NOAC Web Site Training Syllabus
E-Scouting

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Session 4 – Design and Layout (25 minutes)

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Web sites that succeed are easy to use and clearly present official information in a logical and consistent manner. Ultimately, the focus of a web site is on the content of the pages, not the Graphic Design, and not the layout. Web sites that consist mostly of wild graphic schemes, unorthodox navigation or inconsistent and unpredictable layout are doomed from success.

Basic Site Design Principles

Design Process – Whenever site developers are charged with designing a new web site, they follow a consistent pattern to ultimately achieve their goal. Site development typically follows these four stages:

1. Site Definition – What are the ultimate goals of the site? What purpose will it serve? How will it represent the group? What audience will it serve?
2. Information Architecture – What information will be posted on the site? How will it be structured?
3. Site Design – How will the site look visually? How will the site be put together technically?
4. Site Construction – What technologies will be used? What is the maintenance plan?

Interface Design

Design With the User In Mind – Ultimately, a web site is going to be used by the end-user, someone perhaps without much knowledge of what the site contains, and more than likely someone unfamiliar with the intricacies of the site's design. It is always important to design sites logically and consistently. Web sites that work, work for a reason. Don't go developing an entirely new navigational style or site structure just for your site. Users prefer familiarity.

- Keep sites simple and consistent.
- Use clear navigation aids.
- Pages should be autonomous, easily accessible within a few clicks, but not dead-ends.
- Always consider bandwidth. (It's expected to be at least another 5 years before site designers can count on high-bandwidth connections for most users).
- Give users feedback. Let users know what site they are in and where they are within the site. And also give them a way to contact the site's organization.

Design Like You Normally Would – The World Wide Web is nothing more than a communications medium. The technologies and approach of the web may look and feel vastly different from other mediums, but the same basic design principles apply. There is no reason to throw out hundreds of years of print medium design standards, simply because the web does not exist (naturally) on paper. When designing web pages, it is best to take precedents from print media. Many web pages are a lot like newspapers.

- Use the Fold – Big stories, important graphics and lots of links should appear at the top of the page. Less important items could appear in areas the user has to scroll to.
- Web Clippings – Users may not find web pages by browsing through a site's homepage. Some users may only ever see one page deep within a site. Thus, it is important, like newspapers do, to include information on every page that will help a user find the page again and know the source of the information. Always, make pages freestanding by including who, what, when and where on each page (i.e. the title, creator, revision date, and a home link).

Design or Layout – Which Comes First?

Often times it is a challenge to design and structure a site independently. Typically, both are done simultaneously. The trick is to let the design and layout follow the content being implemented. Once the information, the body of a web site, has been organized and structured, the design and layout of the site should come naturally. Organized information will lead to a typical design for the site, which will ultimately help drive the design of the individual pages

Design on Paper

Never get heavily involved in developing a site until it has been designed on paper first. All the steps of the site development process need not be documented (though it sure helps), but drawing out the overall structure of the site's content, and penciling the main page layout is crucial in accomplishing the goal. It's

a lot harder to get a handle for the overall scope of the site while also designing it from within a WYSIWYG editor. Go ahead grab that paper first!

Some Design Notes About Accessibility

Making a site accessible is not a difficult task. Spending a few moments during the design process to insure that the site meets the basic accessibility standards will make all the difference in the end. Remember not only to check to insure your site meets the accessibility standards, but also that it displays well on other browsers and other machines.

- Test your pages – After building a page, test it on another computer and on another type of web browser. Be sure to check all Template pages before they are applied. Pages can look radically different on different computers and on different web browsers; failing to test the page on another computer could result in considerable embarrassment. Sites that require specific platforms or browsers also turn off users. Not only is this lazy design, it discourages users from viewing your site as professional.
- Keep different monitors in mind – Individuals looking at your pages might have their monitors set to a smaller screen resolution than the one you're using. If a page is wider than a user's screen size, the user will have to scroll the web page horizontally, which is generally considered bad form.
- Always include Alternates and Fallbacks
    - Follow the accessibility guidelines – Use style sheets, always include alternates for any images, sound, video or interactive media.
    - Allow for graceful degradation of pages (i.e. check older browsers and screen sizes and insure the major parts of the page still are accessible).
    - Place plug-in required elements deeper in the site.

Site Design

Before you begin to design individual pages of your site, it is important to develop the overall site's structure, both graphically and organizationally.

Organizing Information

A web site is only as useful as the information it contains. Before a site design may be developed, the information must first be gathered, organized and structured in a logical, clear and precise manner.

