



## Options for Enhancing the Value of the NOAA Weather-Ready Nation Ambassador Initiative



American Meteorological Society  
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**Options for Enhancing the value of the  
NOAA Weather-Ready Nation  
Ambassador Initiative**

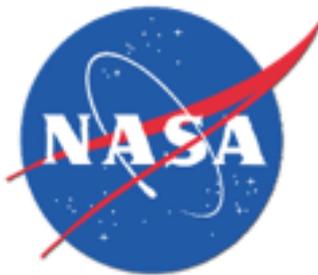
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## **Executive Summary**

The Weather-Ready Nation (WRN) Ambassador™ Initiative is designed to build partnerships across the Weather, Water, and Climate Enterprise and to leverage the community reach of partners in the public, private, academic, and nongovernmental organization (NGO) sectors. As of November 2020, the WRN Ambassador Initiative has more than 11,000 members, with Ambassadors in every U.S. state and territory. A wide assortment of businesses, government entities, school organizations, and nonprofit groups have signed up to be members of the WRN community.

The purpose of this study is to identify options for strengthening the Weather-Ready Nation Ambassadors Initiative while holding true to its original intention: building a more resilient, responsive, and prepared American public. The resulting options include those that would seek to enhance community engagement, training modules and educational programs for Ambassadors, public service campaigns, and means for increasing involvement of end users or members of the communities served by the Enterprise. Some of the options identified were presented in an online survey in the spring of 2020. The options included in the public survey were the Safe Place Selfie Challenge; Training Webinars; WRN Messaging via Marketing Materials, Flyers, Pamphlets, etc.; Joint Events between WRN Ambassadors and Impact-Based Decision Support Services (IDSS) Core Partners; and Expansion and Integration of AMS Local Chapter Events.

The results of the survey show that actively engaged WRN Ambassadors view all five options as both relevant and helpful to the WRN Initiative. In particular, Ambassadors showed a high level of interest in the production of training webinars for Ambassadors, the holding of joint events between Ambassadors and IDSS Core Partners, increased integration of WRN messaging by Ambassadors, and the expansion of AMS Local Chapter events to include partnership with WRN Ambassadors. In addition, the survey responses show that, in the opinion of the survey participants, the above options are viable and would further the goals of the WRN Ambassadors Initiative.

In the spring of 2020, the survey was distributed online and directed to current WRN Ambassadors with the intent of gauging interest in the options presented, and to solicit the survey participants' opinion on the feasibility of each option from an implementation standpoint. The instructions in the online survey made it clear to participants that the options were not being presented in any particular order, or with any ranking of importance. The online survey garnered 50 responses from members of WRN Ambassadors organizations. Participants assessed each option for value and benefit to the

Initiative. Every one of the five options was well received, with each option receiving more than 50% approval. A couple options notably received nearly 100% approval, with participants believing that joint events between WRN Ambassadors and IDSS Core Partners, along with expansion and integration of AMS Local Chapter events, would be “somewhat useful” or “extremely useful” to further the goals of the Weather-Ready Nation Ambassador Initiative.

The five options in the survey were identified through interviews with more than a dozen NOAA employees and NWS partners. All of the people interviewed for this study have a high level of familiarity with the WRN Ambassadors Initiative; some are also members of WRN Ambassadors organizations.

Several other options were identified during the interview process that were not included in the survey. They include designating Weather-Ready Nation “Block Watch Captains”; compiling a formal WRN Certification Program; expanding IDSS Core Partner “Tabletop Exercises” to a broader number of entities, including some WRN Ambassadors; encouraging Ambassadors to get certified as StormReady™ by the National Weather Service; encouraging Volunteer Organizations Active in Disaster (VOAIDs) and Community Organizations Active in Disaster (COAIDs) to consolidate their efforts with Weather-Ready Nation as a point of synergy; and increased outreach to the community via the AMS Weather Band, which launched in the fall of 2020. These options were primarily left off the survey for brevity, in order to have a shorter and more attractive survey. Some of the additional options also require further investigation before being presented in a public survey format. Even so, these options are presented in this study, with any available background and information on the advantages and drawbacks that these options might present for the Weather-Ready Nation Ambassador Initiative.

The resulting options, from the survey and otherwise, can be grouped into two categories. Each category represents a different direction the Initiative could take. One category of options would define WRN Ambassadors as members of an awareness campaign, helping build resilience through public safety messaging and the like. The other category of options, if implemented, would result in WRN Ambassadors becoming bona fide force multipliers for the National Weather Service, working together in the mission to protect American lives and property. Options from each category may ultimately be in the interest of NWS and NOAA if the Initiative continues to grow in numbers and scope.

NOAA’s vision for Weather-Ready Nation is a network of Ambassadors that are woven into the fabric of local, regional, and national communities of decision-makers: “addressing and ensuring awareness, preparedness, and responsiveness to extreme weather, water, and climate events, an essential step for public safety, mitigating property loss, and accelerating recovery efforts after the event (Uccellini and Ten Hoeve 2019).

WRN Ambassadors are expected to “act as force multipliers, not only serving as an example themselves, but also engaging others to know their risk and support informed decision-making.”

**Upon signing up, Weather-Ready Nation Ambassadors are asked to make a commitment to be good stewards of NOAA information in their respective communities.** However, since Ambassadors do not have a mandate to follow through on that commitment (NWS 2021a), the possibility exists that some Ambassadors will sign up and fail to follow through, while still displaying the WRN logo and purporting to be a part of the Initiative. The low bar for entry has been deemed necessary for Weather-Ready Nation to have a large reach and scope, but this does open up the possibility that the WRN designation will not bring any value to the many millions of Americans who rely on NOAA information every day.

The author recognizes that other options may exist that were not identified during the course of this study. The options presented in this study are for informative purposes, and are not intended in any way to be a policy prescription or a suggestion for any specific direction to be taken by NOAA or any other organization.

