



## **HURRICANE/DISASTER PREPAREDNESS AND RESPONSE BY UTILIZING FLORIDA PUBLIC LIBRARIES: EVALUATION REPORT**

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## HURRICANE/DISASTER PREPAREDNESS AND RESPONSE BY UTILIZING PUBLIC LIBRARIES: EVALUATION REPORT

In August 2008, the Information Use Management and Policy Institute (Information Institute) of Florida State University began work on the grant entitled *Improving Florida Public Libraries Hurricane/Disaster Preparedness and Response*. The grant is funded by the Florida Catastrophic Storm Risk Management Center (<http://www.stormrisk.org>) and began August 8, 2008. The original end date for the project was July 31, 2009. The Information Institute received additional funding and performance extensions, which allow project activities to be conducted through August 6, 2010. This report provides an overview of web portal evaluation activities completed November 2009 through January 2010.

### Methodology

The Hurricane/Disaster Preparedness and Response web portal was developed to aid Florida public librarians and emergency response personnel during hurricanes and/or disasters (see: <http://hurricanes.ii.fsu.edu/>). The study team developed plans for use and usefulness data collection activities based on the following two scenarios:

- **Scenario 1 – Hurricane/Disaster Event Occurs:** If a hurricane/disaster event occurred during the project, the study team would conduct interviews, focus groups, and surveys to collect information related to the use and usefulness of the web portal prior to, during, and after the event; and
- **Scenario 2 – Hurricane/Disaster Event Does Not Occur:** If no hurricane/disaster event occurred during the project, the study team would conduct interviews, focus groups, and surveys to collect information related to the use and usefulness of the web portal.

Since no significant hurricane/disaster event occurred during the 2009 season, the project team implemented the evaluation plan under Scenario 2.

The web portal evaluation includes three primary methods, as follows:

- **Interviews/focus groups and surveys:** The interviews and surveys were designed to assess the use and usefulness of the project's web portal by soliciting feedback and opinions from hurricane-experienced librarians from a convenience sample of Florida public libraries;
- **Usability, functionality, and accessibility testing:** These assessments of the overall usability of the project web portal included user and expert usability testing, and expert functionality and accessibility testing to assess the degree to which the hurricane web portal meets general usability, functionality, and accessibility standards; and
- **Web analytics:** The project team utilized Google Analytics to evaluate web portal usage from October 1 through December 31, 2009.

Based on the analyses of these data, the study team will edit, refine, and improve the project web portal to better meet Florida librarians' and local/state emergency responders' needs.

Interviews, Focus Groups, and Surveys

The study team conducted interviews, focus groups, and surveys with Florida public librarians to obtain feedback on the web portal. Using an interview/focus group script and Hurricane Web Site Use Survey (See Appendix A for the interview/focus group script and Appendix B for the survey), hurricane-experienced librarians across the state were questioned regarding the effectiveness of the web portal, its usability, its organization and its comprehensiveness. The interview script and survey were pretested on librarians at a Southeast Florida public library. Their answers were recorded to preserve the input, and the study teams' questions were refined to acquire the most valuable recommendations. After making the necessary changes to the script and survey, 15 librarians were interviewed and their responses were recorded and analyzed so their feedback could be used to make changes to the web portal.

Librarians' responses indicated significant interest in extending and refining the web portal project. These hurricane-experienced librarians stated unanimously that the web portal would be a primary reference site in the event of a hurricane/disaster (See Figure 1 for a summary of the responses to the survey questions and Table 1 for key themes from the survey comments.) The most frequent request was the addition of links to county by county information regarding library locations, services and shelters, if this were done, said one librarian, "this web portal would be all we would need." A second request was to add a service role related to working with local Emergency Operations Centers (EOC).

