

FINAL REPORT

# Support for the Hazard Simplification Project Phase V: Findings and Recommendations from the Remote Focus Groups

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# Introduction

The National Weather Service (NWS) Hazard Simplification (“Haz Simp”) project is assessing the strengths and weaknesses of the nation’s Watch, Warning, and Advisory (WWA) system and exploring possible improvements to support public and partner preparation and response to weather and water hazards. To achieve this goal, the Haz Simp team has conducted a variety of social and behavioral science engagements with NWS forecasters, partners, and the public. This research has led to a core proposal for change (see Figure 1) that involves the following:

- Using two headline terms (Watch and Warning) to raise the flag that a significant life and property-threatening event is either possible or happening, while dropping the Advisory term from the system.
- Streamlining the system by discontinuing the headlines Special Weather Statement (SPS) and “Short Term Forecast” (also known as NOWcast).
- Replacing all current NWS products that do not reach the Watch or Warning level with a plain language headline statement. These statements would use a "What, Where, When, Impacts" (3W) bulleted format.
- Equipping the plain language statements with machine-readable Valid Time Event Code (VTEC). This also means that current SPSs would contain VTEC, which they do not currently have.

Current - Winter Weather Advisory	Proposed
<pre>URGENT - WINTER WEATHER MESSAGE National Weather Service Boise ID 140 PM MST Tue Dec 17 2019  IDZ011-033-180600- /O.NEW.KBOI.WW.Y.0026.191219T1200Z-191220T1200Z/ West Central Mountains-Upper Weiser River- 140 PM MST Tue Dec 17 2019  ...WINTER WEATHER ADVISORY IN EFFECT FROM 5 AM THURSDAY TO 5 AM MST FRIDAY...  * WHAT...Snow expected. Total snow accumulations of 4 to 6 inches, except up to 8 inches over the mountains.  * WHERE...West Central Mountains and Upper Weiser River zones.  * WHEN...From 5 AM Thursday to 5 AM MST Friday.  * IMPACTS...Plan on slippery road conditions.  PRECAUTIONARY/PREPAREDNESS ACTIONS...  Slow down and use caution while traveling.  The latest road conditions can be obtained by calling 5 1 1.</pre>	<pre>Winter Weather Message National Weather Service Boise ID 140 PM MST Tue Dec 17 2019  IDZ011-033-180600- /O.NEW.KBOI.WW.S.0026.191219T1200Z-191220T1200Z/ West Central Mountains-Upper Weiser River- 140 PM MST Tue Dec 17 2019  ...Light to moderate snow expected Thursday morning through early Friday morning...  * WHAT...Snow expected. Total snow accumulations of 4 to 6 inches, except up to 8 inches over the mountains.  * WHERE...West Central Mountains and Upper Weiser River zones.  * WHEN...From 5 AM Thursday to 5 AM MST Friday.  * IMPACTS...Plan on slippery road conditions.  PRECAUTIONARY/PREPAREDNESS ACTIONS...  Slow down and use caution while traveling.  The latest road conditions can be obtained by calling 5 1 1.</pre>

Figure 1. Example of a text product for a Winter Weather Advisory under the current WWA system (left panel) and how the proposed change would be applied to the same event (right panel).

## Partner Feedback on Proposal

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In June and July of 2020, the NWS conducted remote focus groups with emergency managers (EMs), members of the media, mariners, and other key partners based in five regions (Dallas, Texas; Boise, Idaho; Boston, Massachusetts; Denver, Colorado; and Fairbanks/Anchorage, Alaska) to solicit their feedback on the proposed changes to the WWA system. During the focus groups, the NWS presented two fictional scenarios applying the proposed change and the corresponding text product in the new system. Participants provided their reactions to the changes and discussed the potential impacts to their operations/decision-making and communication with their customers, such as decision-makers or members of the public (see the focus group script in Appendix A). The NWS will use the information from the focus groups to help inform and guide the Haz Simp project as it moves forward. Table 1 provides a rough count of participants by location along with the hazards presented in the case study scenarios for that group.

