

New Mission Need or Requirement Request

NWS Interactive Web-Based Map

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CONTACT INFORMATION

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1 Statement of Mission Need or Requirement

1.1 Mission Need or Requirement

The weather enterprise covers a diverse group of organizations and individuals with exponential uses for NWS data. As NWS data increases in size and frequency, identifying methods for assimilating this data to make it more easily accessible and digestible by the enterprise is paramount. Interactive web-based geospatial products including services and map viewers are universal methods to serve many of these assimilation needs. Interactive maps driven by geospatial services can serve all data from rapidly updating products such as Multi-Radar Multi-Sensor (MRMS) data to more traditional products released every 6 hours, such as Enhanced Hazardous Weather Outlook (EHWO) and event-driven products such as the Hurricane Threats and Impacts (HTI) graphics. These products serve different user needs, but they require a web interface that can:

1. Show graphical forecast information relative to location (i.e. - shading of an area on a map to depict a warning, hazard, etc.)
2. Show text information associated with the specific graphic forecast information relative to the same location (i.e. - a forecast, threat and impact statements, etc.)
3. Show static content (i.e. - legends, disclaimers, etc.) associated with the graphical forecast text information.
4. Have symbology consistent with NWS meteorological standards.
5. Allow users to discover/download the NWS files/services driving the information.
6. Support NWS decision support briefings.

The NWS should develop an interactive web-based map to support all NWS product suites which are frequently displayed on maps, so users can choose to layer the group of products necessary for their mission needs. A common interactive web-based map would create consistency from NWS office to office, so customers and partners would be able to expect the same experience whether visiting their local WFO page or a national center page. The map should be a tool for creating a weather ready nation with a primary goal of communicating data, forecasts, and warnings in a method by which society responds and prepares for the effects of weather. Technical and Functional requirements should be focused on data and data formats necessary to accomplish the NWS mission to provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy. The interactive map shall be flexible and be used by NWS staff for decision support related briefings as well as be public facing. If at all possible, experts in user experience should be consulted to ensure simple design to support easy navigation during intense weather events to ensure the data and information are the focus of decision briefings rather than ins and outs of navigating a tool such as an interactive map.

1.2 Time Sensitivity

Several programs had developed experimental map interfaces prior to the re-org and as part of the NWS pilot projects. NIDS is also working on a map API for incorporating maps on local web pages. This request is designed to combine efforts for interactive maps, geospatial map services dissemination and visualization, and NWS web page maps (static and dynamic) into a single approach with single redundant data sources and a common map experience across the NWS. This needs to be done as soon as possible and should include directive development to ensure use of the common tools and enhancements to be directed through a standard change management system.

1.3 Existing Operational Gaps

There are few NWS websites that display both graphics spanning multiple CWAs and critical text information that puts the graphics in context to support Integrated Decision Support Services (IDSS). Requirements were previously established to develop separate operational web-interfaces for the Enhanced Hazardous Weather Outlook and Hurricane Threats and Impacts products, but neither project was completed. Efforts for an NDFD interactive map and the test project of the Enhanced Data Display (EDD) have made it to experimental status where they have failed to become operational in the 10-102 defined 90 days or even the special exception 1 year timeframes. These efforts proceeded independently, yet had many similar elements that may have allowed them to be supported by a similar web design or using the same interface. There are numerous other projects in a similar situation. Currently, the NWS Geospatial Integrated Work Team process for requests are limited to requesting new geospatial map services, but the visualization/interactive requirements are not covered.

2 Justification and Benefits to the NWS

2.1 Strategic Drivers and Mandates

Table 2.1: Justification	
Does the requirement address a mandate by NOAA, DOC, OMB, Executive Order, or Law?	Y / N
Is the requirement needed to satisfy a specific external organization's needs?	Y / N
Does the requirement address a specific DOC, NOAA, or NWS strategic initiative?	Y / N
<p>Explanation of justification:</p> <p><u>NOAA mandate/Congressional Funding</u> NWS has received additional funds (2 year money) to increase web resiliency. Consolidating the multiple display and dissemination points for geospatial data will allow bandwidth to be targeted to unified applications as well as creating a system which can be scaled based on demand.</p> <p><u>NOAA Strategic Goals</u> <i>Long-term Goal: Weather-Ready Nation</i> Objective: Reduced loss of life, property, and disruption from high-impact events Specifically, NOAA will provide forecasts and information that compare weather risk to user-defined risk tolerance and redefine warnings to be applicable to a broad range of high-impact events.</p>	

In collaboration with its partners, NOAA will provide direct, interpretive support to public sector officials and emergency responders, and expand environmental education and weather safety programs.

