Redeveloping the Airport Website

An Interactive Qualifying Project
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by
Robert Esposito
Karl Kuhn
Benjamin Rogers
Vincent Sabo

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Noah Karberg, Environmental Coordinator
Nantucket Memorial Airport

Professors Dominic Golding and Stanley Selkow
Worcester Polytechnic Institute

ABSTRACT

The previous Nantucket Memorial Airport website did not effectively engage community members or showcase the airport's innovative environmental practices. Our goal was to design and develop a website for the airport that would meet the changing needs and expectations of various user groups. We researched the content displayed on other airport websites and gathered opinions from various stakeholders in order to construct a library of suggested content for the airport website. Using stakeholder feedback, we organized this library into a hierarchy that would form the overall structure of the website that would be implemented by the Town website vendor, CivicPlus. We offered recommendations on how to improve content organization, accuracy, and design in order to promote usability.

ACKNOWLEDGEMENTS

Our team would like to thank the many people who supported us throughout the duration of the project. We would like to thank our advisors, Professor Dominic Golding and Professor Stanley Selkow, for presenting us with the constant challenge to improve our methods and the structure of our arguments. We are very grateful for their thoughtful input and guidance, and the input of everyone else who reviewed our work during the project.

We would also like to thank Noah Karberg for sponsoring this project, remaining flexible as we determined the scope of the project, and for providing the resources needed to take the website redevelopment all the way through implementation.

Jason Bridges from the Town of Nantucket IT Department deserves special recognition for his extra efforts helping us initiate contact with CivicPlus and for his mentorship with regards to the web design aspect of the project.

We would also like to thank Dr. Ruth Small, Syracuse University, for granting permission to use the WebCHECK website evaluation tool in our research.

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EXECUTIVE SUMMARY

The community outreach efforts of the Nantucket Memorial Airport pose some special challenges. The community on Nantucket requires airport services and depends on the economic contributions of the airport, but also demands thoughtful environmental stewardship. These two sometimes conflicting goals have to be carefully balanced by the airport management. The efforts of airport staff to effectively manage environmental impacts are significant but have not always been communicated to the public effectively. To help the airport communicate, our group facilitated a redesign of the airport's website to turn it into an effective platform for sharing information with pilots, visitors, and community members alike.

We focused on three main objectives:

1. Evaluating the strengths and weaknesses of the current website compared to existing airport websites and published guidelines,
2. Collecting and analyzing stakeholder opinions, and
3. Developing a prototype website.

Evaluating Selected Airport Websites

Halpern and Regmi (2013) conducted a systematic analysis of 451 European Union airport websites in order to determine what content commonly appeared on airport websites. Our sponsor, Noah Karberg, provided a list of websites that he considers examples of effective design for smaller, regional airports. We evaluated and compared these airport websites using the content evaluation list provided by Halpern and Regmi (2013).

We also performed an evaluation of their overall effectiveness and motivational quality using a tool, WebCHECK. We used the WebCHECK instrument to perform our evaluations as it is designed to measure the motivational quality of websites. Motivational quality is a measurement of a website's ability to attract users, hold their attention, and encourage future visits (Loh & Williams, 2003, p. 352). We used this tool along with the Halpern and Regmi (2013) analysis in order to identify the usability aspects and content that need to be added to the new website.

Collecting and Analyzing Stakeholder Opinions

In efforts to gain opinions and suggestions from stakeholders, we used surveys as an instrument to determine which website features and content were important to the members of the different user groups. We also conducted interviews in order to gain a sense of the more detailed needs of the community and how the airport can act as an outreach tool for the specific user groups we have identified.

Developing a Prototype Website

Following an easily-adaptable design process, we first translated our interview and survey data into discrete chunks of information and transferred this list of items to notecards. Maintaining a tangible stack of notecards enabled us to select and organize content in a visual and intuitive manner.

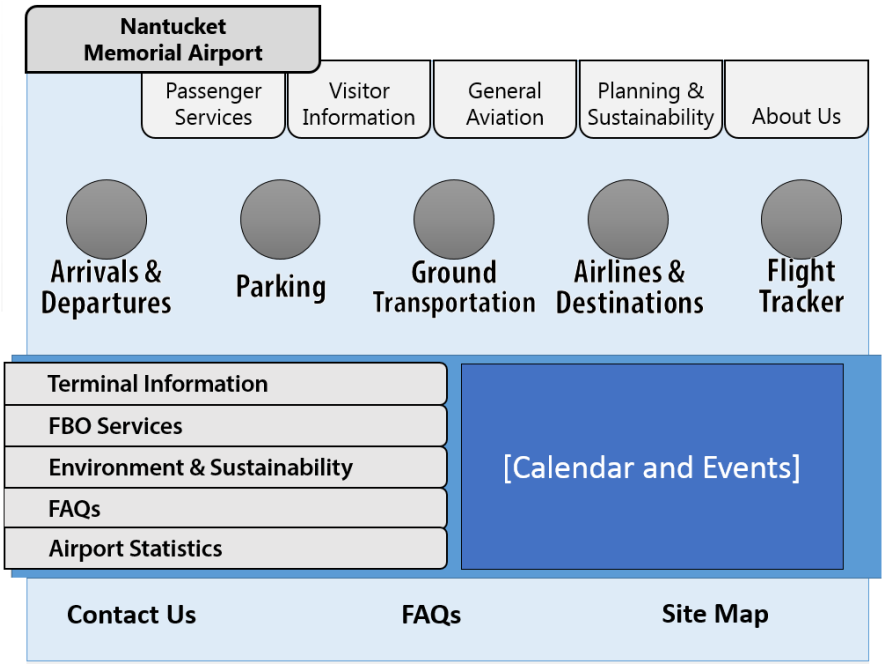
Culminating all of the collected background research and stakeholder opinions, we moved forward to begin designing the new airport website. As the Town of Nantucket website was recently redesigned using the services of CivicPlus, we chose to work with them as well to design the new website.

CivicPlus provided us with three possible options for a new airport website, and we ultimately chose the **department header page** option. This option gave the airport the appropriate amount of design choices and distinction from the town website. It also met the airport's budget and fit the appropriate time frame.

For the initial step of creating a mock-up of the homepage of the redesigned website, CivicPlus requested that we provide them with several different pieces of information that would be shown on the homepage. This included our global navigation, which would be the five main categories of our decided hierarchy, as well as other information that needed to be easily accessible such as popular links and permanent buttons on the top of the homepage.

The popular links and header buttons were determined largely from the feedback obtained from our survey and interview responses. Our stakeholders emphasized the importance of receiving flight status and airline information as quickly as possible, so we made sure these were made into graphic buttons. They also expressed that parking information needed to be easily

accessible on the website, but because we could not easily incorporate parking information in a global navigation button, we created a header button that would take the user to the page containing parking information. Following this same thought process, we were able to justify our decisions for the popular links and header buttons and combine this with the global navigation to create our mock-up of the homepage shown in the graphic below.



Along with the structural layout we presented to the airport, we also created a table of all recommended website content and whether or not they needed to create, update, or migrate that content from their original website. The majority of the content must be created because the previous Nantucket Memorial Airport website was relatively lacking in content. We expect that much of the content we recommend be created could be repurposed from the airport's Master Plan document. A portion of the content only requires an update, meaning the airport should supply more information on this content than was available on their previous website.

We also recommend that the airport place a live updating display of current flight information on the arrivals and departures page of the website. Our stakeholders emphasized how, especially in inclement weather, it is crucial to know well in advance if they will have to search for another way off the island. Satisfying this need for immediate information in case of delays was a major motivation for featuring "Arrivals and Departures" so prominently on the airport website. We recognize that the airport does not always receive current information, so we

recommend encouraging air-taxi companies to update Flight Information Display (FID) data regularly so it can be included on the website.

We identified the proposed noise inquiry form as a key feature of the new website. The airport regularly communicates with local residents by phone to identify and spread information about the cause of potential occurrences of noise. Many of our interviewees expressed that they would like to see information on the efforts that the airport takes to alleviate noise. We recommend developing an electronic form that can be used to initiate these inquiries to make this process easier and more efficient for both airport staff and interested local residents. The feature would be most beneficial if it could automatically provide some information about recent events which may be relevant to the inquiry, as the resident would receive some instant information while the airport staff has time to prepare a more detailed set of information.

One common complaint regarding the previous website was that its information was not frequently updated. In our analysis of the previous website using the WebCHECK tool, we determined that the website was updated less frequently than the five other airport websites we evaluated. Based on this evaluation, as well as various comments from our survey and interviews, we recommend that the airport update the information on their new website with higher frequency than they had done on their previous one. Certain sections, such as news and announcements, need to be updated on a regular basis, while others, including statistics, can be updated annually.

The steps described above comprise the research and development stage of the project. After we handed the project off to airport and town staff, there were still design and implementation steps left to finalize. We arranged a timeline with CivicPlus so that the airport has a structured outline of the remaining steps of the project. The plan calls for airport staff to create and update website content as specified in Appendix F, concurrently with iterative review of the visual design work being completed by CivicPlus. The timeline expects content development to finish by early February, 2015 at which point CivicPlus should apply the finished design to the new website. Finally, CivicPlus and Nantucket Memorial Airport planned to deploy the new website on February 27, 2015. We were excited to hand off the project to the airport with such a detailed plan in place, and were are optimistic that the new website should eventually be deployed in a reasonable timeframe.

AUTHORSHIP

Section:	Primary Writer	Secondary Writer	Editors
Introduction	BR	KK	RE, VS
Background			
Nantucket Memorial Airport	RE	KK	BR
Information on Airport Websites	VS	BR	RE
Website Design and Evaluation	RE	KK	BR
Methods			
Content Analysis of airport websites	VS	BR	RE
Evaluation of Airport Websites using WebCHECK	RE	KK	VS
Surveys	KK	BR	VS
One-on-one Interview Procedure	RE	VS	KK
Notecard Creation	RE	KK	BR
Notecard Testing	KK	VS	BR
Affinity Diagram	BR	RE	KK
Iterative Design Process	BR	RE	KK, VS
Findings and Analysis			
Content Analysis of Airport Websites	VS	BR	VS
Evaluation of Airport Websites using WebCHECK	RE	KK	VS
Survey	BR	KK	RE
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INTRODUCTION

The ability to reach a wide audience is the goal of many organizations. Some organizations accomplish this goal using websites because they offer a flexible and engaging platform for users. A modern business's website will often serve a function more complex than the conveyance of information from the business to its consumers. McMillan and Hwang (2002) claim that "new media fundamentally change relationships between consumers and producers by opening up the potential for new forms of dialogue" (p. 29). Taking advantage of websites for outreach has become an important part of maintaining healthy relationship with a user base, particularly for business-to-business (B2B) communications. Websites must be intuitive and easy to use to reach customers. User-friendly websites can foster "interpersonal interactivity and generate positive word of mouth for their companies" (McMillan & Hwang, 2002, p. 30). If the process of using a business's website is enjoyable and effortless, users will be more likely to have a positive impression of that business.

Nantucket Memorial Airport's mission is "to provide operationally safe, environmentally responsible and economically sustainable air service" through a variety of measures, including use of energy efficient lighting, flight path incentives, and conservation efforts (Jacobs Engineering, 2014, chap. 1, p. 4). Unfortunately the previous website did not effectively engage community members to showcase the airport's environmental achievements. As Nantucket Memorial Airport continues development of its ten-year developmental plan, called the Master Plan, it has identified a redesigned website is an essential tool for outreach to various constituencies within the community and beyond. An informative and usable website would allow the airport to communicate its achievements to the community and also gather feedback from stakeholders including local businesses, potential vendors and concerned citizens.

While the internet can be a great platform for communication, there are some pitfalls that commonly affect websites: poor usability, difficult navigation, and lack of functionality. Some of these issues occur because rapid development of web technology has left web publishers without a uniform method for designing websites. To combat these and other issues, most websites follow a cyclic development process in which an existing website must be regularly updated to meet changing needs (Nielsen & Loranger, 2006, p. 383). Accordingly, we worked to redesign

the Nantucket Memorial Airport website in order to meet the changing needs of the local community, the visiting community, and the public.

We have identified best practices that generally apply to website development, with the understanding that not every factor can be controlled and every process is slightly different in practice. These key requirements include easy navigation, pleasing aesthetic design, and a user-friendly layout (Zhang & von Dran, 2000). Carefully prepared and selected website content is also essential. Halpern and Regmi (2013) describe the typical content of an airport website, saying that airport websites contain a variety of information, from airline schedules and destinations to local advertising. The airport website also required some unique design elements and site-specific content, selected based on the needs of the stakeholders.

Our goal was to redesign the Nantucket Memorial Airport website to meet the needs of the airport, the community, and the flying public. To achieve this, we evaluated the previous website, identified the needs of stakeholders, and completed an iterative design process. We identified stakeholder needs by using surveys and interviews to collect opinions from members of various user groups. Based on this input we took inventory and organized website content and features, develop navigation structure and layout, and create a final prototype. Using this design method, we helped Nantucket Memorial Airport create a high-quality, engaging website that meets the needs of its diverse user groups.

BACKGROUND

Nantucket Memorial Airport

Nantucket Memorial Airport's life began in the 1930s, when a Mr. Holm allowed the town to use his land as an airfield. During World War II, the airfield was taken over by the US Navy. It was renovated after the war, and buildings were gradually added, allowing the airfield to grow into a full-fledged airport (Jacobs Engineering, 2014, chap. 3, p. 14).

Nantucket Memorial Airport is a public entity. The airport is owned by the town and run by the Nantucket Memorial Airport Commission, an appointed group that serves under the Nantucket Board of Selectmen. The airport is self-sustaining and independently generates revenue through service fees. The airport boards more than 170,000 passengers annually, generates over $400 million in revenue, and provides approximately 4,000 jobs for the community (Jacobs Engineering, 2014, chap. 3, p. 3).

Several factors distinguish Nantucket Memorial Airport from other small airports. Many of these differences can be attributed to the nature of the island of Nantucket. The island is a popular tourist destination, so airport business is heavily concentrated during the summer months and holidays. During the summer months, Nantucket Memorial Airport becomes the second busiest airport in Massachusetts after Logan International Airport in terms of the number of 'operations' (Jacobs Engineering, 2014, chap. 2, p. 3). 'Operations' is an aviation term which refers to the number of takeoffs and landings that occur. The Nantucket population more than quadruples in the summer, and airport revenue depends on tourists and summer residents. Approximately 25% of Nantucket visitors arrive by air, and the rest arrive by water. (Jacobs Engineering, 2014, chap. 2, p. 4). This limitation of two modes of transportation plays a significant role in business and tourism on the island.

The elevated socioeconomic status of Nantucket residents and visitors also has an impact on the airport's business. Nantucket has the highest median property value in Massachusetts and ranks among the highest per capita and household income statistics. Tourists, summer residents, and commuters provide the bulk of the airport's revenue (Jacobs Engineering, 2014, chap. 2, p. 4). These indicators of economic strength are associated with increased frequency of private flights which bring revenue to the airport from fuel sales and various fees.

The relative variability of the airport's activity level requires careful management practices to ensure long-term sustainability. With funding from the Federal Aviation Administration (FAA) and the Massachusetts Department of Transportation (MassDOT), the airport created the Nantucket Memorial Airport Master Plan in 2014 to guide future decisions and improvements. Through the Master Plan, the airport examines its resources and deficiencies to ensure the airport will remain safe, successful and sustainable. The Master Plan also forecasts air service trends and future aviation demand in order to anticipate and adapt to changes within the industry. The Master Plan discusses other aspects of airport operation that the Commissioners and employers believe are especially important, including community interaction and outreach efforts, environmental issues, and noise reduction (Nantucket Memorial Airport, 2014).

The commissioners and staff hope that the airport's community outreach program can function as a means of information exchange between the airport administration and the community. Fostering trust and support in both directions would help the airport operate more effectively and would also allow the airport to better recognize and meet the needs and desires of the public (Jacobs Engineering, 2014, chap. 1, p. 5). The airport recognizes three audiences in the community to which its outreach efforts are directed. The first audience is the Working Group. The Working Group consists of those who are sufficiently motivated and interested to offer consistent input and feedback. The second audience comprises interested members of the public who want to stay informed about developments at the airport. The third and broadest audience comprises members of the general public who are typically content to receive occasional news articles or emails (Jacobs Engineering, 2014, chap. 1, p. 5). The development and implementation of the Master Plan is an ongoing process that depends on outreach to and feedback from these three audiences. Outreach methods used by the airport include community meetings, discussions, interviews, focus groups, open house events, and social media in the form of Twitter and Facebook. The Master Plan website includes a comment section through which people can voice opinions and ask questions (Jacobs Engineering, 2014, chap. 1, pp. 5-6).

The airport, through various outreach programs, addresses the environmental concerns of the community. Nantucket is treasured for its natural beauty. Forty-five percent of the island has been set aside for conservation, and members of the public are particularly aware of environmental issues (Nantucket Chamber of Commerce, 2014). Environmental concerns range

widely, from protection of endangered species to the prevention of pollution, to managing greenhouse gas emissions, noise, and light. The Airport has taken steps towards better environmental sustainability (Jacobs Engineering, 2014, chap. 3, pp. 5-13). For example, species which are threatened or endangered are carefully tracked, and care is taken to avoid harming them or their habitats (Jacobs Engineering, 2014, chap. 3, p. 7). "Based on the need for maintaining the high quality of groundwater in the area, the airport is committed to an extensive groundwater management plan." This plan includes actions such as updating fuel tanks, monitoring groundwater, and training airport personnel (Jacobs Engineering, 2014, chap. 3, p. 12).

The airport administration continues to work towards their ideal of sustainability. For example, the airport relies on a geothermal system to heat and cool the main terminal building, uses LED lighting in many offices and public spaces, and has installed electric car charging stations in public parking areas. Despite the success of these efforts, the airport staff feels that there is still more work to do. The Massachusetts Department of Transportation and the Volpe Transportation Center has chosen the airport to become the first carbon neutral airport in the US, meaning all carbon emissions produced are offset. In order to reach this goal the airport must reduce energy use further, upgrade technology, and deploy more alternative energy sources, such as solar power (Jacobs Engineering, 2014, chap. 3, pp. 15-16).

Quiet is particularly important to many Nantucket visitors and residents, and the airport has spent years investigating ways to reduce noise pollution from airport activities. For example, the airport now provides pilots with flight paths incentivized by the airport to minimize disturbance of island residents, and planes are now parked with their engines facing away from residential areas. Since the number of noise complaints has declined since 2008, it would appear that these efforts have been somewhat successful. Nevertheless, the airport continues to search for other noise reduction strategies and the current noise levels are recorded to serve as a baseline against which to evaluate future noise reduction efforts (Jacobs Engineering, 2014, chap. 3, p. 3).

Nantucket Memorial Airport strives to be an environmentally and socially responsible center for transportation. In order to communicate the airport's achievements, plans, and objectives to the public, their website must showcase various pieces of content including their Master Plan, economic statistics, sustainability efforts, and noise reduction policies. Nantucket

Memorial Airport's website can serve as an outreach tool to strengthen the relationship between the airport and the community by providing useful and relevant information.

