The Role of Research & Training Toward
Effective, Efficient Use of Resources in Web site Revision

In the City of Astoria (OR): A Case Study

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Introduction
Early this year, the Astoria (OR) City Manager and members of Astoria City Council expressed interest in a revision of the city’s official Web site. A research proposal that met the criteria for an academic project and the city’s workplace need was developed and implemented over the past several months. This document is a final report on the Web site revision project. It highlights the project’s importance to local taxpayers, and outlines the methodology that allowed a small city’s limited resources to be used effectively and efficiently.

This project was proposed as a final course requirement in the Professional and Technical Communication Master of Science degree program at NJIT, New Jersey’s Science and Research University. The primary researcher was uniquely qualified to do the work because of her knowledge of the city both as a resident, former municipal employee and of cutting edge technology, rhetoric, and technical communication methods and practices.

Since the city has neither an IT department nor a Web administrator position, this project began with basic research in the first of a four-phase process. The research phase included documentation of the city’s Web site, an audience analysis, usability test, literature review and needs assessment. The second phase, training, focused on the researcher’s familiarization of the software used to determine if it is robust enough for needs identified in the research phase. The training phase concluded with on-site instruction for those involved in content management so that Web site revisions could be made with the least amount of disruption. Phase three, revision, included individual desk-side training and a group feedback session to assess usability of the revised site. The fourth and final phase focused on flexible deliverables, including guidelines and protocols for the city’s administrative staff, continued development of Web site pages, as well as oral and written reports to department heads, Astoria City Council members and others.
A volunteer, who is no longer available, developed the city’s current site at http://www.astoria.or.us/. Astoria prides itself on being both unique and universal. By necessity, flexibility was paramount to the success of the project. The following topics will be covered in this report:

- Project site description, my qualifications, and my role;
- Project description: audience, purpose, aims or goals, medium for deliverables;
- Project timeline;
- Literature review;
- Theory;
- Methodology;
- Lessons Learned;
- Conclusion.

Site Description

About the City of Astoria

Astoria, with a population of 9,880 residents, is a small and picturesque city located at the northwest corner of Oregon, near the mouth of the Columbia River in the Pacific Northwest. Fishing and logging were major regional industries for many years, and Astoria’s growth and prosperity as a maritime port was reflected in colorful Victorian era houses that still grace the steep streets and slopes.

The settlement of Astoria dates back to the arrival of John Jacob Astor’s fur trading company in 1811. The City was incorporated in 1856 and it adopted a Mayor/Council form of government. The City of Astoria employs 99 people in seven departments.
While Astoria’s year-round population has not changed significantly in the past 20 years, the business community is growing and Astoria has been described as a “small city with big ideas.” Tourists and resident now enjoy trolley rides along the riverfront, a four-mile riverfront trail, viewing and picnic areas, restaurants and shops. Some 17 condominium projects have been proposed and a major housing and small business development project is planned for the waterfront on the bayside. Astoria’s combination of rich history and contemporary growth was recognized in the New York Times’ travel section on Nov. 25, 2005. It stated, “the city is reinventing itself as a getaway destination by capitalizing on its well-preserved Victorian architecture and rugged beauty (Johnson, D3).

Though city leaders are proud of Astoria’s history as the oldest American settlement west of the Rocky Mountains and look forward to its future, they struggle to satisfy demands imposed by current residents and visitors on city staff for information and services. Some land development, literally, is causing land and homes to slide; infrastructures are aging, and traffic is congested, especially during the summer season. So, while community development projects keep city staffers busy, government leaders are forced to find other ways to balance revenues and expenses as they decide priorities.

**My Role**

Paul Benoit, who is now Astoria City Manager, was community development director when I moved to Astoria and worked as a freelance writer. We met when I interviewed him for a newspaper article that was published in the (Portland) Oregonian on how the City planned to develop its waterfront to increase public access. Earlier this year, Paul Benoit said he wanted to make the city’s Web site more useful and more user-friendly.
In promoting this project as a proposal, I established that I worked for 12 years in a variety of progressively responsible positions in the city’s police department, and that because of my background and training, knowledge, professional relationships, and networking ability, I was uniquely qualified to coordinate the Web site revision process and to facilitate staff training and development.

**Project Description**

**Audience and Purpose**

The purpose of the project was to determine what information would be most useful to the City of Astoria’s internal and external Web audience, to revise the existing site, and to develop protocols and guidelines for city staff toward continued maintenance and updates. Have computers and the Internet helped the City’s employees to serve the public in an efficient and effective manner? Is there a way that the City’s Web site can assist departments become more effective and efficient?

The audience for this proposal, in addition to the NJIT faculty, was Astoria City Manager Paul Benoit. As city manager, he also was the gatekeeper.

The primary audience for the project – the City of Astoria’s Web site – consisted of local residents, visitors, the business community, developers, and others, including other government agencies and the city’s own employees. This audience wished to access information, including key contacts, agendas and minutes, staff reports, city code, the city charter, building codes, forms and permits, and job opportunities.

The secondary audience consisted of the City’s administrative assistants, who were the content editors and, in some cases, the subject matter experts, who knew what information the primary audience most often requested. They needed to provide information in an efficient and
effective way. City department heads were the tertiary audience; they needed to promote their department’s programs and services.

Aims and Goals

The overall goal of this project was to establish an intuitive and effective government Web site so that residents, visitors and the business community were able to obtain information about the city and the services it provides.

Specifically, the project aimed to provide protocols, standards, guidelines, training for staff and a web site administrator capable of overseeing development of the project.

Media Format

Deliverables in the project were presented in a variety of media formats, including a Web site, in-person, on-site training, paper documents, digital photographs, and electronic text.