**Table 1. Focus Group Participants by Location and Hazard Presented in Scenarios**

Location	EM	Media	Hazards
Alaska Region: Fairbanks/Anchorage	14	3	Winter Weather, Coastal Flood
Central Region: Denver	14	15	Winter Weather, Convective
Southern Region: Dallas	13	10	Winter Weather, Heat
Western Region: Boise	22*		Winter Weather, Flood
Eastern Region: Boston	23*		Winter Weather, Heat

\* These groups included both EMs and members of the media.

## Summary of Key Themes

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Overall, the focus groups reinforced the finding from previous research that the Advisory headline is misunderstood. Most groups endorsed eliminating the Advisory term—but not the level of information associated with it). There was a good deal of support for the “What, Where, When, Impacts” (“3W”) format of the text product; participants liked the bullets, conciseness, and plain language. None of the groups thought the proposed change would have a significant impact on their operations or decision-making. Many felt the change could improve message dissemination efficiency and communication by emphasizing impacts, salient forecast details, and calls to action.

Even though many participants were enthusiastic about the change, all but two groups expressed the concern that not having the Advisory term could result in people not paying attention to or taking a threat less seriously; this was particularly true among EMs in Alaska where participants said people are weather-savvy, need long lead times for preparedness, and make important decisions based on weather. Some media were also concerned that just having a plain language statement and not an official “thing issued by the NWS” could create a “baseline gap” that would give rise to inconsistencies in messaging or result in information not being disseminated. Table 2 (on the next page) lists the key themes expressed by the participants along with an indication of which groups expressed the idea.

**Table 2. Key Themes Expressed by Focus Group Participant Groups by Location**

Theme	Group							
	Boise Combined	Boston Combined	Dallas EM	Dallas Media	Denver EM	Denver Media	Alaska EM	Alaska Media
Advisory is misunderstood.	X	X	X	X		X		X
Removing the Advisory term is acceptable/beneficial.	X	X	X	X	X	X		X
The Advisory information is more important than the term.	X	X	X	X	X	X		X
Consider replacing Advisory with another term (e.g., Alert).	X			X			X	
The impact on operational decision-making will be minimal.	X	X	X	X	X	X	X	X
The proposed change will help improve communication and/or dissemination.	X		X	X				X
The change will help convey and emphasize potential impacts of weather events.	X	X	X			X		
Without the term Advisory, people may take the threat less seriously, which could endanger preparedness and response.	X	X	X	X	X		X	
Not having a “thing” issued by the NWS could engender inconsistencies in messaging communication or result in the information not being disseminated.		X	X					

## Detailed Focus Group Findings

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The following sections summarize the groups' initial reactions to the proposed change, as well as their discussions around possible operational and communications impacts, suggestions for enhancing the text product, and recommendations for how the NWS can help organizations prepare for and implement the new system.

### Initial Reactions

*The groups provided their initial, “gut reactions” after seeing the first case study applying the new system to a fictional hazard scenario.*

All of the media (Dallas, Denver, Alaska), the Dallas EMs, and combined groups (Boise, Boston) voiced support for the proposal, citing the simplicity and intuitiveness of the plain language approach—as long as the Advisory-level information would still be preserved. Some commended the NWS for involving social scientists in the research supporting the proposed change, and some lamented that the change would be several years away. Participants in several groups observed that the members of the public don't generally understand Advisory or the current three-tiered messaging system, and some media participants stated this was also true for some newsroom staff.

Some EMs (Denver, Alaska) expressed concern with the proposal at the outset of the discussion. In Denver, EMs noted that there can be more confusion with Watch and Warning than Advisory. Some of the Denver and Alaska EMs noted that many of their constituents are knowledgeable about weather and understand the term Advisory. Some were not sure they (or members of the public) would pay attention to the headline without the term Advisory in it—or that the messaging would lose a sense of importance or urgency. In Alaska, EMs were concerned that dropping Advisory could affect preparation and decision-making since people need more lead-time than in the lower 48 states. They were also concerned that the change could impact people that make important “go/no go” decisions about activities like flying and hunting based on weather. The Alaskan media did not share the same concerns and welcomed the plain language, noting that people are confused about the different warning levels.

