

**City of Austin
Website Redesign
Gap Analysis Summary Report
September 9, 2010**

Table of Contents

Executive Summary.....3
 Introduction
 End User Gap Analysis Overview
 Competitive Gap Analysis Overview
 Usage Gap Analysis Overview

End User Gap Analysis.....5
 Introduction
 Methodology
 Detailed Findings
 Conclusions and Recommendations

Competitive Gap Analysis.....11
 Introduction
 Methodology
 Detailed Findings
 Conclusions and Recommendations

Usage Gap Analysis.....17
 Introduction
 Methodology
 Detailed Findings
 Conclusions

Summary of Recommendations.....25

Appendix.....26

Executive Summary

Introduction

The purpose of this report is to summarize the gaps identified between the end users' stated needs and the current trends among peer government websites with what is currently offered on the City of Austin's website. This report also includes an estimate of the gap in usage between the current website and what potential usage might look like when those gaps are filled. The data used for this analysis includes the gaps identified in the *End User Needs Analysis* and a Competitive Analysis including five peer websites in the government space, identified as aspirational by the City of Austin staff. The Usage Gap Analysis utilized data from the current City of Austin website traffic reports, primary research data collected from the site intercept survey taken by current users of the City's website, and secondary research data that enables comparison of peer City websites. This report will summarize the gaps found in each of these activities, recommend steps to close those gaps, and estimate the potential increase in usage of the City's website.

End User Gap Analysis Overview

The purpose of the End User Gap Analysis is to highlight the gaps in what end users tell us is important for a City website to offer and what the website currently offers. There were two key groups that provided input for what the desired City website should offer: internal end users and external end users. Internal and external end users agreed on many suggestions regarding the look and feel of the website, usability and consistency of navigation, and organization of content by the "reader". All of these aspects were considered to be lacking on the current website, and thus represent a gap.

End users from both groups also agreed on the importance of informational content and features that do not currently exist on the website. These involve more online interaction between citizens and City services. Examples of these items include: the ability to manage a library account online, City services mapped visually to an address or neighborhood, interactive maps displaying public interest sites, online reservation for classes/events, 311 FAQ and or online chat, and others. There were discrepancies as well. Although internal end users deemed social media integration and City news available as RSS feeds (by topic/department) as important, the external end users did not rank those features as important. Similarly, the qualitative end user study revealed that many respondents commented favorably about peer sites offering content in multiple languages despite results from the quantitative study that showed low importance ratings for this feature.

It is recommended that gaps deemed important by both internal and external end users, be given priority in the development of the new City website. It is also recommended that features scoring low or medium on quality be considered a high priority target for changes. Lastly, it is recommended that social media integration, multiple languages, and City news available as RSS feeds, although ranking low in importance among the external end users, be considered in the development of the new City website. These items represent a technology benchmark already achieved by many other government websites, and will likely prove valuable to external end users once they are available.

Competitive Gap Analysis Overview

The purpose of the competitive gap analysis is to determine the feature set gap between the COA website and other government websites recognized by COA staff for their quality design, navigation, and

informational content and services offered. In this analysis, SteelSMBology compared website qualities in these categories and the gaps identified offer the City of Austin opportunities to be at par or surpass the level of services and information offered by these peer websites in the government space.

Gaps were found in site structure, use of menus, and navigation that have shown to effective the usability of the City of Austin website. Global use of a concise, role-based main menu, use of “quick link” topic or content type based menus, and breadcrumb navigation would close these gaps and provide improved usability on the website. Also related to usability and general “satisfaction” (determined by qualitative research among end users) of the website is improvement of design consistency across the City’s Brand for a more cohesive and organized view from the users perspective.

Gaps were also found in services and features offered on the website beyond the static information and reports (such as PDF documents). Offering more of the website content in foreign languages, a mobile device display, online payment services and other transactions, a unified event calendar that can be filtered, interactive GIS maps, and the full availability of data via a portal represent areas of improvement. Additionally the use of social media platforms and integration into the site also represented a significant gap compared to the peer websites.

Usage Gap Analysis Overview

The purpose of the usage gap analysis is to determine the difference between current usage of the COA website and potential maximum usage. Potential maximum usage is not a measure of usage in the distant future, but a measure of what is possible for this website, serving this community, at this point in time. Models were created and analyzed to see potential increases in reach (percentage of the local population that uses the site on a monthly basis) and frequency (how often the website is used by a visitor in a month)

Increased usage of the COA website is likely, but not across all metrics. Increases in reach (the percentage of the population that uses the site regularly) are not likely to occur because they are already quite high. Increased frequency of use is likely to occur, given the fact that two peer sites achieved 30% and 33% higher frequency than the COA site. When we look at the potential for increased frequency using our own internal survey data, it is possible to model the impact of increased satisfaction might result in a 5.9% increase in visits. The difference between this 5.9% lower bound and the 33% upper bound may be explainable by the impact of new services and improved navigation. New services provide new reasons for users to come to the site more frequently, and could be more impactful than simply increasing user satisfaction. Similarly, improved navigation enables users to more fully explore the site and more easily discover other features. It is reasonable to assume that the combination of increased satisfaction, new services, and improved navigation would collectively give us a potential usage gap closer to the 33% estimated by the comparative analysis of City websites.

End User Gap Analysis

Introduction

To fully prepare recommendations for COA website redesign we must understand the needs, wants, and preferences for all end users of the website. The purpose of the End User Analysis was to document and review the needs of all end users of the City of Austin's website. End users are defined as:

- Internal End Users:
 - City of Austin staff members who access and use the information displayed on the website
 - Developers – City of Austin staff members responsible for maintenance and security of the systems underlying the website.
- External End Users – all other consumers of the information and services available on the website; primarily Austin citizens.

The purpose of this document is to highlight the gaps found when internal and external end users were asked what was expected of a City website, and what is currently offered.

Methodology

Input on gaps related to content organization, navigation, and website design was gathered from internal end users, in multiple facilitated sessions with City staff, and from external end users in a qualitative interview study.

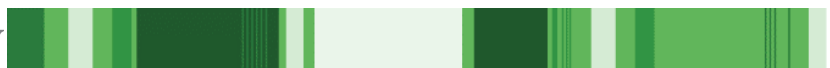
New ideas and/or features input was received from internal end users first, and included not only what they themselves would use, but also what they thought external end users would find valuable. Those elements were then included in an external end user study. The quantitative study asked external end users to rank over 90 pieces of informational content, features, and functionality that included elements currently on the website and new elements identified in the internal end user feedback. Three key metrics were evaluated in order to identify gaps: importance, current usage, and current quality of the website element.

Detailed Findings

There were gaps identified by both the internal and external end user groups, and in many cases there were commonalities among the two. Below are the gap findings that were both specific and common to these two groups.