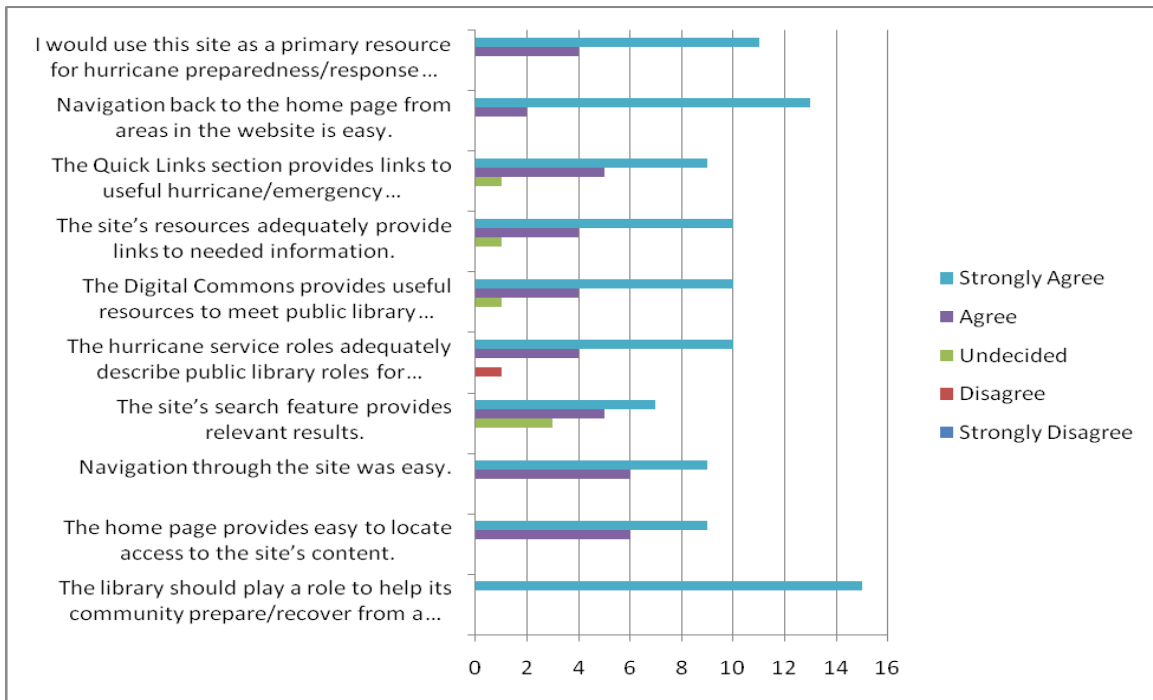


Figure 1. Summary of Responses to Survey Questions

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Table 1. Key Themes Emergent from Librarian Comments in the Survey

TOPICS	KEY THEMES
Service Roles	<ul style="list-style-type: none"> <li>• Public Libraries in Florida have been centers for information both before and after a storm.</li> <li>• Overall, the service roles do a good job explaining what librarians can do for their communities before, during, and after a hurricane.</li> <li>• Librarians find the service roles to be comprehensive.</li> </ul>
Web Portal Usability	<ul style="list-style-type: none"> <li>• In general, the homepage is well-organized, uncluttered and links to vital information.</li> <li>• Overall, navigation is uncomplicated and requires no specialized training to use.</li> <li>• In general, librarians found the portal to be really useful, well-organized, and containing valuable resources.</li> <li>• Search retrieves relevant results.</li> </ul>
Web Portal Usage	<ul style="list-style-type: none"> <li>• Librarians are already bookmarking the portal to their “favorites” lists.</li> <li>• The Digital Commons will be exceptionally valuable allowing updated information to be shared and made publically available to librarians and citizens at a time when communications will be difficult at best.</li> <li>• State and national links are really useful.</li> </ul>

Due to the current public library funding and staffing shortages, the librarians appreciated the information made available through the web portal to meet their needs. They believe more advertising of the site should be done to reach those librarians who lack the funds or time for continuing education. In all interviews, service roles were thought to be complete, comprehensive and said to represent all the activities these librarians had been asked to do in the past or might be called upon to do in the future. Comments regarding the look, terminology and organization of the site were helpful in improving the web portal design from a usability standpoint, such as the following key issues:

- More than half of the public librarians interviewed were unfamiliar with the term “Digital Commons” used to describe the location of Web 2.0 applications available on the site and requested a more readily understandable term;
- Many librarians requested that the Quick Links be moved to the top of the site so that the web portal would be structured for quick action; and
- Several librarians would like the portal to include a mechanism to specifically search the site’s resources and bibliographies.