Types of Information on Airport Websites

Airports are involved in many different markets and are therefore expected to cater to many different user groups in order to stay economically viable. This diversity of website visitors leads to a diverse and broad-ranging body of website content, all of which must be reevaluated during a redesign process. To effectively meet this need within our limited timeframe we selected an existing content analysis method as the first step of our evaluation.

The method we used was developed by Halpern and Regmi (2013) to facilitate their content analysis of the websites of 451 European airports ranging in size from around 5 million to 25 million passengers per year. Although Nantucket Memorial Airport does not reach this range of passengers annually, the range of information relevant to Nantucket visitors is similar. Because a more tailored analysis method is not available, we assessed whether smaller airport website content can be analyzed using the same method. We determined that the method is appropriate by applying the method to a sample of smaller airport websites and comparing their results.

Categories of content on airport websites.

Main category	Sub-category	Example items of content
Passenger services & information	Flight information	Airlines, destinations served, route map, flight timetables, SMS flight updates
	Transport & directions	Getting to/from the airport, car parking & valet parking
	Travel information & support	Customs, immigration & passport control, transit/transfer & flight connections, passenger rights, safety & security (inc. police), special assistance (inc. for people with reduced mobility), baggage reclaim & info., meeting points (inc. drop-off & collection), check-in inc. e- & self-service, airport maps, travel planning (support & booking), travel with children or animals (inc. quarantine), hotels & car hire
	Passenger services & facilities	Passenger terminal info., shops, food & beverage, Internet/WiFi, VAT refund, families & children, health & medical, rest rooms, worship, executive lounges, fast-track & VIP, cash machines, guided tours, trolleys, porterage, baggage wrapping, post, smoking areas, viewing area & visitor centre (inc. museum and art gallery), info. desks, concierge, lockers, lost property, dry cleaning
Aviation	Airport charges	Calculator for airport charges, conditions of use for aircraft ops (inc. charges for peak/off-peak, emissions, noise & weight categories, passengers, parking), incentive schemes (discounted charges & marketing support)
	General Aviation	Flying clubs, flight schools
	Ground services	Maintenance, passenger & aircraft handling, sanitation
	Technical information	Terminal infrastructure, airside infrastructure & operational capabilities, air rescue & fire fighting, regs, procedures & other info. relating to aircraft ops
	Cargo & logistics	Facilities & services for cargo & logistics
	Market research	Catchment area info. & potential demand, specific route or tourism dev. ops, opinion poll for new or existing routes
Non-aviation	Meetings facilities	Business centres & facilities and services for meetings, incentives, conferences & events
	Advertising	Advertising ops at & around the airport
	Consultancy	Consulting services
	Property	Business park, commercial rental properties inc. office space, executive lounges, ticket desks, hangars & ramp
	Tenders	Tender ops
	IT & telecommunications	IT & telecommunication business services
Corporate communications	About the airport	Intro. to the airport inc. history, corporate policy & code of business conduct (including corporate intentions such as vision, values, mission & objectives), organisation & corporate governance, awards
	Media	Press kit, fact sheets, image gallery, news & RSS feeds, FAQ's, media policy e.g. for filming & photography, links to airport social media accounts
	Customer services	Airport contact details, customer services & feedback forms, customer surveys, service qual. achievements & cert.
	Investor relations	Shares info., finance & traffic data, events & presentation, reports & releases (i.e. annual reports & financial statements)
	Human resource management	Jobs & career ops, training & personal dev., job fairs, apprenticeships & graduate schemes, policy, certification
	Airport planning & dev.	Airport master plan, expansion & optimisation projects, real estate & area dev.
	Sustainability	Environmental, social & economic management (inc. case studies, management systems & certification)
	Corporate social responsibility	Culture (inc. the arts), education, community, sponsorship

Table 1: Overview of common website content elements

Airport staff explained that smaller airports are curtailed similarly to larger airports, which may explain why this content analysis method can be applied to large or small airports with similar results. This common structure also means that we can reasonably approach categorization by considering research on larger airport websites as a model. Having reviewed 451 airport websites, Halpern and Regmi (2013) distinguished four major categories and several subcategories, listed in Table 1 above, which we used as a starting point for categorization during the research phases of the project. For example, our survey questions were organized according to these categories.

In their general overview of airport website content, Halpern and Regmi (2013) identified the 70 items of content, shown in Table 3, which were most frequently found on the airport websites reviewed. The top three most frequently appearing content items were ‘airlines and destinations served’, ‘airport contact details’, and ‘getting to/from the airport’. Each of these categories was represented on more than 90 percent of the websites reviewed. The commonality

of this set of basic information related to air travel indicates that it is important to airport visitors and must be made readily available on any airport website.

As seen in Table 2 below, Halpern and Regmi (2013) determined that 100 percent of the airports in their sample included at least one piece of content in each of the following categories: **Passenger related services and information**, **aviation related business areas** and **corporate communications** (p. 10). Only the **Passenger services and information** category is consistently represented with 97 percent of airport websites displaying content from every subcategory. In contrast, only 47.3 percent of airports included all subcategories in **corporate communications**, and only 38 percent of these airports included all subcategories in **aviation related business areas**. Although airport websites generally display the same overarching categories, many of the specific types of information vary depending on the location of the airport and the lifestyle of the people around it. In 'User-centered Web Development', Jonathon Lazar explains the importance of including the opinions of these people when designing an information system such as a website (2001, p. 2). However, not all categories of information are consistently well-represented in the websites Halpern and Regmi reviewed.

The most inconsistent category was **non-aviation** which includes *meeting facilities*, *advertising*, *consulting*, and *property information*. Only 46.3 percent of airports provided at least one piece of **non-aviation** information and only 16.6 percent provided information from every sub-category (Halpern & Regmi, 2013 p. 11). This information was more significantly underrepresented on the websites of "smaller airports and at airports that are publicly owned and operated," (Halpern & Regmi, 2013, p. 12). Halpern and Regmi explained a possible cause, saying "airports that are owned or operated by private interests tend to be more market orientated," (p. 1). They further noted that diminishing public finances require publicly owned and operated airports to become more market-driven and include **non-aviation** content to reach out to businesses.

Proportion of airports providing categories of content on their website.

Main category	% airports	Sub-category	% airports
Passenger services and information	100.0	Flight information	100.0
		Transport and directions	97.8
		Travel information and support	99.3
		Passenger services and facilities	90.9
Aviation related business areas	100.0	Airport charges	41.0
		General Aviation	29.5
		Ground services	18.2
		Technical information	60.3
		Cargo and logistics	22.6
		Market research	56.3
Non-aviation related business areas	46.3	Meetings facilities	37.5
		Advertising	25.1
		Consultancy	2.4
		Property	14.6
		Tenders	11.8
		IT and telecommunications	8.4
Corporate communications	100.0	About the airport	46.1
		Media	90.9
		Customer services	99.1
		Investor relations	29.5
		Human resource management	21.3
		Airport planning and development	16.0
		Sustainability	54.3
		Corporate social responsibility	21.1

Table 2: Proportion of airports providing categories of content (Halpern & Regmi, 2013)

In addition to category-based data, the analysis also provided a breakdown by content item. Table 3 below lists the frequency with which each type of content appears on the sampled websites. We use this table in the later steps of development when particular content items require justification for inclusion on the redesigned website. This table is appropriate for this purpose because it takes into account a larger sample than our own content analysis and provides insight into what types of information are widely useful enough that most airport websites include them.

Top 70 items of content according to the proportion of airports that provide such content on their website.

Rank	Content	% airports	Rank	Content	% airports
1	Airlines & destinations served	100.0	36	Transit/transfer & flight connections	18.4
2	Airport contact details	99.1	37	Organisation & corporate governance	18.2
3	Getting to/from the airport	90.2	38	Passenger rights	17.5
4	Flight timetables	87.6	39	Flying clubs & flight schools	17.1
5	Safety & security information	83.6	40	Incentive schemes	16.6
6	News & RSS feeds	80.5	41	Airside infrastructure & operational capabilities	16.4
7	Travel planning support	71.0	42	VAT refund	16.4
8	Baggage reclaim & information	66.3	43	Maintenance, passenger & aircraft handling	16.0
9	Shops, food & beverage	59.0	44	Air rescue & fire fighting	15.7
10	Environmental, social & economic management	54.3	45	Airport planning & development	15.1
11	Catchment area information & potential demand	54.3	46	Corporate policy & code of business conduct	14.3
12	Car parking & valet parking	46.6	47	Commercial rental properties	14.2
13	Executive lounges, fast-track & VIP	45.9	48	Health & medical	13.1
14	Internet/WiFi	39.2	49	Check-in	11.8
15	Meetings facilities	37.5	50	Tender opportunities	11.8
16	Special assistance	36.8	51	Sanitation	11.3
17	Customs, immigration & passport control	36.1	52	Customer services & feedback forms	10.9
18	Hotels & car hire	33.0	53	Worship	8.9
19	Travel with children or animals	29.9	54	IT & telecommunication business services	8.4
20	Travel booking support	29.5	55	Community	7.1
21	Links to airport social media accounts	29.3	56	Airport maps	5.8
22	Introduction to the airport	29.0	57	Viewing area & visitor centre	5.1
23	Passenger terminal information	28.8	58	Service quality achievements & certification	3.8
24	Guided tours	26.4	59	Media policy	3.5
25	Conditions of use for aircraft operations	25.3	60	Meeting points	3.3
26	Families & children	25.3	61	Business park	2.9
27	Advertising opportunities at or around the airport	25.1	62	Awards	2.7
28	Finance & traffic data	24.4	63	Specific route or tourism development opportunities	2.7
29	Terminal infrastructure	24.2	64	Culture	2.7
30	Reports & releases	24.2	65	Opinion poll for new or existing routes	2.4
31	Facilities & services for cargo & logistics	22.6	66	Consulting services	2.4
32	Regs, procedures & other info. relating to aircraft ops	21.1	67	SMS flight updates	2.4
33	Jobs & career opportunities	20.8	68	Customer surveys	1.8
34	FAQ's	20.8	69	Sponsorship	1.8
35	Calculator for airport charges	20.6	70	Training & personal development	1.8

Table 3: Top 70 items of content (Halpern & Regmi, 2013)

For information specifically curtailed to the arriving passenger, Table 3 shows that only 33 percent of airports include information on 'hotels & car hire'. This is a surprising statistic as we can assume that most air travelers do not arrive to airports with their vehicles. In reviewing U.S. airport websites, it appears common to provide information on 'hotels & car hire' and other information for the arriving passenger in order to improve their travel experience.

A significant contributor to most airport websites is content related to outreach efforts, a diverse category that includes management objectives, sustainability goals, and many other types of publicity information. Regarding airport outreach efforts, Halpern and Regmi (2013) claimed that "the main focus has been on business-to-consumer (B2C) communications," but "increased deregulation in the airline industry, and competition between airports, means that airports are increasingly market-driven," (p. 8). This shift has pushed airports to focus on interactions with businesses, known as B2B communications, in order to attract new customers and grow as an airport.

The same trends that are shifting the focus of airport outreach efforts are also increasing the need for airports to communicate effectively with stakeholders and state institutions (Halpern

& Regmi, 2013). Kimmet (2007) made a similar claim, arguing "Stakeholders are becoming more visible to airport managers… and there is an emerging realization of the importance of sustaining a safe, profitable, environmentally sensitive and equitable airport business" (p. 15). Airport websites are an ideal avenue for many types of stakeholder communication, a fact demonstrated by Halpern and Regmi's analysis which found that 100 percent of the sampled websites included content related to corporate communications (2013, p. 10).

Another way airports are reaching out to stakeholders is by displaying information on what steps they are taking to counter environmental detriments. The research done by Halpern and Regmi (2013) shows that 54.3 percent of airports include information on sustainability. With this many airports showing concern for sustainability, it is clear that environmental outreach is important to many airport websites. As these efforts prove to be important for airports, business outreach proves to be just as important.

Different from business outreach, the topics of environmental and sustainability action by airports are within the scope of corporate social responsibility (CSR). Rionda, Baird, Kramer, and Wofford (2002) described CSR in general terms as, "transparent business practices that are based on ethical values, compliance with legal requirements, and respect for people, communities, and the environment" (p. 2). Specifically, Bibi van der Zee (2008) predicted that, "with daily stories of record temperatures, extreme weather, and floods and droughts…businesses will have to become experts in communicating these changes to their customers," (p. 5).

As airports broaden their focus to include a stronger emphasis on B2B communications, there exists an increased need for outreach to those businesses by means of web content in order reach the most users. Skouloudis et al. (2012) mentioned that many airports are in the process of developing their involvement in environmental outreach. Noise disturbance is an environmental issue that many airports include as a component of their community outreach efforts. Some airports, including Nantucket Memorial Airport, are located in close proximity to residences and must give special attention to noise. Suau-Sanchez, Pallares-Barbera, and Paül (2011) discussed the factors that generate annoyance, saying "Perceived control is also a major factor. Perceived control is identified with the predictability of a noise situation, the accessibility of information and transparency, trust and recognition and concern, and voice." (p. 278). Their research confirms

that distributing information about noise abatement practices can reduce the level of annoyance perceived by those affected by noise.

The many types of information discussed in this chapter represent a diverse spread of the information that can be found on airport websites. Each website has different priorities, so standard evaluations are necessary to judge each website on comparable scales. By creating website design evaluations, users can discuss the strengths and weaknesses of various websites.

Website Design and Evaluation

Various criteria are used in website evaluations. The most common metric used to evaluate websites is usability (Chiou, Lin, & Perng, 2010, p. 282). Usability is defined as "how quickly people can learn to use something, how efficient they are while using it, how memorable it is, how error-prone it is, and how much users like using it" (Nielson & Loranger, 2006, p. xvi). Websites that are characterized by high usability allow users to obtain information and perform tasks efficiently, resulting in a positive user experience.

The web design process should focus on meeting the needs and demands of the users. The first step of the web design process is to determine the website's user base. During this step, the website's target audience should be clearly identified. The second step is to gather requirements, or to create a list of features and functionalities that the website needs to have. The third step is to involve the user. This consists of collecting opinions and feedback from the target users. The fourth step is to build a working website (Lazar, 2001, pp. 5-7). This typically starts with a conceptual plan called a prototype which is then expanded upon through technical development and content creation (Lazar, 2001, p. 12). The fifth and final step of the web design process is to deploy, test, and make revisions to the site (Lazar, 2001, pp. 7).

The objective of web design is to satisfy users by creating a web site that suits their needs, desires, and expectations (Zhang & von Dran, 2000, p. 1253). It is important to obtain user feedback during various stages of the web design process in order to create a website that satisfies users. User input is typically collected during the requirements gathering, testing, and implementation phases of web design (Lazar, 2001, p. 13).

In this chapter, we discuss various aspects of website design and evaluation with considerations made for how each can improve the user experience by increasing website

usability. The following design principles guided us through the processes of website evaluation and website development.

Content

Website content should be relevant and reflect the overall purpose of the site. “Useless content doesn’t just annoy people; it’s the leading cause of lost sales,” (Nielsen & Loranger, 2006, p. 80). Content that does not pertain to the website in any way causes a drop in website traffic. “Users want a site that… allows them to complete their tasks in a nominal amount of time with a nominal amount of frustration” (Lazar, 2001, p. 3). Irrelevant content can interfere with the user’s attempt to retrieve information by cluttering the site with useless distractions. Users have short attention spans, averaging about 30 seconds for looking at a web page (Nielsen & Loranger, 2006, p. 30). Since websites have such a short period of time to convey information, their information should be as relevant as possible to communicate effectively with their users.

A website should contain a complete set of information within its defined scope. If users spend time searching for information that is not contained within the site, then their time is wasted. However, sites should avoid being redundant with their information as this leads to clutter and user confusion (Nielson & Loranger, 2006, p. 189). The user experience benefits from content that is accurate and up to date. Archived information can be useful, but problems arise when outdated information is presented as if it is new (Nielsen & Loranger, 2006, p. 116). Users visit websites in order to access content that satisfies their wants and needs (Nielson & Loranger, 2006, p. xx). Incorrect or misleading content does not provide the user with desired information. Because websites are generally created in order to house content, websites should try to provide accurate, relevant, complete, and clear content.

Structure

Beyond displaying the right types of content, websites must also present content in a logical and intuitive structure. There is no universal definition for intuitive web design, but there are a number of rules that are generally accepted. The way in which website content is organized can affect how quickly and efficiently users can find the information they seek. Content should be listed in a prioritized order. Related areas should be grouped together. Interactions should not be overly complicated (Nielsen & Loranger, 2006, p. 322). Content should take up at least fifty percent of the space on a web page, though eighty percent or more is ideal. Navigation should

take up no more than twenty percent of available space (Nielson, 1999). Links and clickable items should be clearly clickable (p. 97). For example, text links should generally be colored blue, as this has become a widely-recognized convention (p. 100). Users expect to search using search bars that are located in the top-right or top-left corner of the page. Search bars should be clearly labeled (p. 142). Users are most likely to look for links in the content area, but links can also be located in side columns, the top of the page, or footers; however, users are least likely to follow footer links (p. 35). Link names should be specific and correlate to the pages they lead to. This makes the navigation process easier and more intuitive (p. 192). Web designers may be tempted to make creative and unique design decisions, but sticking to the accepted standards generally results in a more usable website. Lazar (2001) claims that "Conformity of web sites can actually facilitate users' performance of their tasks." Visiting an intuitive website should be second-nature to the user, so their information search can be efficient and less frustrating.

Sites with clearly-defined navigation schemes allow users to jump between pages without getting lost or revisiting pages unintentionally. Users should have a general understanding of which page they are on and which pages they have visited. "A good grasp of past navigation helps you understand your current location, since it's the culmination of your journey" (Nielsen & Loranger, 2006, p. 60). Users generally like sitemaps, though research has not shown them to be particularly helpful, especially if they do not include the user's current location within the site (Nielson, 1999). Pages should generally become more specific the deeper they are nested into the sitemap (Nielson, 1999). According to the three-click rule of web design, all pages within a site should be accessible within three clicks of the homepage. Nielson and Loranger (2006), however, warn that strict adherence to this rule can result in a site that takes longer to navigate because it can cause users to spend more time deciding where to click (p. 322). Most users primarily use search, via a search bar or search engine, to find information on a website. Although only about one-fifth of users primarily rely on links for navigation, a well-designed navigation scheme is necessary to accommodate all users (Nielson, 1999). Websites that users can navigate easily should take a minimal amount of time to traverse.

Aesthetics

Content is not the only factor that affects user impressions. The visual presentation, although one of the last steps in the design process, is an important part of the user experience

(Rosenfeld & Morville, 2002, p. 301). According to Nielson (1999), "One of the main goals of great web design is to establish your credibility as a professionally run operation." Appropriate and visually pleasing aesthetics allow a website to assert its professional credibility. Web pages should be neat and avoid clutter. Main topics in navigation menus should be static and respond to user input. They should appear as soon as the page loads and should not disappear at any point (Nielson & Loranger, 2006, p. 184).

A site that has problems with spacing, formatting, and structure may seem unprofessional. Elements should be properly aligned and there should not be too many elements per page (Nielsen & Loranger, 2006, p. 322). Most of the available screen space should be taken up by useful content rather than navigation, ads, white space, or other distractions (Nielson, 1999). Ads have been shown to reduce usability because they take up the user's time as well as page space. White space can guide the eye and make the content organization more easily understood (Nielson, 1999). The objective of careful content organization is to create web pages that are simple, appealing, and highly usable.