It was a common belief among internal end users that the City's website should be at par or should outperform other government websites. Key features present on those sites, and considered to be a gap in the current offering on the website include:

- Access to City data and the ability for the user to “customize” results and reports of that data for a specific use
- Integrated delivery of the work the GIS group has created with geo-spatial maps
- Integration of social media
- Multi-channel publishing



- Two-way communication with citizens via the web (e.g. feedback and comments on posts, reporting maintenance needs, submitting information via forms, online payments in all areas, etc.)

It is important to note, that strides to close this gap in some of the areas above, are being worked on currently and in parallel with this project. It is the intention of the City of Austin to integrate the efforts into the new City website.

For the design (look and feel), as well as navigation structure, there were similarities in preference found between the internal and the external end user research. Findings from both groups state that the new City of Austin website should represent the culture and personality of Austin and its citizens. The website look and feel should include photos and graphical elements that show the city and convey a unique, eclectic, and modern personality. Specifically on the home page, as the “front door” to the website, end users expect to see photos from around Austin. Both groups identified a gap in this area between the current design of the website, specifically the home page, and what the groups prefer or expect.

Another similarity between the internal and external users was the feedback on navigational structure. Both identified needs of a user-friendly navigation structure that focuses on the website user, and both suggested organization by user role. Related to navigation, both groups also identified a need for a prominent and functional search feature on the site. Although recent improvements have been made to the current website to add “user focused” links on the home page, this navigation is not carried through at all levels. The primary organization of the content on the current site is by department. While search is offered on the site, a gap was identified in the results that appeared when compared to what was expected to appear.

A quantitative product gap research study with external end users identified critical gaps between the information and services that are important to users and what is currently offered on the City website. The following charts (next two pages) show the rankings of the “new elements” included in the study that came from internal end user feedback, for both the Resident and Business user groups. The numbers represent how each element scored based on the percentage of users that marked that item “very important”. The red numbers highlight those items that fell into that user group’s Top Ten most important elements.

New Website Elements	% Very Important				
	Urban Tech	Suburban	Older Urban	Civic-minded	Hispanic Mothers
Manage library account (e.g., pay fines, change address)	65.2	69.8	61.2	68.8	62.5
City services related to an address or neighborhood (view zoning, elected officials, schools, road closures, utilities info)	61.8	54.2	57.4	61.3	41.7
Interactive maps with tour information of public interest areas, cultural locations	57.4	46.0	46.9	56.1	64.7
Maps of power outages and road closures	53.6	44.0	41.9	48.8	50.0
Online reservations for classes, events, and other City activities	50.8	46.0	24.5	49.7	58.8
311 City services frequently asked questions (FAQ) (answers common City services questions so you don't need to contact 311 help directly)	50.0	51.4	52.5	51.5	45.8
Interactive events calendar filterable by topic for City meetings/events	45.9	39.7	26.5	48.4	52.9
311 City services (online chat or submit questions to operators)	44.1	44.4	42.6	48.0	50.0
Crime statistics with look-up/map features	42.0	44.0	41.9	46.4	75.0
Emergency alerts (sign up to receive email/text alerts)	42.0	41.3	41.9	40.6	70.0
Volunteering (information and online registration)	35.5	29.6	25.9	38.2	46.2
Town Lake Animal Shelter online services (ability to submit online adoption applications and lost/found pet submissions)	32.4	23.6	27.9	34.3	12.5
City park online reservations to book City park resources such as pavilions and courts	31.1	36.5	16.3	32.9	70.6
City Code search (input section# or keyword)	30.1	21.8	32.0	35.5	24.0
Feedback (citizens can provide feedback or ask questions in an online forum)	26.5	32.4	42.1	44.7	52.6
Text size options (adjust the size of text on the website)	21.6	16.2	29.5	23.3	34.2
Option to view website in alternate languages	20.6	11.7	12.6	17.6	28.9
City News in RSS subscription feeds by topic/category	16.7	16.2	12.5	19.8	27.3
Social Media (alerts and news on platforms such as Twitter and Facebook)	16.7	15.3	5.3	13.5	31.6

Website Element	Importance			
	Dev:Const & Real		Self-Emp, Prof, Sm	
	Ranking	% Very	Ranking	% Very
Permit management (apply, pay, track progress of permits online)	4	80.0	5	49.1
City Code search (input section# or keyword)	6	77.4	3	53.3
Feedback (citizens can provide feedback or ask questions in an online forum)	28	30.9	38	18.9
Grant management (apply, track progress of grants online)	30	24.5	14	43.3
City News in RSS subscription feeds by topic/category	37	16.4	39	17.0
Text size options (adjust the size of text on the website)	40	12.7	42	13.2
Social Media (alerts and news on platforms such as Twitter and Facebook)	43	7.3	43	11.3
Option to view website in alternate languages	44	3.6	44	3.8

All new elements are considered a gap, because they are not currently offered on the website, however rankings by user group will assist in prioritizing development of those new elements. In addition to new items, the study uncovered gaps in the quality of current informational content. All elements were given a ranking based on the “level of gap” by incorporating three key metrics: importance, current usage, and current quality. In order to compare the importance of different features, a heat map was created. A red box identifies a “critical gap”, a yellow box identifies “moderate gap”, and a green box indicates there is no gap. The charts below show the elements that were identified as critical gaps by one or more user groups in the study. For those in the Residents group, the majority of those gaps are defined by highly important elements not currently available on the website. For the Business group, however, the majority of gaps exist because the items were highly important, but received a medium to low quality rating. The numbers in the boxes indicate each element’s ranking of importance within that user segment.

Residents Gap Analysis

Website Element	Urban Tech Savvy	Suburban Family	Older Urban	Socially Conscious /Civic	Hispanic Mothers
311 City services (online chat or submit questions to operators)	27	19	16	24	27
Manage library account (e.g., pay fines, change address)	6	4	5	5	10
City services related to an address or neighborhood	8	9	7	9	35
311 City services FAQ	18	12	10	17	33
Interactive maps with tour information	13	17	14	13	7
Crime statistics with look-up/map features	29	21	18	26	1
Emergency alerts (sign up to receive email/text alerts)	30	26	19	39	4
Maps of power outages and road closures	16	22	20	22	28
Feedback (citizen online forum)	55	39	17	31	26
Interactive events calendar filterable by topic	25	27	52	23	25
Volunteering (information and online registration)	37	11	56	44	32
Online reservations for classes, events, and other City activities	17	18	58	20	13
City park online reservations to book City park resources	45	33	62	52	2
City Code search (input section# or keyword)	47	55	36	47	56
City Codes and Ordinances for building and/or renovation	42	48	25	40	53
Neighborhood Code Ordinances, boundaries, community groups	33	52	31	29	42
Town Lake Animal Shelter online services and submissions	43	53	54	43	64
Information on arts, museums, cemeteries, trails, and preserves	7	6	15	8	24
Municipal Court information where to go to...	23	15	24	21	19
Information on Neighborhood Planning	28	40	26	35	41
Local tax information	19	31	27	25	63
Online payments (citations, tickets, court fees)	5	10	33	18	6
Public records/conduct legal research	52	44	34	49	30
City public parking information	20	32	39	33	50
Austin Police incidents report database (ability to search)	50	35	40	37	17
Text size options (adjust the size of text on the website)	61	62	45	62	44
Performance measures by dept or program (search database)	60	57	51	54	48
Buy tickets online for City bus and rail	32	41	55	30	62
City calendar integrated with iCal or Outlook	63	51	66	64	43
Social Media alerts and news	66	63	67	67	49
City of Austin Hazard Mitigation Plan	26	42	23	45	18
Public Records on Businesses (online access/search)	36	47	34	34	47
Homeless assistance, day labor, and employment programs	38	58	57	59	51