## **Introduction**

The Weather-Ready Nation (WRN) Ambassador Initiative was launched in 2014 as a key piece in the National Weather Service’s plan to build a more resilient, responsive, and prepared American public, ultimately producing better outcomes from the weather forecast information received by stakeholders and end users. The initiative resulted from a “vital conversation” in December 2011 (NOAA 2012), in the aftermath of one of the deadliest years for tornadoes in United States history. At this meeting in Norman, OK, leaders throughout the Weather, Water, and Climate Enterprise identified more than 25 actions to be taken that would address needs such as better resiliency from severe weather, more collaboration across sectors, improved education and outreach to the public, and more efficient means to disseminate critical hazardous weather messages to the public. The Weather-Ready Nation Ambassador Initiative attempts to address all four of the action items listed above, with the intent of allowing Ambassadors to “act as force multipliers of NWS information to every town, community, and county across the entire United States.... It is through these connective efforts that the NWS works to build a Weather-Ready Nation and realize its mission of saving lives and property while enhancing the nation’s economy” (Uccellini and Ten Hoeve 2019).

Building a Weather-Ready Nation requires all members of the value chain to play their role effectively and efficiently. NOAA’s Impact-Based Decision Support Services (IDSS) Initiative has made big strides toward this goal by engaging core partners to disseminate hazardous weather, water, and climate information to local stakeholders and end users. NOAA’s WRN Ambassadors is another initiative working toward this goal, with NOAA providing members of the Ambassador community with educational tools and by engaging with Ambassadors to communicate information on preparedness and resilience for hazardous weather, water, and climate events.

Since its inception in 2014, the WRN Ambassadors Initiative has grown to include more than 11,000 organizations in the United States and its territories. WRN Ambassadors come from every sector of the American economy: for-profit companies (both privately held and publicly traded); government organizations at the local, state, and national level, including the Armed Forces; academic institutions; and nongovernmental organizations (NGOs). They range in size and scope widely, from small community businesses with just a few employees to multinational corporations. Some Ambassadors are retail stores, while others are faith congregations, emergency management authorities, transit providers (both public and private), school groups, and many others. In fact, most Ambassador organizations are not weather forecast providers, and many member organizations are not directly involved in the Weather, Water, and Climate Industry. Organizations apply

to become WRN Ambassadors by submitting basic information, such as the name of the organization and an email address. Applicants also commit to perform certain actions:

- 1) promote Weather-Ready Nation messages and themes (use of communications toolkits as appropriate) to stakeholders,
- 2) engage with NOAA personnel on potential collaboration opportunities,
- 3) share success stories of preparedness and resiliency with NOAA, and
- 4) serve as an “example” by educating employees on workplace preparedness and encouraging personal preparedness at home (NWS 2021a).

In return, approved applicants receive a “toolkit” of information and a digital copy of the WRN logo to use in the Ambassador organization’s marketing materials. However, the commitment made by WRN Ambassadors is arbitrary, and NOAA lacks the resources for monitoring and enforcement of the terms and conditions.

**The limited commitment required for becoming an Ambassador encourages the creation of a large, nationwide community. The National Weather Service utilizes its partnerships with WRN Ambassadors to further its goals of reducing loss of life and property.** This study endeavors to identify more options for partner engagement to help further the goals of the Initiative. Options include methods to increase interaction with the community, awareness campaigns in various mediums, training modules, and virtual and in-person events. The options presented in this study, if implemented, would require varied levels of commitment of both time and money. This commitment could come from Ambassador organizations, and possibly from NOAA as well.

This study included a publicly available online survey, which was distributed publicly to current Weather-Ready Nation Ambassadors. After general demographic questions, the survey presented five options. Each option was presented with a high-level overview of a potential initiative for the WRN Ambassador Initiative. Survey participants were asked to assess the feasibility of each option, and the potential for the option to benefit WRN by furthering its goals. The survey was created via Survey Monkey and was distributed online via email, social media posts, and AMS communication platforms. In total, 50 individuals participated in this section of the survey and provided feedback on each option.

Other options were discovered through interviews with NOAA staff, AMS staff, and NWS partners. These other options that were not included in the survey are listed, along with a discussion about the viability and potential challenges of each, in the “Other Options” section of this study.

This study aims to identify options that NOAA’s Weather-Ready Nation Ambassador Initiative may wish to pursue. No intent is made to rank, bias, or give any other kind of

value judgment to any of the options presented, regardless of whether a particular option was included in the survey. The options presented, however, have been identified and presented in this study because they meet at least one of the stated goals or purposes of the Initiative—as stated on the WRN website and in conversations with NOAA employees actively involved with either Weather-Ready Nation, Impact-Based Decision Support Services, or both.

The bulk of this study was conducted before and at the initial onset of the COVID-19 pandemic in the United States. The one-on-one interview portion of this study began in October 2019. Options were identified and vetted for inclusion in the survey during the winter of 2019/20, before the spread of the virus had led to a structured response from U.S. governmental organizations and subsequent modifications to daily American life. We moved forward with the survey as scheduled in April 2020, as many of the options in this study can easily adhere to CDC guidelines during the pandemic, and some require no modification at all. An effort is made in this study to recognize the potential long-lasting impacts of the pandemic on each option.

## **Options for the Weather-Ready Nation Ambassadors Initiative**

This study has two main phases. The first phase consists of information-gathering interviews—in person, via email, and over the phone—with NOAA employees and other key stakeholders in the Weather, Water, and Climate Enterprise. This interview process produced many of the options that were explored in the next phase, which is the survey described below. The interview process also helped to determine which options should be included in the survey. The goal was to distribute the survey as broadly as possible. The WRN Ambassadors survey was initially published and made available via the AMS Soundings email on 1 April 2020. We subsequently distributed the survey via several methods in order to increase its visibility. It was included as a link in several social media posts, including multiple posts on Facebook, LinkedIn, and Twitter. It was also advertised on the AMS Community’s Open Forum (AMS 2021c). Finally, we sent emails to more than 100 key stakeholders within the Weather, Water, and Climate Enterprise. The survey was live for a total of 35 days; it was taken offline on 5 May 2020.

In total, we received 60 responses. Not all 60 respondents continued past the initial three questions of basic demographic information. Since the number of respondents varies per option, each one is broken down to show the total number of responses, not just the percentages.

