Municipal Website Design and Security

Digital Towpath Cooperative
April 30, 2010

Designing a Good Municipal Website

Meeting the needs of the community it will serve should be the over-riding concern when designing a municipal website and deciding what content and services it will offer. The size of the municipality, its resources and its officials should all be considered. A study by Tony Carrizales of the Marist College School of Management reported that the attitudes of the chief administrative officer and executive board toward e-government are crucial to successful use of technology in the delivery of services, particularly those offered online[i]. This is true for the smallest municipalities as well as larger governments. Officials' commitment to good online practices and the posting of up-to-date, reliable information is essential to successful e-government.

However, in very small local governments the impetus for the implementation of e-government commonly does not come directly from the executive branch. Small towns and villages in New York are normally directed by part-time officials who bring a variety of skills and interests to the job, but not often skills directly related to the implementation of new technologies. Specific officials or employees of these governments have more regular daily contact with citizens than do most executive board members and are more familiar with the day to day function of the government.

In a 2009 study of e-government implementation behavior of 80 small NYS local governments (<5000 residents), Deborah Tyksinski of the State University of New York Institute of Technology's Institute for Local Government found that innovation leadership was not always associated with the chief administrator position. Rather, e-government leadership was attributed to a variety of officials or employees. She concluded "It may be that hierarchical organizational leadership does not always play a major role in the administration and support of local e-government. Perhaps individual leadership is demonstrated by advocating for and accepting responsibility for maintaining the website."

Rather than formal leadership, the e-government implementers reported they were most influenced by their dissatisfaction with the present system and those who were new to computing and web-use were positively influenced by the acquisition of the knowledge and skills required to support the web-based system[ii].

Some governments offer online services like tax or fee payment; submission of applications for permits and licenses; enrollment in public programs; or other interactive activities. Because these services come at high cost, many small municipalities are unable to offer them. Citizens will realize a great deal of utility from a municipal website without these services if the site contains practical information like which services are available from the municipality; who is responsible for which functions of the government; and when, where and how they can be contacted.

Tailor your offerings to the priorities of the community to maximize the usefulness of the site. You can expand basic services by adding downloadable forms for initiating permit applications and other transactions; with searchable laws and ordinances; with local history and information on quality of life issues like schools and community organizations; with information about local events; and with calendars of meeting times and activities schedules.

An important aspect of e-government is its support of e-democracy, the involvement of citizens in the democratic process supported by online resources. A popular feature of municipal websites that directly support e-democracy is the timely posting of meeting agendas and minutes. Some municipalities also provide real-time, video streaming of meetings. More common are posting of meeting minutes of the executive board. Many municipalities also include meeting minutes of other boards and committees that affect policy within the government. These windows into the practice of government help to engage citizens in the process. Another useful way to engage citizens is to provide online forms for feedback and municipal email addresses for direct access to departments, officials, and programs.

Policies on privacy, security, and best practices are important to include in any municipal website. Disclaimers limiting responsibility for content errors should also be posted; however, they should not substitute for careful attention to content. Stale information is worse than no information in that it brings into question the reliability of the site and undermines the value of all other content on it. This careful attention should be paid to currency as well as accuracy.

Some small municipalities have attempted to minimize website costs through use of advertising services that provide low cost hosting in return for advertising space. Although it may be good practice for a commercial site to include advertising, a municipal site should not feature advertising. In no case should content be included that is not under the direct control of the municipality. A website is essentially a publication, although in a less practiced format for most municipal officials. Each government is ultimately responsible for all publications it produces

National statistics tell us that about half of Americans read at the eighth grade level or below. However, studies of municipal websites using the Flesch-Kincaid test tell us that most of them are written at the twelfth grade level or above[iii]. The Flesch-Kincaid reading level test is a standard tool included in word processing programs like Microsoft Word [Readability testing is a function of Spelling and Grammar Check (F7)]. Use it to make sure your website content is understandable to your audience.

The way in which a municipal website is presented is as important as the content it provides. Municipal websites should be designed for ease of navigation and breadth of content rather than glitz and cutting-edge web technologies. Simpler is better. Unlike commercial websites that sell a product, municipal websites provide access to information and services that are unavailable elsewhere. Citizens

normally do not have a choice of where to get a building permit or pay a fine. The purpose of a municipal website isn't to lure customers to choose where to obtain services - it is to provide easy access to them.

According to Darrell M. West of the Taubman Center for Public Policy at Brown University, "To summarize, considerable progress has been made in placing services and information online but many state websites still have inconsistent layouts and color schemes and pages that look very different as users browse from agency site to agency site or even within an agency site. This can be intimidating and overwhelming as users sometimes are not sure if they still are on an official state website when they all look different, and the user has to orient himself for every new website."[iv] It is important that municipalities do not make the same mistakes and devise their websites in ways that obscure information instead of clarifying it.

Procedure for Developing or Redesigning a Municipal Website

There are six major steps in the process of providing good e-government functionality. Each of these steps must be taken if the finished product is to meet the needs of the citizens it serves.