Current problem

Many years ago, a now-defunct company created a Web page for the city that was static and outdated. Though several department heads saw the need for a presence on the World Wide Web, the city’s budget did not support or allow such development. A few departments, in fact, allowed volunteers to create unofficial Web sites to promote city programs and services, but since the City of Astoria does not have an IT Department, nor does it have a paid staff position for Web site administration, the effect was inconsistent and without oversight.

Dan Bartlett, former city manager, developed and launched the City of Astoria’s current site in January 2006 after the company that created the city’s original site, a static page, went out of business. Bartlett, working as a volunteer, used DotNetNuke software available through the League of Oregon Cities because the software, server and support were affordable and available.
Bartlett’s home page featured historic information about the Astoria area, an historic image that rotates a new image each time the page is refreshed, links to press releases, announcements and a search function. Bartlett’s iteration created an Internet presence. The home page before the project began is seen in Fig. 1 below.

Fig. 1. Screen shot of the City of Astoria’s Web site as seen on June 7, 2006 features history.

Bartlett took another job, however, and was no longer available to develop and maintain the Web site. No other city employees received training in how to use the software and its content modules. Only one or two departments appeared to be updating content, which contributed to an unbalanced appearance.

Requests for information from citizens, local businesses and investors were too numerous for city staff to handle efficiently. Many residents and visitors wondered why the city could not
change the way it did business – and use high-speed Internet services and telecommunications route diversity – to keep pace with the demands of business and community development.

**Solving the Problem**

The City Manager wished to solve problems, not to create more. He, therefore, was enthused with my proposed solution, which was based on a methodical process described here.

**Project Timeline**

The project was completed in the following four phases and tasks:

- **Phase 1 - Research**
  - Screen captures and text to document existing Web site
  - Audience analysis
  - Literature Review
  - Needs Assessment

- **Phase 2 – Training**
  - Software familiarization and evaluation
  - On-site instruction for content editors

- **Phase 3 – Revision**
  - Web site revision
  - Desk-side training to follow-up on group instruction
  - Group feedback session to assess revised site

- **Phase 4 – Development**
  - Guidelines and protocols to city staff,
  - Oral report to City Department Heads, City Council;
  - Written article for League of Oregon Cities’ newsletter;
Continued development of Web site pages.

The project timeline is illustrated below in the Gantt chart in Figure 2 below.

![Gantt Chart](image)

**Fig. 2.** Gantt Chart illustrates project phases: research, training, revision, and development.

**Literature review**

Results of a survey conducted by researchers at Brown University indicated that the nation’s 70 largest cities have made major strides toward placing information and services online. The same survey also revealed that user fees are paying for this form of e-government access, which may lead to a two-class society of information. Unfortunately, this may mean that only those who can afford to pay for e-services will receive them. It is reasonable to conclude that if large cities must look to outside revenue sources for funding municipal Web sites, smaller cities share similar concerns about how to use limited resources effectively and efficiently.

In “Cultivating Communities of Practice,” Wenger describes communities of practice as groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (4). We all belong to a number of communities of practice, at work, at school, at home, in our hobbies (5). Expectations about the value of communities of practice must be realistic: they do not merely manage knowledge assets; they also build relationships among people, and they create a sense of belonging and other intangible outcomes such as confidence and identity (15).

Communities of practice already exist within the City of Astoria, yet a new one -- composed of content editors with responsibility to update Web site content -- was in its early
stages of development. The Web site revision project would not only attract an outside audience of visitors, but it also will continue to create and attempt to satisfy an internal audience that may have a different set of values and attitudes. Both communities expect the Web site to function and to be useful.

In his book “Designing Web Usability: The Practice of Simplicity,” Jakob Nielsen, who started designing for the Web in 1994, observed that experienced Internet users know how to get around if a link in the chain breaks. Novices and inexperienced Web users, however, give up and get frustrated because they know only that the system doesn’t work (348). It was logical to believe that inexperienced content editors would also get frustrated if they did not have the training and support they needed to understand what was happening and why it was happening.

During the research phase of the project, an extensive literature review included a database search for journal articles and focused on government Web sites, usability and navigation structure.

Successful sites choose clarity and ease of usability over cuteness (Palser).

During a feedback session in Phase 3, materials gleaned by the primary researcher were provided to content editors to assist them in future Web page development.

Theory

The concept of a theory is defined as an idea or observation that can be used to classify information (Elliot). Theories explain how an independent variable causes a dependent variable and they are always qualitative because they come from observations and are described in words, but they may be based on either quantitative or qualitative information and observations (Barnard 53). Barnard calls theories “good ideas” that are used in an attempt to explain how things work (55).
Alan C. Purves, author of The Web of Text and the Web of God, identified five themes or links in hypertext theory that provide insight and understanding when examining the nature of on-line communities linked by common purpose.

The five elements, like fingers on a hand, are authority, anarchy, community, idolatry and networks. They are described as:

- **Authority**, which implies control and respect by those who acknowledge it. In hypertext, the concept is tied to community and its culture and conventions. Purves believed authority is in the hands of the reader as well as the author/writer (204).

- **Anarchy**, which has the appearance of disorder. Purves compared hypertext to that image because both are non-hierarchical and multi-directional (202, 203).

- **Community**, which suggests commonality, a connection and sharing. Purves noted that sharing connotes a lack of definable authority (207, 208).

- **Idolatry**, which is defined as the worship of the icon in place of the object represented by the icon. Computers use icons and images. Purves cautioned readers to use text, hypertext and hypermedia as tools rather than objects of adulation leading to idolatry (208).

- **Networks**, which refer to hypertext and to individual members of a community as they relate to one another. They can be physical and/or social. Networks connect people and are used to break through boundaries of space, time and politics (210, 211).
Methodology

The method to be used to collect data was the non-probability sampling method, specifically targeted, purposive/judgmental sampling. Qualitative communication research methods were used to answer the questions of what the Web site should look like and why. Data was collected via semi-structured interviews and surveys, and from specific documents or artifacts (Bernard).