No information was collected from the respondents beyond the basic demographics of organization type, organization size, and geographic region. Also, responses may have

been received by more than one person from the same organization, so there is no way to know the definite number of organizations represented in the survey. However, the demographic information indicates that survey respondents represent a broad swath of the Weather, Water, and Climate Enterprise.

Type of organization:

- 15 responses from the media
- 8 responses from government organizations
- 7 responses from private weather forecasting companies
- 7 responses from weather-related service providers or vendors
- 4 responses from schools or school clubs/groups
- 3 responses from nongovernmental organizations (NGOs)
- 2 responses from private companies that do not provide weather-related services
- 2 responses from emergency managers
- 10 responded with “other”
- 2 provided no response
- 0 from faith congregations

United States geographic region:

- 20 responses from the Northeast and Mid-Atlantic
- 10 responses from the Upper Plains
- 9 responses from the Southeast
- 6 responses from the Southern Plains
- 6 responses from the Rocky Mountains
- 4 responses from the Pacific Coast
- 2 Nationwide respondents
- 2 provided no response

Size of organization:

- 13 responses from organizations with fewer than 10 people
- 30 responses from organizations with 10–100 people
- 7 responses from organizations with 100–1,000 people
- 8 responses from organizations with over 1,000 people
- 2 were unsure or preferred not to respond

The next section of the survey consisted of curated options, which NOAA could potentially pursue for the WRN Ambassador Initiative. Five options were presented, in no particular order, to survey participants. These options were identified during the information gathering and interview process in the initial phase of this study. The options presented to survey participants were selected because they were determined by interview subjects to be feasible for implementation and potentially beneficial to further the goals of the Weather-Ready Nation Ambassador Initiative. The purpose of the survey was to gain

insight and gauge interest from current members of the Initiative, and to see if they assess the options as feasible and beneficial.

Each option was presented in the same way with the following suite of questions:

- *How much does this option interest you?*
- *How applicable is this option to your organization?*
- *How beneficial is this option to furthering the goals of the WRN Ambassador Initiative?*

Each question had a scale with 4 options, labeled with radio buttons:

- *Not at all*
- *Not really*
- *Somewhat*
- *Extremely*

Additionally, respondents could choose to abstain from answering with a radio button.

The following section includes the feedback gained from each option presented in the survey.

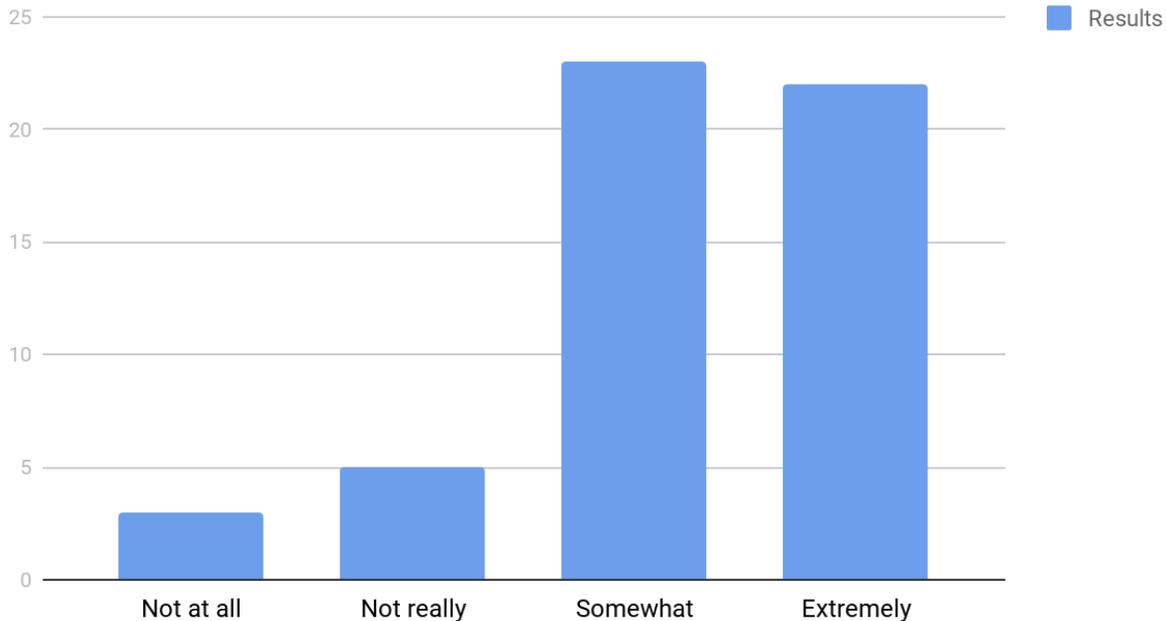
### **Safe Place Selfie Challenge**

The Weather-Ready Nation's Annual "Safe Place Selfie" Day takes place in early April. In 2020, Safe Place Selfie Day was on Wednesday, 8 April. On this day, all citizens are encouraged to share their Safe Place at 11:11 a.m. on social media using the hashtag #SafePlaceSelfie. Safe Places include tornado shelters, higher ground in the case of flooding, even a spot on the beach in close proximity to lifeguards. Due to the COVID-19 pandemic, NOAA included CDC guidance in its instructions for participation in Safe Place Selfie Day 2020.

The Safe Place Selfie Challenge would take the concept a step further by creating a contest, encouraging citizens to get creative and competitive in finding their place of resilience from weather, water, and climate hazards. Prizes could be awarded by region, organization type, or some other parameter. WRN Ambassador organizations can assist by sharing information about the campaign and by participating in the campaign themselves.

36 of the 54 respondents (67%) were either "somewhat" or "extremely" interested in this option. 17 respondents (31.5%) were either "not really" or "not at all" interested. 34 of the respondents (63%) found this option applicable to their organization, and an overwhelming majority (45 respondents, or 83%) said the Safe Place Selfie Challenge would be either somewhat or extremely beneficial to furthering the goals of the WRN Ambassador Initiative.

