

HPAC/ACVL PRD # 221-0
HPAC/ACVL Website (Technical)

Date of Issue: First Draft Nov 25, 2001

Related Documents and References:

- PRD # 220 HPAC/ACVL Website (Strategy) addresses the purpose and uses of the website.

1. Purpose of this PRD

This PRD provides guidance for the design, development, and maintenance of the official internet website of the Hang-gliding and Paragliding Association of Canada / Association Canadien de Vol Libre (“HPAC/ACVL”).

A primary goal of the website is to make it possible for numerous volunteers to share the effort of designing the functionality, maintaining the database content, and maintaining web pages without requiring programming skills. Initial implementation of some facilities is expected to require SQL programming support, which is a popular database programming language.

A separate Project Plan for the HPAC/ACVL website will address the order and time-frame of development for the facilities identified herein.

2. Website Vision (repeated from PRD # 220)

A website that:

- supports the vision, mission, and goals of HPAC/ACVL by serving the interests of Canadian hang-gliding and paragliding pilots, and by attracting new members to HPAC/ACVL,
- allows visitors with a specific objective in mind to accomplish that objective quickly, completely, and accurately,
- allows many volunteer members across the country to contribute efficiently to the building and maintenance of the website while the HPAC/ACVL Board of Directors maintain control of the content and functionality,
- serves as an administration management tool for HPAC/ACVL’s Business Manager and managers of specific activities such as competitions.

3. Website Mission (repeated from PRD # 220)

Website functionality that:

- makes it easy for website visitors to navigate the site and accomplish their intended objective,

- allows website “facilities” to be created and modified quickly using programming skills available among the HPAC/ACVL member population, and
- allows website content to be added and managed easily by non-programmers.

A website architecture that:

- provides a flexible, automated content control process.
- delivers acceptable performance on most hardware that is reasonably expected to be used in the near future by visitors to the website,
- provides scalability in terms of content and access capacity, and
- provides the required confidentiality and security for database contents.

4. Website Technical Goals

Technical architecture goals:

- One integrated database to serve all Users
 - Has all information stored once only in one location (relational database design)
 - Effective security for contents
 - Effective and efficient content change management
- Browsers
 - Supports commonly used browsers
- Cost effective software
- Architecture facilitates contributions by many members
 - Content providers (do not need programming skills)
 - Facility developers (needing SQL and HTML programming skills)
- Consistent look and feel provided through templates and style sheets

5. Website Technical Objectives

Appendix 1 is a checklist to remind us of the background technical facilities that need to be considered in building the website and keep it operating. If we want restrictions on any particular aspect, or want to document our reasons for a particular choice, it should be noted in Appendix 2.

Appendix 2 is a guideline for the Instigators who will be specifying website functionality.

