss of life and property from windstorms.

Linkage between Goals and Outcomes



Goal A. Improve the Understanding of Windstorm Processes and Hazards

- Objective 1: Advance understanding of windstorms and associated hazards
- Objective 2: Develop tools to improve windstorm data collection and analysis
- Objective 3: Understand long term trends in windstorm frequency, intensity, and location
- Objective 4: Develop tools to improve windstorm hazard assessment

Goal B. Improve the Understanding of Windstorm Impacts on Communities

- Objective 5: Advance understanding of windstorm effects on the built environment
- Objective 6: Develop computational tools for modeling wind and flood effects on buildings and infrastructure
- Objective 7: Improve understanding of economic and social factors influencing windstorm risk reduction measures
- Objective 8: Develop tools to improve post-storm impact data collection, analysis, and archival
- Objective 9: Develop advanced risk assessment and loss estimation tools

Goal C. Improve the Windstorm Resilience of Communities Nationwide

- Objective 10: Develop tools to improve the performance of buildings and other structures in windstorms
- Objective 11: Support the development of windstorm-resilient standards and building codes
- Objective 12: Promote the implementation of windstorm-resilient measures
- Objective 13: Improve windstorm forecast accuracy and warning time
- Objective 14: Improve storm readiness, emergency communications and response

NWIRP Strategic Priorities

The Plan Identifies Seven Strategic Priorities

- Priority focus areas for new and enhanced efforts
- Build upon and support elements of all 14 objectives
- Focused areas of foundational research critical to supporting future advances
- Key opportunities for more rapid windstorm impact reduction
- Human resource development in windstorm hazard mitigation

Strategic Priorities and Connection to Program Objectives

SP#	Strategic Priority (SP)	Objectives Supported by SP
SP-1	Develop Baseline Estimates of Loss of Life and Property due to Windstorms	5, 8, 10, 11, 12, 14
SP-2	Obtain Measurements of Surface Winds and Storm Surge Current and Waves in Severe Storms	1, 2, 4, 5, 6, 8, 13
SP-3	Develop Publicly Available Databases of Windstorm Hazards and Impacts	3, 5, 7, 10, 9, 11, 13
SP-4	Develop Performance-Based Design for Windstorm Hazards	10, 11, 12
SP-5	Expand Outreach and Partnerships to Improve Windstorm Preparedness and Hazard Mitigation	7, 12, 14
SP-6	Enhance and Promote Effective Storm Sheltering Strategies	10, 11, 12, 14
SP-7	Develop the Nation's Human Resource Base in Windstorm Hazard Mitigation Fields	All

Summary

- This Strategic Plan was developed by the Program and other WWG agencies with input from the stakeholder community.
- The Plan provides a rational and executable approach for reducing losses of life and property from windstorms in the United States.
- The Program agencies have established three linked, overarching Strategic Goals to support the Program's mission.
- Fourteen objectives and implementation strategies necessary to accomplish these goals are provided, spanning basic research, problem-focused research and development, implementation, education, and outreach.
- Elements of the various objectives are currently supported by the Program agencies, other governmental agencies, academia, and the private sector.
- Seven priority focus areas are identified for new and enhanced efforts.
- The goals, objectives, Strategic Priorities, and implementation strategies of this Plan will serve as guidelines for NWIRP efforts, but NWIRP will also adapt to contingencies and opportunities as they arise.

Summary

- Progress on implementation of this Plan and the rate of Program accomplishment will depend on the level of resources that are available to Program agencies.
- Progress reports will follow the structure outlined in this Plan, reporting on activities supporting the Strategic Priorities and objectives, as well as progress toward anticipated outcomes. This will provide a direct basis for the ICC, NACWIR, and the windstorm stakeholder community to measure Program success.
- The ICC will review the Strategic Plan periodically, and make updates as needed to improve its efficiency and effectiveness.

Summary

- Key to success of NWIRP's mission to achieve major measurable reductions in the losses of life and property from windstorms is active engagement and participation of windstorm stakeholders in implementing the Strategic Plan.
- This broad stakeholder community includes other Federal agencies, state and local government, academia, and large swaths of the private sector, including construction-related industries and businesses, engineering, architecture, insurance, real estate, media, non-profit organizations, and many more.
- Only working together can we overcome the current rapid rate of growth of windstorm losses and realize the vision of a windstorm resilient nation.

NWIRP Strategic Plan Overview

Questions/Discussion