## How Useful Would This Option Be?



Survey participants said that the Safe Place Selfie Challenge would be great for schools and school groups, and that the Challenge could be utilized to educate the public about climate change. The reaction was mixed from those in regions of the country where severe weather is less common. One participant noted that this initiative could help increase awareness of severe weather; even though it is less frequent in their region, it is still important to be prepared. Others noted that the Challenge may not be as applicable in regions of the country that are not as susceptible to severe weather, and that a lighthearted act such as taking a selfie might diminish the importance of being prepared for severe weather in the minds of some Americans. Another survey participant noted that privacy concerns may arise from the Safe Place Selfie Challenge.

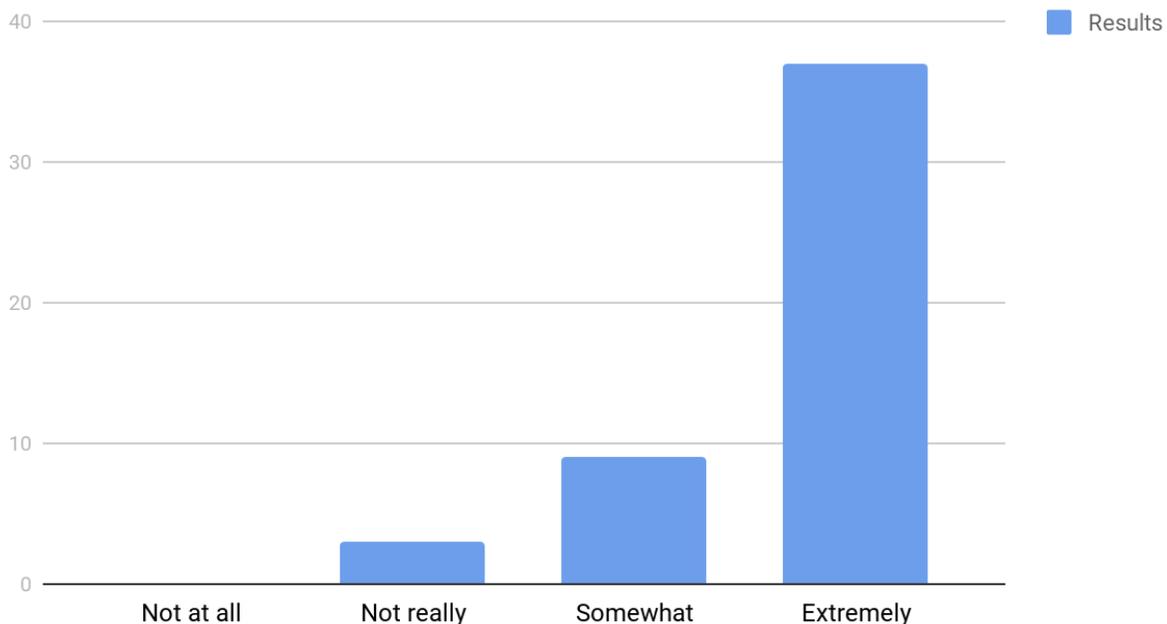
### **Training Webinars**

NWS personnel and/or qualified personnel from WRN Ambassadors and IDSS deep relationship Core Partners (Edwards 2019) create and host periodic webinars for other members of the WRN Ambassador Community. Webinars would be seasonally relevant, such as the start of hurricane season, and would not be hosted in anticipation of a particular hazardous weather, water, or climate event. Webinars would be optional to attend. Since webinars are online, the COVID pandemic would not be an impediment to organizing such an event.

This option resonated strongly with many participants; 30 were “extremely” interested and 13 were “somewhat” interested, for a total of 43 participants (86%) showing interest in the concept.

44 survey participants (88%) found the concept of training webinars either somewhat (14) or extremely (30) applicable to their organization, and 46 respondents said these webinars would be somewhat (9) or extremely (37) beneficial to the WRN Ambassador Initiative.

### How Useful Would This Option Be?



Survey participants provided constructive feedback for this option. Though the overwhelming majority find that training webinars would be beneficial to building a Weather-Ready Nation, one respondent cautioned against competing with private companies that already produce these training materials. Another respondent suggested making the webinars interactive, so those in attendance can ask questions in real time, while another participant commented that the webinars should be archived so they can be accessed by those unable to attend live and for future reference by other Ambassador organization members.

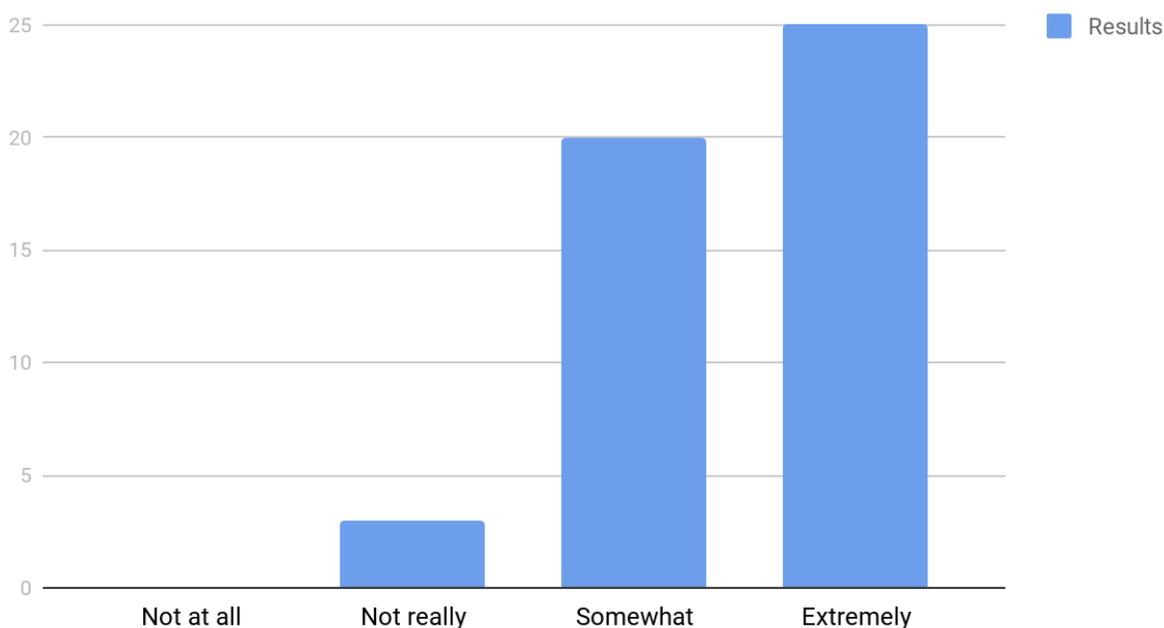
### **WRN Messaging through Organizational Advertisements, Packaging, Signs, etc.**

Ambassadors that are for-profit companies, especially those that sell consumer goods, can incorporate WRN messaging into products they already offer, such as storm safety kits, or on the company’s marketing materials. Nonprofit WRN Ambassadors, such as faith

congregations and emergency management organizations, can incorporate WRN messaging into weekly bulletins, email newsletters, and the like.