### Impact on Operations and Decision-Making

*The participants provided input on how the change could affect their operations and decision-making process as they prepare for an event.*

None of the EMs or media groups in any location thought the change would have much impact on their organizations operationally, and this was true even with the Alaska EMs who were not supportive of removing the Advisory term. In Boise, one EM said the change might actually make his job easier since he won't have to answer questions about what Advisory means. Broadcasters in Dallas and Alaska expressed the same sentiment about their newsroom staff, stating that the change will help staff disseminate information digitally and through social media without having to ask what an Advisory is.

A number of EMs also thought that the change could help improve dissemination efficiency. A Boise EM observed that the new messaging would enable him to “go straight to impacts and actions to take” and decide whether to send out a notification message. Other EMs also cited the ease of cutting and pasting the information from the proposed new system to share with supervisors. Radio broadcasters that participated in the focus groups had opposing opinions about the text product format: one stated that the old system would be easier to read on the air; the other felt the new system would be better.

Participants in all locations and groups (except Alaska EMs) agreed that while they need the advance warning associated with the Advisory level for operational planning and decision-making, the term itself was not critical. For example, EMs in Boston said that while most of their planning is predicated on Watches and Warnings, some Advisories (like Wind Advisory and Chill Advisory) do prompt EMs to open shelters, start talking with partners (such as utilities), and taking other actions. However, they also noted that it is the criteria and forecast information (e.g., wind speed ranges, temperatures) associated with the Advisory (not the term itself) that really prompts the action.

Some participants in the Boston group were concerned that removing Advisory could eliminate a “buffer” between Watch and Warning. They wondered if the Watch criteria could be expanded or reviewed to ensure a forecast doesn’t ramp up with a Warning issued seemingly out of nowhere. The NWS mentioned that the Hazardous Weather Outlook (HWO) product would also provide information that a situation may be coming when it is still several days out; participants noted that they were aware of the HWO, read it, and agreed that it would help to fill a potential gap.

EMs in both Dallas and Denver noted that the change would not affect operations internally because they read and use the text. One individual stated, “We are not weather experts so we literally take what is sent to us and send it out in its entirety, so nothing in our operations will change.” In Alaska, EMs did not think the change would affect them operationally, but there were concerns that the change could result in a delay in being notified by the NWS, or that they would not know or pay attention to a situation that is ramping up because of a perceived drop in urgency in the messaging.

In general, among all groups in all locations, there was agreement that the proposed change would require adjustments to their operations, but that they could adapt. For example, one Denver EM observed that the change could require more effort on the part of the government to communicate the severity of the event and why it is a problem. The consensus was that while the proposed change will take some time for EMs to adjust to it, it would not have major impacts on their operations.

Similarly, all of the media agreed that the change would require adjustments, but not significant operational or staffing changes. While their workflows would not change, they would need to inform producers and station managers about the change and why it was happening. Several also noted the importance of planning in advance to figure out how they will visualize the information and coordinating with graphics vendors to ensure they are in sync with the NWS and will be able to produce the needed graphics.

The media also talked about the need to prepare in advance for educating the public, with one Dallas broadcaster suggesting this would be the biggest downside to the change—though he thought the effort

put into education would be worthwhile. The media also discussed how they would communicate the change to their viewers and listeners. Some thought they would demonstrate the change by showing the old system versus the new system, which they might do when the change takes place (via social media, digital news stories, interviews with NWS officials, etc.) or as events occur (see suggestions provided in [Education Needs](#)).