Business Gap Analysis

Website Element	Dev/Const /Real Estate	Self Emp /Sm Bus
Permit management (apply, pay, track progress of permits online)	4	14
City Code search (input section# or keyword)	6	7
Grant information (types available, how to apply)	1	3
Travis County and City fees (building fees and permit fee schedule)	18	23
City Codes and Ordinances for building and/or renovation	1	10
City of Austin vendors (new vendor online registration, maintain account, respond to solicitations)	24	13
Commercial water and wastewater utility (file a claim, standard products, road works)	14	15
Downtown building permits (information for commercial builders)	19	34
Feedback (citizens can provide feedback or ask questions in an online forum)	27	38
Fees for Land Use (site plan review fees, site plan revision fees, zoning fees, subdivision fees)	28	27
Grant management (apply, track progress of grants online)	30	4
Information on Neighborhood Planning (planning neighborhoods, development of neighborhoods)	12	5
Neighborhood Code Ordinances, boundaries, and list of community groups	3	6
Permit information (rates, how to apply)	9	13
Public Records on Businesses (online access/search)	18	16
Water quality and conservation information	25	19

For more detail on the complete findings from the research and the heat map for each user segment, see the *Product Gap Research Report*.

Conclusions and Recommendations

Internal and external end users agreed on many suggestions regarding the look and feel of the website, usability and consistency of navigation, and organization of content by the “reader”. All of these aspects were considered to be lacking on the current website, and thus represent a gap. It is recommended that as a part of the redesign project the City of Austin provide a primary menu that is concise and consistent across all areas of the website, it is also recommended that this menu include role-based areas to assist the user in narrowing the variety of content to relevant topics to their visit. The design look/feel of the website should portray more of the “personality” of Austin and support content organization (on the page) that is user-friendly and more readable/useable to the reader.

End users from both groups also agreed on the importance of informational content and features that do not currently exist on the website. These involve more online interaction between citizens and City services. Examples of these items include: the ability to manage a library account online, City services mapped visually to an address or neighborhood, interactive maps displaying public interest sites, online reservation for classes/events, 311 FAQ and or online chat, and others. It is recommended that City of Austin deploy more “transactional” features to the website in the re-design.

Lastly, it is recommended that social media integration, multiple languages, and City news available as RSS feeds, although ranking low in importance among the external end users, be considered in the development of the new City website. These items represent a technology benchmark already achieved by many other government websites, and will likely prove valuable to external end users once they are available.



Competitive Gap Analysis

Introduction

The purpose of the competitive gap analysis is to determine the feature set gap between the COA website and other government websites recognized by the website redesign team for their aspirational aspects recognized as leadership in government website design, navigation, and informational content and services offered.

Methodology

The City of Austin team chose five government websites for comparison against the COA website. These websites were chosen because they possessed qualities of design, navigation, services, and informational content or features that are considered leading edge among peer websites. Although each comparison website had strengths and weaknesses, they each possess at least some of these leading edge features and services. These five comparison sites offer a unique opportunity to study trends across several categories of government website quality that enable the identification of trends and best practices.

Data Collection

Each comparison website and the COA website were thoroughly researched, enabling categorization and comparison of features. Each feature that was present or not present was entered into a matrix to allow for comparison at a later date. It is important to note that the data collection represents a snapshot in time; in the government space changes are occurring frequently. Through the course of this project some changes have occurred on the City of Austin website, as well as, some of the others (DC and Kansas both made design changes and some content changes).

Comparison

Once data was collected on features, and categorization was completed, an analysis of trends in features across these comparison sites was conducted and a set of best practices was identified. The COA website feature set was then evaluated based on its incorporation of best practices to determine if a competitive gap exists for that category of features.

Detailed Findings

Site Structure, Menus, and Navigation

The primary components within this category are the use of a site map, menus, and other navigational components. Although the COA website does provide global access to a site map, it fails to provide global access to the main menu. This is a critical gap in the navigational services provided. Comparison sites all use a shorter main menu, largely role based, to “spoke” users off the home page into a relevant topic portal. Another significant gap was access to this main menu, it is common and recommended for usability purposes that the main menu appear globally across all sections of the website. On the City of Austin website, this main menu is not available globally.

In addition to the main menu, multiple other forms of navigation from the home page are a trend. As the government websites process a large amount and diverse content, “quick links” forms of navigation are very useful for the user. In particular “most used/searched” content lists are very popular and as we found in the end user study, desirable. End users interviewed stated that, if offered, they often check

that menu first because they assume they are “looking for the same type of information everyone else is” and it is likely they will link directly to the topic they are looking for. It is a best practice in both enterprise websites and government websites to offer multiple menus and paths for users to find information.

Lastly, breadcrumb navigation is a feature trend that is currently being used in three of the comparison websites to some degree. The COA website does not currently offer this means of navigation, but it would be a useful feature if the site architecture allows for it.

Search

Google is the primary tool for search across all comparison sites and the COA website as well. Like the COA website, most comparison sites provided search across both web pages and documents. Another common feature across the comparison sites and the COA website was the ability for users to search based on popular or frequently used search terms.

The gap between the COA website and the comparison websites widens, however, when you consider many of the specialized search capabilities that have been introduced to the market. Faceted search, for instance, provides an excellent way to navigate based on a keyword, and then supplemented by additional categorization that enables a user to drill down further. Predictive search assists users in their search by completing search terms as the user types. Some search functions also include the suggestion of related search queries. The most widely adopted of these features across the comparison websites were faceted search and suggested related queries, but these are still not seen as a “must have” features. Utah.gov utilizes these additional search functions to great effect, making it possible to find information more quickly and accurately. Faceted search will require content to be organized into a taxonomy that enables categorization of information on multiple dimensions. For users that prefer search as a means of navigation, faceted search is indispensable as a means of filtering content to quickly arrive at relevant results.