To provide visual contrast, colors should "vary significantly in intensity," such as black text on a white background (Nielsen & Loranger, 2006, p. 245). Color contrast improves the readability of text. It also allows those who have certain disabilities to differentiate between the color choices (Nielson, 1999). This is especially important for the colors green and red, as a fair number of people have difficulty telling these colors apart. It is worth noting that in terms of color choices, a website should still be usable when viewed in gray scale (Nielsen & Loranger, 2006, p. 245). The gray scale test is a good way of making sure the website varies enough in color so that it is readable regardless of the computer or the vision of the viewer. Color schemes should generally be simple. Backgrounds in particular should be subtle to avoid distracting the user (Nielson, 1999). Lynch and Horton (2009) claim that "color palates chosen from nature are almost an infallible guide to color harmony," (p. 186). Color schemes should also be consistent throughout all pages of a website to provide a sense of unity between web pages.

Images can draw users' attention, but overuse can distract them from more important content. Overuse of multimedia, including images, confuses readers and slows them down (Nielson, 1999). Poor use of images leads to websites becoming bloated, or overcrowded with distracting content (Nielson & Loranger, 2006, p. 247). Multimedia also slows down loading

times, and slow loading times usually cause user frustration (Nielson, 1999). Images should be used especially conservatively on higher-level pages such as a site homepage. Text rendered as images provides no benefit and should never be used (Nielson, 1999). Images can make a site more appealing when used sparingly.

Text-based information is a key feature on many websites. Unappealing colors, sizes, and styles of fonts can hinder the user experience. If a website's font choices interfere with readability, fall back on a simpler font. The goal of a website textually is to be able to print the website cleanly, regardless of formatting (Nielsen & Loranger, 2006, p. 234). Dense blocks of text and long paragraphs can intimidate users and may deter them from reading (pp. 81, 275). Text should be sufficiently large, resizable, and easily read (p. 214). To improve readability, it should be left-justified and never written in all caps. Small text is more readable in sans-serif fonts, but people tend to prefer reading text in serif fonts (Nielson, 1999). Clear, readable text ensures that users can get information from the website content.

Conclusions

The factors we listed in this chapter are all valid criteria on which to evaluate websites, but we cannot possibly cover the full scope of possible evaluation factors. Website evaluation strategies differ considerably, and there is no one accepted set of guidelines for web design. "The evaluation frameworks and factors proposed by most studies will not match all website strategies," (Chiou et al., 2010, p. 285). We attempted to evaluate airport websites and redesign the Nantucket Memorial Airport website based on the design recommendations outlined in this chapter.

Both our evaluation of existing airport websites and our process of redesigning Nantucket Memorial Airport's website focused on the concept of usability. Increasing a site's usability by improving layout and aesthetics results in a more successful website even if the content is not changed (Lazar, 2001, p. 3). Nonetheless, a website's content is just as crucial. If users cannot find the information they are searching for on a website, they will not be satisfied with the site as a whole. User satisfaction is a goal of all web designers, and many elements must come together in web design to reach this goal (Zhang & von Dran, 2000, p. 1253).

METHODS

The goal of our project was to develop a new website for Nantucket Memorial Airport that allows the airport to communicate and engage with visitors and community members. In order to achieve this goal, we:

1. Evaluated selected airport websites,
2. Identified the needs and perspectives of stakeholders, and
3. Designed, tested and revised a prototype website.

In this chapter, we provide details about our research methods and describe how we collected and analyzed information to generate practical recommendations. We discuss each step in our process illustrated in Figure 1.

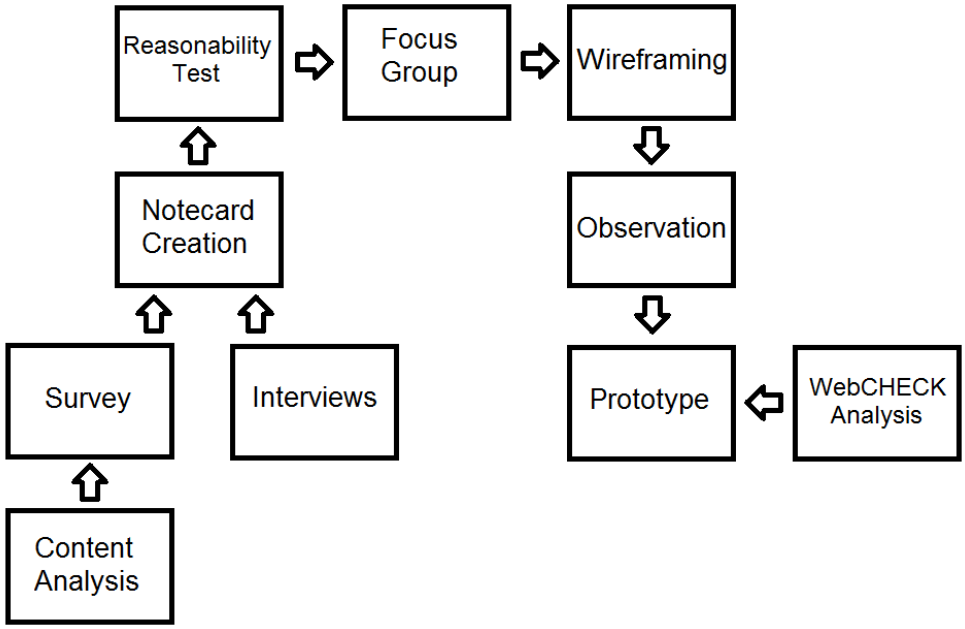

Figure 1: Overall flow of our design process

Objective 1: Evaluate Selected Airport Websites

Content Analysis of Airport Websites

As discussed in the Background chapter, Halpern and Regmi (2013) conducted a systematic analysis of the content of the websites of 451 airports in the European Union. They distinguished between four major categories of information and numerous subcategories, shown

in Table 1. We used Halpern's categories and subcategories to analyze the content of the small airport websites selected by our sponsor.

Our sponsor, Noah Karberg, provided a list of websites that he considers examples of effective design for smaller, regional airports. The list comprised six airport websites: Akron, Ohio; Canton, Illinois; Ithaca, New York; Westchester County, New York; Aspen, Colorado; and Dallas Executive, Texas. We evaluated these airport websites, as well as the Nantucket Memorial Airport website, using the content evaluation list provided by Halpern and Regmi (2013) shown in Table 4 below.

Thoroughly looking through the pages of each airport website listed above, one team member shaded in the corresponding box if an airport displayed that piece of content somewhere on its website. The websites were not scored on the quality of their content, only on whether or not the content existed on the website. Some websites categories did not apply to certain airports such as “Human Resources Management”, and this was noted in the results of this analysis. These results were then compared against the types of content shown on the Nantucket Memorial Airport website to see what pieces of content the website was missing in comparison to other U.S. airport websites.

Evaluation of Airport Websites using WebCHECK

In addition to analyzing the content of these six airport websites, we performed an evaluation of their overall effectiveness and motivational quality using a tool called WebCHECK: The Web Site Evaluation Instrument. While many website evaluation tools consider accuracy, content, and aesthetics, few factor in user motivation (Loh & Williams, 2003, p. 352). We used the WebCHECK instrument to perform our evaluations because it is designed to measure the motivational quality of websites. Motivational quality is a measurement of a website’s ability to attract users, hold their attention, and encourage future visits (Loh & Williams, 2003, p. 352). WebCHECK is based off of various motivational theories and the expectancy-value theory (Loh & Williams, 2003, p. 353). Because we desired to create a website that informs and engages our user groups, we agreed that user motivation was an appropriate metric to focus on during our website evaluations.

	Akron	Ithaca	Westchester	Aspen	Dallas	Nantucket
Passenger Services & Information						
Flight Info						
Passenger Services & Facilities						
Transport & Directions						
Travel Information & Support						
Aviation						
Airport Charges						
General Aviation						
Ground Services						
Technical Info						
Cargo and Logistics						
Market Research						
Non-aviation						
Meeting Facilities						
Advertising						
Consultancy						
Vendors						
IT and Telecommunications						
Corporate Communications						
About the Airport						
Media						
Customer Services						
Investor Relations						
Human Resource Management						
Airport Planning and Development						

Table 4. Evaluation rubric

Evaluation of Airport Websites using WebCHECK

In addition to analyzing the content of these six airport websites, we performed an evaluation of their overall effectiveness and motivational quality using a tool called WebCHECK: The Web Site Evaluation Instrument. While many website evaluation tools consider accuracy, content, and aesthetics, few factor in user motivation (Loh & Williams, 2003, p. 352). We used the WebCHECK instrument to perform our evaluations because it is designed to measure the motivational quality of websites. Motivational quality is a measurement of a website's ability to attract users, hold their attention, and encourage future visits (Loh & Williams, 2003, p. 352). WebCHECK is based off of various motivational theories and the expectancy-value theory (Loh & Williams, 2003, p. 353). Because we desired to create a website that informs and engages our user groups, we agreed that user motivation was an appropriate metric to focus on during our website evaluations.

WebCHECK Professional is a scoring instrument that includes a series of items that the user must rate on a four-point Likert scale. The possible ratings are 0 (strongly disagree), 1 (somewhat disagree), 2 (somewhat agree), and 3 (strongly agree). Each item on the checklist is a statement regarding the website under evaluation (Small & Arnone, 2013).

Two members of our team applied WebCHECK Professional to each of the six websites we examined. After spending some time becoming familiar with each website, the two of us discussed each checklist item and agreed upon a set of scores. Using our checklist ratings, WebCHECK generated four attribute scores for each website. These four attributes are called Stimulating, Meaningful, Organized, and Easy-to-Use. Scores for these attributes are generated automatically by summing the ratings of relevant items in the checklist (Small & Arnone, 2013). We considered the scores from these four attributes, as well as the total score made up by the sum of all items in the checklist, when examining the results of this evaluation. A blank copy of the WebCHECK Professional scorecard is included in Table 5 below.

Airport						Scorecard Item
Nantucket	Akron	Ithaca	Westchester	Aspen	Dallas	
						The visual layout of this Website attracts attention.
						This Web site provides adequate coverage of topics presented.
						Visual (e.g. videos, photographs) or audio content included in this Web site helps to clarify or describe the topic(s) presented.
						Navigating this Web site does not require any special skills or experience.
						There is nothing on this Web site that distracts attention from the content.
						This Web site provides links to other related or useful Web sites.
						The purpose of this Web site is clear.
						This Web site provides an easy-to-use help function.
						This Web site provides opportunities for interactivity through participatory features (e.g. social networking, games, polls, commenting, etc.)
						This Web site appears to contain credible information.
						The organization of this Web site is simple and clear.
						This Web site makes it easy to search or query for information.
						There are opportunities to read and/or share different ideas and viewpoints that make this Web site interesting.
						The information contained in this Web site is current and up-to-date.
						The information on this Web site is well-organized.
						Features of this Web site are easy-to-use.
						A variety of formats for presenting information (e.g. text, images, sounds) helps maintain attention without limiting persons with disabilities from access to that information.
						Information on this Web site appears to be accurate.
						The information on this Web site is presented in a clear and consistent manner.
						The features on this Web site are active and fully functioning.
						This Web site has novel or unique features that make it more interesting.
						This Web site contains little or no redundant or irrelevant information.
						The text at this Web site is well-written without grammatical, spelling or other errors.
						At this Web site, I can control what information I wish to access.
						This Web site stimulates curiosity and exploration.
						This Web site provides accessible opportunities for all (including those with visual, hearing and mobility impairments) to actively participate and contribute content.
						This Web site provides adequate coverage of topic(s) presented.
						Buttons, links and other navigation mechanisms work the way they should on this Web site.
						The content on this Web site is fresh and engaging.
						This Web site provides opportunities to communicate with its creator(s) or author(s).

Airport						Scorecard Item
Nantucket	Akron	Ithaca	Westchester	Aspen	Dallas	
						No matter where I am in this Web site, I can return directly to the home page.
						There is little or no delay in accessing media content from this Web site.
						This Web site's content is current and up-to-date.
						The author and/or publisher of this Web site is explicitly stated.
						This Web site's design uses a navigation system that enables efficient access to any Web site section from any page on the site'
						The information on this Web site is accessible to all, including those with sight impairments, by providing content that is screen reader-enabled, employing descriptive audio and offering a simple design to assist those using magnification tools.
						This Web site provides a list of resources that may be accessed to obtain additional information.
						The authority of this Web site author(s) or creator(s) is readily discernible.
						When clicking hyperlinks, the ability to revisit the selected path (i.e. via a "breadcrumb trail" or the Web browser's back button) is available.
						The information on this Web site is accessible to all, including those with hearing impairments, by offering closed-captioning and/or transcripts of audio content.
						Functional hyperlinks within and outside of this Web site stimulate further exploration of content.
						The authority of this Web site author and/or publisher is credible for the content.
						This Web site works well whether or not pop-up functionality is enabled on a Web browser.
						The information on this Web site is accessible to all, including those with mobility challenges, by offering an uncluttered screen design that requires limited dexterity to navigate.
						I would re-visit this Web site.
						This Web site's content either provides an objective perspective or makes its bias known.
						Video or multimedia content may be launched in a new window or frame so as not to get lost when accessing this content.
						This Web site is optimized for mobile access (i.e. Smart Phones, tablets, etc.).
						Stimulating
						Meaningful
						Organized
						Easy-to-Use
						Total

Table 5: WebCHECK Professional Evaluation Scorecard

Assessing Strengths and Weaknesses of Current Site

We created an inventory of the previous Nantucket Memorial Airport website to catalogue all of the features and information it contains. This inventory served as baseline set of features for us to consider including on the new website. We used this inventory in order to provide recommendations to the Nantucket Memorial Airport on which content could be migrated from the old site and which content should be rewritten. We checked the features of the previous website against the list in Table 1 in order to determine how the site compares to other airport websites in terms of features and content.

The results of our website evaluations allowed us to judge the previous Nantucket Airport website's content, design, and motivational quality. This information gave us a sense of how the site compares to the expectations for airport websites. After both of the evaluation processes, we had a clear sense of the previous site's strengths and limitations.

Objective 2: Identify Needs and Perspectives of Stakeholders and User Groups

Many different individuals and groups, ranging from pilots to local residents, use the Nantucket Memorial Airport website for various reasons. The airport commissioners and staff, as well as town officials, each have slightly different expectations regarding the appropriate content and purpose of the airport website. We conducted interviews and surveys in an effort to identify the diverse needs and perspectives of the many stakeholders. We organized these stakeholders into groups, called “user groups”, to help identify meaningful distinctions between the needs of different types of stakeholders. Table 6 below lists the stakeholders as members of the user groups we identified. Our sponsor provided an initial list of stakeholders, which we supplemented during our research as our interviewees referred us to other stakeholders. As we learned of each new group of stakeholders, we attempted to include them in survey and interview activities. Table 6 below highlights the principal stakeholders organized into six user groups.

User Groups	Stakeholders
Airport Staff	Management Airport IT Environmental and Compliance Coordinators
Airport Commissioners	Chairmen
Town of Nantucket	Nantucket Board of Selectmen (BOS) Town Manager Director of Planning Visitor Services Town IT
Airport Tenants	FAA Site Supervisor Nantucket Flying Association Commercial Carriers Plane Rental Services
Nantucket Homeowners Association	Nantucket Civic League Nantucket Surfside Association
Miscellaneous	Nantucket Chamber of Commerce Master Plan Committee Commercial Carrier Passengers Pilots Taxi Drivers

Table 6. Nantucket Memorial Airport Website User Groups

Surveys

We used surveys as an instrument to determine which website features and content were important to the members of the different user groups. This allowed us to develop a website design that better meets the needs of its users. We decided that an anonymous survey would be best for gathering opinions as the survey respondents would answer questions more freely.

Survey Development

Building on existing research, our initial set of questions was aligned with the categories established by Halpern and Regmi (2013) shown in Appendix A. One of the questions asked stakeholders to rate how useful certain content pieces would be to their website experience.

Another question asked stakeholders to rate how important certain environmental issues were to them. Our questions focused on content and features in order to identify what the survey participants wanted to see on the website.

The first few questions on our survey were used to identify the participant's relationship with the airport and determine how familiar the participant was with both the airport and its previous website. The majority of the survey questions ask the participant to rate various features and content pieces based on their usefulness. We used these questions to determine the popularity and demand of various features and content that are common on airport websites. The survey also included a write-in box so that we could take suggestions from a large collection of users. The final section of the survey asked the participant to rate environmental topics that are addressed by the airport according to their importance. The results from this section allowed us to make judgments regarding how interested and concerned the populace is with these issues.

Our survey development process underwent several rounds of revision. By including input from our sponsor and advisors, this made the survey building process iterative in order to ensure we encapsulated as many points as possible.

Brinck et al. (2002) said, "Surveys work well for issues that are clear cut and easy to categorize... [and] should also focus on questions that directly resolve design dilemmas," (pp. 72-73). We avoided questions that would likely confuse the participant. We also avoided open-ended options, aside from one question that asked respondents to list any other additional features they would like to see on the website.

Survey Testing and Revision

In order to ensure that our survey included questions that were easily comprehensible and straightforward, we asked some of our colleagues, our advisors, and our sponsors at Nantucket Memorial Airport to take the survey and give us feedback. Their feedback helped us refine the survey until it was as easy to understand as possible.

Conducting the Survey

Survey data was collected electronically using the Qualtrics platform. We prefaced the survey with a brief preamble that informed the participant of the purpose of our research and asked for consent to capture and use their response. A draft of the preamble is shown below in

Appendix B. The survey allowed respondents to leave some questions blank but prompted them with an alert box, shown in Appendix B, to make sure they intended to leave the question blank before they left the page. The end of the survey then thanked the respondents for taking the survey and offered them an opportunity to enter a raffle. We awarded the raffle winner a $50.00 gift card to a local restaurant. The prize served as an incentive to encourage more people to respond to the survey.

Sampling and Distribution

We distributed the survey electronically, using the contacts given to us by Noah Karberg. To facilitate collecting responses, we set up a survey on the Qualtrics platform and distributed the link. We selected Qualtrics as a survey platform because it offered the features we need and presented our survey with a professional designed theme. One of the Qualtrics features we used was the ability to collect contact information for raffle entries without compromising the anonymity of the survey responses. Through our contacts at the airport and interviewees, we distributed the survey via social media and via e-mail to various groups including Surfside Homeowners Association, Nantucket Flying Association, airport administrative and operational staff, and other administrative town employees. In total we collected 127 responses.

One-on-one Interview Procedure

We supplemented the survey of user groups by interviewing a subset of community members, listed in Table 6. We captured the content of interview sessions by the guidelines recommended by Creswell (1998). A sample interview script is shown in Appendix C. Our sponsor gave us a list of participants to select from, in addition to any contacts given by an interviewee. We selected interviewees who were particularly representative of each of the various user groups.

