Interface Redesign

a2ice3.com

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Executive Summary

The Ann Arbor Ice Cube web site (www.a2ice3.com) redesign required a new interface layout that would enhance usability and create a more pleasing presentation. Analysis showed that deficits in the arrangement, alignment, and imagery in the current layout had the potential to discourage users from longer visits. The interface redesign addresses these concerns, as well as others, and proposes a solution to resolve the current problems in the design.

This report is divided into four major sections and includes an appendix with screenshots of the current home page and a sub page. The sections include:

Analysis of Current Interface

- The current interface and its components are analyzed according to interface design principles. Strengths and weaknesses in the current layout are discussed.

Redesigned Interface Wireframes

- Wireframe outlines are displayed, delineating the placement and arrangement of interface elements in both the home page and sub page.

Analysis of Redesigned Interface

- Solutions to layout problems offered through the redesign are presented and explained.

Implementation Options

- Three approaches for implementing the new interface are discussed, along with their respective advantages and disadvantages. The recommended approach is also explained.

The redesigned interface provides a number of important enhancements. These include the following:

- Globally-available content is consolidated into fixed spaces at the top, bottom, and left portions of the page.

- Negative space is evenly distributed to create a more compact, cohesive design.

- Line lengths are limited by confining text in boxes, reducing eye strain.

- Consistent alignments are established to further enhance readability.

- Content is grouped conceptually and strategically positioned.

- Different types of content are distinguished by their visual presentation.

- Image size is reduced and interspersed throughout text to create a more pleasing page balance.

Analysis of Current Interface

Layout

- The interface for the Ann Arbor Ice Cube web site has a centered layout, meaning the content remains in the center of the page regardless of the width of the browser window.

- The layout is also responsive and flexible. As the window narrows, content elements stack on top of each other until they reach designated widths, at which point, the layout resets to optimize viewing.

- Display widths targeted for optimal viewing include: 992 px, 768 px, and 480 px. At 1136 px, the layout shifts from fixed to flexible.

- Alignment of elements within the page varies. The global navigation is aligned to the right, but text and other elements are typically left aligned, except on the home page where text is center aligned.

Color and Graphics

- Colors in the interface are neutral with text, buttons, and widgets mostly blue or gray. Red and orange text draws attention to navigation menus, links, and highlighted portions of text. Graphics and photos display brighter, more saturated colors, at times competing with text visually.

- In the page body, where black text is used on white backgrounds, contrast levels are excellent. Contrast in the footer is also sufficient where white text is used on the dark gray background. Gray text used in the Twitter feed is close to sufficient. Light blue text links in the footer also work well.

- Contrast problems arise where dark shades are used over nearly-black backgrounds. The dark blue tagline, for example, is placed in a black box, rendering it nearly invisible. Text-to-background luminosity ratios were analyzed at juicystudio.com. The WCAG (Web Content Accessibility Guidelines) require luminosity ratios of at least 4.5:1. At a ratio of 1.54:1, the tagline clearly lacks sufficient contrast for good visibility.

- Other areas that performed poorly on this contrast test include: the blue text used for the Facebook 'sign up' link, black social media icons on the dark gray background of the footer, gray text at the bottom of the footer, and the green text in the calendar widget. Low-contrast areas were also found where orange text is used for page links, where gray highlight and rollover text is used on the global navigation menu, and where red or light gray is used for body text.

- Site pages were tested for page weight and download speed at webpagetest.org. These tests assessed the current home page weight to be 1804 KB, 69.3% of which is graphics. This page takes close to seven seconds to load for the first time on a browser. Sub pages required approximately six seconds to load. 'Drop In Hockey - Public Skate' weighed 1,523 KB, 'Advertise' was 1,762 KB, and 'Employment Opportunities,' 1,529 KB.

Interface Elements

The Ann Arbor Ice Cube site's interface contains these elements, which will be preserved (with modifications) in the redesigned interface.