## Impact on Communication with Customers

*The participants provided input on how the proposed change might impact the way they communicate with their “customers,” whether that be members of the public or other individuals or organizations.*

Many EMs and members of the media thought that the change would help improve communication, cut out ambiguity, and result in less confusion for their customers. Although there was much enthusiasm for the change, there also were some concerns in all regions that the plain language headline would not have the same impact as the term Advisory. EMs expressed the sentiment that the word Advisory makes the information seem a little more important, a little more serious. The term Advisory helps to amplify the threat. One person summed up these feelings by saying, “When I hear ‘Advisory,’ I feel I need to pay attention for some future amount of time. When I hear ‘Message,’ it just does not have the time frame component. A Dallas broadcaster said, “Message is less intense, just from the language component.”

Some worried that the plain language headline would not communicate the threat adequately, especially for hazards that are not encountered often. One media representative in Dallas said that, “People are used to a Heat Advisory, but a Winter Weather Advisory here could have a profound effect. I am concerned that the weather message will not have the same impact as the term Advisory. Plain language might not communicate the threat.” One Dallas EM observed that since Heat Advisories can be in effect every day, EMs would simply need to pay more attention to gradation and pinpoint days that are really dangerous.

Interestingly, in Boise, the concern that the plain language headline would not carry the same communication impact as the term Advisory emerged only after the group viewed a second case study (the first related to winter weather; the second to flooding). After viewing the second case study, EMs, in particular, said they preferred the verbiage of the current system (i.e., Small Stream Flood Advisory) and feared that people might take the threat more lightly with the new language. They were particularly concerned with cases of an imminent threat where people need to immediately understand the seriousness of the situation. This same group also discussed the use of the term “small streams” in the current Advisory headline, with some participants noting that people in the region might not understand “small streams.” In Boise, people use words like “gulches.” The NWS noted that the new system would provide flexibility and enable forecasters to choose words that are regionally familiar.

Long-term events also could pose communication challenges in the new system, some suggested. Boise media noted that when a Flood Warning is up for a week, it starts to lose impact. They also stated this is true for anything longer than a short-fused event. Participants suggested it may also be necessary for the NWS to explore ways to enhance the plain language messaging for long-term events to ensure people pay attention.



Some participants were also concerned about losing the issuance of an Advisory. One Boston broadcaster noted that his station does push out Advisories and communicate to its viewers when an Advisory has been issued. While not having Advisories would not affect his day-to-day work, he said, “Our team likes that something has been issued.” A Dallas EM expressed the same concern, stating that “while it is hot all summer in Dallas, if you issue an Advisory, I’ll cut and paste it.”

Along with the loss of having something issued, there were concerns that not having Advisory could create inconsistencies in communication. One Boston broadcaster said, “If we don’t have a baseline to lean on, we each may put out different information. I might say 1 to 3 inches of snow, for example, and others might say 2 to 4 inches.” This could engender inconsistencies and questions in the public’s eye.

Not having a “thing issued” could also impact information dissemination. A Boston broadcaster said that his station would never say a statement has been issued. He continued, “That doesn’t mean the information won’t get out. If the morning commute is going to be terrible, we’ll say so. But digitally, we probably won’t push [the headline] out.” Even with these concerns, the Boston media supported the simplification change and stated that they would figure out any communication challenges.

There also were questions from the media in different locations about how their stations would visualize the information on a map. One broadcaster said, “I feel like we need a term on a map [like] ‘Hazardous Level of Snow’ or ‘Slippery Conditions’.” A Dallas broadcaster suggested using a title like “Winter Weather Coming.” Others suggested simply using the NWS headline from the text product as the title on whatever map or graphic is displayed. There were also suggestions to use the word “Caution” or the adjective “hazardous,” on a map and in the text product since people pay attention to these words. In Denver, there also were suggestions to choose adjectives that could be used consistently to communicate significance (and also get at the Advisory level) such as “Heavy Snow.”

In some groups, the proposed change spurred a discussion around the need to think collectively as an enterprise about what actions they want the public to take—and to define those actions and the language to use to communicate the risk. Some participants advocated for simply replacing the term Advisory with another word (such as Alert) to engender this consistency. Others pushed back on that suggestion, stating that the current three-tiered system isn’t working and that the solution is to focus on impacts and salient specifics like wind speeds and temperatures.