6. Basic Components of the HPAC/ACVL Website, and Positions Responsible

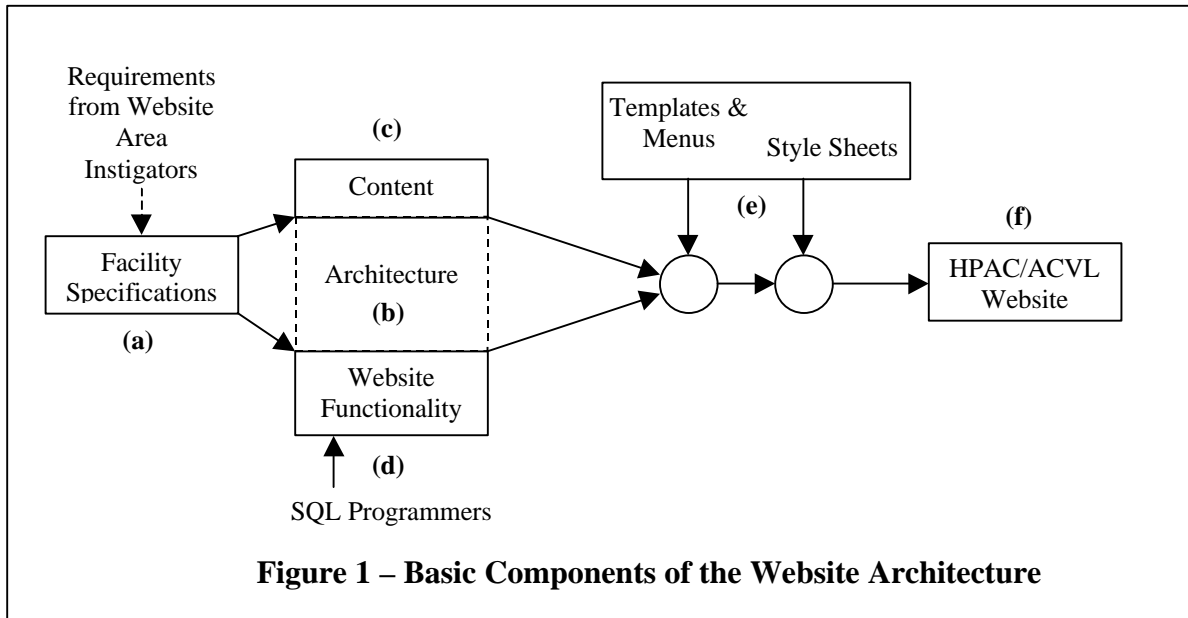


Figure 1 depicts the relationship of the basic architectural components of the HPAC/ACVL website. The “responsible position” identifies who will be in charge of decisions made related to the construction and maintenance of that component.

Referring to the letters in Figure 1:

- a) The website covers many areas of interest to visitors to the HPAC/ACVL website.
 - ◆ The website will be divided into functional “Areas”, roughly described as the website facilities related to a general categories of activity, such as competitions, public relations, instructors, administration, safety, etc”.
 - ◆ Someone will specify the desired functionality for each area of the HPAC website to serve the interests of website visitors. These people are called “Facility Instigators”, or just “Instigators”. An Instigator will be a person both actively involved in that area of interest and very knowledgeable about the desires of website users interested in that area.
 - ◆ Those who maintain the content in that Area afterward are called “Caretakers”. It is anticipated that the Instigator will also become the Area’s first Caretaker, but not necessarily.
 - ◆ Activities of Instigators and Caretakers will be co-ordinated by the Project Manager.
 - ◆ *Responsible position: Website Project Manager*
 - ◆ *Currently: Phil D’Eon (pdeon@rogers.com)*
- b) The database itself is built on standard principles of relational database design (not expanded upon here). It is important to remember that this website is a database utility with a web-based interface.
 - ◆ “Architectural controls” are restrictions imposed on what the database tables contain and how they are used in order to make all this work. (Examples: All content has validity

and expiry dates; All content passes through a customizable “pipeline” of approvals prior to being published on the website; Password controls; Privacy field settings)

- ◆ The architecture is created once, by the Website Architect – Charles Warren in this case – and never requiring change thereafter (our fondest wish).
- ◆ The end result is the HPAC/ACVL database from which the website will draw its operating behaviour and its content, and which also will be the core database for the HPAC/ACVL Business Manager’s administrative use.
- ◆ *Responsible position: Website Architect (ideally the Facility Development Team Leader)*
- ◆ *Currently: Charles Warren (charles.warren@paradoc.net)*

c) “Content” is the stuff that can be displayed on the website.

- ◆ Content is comprised of:
 - ◆ Dynamic data queried from the database to populate a web page (names, addresses, etc).
 - ◆ Web pages (the insurance waiver, this PRD, articles, pictures, etc.) stored in the database as static data (or hyperlinks to that data)
 - ◆ Programs that give the website its functionality – addressed in detail in the next section.
- ◆ All content (data and programs) will be subjected to appropriate change control review, detailed in the sections following.
- ◆ *Responsible position(s): Area Instigators and Caretakers*
- ◆ *Currently: Individuals TBD*

d) The functionality that users will see in the website is provided via “facility” modules programmed in SQL, a popular database programming language. There are several capable SQL programmers in the HPAC/ACVL ranks who have volunteered to share the workload in creating and maintaining these facilities by programming in SQL.