Several of the librarians were pleased to have access to the wiki and blog to communicate directly with one another; however, others worked in libraries that used filtering software that blocked their access to wikis, blogs and YouTube presentations. When speaking about creating policies which would apply during a hurricane/disaster event, several librarians appreciated the links in the bibliography which provided access to what one librarian called “real-life” library policies that are being used and are working in other library systems.

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In general, the librarians appreciate the project team's focus on them as the primary audience of the web portal. Interviewees took ownership of the site and were active in suggesting improvements to its structure and organization for their use. Over 66% indicated a desire to be informed of changes and improvements, and several librarians offered to visit the site regularly to view updates and suggest more improvements through the "Contact Us" feature. They expressed the hope that funding would continue to keep the site relevant and dynamic.

### Web Analytics

The study team utilized Google Web Analytics to examine web portal usage and collect metrics determined to be the most useful for assessment of web portal usage. The project team evaluated usage data from October – December 2009, choosing a convenience sample of the quarter after the portal was launched and the marketing campaign has been in full effect. Overall, the analytics indicate that the portal is experiencing increased usage, even toward the end of a quiet hurricane season.

The web portal experienced an average of 8.14 visits per day primarily through direct traffic (Figure 2), meaning users arrive at the portal by typing the URL in their browser window, rather than being directed to the portal from another website or search engine. Large spikes in visits in October may be related to web portal awareness campaigns at the Florida public library directors' meeting and the Webjunction webinar, both held in October 2009.

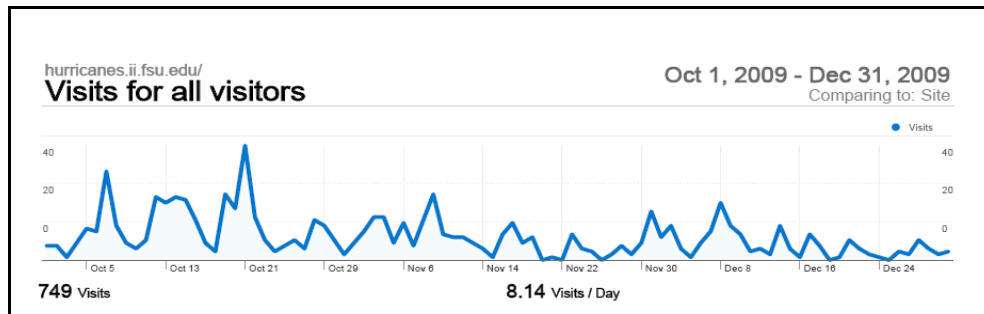


Figure 2. Visits to the Website by Day, for October – December 2009

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For informational sites such as the hurricane project web portal, metrics such as returning visitors vs. new visitors can be informative (Figure 3). More than 700 users (749) visited the portal between October and December 2009, and 33% of them were returning visitors, indicating that they find the information on the portal to be useful, relevant, and worth multiple visits. Users viewed 3.52 pages on average, and the average length of a user session was nearly 3.5 minutes. Over 2500 pages were visited, compared to the Google benchmark of 110 pages for a web portal of similar size. During sessions, there was considerable viewing, search activity and time spent on the main page, the index and the service roles, with Safe Haven being the most frequently viewed service role (Figure 4). Nearly 75% of users (73.57%) entered the portal via direct traffic or referring sites (Figure 5), indicating that users knew where they were going and what they were looking at.

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These metrics suggest that users of the web portal were looking for it, not misdirected to it. The analytics indicate that the site is engaging users' interest, since there was a high number of pageviews against the Google benchmarks. Also, web portal viewers stayed in the site for a fairly lengthy time period, searching for service roles and other resources, presumably finding needed information.