- Global navigation
- Subnavigation drop-down text links
- Welcome text
- Graphics
    - Logo
    - Banner
    - Photos
    - Tenant Links graphics
    - Social media icon links
    - Print icon in calendar widget
- Address and phone number
- Twitter feed
- Facebook links: 'like,' 'share,' and 'sign up'
- Calendar widget
- Social media icons
- 'Back to the top' icon
- Copyright statement
- Additional Sub Page Elements
    - Public Skate Information Box
    - Drop in Hockey Information Box
    - Sticks and Pucks Information Box

Interface Design: Strengths

The Ann Arbor Ice Cube web site succeeds where it adheres most closely to interface design principles and Gestalt rules of visual perception.

- The position, colors, size, and alignment of interface elements as well as their overall layout is consistent throughout the site.

- Gestalt principles of proximity, similarity, and continuity are used effectively to indicate the relationships between items in the navigation menus. These items are spaced close together in a continuous horizontal line in the global menu and in a neat, vertical stack in subnavigation menus. Items in both types of menu maintain consistent text color, size, and font to confirm their close relationship.

- Gestalt principles are similarly used to indicate relationships between photographic images, graphics for external page links, and other groupings, such as contact information and social media.

- The repetition of shape in the constrained proportions of thumbnail images creates a strong sense of rhythm in the main page bodies, relieving the need for other Gestalt elements such as connection and enclosure.

- The main body presents a concise, simple design, free of non-essential elements.

- Well-proportioned negative spaces in many page sections provide "resting spots" for the eye, preventing visual strain.

- The top and central placement of the banner image and logo, combined with its dominant size, vivid coloring, and bold header, all ensure that this element is the focal point for each page. Problems with this focal point will be discussed later in this report.

Additional strengths in the current interface include consistent relationships between content elements in a flexible, responsive format.

- The flexible, responsive design generally maintains the relationships between navigation, sections, text areas, and images established in the desktop layout.

- The strong structure of page layouts preserves the relationships between elements in printing as well, in spite of a lack of coding targeted for this format.

Interface Design: Areas for Improvement

Awkward and haphazard allotment of space constitutes the most pressing layout challenge for the site.

- The banner image demands a significant amount of space, and is repeated on all sub pages, forcing important content in those pages below the fold. While a strong focal image is important on any page, this particular image is too dominant.

- The uneven spacing of elements in the footer contributes to a poor visual balance in this section. The Facebook links and text are too close and clumsily arranged, creating a complicated, confusing area. The intense contrast level of the bright calendar widget on the dark gray background, coupled with the widget's large size cause it to overwhelm the other elements in the footer.

- Subpages feature a thick, black band stretching across the browser window to accentuate page headings and the tag line. The text in these bands is positioned in the bottom portion, leaving an uneven distribution of negative space. Because the spacing difference is relatively minor, the variance appears unintentional. The negative space left above the text appears "dead," creating a visual hole in the center of the page.

- Subpages occasionally present gaps of negative space below content elements. The photo on the 'Public Skate - Drop in Hockey' page, for example, borders a column of content that extends further down the page than the image. Below the image is nothing but "dead space." The 'Advertise' page likewise leaves too much space below email links which are placed next to much larger images on the right. The lack of balance on this page is somewhat alleviated by the good use of repetition, however.

- As the browser width shrinks to fit smaller devices, the piling of non-fixed portions of the layout further undermines page balance. This is clearly seen with the 'Tenant Links' icons on the home page, which topple into particularly unstable arrangements at shorter page widths.

Clashing alignments are jarring and slow users' access to content.

- Variations in alignment at times undermine user expectations. For example, on the 'Drop-in-Hockey Public Skate' page, skating information, such as participation requirements and

pricing, is presented in a column on the left while image and text dominate the center. This pattern is then flipped on the 'Ice for Sale' page.

- The welcome text on the home page is stretched to accommodate the large section in which it lies, creating an elongated block of text with jagged edges on both sides. Both the line length and the lack of alignment are visually taxing.

Unusual positioning of certain elements obscures their function and relationships to other elements.

- Including the external link, 'Adult Hockey,' in the global navigation menu subverts the otherwise Gestalt-compliant items in this menu. By presenting this link with the same degree of similarity, proximity, and continuity as the other global content items, users expect the link to lead to another section of the site, just as the other menu items do. Instead, the link sends the user to an external site. Creating a visual distinction for this and other external links will prevent user frustration and disorientation.