The type of research called for in this study was descriptive and qualitative. Preliminary research pointed to independent variables that included Attitudes (x1), Participation (x2), Perceptions (x3), Training (x4), and Feedback (x5). The dependant outcome variable (y1) was a useful and effective Web site. Variables are shown in Figure 3 below.

Fig. 3. Predictor and Outcome Variables are shown in this model.

The primary researcher, Carol Servino, conducted primary research through interview and survey instruments. Internal and external groups are shown in Figure 4 on the next page.
Fig. 4. Chart illustrates internal and external groups targeted for interviews and surveys.

Secondary research included documents and other government Web sites. The process is shown in Figure 5 below.

Fig. 5. The research process also involves examination of documents and other Web sites toward best practices.

Lessons Learned

1. Start Smart. Conduct simple research right away to determine what the problem or need is; it may lead to immediate solutions and available resources. Knowledge of Nielsen’s point of view on usability testing and of Purves’ hypertext themes complemented practical application of concepts within an already existing community of practice.
2. Be creative, but it is not necessary to reinvent. There is wisdom in learning from the experience of others’ research. Some is free for the asking. Web designers often will talk about what they’ve seen that works well in other cities/counties/government Web sites.

3. Every project needs a champion who lends credibility and encouragement. Purves’ five-themed theory established that authority implies control and respect by those who acknowledge it. In this project, authority was established by the city manager. He championed the project and shared his authority with the Web site administrator. Generally, a technical communicator is in a position to bridge the divide between the subject matter experts and their audiences. In the City of Astoria project, the technical communicator had direct access to the champion of the project and promoted project goals. To maximize effectiveness, the technical communicator should be a dedicated worker skilled in communication, organization and time management.

4. Know your audience and communicate on their level (s). Groups may easily be threatened, but establishing trust early on is imperative. Perception is reality, and if the technical communicator is seen as a threat, the project will be adversely affected.

5. Success does not mean that everyone is happy. Purves’ theory also discussed anarchy, which gives the appearance of disorder and chaos. It is more important to be honest: yes, things will be hectic, the Web site will never be “done,” learning will take time. Focus instead on the positive aspects: instead of answering the same questions repeatedly, staff should be able to focus on more in-depth issues or concerns if people are able to help themselves to information available when they need/want it. Process is important to discourage the feeling of anarchy.

6. Be respectful of others as professionals and have realistic expectations regarding timelines to establish and maintain credibility. It helps to be prepared for meetings, be on time, meet deadlines or be able to explain and communicate why there will be a delay.
7. Keep the public’s business public. Publishing results of the project allows taxpayers to decide for themselves if a Web site is important; the Web site itself becomes a vehicle for feedback to elected officials.

8. When the project began, some people interviewed suggested that another government agency’s Web site was excellent and implied that the City of Astoria’s should be similar. Purves’ theory cautions readers to use text, hypertext and hypermedia as tools rather than objects of adulation leading to idolatry (208). What wasn’t known in the beginning is that it took almost five years and about $1 million for the other site to get to the point it is today. Astoria’s site is receiving good feedback and that is a smart starting point.

Conclusion

With the availability of affordable software, accessible training, and ongoing support through the League of Oregon Cities, The City of Astoria recognized and seized an opportunity to combine a workplace need with an academic approach. This combination of research, hypertext, and communication theory resulted in a sensible – Web sensible – project that continues to be an effective and efficient use of resources.
Works Cited

Bartlett, Dan. Personal Interview. 24 June 2006


Elliot, Norbert. PTC 604 Communication Theory and Research Lectures. NJIT. CD-ROM. Fall ’05, Version 3.


### Nielsen's 10 Heuristics Adapted for the Web*


**Comments by Carol Servino, primary researcher, appear in bold under each descriptor.**

<table>
<thead>
<tr>
<th>Nielsen's Heuristics</th>
<th>Web Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Visibility of system status. The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.</td>
<td>Are the URL line and the status line used to provide effective feedback? (P) Most important to users is to know &quot;Where am I?&quot; and &quot;Where can I go next?&quot; That requires branding each page and indicating what section it belongs to. Links to other pages should be clearly marked. (1)</td>
</tr>
<tr>
<td><strong>City of Astoria site</strong> <a href="http://www.astoria.or.us/">http://www.astoria.or.us/</a> as seen on July 25, 2006</td>
<td>The URL line shows current location; the status line shows location when the page is opening but says “done” when user opens desired page. Generally, the heading on the page that is opened corresponds to the heading the user clicked on within the navigation bar.</td>
</tr>
<tr>
<td>2. Match between system and the real world. The system should speak the user's language, with words, phrases, and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.</td>
<td>Does the Web site reflect users' language, tasks, and intentions? (P) Because users come from different backgrounds on the Web, this issue is a challenge. (1)</td>
</tr>
<tr>
<td><strong>City of Astoria site</strong></td>
<td>The Web site appears to use common language for tasks and intentions.</td>
</tr>
<tr>
<td>3. User control and freedom. Users often choose system functions by mistake and will need a clearly marked &quot;emergency exit&quot; to leave the un-wanted state without having to go through an extended dialogue. Support undo and redo.</td>
<td>Can users select and sequence tasks? Can they easily re-turn to where they were if they choose an inappropriate path? (P) Even though many emergency exits are provided by the browser, a 'home' button on every page is a simple way to let users feel in control of the Web site. Be careful when forcing certain font choices, colors, screen widths, or browser versions, including the use of 'advanced technologies&quot; that users may not have. (1)</td>
</tr>
<tr>
<td><strong>City of Astoria site</strong></td>
<td>The “Home” button is always available to bring users back; the browser’s “back” button also is an option. However, users must know the structure of city government in order to</td>
</tr>
<tr>
<td>4. Consistency and standards. Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.</td>
<td></td>
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<td>---</td>
<td></td>
</tr>
<tr>
<td>Do the Web pages work with different browsers? Can people resize windows or adjust browser options without compromising information or the task? (P) One of the most common cases of inconsistent wording is with links, page titles, and headers. Inconsistent wording can confuse users when the destination page has a different title from the link that took them there. Standards on the Web mean following HTML and other specifications. Deviations will create opportunities for unusable features to creep into your site. (1)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City of Astoria site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some page headings are inconsistently worded. The navigation bar on the homepage shows a “city government” heading, but no page opens with a “city government” heading. On a content page for the City Council’s goals, sentence structure in the non-ordered list is not consistently written with parallel construction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Error prevention. Even better than good error messages is a careful design, which prevents a problem from occurring in the first place.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the Web site give enough directions and information so that users can find desired pathways and complete desired operations? If an error does occur, can users recover easily? (P) Because of the limitations of HTML forms, inputting information is a common source of user errors. GUI-style widgets, coming into more common use, cut down on the errors, but you still have to doublecheck these after submission.</td>
</tr>
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<table>
<thead>
<tr>
<th>City of Astoria site</th>
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</thead>
<tbody>
<tr>
<td>The Website is unfinished. Users cannot complete all desired operations. For example, on city government/boards and Commissions/Budget committee page: again, there is no page that says “boards and commissions, though it is listed as a heading on the left navigation bar. Perhaps a page could give an overall view of what commissions and boards there are, who can serve, how members are chosen, appointed, etc.</td>
</tr>
</tbody>
</table>
budget committee page is informative though second sentence under “function” is not grammatically correct; section on membership lists Susan Schroeder twice. 
there is a heading for the Budget Committee Meeting Schedule but there is no schedule.