- ◆ “Facilities” are programmed instructions that control how content may be accessed, displayed, and changed - and by whom. (Examples: Facilities to manage updates to membership data; Facilities to provide the flying site guide display and print functionality; Facilities to provide registration for an upcoming competition; Facility to find a school near you.)
 - ◆ A relatively small number of skilled “Facility Developers” will implement the functionality requested by the website Area “Instigators”.
 - ◆ The available programming resources will be marshalled by the “Facility Development Team Leader” who assigns programming tasks to the volunteers with due consideration given to their individual interests, capabilities, and available time.
 - ◆ The development priority for website facilities will be determined by the Project Manager, in consultation with a Website Review Committee.
 - ◆ *Responsible position: Facility Development Team Leader (ideally the Website Architect)*
 - ◆ *Currently: Charles Warren (charles.warren@paradoc.net)*
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- e) At this point in Figure 1, we have a database architecture, containing programs that operate on database content to generate the new website functionality. Now we have to display the results on the website in accordance with our goals of a “consistent look and feel”.
- ◆ To achieve that, the data that results from the programmed facilities is merged with a set of standard templates and menus, and then rendered by style sheets for display on the web page.
 - ◆ The standard set of templates and menus will be created by persons with the appropriate talent, subject to approval by the Website Review Committee.
 - ◆ *Responsible position: Style Controller*
 - ◆ *Currently: Judith Newman (jnewman@hfx.andara.com)*
- f) The HPAC/ACVL website now (per Figure 1) has everything it needs to provide the facilities originally specified by the Website Area Instigators. When the above work has been completed, the website operation should slip into “maintenance mode” whereby content is routinely added and altered, and occasionally a new facility is added, in accordance with the “Pipeline Controls” for Facilities and Content, described in Sections 7 and 9, respectively.
- g) **SPECIAL NOTE ON PRIVACY:** The privacy of personal information will be protected in accordance with a forthcoming PRD that will set out the HPAC/ACVL’s general policy on data privacy. In general terms, the proposal before the HPAC/ACVL BoD at this time is to categorise and treat personal information according to four levels of viewing privileges:
- Public (anybody can see it),
 - Privileged (only other members can see it),
 - Emergency (can be retrieved only by identified persons solely for the benefit of the member), and
 - Protected (only a select few having a valid need to know can see it).

7. Creating Website Functionality with “Facilities”

The new website is a *tool*. That means that it not only displays content like a typical website, but also provides “facilities” that act on the HPAC/ACVL database content to perform services for the various User Constituencies (users having a common purpose for using the website). Those facilities need to be:

- ◆ identified and described by someone who knows what website visitors will require,
- ◆ approved in concept by the BoD, and
- ◆ ranked in priority order of need for development.

Figure 2 illustrates this process.

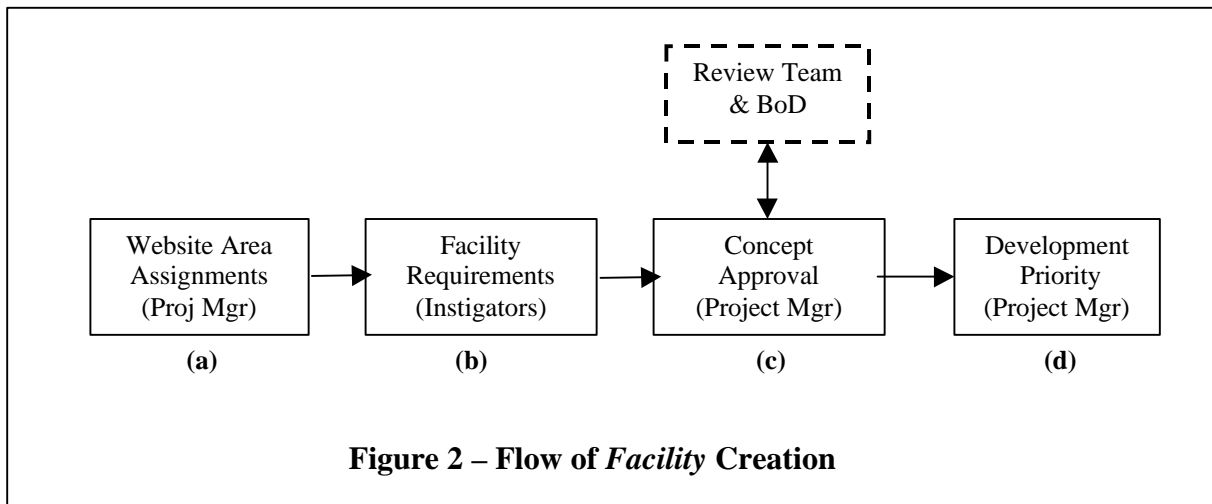


Figure 2 – Flow of Facility Creation

Referring to the letters in Figure 2:

- a) The Project Manager will recruit Instigators to create lists of desired facilities for all areas of the website.
 - ◆ The website will be roughly partitioned into functional “Areas”. An Area is described as the website facilities related to a specific area of interest. Example Areas are Competitions, Public relations, Instructors, etc.
 - ◆ The website Project Manager is responsible for recruiting “Instigators” to be responsible for the design and maintenance of each website area, for assisting the Instigators in specifying the facilities in a timely and effective manner, and for scheduling the programming of those facilities with the Facility development team leader.
 - ◆ Overlaps in Area functionality are expected. They will be identified and sorted out at the specification stage, to the best of our ability.
 - ◆ *Responsible position: Project Manager*
 - ◆ *Currently: Phil D’Eon (pdeon@rogers.com)*
- b) Each Facility Instigator will describe how his/her assigned Area of the website should function.

- ◆ Appendix 2 provides guidelines to Instigators for describing the desired facility.
- ◆ *Responsible position: Instigator for<Area>*
- ◆ *Currently: Andre Nadeau for Administration Area*
 - *remainder to be determined (preferably those now actively involved in each Area)*

c) The Facility Specifications will be reviewed and prioritized.

- ◆ The Website Project Manager will review the specifications submitted by the Facility Instigators and, in consultation with the BoD and others as appropriate, will determine the priority of development for getting the most important website functionality in place as soon as possible.
- ◆ The Website Project Manager will involve the Website Review Team as he sees fit to provide commentary on the proposed functionality, including the read/write permissions and validity dates of the content.
- ◆ The priority for these facilities coming available on the website must be determined to provide guidance to the Facility development team leader.
- ◆ If an issue arises, it will be either resolved among the Team, or the issue will be summarized, with pro and con arguments, for final decision by the BoD.
- ◆ The BoD will be given the opportunity to review the Facility specifications recommended by the Website Review Team prior to the Specification being passed to the Facility Development Team Leader for coding.
- ◆ The Website Project Manager will determine the position on menu hierarchy.
- ◆ *Responsible position: Project Manager*
- ◆ *Currently: Phil D'Eon (pdeon@rogers.com)*

The steps described up to this point must be organized manually. However, going forward after website implementation, it is intended that the website will automate the steps required for approval and publishing of changes to Facilities and Content. This will be achieved by detecting changes and submitting them to a “pipeline” approval process in which the necessary checkpoints are passed leading to the material being published without the need to involve programmers. These processes are described in the Sections 8 and 9, respectively.

8. Pipeline Control for “Facilities” (Website Functionality)

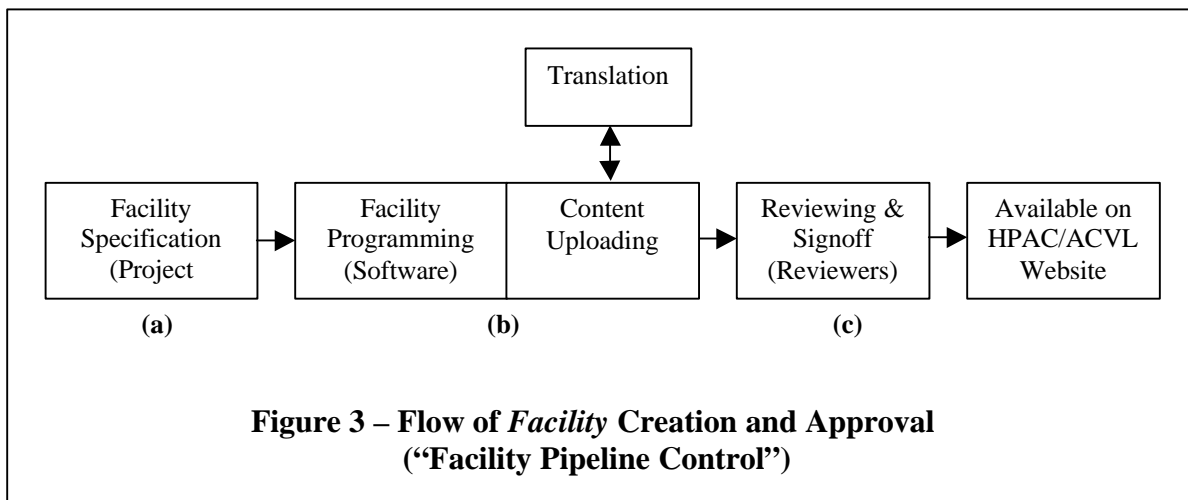
Facilities are the programs that cause the website to act on its data. They are not expected to change very often, once established. However, just like documents, changes need to be monitored and approved prior to appearing on the website.

