

2012

## Application of Graphic Communications: Increasing the Functionality of the Aplington-Parkersburg School District Website

Holly Janae Richtsmeier

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APPLICATION OF GRAPHIC COMMUNICATIONS:  
INCREASING THE FUNCTIONALITY OF THE  
APLINGTON-PARKERSBURG SCHOOL DISTRICT WEBSITE

A Thesis Submitted  
in Partial Fulfillment  
of the Requirements for the Designation  
University Honors with Distinction

Holly Janae Richtsmeier  
University of Northern Iowa

May 2012

This Study by: Holly Richtsmeier

Entitled: Application of Graphic Communications: Increasing the Functionality of  
the Aplington-Parkersburg Website

has been approved as meeting the thesis or project requirement for the Designation  
University Honors with Distinction.

5-3-12

Date

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Sara Smith, Honors Thesis/Project Advisor

5/7/12

Date

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Jessica Moon, Director, University Honors Program

## **Graphic Communications**

In the Graphic Communications industry, technology is used to create products that communicate a message, typically in the form of mass communication. Anything visual that is meant to inform, persuade, or entertain can be considered graphic communications; examples include pop bottle labels, phone icons, and weather maps. There are two product spectrums: print and digital media. Print production includes processes such as laser or ink jet, large format, screen printing, and dye sublimation. It also includes finishing and binding processes such as folding, trimming, lamination, embossment, and stitching. Product examples are newsletters, posters, imaged shirts, mugs, and pens. Digital media involves processes such as photography, website development, animation, and video production. Products may be uploaded to the Internet to be viewed online or downloaded to mediums such as CDs or DVDs.

### **Purpose**

In the Graphic Communications program at UNI, the main focus is on print production. I decided to use my thesis as an opportunity to further explore and become familiar with digital media creation. I feel that strengthening these skills will be a valuable asset to my career development. There is a high demand for businesses and organizations to sustain an online presence. Companies also use digital media in their marketing campaigns and communication pieces.

The theme of real world application is also emphasized in the graphic communications program. Instructors relate the curriculum to the industry as a whole or a specific working environment. Many times, class projects are simulations of working with a customer to develop and deliver a product. To build upon my coursework and to further optimize my thesis experience, I decided to develop a product for a real world customer and application.

An aspect of media application is the process of combining various mediums to form one cohesive product or series of products. Communication pieces do not usually function independently but are part of a communication scheme. For example, a website could be a compilation of text, graphics, photos, and animation or video. A logo, color scheme, and graphic elements can be coordinated and applied to business cards, brochures, and letterhead.

Taking all of this into consideration, I decided to ask my contacts at the Aplington-Parkersburg School District if they would allow me to redesign their website for my thesis project. Aplington-Parkersburg is a rural consolidated school district located about 20 miles west of Cedar Falls. Parkersburg and Aplington each host a K-5 elementary, the middle school is in Aplington, and the high school is in Parkersburg. The school district currently maintains a website where parents, students, and faculty can access information, such as the academic calendar, staff directory, board minutes, building-specific information, and more. However, the current site layout and features are inconsistent and difficult to navigate. My goal for this project was to improve the overall functionality of the website, add an element of visual interest in the form of a Flash animation, and make the pages easy to update and maintain.

### **Aplington-Parkersburg Website Analysis**

#### *Identify Problems*

I met with Aplington-Parkersburg's Technology Coordinator to understand how the website was set up and maintained and to discuss desired changes. After analyzing the website, I identified six main problems: pages hosted on different servers, pages created with different programs, merged district and high school homepage, confusing navigation, inconsistency, and visual strain. Examples of this can be seen in Figures 1-4, which show the main pages of the schools.

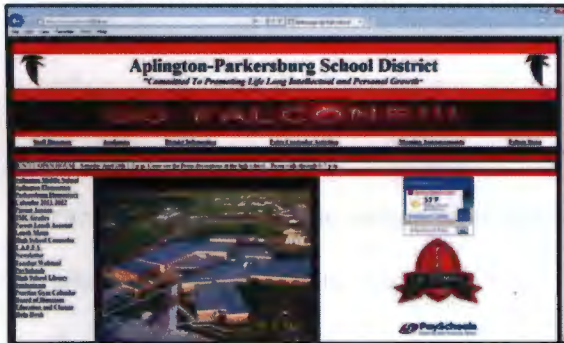


Figure 1. District/high school homepage

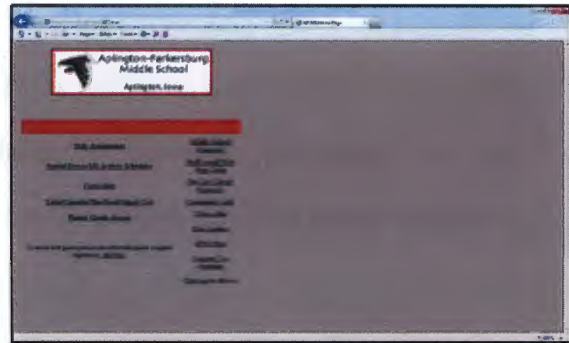


Figure 2. Middle school page

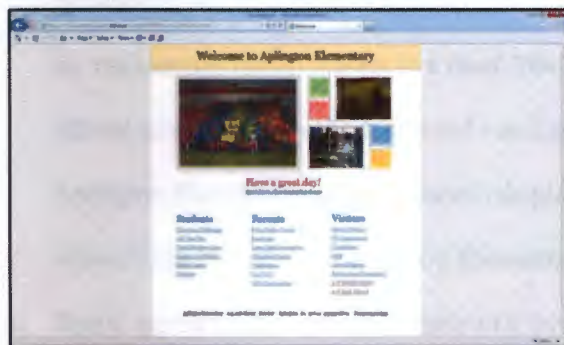


Figure 3. Aplington elementary page

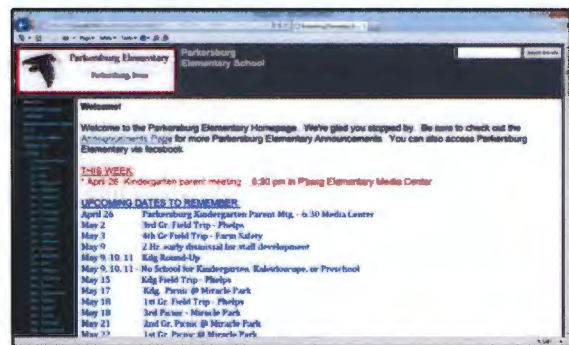


Figure 4. Parkersburg elementary page

1. Though some of the pages are linked to each other, each building's main page is hosted on that building's web server. The district/high school homepage is uploaded onto the server at the high school building; the middle school and Aplington elementary pages are hosted at the Aplington building; and the Parkersburg elementary page is on the server at the Parkersburg Elementary building.
2. Three different programs were used to create the main pages: Nvu was used for the high school and middle school pages, the Parkersburg Elementary page is a Google Site, and the Aplington Elementary page was created with iWeb. Also, some of the high school subpages are Google Sites. With this set up, it is difficult to build a cohesive website that links together seamlessly. Visitors must currently use the "Back" button to navigate much of the site.
3. The homepage is a combination of district and high school information, and the links on the page are a mix of district, high school, parent, student, and teacher information.