6. **Recognition rather than recall.** Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

<table>
<thead>
<tr>
<th>City of Astoria site</th>
<th>Most of the pages inform users where they are, and most labels – but not all – are consistent and allow easy recognition.</th>
</tr>
</thead>
</table>

7. **Flexibility and efficiency of use.** Accelerators—unseen by the novice user—may often speed up interaction for the expert users to such an extent that the system can cater to both experienced and inexperienced users. Allow users to tailor frequent actions.

<table>
<thead>
<tr>
<th>City of Astoria site</th>
<th>Links work and images and data load quickly. Bookmarks are supported.</th>
</tr>
</thead>
</table>

8. **Aesthetic and minimalist design.** Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

<table>
<thead>
<tr>
<th>City of Astoria site</th>
<th>Are the best media and screen images used to convey a message? (P) Extraneous information on a page is a distraction and a slow-down. Make rarely needed information accessible via a link. Use links for progressive levels of detail. If users jump into the middle of a progression, make sure there's a way to go 'up&quot; to get the bigger picture.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Content on most of the department pages is used as a placeholder rather than as useful information that would invite repeat visitors for a purpose.</td>
</tr>
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</table>

9. **Help users recognize, diagnose, and recover from errors.** Error messages should be expressed in plain language (no codes), precisely indicate the problem, and

<p>| City of Astoria site | Every error message should offer a solution or a link to a solution. For example, if a search yields no hits, don't just tell the user to broaden |</p>
<table>
<thead>
<tr>
<th>Constructively suggest a solution.</th>
<th>The search: provide a link that will broaden the search. (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City of Astoria site</strong></td>
<td><strong>Error messages do not exist; empty white pages appear when links don’t work.</strong></td>
</tr>
<tr>
<td>10. <strong>Help and documentation.</strong> Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.</td>
<td>Is the site self-documenting? (P) For the Web, the key is to integrate the documentation into your site, either through links to specific help or into each page. (1)</td>
</tr>
<tr>
<td><strong>City of Astoria site</strong></td>
<td><strong>Help does not exist on the site. The search function does not function.</strong></td>
</tr>
</tbody>
</table>

*Pieratti's comments indicated by P; Instone's indicated by I.

**Boldface comments above are by C. Servino.**
Survey Questions for City Council Members:

Name

Ward

Date

Time

How familiar or savvy are you with computers in general? Scale of 1-10; 1 not familiar; 10 very familiar)

Do you think of a city’s website as a tool that will benefit the city and its residents or as another thing to be “managed?”

How familiar are you with the city’s current website?
Scale of 1-10 (1 not familiar; 10 very familiar)

Do you think the City needs or should have a Website?
(Yes) (No)

Do many of your constituents talk to you about the city’s Website?

Do you know who provided the information on the city’s current website?

Do you know if it is accurate?

What do you like most about the current site?
What do you like least about it?
Are you happy with what is on the site?

Do you think it can be improved?

How do you think it can be improved?

Have you seen other cities’ Websites?

Are there any issues that concern you that we’ve not addressed here?
Feedback from Council Members:  

| Council Members\' familiarity with computers | Mean score = 6 [scale 1 (low) to 10 (high)] |
| Council members’ familiarity with City Website | Mean score = 4 |

Council members think current site can be improved by:

- having accurate, up-to-date information
- linking to what people need and want; it should be easy and intuitive
- having information about city codes, meeting schedules, agendas and minutes of meetings
- including city contact names and info; points of interest; links to chamber and other places
- providing site maintenance

**Notes:** one member thinks the home page should not have a lot of content; it should be “rah rah” for the city and what it has to offer; it should showcase the city. Another said while a Website is important, it would be best provided by a private contractor rather than by a city employee.

All council members indicated that they would like to have their email addresses listed on the Website for constituents to use. All see Website as tool; they were unanimous on the need for a site.
Survey Questions for Department Heads:

Name

Department

Title

Date

Time

How familiar or savvy are you with computers in general? Scale of 1-10; 1 not familiar; 10 very familiar)

Do you see the city’s website as a tool that will benefit your department or as another thing to be “managed?”

How familiar are you with the city’s website?  
Scale of 1-10 (1 not familiar; 10 very familiar)  

Who provided the information about your department that is on the city’s current website?

Is it accurate?