- Positioning page headers near the vertical middle of the page defies users expectations about where a title should be. Part of the problem is that the main header and banner take up more space than is necessary, pushing the page header too low. The black band behind the page header is also unnecessarily thick. All of these elements need to be resolved to ensure that important content appears "above the fold."

Problems with image placement repel rather than attract the eye to important content.

- The lack of visual relationship between elements in the footer creates a complicated visual impression. The transparent backgrounds of the Twitter feed and the contact information stand in stark contrast to the bright, enclosed calendar widget. The diverse alignments of the elements in this section create further visual complexity. The spacing of the Facebook elements is tight and strained looking, with text disappearing mid-sentence. These awkward juxtapositions force users to organize visual content before accessing it, straining cognitive resources.

- On subpages with multiple images, focus is at times strained on account of insufficient negative space. This is especially problematic on the 'Advertise' page where large photos compete for attention in a long column.

- The 'Tenant Links' graphics are uniformly boxed and lined up neatly, conforming to Gestalt principles of similarity and continuity. But the bold, unrelated colors in the group clash. These could be displayed as text links for a more harmonious look.

- As mentioned earlier, the banner image dominates with its size. But the strong contrast and vivid colors in the image also demand user attention. The already-complicated collage used for the banner is overlaid with the logo, rendering the image not only dominant, but visually chaotic.

- The aesthetic sensibility throughout the site lacks both meaning and harmony, and even undermines usability. For example, gray, white, and black background bands are strictly utilitarian in nature, providing nothing but a backdrop for text. Ideally, devices such as these unify and energize page compositions while communicating meaning and tone at a glance. This smoothes users' access to content. The static approach of the current design contradicts the active, exuberant nature of a sports and fitness center.

Redesigned Interface Wireframes
Home Page

Logo	The Ann Arbor Ice Cube, Michigan's premier ice and fitness facility

Ann ArborAdult Hockey

Drop In Hockey - Public Skate

Events
Group Events

Summer Camps

Ice for Sale

Today   Thursday, November 19

Thursday, November 19
6:00 am   Youth Sticks & Pucks
10:30 am   Public Skating
12:00 pm   Drop-In Hockey

Friday, November 20
6:00 am   Drop-In Hockey
6:00 am   Public Skating
10:30 am   Public Skating
12:00 pm   Drop-In Hockey

Saturday, November 21
7:30 am   Drop-In Hockey

The Ann Arbor Ice Cube

Home | About * | Advertise | Employment | Contact

Photo

Welcome to the Ann Arbor Ice Cube, Michigan's premier ice and fitness facility. The Cube boasts three superior skating surfaces, and provides year-round recreation and training for individuals of all ages and all skill levels. The Ann Arbor Ice Cube is a unique combination of the ultimate sports center, complete with pro shop, physical therapy, public fitness center, cafe and deli, arcade and home to...

Ann Arbor Amateur Hockey Association	Huron HS Hockey Team
Ann Arbor Figure Skating Club	Pioneer HS Hockey Team
Perani's Hockey World	Saline HS Hockey Team
MHealthy	Father Gabriel Richard HS Hockey Team
MedSport Advantage Strength & Conditioning	Wolverine Speed Skating

Tenant Links

Pioneer Hockey
Huron Athletics
Medsport
Advantage
Saline Hornets
Father Gabriel Richard HS
Ann Arbor FSC
Perani's Hockey World
MHealthy
Ann Arbor Amateur Hockey Assoc.

Photo Gallery

Latest Tweets

Tweets	Follow

Ann Arbor Ice Cube   19 Nov
@A2Ice3

Does your son or daughter play defense? Sign up today for the Simply Defense Christmas Defense Clinic December 28...
fb.me/2dJ0q8iuT

Ann Arbor Ice Cube   17 Nov
@A2Ice3

Keep Updated

F Like   Share

166 people like this. Sign up to see what your friends like.

Facebook   Twitter
Icon   Icon

2121 Oak Valley Drive
Ann Arbor, MI 48103
USA

734-213-1600

* 'About' link lists "Cube Cafe" as its only subnavigation item.
'About' leads to a page titled 'About Us.'