4. On the homepage, the reason for some of the links going horizontally across the page and the others going vertically down page is not clear. There is no distinct correlation between the horizontal set of links. Some links are also duplicated. For instance, “JMC Grades” and “TAFFY” can be found both on the homepage and under the “Academics” link. Navigation is confusing when information is not organized.
5. Page layout and design elements are inconsistent throughout the website. There is a wide variance of colors, fonts, text size, graphics, and arrangements of these items. Different graphics for the school’s falcon mascot are used. The majority of pages use a color scheme based on the official school colors – black and red – and either use white or gray as neutral accents. The Aplington Elementary page, however, displays colors and patterns that do not reflect the school’s identity. The Parkersburg Elementary page also has text in a range of colors.
6. Visual appeal is also a characteristic of a functional website. The homepage’s set of thick, horizontal color bars and scrolling announcement bar are visually straining. A few subpages have a black background with brightly colored text or highlights. The text on the Parkersburg Elementary page is large and colorful; sometimes the text is centered and sometimes it is left aligned. Different fonts are also used in the page content. The overall inconsistency of the pages lessens the attractiveness of the website.

### *Provide Solutions*

After identifying the website’s main issues, I developed a list of solutions: publish website on one server, maintain website with one html editor, develop header menu with organized navigation, apply template to subpages, master CSS formats text, and add visual interest.

1. The Technology Coordinator will publish the newly designed website on the high school server. All of the design files and html files will be in the same location, which will help keep the site

organized. Web publishers at the other buildings will be able to access the files on the high school server from their location.

2. The Technology Coordinator will also install Nvu on all of the computers of faculty members who make web updates or manage subpages. This is the program that all web publishers will use to make changes to the website.
3. Only text will be editable, and the text will be formatted with a master CSS (Cascading Style Sheet) file. This will ensure that the pages stay consistent.
4. To ease navigation for site visitors, a header menu will host the site links. This header will be at the top of every internal webpage. (Some links direct visitors to external pages – those not created or maintained by the school district.)
5. I will create a formatted template of the header menu and space for page content that can be applied to each subpage. This approach saves time in creating and maintaining pages. If changes need to be made to the header menu, editing the template will automatically apply the changes to all of the internal subpages.
6. To make the website visually appealing, I will use a red, black, gray, and white color scheme and only use the official Aplington-Parkersburg falcon image. I will also create a short Flash animation to display on the homepage. Implementing consistency in page layout, text formatting, and site navigation will add to the website's overall attractiveness.

*Table 1*

Problems	Solutions
<ul style="list-style-type: none"> <li>• Pages hosted on different servers</li> <li>• Pages created with different programs</li> <li>• Merged district and high school page</li> <li>• Confusing navigation</li> <li>• Inconsistency</li> <li>• Visual strain</li> </ul>	<ul style="list-style-type: none"> <li>• Publish website on one server</li> <li>• Maintain website with one html editor</li> <li>• Develop header menu with organized navigation</li> <li>• Apply template to subpages</li> <li>• Master CSS formats text</li> <li>• Add visual interest</li> </ul>



## Research

School websites serve a common purpose and communicate similar information. I visited the websites of other K-12 schools in the area to analyze and compare how they presented their information. AGWSR, South Hardin, and Dike-New Hartford's websites had similar characteristics to Aplington-Parkersburg's site – bright colors, inconsistency, oversized elements, and navigation issues. Grundy Center's school website, on the other hand, is well-organized, elegantly promotes the school colors, follows a consistent template, and highlights district news stories in a slideshow on the homepage.

I found two elements of Grundy Center's website to use as inspiration: the header menu and the activity calendar on the homepage. Of the school websites that I reviewed, the typical site structure was to have a main homepage and a landing page for each grade section – elementary school, middle school, and high school. Grundy Center did not take this approach. Instead, the site hosts a drop down menu in the header. Links are categorized into district, elementary, secondary, students, parents, and community drop down lists. This header menu is at the top of every internal page, which simplifies the process of navigating from one page to the next. This menu style also minimizes the number of pages that need to be maintained because it replaces the need for a main page for each building. Most importantly, this all-inclusive header builds cohesiveness throughout the website.

The second piece of inspiration was the configuration of the district activity calendar on the homepage. The calendar was created using Google Calendar. It is displayed on the homepage in the "Agenda" or list form. The current day is automatically positioned at the top and visitors can scroll down to see future events or scroll up to see past events. Visitors also have the option of clicking to view the calendar in "Month" form. I like this calendar snapshot on the homepage because site visitors are quickly and easily updated on district activities.

## Resources

### *Software*

I chose to use Adobe Dreamweaver CS5.5 to develop the website and Adobe Flash Professional CS5.5 to create the animation for the homepage. I have introductory classroom learning experience using both of these programs. In Fall 2010 I took Web Publishing, in which I gained Dreamweaver exposure by completing exercises from Against the Clock's "Adobe Dreamweaver CS5: The Professional Portfolio" book and through a class project of designing a website. I also took Graphic Design in Fall 2010. One of our class projects was to create an animation. To help students learn the program, the professor gave a couple of tutorials on the Flash Professional interface, tools, and tween (animation) options.

### *Instructional Resources*

My main approach for familiarizing myself with the programs was through exploration and trial-and-error techniques. When I needed additional help or specific explanation, I utilized the following external resources. I used Against the Clock's "Adobe Dreamweaver CS5: The Professional Portfolio" book as a reference for the program's features and tools and as a guide for how to complete certain steps, such as setting up division tags, creating a drop down menu, and inserting a Flash animation. I also took advantage of two online resources: Lynda and YouTube. UNI has a subscription to the Lynda.com Online Training Library, giving students free access to online courses and video tutorials on various computer programs. Many "how-to" videos are also available on YouTube.

## Process

In my chronological order of steps I sometimes toggled between developing different elements. For example, after creating the drop down menu in the header, I worked on other page

features before finishing the formatting and hyperlinking of the submenus in the drop down lists. Creating graphic communications is not a linear process. For explanation purposes, however, I will present my process phases topically.