We collected contact information from each participant, then planned interview times and locations. We requested in-person interviews with each participant, but we used phone interviews if we could not meet with the participant in person. In-person interviews were preferred because with phone interviews, it is more difficult to establish trust, recognize nonverbal cues, and have an extended conversation (Jacob & Furgerson, 2012, p. 3). We planned interview times around the schedules of the interviewees. Airport staff were usually interviewed on airport property for

convenience. Other participants were interviewed in a neutral, comfortable environment with minimal distractions (Clifford, 2012, p. 7).

Interviews were semi-structured, prefaced by a scripted introduction shown in Appendix C. We explained the objective of our research and why our project benefits the interviewee (Jacob & Furgerson, 2012, p. 3). During the sessions, we obtained recording consent (Clifford, 2012, p. 7). Interviews were recorded on a tape recorder unless the participant did not offer consent. This ensured that information was not lost if it was not included in the handwritten notes (Jacob & Furgerson, 2012, p. 3).

The interviewing process included two interviewers. One interviewer asked questions to prompt discussion while the other took notes and used the script to make sure the conversation stayed on topic. This allowed the primary interviewer to focus on the conversation and maintain eye contact with the interviewee (Clifford, 2012, p. 7). The interview was a conversation led by the interviewers' discussion questions. After each response to a question, the interviewer used standardized probes and logical transitions to move on to the next question (Jacob & Furgerson, 2012, pp. 2-3). We asked relevant questions that were not on the script if they arose during the discussion. This provided us with new kinds of information that we did not think to seek (Clifford, 2012, p. 5). We reworded any questions that caused the interviewee confusion or discomfort, and we did not press for an answer if the interviewee did not wish to give one. At the end of the interview, we summarized the key points back to the interviewee to verify our findings (Jacob & Furgerson, 2012, p. 2). Our interview ended with a scripted conclusion, which is found in Appendix C (Clifford, 2012, p. 3).

During the interview, we asked a series of questions with the objective of learning what the interviewee believes the updated Nantucket Memorial Airport website should contain. Our questions were designed to cover aspects of this research objective (Jacob and Furgerson, 2012, p. 1). We began with easy questions in order to build trust and begin the flow of the conversation (Clifford, 2012, p. 4). Our questions were general and open-ended, and we encouraged the interviewee to describe his or her relevant past experiences (Clifford, 2012, pp. 1-3).

For any interview material that we considered publishing we asked the source for permission to quote, to provide an opportunity to review the material, and to offer the choice for

how the quote was attributed. We honored any participant's request to not publish or anonymously attribute material from their interview.

In addition to formal interviews with key stakeholders from various user groups, we also conducted informal interviews with additional stakeholders. During these informal interviews, we took handwritten notes but did not capture audio in order to streamline the interview process. Keeping the informal interviews as convenient and brief as possible helped us reach more stakeholders who would not have necessarily been able to participate in a longer, more formal interview. The interviews were semi-structured, so we prepared some questions in advance but remained very flexible to allow the participant to expand on our ideas. "Less structured interviews are most appropriate for early stages of research because they allow interviewees to focus on what they think is most relevant to the question, providing the broadest set of perspectives" (Clifford, 2012, p. 1). The informal interview data helped us gauge initial impressions and opinions but was also used later on in the interviewing process to avoid scheduling interviews with airport staff and pilots who we only interacted with rarely.

Objective 3: Design, Test, and Revise Prototype Sites

In order to carry-out project goals, we followed an easily-adaptable design process that incorporated gathering stakeholder opinions on content organization, determining which features were most necessary, constructing a simplified organizational structure, and determining a final aesthetic prototype. This process underwent several iterations to do our best to ensure that stakeholder opinions were satisfied.

Notecard Creation

We translated our interview and survey data into discrete chucks of information and transferred this list of items to notecards. Survey responses for open-response "other" answers each became a notecard. Any suggestions for features provided during interviews were considered as well. The notecards each had a feature or content piece written on the front such as 'Airline Information', 'Car Rental Providers' or 'Parking Lot Rates'. The user groups and individuals who supported each were noted on a separate document. This document also included a record of whether each notecard was created from a survey answer choice, a survey write-in response, or an interview. The notecards moved through the design process from a reasonability

test to wireframing. Each of these processes is discussed in more detail later in the Methods chapter. Maintaining a tangible stack of notecards enabled us to select and organize content in a visual and intuitive manner.

Notecard Testing

In order to determine if any notecards needed to be removed before the card sorting activities, we asked ourselves a series of questions about each notecard. These questions helped us consider if the feature was required, if it was feasible to put it on the website, and if it was found useful by stakeholders.

The first question asked: Is the feature required? There are some types of information which our sponsor had identified as necessary to include on the website. Such information was allowed to pass through the process regardless of whether our surveys and interviews identified it as useful, though our data generally supported our sponsor's requirements.

The second question asked: Is implementing the feature feasible? We asked this question to ourselves and the airport administrators to make sure the airport had the resources necessary to implement the feature. If the airport could not create and implement the feature, it did not become part of the website, regardless of how highly demanded the feature was. Some examples of why a feature may not have been feasible are that it may have required very frequent updates or the web content manager we were using may not have been able to host the application needed to provide the feature.

The final question asked: Is the feature useful to stakeholders? Using our survey results, we determined if each feature was deemed useful by the survey respondents. If there was an overwhelming lack of interest in a specific content piece, and we did not see a significant benefit that would result from including it, we did not put it on the website. Suggestions obtained from open-ended survey questions or interviews, however, did not have corresponding survey data to measure their popularity among stakeholders. For such suggestions, we discussed each in order to determine its usefulness among each user group. We also solicited the opinions of our sponsor on these topics to obtain an additional perspective before making a final decision.

With all of these questions answered, we then eliminated cards as necessary and carried the existing cards to the card sorting process.

Affinity Diagram

In order to create a structure for our accepted features and content, we used a type of concept model called an affinity diagram. Brown (2010) explained that, "Affinity diagramming is an exercise to help a group of people identify similarities across a broad set of qualitative information." (p. 68). We performed two card sorting exercises in order to create affinity diagrams.

Participants in the first affinity diagramming exercise gathered at Nantucket Memorial Airport on November 20, 2014. The group consisted of six airport employees from Administration and Operations. These participants were recruited by Noah Karberg the day before the exercise.

Participants in the second exercise met in the same location on December 2, 2014. This group included six representatives of the general public and consisted of employees from Visitor Services, former local inn owners, town administrative employees, and Natural Resources Department employees. We were responsible for inviting these participants via email, but we asked the invitees to suggest others for participation. Refreshments were served at each exercise as an incentive for participation. Each card sorting exercise took place in the conference room of the airport administration building and lasted for roughly 1 hour.

As noted above, each card sorting activity took place within a focus group. Creswell (2009) defined a focus group as a type of unstructured interview with more than two participants, where the discussion is guided by open ended questions that solicit opinions and impressions rather than facts (p. 181). Two researchers facilitated each focus group exercise. The facilitator actively moderated and posed the questions, and the other took notes and kept the group on track. One of the duties of the facilitator was to ensure that all focus group participants had an opportunity to share their thoughts and opinions and contribute to the outcome of the activity. We provided minimal instructions and feedback during the card sorting process in order to minimize our influence the results.

At the start of the affinity diagramming exercise we read our scripted preamble, shown in Appendix D. During the exercise we provided the participants with a stack of notecards, each with the name of a piece of content or a feature written on it. These were the same notecards that

were created from survey and interview data and passed through our testing and review. Participants were asked to collectively arrange the cards into small groups of related content. They were encouraged to discuss and debate their decisions. We then asked the participants to label each content group. Then we asked the participants to justify their decisions so that we could gain a better understanding of the resulting content groups. We then repeated the process by having the participants arrange the content groups into a small number of more general categories. We asked the participants to create a name for each of the categories they created.

Once they completed grouping and labeling the notecards, we asked “users to suggest missing topics, topics that don’t fit, and topics that they consider to overlap," (Brinck et al., 2002, p. 140). The results from the affinity diagramming exercise helped us determine the information architecture to first pass through the iterative design process.

On the subject of card sorting exercises, Brinck et al. (2002) stated that, "the organization is affected if your cards are misinterpreted or you fail to include every topic that will be on your site," (p. 140). We attempted to communicate clear as possible features written on the cards. We answered any clarification questions that were posed during the activities. Although our notecards covered all information that came up during our background research and stakeholder reviews, participants from both focus groups suggested new content for the website. The content suggested was added to new notecards and tested as the other notecards were before keeping or removing the card.

Iterative Design Process

Wireframing

In order to present the results of our affinity diagram exercise in a web page structure we created a wireframe. A wireframe is "a simplified view of a screen, devoid of any aesthetic beyond the barest minimum and the most neutral," (Brown, 2010, p. 168). Wireframes simulate roughly what the user would see on the screen without details such as color schemes or images. They can be created more quickly and easily than functional prototypes (Brown, 2010, p. 168). We introduced the wireframing step between the affinity diagram and the prototype because it served as a last chance to make changes to structure, layout, and organization before we spent time working with CivicPlus to create a full prototype.

Our use of wireframing is supported by existing research: according to Brown (2010), wireframes are used to determine the information needed on a web page and the relative priorities of different content areas. We created a set of wireframe diagrams to represent pages that may exist on the final web site. Each of our wireframe diagrams consisted of a simplified navigation system and several rectangles representing the different content groups that emerged during the affinity diagraming phase. The size and location of each rectangle on the page correlated to its importance and expected level of detail. We made more important items easier to locate and generally placed them higher on the page. The layout of the wireframe reflected the priorities of the page (Brown, 2010, p. 172). The wireframes did not contain any specific content or functional elements other than dropdown menus and links between pages. We ignored aesthetic elements until the prototype phase (Brown, 2010, p. 172).

Observation

To test the effectiveness of the wireframe, we observed participants navigating the structure to gauge how easily they were able to find certain information. We selected participants from our past interviewees and from airport administration employees. Our process consisted of inviting the participant, scheduling the session, and performing the study. The facilitator presented the participant with each instruction, and provided limited help as necessary. The observer recorded how much time and how many clicks the participant took to locate the page with the correct information. He also noted certain paths the participant took in trying to get the specific page. After collecting all of the data, we compared the results of the sessions with our prioritized list of website content.

During the sessions, we followed a testing protocol to ensure consistent results. As with interviews, we began with a preamble (included in Appendix E) that introduced the participants to the nature of our research and informed them that their participation was completely voluntary. The facilitator then provided the participant with a series of instructions to locate information. Each participant was asked to pick a face-down notecard at random and find the corresponding feature or content piece on the airport website. When necessary, we answered clarifying questions about the computer setup and the instruction, but did not answer other questions, especially those about how the information was organized. If the participant had been unable to find the information by the end of two minutes, we then stopped the timer and moved

on to the next instruction. After the final instruction, we asked the participant about their experience and collected any suggestions they offered.

Observing users in action allowed us to measure the usability of the site and predict how much the website would satisfied a typical user. Brown (2010) supported observational study as an appropriate method for evaluating prototypes during an iterative review process (p. 267). The results of this analysis confirm that various kinds of information, especially those that we identified as high priority, can be found quickly and easily on the final website. The Results chapter offers a more detailed look at this analysis.

Prototyping

Our prototyping phase involved multiple parties and was arranged to extend beyond the scope of our project. The airport contracted the municipal web developer CivicPlus to implement the redesigned Nantucket Memorial Airport website. We arranged with airport staff as well as town staff to incorporate our organized content from the wireframe into the new website using the content management system (CMS) developed by CivicPlus. We provided our results as a representation of stakeholder opinions to help guide the development process, and the first design revision was expected just after we were wrapping up our project. The airport planned to continue the project and launch the revised website on February 27, 2015.

In order to recruit participants to review our prototypes, we asked our sponsor for nominations of key stakeholders that were particularly vested in the outcome of the website. We also made sure to include the information technology (IT) department, as they have been a source of expert opinion during the course of the project.

We presented each successive prototype to airport stakeholders for review and repeatedly redesigned them until we had addressed all significant issues. Before finalization of the prototype, we ensured that stakeholders and airport staff were pleased with the information displayed on the Nantucket Memorial Airport website and its presentation. By the end of the prototyping phase, we had a functional organizational structure ready to be further developed and then deployed by CivicPlus.

FINDINGS AND ANALYSIS

The goal of our project was to develop a new website for Nantucket Memorial Airport that allows the airport to communicate and engage with visitors and community members. In order to achieve this goal, we:

1. Evaluated selected airport websites
2. Identified the needs and perspectives of stakeholders
3. Designed, tested and revised a prototype website

In this chapter, we provide details about our research findings and describe the results of our analysis.

Objective 1: Evaluate Selected Airport Websites

Content Analysis of Airport Websites

Table 7 below shows which items from Halpern and Regmi's (2013) table of common content were present on the airport websites we evaluated. Shaded boxes in the table indicate present content and blank boxes indicate missing content. As shown in the table, Nantucket Memorial Airport scored the lowest against other US airports in terms of number of content pieces displayed on the website. The airport also scored the lowest in the "Corporate Communications" category, which further limited its capability to reach out to businesses as well as displaying its sustainability accomplishments and other impressive airport facts. Related to these findings, Halpern and Regmi (2013) noted that "airports are [becoming] increasingly market-driven," (p. 8). This shows the current research corresponds with the fact that U.S airport website we reviewed are including content to attract businesses.

Table 7 below shows which items from Halpern and Regmi's (2013) table of common content were present on the airport websites we evaluated. Shaded boxes in the table indicate present content and blank boxes indicate missing content. As shown in the table, Nantucket Memorial Airport scored the lowest against other US airports in terms of number of content pieces displayed on the website. The airport also scored the lowest in the "Corporate Communications" category, which further limited its capability to reach out to businesses as well as displaying its sustainability accomplishments and other impressive airport facts. Related to

these findings, Halpern and Regmi (2013) noted that "airports are [becoming] increasingly market-driven," (p. 8). This shows the current research corresponds with the fact that U.S airport website we reviewed are including content to attract businesses.

With tourism being a large portion of the economy on Nantucket, visitor and travel information should be readily available on the Nantucket Memorial Airport website. However, the Nantucket Memorial Airport website was the only one of the six reviewed that did not display this information. This result suggests that the airport website needs to contain content that not only reaches out to businesses but reaches out to visitors and local travelers as well.

	Akron	Ithaca	Westchester	Aspen	Dallas	Nantucket
Passenger Services & Information						
Flight Info	■	■	■	■		■
Passenger Services & Facilities	■	■	■	■	■	■
Transport & Directions	■	■	■	■	■	■
Travel Information & Support	■	■	■	■	■	
Aviation						
Airport Charges						■
General Aviation	■	■	■	■	■	■
Ground Services		■				
Technical Info	■	■	■	■	■	■
Cargo and Logistics		■				
Market Research						
Non-aviation						
Meeting Facilities		■			■	
Advertising	■					
Consultancy						
Vendors			■			■
IT and Telecommunications						

	Akron	Ithaca	Westchester	Aspen	Dallas	Nantucket
Corporate Communications						
About the Airport	■	■		■	■	
Media	■	■	■	■		■
Customer Services	■	■	■	■	■	■
Investor Relations	■	■				
Human Resource Management						
Airport Planning and Development	■	■	■	■	■	■
Sustainability	■	■	■	■		
Corporate Social Responsibility					■	

Table 7: Analysis of U.S. airport websites using list of common content

Topics on sustainability were also displayed on four out of the six websites reviewed, not including Nantucket Memorial Airport. As previously noted, Bibi van der Zee (2008) asserted that, "with daily stories of record temperatures, extreme weather, and floods and droughts…businesses will have to become experts in communicating these changes to their customers," (p. 5). As Nantucket Memorial Airport works towards carbon neutrality, addressing these local sustainability topics such as *reducing energy consumption* and *reducing waste* on the new website has become increasingly important.

Although Nantucket Memorial Airport's previous website lacked some information which was common to the other websites in our sample, we found that it included some information that the other websites did not. Specifically, airport charges including landing, parking, and fuel fees were only listed on the Nantucket website. A few phone calls confirmed that three of the airports in the sample do charge the fees but do not list them on their websites. This finding is interesting because our research suggested that airport fees should be commonly found on airport websites, but in practice our sample showed otherwise. In talking with airport staff, we determined that it makes sense to publish airport fees online.

Several content pieces found on other airport websites are absent from the Nantucket Memorial Airport website because they were not pertinent to the airport itself. For example, the

airport does not have a human resources department, since the Town of Nantucket Human Resources department controls hiring for airport administration.

Based on our research on content found on airport websites, including Nantucket Memorial Airport, we created the survey to identify what content might meet the needs and perspectives of the Nantucket stakeholder.

Evaluation of Airport Websites using WebCHECK

Our evaluation of the Nantucket airport and comparison websites using the WebCHECK instrument produced four category scores for each. These four scores rate various qualities of each website (Stimulating, Meaningful, Organized, Easy-to-Use) and when summed together generate a total score. Table 8 below includes the full set of item scores for each of the six websites we evaluated with WebCHECK. At the bottom of the table, category scores and total scores are included.

The category scores and total scores are depicted as a graph in Figure 2. The previous Nantucket Memorial Airport website received the lowest total score out of the six websites, and it also received consistently low scores in every category. This set of data shows that the previous Nantucket Memorial Airport website was marginally less stimulating, organized, meaningful, and easy-to-use than Dallas, Westchester, and Ithaca but substantially less effective than Aspen and Akron. Its total score, as well as each of its category scores, was lower than or equal to each of the comparison sites we evaluated. Relative to these other sites, which had been chosen as exemplars of web design for small airport website, the previous Nantucket Memorial Airport website had low motivational quality.

Airport						Scorecard Item
Nantucket	Akron	Ithaca	Westchester	Aspen	Dallas	
1	3	2	1	2	2	The visual layout of this Website attracts attention.
2	2	2	2	3	2	This Web site provides adequate coverage of topics presented.
1	3	2	2	2	2	Visual (e.g. videos, photographs) or audio content included in this Web site helps to clarify or describe the topic(s) presented.
2	3	2	2	2	2	Navigating this Web site does not require any special skills or experience.
2	3	1	2	2	0	There is nothing on this Web site that distracts attention from the content.
2	2	2	2	2	1	This Web site provides links to other related or useful Web sites.
3	3	2	2	3	2	The purpose of this Web site is clear.
1	3	1	1	3	2	This Web site provides an easy-to-use help function.
1	2	2	0	2	2	This Web site provides opportunities for interactivity through participatory features (e.g. social networking, games, polls, commenting, etc.)
2	2	2	2	2	2	This Web site appears to contain credible information.
2	2	2	2	2	2	The organization of this Web site is simple and clear.
1	3	1	1	3	1	This Web site makes it easy to search or query for information.
1	1	1	1	1	1	There are opportunities to read and/or share different ideas and viewpoints that make this Web site interesting.
1	3	3	1	3	3	The information contained in this Web site is current and up-to-date.
2	2	2	2	2	2	The information on this Web site is well-organized.
2	2	1	1	2	1	Features of this Web site are easy-to-use.
1	2	2	1	2	2	A variety of formats for presenting information (e.g. text, images, sounds) helps maintain attention without limiting persons with disabilities from access to that information.
2	2	2	2	2	2	Information on this Web site appears to be accurate.
2	3	2	2	2	2	The information on this Web site is presented in a clear and consistent manner.
2	3	3	2	3	2	The features on this Web site are active and fully functioning.
1	2	2	0	2	2	This Web site has novel or unique features that make it more interesting.
2	3	1	2	3	2	This Web site contains little or no redundant or irrelevant information.
3	3	3	3	3	3	The text at this Web site is well-written without grammatical, spelling or other errors.
2	3	1	2	2	2	At this Web site, I can control what information I wish to access.
1	1	2	2	1	2	This Web site stimulates curiosity and exploration.
2	2	2	2	3	2	This Web site provides accessible opportunities for all (including those with visual, hearing and mobility impairments) to actively participate and contribute content.
1	3	3	3	3	1	This Web site provides adequate coverage of topic(s) presented.
1	3	3	2	1	2	Buttons, links and other navigation mechanisms work the way they should on this Web site.
1	1	2	2	2	1	The content on this Web site is fresh and engaging.
1	2	2	2	3	1	This Web site provides opportunities to communicate with its creator(s) or author(s).