Once the specifications for the facilities have been created, they need to be:

- ◆ programmed in priority of need by programmers,
- ◆ loaded with content and functionally tested, and, finally,
- ◆ reviewed and approved prior to use on the website.

Facilities, even though they are programs, are stored in the database as another form of content. Thus, the facilities themselves can be reviewed and approved prior to use on the website, just the way static content can.

The following describes the “Facility Pipeline Control” scheme to achieve that.



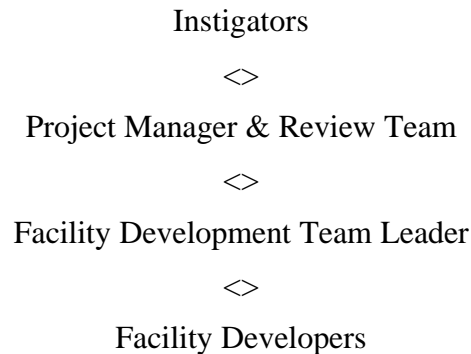
Refer to the letters in Figure 3.

- a) The specifications for the Facility are determined as described in Section 7.
- b) In priority order, the facilities will be programmed.
 - ◆ Programming assignments will be distributed among the volunteer facility developers.
 - ◆ At the time of development and testing, facilities will be loaded using existing content, if appropriate, from the old website.
 - ◆ Facility testing will include performance testing on different browsers.
 - ◆ *Responsible position: Facility Development Team Leader*
 - ◆ *Currently: Charles Warren (charles.warren@paradoc.net)*
- c) The completed and content-populated Area Facility will be reviewed for conformance to the functionality approved by the BoD.

- ◆ The Website Review Team will be granted permissions to access the website for test and review. Effectively, the menu buttons will be active for the Review Team and BoD, whereas they will be present, but inactive (greyed out) for other HPAC website visitors.
- ◆ When satisfied with the functionality, the Review Team will approve the Facility, making it available as prescribed to website visitors. (Content availability is controlled separately – see Content Pipeline Control below.)
- ◆ Thereafter the real content may begin loading via the Content Pipeline Control described below. (It is planned that Until the conversion of content from the old website to the new is complete, a link will be maintained to the corresponding content (if available) in the old website.)
- ◆ *Responsible position: Website Review Team (via Project Manager)*
- ◆ *Currently: (comprised of builders of both old and new websites)*

Note on Communication Channels during Facility Development

For Project Management purposes during Facility development, the chain of communication is as follows:



It is desired that website content and functionality discussions flow only between persons adjacent in the chain, in order to keep everyone in the loop. There may be times, however, that it is most efficient for a Facility Developer to talk directly to the Instigator, in which case it should be done with the consent of all in the chain, and all important changes resulting cleared with the Project Manager and Facility Development Team Leader.

9. Pipeline Control for Content Creation and Maintenance

Once website “facilities” are up and running, many volunteers will be maintaining the content in their specific Areas of the website. The people responsible for maintaining the content are called Area “Caretakers”.

The HPAC/ACVL Board of Directors (BoD) needs to be able to exercise effective and efficient control over what appears on its website. At the same time, only certain elements of website content are of concern to the BoD, so they want Caretakers to have the freedom to update their website Areas without undue restrictions, while making sure that they are involved for approvals where the nature of the content warrants their oversight.

Referring back to Figure 1, an important part of the Facility Specifications (Block (a)) is to identify who reviews and who finally approves the changed or added content for publication on the website. (This is detailed in Item 6 of Appendix 2.)