### *Planning*

The first step in the planning process for the redesign was to meet with the Technology Coordinator, which was previously discussed. The next phases of planning consisted of organizing the website content, sketching a homepage layout, and sketching animation scenes. I organized the information by making lists of the links that would be included in the following categories: District, High School, Middle School, Aplington Elementary, Parkersburg Elementary, Parents, Community, and Staff. I made a couple of rough sketches of the homepage to decide how to arrange the content pieces, and then I made a more detailed outline, which included the dimensions in pixels of each section. I also sketched out potential sequences for the animation, experimenting with how graphic elements – such as circles and squares – could be used to enhance or complement text. As I progressed, I altered some of the details of my original plans. This was due in part by becoming more familiar with the programs and finding more efficient ways to accomplish my goals, and also by gaining new insight or ideas after actualizing my ideas.

### *Set Up Division Tags*

Division tags, or div tags, can be used to arrange and format sections on a page. I initially created div tags for seven sections: header, header navigation, page content, Flash animation, calendar, links, and footer. I nested the Flash animation, calendar, and links div tags inside the page content div tag and arranged them so that the calendar space was oriented on the right, the animation on the left, and the links below the animation. I set each section to have a specific pixel width and height, and formatted the page content and footer tags to display a thin red border on the left and right side. After working on the header development, I realized that I did not need a

separate section for the header menu. I simply deleted the header navigation div tag and expanded the height of the header div tag.

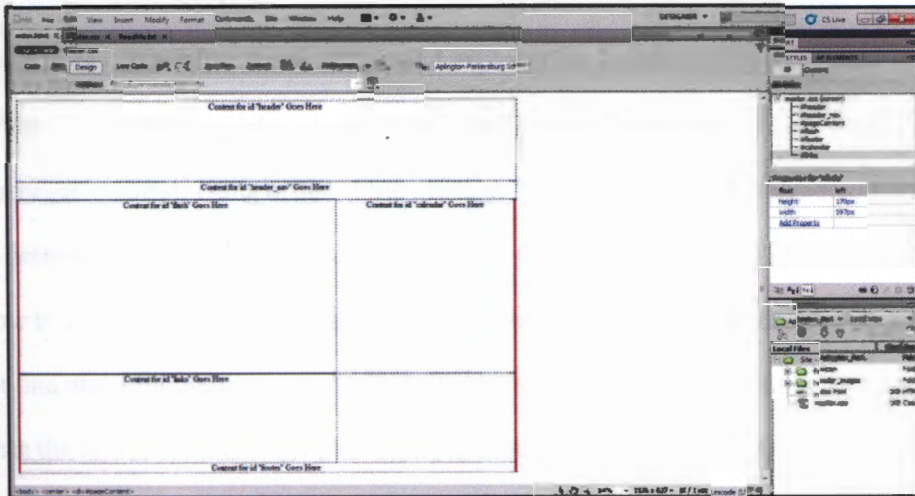


Figure 5. Original div tag layout on homepage

## Header

The header, which includes a still image and a drop down menu, was the most complex feature of the website to develop. I encountered challenges when inserting and formatting the menu bar, but by using my resources and experimenting, I overcame my challenges and learned more about the Dreamweaver program.

First, I designed the still image in Adobe Photoshop. Aplington-Parkersburg's Technology Coordinator provided me with a high resolution graphic of the falcon, the school mascot. I merged the image with the letters "A" and "P" to create a logo for the right side of the header. On the left side, I put the words "Aplington-Parkersburg School District" with an emboss effect to give the words some dimension. For the background, I applied a black-to-gray gradient and inserted a thick solid red bar at the bottom, adding space for the menu headings. I set the image as the background for the header div tag. This approach makes it possible for items to be placed on top of the image; in this case, the menu bar.

Dreamweaver is equipped with Spry widgets, which are sets of script for common interactive website features, such as forms, menu bars, and tabs. I inserted a horizontal Spry Menu Bar into the header division. When I previewed my current progress in the browser, the drop down submenu was not visible. After some testing and exploration, I realized that the submenu was being hidden by the page content division. According to the “Adobe Dreamweaver CS5” book, this issue occurred because of the stacking order of the div tags. The first tag that is created is automatically put on the bottom and each additional tag is “stacked” on top. Unfortunately, the book does not address how to adjust the stacking order of div tags. I briefly looked on Lynda.com for a solution but did not find one. I thought I was going to have to recreate the page, this time creating div tags starting with the footer and moving up to the header. As I was contemplating this issue, I drew my attention to the list of tags in the CSS Styles panel. The list reflected the order in which I created the tags. I wanted to discover if this list was able to be manipulated. I clicked the “header” tag at the top of the list and successfully dragged it to the bottom of this list. To determine if this change actually affected the stacking order of the tags, I once again previewed the page in the browser: the submenu was visible. This stacking order manipulation method is illustrated in Figure 6.

The provided script for the Spry widgets is very basic and does not format the widget. The user is able to customize its appearance. I inserted content and formatted the colors, spacing, and font. Menu and submenu items can be easily added or subtracted in the Properties panel (shown in Figure 6). Menu formatting is controlled by the style rules. When a Spry menu is inserted, Dreamweaver automatically creates multiple style rules to manage the properties of each aspect of the menu. I edited the properties of the existing style rules to accomplish the following: delete the arrow graphic from beside the menu headings, change the width spacing to automatic (determines width based on word length), apply a red background to match the still image and white text for more contrast, set background color to change to black when hovered, select Estrangelo Edessa as the font, specify the menu height to fit the red bar on the still image, and adjust the margins to add

padding between the edge of the cells and the text. The results of these changes are displayed in Figure 7.