Airport						Scorecard Item
Nantucket	Akron	Ithaca	Westchester	Aspen	Dallas	
2	3	3	3	3	3	No matter where I am in this Web site, I can return directly to the home page.
3	3	3	3	3	3	There is little or no delay in accessing media content from this Web site.
1	3	3	1	3	3	This Web site's content is current and up-to-date.
2	2	2	2	2	2	The author and/or publisher of this Web site is explicitly stated.
1	3	2	2	3	2	This Web site's design uses a navigation system that enables efficient access to any Web site section from any page on the site'
2	3	3	3	3	2	The information on this Web site is accessible to all, including those with sight impairments, by providing content that is screen reader-enabled, employing descriptive audio and offering a simple design to assist those using magnification tools.
1	1	1	1	1	1	This Web site provides a list of resources that may be accessed to obtain additional information.
2	2	2	1	2	2	The authority of this Web site author(s) or creator(s) is readily discernible.
0	1	1	3	3	1	When clicking hyperlinks, the ability to revisit the selected path (i.e. via a "breadcrumb trail" or the Web browser's back button) is available.
2	2	2	2	2	2	The information on this Web site is accessible to all, including those with hearing impairments, by offering closed-captioning and/or transcripts of audio content.
1	1	1	1	1	1	Functional hyperlinks within and outside of this Web site stimulate further exploration of content.
2	2	2	2	2	2	The authority of this Web site author and/or publisher is credible for the content.
3	2	2	3	2	3	This Web site works well whether or not pop-up functionality is enabled on a Web browser.
2	3	2	3	3	1	The information on this Web site is accessible to all, including those with mobility challenges, by offering an uncluttered screen design that requires limited dexterity to navigate.
1	2	1	1	2	1	I would re-visit this Web site.
1	1	1	1	1	1	This Web site's content either provides an objective perspective or makes its bias known.
2	2	2	2	2	2	Video or multimedia content may be launched in a new window or frame so as not to get lost when accessing this content.
2	3	1	2	3	2	This Web site is optimized for mobile access (i.e. Smart Phones, tablets, etc.).
13	**22**	**20**	**13**	**21**	**18**	**Stimulating**
21	**25**	**23**	**21**	**28**	**22**	**Meaningful**
22	**30**	**26**	**29**	**30**	**25**	**Organized**
22	**34**	**23**	**24**	**30**	**22**	**Easy-to-Use**
78	**111**	**92**	**87**	**109**	**87**	**Total**

Table 8: The results of our WebCHECK evaluation

The category scores and total scores are depicted as a graph in Figure 2. The previous Nantucket Memorial Airport website received the lowest total score out of the six websites, and it also received consistently low scores in every category. This set of data shows that the previous Nantucket Memorial Airport website was marginally less stimulating, organized, meaningful, and easy-to-use than Dallas, Westchester, and Ithaca but substantially less effective than Aspen and Akron. Its total score, as well as each of its category scores, was lower than or equal to each of the comparison sites we evaluated. Relative to these other sites, which had been chosen as exemplars of web design for small airport website, the previous Nantucket Memorial Airport website had low motivational quality.

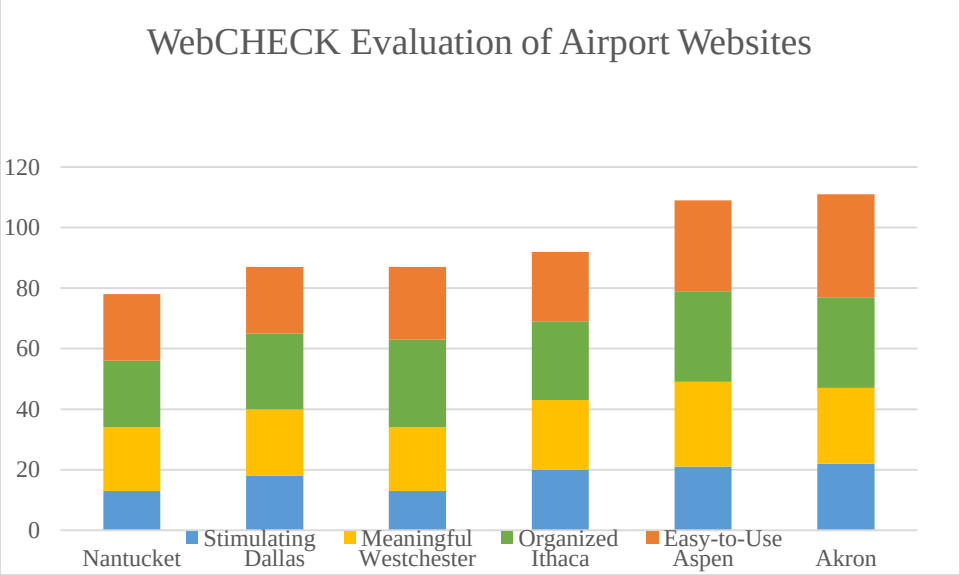

Figure 2: Bar graph indicating the total scores of the WebCHECK evaluation

This evaluation also allowed us to identify some specific weaknesses of the previous Nantucket Memorial Airport website. On several of the items on the WebCHECK checklist, the Nantucket Memorial Airport website scored below the average of the scores of the six airport websites we examined. Using these other websites as a baseline, we can consider areas in which Nantucket Memorial Airport's scores were lower as areas for potential improvement. In Table 9 below, we list all of the checklist items in which Nantucket Memorial Airport scored below the average. The items are listed in order by their difference (average score - score) so that those with the most significant difference are at the top. Throughout our design process, we paid special attention to the weaknesses identified in this list.

DDiff.	Low-Scoring Items
-1.50	When clicking hyperlinks, the ability to revisit the selected path (i.e. via a "breadcrumb trail" or the Web browser's back button) is available.
-1.33	The information contained in this Web site is current and up-to-date.
-1.33	This Web site provides adequate coverage of topic(s) presented.
-1.33	This Web site's content is current and up-to-date.
-1.17	This Web site's design uses a navigation system that enables efficient access to any Web site section from any page on the site
-1.00	Visual (e.g. videos, photographs) or audio content included in this Web site helps to clarify or describe the topic(s) presented.
-1.00	Buttons, links and other navigation mechanisms work the way they should on this Web site.
-0.83	No matter where I am in this Web site, I can return directly to the home page.
-0.83	The visual layout of this Website attracts attention.
-0.83	This Web site provides an easy-to-use help function.
-0.83	This Web site provides opportunities to communicate with its creator(s) or author(s).
-0.67	This Web site makes it easy to search or query for information.
-0.67	A variety of formats for presenting information (e.g. text, images, sounds) helps maintain attention without limiting persons with disabilities from access to that information.
-0.67	The information on this Web site is accessible to all, including those with sight impairments, by providing content that is screen reader-enabled, employing descriptive audio and offering a simple design to assist those using magnification tools.
-0.50	This Web site provides opportunities for interactivity through participatory features (e.g. social networking, games, polls, commenting, etc.)
-0.50	The features on this Web site are active and fully functioning.
-0.50	This Web site has novel or unique features that make it more interesting.
-0.50	This Web site stimulates curiosity and exploration.
-0.50	The content on this Web site is fresh and engaging.
-0.33	The information on this Web site is accessible to all, including those with mobility challenges, by offering an uncluttered screen design that requires limited dexterity to navigate.
-0.33	I would re-visit this Web site.
-0.17	This Web site provides adequate coverage of topics presented.
-0.17	Navigating this Web site does not require any special skills or experience.
-0.17	The information on this Web site is presented in a clear and consistent manner.
-0.17	This Web site contains little or no redundant or irrelevant information.
-0.17	This Web site provides accessible opportunities for all (including those with visual, hearing and mobility impairments) to actively participate and contribute content.
-0.17	This Web site is optimized for mobile access (i.e. Smart Phones, tablets, etc.).

Table 9: Items from the WebCHECK checklist identified as relative weaknesses

Our findings from the WebCHECK evaluation showed that the Nantucket Memorial Airport website had fallen behind its peers in a variety of areas related to usability and motivational quality. The website's problems were numerous but generally minor. We concluded that although the previous website was generally functional and met the minimum needs of most users, it was in need of a significant update. The website was not current in terms of content, design, and functionality. Two of the website's highest-ranked weaknesses from Table 9 are a result of its outdated content. Many of its other major problems related to navigation and aesthetics, both of which underwent complete overhauls when we switched to the CivicPlus template.

WebCHECK was a useful tool for analyzing the strengths and weaknesses of the Nantucket Memorial Airport website in comparison to similar websites, but our evaluation method did contain some flaws and biases. The most obvious is that we performed the evaluation ourselves after being tasked with redesigning the Nantucket Memorial Airport website. We attempted to perform as objective an evaluation as possible, but there may have been a bias that would cause us to give the Nantucket Memorial Airport website lower scores in order to justify our project.

It is also worth noting that WebCHECK is designed to measure user engagement and is therefore inherently subjective. If others attempted an evaluation of the same six websites using WebCHECK, their results may differ from our own.

Topics on sustainability were also displayed on four out of the six websites reviewed, not including Nantucket Memorial Airport. As previously noted, Bibi van der Zee (2008) asserted that, "with daily stories of record temperatures, extreme weather, and floods and droughts…businesses will have to become experts in communicating these changes to their customers," (p. 5). As Nantucket Memorial Airport works towards carbon neutrality, addressing these local sustainability topics such as *reducing energy consumption* and *reducing waste* on the new website will be increasingly important.

Objective 2: Identify Needs and Perspectives of Stakeholders and User Groups

Previous research emphasized the need to gauge stakeholder expectations as an important step in the web design process. We used surveys and interviews to collect feedback and opinions of a sample of stakeholders to meet this need. The survey provided quantitative data about which types of information are most useful to the user groups we are trying to reach. By comparison, the interview data were more qualitative, but in-depth and nuanced. We put these two sources of data together for the purposes of creating notecards that we used in our focus groups to help us structure the website content.

Survey

Over the course of 15 days, we received 127 survey responses. A total of 116 of these participants completed the entire survey while the remaining 11 left one or more questions blank. Most (61 percent) of the participants identified themselves as year-round residents of the island, as opposed to seasonal residents or non-resident visitors. The fact that year-round residents dominate in our sample is not surprising given the way the survey was distributed and the time of year. Our analysis considers this effect. Overall, the survey results confirmed our expectations about which types of information is most useful to the stakeholders. The following several figures offer a graphical summary of the survey responses.

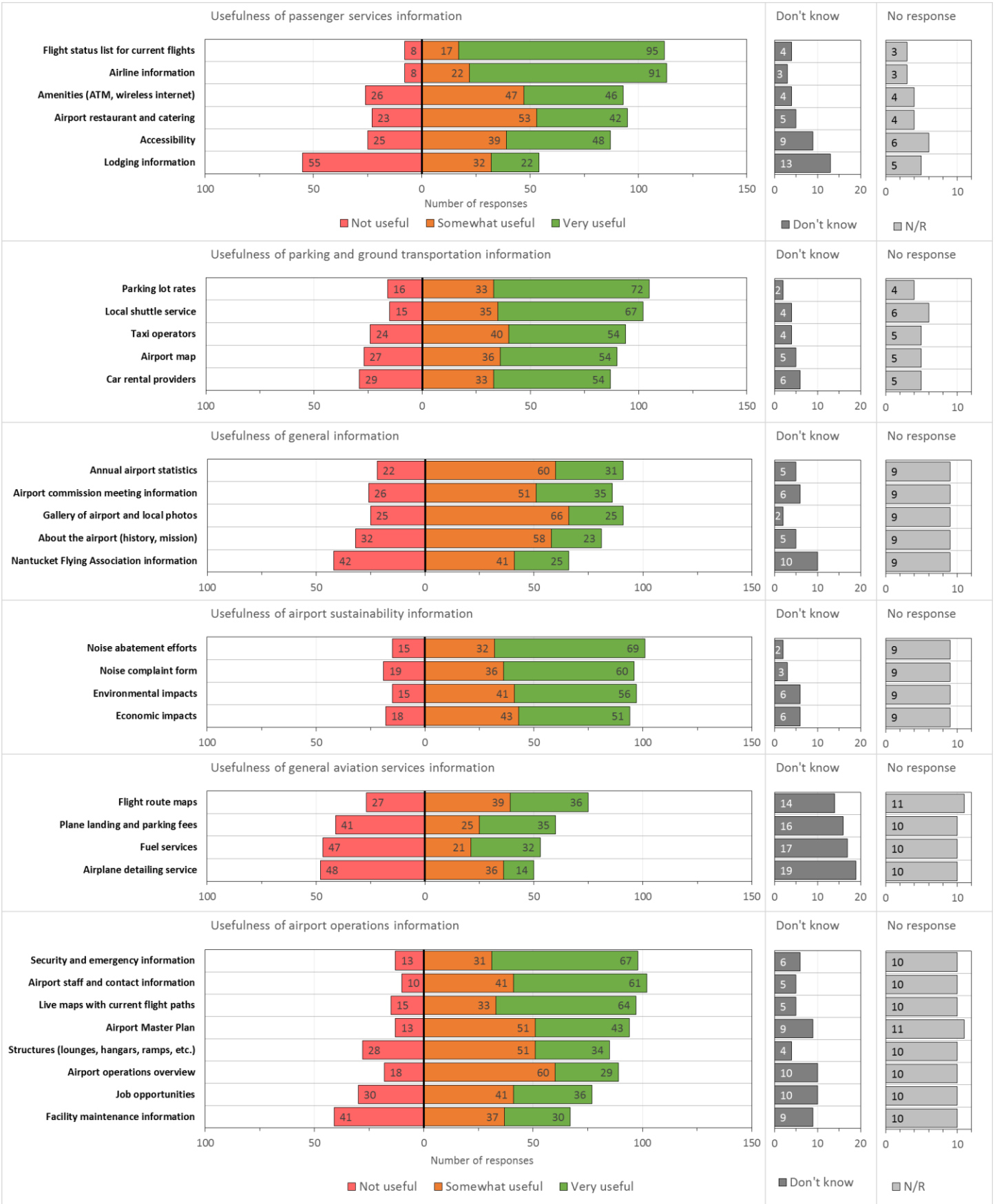

Figure 3: Usefulness results from survey

The survey responses show that our sample generally agreed with the usefulness of the types of information predicted to be useful based on our research. The pattern that connects our results is that travel-related information is most widely considered useful and important. However, two types of information were rated less useful than we had anticipated. Airplane detailing and lodging information were considered the least useful of the content information.

While airplane detailing considered less useful by the general public, the demographics of our survey may explain why it is considered less useful. Pilots were underrepresented in our survey and when we examined the responses of pilots alone, we found the results more positive as shown in Figure 4 below. Because the information is useful to pilots, this type of information was passed on to the notecard stage.

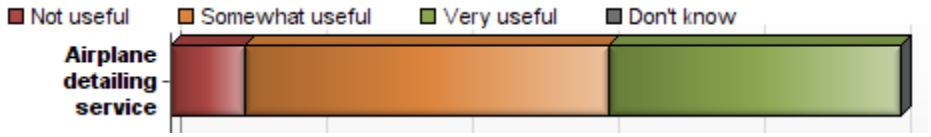

Figure 4: Usefulness ratings of airplane detailing information (Subgroup: Airplane pilots)

Our survey data indicated that lodging information was not a priority for the general public. We believe this finding was strongly influenced by the bias toward year-round residents in our survey sample. Based on our interview and understanding of the population dynamics of the island, we expect that short-term visitors are more likely to find lodging information useful. The pilots we interviewed also mentioned that charter pilots might benefit from information about lodging on the island as they often fly in and are looking for activities on the island.

Table 10 shows the categories of information included in the first group of notecards we created on the basis of the survey data. Each notecard contained a feature or piece of content that we considered including on the Nantucket Memorial Airport website. All features that we asked survey participants to rate, as well as all suggestions from survey write-in responses, were pushed through our process to be judged later during the reasonability test.

Features listed in the survey	*Notecards created from survey write-in responses*
Airline Information	Text Message Alert System for Closures and Delays
Airport Restaurant and Catering	Landings broken down by airline and private, public, and military
Flight Status list for Current Flights	Airport Financial Information
Lodging Information	Phone number for the help desk
Amenities (ATM, Wireless Internet)	Weather Report
Accessibility	Phone Numbers for Local Tenants
Car Rental Providers	Phone Number for FBO
Local Shuttle Services	Visitor Services and Chamber of Commerce
Parking Lot Rates	TSA local Phone Number
Taxi Operators	Vehicle Parking Rules
Airport Map	Charter Companies
About the airport (History, Mission)	Weather Cam
Annual Airport Statistics	ATIS Audio Stream
Airport Commission Meeting Information	Suggestion Box
Gallery of Airport and Local Photos	Frequency List for Air Traffic Scanners
Nantucket Flying Association Information	Airport Open/Closed Status
Economic Impacts	Hours of Operation
Environmental Impacts	Ferry Services
Noise Abatement Efforts	Hangar Rental
Noise Complaint Forms	Special Event Permitting and Pricing
Airplane Detailing Service	Conference Room Rental
Fuel Services	Gift Shop Info
Plane Landing and Parking fees	Baggage Claim Information
Flight Route Maps	Lost and Found
Airport Operations Overview	Parking Lot Status
Airport Master plan	Whether the newspaper has been delivered
Facility Maintenance Information	Live info on Security wait time
Airport Staff and Contact Information	Expected Delays
Structures (lounges, hangars, ramps, etc.)	Parking Specials
Live Maps with Current Flight paths	Taxi Reservation
Job Opportunities	Link to Nantucket Regional Transit Authority Site
Security and Emergency Information	Link to FlightAware (Live Flight Tracker)
Reducing Energy Consumption	Locations of Nearby Grocery Stores
Producing Less Waste	Bike Rental Info
Reducing Air Pollution	Tour Info
Protecting Endangered and/or Threatened Species	Evacuation Map
Protecting Clean Water Sources	Real Time Texting with Airport Personnel
Reducing Noise Pollution	
Reducing Light Pollution	
News Bulletin	

Table 10: Notecards from the survey

Interviews

The interviews we conducted with key stakeholders provided helpful insight into the relationship between the airport and the different user groups in the community. These interviews enabled us to gather information about the concerns and expectations of different user groups so that we could try to address them more effectively. Some of the information gleaned from the interviews became 'content pieces' that were written onto notecards for our design process.