Accessibility, Usability, and Mobile Device Display

In most respects, the COA website compares favorably against the comparison websites in terms of accessibility and usability. Pages load quickly, some foreign language capabilities are offered, the logo provides easy access to the homepage, users can tab through the menus, custom 404 error pages are available, page URLs describe the content of the page, RSS feeds are readily available, and the site is cross-browser compatible. In terms of multilingual capabilities, Austin provides only Spanish translation, which provides coverage for the primary language in need of translation, but the content is limited and difficult to find. This is a gap. Other gaps in features relate to the primary URL for the site and mobile device display. All of the comparison sites make it easier to remember the website URL by utilizing a vanity URL such as Utah.gov. The COA website’s URL is not easily memorized and thus presents a hurdle to users trying to find the site. Mobile device access is another trend that has arrived. Three of the comparison sites use it already and a fourth is in the process of rolling it out. This is an important competitive gap to address as more and more users access content and services via a mobile device.

Design and Content

When comparing the design and content of websites, it is difficult to assess whether and how much of a gap exists because design is a subjective element. To evaluate design and content, we therefore sought factors that would be more quantifiable. One factor that was clearly identifiable across comparison sites was the degree to which common branding and layout were implemented. As a goal, common branding and layout across an entire government website is almost unattainable due to the diverse collection of

participating agencies and content sources. That said, there was a gap between the COA website and the best of the comparison sites on this measure. CityofBoston.gov, Kansas.gov, and Utah.gov provided the best examples of what is possible with significant effort to unify content creation and layout in a broadly diversified organization. The results of these efforts are websites that reflect well on the government entity they represent in terms of organization and efficiency. In terms of design, Utah.gov demonstrates an elegant mix of graphical and text elements, static and dynamic elements, and a functional yet visibly appealing layout.

On more specific design and content metrics, the COA website compares favorably to the comparison websites. The content is relevant, links change color after users have accessed the page, and text stands out from the background well. The only gap that exists on these more specific features is the screen resolution for which the site is designed. Given the ever-increasing resolution of the average computer monitor, the site would benefit by optimizing the layout for a 1024 x 768 screen resolution, which was the norm for comparison sites and generally thought of as standard size at this point in time.

Online Services and Payments

Online bill payment and other online services are useful features for consumers, and a means by which government entities can lower costs, improve collections, and increase service levels. The COA website provides utility bill payment by linking to the Austin Energy website, but other payment services are unavailable. Bill payment services for taxes, fines, permits, licenses, and other services are commonly available on comparison websites and thus create a significant gap in the COA website's service offering. These bill payment services are, in some cases, available from one location on the comparison site, making the process more efficient for users. CityofBoston.gov does a good job of providing numerous payment services in one location. Most of the comparison sites provide other online services as well, such as registration and renewals for different permits and licenses. These additional services create another significant gap in the services offering for the COA website with respect to the comparison sites. An opportunity to lead in this area would be for the City of Austin to offer a combined payment center, which is not common yet among the comparison sites.

Government Services and Participation

The Texas Open Meetings Act and Texas Public Information Act require open meetings and public information access to meeting agendas and minutes. The COA website provides comparatively good services to facilitate these requirements, as do the comparison sites. The COA website and most comparison sites provided live and archived meeting videos, online registration for meetings, remote participation via chat, online application for board participation, and contact information for key members of government.

Services and Information Accessibility

Recent trends toward open government have taken hold in Austin and other major cities in an effort to provide transparency on city and state finances, and other aspects of governance. The COA website compares favorably on services provided. The COA Website and most comparison sites also provide searchable information on the government's finances, and downloadable data and reports from multiple departments. The degree of customization, ability to manipulate downloaded data, and filtering capabilities are the primary points of differentiation between the COA website and comparison sites. Washington DC's website allows users to filter the data desired, manipulate the data into their own format, choose multiple formats for data output, create visual graphics based on the data, and even include more than one type of data into the same document. Although the COA website does provide the choice of searching, viewing, and downloading data reports as PDF files, these services are

less comprehensive than most of the comparison sites and create a more significant gap when compared to the best sites.

Communications Services and Social Media

Social media is one of the primary vehicles for maintaining regular contact with and communicating important information to users. Comparison sites have all integrated social media services, such as Facebook and Twitter, to some extent. The COA website, while it does provide RSS feeds, does not integrate Facebook, Twitter, or other social media services. This is a significant gap. Typical implementations across comparison sites featured social media icons throughout the site, integration of social media feeds into the site, a list of all social media accounts for the entity, and a two-way flow of communication.

Other Services

Some services not previously covered include reserving parks or community services, accessing library information, requesting utility service, communicating with animal services, and online submission of forms for licensing or renewal. Additionally, although most comparison sites did not provide online submission of forms (applications, etc.), Utah.gov provided a comprehensive selection. This website serves as a benchmark for more efficient processing of forms, and another opportunity for the City of Austin lead.

Dynamic Content

One of the most useful means for providing content to users is to dynamically generate that content based on user input. Although the COA website has a GIS-enabled system for display of floodplains, easements, lakes and rivers, watersheds, local crime statistics, and development information, several comparison sites provided even more comprehensive information and provided more obvious access to the tool. The COA website also provides dynamically generated event calendars for different city departments, but falls short in providing a central calendar with filters. Two of the comparison sites did an excellent job of presenting this information across departments in one location, with one other doing this to a lesser extent. This is a gap that should be addressed from a usability perspective. Another aspect of content generation is the combining of data from multiple sources into one framework by either the website or by the user. This area of comparison has been changing rapidly, in particular as it relates to data portals. Throughout this project changes have occurred on the comparison sites, as well as the City of Austin to provide more and more access and options to users.

Content Management

All of the comparison sites, including City of Austin, have some level of content management system to publish their content. In some cases this is a custom-created system and in others common solutions such as Sharepoint. It is not, however, possible to evaluate the usability of these publishing systems from this position. From SteelSMBology's interviews with internal staff, content creators, and publishers, it was found that there is a significant gap between the publishing capabilities and usability of the City of Austin's current system and the technology available on the market. For more information on the needs, wants, preferences provided by the internal end users and the staff responsible for publishing, see the *End Users Needs Analysis Report* and the *Business Analysis Report* related to content and content delivery.

Conclusions and Recommendations

In this analysis, SteelSMBology compared website qualities in several categories (design, navigation, services, and informational content or features) to identify gaps between the practices of aspirational peer websites in government and the current City of Austin website. These gaps identified offer the City of Austin opportunities to be at par or surpass the level of services and information offered by these peer websites in the government space.