40 survey participants (81.6%) were either somewhat (22) or extremely (18) interested in this option. 35 respondents (71.4%) felt that it is at least somewhat applicable to their organization (15 and 20, respectively). An overwhelming majority of respondents (45, or 92%) thought this option would be somewhat (20) or extremely (25) useful to further the goals of the WRN Ambassador Initiative.

### How Useful Would This Option Be?



Once again, survey participants commented that a Weather-Ready Nation messaging campaign would be effective for schools and school groups. Others commented that this option has a lot of potential, and that a lot of opportunities exist for implementing this option. Another participant expressed an interest in seeing more catchy slogans, such as “Turn Around, Don’t Drown” and “When Thunder Roars, Head Indoors,” which resonate with citizens and increase awareness of safety actions.

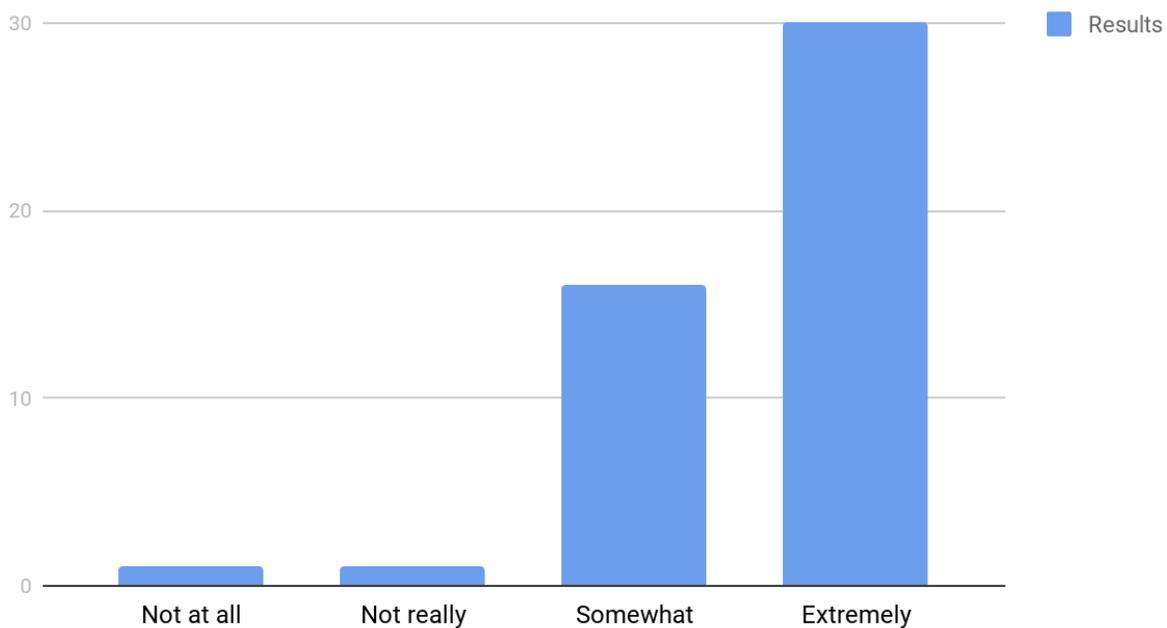
### **Joint Events between WRN Ambassadors and IDSS Core Partners**

IDSS Core Partners, such as emergency managers and/or media partners, team up with other WRN Ambassadors in their community to provide an educational event for the public. A large parking lot, a church hall, or a community park would be an ideal low-cost or free venue for such an event. Items such as informational flyers or storm safety materials could be available for free or for purchase. Virtual events could also be successful for joint partnerships, since both entities would not have to be in the same

place, and a virtual event eliminates the need to adhere to CDC guidelines for safe distancing and the like.

41 survey participants, or 83.6%, were somewhat (13) or extremely (28) interested in this option. 40 participants found this option applicable to their own organizations, and an overwhelming majority of respondents (46, or 94%) think this option would be beneficial to the Weather-Ready Nation program. Only 2 respondents thought it would not be beneficial.

### How Useful Would This Option Be?



This option also prompted a good deal of constructive feedback. More than one survey participant pointed out that WeatherFest (a free, family-friendly event hosted by the AMS during its Annual Meeting) is a successful event that already follows the general format outlined in the Joint Events description; perhaps WeatherFest can serve as a template or guidance for other, smaller joint events around the country and throughout the year.

Another participant urged that issues of separation between church and state are taken into consideration when planning joint events involving a faith congregation and a government entity.

One survey participant mentioned the possibility of holding these joint events in an online format, especially due to the uncertainty surrounding in-person events due to the COVID-19 pandemic. This suggestion brings to mind the training webinar option described in an

earlier question of the survey. Perhaps the concept of training webinars can be expanded to include online events, which would be geared toward a more general audience.