One of our interviewees, “Participant 1” for reference, was representative of several user groups and provided strong opinions about the usefulness of several different types of content. Participant 1 spoke strongly about the importance of assisting all travel needs of residents and visitors alike to and from Nantucket Island and stressed the importance of close cooperation with airlines as well as ferry companies to inform airport users of weather related cancellations and delays. Many other interviewees emphasized the limiting factor of having two transport modes to and from island, which supports another assertion from Participant 1 that ferry and air-taxi services should communicate and cooperate in times of extreme weather to ensure as many travelers as possible can make alternate arrangements. Participant 1 explained that it is more beneficial for all businesses to meet the overall travel needs of a traveler user rather than worry about giving business to other modes of transportation on Nantucket. From this interview, we added several notecards including “Ferry Information” and “Cape Area Public Transportation”.

Participant 1, as a self-identified frequent traveler, also noted the importance of displaying up-to-date flight status information on the airport website and explained the inconvenience and stress that can result from not being informed of air-taxi delays. Although the users would benefit from more up-to-date flight information, we expect limitations in doing this as the air-taxi companies are responsible for updating this information- not the airport. While we could publish information about the regular schedule, it is unlikely this info could be reliably updated to reflect changes especially due to weather.

Another interviewee, “Participant 2” for reference, was representative of the more airport-related user groups. As well as agreeing with Participant 1 on the need for updated information, Participant 2 explained the different types of environmental information that could be included on the website and mentioned the airport’s achievements with managing threatened and endangered species and carbon emissions as information which should be proudly featured

on the website. This interview provided strong support for several notecards, including "Environmental Information" and "Reducing Energy Consumption".

The comments made by Participant 1 and Participant 2, as well as other interviewees, align with the findings from Halpern and Regmi's (2013) research that shows that 87.6 percent of EU airports included **flight timetables** while only 54.3 percent of EU airports included information on **environmental, social, and economic management** (see Table 3 in the Background chapter. This also agrees with our analysis of U.S. airports which shows that 5 airports contained information on **flight info** while only 4 airports contained information on **sustainability**, shown in Table 7 above.

One of our interviewees, "Participant 3" for reference, was representative of the community and residential user groups. Participant 3 gave insight into the issues that local residents face-especially those that border the airport property and explained the importance of educating the local residents on matters related to noise in order to reduce the perceived annoyance of noise. Participant 3 noted the importance of explaining the role that the FAA has at Nantucket Memorial Airport to inform residents of the limited authority the airport has on controlling flight paths of incoming and outgoing planes, claiming that most people in the community are not aware of this dynamic. We created the notecards "Noise Abatement Information" and "FAA Information" as a result of this interview.

Our review of the literature supported that publishing an explanation of the airport's noise abatement efforts could help reduce the perceived annoyance of the neighboring residents when noise occurs. Suau-Sanchez, Pallares-Barbera, and Paül (2011) emphasize that personal control is a key factor in reducing annoyance with regard to noise and that "perceived control is identified with the predictability of a noise situation, the accessibility of information and transparency, trust and recognition and concern, and voice." (p. 278). This supports the argument made by Participant 3 that better educating the public on noise can reduce the amount of annoyance and complaints that result from airplane flight paths which cannot be directly controlled.

Many of our interviewees discussed the need for advertising on the airport website and allowing tenants to have space on the website. One interviewee noted that supporting the businesses that are airport tenants is important and that they should be given space on the website

to promote themselves. These assertions are also supporting by the existing research. For example, Halpern and Regmi (2013) found that 25.4 percent of airports included information on **advertising opportunities in or around the airport**. Halpern and Regmi (2013) also note the recent increase of B2B communications in their analysis of EU airport websites. Evidently, airports are becoming increasing more market driven in efforts to become more self-sufficient. Displaying advertising opportunities not only promotes this but also helps to support local businesses. Airport Manager Tom Rafter responded positively to the suggestion of providing space for advertising as the different users and audiences can be directed to local businesses.

An interviewee who we identified as representative of the opinions of visitors, "Participant 4" for reference, shared detailed information about the Nantucket visitor experience. This insight was especially helpful considering the difficulty we had reaching island visitors with our survey. Participant 4 recognized the airport website as an opportunity for advertising local businesses to help the airport, local businesses, and visitors at the same time and offered several suggestions on this topic that became notecards such as "featured business of the week" and "suggested afternoon" (a selection of activities that a visitor could do on island). Halpern and Regmi's (2013) make similar arguments for increasing B2B communications on airport websites.

One noteworthy suggestion was to include weather information on the new website. This was supported by three of our interviews and seven of the survey open responses. From our detailed interview results we learned that this popular request for weather information is a result of the necessity of considering possible weather-related delays in order to make alternate arrangements. If a traveler knows about incoming dense fog at the airport early enough, then he or she can make sure to catch an earlier plane in order to keep on a travel schedule.

Table 11 below lists of all the notecards that we derived from interview responses, as well as notecards that were given additional support by interviewees.

Features suggested during interviews	*Features given additional support by interviewees*
Page for Airport Tenants	Airport Financial Information
Social Media	Weather Report
Cape Area Public Transportation Info	Weather Cam
The Future of the Airport	Suggestion Box
Community Art on Show	Ferry Services
Local Business Information	Hangar Rental
Business of the Week / Suggested Afternoon	Special Event Permitting and Pricing
FAQ	Gift Shop Info
Link to Visitor Services	Expected Delays
Things to do at the Airport	Parking Specials
Destinations	
Links to Additional Info for Pilots (Runway Lengths, etc.)	
Minutes of Airport Commission Meetings	
Traffic	
Erosion	
Fumes	
FAA Information	
Flight School Link	
Taxi Fares	

Table 11: Notecards from the interviews

The airport website could not reasonably include all the content elements identified in the survey and interview process, so we conducted a 'reasonability test' to narrow the notecards to those that were most useful and feasible based on several criteria and a thorough process described in the next chapter.

Objective 3: Design, Test, and Revise Prototype Sites

With the survey, interviews, and research we had conducted, we had a large list of content information to make available for the public. This list included more than enough pieces of content, so next, we sorted and edited the notecards to make them more intuitive for the general public. We created a hierarchy of the notecards that we recommend should be included on the new website and removed or modified notecards that were not reasonable.

Reasonability Test

Since we asked for any and all suggestions for new content pieces in our survey and interviews, we had to check each of these content pieces for usefulness and feasibility. Table 12 below shows the changes we made to our content information based on our reasonability test. It describes whether we added or removed the suggested content piece and explains why we made the final decision.

Added	Explanations
Live Flight Tracker	formed by combining Live Maps with Current Flight Paths / Link to FlightAware / Flight Route Maps
Email Address for Suggestions and Feedback	renamed from Suggestion Box
Airport Security Phone Number	formed by combining TSA Local Phone Number / Lost and Found
Link to Town's SMS Alert Service	renamed from Text Message Alert System for Closures and Delays
Removed	**Explanations**
Real Time Texting with Airport Personnel	removed because not feasible or particularly useful
Whether the Newspaper has been Delivered	removed because not feasible or particularly useful
Weather Cam	removed because not feasible and redundant with Local Weather
Live Maps with Current Flight Paths	combined with Link to FlightAware / Flight Route Maps to form Live Flight Tracker
Link to FlightAware (Live Flight Tracker)	combined with Live Maps with Current Flight Paths / Flight Route Maps to form Live Flight Tracker
Flight Route Maps	combined with Live Maps with Current Flight Paths / Link to FlightAware to form Live Flight Tracker

Removed	Explanations
Airport Open/Closed Status	removed because redundant with Hours of Operation / Link to Town's SMS Alert Service
Fumes	removed because redundant with Reducing Air Pollution
Minutes of Airport Commission Meetings	removed because redundant with Airport Commission Meeting Information
Link to Visitor Services	removed because redundant with Visitor Services
Locations of Nearby Grocery Stores	removed because not particularly relevant
Parking Lot Status	removed because not feasible
Taxi Reservation	removed because taxis cannot be reserved
Live Info on Security Wait Time	removed because not feasible
Traffic	removed because not feasible
Bike Rental Info	removed because not particularly relevant
Tour Info	removed because not particularly relevant
Things to do at the Airport	removed because vague and not enough to write about
Suggestion Box	renamed to Email Address for Suggestions and Feedback
Lost and Found	combined with TSA Local Phone Number to form Airport Security Phone Number
TSA Local Phone Number	combined with Lost and Found to form Airport Security Phone Number
Text Message Alert System for Closures and Delays	renamed to Link to Town's SMS Alert Service
Evacuation Map	removed because not feasible
Flight School Link	removed because not particularly relevant
Phone Number for the Help Desk	removed because redundant with Airport Staff and Contact Information
Travelers with Pets	removed because airline specific and not enough to write about
Visitor Maps and Brochures	removed because redundant with Visitor Services
After-Hours Information	removed because redundant with Hours of Operation

Table 12: Table of notecards added and removed by the reasonability test

"Real time texting with airport personnel" shows the case of removing a notecard as the airport does not have the personnel to make this possible. Although a certain user group may find this useful, we removed it as it was not a feasible feature for the website. A similar notecard is a suggestion for a "weather cam" that would display some portion of the airport property in order

to give a visual of the surrounding weather condition. A large number of people from both our survey fill-ins and interview responses mentioned that they would like to have a weather cam on the website so that they can look at the conditions themselves. Similarly to the real-time support suggestion, this suggestion was found useful by the number of people who requested it. However, we decided to remove this notecard as it would be a costly addition for the website and would require more technical support than desired by the airport staff.

A more interesting application of the reasonability test was with the combination of "Live Maps", "Current Flight Paths", "Link to FlightAware", and "Flight Route Maps" being suggested in interviews and survey fill-ins. These four notecards were combined into "Live Flight Tracker", as the airport expects to have access to a live flight tracker that encompasses the other four content piece suggestions. The "Live Flight Tracker" they planned to implement offers live maps, current flight paths, and flight route maps, and could be used in place of a link to FlightAware. There were many other redundant suggestions which we combined, such as “after-hours information” and “hour of operation” as well as “visitor maps and brochures” and “visitor services”.

Focus Groups

We conducted two focus groups with different potential user groups. The first focus group consisted of airport employees. This gave their affinity diagram a clear bias towards content related to the inner workings of the airport. As seen in the figure below, the airport employees considered a large amount of content to be related to "Airport Administration" and created an in depth tree for how environmental information could be portrayed.

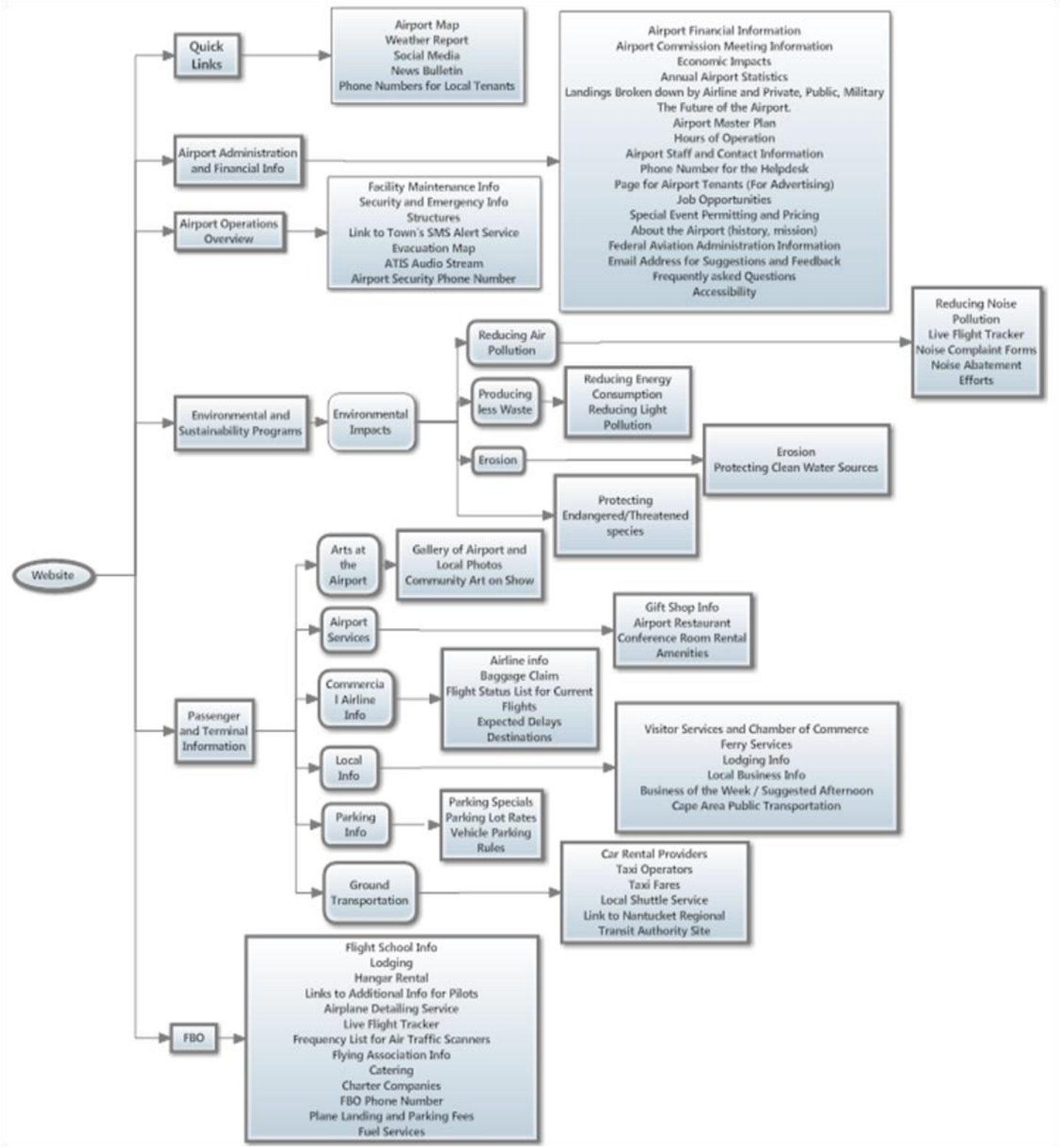

Figure 5: Hierarchy created by the airport focus group

This hierarchy reflects its creators due to the large number of categories based on the inner workings of the airport. The airport employees made "Passenger and Terminal information" one large overarching category for anything that involved the public in the airport. They also created four categories for what the airport itself was doing or involved in.

The airport group, thinking ahead for the website, also created a sixth category for quick links. This consisted of information that they wanted to be readily available on the homepage for all to see. While some of these such as "Weather Report", "Social Media", and "News Bulletin" can be seen as common homepage content, "Phone Numbers for local Tenants" is not commonly displayed on landing pages for airport websites. A reason the airport group could consider this so important is the number of phone calls they have to redirect to tenants to explain delays and pricings.

Our second focus group consisted of town employees. The people involved were clearly more interested in passengers and visitors than the airport employees were, however they had a less clear idea of what certain types of airport related content meant. As seen below, the town focus group created ten overarching categories as opposed to five, each with the list of content pieces it would contain.

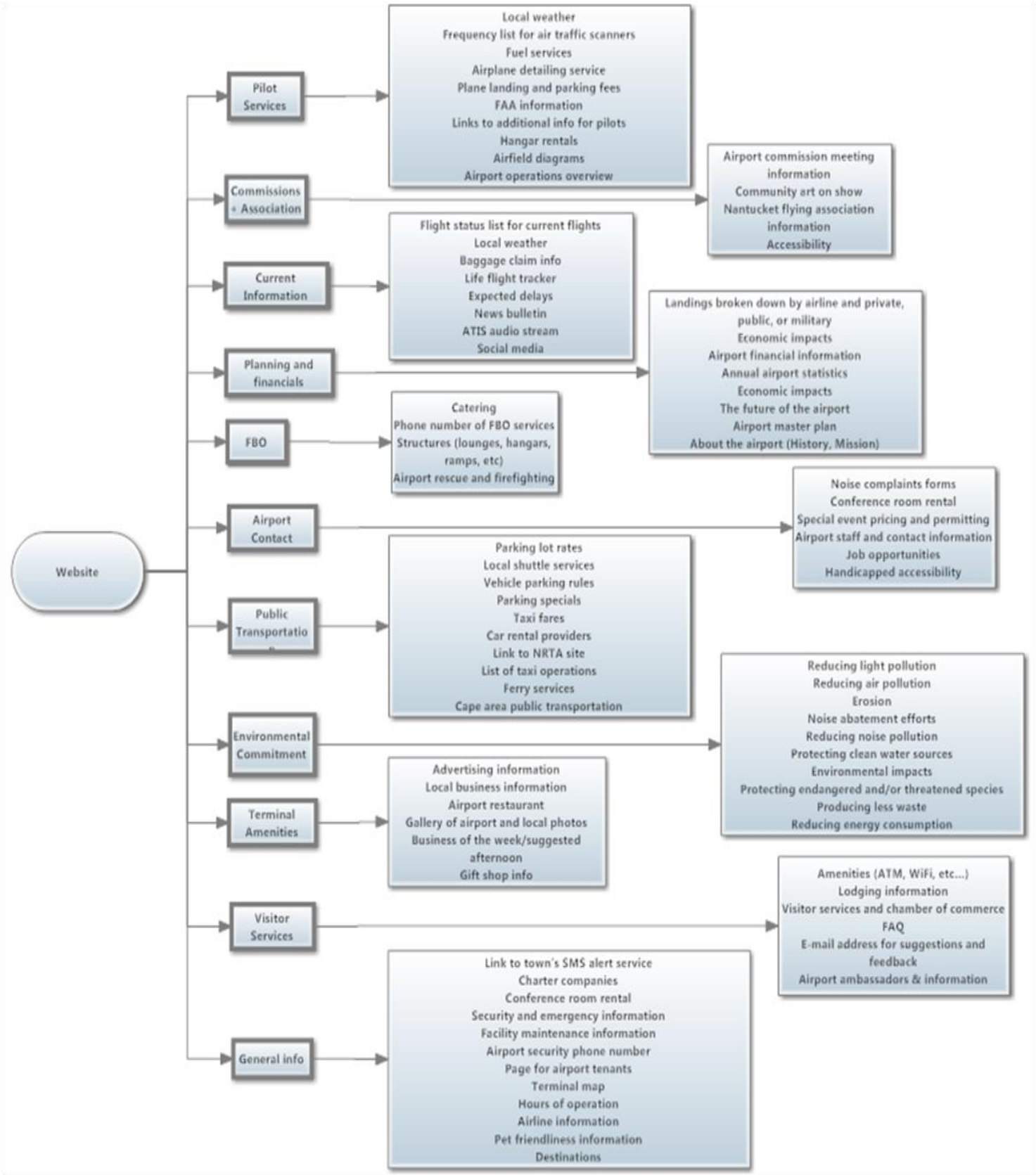

Figure 6: Hierarchy created by the town employee focus group

The most notable difference between these two hierarchies was the Fixed Base Operator (FBO) category of each. Both the airport group and the town group created a category for FBO, but the structure of the categories differed significantly. Notably, the town and airport focus groups both created an FBO category, but the group defined by the townspeople only included two out of the thirteen notecards that the airport staff identified as FBO-related. This difference could be explained by the fact that airport staff are more familiar with the airport's FBO services than most townspeople are.