- Gather the content – The content will be determined by the goal of the site, or overall site definition or plan. What is the site purpose? (News, reference, information portal, entertainment)
- Chunk the information into sections and subsections.
- Organize the information sections into a hierarchy. – Structure the information into a logical order.
- Establish relationships between information chunks and sections, and ultimately formulate these relationships into a table of contents.

Site Structure

Once the data is organized and arranged, design of the site may begin. Ultimately, the design will determine the organizational framework.

- Types of Information Structures
    - Sequences – Pages arranged to tell a story.
    - Hierarchies – Pages organized like an organization chart (quick access to sub-subjects).
    - Webs – Pages reference each other (in essence, the true nature of the World Wide Web).
- Site Design Themes – Many web sites follow one style of presenting information. Some styles include (on a scale from Sensation to Information): Entertainment, Magazines, News, e-Commerce, Teaching, Training, Reference. Organizational sites typically utilize a combination of styles, depending on the needs of the organization and the presence they wish to have on the Web.
- File Structure – Once the information is organized and structured in a logical fashion, it's often best to create a site diagram. In it, define the directory structure of the site, and where each individual file (a page containing information) will be placed. Often this will follow the same basic design as the navigation; however sometimes there are differences.

Navigation

A site must always provide information in a clear context, or it will loose the reader. The best way to make information presented on a site logical is to present it within the context of a clear organizational structure. This can be accomplished through proper use of site navigation tools. The following are some tools and tricks to make site navigation effective.

- Information Flow – The information sent to the user should follow a logical path. When information is chunked, make sure it is divided into logical groupings and hierarchies are developed which make sense, even to a user completely unfamiliar with the information.
- Include a table of contents on each page – Always provide links to the other major sections of the area or sub-area the page is in.
- Include Appropriate Titles – When search engines prioritize pages, they give the highest ranking to page titles. The title will also appear as the default name of the page when a user tries to bookmark a specific page. Make sure titles make sense to the page's content.
- Use Headings – Pages that contain several "chunks" of information should start each section with an appropriate heading designated by header tags. Search engines also give higher priority to this information.
- Use Navigation Bars – Utilize navigation toolbars, section tabs, and ordered sequence steps to help the user understand which section of the site they are in.
- Don't Reinvent Navigation – Find a good navigational scheme on another site similar to your site's theme and use it. Don't use unorthodox navigation. You may understand it because you are familiar with it, but a new user will not understand it immediately, and rather than take the time to learn it, they will get frustrated and leave your site.

Site Elements

Once the information is organized and the navigational scheme is set, construct a master page layout grid. Again, the best way to design the page layout is to begin with a rough sketch on paper. Make sure to include toolbars, navigation bars, site logos, footers and other navigation aids that the site should have on each page. Also, provide a clear means to structure the content on the page. This page layout grid will eventually become the Template which most of your site's pages will utilize. If you have independent sub-sites within your site, give careful consideration to developing different grids for each section.

When you begin to construct your site, you will want to consider the following web site pieces.

- Home page – Will it be menu based, news oriented, or a splash screen which point to independent sub-sites?
- Resources – Will the site have related reference lists, and lists of related sites?
- Site Guides – Pages detailing the table of contents (navigation structure of the information) or other site index, such as a site map.
- What's New – Sites that are updated in an unpredictable manner should log recent updates to a specific page. Many users like to have a quick list detailing the recent changes.
- Search Features – Will the site have a search engine?
- Contact Information – Always provide a way for users to contact you.
- User Feedback – Allow a way for users send feedback on the site, or feedback on the information contained on the site for which the organization is responsible.
- FAQ pages – Often times, sites get the same question from multiple users. Rather than redesign the site's content to answer these questions, it's often easier to create an area where answers to certain questions are answered for future users to peruse.
- Error Pages – Customize them to help users find the information they're looking for.

Through various enabling technologies, web sites can become more interactive and dynamic. Here are a few of the technologies you may wish to consider implementing in your site design.

- Dynamic Web Pages – Create specific pages based on individual user input. This is very useful for sites with a lot of information (like reference or news sites) or those that require information catered to individual users (like e-commerce). However, a site containing mostly static information should seriously consider not implementing dynamic technologies, as they will only complicate the site design.