Redesigned Interface Wireframes
Sub Page

Logo	The Ann Arbor Ice Cube, Michigan's premier ice and fitness facility

The Ann Arbor Ice Cube

Home | About * | Advertise | Employment | Contact

Public Skate - Drop in Hockey

Ann ArborAdult Hockey

Drop In Hockey - Public Skate

Ann Arbor Ice Cube Schedule of Events

The Ann Arbor Ice Cube has accommodations for everyone, whether you are a first time skater needing lessons, a seasoned hockey player, speed-skater, broomball enthusiast, figure skater, or someone who needs a great venue for a birthday party! You name it; the Ann Arbor Ice Cube has it. Come check out our first-class facility and meet our friendly staff! Don't miss out on all the action, excitement, and fun!

Rink Photo

Events
- Group Events
- Summer Camps
- Ice for Sale

Public Skate	**Drop in Hockey (Ages 18 & Up)**	**Sticks and Pucks**
Adult - $4 Youth (12 & Under) - $3 Seniors - $3 Skate Rental - $3	Admission: $7 3 Goalies per drop-in Required: * Full Equipment * Signed Waiver * Signed Waiver by parent if 16 or 17	Admission - $5 No Goalies Allowed Required: * Helmet, Skates, and Stick * Signed Waiver by Parent (Youth) * Full Equipment
November Schedule	December Schedule	Drop in and S&P Waiver

Note: Schedules are subject to change without notice

Today   Thursday, November 19

Thursday, November 19
6:00 am   Youth Sticks & Pucks
10:30 am Public Skating
12:00 pm Drop-In Hockey

Friday, November 20
6:00 am   Drop-In Hockey
6:00 am   Public Skating
10:30 am Public Skating
12:00 pm Drop-In Hockey

Saturday, November 21
7:30 am   Drop-In Hockey

Latest Tweets

Keep Updated

2121 Oak Valley Drive
Ann Arbor, MI 48103
USA

734-213-1600

Tweets	Follow
Ann Arbor Ice Cube 19 Nov @A2Ice3 Does your son or daughter play defense? Sign up today for the Simply Defense Christmas Defense Clinic December 28... fb.me/2dJ0q8iuT	
Ann Arbor Ice Cube 17 Nov @A2Ice3	

F Like   Share

166 people like this. Sign up to see what your friends like.

Facebook Icon   Twitter Icon

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* 'About' link lists "Cube Cafe" as its only subnavigation item.
 'About' leads to a page titled 'About Us.'

Analysis of Redesigned Interface

The redesigned interface for Ann Arbor Ice Cube maintains aspects of the previous layout that support a positive user experience, while resolving problems that undermine usability. Reorganization of content and adjustments to alignment and spacing establish a more orderly appearance.

- The redesigned layout maintains a consistent three-column grid throughout each page. Sub pages use and further divide the doubled section on the right to present content. Keeping this basic layout consistent allows users to focus on the content, not the shifting columns.

- Left alignment is used on all text other than headers to further alleviate distraction,

- The top and left portions of the page are dedicated to global elements. Several items previously on the navigation menu are moved to the left section, but remain globally available. Alignment of these global elements is maintained from page to page.

- Welcome text is placed in smaller sections to avoid long line lengths and create less opportunity for uneven text edges.

- The calendar widget is moved to the left column, along with other global elements. This alleviates the visual imbalance the widget was causing in the footer section. Moreover, the calendar is an important content component that should be visible "above the fold."

- With the calendar gone, the other elements in the footer are spaced more harmoniously and conform to the grid structure of the main body for easy viewing. The Facebook buttons are set prominently, and the full Facebook text is re-established.

- Text is placed centrally inside boxes. Negative space is evenly apportioned throughout the page to avoid 'dead' spaces.

- Photos are interspersed throughout text, activating previously flat areas of the composition. Images may be enlarged when rolled over or clicked on, if desired.

Elements are repositioned and grouped to clarify their function and relationships.

- Page headers top each page instead of dropping down to the fold, better conforming to user expectations.

- The logo is shrunk and placed next to the tagline to strengthen branding. The two are placed in the top left corner, in line with user expectations.