What do you like most about your department’s page (es) on the current site?  
What do you like least about it?  
Are you happy with what is on the site?

Do you think it can be improved?

How do you think it can be improved?

Who from your department will be designated to update content?

Should that person be my point of contact for continued interaction during the next 12 weeks?

Are there any issues that concern you that we’ve not addressed here?
Feedback from Department Heads:

Department Heads’ familiarity with computers   Mean score = 5.5
Department Heads’ familiarity with City Website   Mean score = 5.1

Department heads think current site can be improved by:

- committing resources to it
- providing up to date information that residents and visitors will want to access again and again
- budget information
- contact information
- links
- GIS info
- answers to commonly asked questions
- online registration and payment option
- info for internal and external users
- press releases
- road closures

Department heads say it should be easy to use, customer-friendly, updated often and professional-looking.

All see it as a tool; some see it as a tool and something to be managed. They are waiting for someone to take the lead and organize everyone.
## Survey of Administrative Staff on City’s Website

<table>
<thead>
<tr>
<th>Name:</th>
<th>Email address:</th>
<th>Department:</th>
<th># of Years with City:</th>
</tr>
</thead>
</table>

How familiar or savvy are you with computers in general? (On a scale of 1-10; 1 not familiar, 10 very familiar).

Do you see the city’s website as: (select either a or b)  
   a.) a tool that will benefit your department, or  
   b.) another thing to be managed?

How familiar are you with the city’s website? (On a scale of 1-10; 1 not familiar, 10 very familiar).

Who provided the information about your department that is on the city’s current website?

Is it accurate?  
   ✔ Yes ☐ No

What do you like most about your department’s page (es) on the current site?

What do you like least about it?

Are you happy with what is on the site?  
   ✔ Yes ☐ No

Do you think it can be improved?  
   ✔ Yes ☐ No

Who from your department will be designated to update content?

Who are the logical “user” groups that will be interested in what’s on your department’s section of the city’s website?

What will they want to see on the site?

Are there any issues that concern you that we’ve not addressed here?

Would you be willing to participate in a “usability test?” for this revision project?  
   ✔ Yes ☐ No
Feedback from Administrative Staff:

**Administrative Staff's familiarity with computers**  Mean score = 6.77  
**Administrative Staff's familiarity with City Website**  Mean score = 3.73

Administrative Staff – tasked with the responsibility of content updates and maintenance – are not familiar with the site (except for Public Works Dept). No training has been provided but all seem willing to learn and see the benefit of being able to provide information to frequently asked questions.

All said it can be improved and the following is what each dept. rep. thinks should be included:

- forms, agendas, minutes;
- applications, recruitment requirements;
- entire city budget, FAQ’s section;
- info on dept., history of the dept., press release info., media, training materials for volunteers;
- information, forms and links; possibly FAQ section;
- current classes, sports and events; how to register, rates and procedures to rent facilities; pictures of facilities available;
- Permit applications and procedures;
- Planning, zoning, building codes, etc.
Survey Questions for External Users of Website:

Name

Resident of Astoria? Y/N

Date

Time

How familiar or savvy are you with computers in general? Scale of 1-10; 1 not familiar; 10 very familiar

Do you think the City of Astoria needs or should have a Website? Y / N

Have you ever seen the city’s website? Y / N

How familiar are you with it?
Scale of 1-10 (1 not familiar; 10 very familiar)

If you’ve seen it, did you go there looking for something specific?

Did you find it?

Did you find the site easy to use?

What do you like most about the site?

What do you like least about it?

Is there something you’d like to see on the site that is not currently there?

What would you like to see included on the City’s Website?

Do you have any other comments/concerns or suggestions about the City’s Website?
Feedback from External Users:

External Users’ familiarity with computers: Mean score = 6.91

External Users’ familiarity with City Website: Mean score = 1

External Users unanimously agreed that the City of Astoria should have a Website. External Users suggested the following could be included:

- City Code, highlight regulations peculiar to Astoria (such as under sidewalks, feeding birds), court docket, city’s history; a piece on each department’s goals and mission; perhaps featured employees; ability to reserve and pay for community center use; option of using irrigation rate or wintertime average for water/sewage bill.
- Contact and email info for city staff; information on projected developments such as the Youngs Bay building project; a way for people to express concern with development; links on how to contact people (such as state and federal officials); information about the budgets and a way to comment about them.
- Information on council meetings (agendas and minutes); how to contact city staff; information for visitors. It might be nice to have the historic part covered; information on the firefighter’s museum, the column, etc., civic events, when and where some local clubs like Rotary or Lions meet.
- A roster of meetings, council agendas and minutes, a list of unit managers, budgets, pending development projects; recreation programs and schedules.
- Agendas and minutes of meetings; traffic safety and parking information, information on slides and potential slide areas; geologist studies; composition of the planning commission and projects going before the commission; budget information, including the city’s indebtedness; line item budgets of expenses, including the general administrative expenses charged to the general fund and the public works fund.
- For real estate and business purposes, there is a need for information about slide areas, historical information, zoning and aerial maps of property.
- A list of neighborhood groups and who to contact; what qualifies for a 911 call; information for residents and information for tourists; information about burglar alarm ordinances and the permit needed; explanation of how the budget works, including information about the public works fund as well as the general fund; library’s and the swimming pool’s hours.
- A blog for people could write in their comments about projects (Safeway block naming or other issues)
- Maps, lodging, recreation, restaurant info for out-of-towners
Small City Finds Creative Solution in LOC Web Services

by Carol Servino

How to use resources efficiently to produce an effective Web site is a challenge for cities of any size. But in Astoria – a small city with big ideas – the problem became an opportunity as City Manager Paul Benoit turned the city’s official Web site into a research project by partnering with a graduate student.