The “Content Pipeline Control” scheme is technically identical to the Facility Pipeline Control scheme described in Section 8, but here it is “dressed up” as a content pipeline to illustrate what happens when someone wants to change the content related to an existing Facility.

For each Facility that involves changing website content, specific individuals must be named who have permission to:

- ◆ upload and change related information in the database;
- ◆ review the new content as it would appear on the website; and, once approved ,
- ◆ “throw the switch” to allow the new content to be viewed on the website with the originally-intended viewing audience restrictions. (“Throwing the switch” simply means setting a flag in the database.)

For that final “throw the switch” publication approval, there are two options:

- ◆ BoD or its designate approves content changes by “throwing the switch”. (This is the default setting.)
- ◆ With the agreement of the BoD, specified persons such as website Area Caretakers can make changes to specified content, and it will be available on the website without further review.

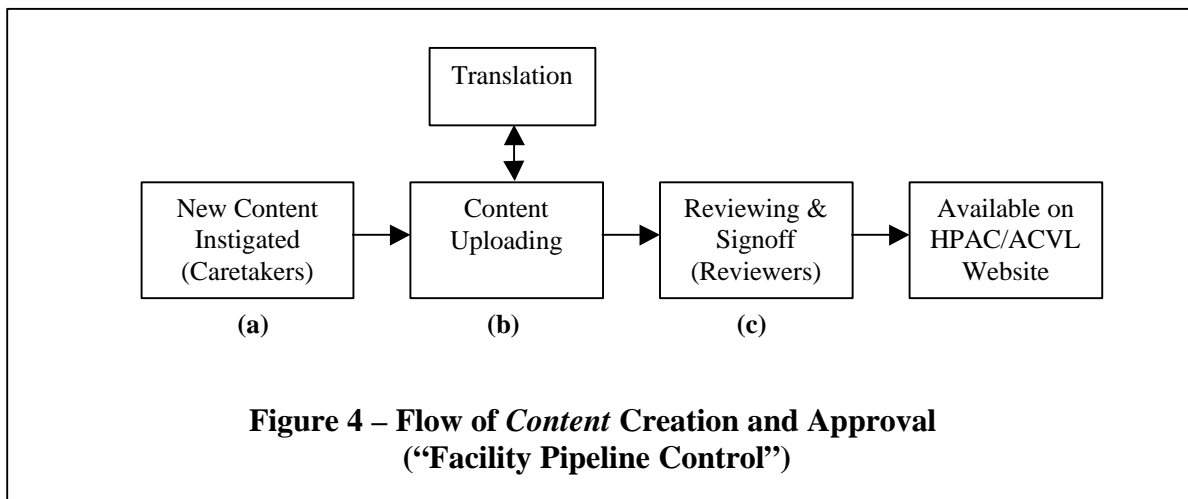


Figure 4 illustrates:

- (a) Authorized persons, nominally the designated Caretakers, can upload new content to the database, or change existing content. (documents, data records, links, images, etc)
- (b) New, not-yet-approved content is placed in a temporary holding area. No content will be visible on the website until it has been approved by the designated authority.

Note: During the transition to the new website, the current (“old”) website contents will be displayed in its current format via place-holder links to the relevant bits of the old website, placed in relevant locations in the new website as “current” content. As the “old” content is transferred to the “new” website, it will pass through the pipeline into the new website as “new” content, destined to replace the links. Eventually, the entire contents of the old website will have been dealt and, when no remaining links to the old website are active, it can then be retired.

- (c) The following is our intention regarding website entries that require translation into or from French.

- ◆ If a data item is designated as requiring translation, the volunteer translators will be automatically notified when a change is made.
- ◆ When a translator picks up a document for translation, its flag will automatically be changed to “In Process”.
- ◆ The translator can upload the translated document, and it will be matched to its counterpart in the other language.
- ◆ NOTE: A policy decision is required regarding timing of publishing of English and French equivalent documents, and the website functionality will reflect that policy. The alternatives are:
 1. Publish the new text as soon as it is approved, before translation, and either remove the translated “old” text or mark it as superseded, pending translation. OR
 2. Do not publish the new text until both it has been reviewed, approved, and translated.