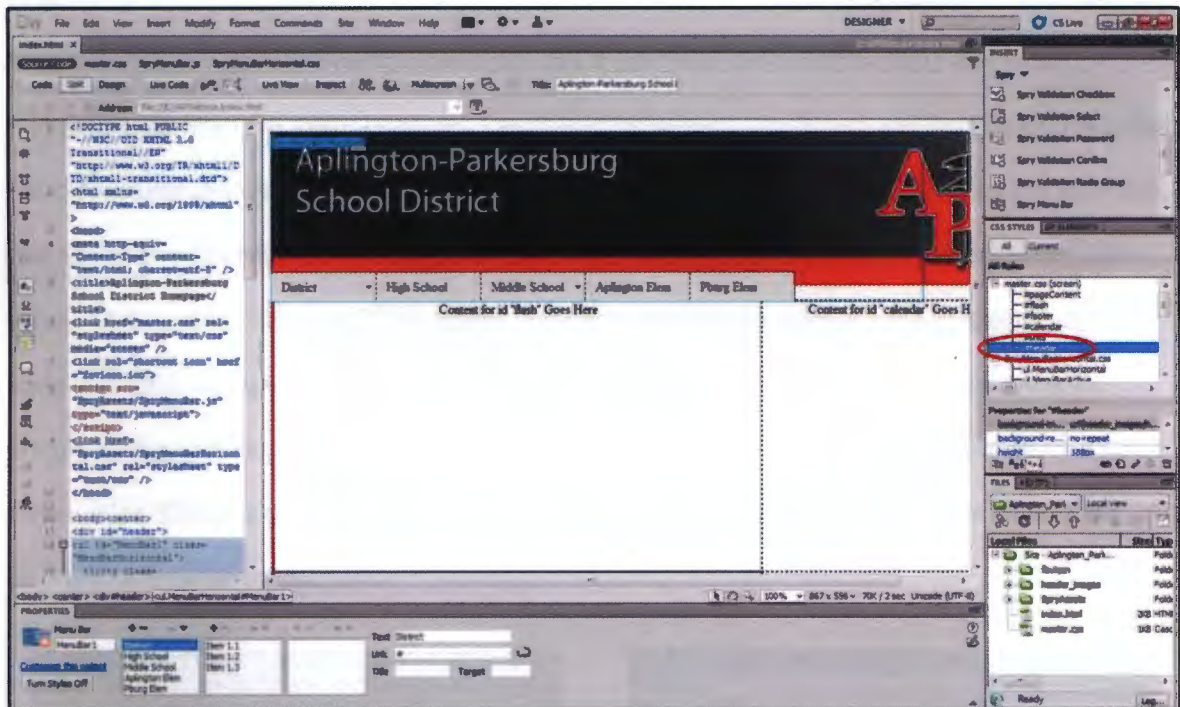


Figure 6. Insert menu and edit div tag stacking order

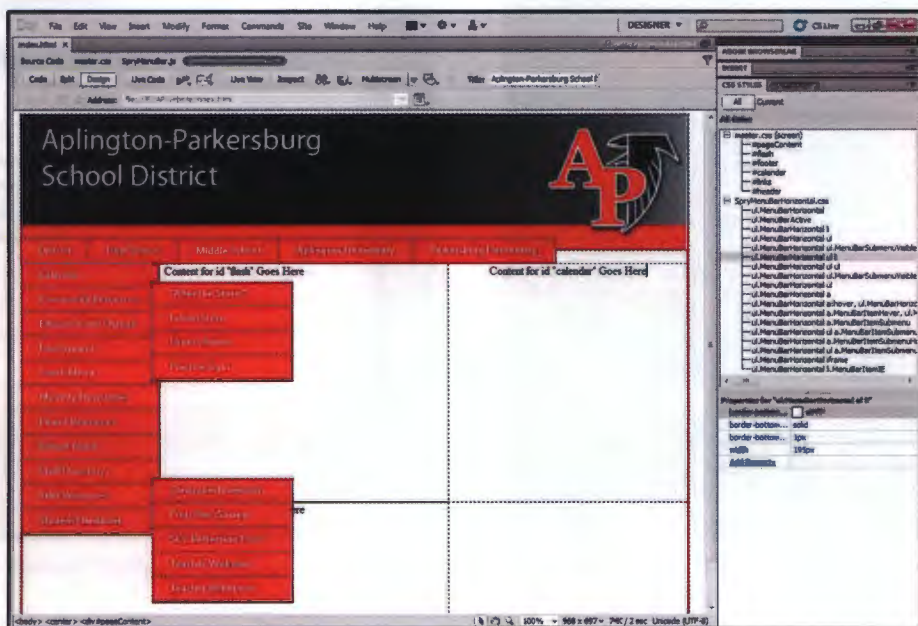


Figure 7. Format menu and insert content

Formatting Spry menus in Dreamweaver is a challenge because the style rules overlap, and it is difficult to edit specific portions of the menu. I felt that it was too overwhelming to have the drop down lists display a red background. I decided to leave the menu headings in red and have the drop down lists in gray. However, I could not find a clear way to format the drop down lists independently from the menu headings. I searched for help on Lynda.com and found a course called “Dreamweaver CS4: Introduction to Spry,” authored by James Williamson. (Even though I used CS5, this CS4 course information was applicable.) In the course’s table of contents, I selected the video called “Styling menu bar links.” The author demonstrated how to manually insert specific styling code that could change the submenu and not affect the headings. I adapted his instructions for simply changing the color of the submenu. I also found that I needed to insert code to apply a black hover color. The code that I wrote is shown in Figure 8, and Figure 9 shows the new code in the preview in browser mode.