Gaps to consider for the redesign, offering opportunities to increase the level of usability, information and service offerings:

- Site Structure, use of menus, and navigation – it is common that enterprise-size websites, including government sites, provide multiple forms of navigation for users to browse the site. It is common among government websites for the main menu to be concise, role-based and global. This allows the user to quickly narrow the wide variety of information available to those topics most relevant to them, or their purpose. This main menu should appear globally, across the entire site structure, for the most effective usability. It is also common to include “quick link” menus, and in most cases multiple, at minimum on the home page providing the users easy access to the most used or useful areas of the website. It is common for these menus to be organized by type such as “most used” or “services”.
- Breadcrumb navigation – it is not common among the websites reviewed for breadcrumb navigation to be offered, or in an inconsistent way. Likely this is due to a lack of integration in the navigation structure and the presence of multiple micro-sites. It is considered a best practice in web development to offer this type of navigation, and offers an opportunity to the City of Austin as more integration is achieved with the redesign process.
- Faceted Search – all of the sites offered search, including COA, however the effectiveness of the search terms varied. There is an opportunity within the redesign to increase the level of effectiveness through a cohesive taxonomy of content categories and tagging allowing for more relevant search results and filtering.
- Language translation – the gap identified is primarily access to and amount of content, not the number of languages offered.
- User-friendly or vanity URL – the current URL for City of Austin is not memorable or easy for users to type. It is recommended that vanity URLs be used such as AustinTexas.gov and Library.AustinTexas.gov.
- Mobile Device Display – a gap and growing trend in government as well as “Web-wide” is the accessibility and usability of the website on mobile devices. It is recommended that the City of Austin provide a mobile device specific layout for the redesign.
- Common Branding and Layout – it is common among the websites reviewed that a consistent brand and design is used across the structure of the website. It is recommended for the City of Austin to integrate departments, services, and programs into a consistent design template that portrays a cohesive offering of government information and services. It is common among the comparison websites and enterprise websites in the private sector to design for 1024x768; the current COA website is designed for 800x600.

- Online services and transactions - Bill payment (breadth of options is the gap), Permit and License Registration and Renewal, and other online services where the user can communicate with, submit information, pay were identified as a gap in this review. It is an opportunity for City of Austin to not only be at par with other websites by offering a wider variety of online payment and account management opportunities across services, but to surpass the current benchmark with a comprehensive solution.
- Social Media Integration – it is a common trend among the websites reviewed that social media is being used to communicate with citizens, and that multiple platforms be used and integrated into the City’s website.
- Data availability and GIS Services – both of these areas of focus are a growing trend among all government entities, and ever changing. Even during the course of this analysis more services are being made available to the public from the peer sites as well as City of Austin. It is common for data portals to provide access, customized report building, download, etc. In addition, GIS portals/viewers are coming online as well. These services are not always integrated or well promoted on the primary website.
- Unified Event Calendar across Departments – another growing trend among the peer websites is a cohesive City events calendar that the user can customize through filtering.

Usage Gap Analysis

Introduction

The purpose of the usage gap analysis is to determine the difference between current usage of the COA website and potential maximum usage. Potential maximum usage is not a measure of usage in the distant future, but a measure of what is possible for this website, serving this community, at this point in time.

Methodology

To estimate potential use, two frameworks were created. The first compares site traffic statistics for City websites serving large metropolitan areas across the United States by comparing their monthly users to their populations (reach), as well as the frequency with which users visit the site. Cities used in the comparison study were chosen from three sources: a list of aspirational sites provided by the COA web team, a list of best e-government websites identified in a 2006 National Policy Research Council study, and Digital Government Achievement Award winners from the past three years.

- City of Boston, MA- Chosen by COA Team, DGAA 2010
- City of San Francisco, CA- Chosen by COA Team
- Washington DC- Chosen by COA Team, NPRC 2006
- City of Kansas City, MO- Chosen by COA Team, NPRC 2006
- City of Virginia Beach, VA- NPRC 2006, DGAA 2007, 2008, 2009
- City of Las Vegas, NV- DGAA 2006, 2007, 2008
- City of Seattle, WA- NPRC 2006, DGAA 2006
- City of Fresno, CA- NPRC 2006
- City of New Orleans, LA- NPRC 2006, DGAA 2008

The second framework utilizes data obtained through a site intercept study to create a framework by which potential usage can be modeled. The purpose of this second approach is to understand the likely impact of increased satisfaction resulting from improved content and services. This doesn't take into account the increased frequency of use that might be derived from new services and better navigation, which could not be effectively modeled with the available data. As such, this model provides a nice estimate of the minimum increases in usage the COA website might experience by enhancing the user experience. This model of potential usage compares user segments by size, frequency of use, and satisfaction, enabling a more granular approach to the forecasting of potential usage. Data was gathered from multiple sources, including Google Analytics, Compete.com, the US Census Bureau, and the primary research site intercept study conducted during this project.

Methodology for Reach and Frequency

Reach is defined as the percentage of the local population that uses the site on a monthly basis. It is measured by unique visitors divided by the population of potential users, and provides a metric for comparing City websites. Unfortunately, site logs were only available for the COA website, making it impossible to compare traffic levels based on that source of data. As a proxy for actual site logs, Compete.com, a web service that estimates site traffic for thousands of websites based on the click stream data of 2 million consumers on an ongoing basis, was used as a resource. Compete.com utilizes mathematical algorithms to extrapolate traffic estimates from that data. Compete.com's methodology

results in traffic numbers that are lower on a consistent basis across sites when compared to actual site logs. For the purposes of this study, however, Compete.com provided a valid means of comparing City websites on an equal basis. Unique visitors and visits were measured and recorded for a six-month period from January – June 2010 to mitigate the effect of seasonal differences.

Reach was calculated by using Compete.com's estimate of average unique visitors per month for that period, divided by the population of potential users. The population of potential users for each city was defined for this comparison as the city population plus a percentage of the rest of the metropolitan population. Only a percentage of non-city dwellers were used to calculate the total user population because these users are less likely overall to use the site, but can't be ignored either. Determining what percentage of non-city dwellers to use was critical in providing a means for comparison because some metropolitan areas had a high percentage of city dwellers compared to non-city dwellers, while others had a more even distribution of city and non-city dwellers. Cities with more of their metropolitan population in the city itself would have had reach results that were skewed higher, making the comparison less valid. Because these proportions differ considerably, we needed to find a constant that best represented the impact of non-city population on the total reach. The constant .35 was determined to be optimal because when applied to all city populations, it resulted in the smallest percentage deviation among the resulting reach estimates for all comparison cities as a group. In other words, .35 was the percentage that best removed the variability associated with varying proportions of city to metro populations. Once the user population was estimated for each city based on this constant, the city's reach was calculated by dividing average unique website visitors by this population. Each city was then ranked from 1 to 10.