Hurricane Sandy Service Assessment, May 2013

Section 3.2.2, p.34 - Improving NOAA's Web Presence and Use of Social Media

"NOAA/NWS needs to move to a more integrated and seamless delivery of weather information over the Internet. "

2013 Weather-Ready Nation Roadmap

Pertinent Key Concepts:

- Improve usefulness of products and services for decision-making.
- Deliver information in a way that conveys its potential impact to support good decision-making and planning.
- Partner with entities across the Weather Enterprise to improve communications and dissemination for high-impact events.

2012 NOAA Hurricane Conference Item 12-26

POC: (former FEMA-1) Cammye Sims, NWS and Matthew Green, FEMA

Title: Creating consistent mosaics of Tropical Cyclone Potential Impact Graphics adaptable for regional/national briefings.

2013 NOAA Environmental Data Management Workshop

IDP includes multiple projects, one of which is the Web Services Project

- Improve discovery, access and delivery of NOAA data to stakeholders using national and international web services standards implemented on highly reliable / high capacity / secure IT infrastructure and networks

2.2 Benefits

Identify how satisfying the request will benefit the NWS, partners, the public, or other stakeholders.

Table 2.2: Benefit to the NWS

Describe how the request will benefit NWS' mission to protect life and property.
Describe how the request will help the NWS better serve our partners and the public.
Describe how the request will improve how NWS operates.
Describe how the request will help NWS be a better steward of government resources (e.g., time or money).
<p>Explanation of benefits to NWS:</p> <p>A common web design to support map-based graphic and text information would allow NWS partners and the public to more seamlessly access information across multiple CWAs. This will improve DSS in states and localities that span multiple CWAs. In addition, users would not have to learn how to navigate several different web designs to find the products they need to make decisions.</p> <p>While the initial effort may be substantial, establishing a common design for the display of map-based graphics and related text information will reduce the work required to design and maintain sites to support different NWS products and services. Display of future products and services could be planned to fit the common web design when possible.</p>

3 National Service Program

Table 3.1: Identification of lead National Service Program

Program Name	X	Program Name	X	Program Name	X
Aviation		Tropical		Public	
Fire Weather		Winter Weather		Space Weather	
Marine		Climate		Tsunami	
Severe Weather		Water Resources		Overarching (broad cross-cutting)	X

4 Estimated Resource Needs

The resources required to design a common interactive map application, web map API, and expanding availability of NWS products in geospatial formats to inform the maps likely includes multiple months of full-time work from web, database, and geospatial infrastructure subject matter experts who will make up the interactive web-based visualization design team. This work may be achieved by contracting the task, but experience has proven NWS is better served to identify, enhance, and leverage in house expertise for the complex GIS/meteorology tasks. Some in house experience exists by way of staff and their lessons learned working with the multiple experimental and abandoned map efforts within the NWS; while other areas exist will require training staff to establish expertise. While the effort to produce a user-friendly, intuitive design that meets the technical specifications required by NWS may be substantial, the long-term benefit is that significantly less resources will be required to maintain current pages and design new ones that will also need to be maintained. These resource savings will be in the form of labor hours as well as infrastructure/bandwidth requirements to run the multiple solutions.

The teams representing the legacy NWS mapping projects along with the Geospatial Integrated Work Team (GIWT) are willing to interact with a web development team to produce a design that can accommodate multiple sets of products. Past experience by these teams has indicated that an agile development process is needed to ensure users can effectively navigate a site's design and easily access the information necessary for users and partners to make important decisions to protect life and property. The agile process also allows for adjustments to be made as refinements are discovered rather than having to redevelop as is often the case in waterfall or spiral development processes. Agile is also more conducive to having team members rotate in and out as the development requires their area of expertise.