Several members of the media agreed that the change would help them focus more on an impact-based forecast rather than on Advisory criteria. One Boston broadcaster stated, “This is important because the reason to go on air is because of impacts, not a term. We can have an Advisory with light snow/ice resulting in a worse commute than a Warning situation—the impact can be greater.” There were also suggestions that the plain language approach might catch someone’s attention better with changing events and that under the current system, people don’t understand the change from Advisory to Warning to Watch.

Also, in Boston, a member of the Public Health Commission noted that her organization has already been moving to a more action-oriented approach and impacts on humans, rather than using Watches or Warnings. She agreed the timing information was important.

## Language/Format Ideas for Text Products

*Participants provided feedback and ideas for enhancing the format and content of the text product.*

### *Format*

Among most of the groups, participants had a good deal of praise for the format of the text product, including bulleted information, the diminished use of all capital letters, and the 3-W format of the text product. EMs generally liked the bullets and commented that they would help them convey information quickly. Most members of the media also liked the conciseness of the bullets and the 3-W formatting, though a few individuals said they appreciated the level of detail in the current system, especially for those without meteorological training. One Boston participant asked why the term “Urgent” was not included in the new format. The NWS clarified that it removed the term because an Advisory is not urgent, and that the NWS will be going through all the hazards to determine where “Urgent” might be needed. The main body of the message will reflect the urgency and severity of the situation.

### *Time Stamp*

Some wanted to see a specific time stamp (e.g., 4 pm today to 7 pm Sunday) in the headline (as shown in the current text product) when specific times are useful. This would be helpful if EMs, for example, are picking up the headline and using it on road signs where there can be multiple counties, messages, etc. They also thought the specific time reference would be useful in the headline for situations where people need to know when they should leave work, finish shopping, etc. Not having the time reference could cause confusion.

### *Source*

There was a difference of opinion about whether to identify the NWS as the source of the information and if so, how to display to display this information. One member of the media questioned whether the information source was important and suggested moving up the impact information. Another thought the source was important and that the product should carry a statement such as “The NWS has issued an important message” because people might not read the header. Also, people pick up information from all over the place (e.g., social media, apps), so having NWS on the text product not only makes it easier to cut and paste, but it also lends credibility.

### *Additional Suggestions*

Participants offered up the additional suggestions:

- Instead of Precautionary/Preparedness Actions, use a title like “What Can You Do” or “What Should You Do”?
- Put the Precautionary/Preparedness information in bullets like the rest of the text product.
- Include a general location of the hazard in the headline.
- Move the headline to the very top of the message.
- Put specific information in the headline for heat (don’t want to dig down too far to get important details).
- Put a call to action in the headline.
- Capitalize the first two words (e.g., Strong Thunderstorm, Heavy Snow) of the headline, or

capitalize, boldface, or use color (some groups were not in favor of using color because of concerns about color blindness) to highlight the entire headline sentence to grab attention.

- For convective hazards, lightning is a concern for populations in Colorado who tend to be outdoors.
- Make sure any technical jargon is explained or simplified.
- Include rate and duration information (e.g., for winter, how many inches of snow/hour).
- Insert a visual at the bottom of these messages.
- Insert a social impact graphic that conveys “what’s the weather story today?” This graphic would be useful for the media to copy and paste for social media or to use as a sound bite.
- Need an adjective that could be used consistently in the first line to communicate significance (and get at the Advisory level), such as something similar to “Heavy Snow.”
- Consider using “Caution” or “Hazardous” in the product or headline.
- Consider calling the product a “Special Message” as in “Winter Weather Special Message.”
- Include the hazard early in the message.
- Reduce or eliminate the long list of locations; in one message, the headline is buried about 20 lines down after a long list of locations.