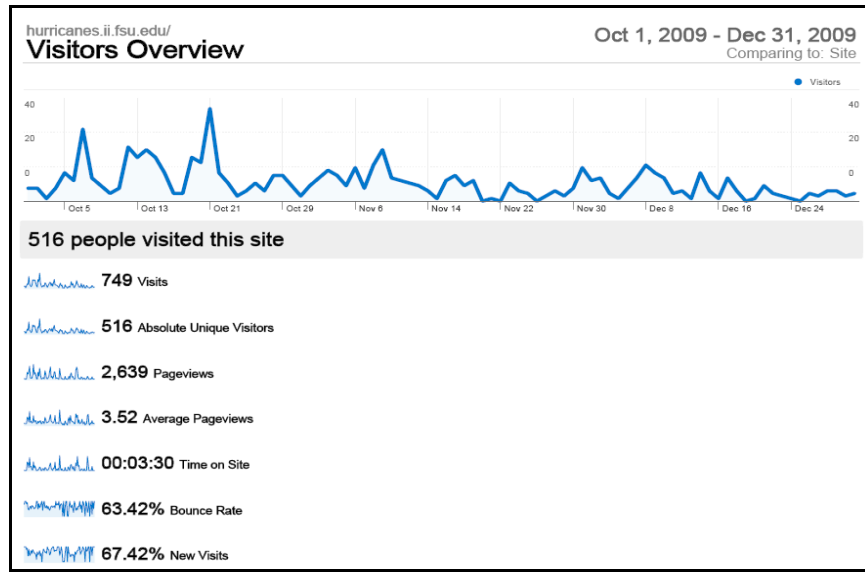


Figure 3. Visitors to the Hurricane Web Portal, Including Pageviews, Time on Site, Bounce Rate, and New Visits