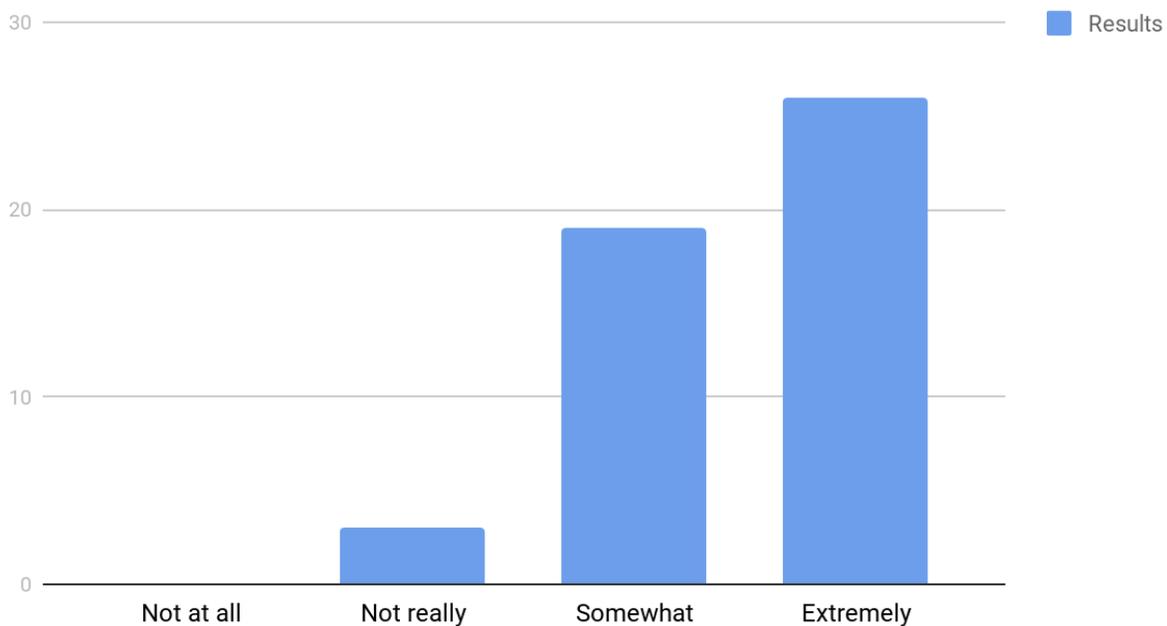
### **Expansion and Integration of AMS Local Chapter Events**

In this scenario, each local and student chapter of the AMS would be required to have at least one WRN Ambassador outreach event every year. Virtual events could meet the requirement. Student and local chapters can combine their efforts for joint events.

Of the 49 survey respondents, 21 were somewhat interested and 18 were extremely interested in this option; 79.6% had at least some interest. 36 respondents (73.4%) found this option at least somewhat applicable to their organization.

45 respondents, or 92%, thought this option would be useful to the Weather-Ready Nation program; only 3 found it “not really” useful and zero survey participants thought it would not be useful at all.

#### How Useful Would This Option Be?



This option produced general positive feedback. Four survey participants took the time to give their support in the optional comment section, but they were not specific as to the reason or reasons that AMS local chapter events are appealing. One survey participant mentioned that high school science fairs might provide an opportunity for a joint partnership.

The final section of the WRN Ambassador feedback survey allowed participants to offer any other comments or ideas that they had not yet shared.

One participant mentioned that a frequent email newsletter would be beneficial to engage current members of the WRN Ambassador network. The participant remembers a WRN newsletter as a feature that had been offered in the past, and would like to see it revived. Another participant suggested recruiting K–12 teachers to become WRN Ambassadors. Since the Ambassador network is composed of organizations instead of individuals, perhaps this idea could be translated to recruiting teachers to engage their own schools and/or school districts as WRN Ambassadors. Graduates of the DataStreme programs, Project Atmosphere and Project Ocean (formerly known as the Maury Project), and recipients of the recently introduced Certified AMS Teacher (CAT) certification (AMS 2021b) would be prime candidates for this type of engagement.

## **Other Options**

This study produced several other options that were not investigated in the online survey. These options were identified via interviews with NOAA staff members, AMS staff members, and key stakeholders in the Weather, Water, and Climate Enterprise. This section provides an overview of these other options, including the potential challenges and opportunities of each option as identified during the interview process.

### **WRN “Block Watch Captains”**

The National Neighborhood Watch Program is familiar to many Americans, many of whom may know a “Block Watch Captain” who serves as a point person for disseminating information about crime in their immediate area. This concept would be applied to Weather-Ready Nation, with a “captain” serving as a megaphone for important weather, water, and climate information in their neighborhood.

One possibility is to introduce the “Block Watch Captain” concept to members of the AMS Weather Band, who by nature of club membership are more likely to have interest in participating in such a community effort [see the “Outreach via the Weather Enthusiast Club (AMS Weather Band)” section below].

This initiative would have several hurdles to clear before implementation, including finding volunteers and acquiring the resources to train them. Perhaps, if NOAA chooses to pursue this option, a few pilot programs could provide insight on the initiative’s feasibility and efficacy.

This option was not explored in the survey because the concept requires further investigation and research. The success of the National Neighborhood Watch program

lends credence to the idea that this concept might be successful within the WRN Ambassador program, and thus is offered as an option in this study.

### **Weather-Ready Resilience Contest**

In this scenario, NOAA or an approved partner, like the AMS, holds an annual contest to cull ideas from the public on improving community resilience to weather, water, and climate events. A contest could be scaled in both time and space (for instance, if resources allow, the contest could have regional winners or it could be semiannual or seasonal instead of annual), or contest participants could be divided by sector, such as private companies or public schools.

This option provides the opportunity to utilize WRN Ambassador organizations as partners, or perhaps even sponsors, in order to incentivize contest participation with a valuable prize. The contest could be utilized to solicit ideas from a diverse field with many different experiences outside of the core Weather, Water, and Climate Enterprise. Ideas would also potentially come from a variety of businesses and industries, geographic communities, education levels, and so on. In short, a contest might attract the attention of people who would not normally be thinking about resiliency in their household or their community. A contest would also provide a new opportunity for some current WRN Ambassadors, such as local AMS Chapters or school groups, to engage in the WRN Initiative.

However, this option has the potential to be time-consuming and expensive. It would be especially time-consuming to initially launch, as will be the time period when judges are selected and the contest is advertised. After initial launch, a contest would require an ongoing commitment from judges, sponsors, and/or prize providers. Without a sponsor or grant funding, this option is prohibitively expensive for the WRN Initiative.