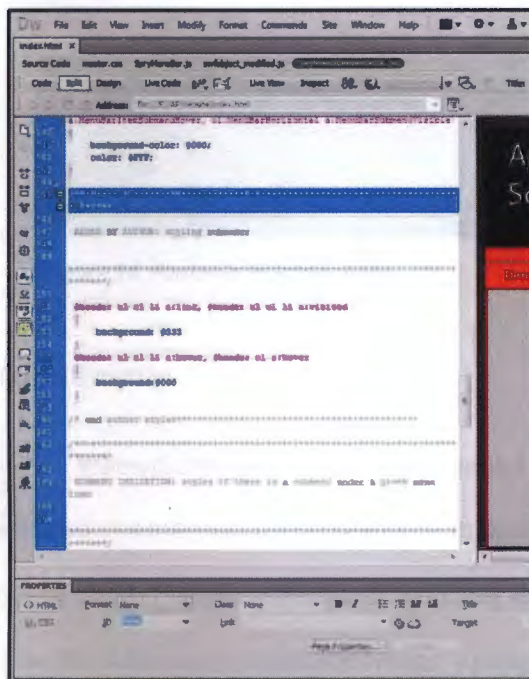


Figure 8. Manual “styling submenus” code

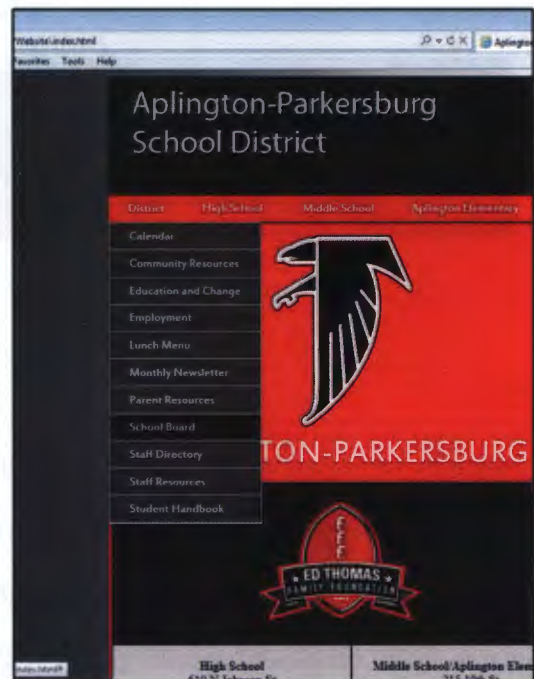
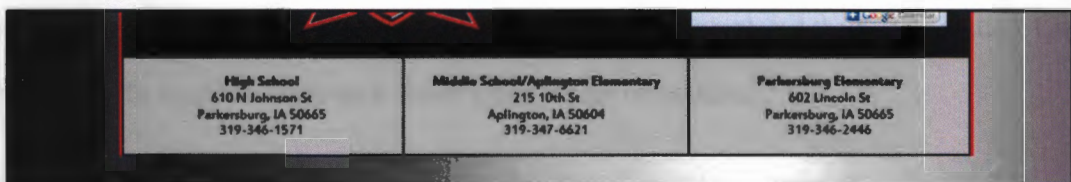


Figure 9. Manual “styling submenus” code previewed in browser

In order for the menu bar to be functional, each drop down list item needed to be hyperlinked to the appropriate page. For internal pages, I created new html pages in the folder structure and hyperlinked each list item to its corresponding html page. For list items that needed to be hyperlinked to external pages, I inserted the web address and set the target to “blank,” instructing the page to open in a new window when clicked. This avoids site users from needing to navigate with the “Back” button.

### *Footer*

To create the footer, I inserted a table with three columns and one row into the footer div tag and typed the contact information for the school buildings into the table cells. I formatted the text so that the name of each building was bolded and the addresses and phone numbers were normal. I also changed the font to Estrangelo Edessa to be consistent with the header. I applied a gray background color to the cells and used the cell spacing to create a black break between cells.



*Figure 10. Footer in preview mode*

### *Flash Animation*

When planning the homepage layout, I determined the pixel dimensions for the animation and used this information to create the animation to size in Flash Professional. Other pre-work included selecting the content and sketching ideas for content layout and animation sequences. I chose the following content: the words “Aplington-Parkersburg Falcons,” the falcon image, and the district’s mission statement. Music could have also been included, but I chose to leave the animation



silent to avoid causing a disturbance when the page is accessed in a public area, such as a library or classroom.

In Flash Professional, I first took some time to reacquaint myself with the tools and features of the program. I practiced making shapes, changing shape and outline color, and creating tweens. Tween is the program term for the animation of symbols and shapes.

As I developed the animation for the website, I created a new layer for each element of the animation to make them easy to manipulate. To keep the multiple layers organized, I stacked them in order of appearance and used folders to group related elements, such as the dot background layers.

The first animation sequence that I chose to create was changing the words “Aplington-Parkersburg” into the word “Falcons.” I remembered learning how to animate text in class, but I was having trouble reproducing the effect. I did a YouTube search for “How to animate text in Flash” and watched a step-by-step tutorial. I then successfully completed the text transition. I once again specifically used the Estrangelo Edessa font to stay consistent.

My second undertaking was animating the school’s mission statement: Committed to promoting lifelong intellectual and personal growth. I sketched a few different ideas based on the word “growth.” I was not satisfied with these sketches. I felt that my literal representations of growth were too cliché. I decided to use a geometric approach and developed a progression of red, white, and gray dots emerging on a black background. To ensure even spacing, I created a grid outline on which to place the dots. After completing the dot series, I set the background to fade to black and the mission statement to fade in simultaneously. To enhance the idea of growth I applied a text animation to enlarge the word “growth” and shrink the other text. All of the words then fade to black and the third and final sequence begins.

I ended the animation in the same way that I started it – the falcon image and the words “Aplington-Parkersburg” on a red background. To reproduce this sequence, I copied the original layers and placed the replicated elements at the end of the animation. I then exported the completed animation as a Shockwave Flash Object (swf file), which is a compatible version for viewing on the web.

To place the animation on the homepage I followed the instructions in the “Adobe Dreamweaver CS5” book for how to embed a swf file on an html page. In the Properties panel, I unchecked the box for the “Loop” setting. This action prevents the animation from replaying on an endless loop while the page is viewed. When the animation is finished playing, the last scene remains in view.

Dreamweaver automatically inserts script into the html code when a swf file is embedded. One section of the added script instructs the page to display a message to install a newer version of Flash in the event that the necessary version is not installed or if computer settings are prohibiting the animation from playing. I replaced this code with instructions to display a still image identical to the last scene in the animation in the event that the animation cannot run.

I would like to further develop the animation section of the homepage. My current idea is to make a few different animations and insert script that instructs the page to randomly select which animation to play when the page is accessed. I feel that this added variety would add interest to the site and enhance users’ experience. Additional animations could include other district statements or Ed Thomas quotes. Ed Thomas was an influential member of the Aplington-Parkersburg community and renowned football coach. In “The Sacred Acre: The Ed Thomas Story” written by Mark Tabb with the Ed Thomas family, many of his inspirational messages and words of wisdom are documented. I would use this book to select quotes for more animations.