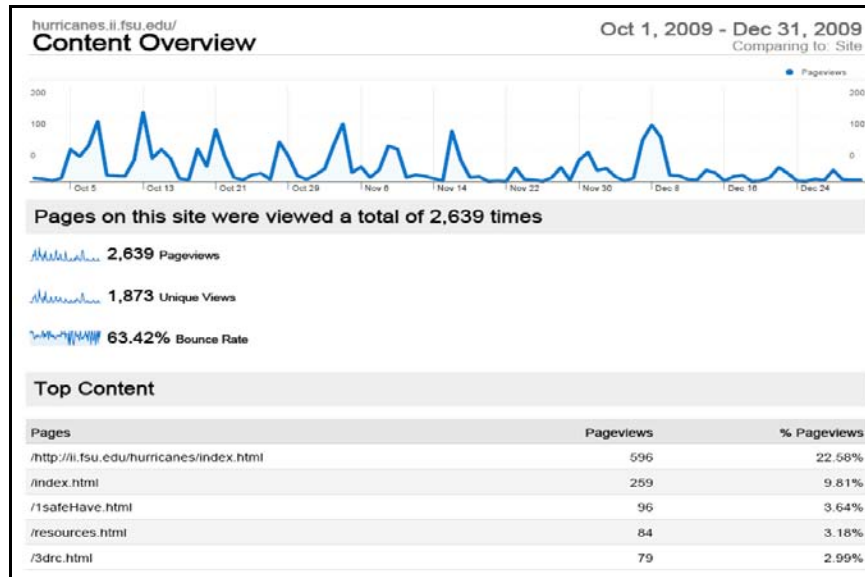


Figure 4. Usage of Web Portal Content

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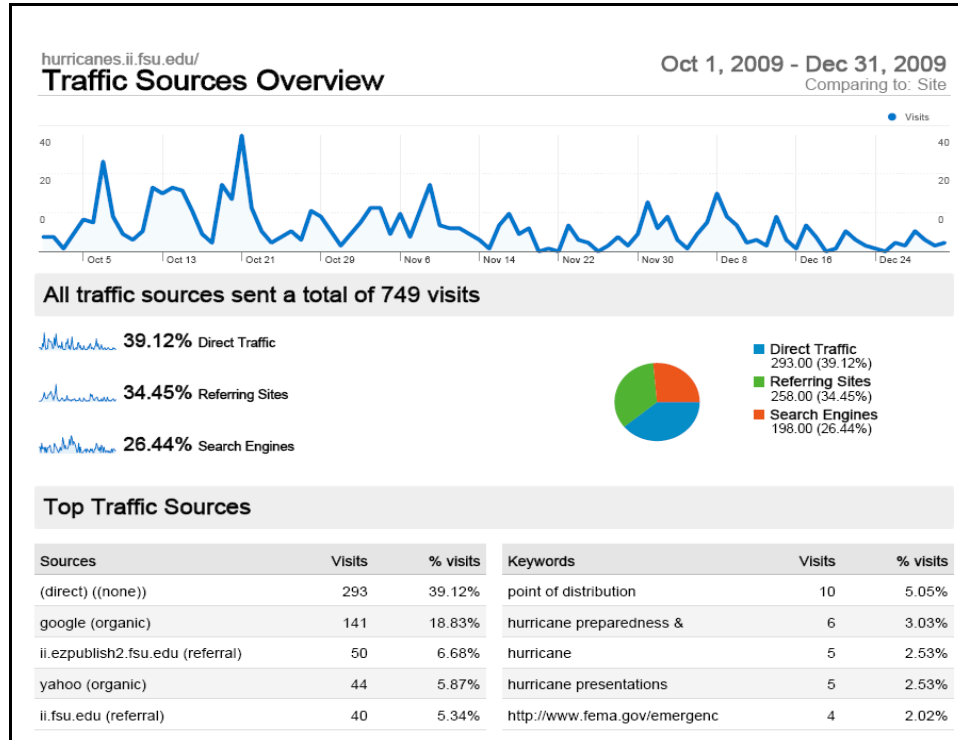


Figure 5. Sources of User Traffic to the Project Web Portal

### Usability, Functionality and Accessibility Testing

To perform usability, functionality and accessibility testing, the team developed standard usability protocols for the evaluation of the hurricane web portal. Areas included within the protocols were based on general information seeking behaviors of users that include the use and usefulness of the web portal’s content and design. In addition, the usability protocol included questions related to the most and least useful aspects of the web portal and recommendations to improve the web portal. An overview of the usability, functionality, and accessibility assessment is included here, and the full report is available upon request from the Information Institute.

#### *Usability Testing*

The usability evaluation included assessments by selected public librarians and expert testing by members of the study team. The study team emailed a usability protocol to 3-5 selected Florida public librarians. The usability protocol developed for this project was specific to the hurricane/disaster preparedness and response web portal and was based on the study team’s prior usability testing experience. The selected participants reviewed the protocol and project web portal, and completed and returned the usability protocol form to the project team along with recommendations on how to improve the web portal. The study team also conducted expert usability assessments of the project web portal where members of the study team reviewed the project web portal and completed the usability protocol.

The usability testing found that navigation with the toolbar and arrows were easy and clear. Some inconsistencies related to pop-up boxes and navigation tabs of the *About the Project*, *Project Team* and *Training* toolbar links were noted, as were problems with the *Search* feature which is prominent at the top of each page. There were no unproductive navigation choices or navigation errors when navigating all internal, embedded, and external links. The usability testing found that navigation through the portal to desired content areas via the navigation toolbar and embedded links is effective and efficient. Navigation features to enhance users' navigation between web pages and back to the home page were examined and no major problems found. Embedded links in content areas were found to be easy to locate and lead directly to content, and the *Contact Us* support feature was found to include sufficient contact information the only recommendation being that it be more visible on the page, a suggestion also made by one of the focus group librarians.

### *Functionality Testing*

Functionality is the degree to which all aspects of a website are functional and operate properly. Functionality testing helps assure that a system performs as expected, or that it works. This testing insures that the web portal is delivering the intended services and capabilities that are needed by the targeted population of users. For the project web portal, functionality testing included a systematic assessment of every page of the portal. All results are based on functionality testing conducted November 13-15, 2009.

Overall, results of the functionality assessment found that all links from the navigation toolbar, embedded links in content areas of the site, and other navigation features are functional and operate as they should. It was recommended that the project team fix/remove identified broken resource links from *Articles*, *Web Sites*, and *Others*. In addition to the broken links, some areas of the *Resource* topic documents contain too much white space in the pages. Recommendations include fixing or removing broken resource links and removing excess white space from the resource documents.

### *Accessibility Testing*

Accessibility is the level at which a technology can be used by individuals with disabilities. Accessibility testing is particularly important in Florida as many seniors have disabilities including visual, hearing, and mobility impairments that impact the ability to use Web-based materials. Categories of evaluation include checking for accessibility friendly features as menu driven selections, testing policy, accessibility statement, and compatibility with assistive devices used by individuals with disabilities. Members of the study team conducted the accessibility testing (see Appendix C for the accessibility test instrument) and have edited and refined the project's web portal based upon the findings of this testing.