- 'Ann Arbor Adult Hockey,' 'Drop In Hockey - Public Skate,' and 'Events' are moved from the global navigation menu to the column on the left above the calendar widget. This positions important user information in a visually dominant area that can easily translate to a vertical, mobile layout.

- 'Ann Arbor Adult Hockey' is set at a smaller size than 'Drop In Hockey - Public Skate' and 'Events' and is placed at the top of the list to suggest its distinctive nature as an external link. Proximity to the other links then confirms their conceptual relationship.

- With content related to skating positioned elsewhere, elements on the global navigation menu present business aspects of the company as a distinct thematic grouping.

The redesign also creates more strategic areas of focus and imagery.

- The size of images is reduced, particularly the size of the banner image. The banner image is also limited to the home page. The reduction in size and repetition of this 805 KB image (from webpagetest.org) not only allows page content to be more easily noticed, but also accelerates downloads.

- 'Tenant Links' are listed as text links in a prominent box to reduce visual clutter.

- On the sub page, content on the left, now filled by global elements, is placed front and center. Text is consolidated and organized, allowing users to easily spot important information, such as skating fees and rules. Schedules and waivers are available directly below, in smaller boxes to indicate their distinctive nature as links. Modularizing these sections creates a cleaner, more accessible presentation and helps alleviate alignment problems caused by the flexible layout at shorter page widths.

Other recommendations for the redesign include:

- Choose high-contrast color schemes for text, particularly small text.

- Employ color and imagery that communicate a dynamic, active experience.

- Avoid complicated collages for images. Straightforward views of the facilities and people using them are far more effective in drawing users in.

- While the 'back to the top" icon has been preserved in the redesign, it should be noted that the pages described are short enough to exclude this element if so desired.

Implementation Options

The redesigned interface for the Ann Arbor Ice Cube web site can be implemented in several ways. Each of these methods handles the problem of fitting the design into varying browser windows.

Approach 1: Fixed-Width, Left-Aligned

- The fixed-width approach guarantees proper alignment and balance. Elements won't tumble around awkwardly as the browser width shrinks.

- Since content does not move as the browser window is resized, a scrollbar may appear.

- The layout is consistent across diverse platforms and browsers. Different devices can still present designs targeted for their typical widths, but there are no transitional widths as there is in the current, flexible design.

- In this arrangement, the left column contains the logo, tagline, 'Ann Arbor Adult Hockey,' 'Drop In Hockey - Public Skate,' 'Events,' and the calendar widget. The address, phone number, and copyright statement are all placed in the footer section of this column.

- The middle and right columns merge, maintaining their own grid when needed. The top of

this section contains the page header, the global navigation menu, text, photos, information, and links. The footer contains the Twitter feed, Facebook links, and social media icons.

• The rigidity of the layout controls line lengths.

• Printing is easily accommodated without special coding, although some browsers may shrink output to avoid cropping.

• The main disadvantage to this approach is that higher resolutions are more likely to expose "dead space," particularly on the right side of the page.

Approach 2: Fixed-Width, Centered

• This approach is similar to the one described above, but in this case, the design is centered on the page.

• Creating a fixed center limits problems of "dead space" at higher resolutions, as negative space is distributed evenly on each side of the page.

Approach 3: Fixed-Width and Variable-Width Columns

• The third approach combines both fixed-width and variable-width elements. Typically, fixed widths are assigned to columns on the left and right, allowing the middle column to expand or contract with the width of the browser window.

• In the redesigned layout, key content on the left is fixed in place while more specialized content is set in easily-moved modules on the right.

• This approach eliminates "dead space" completely, allowing more content to be visible at higher resolutions.

• As long as the left column is reasonably narrow, page printing is fairly easy to accommodate.

• Usually the main disadvantage to this approach is that elements in the variable-width section quickly lose their alignment as the browser window changes size. Additionally, line lengths can become too long at higher resolutions. As mentioned, however, the modularity of the redesign helps avoid both of these pitfalls.