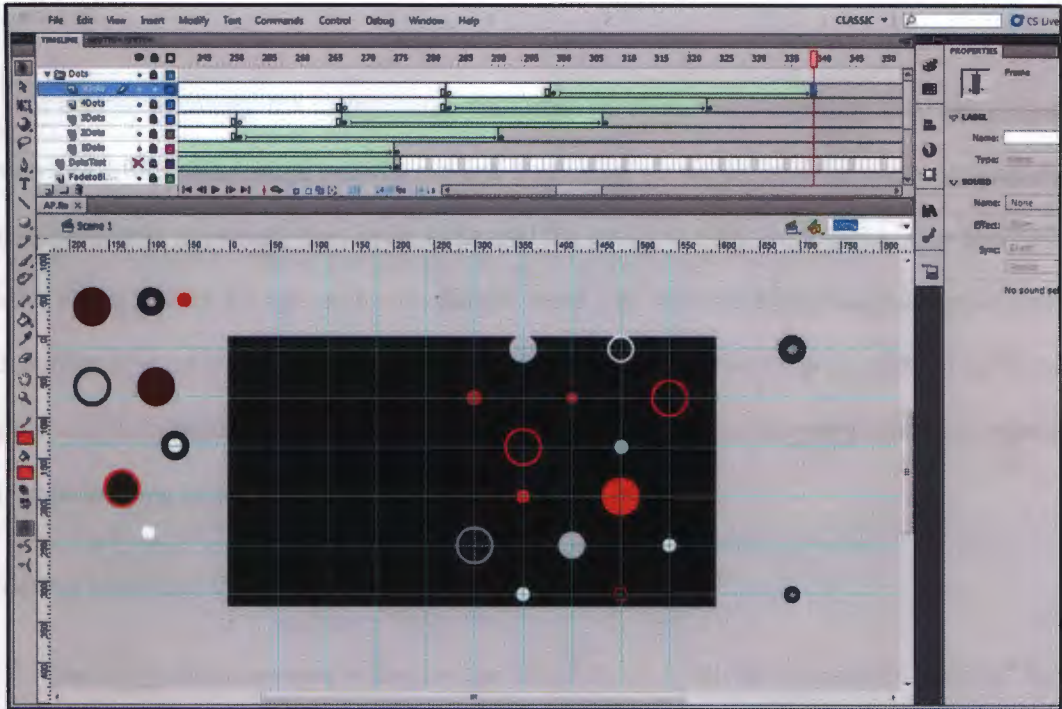


Figure 11. Creating the animated dot progression in Flash Professional

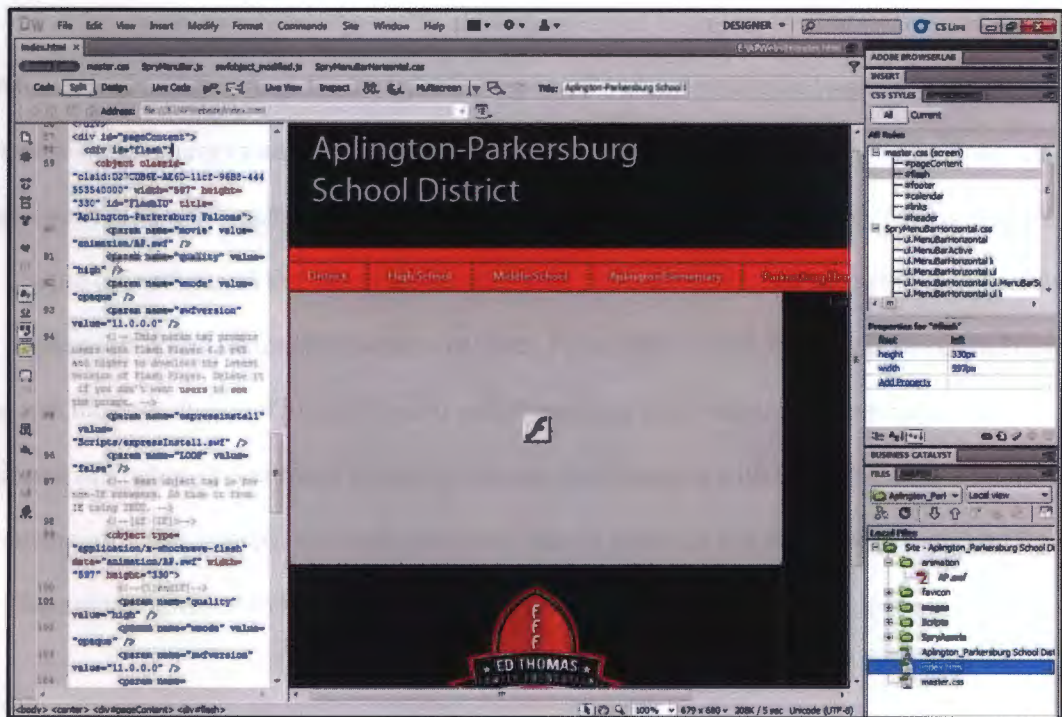


Figure 12. Inserting the animation on the homepage

## *Background*

I wanted to change the background color from its default white setting. The high contrast between the white background and the red and black page elements gave the site an incomplete look. In an attempt to remedy this issue, I changed the background color to black. This also had a negative effect. A black background color did not mesh well with the black-to-gray header or the black background color of the page content section. I decided to create a gray gradient in Photoshop to apply as a background. I feel that this solution complements the other page colors and elements well, while keeping in line with the color scheme.

## *Calendar of Upcoming Events*

One of my objectives was to display the school district activity calendar in “Agenda” form on the homepage, similar to the Grundy Center homepage. Fortunately, Aplington-Parkersburg already has a Google Calendar functioning on their website; it is displayed in “Month” form on a subpage. I just had to figure out how to configure the existing calendar to appear in abbreviated or “Agenda” form in the section I prepared for it on the homepage. To accomplish this, I opened both the Aplington-Parkersburg calendar subpage and the Grundy Center homepage in my browser. On both pages I went to View > Source, which brought up the source code for the pages (see Figures 13 and 14). I found the sections in the code that corresponded to the calendars and pasted each section into a Microsoft Word document to compare them. I identified which portions of the code I thought were specific to each school’s calendar and which portions were formatting instructions. I combined Aplington-Parkersburg’s specific calendar information with Grundy Center’s calendar formatting code and inserted the code grouping into the calendar div tag in Dreamweaver (Figure 15). This solution proved to be successful when I previewed the results in the browser (Figure 16).