Frequency is estimated by dividing total visits (sessions) by the number of unique visitors. Frequency measures how often people use the website and provides a means to determine how useful the site is to people. Presumably, a less useful site will be accessed less frequently. Data from Compete.com was used to determine frequency, since site logs were not available for each website in the comparison. It is worth noting that page view statistics were not used in this study, due to conflicting information inherent in the data. For instance, a site with higher page views per session could indicate that there is simply more content and services for each user to access. On the other hand, it could also be an indication of poor navigation and content organization. For this reason, we did not include it in the analysis.

Modeling Potential Usage Utilizing Site Intercept Study

In the site intercept study, thousands of visitors to the COA website answered questions that enabled segmentation of the user population and measurement of usage and satisfaction within each segment. Because each user segment is unique in size and varies with regard to frequency of use and satisfaction, improvements in site design will impact each group differently. A model was created to demonstrate how differences within each segment create differential impacts on total usage. There were two site intercept studies done, and this data was provided by the second, larger study as part of the product gap analysis.

The site intercept study provided data on why users visited the site, and enabled them to self-identify as a resident user, a business user, a government employee, tourist, or other type of user. Each segment reported differing levels of use and satisfaction. Within the resident user and business user segments, users were further segmented demographically into several key groups. For the sake of modeling maximum potential usage, the data was not broken down beyond the primary segments.

Within each segment, users self-reported their level of satisfaction and frequency of use. Respondents categorized their satisfaction as very satisfied, somewhat satisfied, neither satisfied or dissatisfied, somewhat dissatisfied, or very dissatisfied. These varying levels of satisfaction provide a means for modeling frequency of use after satisfaction levels are increased. Increases in frequency of use, along with increases in reach will be the primary determinants of how much additional usage is possible. To estimate potential increased frequency of use, a model was created that utilizes knowledge of each segment's rationale for using the website to estimate whether and by how much usage might increase as a result of increased satisfaction. Several important assumptions are made in order to populate the model with data that does not currently exist:

1. When a dissatisfied user becomes more satisfied, they will use the website more frequently. We plugged conservative estimates into the model so that we might estimate a minimum impact on site usage.
2. A very dissatisfied user, whose satisfaction is increased, will likely increase usage by a higher percentage than a user that is more satisfied already.
3. User segments with users that are required to use the website as part of their work will not experience increases in usage for those work activities as a result of increased satisfaction. However, these users visit the website for different activities, and their usage may increase for non-required activities on the website. A smaller increase is therefore assumed.
4. Users who are already very satisfied will not increase usage.
5. Respondents who answered that they didn't have enough experience with the site to provide a satisfaction rating, were not included in estimates of increased usage.
6. User segments that have high turnover each year, like "Tourist" and "Other" (job seekers, mostly) are not likely to see an increase in usage from increased satisfaction because the same user doesn't return month after month. It is possible, however, that new services geared toward those segments would increase frequency.
7. New services and improved navigation will almost certainly have a positive impact on usage frequency, but they are not represented in this analysis because of the lack of data with which to model their effect. For this reason, the results of this model provide a good lower bound estimate of the usage gap. The impact of new services and improved navigation that enables further exploration of the website may have a greater impact on frequency than what is being analyzed here, since it would provide users with more reasons to use the website.

Respondent Bias

Survey respondents, by definition, care more about how the new website will be designed. That is likely a main factor in why they took the time to fill it out. Users who care more about the site than others are going to be more frequent users on average, and thus they are not a perfect proxy for measuring the entire user population. For instance, data compiled from the site intercept study suggests frequency of use is about 5.4 visits per month. Site log data suggests that frequency is actually about 1.7 visits per month. The difference is most likely due to two factors: survey respondents inflated their usage somewhat, and are on average heavier users of the site. To account for this difference in the model, frequency was recalibrated so that each segment's frequency was lowered to fit the actual site log data. This maintains the differential impact of each group's frequency of usage, while using actual site log data with which to make forecasts of future use. By using a constant to reduce each segment's

frequency estimate, the assumption is that non-survey respondents fall into the various segments in roughly the same percentages.

Key Findings

The COA website is already successful by comparison with other city government websites in terms of its reach (the percent of its population that uses the site on a monthly basis). It is therefore unlikely that this will increase substantially as a result of improvements to the site. Austin's high percentage reach is likely due in part to its youthful population, predominantly high-tech economy and major university, and because it is a state capitol with a large percentage of government workers.

It is possible that an expansion of services to groups who have not been users of the site in high percentages would increase this reach. For instance, a Spanish language version may increase reach into the underrepresented, but populous Hispanic segment of the population. Reach could also potentially be increased across all user segments through a marketing campaign to raise awareness about the improvements to the site.

When it comes to frequency, it does appear that there is a usage gap. Although it is difficult to predict exactly how much of a gap exists, our research suggests that it could be anywhere between 5.9% and 33%. In the city-by-city comparison, Austin was ranked #3 in terms of the frequency of use by its visitors. Frequency of use is, in part, an indication of usefulness. However, there are a number of other factors that may contribute to differences in frequency among the sites. Austin's demographic composition may be more inclined toward frequent use than that of other cities, contributing at least in part to its higher standing. The top sites on this metric, Washington DC and Virginia Beach VA, average about 30-33% higher in terms of frequency. This indicates that there is still significant room for improvement. Given Austin's highly favorable demographic composition, it is likely that 33% represents a good upper bound for potential traffic increases as a result of more useful information and services that increase frequency of use.

When looking at the potential for increased usage from a user satisfaction perspective, the prospects for increased use seem more limited. The site intercept study provided data on the percent of each segment (residential, business, government, tourist, and other) that was satisfied, as well as segment size and frequency of use. Based on this data, a model was created to forecast increased frequency of use based on increased levels of satisfaction among each segment. Using conservative assumptions regarding the potential increases in frequency, an estimated increase of about 5.9% was forecasted as a result of new and improved services that increase satisfaction among users. This model uniquely accounts for differences between the way user groups use the site, the size of the groups, the current frequency of use by those groups, and the current level of satisfaction among those groups. Because of the more narrowly focused scope of this analysis, the 5.9% potential increase represents a good lower bound for the frequency of use gap.