Recommended Implementation

Of the three approaches described above, the third approach is recommended. This design provides the user with the freedom to access the page at the browser width of his/her choosing, allowing greater access to content without significantly compromising layout and alignment

A fourth option is an entirely variable-width layout. This is not advised as it subverts the alignment of all layouts.
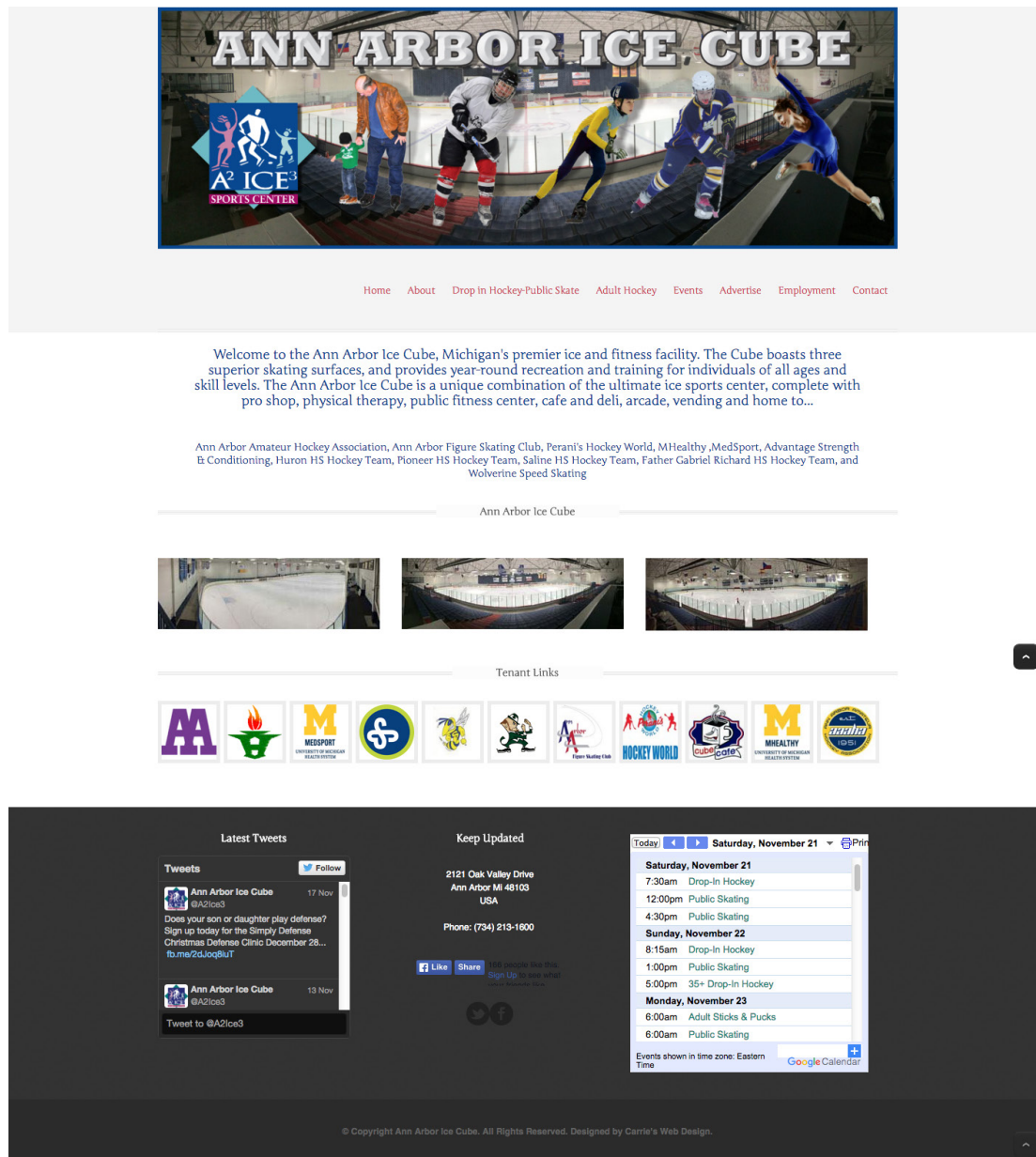
Appendix A