Figure 13. Aplington-Parkersburg calendar code

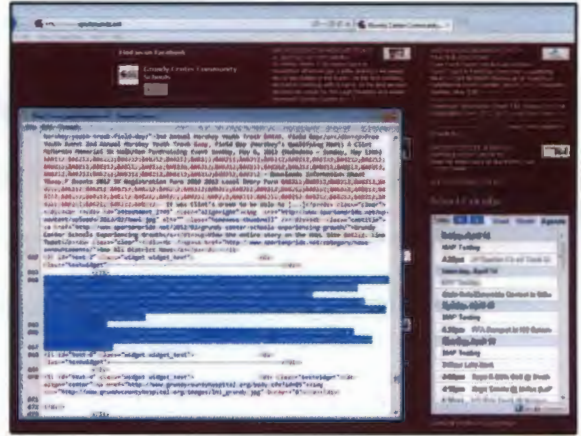


Figure 14. Grundy Center calendar source code

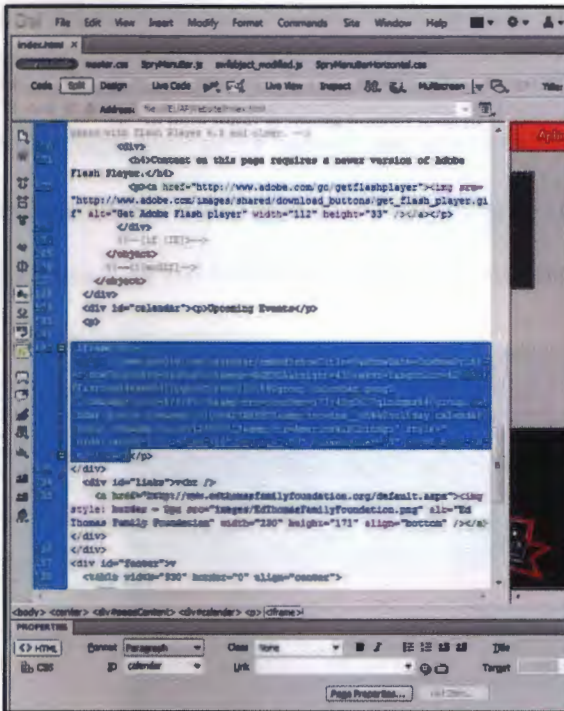


Figure 15. Combined source code for calendar

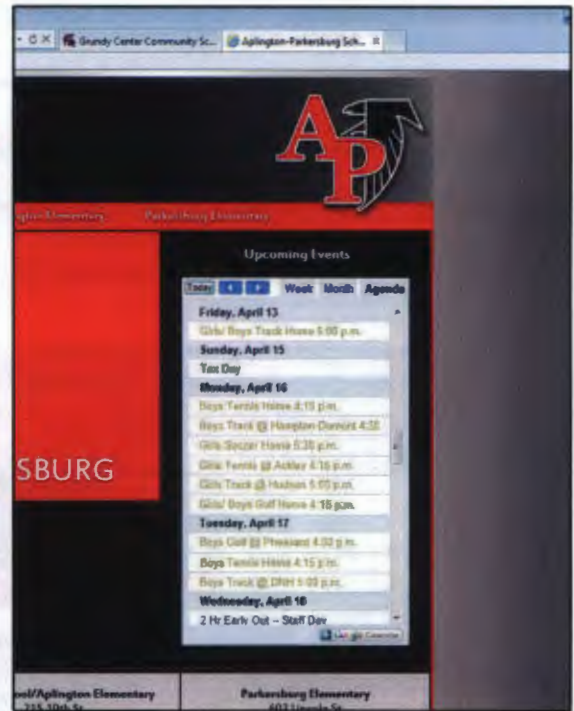


Figure 16. Preview of calendar in browser

## Template for Subpages

When multiple pages of a website are going to have identical elements, it is most efficient to create a template and apply it to those pages. As previously mentioned, templates are a time saver. In this case, by using a template for the internal subpages, the header menu will be easily inserted, and in the event that the header needs to be changed, only the template would need to be edited instead of each individual page.

To create a template for the subpages, I copied the homepage to a new html page and deleted all of the code besides the header and background information. I then added a new div tag for subpage content and formatted it to have a thin red border on the left and right, like the homepage, and a white background, which will expand vertically as content is added. I set the subpage content div tag to be the only editable region of the template. I saved the edited html page as a template and it was given a dwt file extension, for Dreamweaver Template.

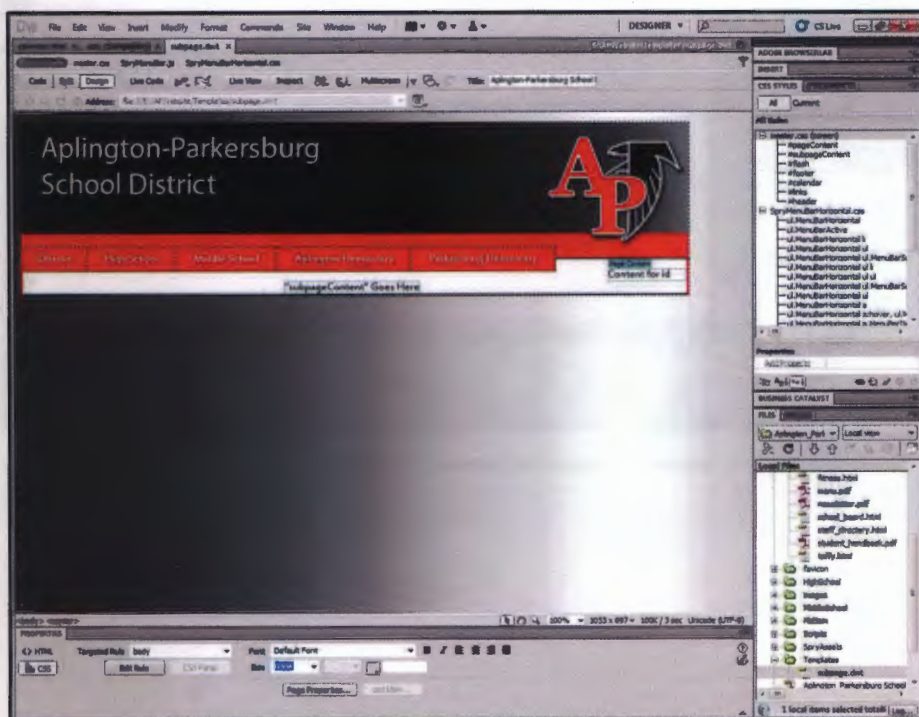


Figure 17. Subpage template

I collected content from the existing Aplington-Parkersburg website to create subpages for the redesigned site. Instead of copying content from the existing site and pasting it directly into the new site in Dreamweaver, I found it helpful to first format the content in Microsoft Word. Content that is copied from the web usually pastes with undesirable formatting, which is easier to correct in a word processing program than it is in a web publishing program. With the content pasted into Microsoft Word, I adjusted spacing issues, applied Heading 1, Heading 2, etc. settings as appropriate, and did any necessary bolding and underlining. Fortunately, formatting applied in Microsoft Word transfers seamlessly to Adobe Dreamweaver.