The community member focus group used this category as a stockpile of information while the airport group spread the content in "General Information" among the other categories they created. In situations like this where one group was unsure on the placement of certain notecards, we deferred to the other group or to our research to make a final decision.

While disagreeing in many areas, the two groups did agree on the environmental topics related to the airport. The airport group discussed and resorted to these environmental items more vigorously, but ultimately, both groups identified similar lists of what should fall under environmental and sustainability programs. Because of the collective recognition the "Environmental and Sustainability Programs" category received, we carried it over to the final hierarchy.

During the focus groups, some of the notecards were edited to become more intuitive for the specific group. If the group decided that a certain notecard would be clear with a different name, we would make the appropriate changes to the notecard and note whatever changes were made. The changes from both focus groups are noted in the table below. The notecards added went through the same reasonability test as the original notecards and are listed in Table 12.

Observation

We conducted two observations of stakeholders using our completed wireframe. During this process, we asked each participant to navigate the wireframe in order to locate twenty-five pieces of content pulled at random from our notecards. Our participants were able to find the majority of content items in under ten seconds each. A few items, however, were more difficult to locate. After each observation process, we asked the participant for comments and feedback. Using the results of this study, we made several changes to our wireframe structure.

Notecards Changed	Explanations
Terminal Map	renamed from Airport Map
Airfield Diagram	suggestion derived from Airport Map
Airport Restaurant	split from Airport Restaurant and Catering
Catering	split from Airport Restaurant and Catering
List of Taxi Operators	renamed from Taxi Operators
Local Weather	renamed from Weather Report
Airport Rescue and Firefighting	suggestion from the airport staff
Featured Businesses	renamed from Business of the Week / Suggested Afternoon
Visitor Services	split from Visitor Services and Chamber of Commerce
Chamber of Commerce	split from Visitor Services and Chamber of Commerce
Lost and Found	brought back because Airport Security Phone Number doesn't clearly cover this
After Hours Information	suggestion from local residents
Advertising Information	suggestion from local residents
Travelers with Pets	suggestion from local residents
Operations Statistics	renamed from Landings Broken Down by Airline and Private, Public, and Military
Dining	renamed from Airport Restaurant
Visitor Maps and Brochures	suggestion from the local residents
Airport Map	renamed to Terminal Map
Airport Restaurant and Catering	split into Airport Restaurant / Catering
Taxi Operators	renamed to List of Taxi Operators
Weather Report	renamed to Local Weather
Phone Numbers for Local Tenants	removed because redundant with Page for Airport Tenants
Business of the Week / Suggested Afternoon	renamed to Featured Businesses
Visitor Services and Chamber of Commerce	split into Visitor Services / Chamber of Commerce
Expected Delays	removed because redundant with Flight Status List for Current Flights
Landings Broken Down by Airline and Private, Public, and Military	renamed to Operations Statistics
Airport Restaurant	renamed to Dining

Table 13: Notecards added and removed based on the focus groups

For the purposes of our wireframe, we left our Frequently Asked Questions page blank. Observation participants occasionally searched this page while looking for specific content items, including Lost and Found and Hours of Operation. Based on our observation, we decided to include these items on the Frequently Asked Questions page in addition to their other locations in the site hierarchy.

As we conducted our wireframe observations, we realized that some content items were not placed in the locations where our participants expected to find them. In order to make a more intuitive site structure, we decided to change the locations of certain content. We relocated catering information from the airport restaurant page to the FBO services category. As there are

multiple restaurants that provide catering through the airport, it did not make sense to include catering information on the page of only the airport restaurant. Both of our observation participants searched for this information under the General Aviation tab, and both agreed that moving it to FBO services would make sense. Catering information for the airport restaurant should remain on the airport restaurant page in addition to the FBO services category.

We also decided to give the airport gift shop its own page on the website instead of putting gift shop information on the terminal information page. Our main reason for giving the gift shop its own page was to place the gift shop at the same hierarchy level as other airport tenants such as the airport restaurant. This change makes gift shop information easier to find in the site hierarchy.

There were several new pieces of content for the website that were requested during our wireframe observation. One of these suggestions was an airport layout map that included the parking lot. We decided to add such a map to our wireframe's parking page in order to provide users with more information on parking at the airport.

One of the notecards we created early on based on research into typical website content contained information on various structures. More specifically, these structures included ramps, hangars, and lounges. During the creation of our hierarchy, we merged the structures card with the airfield diagram card to make a page called Airfield and Structures. Information on lounges was located on this page of our wireframe. We realized during our wireframe observations that this information on lounges was placed in an unintuitive location. Both of our observation participants struggled to find this information and suggested we relocate it. Since the airport's only lounge is intended for pilot use, we decided to add information on this lounge on the page Information for Pilots.

CONCLUSIONS AND RECOMMENDATIONS

We compared the content of the previous Nantucket Memorial Airport website to the content featured on a sample of five other small airport websites. The results of this comparison showed that the previous airport website had much of the same content as other small and larger airports, but also that it had the most limited variety of content of the sampled websites. Of the many findings from this analysis, the relative lack of content in categories such as "Non-aviation" and "Corporate Communications" could have been limiting the airport's ability to become more market driven and reach out to businesses. Although most airports lacked content in these categories, most of the airports reviewed displayed most of the content from "Passenger Services and Information" such as flight and airline information and from "Aviation" such as information for general aviation pilots.

Although most of the airport websites reviewed lacked content in "Corporate Communications" overall, four out of the six websites included information on sustainability. This shows that Nantucket Memorial Airport is not alone in wanting to showcase its environmental accomplishments, especially as it moves toward becoming the first carbon-neutral airport in the United States.

We conducted an analysis of the user experience characteristics of the previous website using the WebCHECK analysis tool. The results showed that the previous Nantucket Memorial Airport website was less stimulating, organized, informative, and easy-to-use than the other sites in our sample. These findings confirm the necessity of the website redesign.

Our survey results were almost entirely in line with the expectations set up by our review of the literature and similar websites. The types of information which were not supported as useful by our survey results were mostly explained by the limitations of our sampling approach. We interpreted these results to mean that all of the content items we proposed on the survey are appropriate to include on the new website.

The survey included an open response prompt for feature suggestions which had not been mentioned in the survey. These responses, collected from the survey results, represented individual rather than general opinions and urged for weather and parking information to be made available on the website. Interviewees provided some additional recommendations that

largely focused on the necessity of making current flight information readily available as well as including information for island visitors who are searching for what Nantucket can offer. This idea is related to our earlier discussion of the importance of business-to-business (B2B) communications in order to increase airport revenue.

The focus groups sorted their notecards into two quite distinct organizational structures which we processed into a single hierarchy with a manual adaptation process. The resulting organizational structure reflected all of the input from both focus group activities as well as interview and survey results. One unexpected finding was that airport staff organized General Aviation content into a much different structure than townspeople did, a result which we attributed to the increased familiarity of airport staff with General Aviation information. This category in our final structure more closely matched the town's organization in an effort to orient the website content for easiest retrieval by people without detailed airport knowledge.

Recommendations

From conclusions we have drawn, we provided the airport with a specific set of recommendations. These recommendations helped the airport create a website that acts as an effective outreach tool and that can be updated and maintained as the needs of the airport develop and change.

CivicPlus Decision

We moved from research to implementation by planning the development of the final website. Given the timeline of the project, we decided hiring third party developer would be most appropriate. As the Town of Nantucket website was recently redesigned using the services of CivicPlus, we chose to work with them as well to design the new website. CivicPlus provided us with some options for the development process which we carefully considered and presented to airport staff. Airport staff opted to create a "department header" within the Town of Nantucket website. This option was cost-effective because it capitalizes on the town's existing relationship with CivicPlus. It also offered the airport an appropriate amount of design choice and maintains distinct branding, separate from the town website.

Initial Website Structure

In the beginning stages of working with CivicPlus, they requested several items including global navigation buttons, header buttons and popular links that went into creating a draft of the homepage. A mock-up of this homepage is shown below.

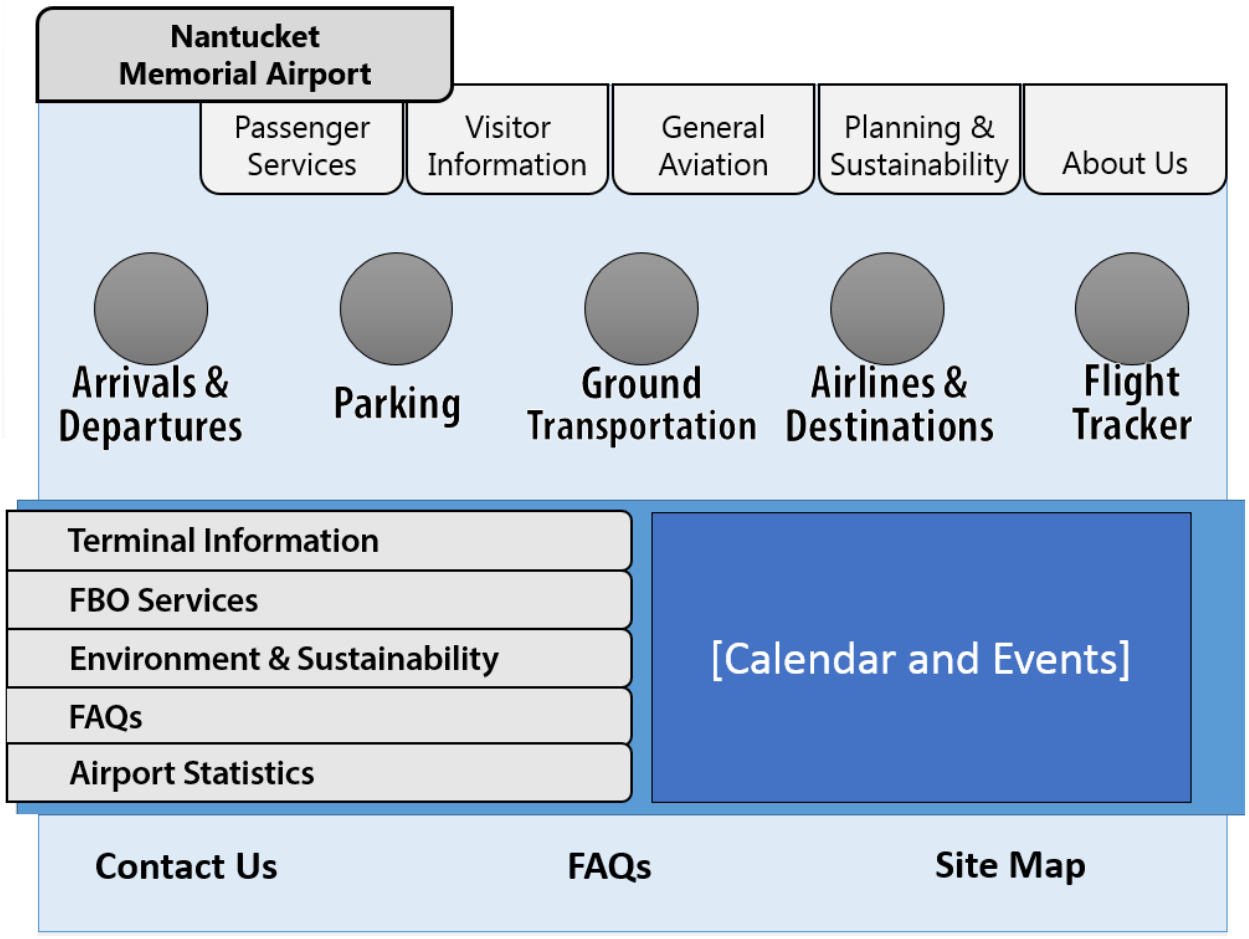

Figure 7: Mock-up of the homepage of the new airport website

The popular links (shown in the boxes on the left-hand side) and the graphic buttons (shown as circles below the five major navigation buttons) were determined from the airport staff focus group's suggestions for certain quick links they thought should appear on the homepage. We also determined these links and buttons from the survey results as well as the background research on common airport website content. For example, "flight status updates" was found to be at least somewhat useful by the majority of our survey respondents, and it was included in 87.6 percent of EU airport websites Halpern and Regmi (2013) analyzed.

In many of our interviews, responses pointed towards having parking information as a prominent content piece on the new website. However, in creating the final hierarchy, we were not able to make “parking and ground transportation” one of the 5 global navigation tabs as it excluded too much of the remaining desired content. In order to compromise, we put parking information under “Passenger Services” and also made ‘parking’ one of the graphic buttons to be displayed on the homepage.

Although both focus groups created an overarching category for environmental topics, we ultimately decided not to make it a major category. Although we agreed it should be included and detailed on the website as our survey results suggested, we determined that it was too specific to have as one of the 5 major categories on the website. We placed it under the “Planning and Sustainability” category as this name still gave importance to sustainability topics but combined it with other content pieces such as Master Plan information in order to conserve space.

In drawing together the hierarchy we assembled from the focus groups recommendations and with the revisions that came out the wireframe observations, we came up with a final hierarchy. This final recommended hierarchy is included in Appendix G.

Content Redevelopment

One deliverable for the airport was a table of all recommended website content and whether or not they needed to create, update, or migrate that content from their original website. This full table is shown in Appendix F. The majority of the content must be created since the previous Nantucket airport website did not contain as much content as we recommend for the new website. However, a large amount of the content that needs creation exists in the master plan documentation. For instance, environmental topics like "Erosion" and "Protecting Endangered/Threatened Species" are available in the master plan documentation, but are not discussed on the previous website. The airport can migrate the more static content such as taxi rates and "Airport Statistics" as long as some aesthetic changes are made to match the style of the current website.

As well as creating and migrating old content from the previous website, some of the content needs to be updated before adding it to the new website. The airport should supply more information on these specific content pieces than is currently available on their previous website.

The best example of this is the "Catering" page on the previous airport website. This page has accurate information on two local catering companies, but it is not aesthetically pleasing and could use pictures and descriptions of the listed catering companies. These types of changes need to be made before adding the content to the new website.

Prototyping

An aesthetic change that can improve the design of the website is the inclusion of relevant images on most pages of the website. Our research has shown that appropriate use of images can draw users' attention and clarify information. Overuse, however, can distract users from other content and can clutter the page (Nielson, 1999). The previous Nantucket Memorial Airport website suffered from a lack of images. In our WebCHECK analysis, the airport scored one point below the average for the scorecard item "Visual (e.g. videos, photographs) or audio content included in this Web site helps to clarify or describe the topic(s) presented." We recommend that each page of the site generally contain at least one relevant image. Pages that are broken down by headings can contain one image per heading. As part of ordinary maintenance, we recommend that images within the pages as well as the rotating slideshow on the main page be occasionally updated.

Updated Flight Information

In many of our interview responses and survey results, our stakeholders expressed a strong need for constantly updated information whether it be weather delays or current flight statuses. They emphasized how crucial it was to be able to know well in advance if they were going to have to search for another way off the island. In the case of Nantucket, that includes two ferry companies and an airport. Satisfying this need for immediate information in case of delays was a major motivation for featuring "Arrivals and Departures" so prominently on the airport website. Although the airport cannot directly update this information, we recommend that they work towards feeding the flight information display (FID) screens from the airport terminal onto the website. In theory, this would display all of the current flights from the air-taxis that operate out of Nantucket Memorial Airport.

The only problem with displaying the FID screen on our website is that many of our respondents reported that these screens were not updated frequently enough to be useful in the event of unplanned delays. The FIDs are supposed to be updated by the air-taxi operators and not

the airport personnel. Unfortunately, this presents limitations to how up-to-date the flight status information on the website can be. Although we do recommend that the FIDs should eventually be fed to the "Arrivals and Departures" section of the website, it is understood that the air-taxi companies need to work to update their flight information more frequently. We recommend that the airport communicate with the operators to move towards having up-to-date information readily available for passengers and website visitors.

Advertising and Business Outreach

We recommend that the airport consider offering businesses advertising space on the website, with advertisements of local businesses highlighted. This idea was supported by three interviewees and was received favorably by airport staff during review. In addition to strengthening B2B communications, this could provide another revenue stream for the airport which might help offset the cost of maintaining the website on an ongoing basis. The goods and services advertised must be relevant to the visitor experience. The content should be related to one of the categories of information we have identified as useful, or should be passed through careful review, to ensure that the website does not become cluttered with unnecessary information. Our review of the literature found that including irrelevant information on a website can make it more difficult for a visitor to find the information they need and can lead to poor user experiences.

Maintenance and Continuing Improvement

One common complaint regarding the previous website was that its information was not frequently updated. In our analysis of the previous website using the WebCHECK tool, we determined that the website was updated less frequently than the five other airport websites we evaluated. For the scorecard item "The information contained in this Web site is current and up-to-date," the previous Nantucket Memorial Airport website scored 1.33 points lower than the average of the six websites. (Each scorecard item was rated on a scale from 0 to 3, with 0 indicating strong disagreement with the statement and 3 indicating strong agreement.) Based on our WebCHECK evaluation, as well as various comments from our survey and interviews, we recommend that the airport update the information on their new website with higher frequency than they had done on their previous one. Certain sections, such as news and announcements, need to be updated on a regular basis, while others, including statistics, can be updated annually.

Because we closely matched the town's organization of "General Aviation" as discussed in our conclusions, this could lead to less efficient maintenance of the website. This could occur if the content in one person's area of expertise is spread across several disparate sections of the website. By suggesting continual maintenance and updates of the different types of content on the airport website, we hope to avoid confusion from all parties in finding information.

Users of the previous Nantucket Memorial Airport website also generally found it difficult to get in touch with the airport in order to provide feedback. A solution to this problem, proposed by an interviewee, was to include an online suggestion box or general contact email address for comments, concerns, and suggestions. Our WebCHECK analysis provides further evidence that the airport website can be designed to better encourage communication with users. For the scorecard item "This Web site provides opportunities to communicate with its creator(s) and author(s), the previous Nantucket Memorial Airport scored 0.83 points below the average. To address this weakness of the previous website, we recommend that the airport include an email address for general suggestions and concerns on their website. Another way to address the questions and concerns of users is through a Frequently Asked Questions page. This suggestion was brought up during an interview and the need for an FAQs section is also supported by our WebCHECK analysis. For the scorecard item "This Web site provides an easy-to-use help function," the previous airport website scored 0.83 points below the average. A list of common questions and their answers could potentially provide quick assistance to users. In our recommended structure for the website, we include the FAQs as one of the five graphic buttons so that it is easy for users to locate. In order to ensure that this feature remains helpful to users, we recommend that the FAQs be appended with additional common questions that arise.