“What do people need or want from a city Web site and how can Astoria best meet that need?” Benoit wanted to know when he became Astoria’s city manager in January 2006. Dan Bartlett, outgoing city manager, created the city’s Web site as a volunteer about the same time that Benoit took over. Bartlett used software and server space available affordably through the League of Oregon Cities Web services, http://webservices.orcities.org/, and he filled the pages with content gleaned from budget documents. Bartlett soon took another job, however, and Benoit didn’t want to lose momentum. He looked for creative solutions and opportunities to revise the fledgling site by improving navigability (and better meet the needs of users) and maintain standards.

Meanwhile, the author, a graduate student, had been looking for a project – a real need in the workplace – to satisfy the requirements of the final class to earn a Master of Science degree in the Professional and Technical Communication program at NJIT, New Jersey’s Science & Research University. It needed to be complex enough to include research, a paper to explain theory and methodology, and deliverables. Being able to combine the city’s need with my skill set as a trained journalist and experience as a former administrative assistant for Astoria proved to be a mutually beneficial solution.
The project was a process divided into four phases. My research began with basic questions: Does the City of Astoria need a Web site? If so, why? I began by introducing myself to city staff to explain the project and by drawing a flowchart to illustrate the structure of pages, as they existed in June 2006. I captured layout and design of individual pages through screen captures, saved text, conducted an audience analysis, and began to interview and survey targeted user groups: department heads, administrative staff, council members, residents and business people. I looked at other government sites, spoke with Web designers, and others involved in the process, including Dan Miller and Jeremy Pressel of the League’s Web services team.

The next phase focused on potential revisions. User groups agreed unanimously that Astoria, a city of about 10,000 people, needs a Web site. Values and attitudes differed, however. Council members and department heads didn’t want information on the site to be static, outdated, unattractive or inaccurate, yet they knew that financial resources do not support an IT department nor a staff position for Web service administration. Administrative staff were skeptical. While they acknowledged that a Web site could help them, they felt the initial learning curve might be too steep because it would require an excessive amount of time to learn the software so that they could maintain and update content.

So, what did each of the user groups want? The city manager wanted the site to be useful to citizens and easy to navigate. Benoit said he wanted to avoid a site that appeared unbalanced in its navigation structure and design so that one department didn’t dominate others. Members of the public wanted to see the City Code, contact names, phone numbers and email addresses, agendas and minutes of council and other meetings, information for residents and tourists, job openings, forms and permit applications. Department heads wanted all of that, but they also wanted answers to frequently asked questions, press releases, links and budget information.
Council members wanted all those things, and they wanted site maintenance to keep the information current and accurate. Rounding out the lists were search functions, kill dates so that outdated information automatically expires, rotating images, and the ability to view maps.

Before I could revise the Web site, I had to determine if the League’s software and its server were robust enough to deliver everything Astoria’s Web-audiences wanted. I needed to learn how to use the software and to provide training to city staff members who would be tasked with updating site content. As luck would have it, the LOC Web services unit is as user-friendly as its software and provided on-site training to a group of 13 city employees. Seeing that the software would more than handle the city of Astoria’s Web site needs, we all learned how it worked. After the training, administrative staff and I worked together to revise the site’s structure to achieve our goals. I functioned as Web administrator.

Two weeks after the training, I assessed the revisions we made by conducting a feedback session for administrative staff. Phase Three’s usability testing and assessment revealed high marks with unanimous agreement that the revised site is user-friendly and an improvement over the earlier and more static site. All said they felt involved in the revision process and viewed it as a positive experience and that they are happy with what is on the site in general. Department heads, too, have been pleased with the continued development of the project’s final phase.

In his book “Designing Web Usability,” Jakob Nielsen states, “Page design sometimes gets the most attention…but from a usability perspective, site design is more challenging and usually also more important than page design.” Benoit, who served as external reviewer for my project, appreciates the science behind Astoria’s revisions. He insists that “useful information should be presented in a way that allows visitors access without them having to know the hierarchy of the government entity,” and says he’s seen other municipal Web sites that keep IT
departments busy. Since Astoria boasts no such department, Benoit said he is pleased with the process that allowed this small city with big ideas to develop a sensible, a *Web-sensible*, solution to the problem of how to provide an efficient and effective Web site.

Acknowledging that a Web site is never “done,” Benoit and the city’s content editors will continue to think of effective and efficient ways to present information on the city of Astoria’s official Website, [http://astoria.or.us](http://astoria.or.us), as if they are looking through the eyes of the average reader.

-end-
Section 1.01. **Purpose.** The purpose of the City of Astoria Web site is to provide useful information to residents, visitors, the business community, other agencies and city employees about City services, projects, programs and community activities.

The following information establishes standards and procedures for the City of Astoria’s Web site, including oversight of the Web pages and the placement of material on the site.

Section 1.02. **Practices.** These practices are to guide City of Astoria Web site staff in processes involved in creating, maintaining and using Web pages and the Internet as a tool in delivering information and services.

Section 1.03. **Goals.** Web sites are visual-spatial documents. The following strategies will assist readers to use and to navigate the City’s Web site.

**Simple page design**
Many users access Web sites using older and slower equipment. Pages should be constructed to minimize download time.

**Consistent functionality and navigation**
End users appreciate Web sites that function and navigate consistently, regardless of service or department.

**Professional appearance**
Municipal Web sites should have a governmental style that reflects a high standard of information and quality of work. The Web site is not an appropriate venue to express artistic and/or individual inclinations.

**Service orientation**
The Web site will emphasize services and be user-friendly. Visitors to the site should not have to understand the City’s internal department hierarchy to locate a desired service.

**Ease of use**
With a simple design, informative content and common language, the Web site will invite and encourage repeat visits to the site for accurate and useful information to residents, non-residents, business professionals and others.

Section 1.04. **Standards.** Creators of content for the City’s Web site are to use the following:

**Common Language**
Language commonly used by the general public is appropriate. When governmental terms are needed and appropriate, use clear language to define or explain the term. Avoid slang, jargon and clichés.
Unbiased Content
Content shall be unbiased. Use professional judgment.