It was found that generally, the web portal does a good job of meeting accessibility standards. Text, links, tables and text boxes, HTML code and CSS all readily accommodate screen enlargement. The web portal also provides clear context and orientation information (e.g., navigation features such as navigation links, breadcrumbs, and the *Home* link), and web portal documents are consistent, clear, organized, and readily accommodate screen enlargement.



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It was recommended that there be a change in the site design to use colors that are not static to allow users to better view pages with alternate contrast settings and it was noted that the site may not adequately accommodate screen reading software (i.e. for audio). Suggestions made regarding these issues have been addressed by the project team.

### Next Steps

Findings from the interviews/focus groups and surveys, web analytics, and usability, functionality and accessibility testing indicate several areas where the hurricane project web portal needs improvement. These are detailed in Table 2.

Table 2. Areas of the Web Portal That Need Improvement/Alteration

TOPICS	KEY THEMES
Terminology	<ul style="list-style-type: none"><li>• Rename “Digital Commons” with a more familiar term</li><li>• Rename “Hurricane Centers” (in Quicklinks) to “NOAA” per librarians’ requests</li></ul>
Quicklinks and other links	<ul style="list-style-type: none"><li>• Move Quicklinks up in navigation menu</li><li>• Possibly set links to open in separate window, but be consistent in how links operate</li><li>• Investigate changing Quicklinks to operate as pop-up instead of mouseover, per librarians’ indications of difficulty in using the mouseover feature</li><li>• Identify and fix/remove broken resource links</li></ul>
Resources	<ul style="list-style-type: none"><li>• Include additional resources and links that are useful to public, as well as librarians</li><li>• Increase readability by minimizing white space in the resources documents</li></ul>
Search Features	<ul style="list-style-type: none"><li>• Possibly move search box to the left (based on librarian preferences)</li><li>• Investigate implementing keyword or other search of the resources</li><li>• Clarify that Search uses Google Search</li><li>• Investigate implementation of internal search feature incorporating metadata into header code of internal pages</li></ul>
Accessibility	<ul style="list-style-type: none"><li>• Change site design to use colors that are not static to allow users to better view pages with alternate contrast setting</li><li>• Investigate possibilities to allow portal to accommodate screen reading software</li></ul>

Evaluation participants also suggested the usefulness of developing a new service role related to working with local EOCs. We will continue with a new marketing effort beginning this summer for the fall 2010 hurricane season that will include presentations in Louisiana and Texas as well as in Florida. The project team will address these issues during the remainder of the project period (through August 6, 2010). The final project report, which will be submitted by August 31, 2010, will summarize work completed on these recommendations and other project activities completed between this report and the end of the project.

### Assisting Florida Public Librarians During a Hurricane

According to interview/focus group comments, many public reference librarians remain unfamiliar with the contents of the web portal and are not being reached by efforts due to staffing shortages, and budget cuts in the area of professional development and continuing education. However, participants agree that the various plans, services, and activities in which public libraries have engaged for hurricane preparedness and response have been described and identified as Hurricane Service Roles. Recommendations from hurricane-experience librarians indicate that future activities must build on this work to ensure that the web portal continues to be as relevant and current as they believe it to be. The consensus is that this resource is very valuable to them. Web analytics while encouraging, might be better gauged during a hurricane event, and recommendations of the usability, functionality and accessibility study have been implemented.

A librarian in Southeast Florida remarked about the web portal:

“It appears that just about everything you need to set up a plan and execute it is here. It is great to go to one website and find it all rather than hopping around from site to site using different organizations’ [websites] with less information than is included here.”

While the librarian interviews/focus groups and surveys, the web analytics and the usability, accessibility and functionality assessments all yielded positive results, the study team continues its efforts to see that resources and information are current, and easy to access, and that the web portal continues to be better known. This continues to be done while various avenues for additional external funding are explored.