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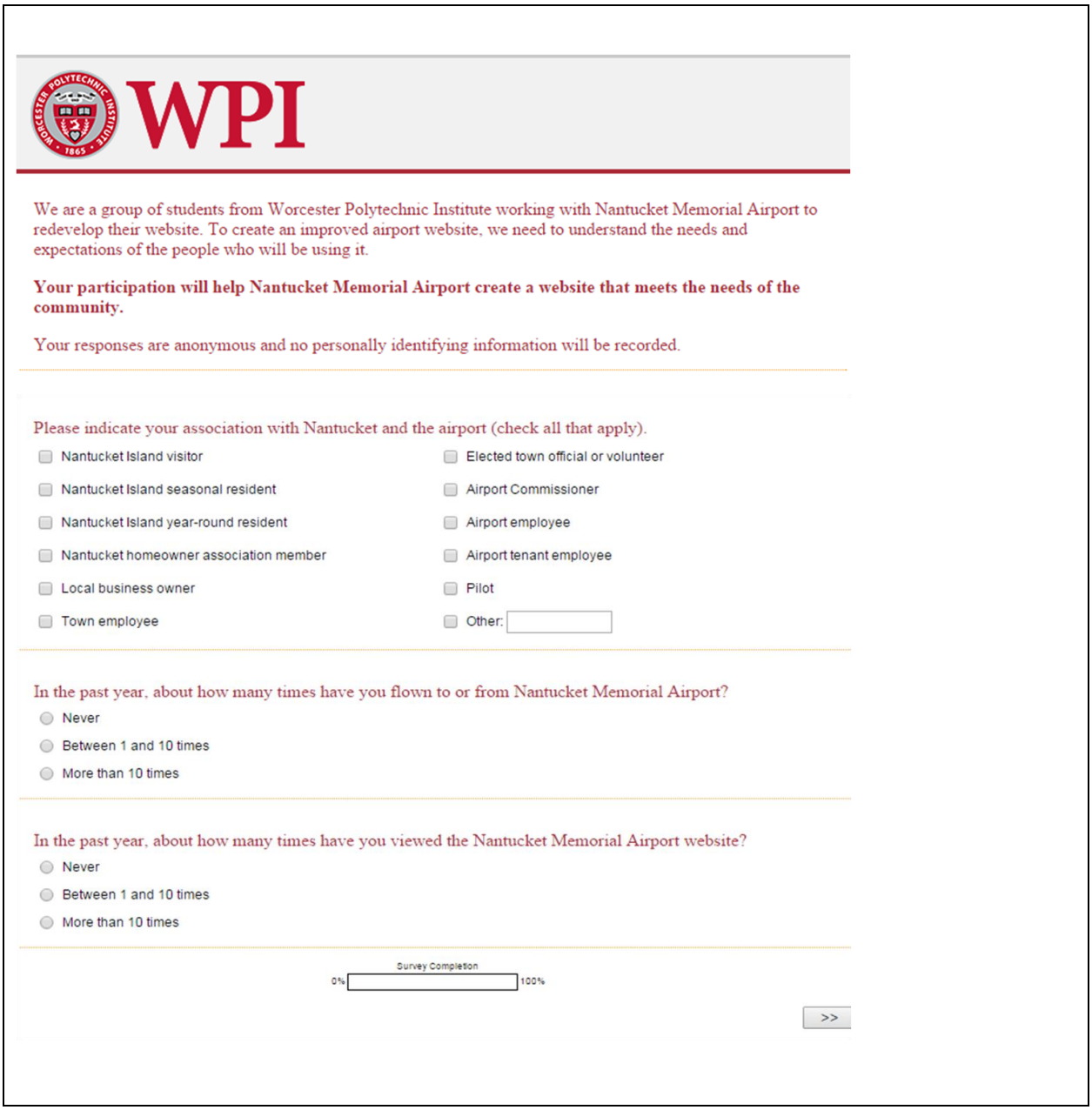
APPENDICES

Appendix A: Common Airport Website Content

Sub-Category	Details	Has Content
Passenger Services & Information		
Flight Info	Airlines, destinations, route map, timetables, SMS flight updates	
Passenger Services & Facilities	Terminal info, shops, food and beverages, internet, rest rooms, ATM, concierge	
Transport & Directions	Getting to/from airport, car parking and valet	
Travel Information & Support	Security, special assistance, baggage reclaim, meeting points, airport maps, hotels & car hire	
Aviation		
Airport Charges	Calculator for airport charges, incentive schemes	
General Aviation	Flying clubs, flying schools	
Ground Services	Maintenance, passenger and aircraft handling, sanitation	
Technical Info	Terminal infrastructure, airside and operational capabilities, operational procedures, emergency information	
Cargo & Logistics	Facilities and services for cargo and logistics	
Market Research	Catchment area info and potential demand, tourism development, opinion polls	
Non-aviation		
Meeting Facilities	Business centers and facilities, incentives, conferences	
Advertising	Opportunities at or around airport	
Consultancy	Consulting services	
Property	Business park, commercial rental properties, office space, exec. Lounges, hangars and ramp	
Tenders	Tender operations	
IT & Telecommunications	Related services	
Corporate Communications		
About the Airport	History, mission statement, code of business conduct, awards, organization	
Media	Press kit, fact sheets, image gallery, RSS feed	
Customer Services	Airport contact details, feedback forms, surveys	
Investor Relations	Shares info, finance and traffic data, events and presentation, reports	
Human Resource Management	Jobs and career opportunities, training, apprenticeships	
Airport Planning and Development	Airport master plan, expansion projects	
Sustainability	Environmental, social and economic	
Corporate Social Responsibility	Culture, education, community, sponsorship	

A tabulated inventory, developed by Halpern and Regmi (2013), that lists types of airport website content they identified during their analysis of a sample of airport websites.

Appendix B: Survey Instrument



WPI

We are a group of students from Worcester Polytechnic Institute working with Nantucket Memorial Airport to redevelop their website. To create an improved airport website, we need to understand the needs and expectations of the people who will be using it.

Your participation will help Nantucket Memorial Airport create a website that meets the needs of the community.

Your responses are anonymous and no personally identifying information will be recorded.

Please indicate your association with Nantucket and the airport (check all that apply).

- ☐ Nantucket Island visitor
- ☐ Nantucket Island seasonal resident
- ☐ Nantucket Island year-round resident
- ☐ Nantucket homeowner association member
- ☐ Local business owner
- ☐ Town employee
- ☐ Elected town official or volunteer
- ☐ Airport Commissioner
- ☐ Airport employee
- ☐ Airport tenant employee
- ☐ Pilot
- ☐ Other:

In the past year, about how many times have you flown to or from Nantucket Memorial Airport?

- ○ Never
- ○ Between 1 and 10 times
- ○ More than 10 times

In the past year, about how many times have you viewed the Nantucket Memorial Airport website?

- ○ Never
- ○ Between 1 and 10 times
- ○ More than 10 times

Survey Completion

0% 100%

>>

The following pages list types of information that could be included on the Nantucket Memorial Airport website.

Please specify how useful each type of information would be to you, or select "Don't know".

Passenger services

	Not useful	Somewhat useful	Very useful	Don't know
Airline information	○	○	○	○
Airport restaurant and catering	○	○	○	○
Flight status list for current flights	○	○	○	○
Lodging information	○	○	○	○
Amenities (ATM, wireless internet)	○	○	○	○
Accessibility	○	○	○	○

Parking and ground transportation

	Not useful	Somewhat useful	Very useful	Don't know
Car rental providers	○	○	○	○
Local shuttle service	○	○	○	○
Parking lot rates	○	○	○	○
Taxi operators	○	○	○	○
Airport map	○	○	○	○

Survey Completion
0% 100%

<< >>

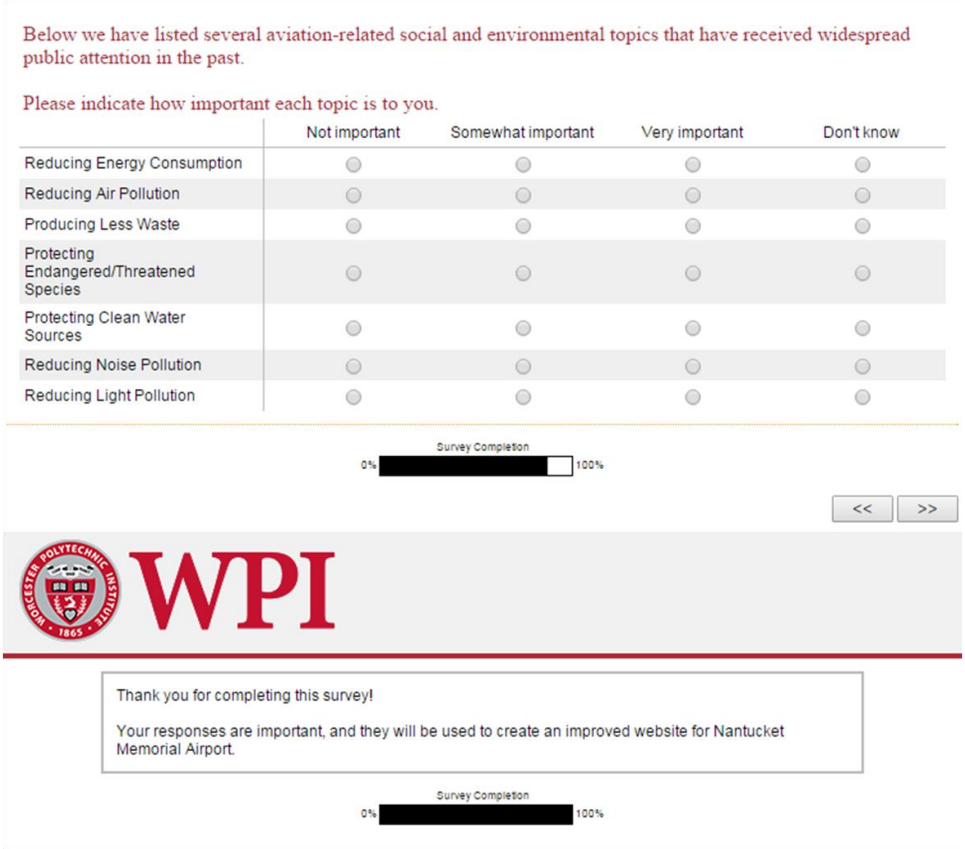
Airport operations

	Not useful	Somewhat useful	Very useful	Don't know
Airport operations overview	○	○	○	○
Airport Master Plan	○	○	○	○
Facility maintenance information	○	○	○	○
Airport staff and contact information	○	○	○	○
Structures (lounges, hangars, ramps, etc.)	○	○	○	○
Live maps with current flight paths	○	○	○	○
Job opportunities	○	○	○	○
Security and emergency information	○	○	○	○

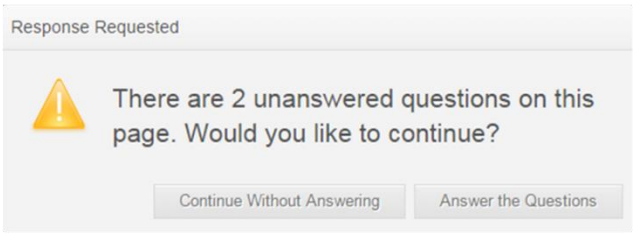
What other kinds of information should be included in the new airport website?

Survey Completion
0% 100%

<< >>



Example "Unanswered Questions" prompt:



Appendix C: Interview Outline

The passage **Error! Reference source not found.** is an outline of our interview conversations, including an introduction and a list of example discussion questions.

Ask for consent to record and offer anonymous participation. Make sure the participant has visited the website and browsed around.

Introduce who we are, the nature and purpose of our project, and how we plan to use the interview data.

(Warm up type questions):

- Do you live on the island? How long have you lived on the island for?
- What is your relationship with and familiarity with the airport?

(Discussion questions):

- What information do you usually try to find about the airport?
- Can you find that info on the current site?
- What types of feedback would you usually want to provide to the airport?
- Are you able to provide that feedback using the current site?

Appendix D: Preamble to the Affinity Diagramming Exercise

We read the following script during the affinity diagramming exercise.

Preamble

We are a group of students from WPI who are working with the Nantucket Memorial Airport to redevelop the airport website. The objective of this activity is to create an intuitive organization and hierarchy for the new airport website. On the table we have provided a stack of notecards. Each notecard has a website feature or piece of content written on it. Your task is to work as a group to arrange these cards into categories of related content. The number and size of these content groups are up to you. Feel free to discuss, justify, and debate your decisions during this activity. We can clarify the meaning of what is written on any of the notecards, but we will not provide any feedback on the decisions made during the activity. All opinions expressed during this activity will be kept confidential. You may begin when you are ready.

Part Two Instructions

Now that you have sorted all of the notecards into smaller categories, please provide names for each category made. We will now repeat the first activity with the new content cards. However, this time please sort the new content cards down to four or five categories.

Concluding Statements

Thank you for taking the time to participate in our research. Your responses will help our efforts to redevelop the airport website.

Appendix E: Preamble to the Observation Exercise

We read the following script during the Observation exercise.

We are a group of students from WPI who are working with the Nantucket Memorial Airport to redevelop the airport website. The objective of this activity is to create an intuitive organization and hierarchy for the new airport website.

On the computer in front of you is a prototype of the navigation structure of the new website. It is intentionally left without any meaningful visual elements because the focus of this activity is on the navigational structure of the site.We will tell you to find a particular, randomly selected content item, which exists on the wireframe. Please try to find that content by navigating the wireframe as if it were a website. Feel free to talk through your thought process, but we will not give assistance outside of clarifying the content itself.

When you find the item we will talk about how intuitive you found the location of the item in the wireframe. Feel free to end your participation at any time.

Appendix F: Table of Content and Recommended Action

The following table contains all the content for the website and how we recommend they obtain the information from the current website.

- "Create" means they would have to create the information from scratch or master plan documentation,
- "Update" means the information can come from the current site, however it needs to be updated to fit the times.
- "Migrate" means that the information can simply be moved from site to site.
- "Link" means that the navigation will link to an external website.
- **Bold** means that the content will be a page
- A "*" next to the recommended action means that the content should be updated annually

Content:	Recommended Action:
Passenger Services	
Arrivals and Departures	Create
Airlines and Destinations	Update
Terminal Information	Create
Gift Shop	Create
Terminal Map	Create
Hours of operations	Create
Amenities	Create
Arts at the airport	Create *
Baggage Claim	Create
Lost and found	Create
Crosswinds Restaurant	Update
Dining	Create
Catering	Update
Specials	Create *
Airport Security	Create / Link

Content:	Recommended Action:
Emergency Information	Create
Phone number	Create
Towns SMS [Link]	Link
Lost and Found	Create
Accessibility	Create
General aviation	
FBO services	Update
Landing and parking fees	Migrate *
Fuel services	Update
Phone number	Migrate
Information for pilots	Link
ATIS audio stream	Link
Frequency list	Create / Link
Additional Information for Pilots [Link]	Link
Noise Abatement	Migrate
Airfield Diagram and Structures	Create
Airplane Detailing Services	Migrate
Charter Companies	Create
Nantucket Flying Association [Link]	Link
Visitor Information	
Ground Transportation	Update
Shuttle Services	Update
Taxi Operators	Migrate *
Car Rental	Migrate
Parking	Create
Lodging	Create
Local Business Information/featured businesses	Create
Visitor services [Link]	Link

Content:	Recommended Action:
Chamber of Commerce [Link]	Link
Off island Information	Create / Link
Ferry	Create / Link
Cape Area Public Transportation	Create / Link
Planning and Sustainability	
Mission Statement	Create
Environmental and Sustainability Programs	Create
Erosion	Create
Protecting Endangered/Threatened Species	Create
Energy Efforts	Create
Reducing Energy Consumption	Create
Producing less waste	Create
Noise	Migrate
Abatement efforts	Migrate
Inquiry forms	Migrate
Flight Tracker [Link]	Link
Role of the FAA	Create
Reducing Pollution	Create
Air	Create
Water	Create
Light	Create
Master Plan [Link]	Link
Airport Commission	Create
About us	
Contact Us	Update
Airport Staff	Migrate
Airport Commission [Link]	Link
Email address for suggestions and comments	Create

Content:	Recommended Action:
History of the Airport	Create
Operations	Create
Overview	Create
ARFF	Create
Financial Information	Create
Economic impacts	Create *
Airport Statistics	Migrate *
Operations statistics	Migrate *
Event space	Create
Pricing	Create
Planning Information	Create
Forms	Create
Advertising Information	Create
Job Opportunities	Migrate *
FAQ	Create *

Appendix G: Final Recommended Website Structure

The following hierarchical list contains the information we recommend that the Nantucket Memorial Airport include on its website. This information is organized as a hierarchy of pages under the five global navigation headers, which are underlined. Bolded items are meant to denote individual web pages.

- Passenger Services
    - **Arrivals and Departures** (updated flight list, link to flight tracker)
    - **Airlines and Destinations**
    - **Terminal Information** (hours of operation, terminal map, arts at the airport, wireless internet, ATM information)
    - **Baggage Claim** (also include a note about lost & found)
    - **Crosswinds Restaurant** (dining, specials, link to their homepage)
    - **Gift Shop**
    - **Airport Security** (emergency information, airport security phone number, include a note about lost & found)
    - **Accessibility** (handicapped accessibility information)

- Visitor Information
    - **Ground Transportation** (overview of ground transportation with links to the three subpages)
        - **Shuttle Services** (shuttle map, link to the NRTA website)
        - **Taxi Operators** (list of taxi operators and fares)
        - **Car Rental**
    - **Parking** (parking map, rules, parking rates, specials)
    - **Lodging**
    - *Visitor Services* [link]
    - *Chamber of Commerce* [link]
    - **Featured Businesses** (local business information – advertising opportunity)
    - **Off-Island Information** (ferry services, cape area public transportation)

- General Aviation
    - **FBO Services** (landing and parking fees, fuel services, catering, FBO phone number, FBO hours of operation)
    - **Information for Pilots** (ATIS audio stream, frequency list for air traffic scanners, pilot lounge information, links to additional pilot resources)
    - **Noise Abatement** [duplicate page]
    - **Airfield and Structures** (airfield diagram, hangars, ramps)
    - **Airplane Detailing Services**
    - **Charter Companies**
    - *Nantucket Flying Association* [link]

- Planning and Sustainability
    - **Mission Statement**
    - **Environmental and Sustainability Programs** (general overview of environmental efforts with links to deeper pages, erosion information)
        - **Protecting Endangered/Threatened Species**
        - **Energy Efforts** (reducing energy consumption)
        - **Noise Abatement** (noise abatement efforts and practices, link to noise inquiry forms, link to flight tracker)
        - **Reducing Pollution** (reducing air pollution / fumes, protecting clean water)
    - *Master Plan* [link to Master Plan website]
    - **Airport Commission**

- About Us
    - **Contact Us** (airport staff, link to airport commission page, email address for suggestions and comments, link to noise inquiry forms, airport security phone number, additional contact information)
    - **History** (brief overview of the airport's history)
    - **Operations** (ARFF information, link to ARFF website, other operations info such as snow removal, etc.)
    - **Financial Information** (financial data, economic impacts, the airport's role in the local economy)
    - **Airport Statistics** (terminal enplanements, FAA tower operations, inbound freight, noise complaints by year, fuel sales, any additional statistics)
    - **Event Space** (event planning information, event pricing, event forms, hangar rental, conference room rental)
    - **Advertising Information**
    - **Job Opportunities**
    - **FAQs** (hours of operation for terminal and FBO, lost and found information, any other common questions)