### **Formal WRN Certification Program**

If the Weather-Ready Nation Ambassador Initiative is to become a bona fide force multiplier for the National Weather Service, each Ambassador organization will need to make a strong commitment to understanding the potential weather, water, and climate hazards of their community, and they must also commit to use NWS and NOAA information effectively. To that end, a formal certification or training may be necessary, especially since WRN Ambassadors are not required to have underlying knowledge of Earth science to sign up.

Unlike the training webinar option in the survey, this would be a mandatory protocol for all WRN Ambassador organizations. Training could be administered through webinars and/or other online resources to allow for maximum flexibility. A formal certification could be granted to WRN Ambassadors who pass an online quiz following their training. At least one person within each organization would be required to stay current with WRN

information, and to disseminate information further throughout their organization, in order to maintain certification.

This concept certainly has merits for producing better-informed Ambassadors, who could then in turn share the information they learned with their customers, parishioners, community members, etc. However, it has significant barriers and limitations:

- Maintaining and verifying certification for each organization would be a challenge if at least one person is required to undergo the training process. For large companies, retail stores with many locations, and businesses that operate around the clock, just one person is probably insufficient to ensure the WRN Ambassador organization is prepared and informed. In addition, the person who received the training may leave the Ambassador organization without handing over the associated knowledge and duties of this responsibility.
- Formal training and certification would be a significant uptick in commitment from the current WRN Ambassador Initiative. It is unknown how many organizations would choose to leave the program in favor of undergoing a more rigorous protocol. Interviews with NOAA personnel indicate that they believe this would be detrimental to the success of the Initiative.
- Formal training and certification may also be unrealistic from NOAA's perspective, as hosting such a program would be a significant increase in time, workforce, and material commitment.
- If a training and certification process is feasible, perhaps it could be optional. Certified Ambassadors would be fewer in number, but would be bona fide force multipliers, like IDSS core partners.

### **Expansion of IDSS Core Partner “Tabletop Exercises”**

IDSS core partners currently participate in tabletop exercises with NOAA staff as a sort of “fire drill” to increase preparedness for likely hazards. These exercises have proven to enhance preparedness for and resilience to weather, water, and climate events. In this scenario, IDSS core partners would in turn share the skills and information gained in these exercises with select WRN Ambassadors in their respective communities.

This ensures WRN Ambassadors are getting good, actionable information they can confidently share with customers, parishioners, or whomever they serve. IDSS core partners, many of whom are emergency managers, would in turn benefit from a public that is better informed and better prepared.

However, this expansion would require time and money that perhaps is not available. IDSS core partners may not have the free time to conduct extra exercises, and costs could be incurred from overtime, room rental(s), and/or cost of materials. Also, not all communities in the United States have WRN Ambassadors who are willing and able to participate. Finally, the current database of Ambassador organizations would have to be

updated to include location information, so IDSS core partners could be paired with Ambassador organizations nearby.

If formal training is incorporated into the current WRN Initiative, perhaps only certified Ambassadors would be allowed to participate in such activities with IDSS core partners (see the “Formal WRN Certification Program” section above).

### **Encouraging Current WRN Ambassadors to Become Certified as StormReady**

NOAA’s StormReady certification program (NWS 2021b) is targeted at emergency management and local governments and government entities, such as school districts. Those who have achieved the StormReady certification have been assessed by the National Weather Service as having the necessary knowledge, tools, and skills to facilitate resilience and recovery in the event of a weather, water, or climate hazard. Though the program is voluntary, it requires a higher level of commitment than the current WRN Ambassador model, and this is one of the reasons the NWS is purposefully selective as to who can apply for certification. In this scenario, NOAA expands certifications by making other organizations that serve the public, including a larger number of WRN Ambassadors, eligible to apply.

Expanding the StormReady program would require a larger allocation of NOAA resources, perhaps prohibitively large, since achieving certification requires a visit from NWS staff and local emergency management. This would have to be heavily considered before expanding StormReady to WRN Ambassadors outside of the IDSS deep relationship core partner category.

### **Collaboration and Consolidation of Efforts**

Volunteer Organizations Active in Disaster (VOAIDs) and Community Organizations Active in Disaster (COAIDs) consist of large, nationwide organizations like the American Red Cross and many smaller community organizations, nonprofits, and NGOs around the country (National Voluntary Organizations Active in Disaster 2021). Currently, many of these organizations provide disaster preparedness information to the public independent of each other, even though some of the organizations are current WRN Ambassadors (NWS 2021c). This siloed structure could lead to inefficiency and redundancy of resources. It could also lead to uneven distribution of resources across geographic or demographic areas.

If all (or at least more) of these organizations were aware of the work being done by their contemporaries, it could help limit redundancy, improve efficiency, and increase allocation of resources in the areas of greatest need. Stronger communication between these organizations could also lead to more cohesive messaging, which leads to a better informed and better prepared public (ScienceDaily 2017). Since these organizations

already bind together in a cohesive unit under the labels VOAID and COAID, the structure already exists to easily distribute Weather-Ready Nation messaging cohesively through these groups.

Some are small, community-based volunteer organizations, while others are nationwide with the backing of taxpayer funds and/or large donations. Any streamlining efforts would have to be heavily coordinated, perhaps by a third party. In addition, all participants would need to benefit from a partnership to ensure all remain viable and financially solvent. This also ensures that the end users, the American public, see a benefit to these consolidation efforts.

This option was not included in the survey because it does not lend itself well to general feedback. It is included in this study as an option for NOAA's consideration.

### **Outreach via the Weather Enthusiast Club (AMS Weather Band)**

The new AMS enthusiast club, called AMS Weather Band, was launched in the fall of 2020 and has the potential to draw a large number of members. While members of the Weather Band typically will not be employed in the Weather, Water, and Climate Enterprise, they are very interested in weather and more engaged in the Enterprise than the general public. This provides an opportunity to disseminate WRN materials to a much broader audience. Members of the AMS Weather Band may, in turn, share educational materials and other WRN information further to members of the public who otherwise would not receive such information. In addition, the AMS Weather Band would be eligible to become a Weather-Ready Nation Ambassador organization.