## APPENDICES

### Appendix A: Hurricane Website Interview/Focus Group Script

The Information Institute has been awarded a grant from the Florida Catastrophic Storm Risk Management Center to increase the state's capacity to prepare for and recover from hurricanes by better utilizing Florida's public libraries in these disasters. As part of the grant, the Information Institute has created a Hurricane Preparedness and Response website for public libraries at: <http://www.ii.fsu.edu/hurricanes/>.

The purpose of this focus group is to learn from successful, hurricane experienced, public library managers, state and federal government emergency response officials, and community organization leaders to determine what areas of the website are most useful related to hurricane preparedness and response through public libraries and what areas of the website need additional development. This is why you have been asked to participate. The study team is particularly interested in your experience in helping your state and local community prepare for and recover from hurricanes and other disasters.

We will take a few moments and go through the website. While we preview the site, we have some statements (below) related to the site for us to discuss with you.

1. The home page provides easy to locate access to the site's content.
2. Navigation through the site was easy.
3. The site's search feature provides relevant results.
4. The hurricane service roles adequately describe public library roles for hurricane preparedness and response.
5. The Digital Commons provides useful resources to meet public library hurricane preparedness needs.
6. The site's resources adequately provide links to needed information.
7. The Quick Links section provides links to useful hurricane/emergency preparedness and response sites.
8. Navigation back to the home page from areas in the website is easy.
9. I would use this site as a primary resource for hurricane preparedness/response information.
10. The library should play a role to help its community prepare/recover from a hurricane.

Thank You for your participation!

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### Appendix B: Hurricane Website Use Survey

The Information Institute has been awarded a grant from the Florida Catastrophic Storm Risk Management Center to increase the state's capacity to prepare for and recover from hurricanes by better utilizing Florida's public libraries in these disasters.

Please take a few moments to review the statements below and explore the hurricane preparedness and response web site at: <http://www.ii.fsu.edu/hurricanes/>. After exploring the web site, please respond to the statements below.

Please circle the number that best reflects your opinion for each statement/question AND PROVIDE ADDITIONAL COMMENTS

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	
1. The library should play a role to help its community prepare/recover from a hurricane	1	2	3	4	5	
<b>Please comment:</b>						
2. The home page provides easy to locate access to the site's content.	1	2	3	4	5	
<b>Please comment:</b>						
3. Navigation through the site was easy.	1	2	3	4	5	
<b>Please comment:</b>						
4. The site's search feature provides relevant results.	1	2	3	4	5	
<b>Please comment:</b>						
5. The hurricane service roles adequately describe public library roles for hurricane preparedness and response	1	2	3	4	5	
<b>Please comment:</b>						

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	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	
6. The Digital Commons provides useful resources to meet public library hurricane preparedness needs.	1	2	3	4	5	
<b>Please comment:</b>						
7. The site's resources adequately provide links to needed information.	1	2	3	4	5	
<b>Please comment:</b>						
8. The Quick Links section provides links to useful hurricane/emergency preparedness and response sites	1	2	3	4	5	
<b>Please comment:</b>						
9. Navigation back to the home page from areas in the web site is easy	1	2	3	4	5	
<b>Please comment:</b>						
10. I would use this site as a primary resource for hurricane preparedness/response information	1	2	3	4	5	
<b>Please comment:</b>						

Thank You for your participation!

**Appendix C: Accessibility Test Instrument**

<b>Functional Requirement</b>	<b>Results</b>			<b>Comments</b>
Do the appearance and function of the site comply with the accessibility principles mandated by Section 508 of the Rehabilitation Act by complying with W3C principles that:				
-Provides equivalent alternatives to auditory and visual content?	Yes	No	Somewhat	
-Does not rely on color alone?	Yes	No	Somewhat	
-Uses markup and style sheets and does so properly?	Yes	No	Somewhat	
-Creates tables that transform gracefully?	Yes	No	Somewhat	
-Ensures user control of time-sensitive content changes?	Yes	No	Somewhat	
-Ensures direct accessibility of embedded user interfaces?	Yes	No	Somewhat	
-Designs for device-independence?	Yes	No	Somewhat	
-Provides context and orientation information?	Yes	No	Somewhat	
-Provides clear navigation mechanisms?	Yes	No	Somewhat	
-Ensures that documents are clear and simple?	Yes	No	Somewhat	