- (d) Items that do not require pre-approval to be published in accordance with restrictions defined by the Facility will be processed immediately as if approval had been granted automatically. (A member changing his/her phone number, for example.)

- (e) Designated reviewers will be able to review the prototype changes and new documents that they are eligible to see. The BoD’s designate will publish the reviewed, and possibly revised, data item on the website simply by setting its flag to “Approved”.

Important note: The Pipeline Control scheme is a tool for convenience of process – it is not a security facility. That is to say, it automates the agreed process where BoD approval is required for website content changes, and where the BoD delegates that authority to a trusted Caretaker. It cannot prevent a Caretaker from posting inappropriate content in an area for which they have been given permission to make changes directly, without review.

Appendix 1

List of Technical Considerations Underlying the HPAC/ACVL Website

Content development and management tools

- Manage website change rights and restrictions
 - Website content read/write permission controls
- English/French translation management tool
- Formats for compatibility of on-screen and printed versions of documents
- Site map auto-generation
- Site search tool
- Cataloguing, adding and removing documents
 - QA process auto-forwarding
 - Auto-track website content change history for critical facilities

Architecture:

- Browser compatibility
 - IE4 and NS4 or greater
 - Client-side processing capabilities assumed (JavaScript, Jscript, etc)
 - Multi-media capabilities and limitations
- Separation of format and content
 - One location for common graphics, logos, etc
 - Page layouts done once per website area
 - Style sheets built to provide look and feel
 - Browser-specific or browser-independent templates
 - One integrated relational database to serve all Users
 - Tools/forms for volunteers to update their areas
 - Storage of documents
- Long-term maintenance of website architecture
 - Documentation level required for hand-off?
- Security measures
 - Anti-hack
 - Content read/write permissions manager
- Advanced functionality (to be considered in the future)

- Multimedia capability
- Credit Card payments
- Webcasting of meetings, with participation
- EStore capability
- Telephone access to certain information
 - Eg: is <member#x> current?
- Digital signatures (On-line waiver accepted by insurance co?)

Deployment:

- Website hosting
 - Backup, mobility, security
- Technical support
 - Website statistics reporting
- Registration with search engines

Appendix 2

HOW TO SPECIFY HPAC WEBSITE FUNCTIONALITY

Intro

The new HPAC website is designed to enable many people to prepare website pages, thereby spreading the workload and providing backup capability in the event that a key person actually wants to flying or something silly like that.

The new website architecture will separate page formatting (look and feel) from the facilities (programming) from the content (data that the facilities work with, both static and dynamic). Doing so will allow us to have multiple page authors who can write pages from anywhere they have access to a browser, sharing the ongoing workload of website maintenance, without requiring programming skills.

However, the facility developers who will build the facilities using the database engine need to know what the facilities are, what all those facilities must do, and what data those facilities will use. That's you, if you have taken on the role as "Instigator" or are otherwise involved in specifying a website facility.

The task of maintaining what you have created will be the job of a "Caretaker" for the website Area. Initially, that is expected to be the person who initially specified the facilities (i.e., *you*, the Instigator), but responsibility for maintenance of the content can be handed off comfortably to someone interested and familiar with the website Area.

This takes effort and care, but done right, it's the secret to long term lower workload and a successful website.

Purpose of This Document

This document will provide guidelines for non-programmers to create specifications for website facilities in a manner that allows database programmers to create the facility reliably and efficiently.

Guidelines

1. Let's agree that website *Areas* are umbrella categories for our convenience (i.e., we can define their borders by mutual agreement). It is up to the person responsible for that area to define what it does.
 - Examples of a website Areas are "Membership", "Site Guide", "Events", etc
2. A website area uses several *Facilities* to perform its functions. A facility is a process that you want to have happen when triggered by a button on your webpage (e.g., "Submit your entry form"), or to have happen automatically at some level (e.g., "if visitor's membership expiry date is less than 60 days away, display this message . . ."). Imagine that one Facility correlates to one on-screen form (although it might not end up that way for screen size restrictions or other reasons).
 - Facility (for Membership area) = Search for a Member
 - Facility (for Membership area) = Update Personal Information
 - Facility (for Membership area) = Send Out Expiry Alerts
3. The most natural way to specify your website Area functionality is to **SIMPLY SKETCH OUT THE FORMS THAT YOU IMAGINE THE VISITOR WOULD SEE, AND DESCRIBE WHAT HAPPENS (Ref Item #5 below) WHEN THE BUTTONS ARE CLICKED.** Note also any automatic responses you would expect to have happen without the user pushing a button.
4. Don't worry too much about getting your menu structure perfect – this can be easily changed later. Note also that some Facilities will appear under more than one Area. For example, a menu item for "List Local Events" might appear under both Events/Competitions, and Media FAQ.