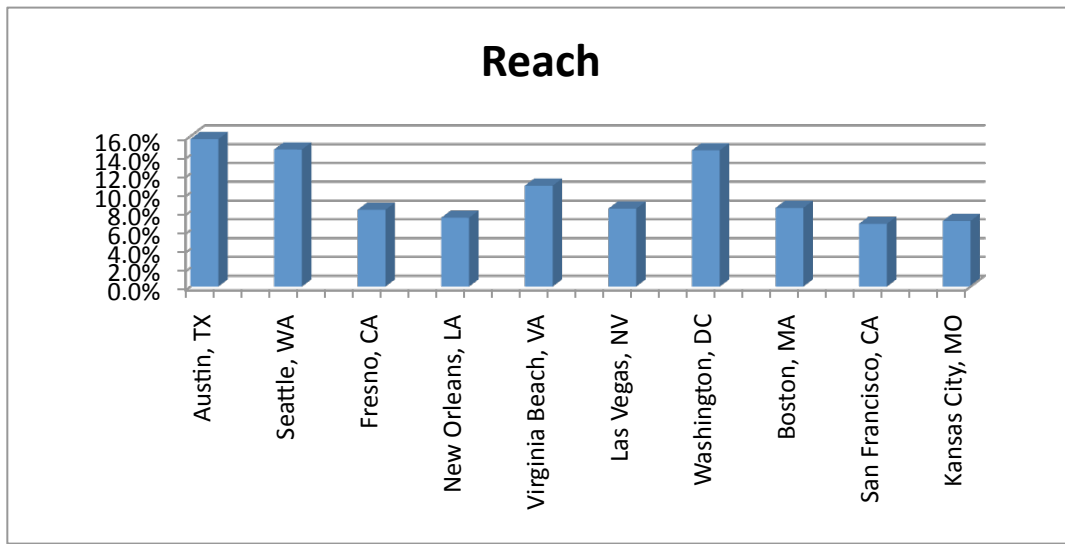
Detailed Findings

The analysis was conducted in two parts:

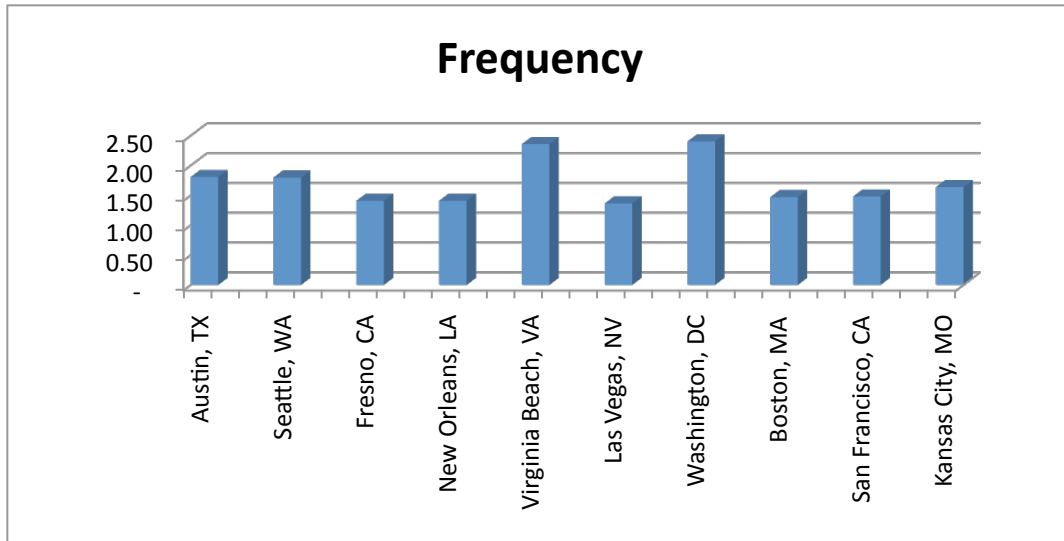
1. Comparison of 10 City Government Websites
2. Model for Increased Frequency Based on Increased Satisfaction

Part 1: Comparison of 10 City Government Websites

The comparison of City websites reveals that Austin’s City website is used by a higher percentage of its population than the other nine cities. Although this result is likely due to demographic factors that favor Austin with respect to some of the comparison cities, it does at least suggest that Austin on par with similarly tech-savvy populations like Seattle and Washington DC. Austin’s demographic advantage stems from the fact that only 4% of our survey participants classified themselves as a novice Internet user. The result for San Francisco was surprisingly low, but it is likely due to its metropolitan population including another major city, Oakland, with its own city government website to absorb some of that traffic.



Frequency of use is a more telling statistic, though it too would likely be affected by differences in demographic composition between cities. The results clearly show that Washington DC and Virginia Beach, VA attract return visits at a substantially higher rate (30-33% higher than Austin). The fact that Austin’s demographic advantage does not put it at the top of the list suggests that there is room to improve this statistic. A more “useful” site (higher quality content and additional services) should attract a higher frequency of visits each month by users. It is likely that the difference between these leading websites and Austin’s City website is due to such factors. This difference provides an excellent benchmark for what a redesigned website might be able to achieve on this metric.



Part 2: Model for Increased Frequency Based on Increased Satisfaction

Another methodology for measuring potential usage is based on survey data from current users that provides insight on their usage habits, degree of satisfaction, and segment characteristics. From this data, a model was created to shed light on the potential usage that might result from increased satisfaction among the user population.

The first step in the analysis was to estimate the size of each segment, in terms of actual unique visitors each month. We did this by multiplying the segment size (acquired from the site intercept study) as a percentage of the total user base by the total unique visitors measured by the COA website’s site log data from Google Analytics January – June 2010. We also took self-reported frequency data from the site intercept study which when multiplied by the estimated number of unique visitors, gave us an estimate of total number of estimated visits.

If survey respondents were both accurate and a perfect overlap of the total user base of the COA site, this should have been equal to the frequency as measured by the site log data. The self-reported frequency was actually more than three times the actual frequency. Estimated average frequency across all segments was estimated to be 5.4 visits per month, but site log data measured it at 1.71. This is backed up by a 1.81 result from the Compete.com estimate of the same six-month period. The difference is likely explained by a combination of both respondent bias (people who took the survey were people who cared more because they used the site more than the average actual user) and by survey respondents inflating their self-reported usage. Despite the self-reported data being high, it is still useful for weighting the usage of each group so that when applied to the actual site log data, we can get an estimate of each segments actual frequency of use. We applied a constant to each group based on an assumption that no one group was inflating their frequency of use more than any other and that the segment sizes from the survey would roughly equate to the segment sizes of the actual user base. Then, we simply found the constant that, when applied to all segments equally, resulted in the estimated visits equaling the total actual visits. The results show that frequency of use per month was 1.27 for residents, 3.9 for government employees, 2.59 for business users, .7 for tourists, and 1.22 for other visitors (which included a lot of job seekers) averages to 1.71 (the actual frequency).

User Segments	Resident	Gov Employee	Business	Tourist	Other	Total
% of Respondents	63%	14%	7%	4%	12%	100%
Total Estimated Users based on Site Log	333,925	75,193	38,337	20,558	63,340	531,354
Self-reported Visits per Month	4.01	12.36	8.19	2.21	3.88	5.41
Visits per Month (self-reported)	1,339,040	929,390	313,984	45,433	245,760	2,873,607
Estimates of Visits based on Actual log	422,651	293,350	99,105	14,340	77,571	907,018
New estimate of frequency	1.27	3.90	2.59	0.70	1.22	1.71
% of total visits for each segment	47%	32%	11%	2%	9%	100%

The data demonstrates that residents made up 63% of the survey respondents, but were only responsible for 47% of the visits because of their lower frequency of use. Overall, the Resident segment has the largest impact on total site visits. Government workers, on the other hand, were estimated to be only 14% of the user population but accounted for about 32% of the visits. Business users are the other key segment, accounting for 7% of the user population and 11% of visits. The next step in the process of forecasting potential use was to incorporate satisfaction levels for each segment.