Since an affiliation with Weather-Ready Nation was not the original intent of the enthusiast club, some members may not be interested in WRN-related materials and/or programming, and it is possible this could be detrimental to the club's success. Without a formal organizational structure, no one leader(s) of the club is charged with making decisions on behalf of the membership. A possible solution is to poll the membership of the AMS Weather Band to see if they favor becoming a WRN Ambassador and/or participating in WRN outreach.

## **Conclusions**

This study provides myriad options to enhance and strengthen the Weather-Ready Nation Ambassador Initiative. Some require little to no capital investment, while others could draw upon the resources of the WRN Ambassador community to produce funding and materials. If effective, this study will further the National Weather Service's goals of promoting community resilience and protecting citizens' lives and property.

Each option outlined in the study would require at least a nominal investment of human resources from NOAA. Properly trained WRN Ambassadors can further NOAA's mission

by demonstrating economic value, as a better informed and more resilient public will incur less human and economic loss in the wake of a hazardous event. Strengthened partnerships will also lead to better decision support from the National Weather Service to its IDSS Core Partners.

The Weather-Ready Nation Ambassador Initiative could function well as an awareness-building campaign. **WRN programming and messaging may not directly save lives, but raising awareness of weather, water, and climate hazards can indirectly protect life and property.** Options that focus on building awareness of hazardous weather, water, and climate events have the potential to lead to a better informed and more resilient public.

Most, if not all, of the options outlined in this study serve the purpose of implementing directives laid out in the Weather Research and Forecast Innovation Act of 2017 and subsequent reauthorization in 2019 (115th Congress 2017), including

- 1) comprehensive engagement and collaboration with the U.S. Weather, Water, and Climate Enterprise, including government agencies, private industry, academia, the research community, and nongovernmental organizations;
- 2) infusion of social science into impact-based decision support services; and
- 3) establishment of mechanisms to facilitate interagency coordination.

Several options align with NOAA's 2019–2022 Strategic Goals (NWS 2019):

- 1) *Transformative IDSS*: The options presented have the potential to “increase understanding of society’s needs and provide targeted outreach and education to ensure public awareness, understanding, preparedness, and responsiveness to extreme weather events.”
- 2) *Workforce for the Future*: As NOAA continues to emphasize improved outcomes, the options presented in this study have the potential to help NOAA staff members hone the “skills (needed to) meet evolving mission needs, with outreach and strategies to improve the recruitment and retention of the best available talent.”
- 3) *NWS Partners*: The 2019–2022 Strategic Plan calls for an expansion of “deployment-ready staff certified to support major events in collaboration with local and regional partners and across NOAA; and formalize knowledge transfer systems to sustain mission operations.” The options presented in this study could help increase knowledge of weather, water, and climate hazards among end users and decision-makers in communities across the country.
- 4) *Transforming Cross-NOAA Capabilities*: The options presented in this study could utilize partnerships with WRN Ambassadors in order to “improve effectiveness, transparency and customer service.”

Many WRN Ambassadors are not professional meteorologists and do not have any formal education in weather or in emergency management. However, through this unique

partnership with the National Weather Service, WRN Ambassadors can be utilized to play a bigger role in the value chain than they do today. This partnership has the potential to help the NWS achieve its goal of building a Weather-Ready Nation. This study identifies and examines a range of options that might empower ambassadors by providing more educational materials, training opportunities, and mechanisms to support and encourage Ambassador contributions to this mission.

## References

115th Congress, 2017: Weather Research and Forecast Innovation Act of 2017, H.R. 353, <https://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title15-chapter111&saved=%7CZ3JhbnVsZWlkOlVTQyoyMDE3LXRpdGxlMTUtc2VjdGlvbjg1MTI%3D%7C%7C%7C%7Cfalse%7C2017&edition=prelim>.

AMS, 2021a: About the Policy Program.

<https://www.ametsoc.org/index.cfm/ams/policy/about-the-policy-program/>.

AMS, 2021b: Certified AMS Teacher Program (CAT).

<https://www.ametsoc.org/index.cfm/ams/education-careers/careers/ams-professional-certification-programs/certified-ams-teacher-program-cat/>.

AMS, 2021c: AMS Community. <https://community.ametsoc.org/home>.

Edwards, K., 2019: Impact-Based Decision Support Services. National Weather Service Policy Directive 10-24, NOAA/NWS, 19 pp.,

<https://www.nws.noaa.gov/directives/sym/pdo1024curr.pdf>.

National Voluntary Organizations Active in Disaster, 2021: About us.

<https://www.nvoad.org/about-us/>.

NOAA, 2012: Weather-Ready Nation: A Vital Conversation on Tornadoes and Severe Weather. Community Rep., 20 pp.,

<https://www.weather.gov/media/ooe/WRN%20Weather%20Ready%20Nation%20A%20Vital%20Conversation%20on%20Tornadoes%20and%20Severe%20Weather%20Nor%20man%20OK%20032912.pdf>.

NWS, 2019: Building a Weather-Ready Nation: 2019–2022 strategic plan. NWS Rep., 28 pp., [www.weather.gov/media/wrn/NWS\\_Weather-Ready-Nation\\_Strategic\\_Plan\\_2019-2022.pdf](http://www.weather.gov/media/wrn/NWS_Weather-Ready-Nation_Strategic_Plan_2019-2022.pdf).

NWS, 2021a: Welcome to the WRN Ambassador Submission Process.

<https://www.weather.gov/wrn/amb-tou>.

NWS, 2021b: NWS StormReady Program. <https://www.weather.gov/stormready/>.

NWS, 2021c: List of current Weather-Ready Nation Ambassadors.

<https://www.weather.gov/wrn/current-ambassadors>.

ScienceDaily, 2017: Improving public safety in face of extreme weather and disasters. ScienceDaily, 1 November, [www.sciencedaily.com/releases/2017/11/171101130322.htm](http://www.sciencedaily.com/releases/2017/11/171101130322.htm).

Uccellini, L. W., and J. E. Ten Hove, 2019: Evolving the National Weather Service to build a Weather-Ready Nation: Connecting observations, forecasts, and warnings to decision-makers through impact-based decision support services. *Bull. Amer. Meteor. Soc.*, **100**, 1923–1942, <https://doi.org/10.1175/BAMS-D-18-0159.1>.