## Education Needs

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*The groups suggested ways the NWS can help partners prepare for and implement the new system.*

- Come up with a graphic to help educate people about the change.
- Provide a social media toolkit to help educate the change with everything written out (posts, graphics, etc.).
- Have NWS officials participate in interviews where they explain that people won’t be hearing Advisories anymore.
- Provide continued outreach and education at industry and local levels.
- Have local NWS offices host webinars.
- Provide presentations at AMS and NWA meetings.
- Do simulations across the country to test the new system.
- Provide a crosswalk document that shows how the system has changed (show before and after examples).
- Use the “underwater” graphic the NWS presented in its introductory slides to convey the concept.
- Provide education and graphics on social media and other platforms.
- Provide material that can be shared on social media, etc., about the change, along with why it is being done and what it will mean for people, including what the benefits are.

## Conclusion and Next Steps

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Focus groups are qualitative and exploratory in nature, meant to elicit attitudes, experiences, and reactions. They are useful in uncovering ideas that may not have been considered previously and in helping to advance the decision-making process. However, focus groups cannot provide the hard data that would be gathered through more quantitative methods like surveys or questionnaires.

These focus groups largely supported prior social science research pointing to misunderstandings around the term Advisory and the orthogonal nature of the current, three-tiered WWA system. Participants appreciated and resonated with the simple, plain language nature of the proposal, but did have concerns with how to make the information most impactful. To address these concerns, there were suggestions to add a term or phrase like “Caution” or “Be Alert” to the plain language headline to get people’s attention. The NWS could further experiment with these types of modifications to hone the headline and then test them.

It should be noted that the proposal has now been socialized extensively with NWS partners and intermediaries to the public, such as members of the media—and that this socialization has largely been supportive of moving ahead with the proposal. However, the NWS has not tested the proposal with members of the public directly. This kind of testing would be beneficial, particularly in locations where partners are suggesting that the Advisory term is well understood and appears to play an important role in public decision-making.

# Appendix A : Focus Group Script (Generic)

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## **Part 1: Introductions**

Around the room introductions and fun ice breaker (raise your hand: something like when is the last time you've had a haircut?)

## **Part 2: Core background slides**

Run through slide 8 of introductory slides

## **Part 3: Application of the Proposed System**

Ok, now we're going to take you through a fictional [hazard] scenario that applies the proposed changes. So, this case study will show you what the proposed system would look like in a 'real life' situation. (slides 9-12)

- 1. What are your “gut” reactions to this proposal as you see how it works in an actual situation?**

## **Part 4: Comparison with the Current System**

Now, that we've seen the proposed system applied, we'd like to take a closer look at the changes. Let's go through a comparison of how this scenario would have looked in the current system. (Slides 13-17)

- 1. Now we want to hear about how this change could affect you and your organization. How could this change facilitate or hamper your operations and decision-making process as you prepare for an event?**

- a. Would anything change in the way you prepare internally within your organization? [Probe for would it take more time to prepare a broadcast, figure out staffing decisions, etc.]?

- b. Would anything change in the way you collaborate with your external partners?

- c. What about the way you collaborate with NWS WFO?

**1. How would the change to this new system impact the way you communicate with your “customers” whether that be members of the public or other individuals or organizations?**

- a. How would you communicate the plain language headlines used in the proposed new system?
  - b. Do you have any thoughts about what kinds of graphics or visuals you might need or use? (Or how these would change from what you already use/do?)

**1. How would you prepare to implement this change?**

- a. What would your approach be to implement this change internally? What has to happen within your organization? Who is involved? What will they need? What support do you need from NWS?
  - b. What preparation will you need to do so you are ready to communicate externally with your customers? [Probe for do you need to make changes in systems, templates, etc.]
  - c. Would you do anything to help your customers prepare for this change? If so, when would you begin this process? What would it look like? How would you do this? What support do you need from NWS?

**Part 5: Second Case Study**

We understand that you deal with many other hazards beyond [hazard] and you may be wondering what this all would look like in other situations. We’d now like to show you a fictionalized [hazard] case with text products shown in the current system and the proposed system.

**1. Are your reactions any different now that you’ve seen a second example?**

**Part 6: Closing Thoughts**

Does anyone have any final thoughts or comments that you would like to share?