Accurate Content
Content must be accurate and it must be pertinent to the public or other customers.

Legal Compliance
All postings must comply with all other City policies, practices, ordinances, county, state and federal laws.

Department Pages
All department home pages must contain the City’s official standard header, site navigation bar and footer. See Appendix A for an example of proper format.

Each department home page will contain the following department facts:

- Department Head’s name
- Department Street address
- Department Phone number
- Department e-mail address
- Office hours
- Brief description of services and divisions
- Contact information for each division

Division and Section Pages
Division and section pages will be the same format as department pages. Division Pages will also contain the Division Manager’s name and these division facts:

- Department Head’s name
- Department Street address
- Department Phone number
- Department e-mail address
- Office hours
- Brief description of services and divisions
- Contact information for each division
Information Records
Information records may serve the following two different purposes: they may be intended to convey information about the City’s services, or they may contain information relevant to a city department that is not a city service. Typical examples include staff directories, meeting agendas, calendars, and links to third-party Web sites.

Forms Records
Forms made available to the general public shall be converted to Adobe PDF format to preserve the integrity of the information. At the discretion of the City Manager and the Web site administrator, forms may appear at the section, division, department and city levels. Forms should be posted on the department pages; they also may appear at the section, division, department and city levels.

Contact Records
Contact information may be displayed to include the position title, name of the person, phone number [with the (503) prefix], address, and department e-mail address.

Themes and Background Images
Themes and/or background images are prohibited. A light blue container will be used on modules. Behind the modules, white backgrounds for pages will be used for consistency and legibility.

Links to Outside Web sites
The City of Astoria’s Web site may provide links to other sites. The City of Astoria is not responsible for and does not endorse the information on any linked Web site unless the City of Astoria’s Web site states otherwise.

The following guidelines will be used to decide whether to grant requests for City Web site links. If a particular request does not fit any of the following guidelines, the City Manager will decide whether to approve the request. Appeals may be heard by the City Council. The City's Web site may provide links to Web sites for:

- Governmental and educational institutions.
- Organizations contracting with the City, organizations sponsoring City activities or programs, and organizations participating in City activities or programs.
- Generally recognized community service organizations.
- Organizations providing information about art, cultural, and sporting activities in the City's area.
- Organizations providing information about employment opportunities in the City or area.
- Organizations providing information about tourist attractions in the City or area.

The City's Web site will **not** provide links to sites for:
- Candidates for local, state, or federal offices.
• Political organizations or other organizations advocating a position on a local, state, or federal issue.
• Corporate or other for-profit organizations unless they fit any of the guidelines stated above.
• Individual or personal home pages.

The software automatically prints hyperlinks in blue type that is underlined, therefore, no underlined blue text is allowed on any Web page unless it is a hyperlink. Underlined type of any color is to be avoided.

Committee Meetings Postings
In accordance to city policies and directives, every department is responsible for posting meeting agendas, calendars and minutes on the Web site for those citizen committees it staffs and that fall under the Oregon public meetings law.

Frequently Asked Questions
Every department/division shall create and maintain a Frequently Asked Questions module.

Fees
The City shall post its fee schedule for its services. All fee schedules shall use the uniform heading and be created in a uniform table format.

News & Events on Home Page
Each department may contribute announcements to the News & Events module on the homepage.

Calendar
Each department may include events on the Calendar module.

Section 1.05. Prohibited Items. The following items shall not be included on any Web page:

• Under construction
  The term “under construction” shall not be used when a page is being revised and is not ready to be seen by end-users. Pages not ready for the public may be hidden by the Web administrator until ready.

• Inappropriate links
  Caution shall be exercised when linking to any commercial site as this could be construed as endorsement of the company or product. Do not add links to personal (non-City) e-mail accounts or links to commercial sites that are not relevant to City government.

• Marquees and Scrolling Text
Marquees and scrolling text are not allowed.

- **Animation**
  No animation of any kind shall be used. Images that “flash, flicker or blink” could induce seizures in people with photosensitive epilepsy, according to the Americans with Disabilities Act (ADA) requirements.

- **Underlined text that is not a hyperlink**
  Underlined text shall only be used for hyperlinks. Any other use can confuse and frustrate the end-user.

- **Frames**
  Frames (Web sites within a page that looks like a frame within the page the viewer is looking at) shall not be used. Inexperienced users often find frames to be very confusing, especially when printing.

- **Copyrighted Items**
  Do not use copyrighted material without written permission of the author or owner.

- **Sound**
  Do not use theme music or sound effects. The only appropriate use of sound is to meet ADA requirements for the visually impaired.

- **Profanity**
  Profanity and offensive language shall not be used.

- **Personal Opinions**
  Personal opinions shall not be used.

Section 1.06. Format.

**Form and Document File Format**
Adobe PDF is the standard for all forms offered on the City of Astoria’s site for printing and viewing. Documents and forms shall be introduced with a paragraph describing the form, its purpose and the method to submit the form. Forms will be accessed with a link to the PDF.

**Text style and size**
For a consistently clean and professional appearance, pre-defined type styles and sizes are provided and are limited so that pages within the City’s Web site appear uniform and consistent.

Body text: Use Tahoma, small.
Titles: Use Tahoma, medium, bold.

Avoid the use of all caps for text. It is more difficult to read and it shouts at readers.
The LOC software automatically dictates styles for hyperlinks and other links.

**Standard Text Colors**
According to the ADA, selecting or combining certain colors may negatively impact visually impaired individuals' ability to view Web sites

Black is the standard color for text on the City of Astoria's Web site.

**Phone numbers and addresses**
Phone numbers: Use parentheses around the area code, not hyphens.
Example: (503) 325-5824

Mailing addresses: Use the city, OR, (postal abbreviation for Oregon) and ZIP code.
Example: Astoria, OR 97103

For location addresses, use just the city. Example: 1095 Duane St., Astoria.