Figure 1: Home Page

Figure 1: Home Page
(1417 x 1581 resolution, 21.5 inch monitor, window maximized)
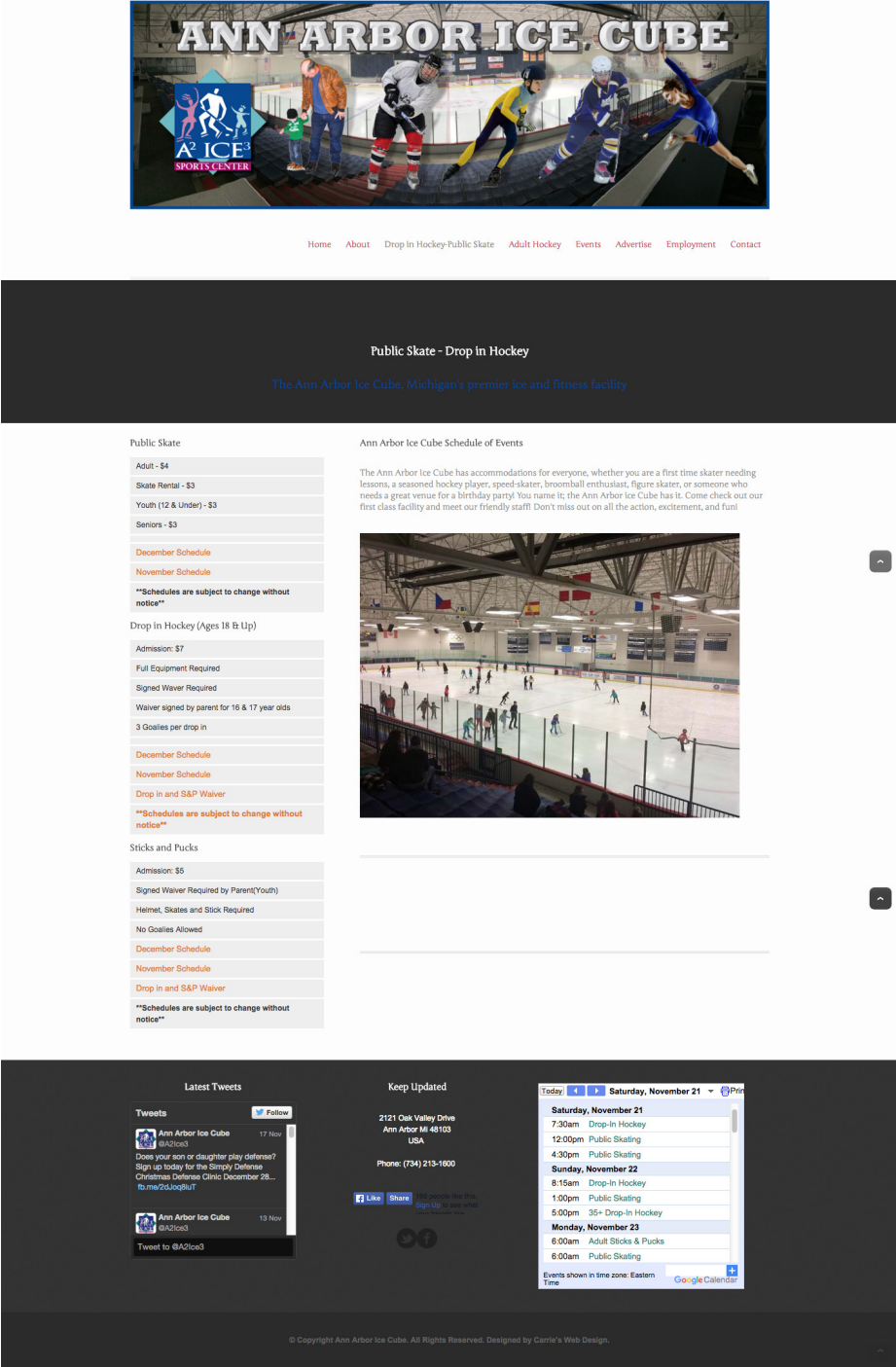
Appendix A

Figure 2: Sub Page

Figure 2: Public Skate - Drop in Hockey
(1417 x 2163 resolution, 21.5 inch monitor, window maximized)