- Scripting Languages – There are many languages that can be used to create dynamic pages.
  - Server-Side – JSP (Java Server Pages), ASP (Active Server Pages), PHP, CGI
  - Client-Side – Java Applets, JavaScript, ActiveX, VBScript
- Databases – Typically databases (like MySQL, or Access) are used to hold information for dynamic pages. These databases are typically accessed by server-side software that processes the data into web format for delivery to the user.
- Protected Directories – Web sites can use htaccess, logins, or other protective measures to display information only to certified members. This is useful for safeguarding information.

Page Layout

Ultimately, the design of a site's pages is what the user will interact with.

Page Layout Principles

The visual hierarchy, or the way the page ultimately appears to the user, must be designed to fulfill the users needs for content and context. The graphic design of the page must create a strong, consistent visual hierarchy in which important elements are emphasized and content is organized logically and predictably.

When a page is first loaded, a user's eyes progressively scans the page, absorbing first the layout, then the structure and finally the content. Effective page layout will take into account the inherent nature for the human eye to visually scan of pages over time. Providing a consistent design throughout the site, will allow the user to more quickly process information. Use the same information layout and the same graphic theme throughout the site

Here are some pointers for an effective page layout.

- Page Dimensions – It is always best to stick with "graphic safe areas" of a user's monitor. For 800x600 screen (which most users now have) use the graphic safe area of 760x410 pixels. For printing, it is best to make sure all-important content appears within 560 pixels of width.
- Fixed vs. Flexible – It is often times best to allow a page to adjust automatically to a user's browser or printer size. This is accomplished using layout tables. The best trick is to use fixed width columns for precise layouts and flexible widths for adaptable pages. However, when adjustable sizing will crimp the graphic design too greatly, make an adjustable printable version of the content available.
- Line Length – Many studies have shown that the human eye is best able to read text lines around 12 words in length. Lines that are excessively wide or short are not easy to read.
- Page Length – The length of a page is determined by the content it contains, and the manner to which it will be used. Use short pages for home and menu pages, documents that will be primarily browsed online. Longer pages are easier to maintain and for users to download and print.
- Page Navigation – Be sure to include page and site navigation elements. Include a link back to the "top" on long pages.
- Page Headers and Footers – A web page is like a newspaper clipping, and thus needs source identity information on every page. Include the title, author, institutional affiliation, revision date, copyright, and a link to the home page on every page. Non-essential basic information should be put at the bottom so as not to clutter up the prime real estate at the top.

Elements of Page Design

While the layout of the page will help the user understand and interpret the information presented, the design will ultimately provide the atmosphere in which the user will function. Effective page design will provide confidence in the clarity and order of information. Favorable page design will allow trustworthiness in the information.

Page Style – Choose a workable style for web pages to help convey important information in a clear manner.

- Color – Pick a color scheme for the site, and use it consistently throughout. Use subtle colors. Oftentimes subtle pastel shades of colors typically found in nature make the best choices for

background or minor elements. Avoid bold highly saturated primary colors except in regions of maximum emphasis and even then use them cautiously.

- Contrast – Contrast is essential in making web pages easy to read. Different page elements should appear different. A page with no graphic structure will appear confusing. A page with stronger visual structure and better contrast will help clarify the way information is presented.
- Understand the Medium – The web is used in a variety of ways, but primarily it is (1) viewed on an end-user's computer screen or (2) printed to paper. Make sure the page style adapts to both mediums, and to a variety of versions of each.
- Page Grid – Bring order to the page by dividing the page up into information sections (menus, navigation, site identity, content, etc.) Remember that not all people will enter from your home page, so make sure each page has your site identification on it.
- Screens of Information – A user only sees one "screen full" of information at a time. Use the different areas to display appropriate information (see "Use the Fold" above). Design for "screens of information" as the viewer scrolls down the page.
- Keep things Simple – Too many colors, graphics, or plain clutter will obscure the information. Many users do not like movement on a page. If you do use it, make it subtle, like the color scheme.

Layout Graphics – Graphics are an important part of page design. Layout images, like organization logos, toolbars, or rounded corners, help clean up the look of a page and make the page more professional.

- Consistency – Pick a specific area in the page layout for graphics. If you wish to use different graphics in different subsections, change the same layout areas throughout the site.
- File Size – Don't make layout graphics very large, physically or digitally. No one wants to wait for a large file to download, especially when it is only for layout. Also, no one wants to have to scroll down to get to the page body because the header graphic is too large. By the same token, the advantage of using consistent layout graphics is that a user only has to download them once, and then they are in his cache so they should quickly appear on other pages.
- Don't go Overboard – Don't add lots graphics just because it's cool. Increasing the number of graphics on a page drastically increases the page's load time in the user's browser. Instead, consider whether the page needs the graphic, and what purpose it serves before adding it to the page. Effective page design should be simple, and a simple graphic design should not require more than 10 layout graphics.
- ALT Text – Remember, even for layout graphics always include ALT text for text browsers and speech readers. Layout graphics that don't serve a major information purpose (like 1 pixel transparent images which help fix layout tables) should have the alt tag specified as " " (blank).