	Resident	Gov Employee	Business	Tourist	Other
% Satisfied					
% Very Satisfied	25%	21%	17%	26%	20%
% Somewhat Satisfied	35%	41%	40%	20%	24%
% Ambivalent	13%	12%	16%	16%	13%
% Somewhat Dissatisfied	7%	16%	13%	3%	7%
% Very Dissatisfied	2%	4%	4%	2%	4%
% Not enough experience to rate	18%	7%	10%	32%	32%

The data from the site intercept survey demonstrates that resident users are the most satisfied with the website and that government employees are the least satisfied (though still more satisfied than not). To estimate additional potential usage for each segment, and thus the entire user population, the next step is to hypothesize how much increased usage will occur at each level of satisfaction within each segment if needs were better met and satisfaction was increased. To do this, we plugged in variables to represent a percent increase in usage. This variable is intentionally conservative to create a minimum forecast of the potential increase in total visits. This model assumes that users with high dissatisfaction will increase their usage more when satisfaction is increased than a user who is already satisfied and becomes even more so. A declining percentage of increased usage was used for each increased level of satisfaction.

To demonstrate the flexibility of the model, we can input a set of assumptions ranging from conservative to optimistic to see how the estimate of the gap changes. In a middle-of-the-road scenario, the highest increases in use plugged into the model were 50% for the “Very Dissatisfied” resident users, and less everywhere else. For example, a resident who frequents the site two times per month would increase usage to three times per month if satisfied in this scenario. Based on these assumptions, the model estimates an increase in total visits of about 5.9%. When more conservative estimates are plugged into the model, such as an increase in use of only 25% by the most dissatisfied resident users, the resulting impact was 3.0%. And, when more optimistic estimates were plugged in like a 100% increase in use for the most dissatisfied resident users, the resulting impact was 11.8%.

	Resident	Gov Employee	Business	Tourist	Other	
Increased % Frequency if Very Sat.	0.0%	0.0%	0.0%	0.0%	0.0%	
Increased % Frequency if Some Sat.	10.0%	0.0%	5.0%	0.0%	0.0%	
Increased % Frequency if Ambivalent	20.0%	0.0%	10.0%	0.0%	0.0%	
Increased % Frequency if Some Dissat.	30.0%	10.0%	20.0%	0.0%	0.0%	
Increased % Frequency if Very Dissat.	50%	20%	30%	0%	0%	Total
Current Visits estimated for each segment	422,651	293,350	99,105	14,340	77,571	907,018
Estimated Visits if satisfied	461,830.97	300,596.04	106,285.33	14,325.93	77,571.08	960,609
Increase in Website Visits	9.3%	2.5%	7.2%	0%	0.0%	5.9%

The impact of increased satisfaction in this model is noticeably higher for the residential segment (9.3% increase) because of the segment’s larger size and the reasons for which they use the website. Because none of their usage is required by a job, we assume that their use is the most elastic. Even though government employees accounted for the second highest number of visits per month, the growth in their use was projected to increase less because much of their use was already a part of their job. The portion of their visits that were non-work related account for the estimated increases in their usage due to increased satisfaction. Similarly, business users are assumed to be only partially elastic in their usage because they use the site primarily for their business. There is no estimated increase in usage for the tourist and “other” segments in this model because we assumed that there was no relationship between increased satisfaction and increased usage for these two segments. The tourist population is going to turn over almost completely every year, so it is impossible to model an increase in those users’ satisfaction. The “other” category contains many job seekers, who would also likely turn over each year. This makes increased satisfaction for those specific users irrelevant in this model.

Conclusions

Increased usage of the COA website is likely, but not across all metrics. Increases in reach (the percentage of the population that uses the site regularly) are not likely to occur because they are already quite high. This is a reflection of our youthful, tech savvy population. It is possible that reach will increase as a result of word of mouth praise of new features and functionality or because of media coverage or marketing, but given our #1 ranking on this metric, it will likely be minimal.

Increased frequency of use is likely to occur, given the fact that two peer sites achieved 30% and 33% higher frequency than the COA site. When we look at the potential for increased frequency using our own internal survey data, it is possible to model the impact of increased satisfaction on frequency of use using some basic conservative assumptions. That model demonstrates that increased satisfaction alone might result in a 5.9% increase in visits. Because there are many other factors that could contribute to frequency other than satisfaction, and because the model uses conservative estimates of increased usage, this narrow focus could be seen as a realistic lower bound estimate of the usage gap. The difference between this 5.9% lower bound and the 33% upper bound may be explainable by the impact of new services and improved navigation. New services provide new reasons for users to come to the site more frequently, and could be more impactful than simply increasing user satisfaction. Similarly, improved navigation enables users to more fully explore the site and more easily discover other features. This might also impact frequency of use as users discover more of what the site has to offer. It is reasonable to assume that the combination of increased satisfaction, new services, and improved navigation would collectively give us a potential usage gap closer to the 33% estimated by the comparative analysis of City websites.

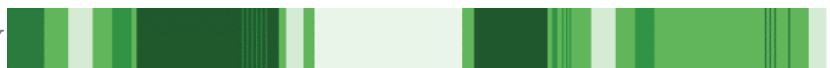
Summary

Common themes resonated throughout the end user gap analysis and the competitive gap analysis.

Those common themes for improvement are:

- Improvement in the site structure, navigation, and use of menus for usability
- Design of the website should be more reflective of the personality of Austin, more colorful, more graphics and more photos.
- Increase access to City data and the ability for the user to “customize” results and reports of that data for a specific use via a portal that is visible or promoted on the main website
- Integrated delivery of the work the GIS group has created with geo-spatial maps; increased availability of that information across all services and information where relevant
- Improved content management/publishing system and multi-channel publishing
- Increased ability to customize content results through filtering – associated with an established taxonomy approach
- Two-way communication with citizens via the web (e.g. feedback and comments on posts, reporting maintenance needs, integrated social media)
- Increased transactional ability for citizens (e.g. submitting information via forms, online payments in all areas, online account management)
- Improved quality of content target to specific business users in the development field

Presumably, based on the usage gap modeling, improvements to the usability of the City of Austin’s website will increase satisfaction among users. The addition of new content and services identified as important by end users, it is thought, will provide more reasons for citizens to utilize the website and increase their satisfaction once there.



Appendix

Attached Competitive Gap Analysis Matrix
Attached Competitive Website Summaries