**Dates**
For a uniform appearance throughout the City's Web site, write out dates as follows:

- Spell out the month when it stands alone or with a year.
  Example: January 2005.
- Abbreviate the month (except for March, April, May June and July) as a date.
  Example: Jan. 1, 2005.
- If a date is used in a sentence, use a comma after the year.
  Example: The deadline is Jan. 1, 2005, to submit your application.

**Long Scrolling Pages**
Long scrolling pages are to be avoided. If the content on a page forces the user to scroll more than two times the length of the screen, break the content into subpages, if possible, or consider condensing content.

**Horizontal Scrolling Pages**
Pages that force the user to scroll horizontally shall not be used.

**Brochures**
Printed brochures shall be converted to conform to standard Web page layout.

**Clip Art**
Clip art shall generally be avoided. Requests to use clip art will be approved in advance by the Web site administrator or the City Manager.

**Images**
Images should clarify a concept, emphasize a meaning or to provide analysis of ideas or data (i.e. chart, map, photograph, drawing).

- Number: Web designers recommend using only one or two images per page.
• Type: Images shall help users understand page content. Images should not be used for entertainment or decorative purposes.
• Size: Images should be sized to achieve the desired 10-second download time.
• Format Types: GIF and JPG are the formats used. These are the formats that most Web browsers will display. Graphic formats are important because they affect image size, quality and compatibility. The two most common formats are GIF (Graphic Interchange Format) and JPEG (Joint Photographic Expert Group).
• Uploads: The Web administrator will resize photos and upload them to the server.

Abbreviations and Acronyms
It is best to avoid abbreviations and acronyms. But if it necessary to use one, spell out the complete name or terminology on the first reference followed by the acronym or abbreviation in parenthesis.

Section 1.07. Content Management. Web content is the responsibility of the department or division as assigned by the Department Head. Content includes – but is not limited to – words, forms, images and links. All content shall be reviewed and approved by the department head or a designee before it is posted. The Department Head is responsible for ensuring that all content submitted is accurate, of public interest and complies with City policies.

The City Attorney must review content with legal implications. It is the Department Head’s responsibility to determine if content has potential legal implications and to obtain review by the City Attorney before submitting the content for the Web page.

All content, including agendas and minutes, must be reviewed and approved by city staff before being placed on the Web page. The Web site Administrator shall have authority to approve or reject content for public interest, readability, spelling, grammar and compliance with City policies. The Web site Administrator is not responsible for ensuring that submitted content is accurate or has been reviewed and approved by the City Attorney or the Department Head.

In the case of content that is not static but is regularly updated by a department (i.e. listing of projects, bid proposals or names of predatory sex offenders), the content editors are encouraged to notify the Web site Administrator via email that updated material has been posted to the City’s Web site. The Web site Administrator will review the posted material and notify the Department Head or content manager if any changes need to be made to comply with City policy.

When content is added, content editors are encouraged to review the page after uploading to test and review for quality control.

The City Manager shall resolve any disputes over content issues. Appeals may be heard by City Council.
Section 1.08. **Language Translators.** Departments shall not use the “free” translator software available on many Web sites.

Section 1.09. **Americans With Disabilities (ADA) Compliance.** The City of Astoria has chosen to pursue the Web Content Accessibility (ADA Section 508) recommendations. These guidelines shall be followed providing there is no undue burden on City of Astoria staff or when doing so would require a fundamental alteration to a City service.

The following examples discuss the most relevant standards for Web sites. Many of the guidelines address the needs of sight-impaired users who may use “voice synthesis” software that reads aloud the contents of a Web page.

- **Page text** – Do not use abbreviations and special characters in your text.
  
  Example: 1 year, NOT 1 YR

- **Links** – Choose link descriptions that are descriptive when spoken as well as read.
  
  Example: More on this article NOT Click here

- **Explicit wording** – Do not rely on indentation, color, or text variations alone to convey meaning.
  
  Indicating required documents by making them bold is unacceptable.

  For example:
  
  Please submit the following, items in bold are required
  
  - **Job application**
  - **Supplemental questionnaire**
  - **Resume**

  Using color to indicate required documents also is unacceptable.

  For example:
  
  Please submit the following, items in red are required
  
  - **Job application**
  - **Supplemental questionnaire**
  - **Resume**

  It is **best** to use phrases such as “required” and “optional.”

  For example: Please submit the following items:

  - **Job application (required)**
  - **Supplemental questionnaire (required)**
  - **Resume (optional)**
• Alternate text – When inserting an image into a Web page, descriptive “alternate”
text shall also be used. Note: Visually impaired users may use browsers that
“speak” the text on the pages.

Users with slow connections may navigate without graphics activated. It is not
necessary to provide alternate text for bullets or bars, unless they play a role in
document navigation.

Section 1.11. Document Maintenance.
There will be regular and systematic reviews of these standards to assure they continue
to meet their overall purpose and advances in technology. The City Manager’s Office is
responsible for overseeing this document and keeping it maintained and current with
input from the Web site Administrator.
Appendix A: Example of Required Format for Department and Division Home Pages

The Name and Title of the Department Head should be centered and in boldface (Tahoma, medium) in the content pane:

Name, Department Head

City Hall
1095 Duane St.
Astoria, OR
(503)-Phone Number

One or two paragraphs describing program, services goes here. The rest of body text is Tahoma, small, flush left.

How To Contact Us: (Use same typeface as text)

• Reach us by phone at: (503) 325-XXXX (Use body type style)
• Fax us at: (503) 325-FAXX
• E-mail us at: pbenoit@astoria.or.us
• Mail your inquiries to:
  City Manager’s Office
  1095 Duane Street
  Astoria, OR 97103

We are open Monday through Friday from 8 a.m. to 5 p.m.