Typography – The text of a web page usually contains all the information a user is looking for. Making the text clear and understandable is of paramount importance. Good typography establishes a consistent polish to a site and encourages visitors to stay by creating an expectation about the structure of text.

- CSS – Cascading Style Sheets allow the separation of content and design. Use CSS to drive the overall design definitions of text throughout a site. CSS also allows control of text formatting throughout a site from one location. Keep in mind that many browsers do not yet fully support CSS consistently, and it may be a few years before some of them do so well.
- Alignment – It is best to align all blocks of text, including headers, to the left.
- Line Length – Long lines of text are hard to read, so designers try to keep lines of text to 50-70 characters. A page can be designed to a specific width to aid comfortable reading, however it will inhibit page flexibility in the end.
- White Space – Most web sites do not use indenting, and instead rely upon the blank line in-between paragraphs. However, with the advent of CSS, more traditional formatting styles are possible. It is possible to indent paragraphs with CSS or non-breaking spaces ( ).
- Typefaces – The most conventional scheme for using typefaces is to use a serif face such as Times New Roman or Georgia for body text and a sans-serif face such as Verdana or Arial as a contrast for headlines.
- Type Size – Different systems render fonts sizes differently. The same point size on a Windows system will appear larger than on a Macintosh. Many designers feel it is best to set text size (in

CSS) using the "em" unit as this will allow users to adjust the text size for their system. Hard coded units such as pixel (px) or point (pt) will force the page more to the designer's wishes, but not completely. The pixel definition is the best for capability regardless of a browser's default font size or resolution settings. Although this option does offer more stability, be aware that you may be shutting out those users who have good reasons for specifying different font settings.

- Emphasis – There are several ways to emphasize text.
    - Italics – Italicized text attracts the eye because it contrasts in shape from body text. It should be use to denote book or periodical titles, foreign phrases or to stress individual words. Avoid italicizing large blocks of text, which become harder to read.
    - Bold – Boldface text gives text emphasis because it contrasts in size and sometimes in color from the body text. Boldface text is often good for section headers. Avoid bolding large blocks of text, they are harder to read and lose their boldly effectiveness.
    - Underlines – Underlines, almost always indicate hyperlinks, and should only be used as such. Use italics or boldface text to indicate emphasis.
    - Colored Text – Colored text, like underlines, has a special functional meaning in web documents oftentimes indicating a hyperlink. Avoid using colored text unless it is obvious that it is not a hyperlink. Some users cannot distinguish between different colors, thus emphasized statements are best made in bold. When using colored text, choose dark shades of color that contrast with the page background.
    - Capital Letters – Never use all uppercase letters on a web page. It is too difficult to read.
- Accessibility – The body text of a page contains the content of the page, thus it is important that the body text be accessible to all users. The main accessibility issues of type are size and color.
    - Scalable Text – Make sure that the text size is scalable. Use relative units instead of absolute units.
    - Structural Markup – The structural markup of a page is best done using CSS to define the design aspects of structural elements (P, H1, H2, LI, etc.). Avoid presentation-style mark-up with FONT tags as they do not allow easy accessibility to the structure of the content within the page.
    - Emphasis – Do not use color alone to achieve typographic emphasis.
    - Adaptable Layouts – Make sure that pages can adapt to large text settings, which is best done using a flexible layout.

Summary

The World Wide Web is not just a highway. Each exit contains valuable information. The best web sites provide lots of content and links or other references to even more information. But while a lot of information is good for the user, no user wants to follow a complicated map of roads to get to the information they desire. The effective use of proper design and layout of a web site can save users valuable time in their search, and makes a site infinitely more useful for users who want to get off the highway, get the information they need, and get right back on.

The design of a web site helps drive its utility. At its core, a web site contains hard content. But it is the context in which information is presented, driven by the design of the web site, and the way in which content is presented, delivered through the layout of individual pages, that makes a web site of data, a web site of truly linked and useful information. Properly designed sites will enable users to gain the greatest understanding of the knowledge you hope to impart upon them.