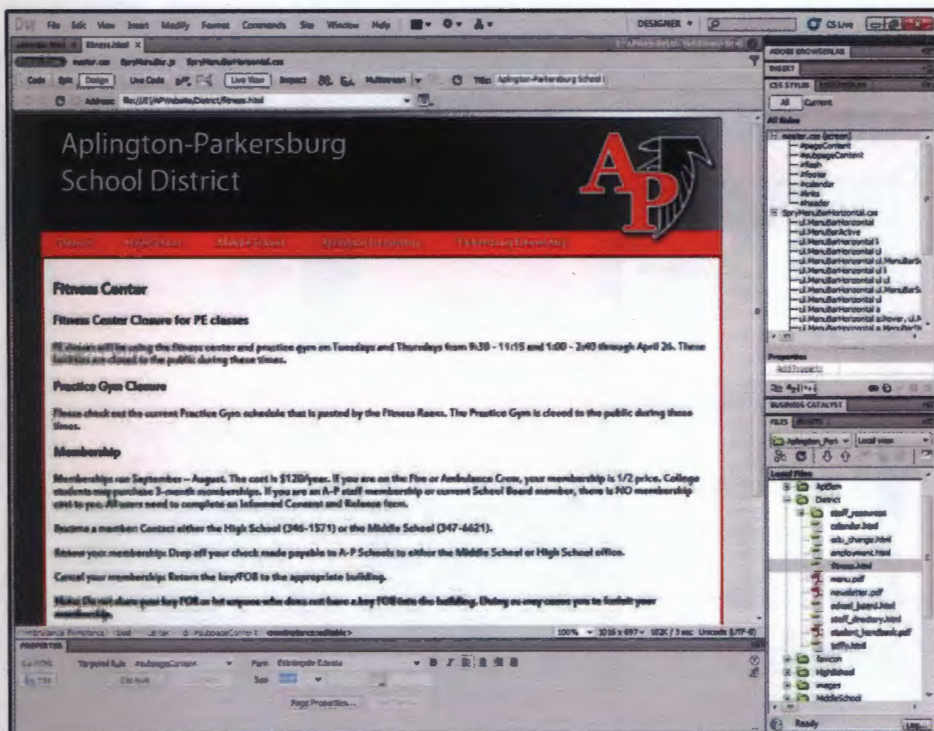


Figure 18. Subpage template applied and formatted content inserted

## Product

A screenshot of the redesigned Aplington-Parkersburg homepage is shown in Figure 19. The organized navigation in the header, subpage template, red and black color scheme, and consistent formatting contribute to website cohesiveness and functionality.

I will work with the Technology Coordinator to implement the new website during summer recess. It will be launched in time for the start of the 2012-2013 academic school year.

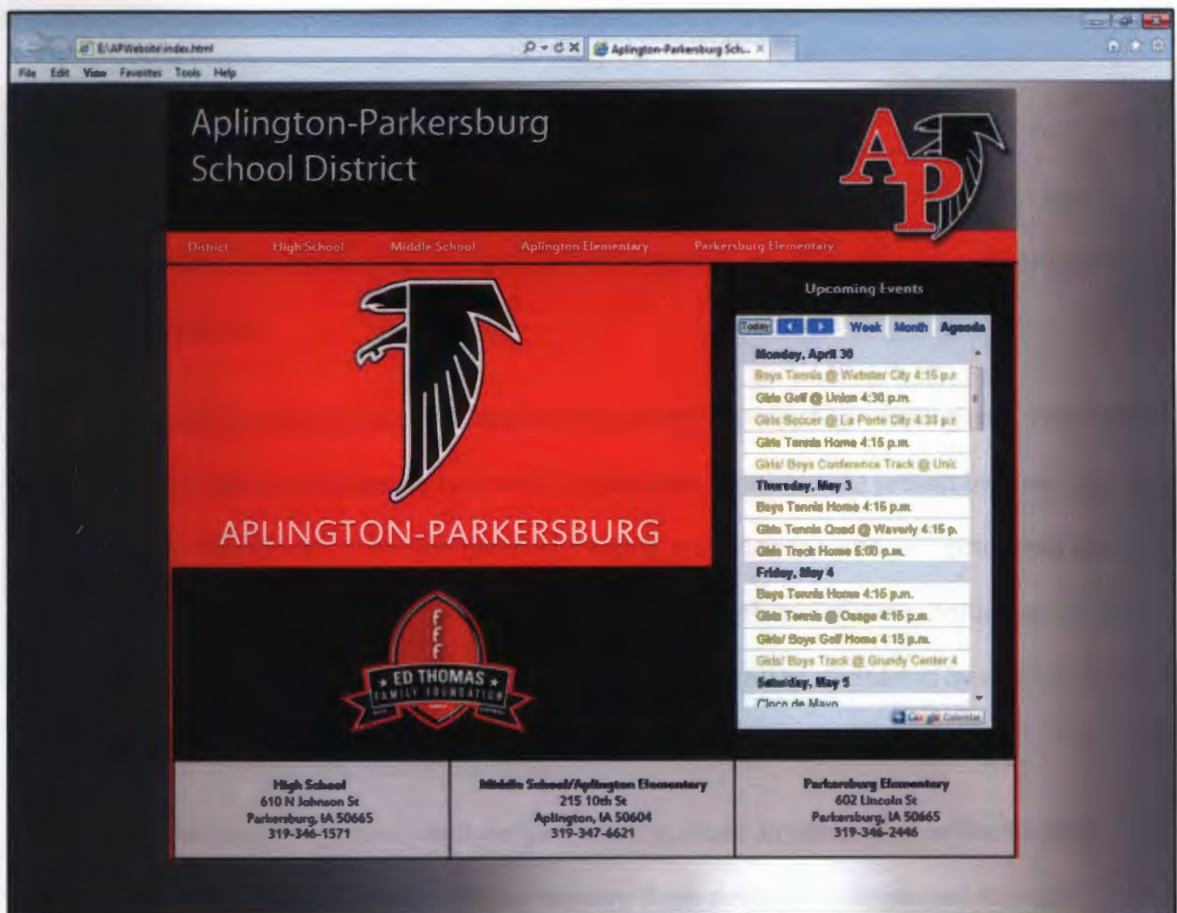


Figure 19. Redesigned homepage



### **Significance**

The redesign of the Aplington-Parkersburg website benefits three groups: site visitors, web publishers, and other school districts. The increased functionality of the website is important because it allows parents, students, staff, and community members to quickly find relevant information and feel a sense of school pride when they visit the site. With assistance from the Technology Coordinator, the web publishing process is being streamlined so that updates are easy to make. Other school districts can also look to the new website as an example of an organized, consistent, and attractive presentation of information.

### *Personal Value*

This thesis project proved to be a very enriching personal experience. I gained valuable practical experience by working with a client, technical skills in electronic media, and insights into overcoming obstacles.

I expanded beyond my in-classroom learning with this project by working with a client to develop graphic communications for real world application. I initiated the project by meeting with the Technology Coordinator to discuss needs and wants, analyzing the website's problems, and proposing functionality solutions. I then planned and executed those solutions, adjusting my plans as new discoveries were made or obstacles arose. The project will be completed by transferring all of the design files to the client and assisting in the implementation of the new website.

When starting this project, I was not proficient in Adobe Dreamweaver or Adobe Flash Professional. By challenging myself to further explore these programs, I developed stronger technical skills, and being familiar with electronic media software increases my value as a graphic communicator.

This project presented me with many obstacles to overcome, which in hindsight I consider to be my biggest achievements: program familiarity, div tag stacking settings, editing the Spry Menu Bar, placing the calendar on the homepage, creating a subpage template, and developing an animation. I was regularly presented with opportunities to troubleshoot issues, which exercised my problem solving skills and at times forced me to take advantage of various resources for help. My accomplishment of this project is rewarding because of the issues that I faced and conquered.