5. Five basic items are needed to describe each Facility:
 - <What the User puts in>, then <What action is done>,<on What data> to produce <What outcome> and <Who can or can't do it>
6. Speaking of “who can do it”, we need to adhere to an upcoming policy on PRIVACY. For now, let's use the four proposed viewing privilege categories:
 - Public (anybody can see it – the surfing public, with no qualifications or trust),
 - Privileged (only other members can see it),
 - Emergency (can be retrieved only by identified persons solely for the benefit of the member), and
 - Protected (only a select few having a valid need to know can see it).

If you find it more convenient to specify who is restricted from seeing or doing it, feel free to do so and we will figure out how to achieve it.

For certain functions you may find it useful to specify individuals with permission, such as:

- <this Event Coordinator and staff>
 - <this Accident Investigator>
 - <this Member's Instructor>
7. Remember, the specifications need to include facilities that allow the content developers to maintain the database contents, not only specifications for website visitors to retrieve the content. So don't be shy in specifying the tools that you would like to have at your disposal if you were tasked with maintaining the contents of this website area.
 8. The last thing you need to specify is the “pipeline” control for website content changes, i.e., publishing approvals. Note this is not the same as access approvals, discussed in Item 4 above. Here you specify
 - What website content you want to be able to change without having anyone else review it, and
 - What content (if any) that members should be able to change by themselves.
 - Everything else, by default, needs to be reviewed by the BoD (or whomever they delegate) prior to its appearance on the website. For example, you may specify that an HPAC member is allowed to change his/her address and telephone and email information, and it is published immediately without any further review. Similarly, the Caretaker for the “Competitions” Area should be able to change most, if not all, of the information about upcoming competitions without further approval required. But, for example, policy statements about insurance would need approval by the Insurance Director and/or the BoD or the Business Manager prior to being made visible on the website.

SUMMARY

Each Facility specification includes:

- <What the User puts in>
- <What action is done>
- <on What data>
- <What outcome is produced> and
- <Who can or can't access the facility (or parts of it)>
- <What content you want to be able to change directly, without BoD review and approval>

The most effective form of communication is for you to simply sketch your imagined website page forms and describe what you want to have happen in the various boxes. The Programmer can better visualise what you have in mind (and can often suggest helpful improvements) when you sketch a form to go with it.

Sample Facility Specification

Area [**Membership**]:

Facility: User searches for an HPAC member.

- Narrative: User picks from a drop-down list of searchable fields: last name, first name, region, browse pictures, HG or PG, wing make & colour, HPAC#, USHGA#. There is one picklist for primary search field and another for secondary search field. Can type wildcard characters (*) in typed names. The HPAC membership database is searched. All matching records are listed. User can browse the selected list and open any record.
- User Restrictions: <Anyone> cannot see items designated “confidential”, but HPAC officials (Instructors, Admin, BoD, Safety, etc) can see confidential items.

Facility: User views and updates his/her own information.

- Narrative: User puts in own name, system asks for personal password, and if right, displays the user's personal information. User can designate (via untick) individual items of private information such as home address, phone number, etc, as “confidential” that he/she does not want made available for public search (but they still will be visible to HPAC officials). Can update personal information like contact info, address, emergency contacts, wing make & colour, USHGA#, etc.
- User Restrictions: User can view and update own information only. <Individual> cannot change HPAC admin entries like pilot rating, membership status, etc.

Facility: Automatic email notification of impending membership expiry.

- Narrative: Whenever a Member's HPAC membership is within the specified time for an alert, the system will automatically merge the Member's email address with a form email that provides the alert message. Form letter and attachments are included. (Administrator can set number and timing of alerts – another Facility spec required.)
- User Restrictions: none
- <etc, etc, etc>