1. Engage stakeholders
2. Clarify goals and make content choices
3. Determine process
4. Develop policies
5. Implement the site
6. Monitor usage and adapt the site as needed

Engage stakeholders

The best municipal websites are designed through collaboration between the people who will be served and the people who will maintain them. Gather community input during the initial stages of website development and continue to engage this group throughout the process. Avoid the all too common mistake of producing a website that mirrors your government structure but does little to facilitate citizens' use of it. Citizens often know very little about how their government works but they are clear about what they want and expect from it. Use this information to produce a website that meets your community's needs.

In addition to community stakeholders, include those in the government who will provide on-going maintenance and content. Their early involvement in the process will foster commitment to it.

Remember that outdated content is bad content. Officials and staff should be involved in both content and process decisions. Producing a website that is onerous to maintain will ultimately produce disappointing results.

IT staff or your IT contractor should be involved in the development process from its inception. It is impossible to provide good e-government without the infrastructure to support it. IT resource requirements must be considered. Website design and development are specialized skills not always available to a municipality through its own staff. They also may not have the resources to provide the hardware, bandwidth and software needed to support e-government. It is important to know upfront what resources can be provided in-house and what must be sought from outside sources.

Clarify goals and make content choices

An important goal to define early in the development process is keeping within the budget allowable to the project. Keep your goals realistic. Remember that budget constraints are a major consideration.

Also, especially for a small municipality with part-time staff and officials, the cost in time must be considered. The initial development of a municipal website, whether done in-house, by a consultant or using specialized software, will take an investment of time to gather the initial information to populate the site and an on-going investment of time to maintain it.

With the financial and time frameworks in mind, answer questions like:

- What is the purpose of our website?
- What information do our citizens ask for through other means of communication with their government?
- What services could we provide online?
- What characteristics of our community set it apart from other communities?
- What do we want our constituents to know?
  - About the government services available to residents.
  - About other community resources.
  - About how our government works.
  - About how they can be involved in the process.

Decide what information will be included on your website. Some of the possible choices have been discussed earlier. Others, as suggested by commercial and municipal organizations, are listed at the end of this guidebook.

Determine process

Who will provide content for the website? How will content be added and updated? What technology will be employed and how will it be provided? These are all questions that should be addressed once the goals for the project have been outlined.

There are three basic choices for implementing a municipal website: Completely in-house; completely contracted; and a combination of both in-house effort and vendor products. Larger municipalities may be capable of designing, developing, and hosting their website completely in-house, but this option is seldom available to small governments. The advantage of a website that is developed and maintained wholly in-house is that it offers a high degree of control over security and the flexibility to adapt, in a timely manner, to changing needs of citizens and their government. A complaint voiced by small municipalities who have wholly contracted for their websites is that it is difficult to respond to changes in need, or even to routinely update content, when all actions have to be performed by someone outside the government. This can be less of a problem for a large government that contracts for web services because their larger budgets afford them priority handling unavailable to smaller customers.

For most small municipalities, a combination of contracted and in-house processes is the best choice. A relatively recent web technology that is facilitating the process of combining in-house and contractor responsibilities is the website content management system (WCMS). A WCMS is software that does some of the work of developing your website for you. Usually your responsibility will be limited to making general formatting decisions and adding content. The software will organize that content into webpages, adding navigation and formatting automatically, based on theme or template choices that affect the entire site. The WCMS provides the framework for the site; you provide content.

A primary advantage of using a WCMS is that the skill level needed to develop and maintain a quality municipal website is much less specific, and so, less costly to obtain. Some WCMS have been designed specifically for small municipalities and require little customization to fit the needs of municipal government. Some are more general, written to be used by a variety of organizations, both public and private. General systems require more technical skill to configure. Although a WCMS will allow you to keep responsibility for content in-house and quickly respond to changes in your community's needs, it will also confine your site within the framework it provides. This may result in less overall flexibility unless the WCMS includes tools to customize pages.

If not hosted in-house on municipal hardware using connectivity with the internet from municipal facilities, your municipal website must be supported by a hosting service. This service can be a full service hosting facility that owns and operates the hardware used to publish your website on the

internet and may provide you tools to manage your website or manage it for you; it may be a data center where you provide the hardware, software and maintenance services needed to run the system but contract for bandwidth through the center; or it could be anything in between. The services offered by hosting companies are as numerous as the companies themselves.

In New York State, a group of small municipalities have formed the Digital Towpath Cooperative to develop and share a website content management system specifically designed for non-technical users in small local governments as well as the hardware to serve it to the internet. They contract collectively for bandwidth, hardware maintenance and other services that support their shared resources. http://digitaltowpath.org

In Delaware, small municipalities have formed a municipal website development group to support each other in the process of providing municipal websites. They work together to learn to use development tools, to develop policies, and to hear from experts on various subjects related to providing e-government for their communities. www.ipa.udel.edu/mwdg

The options available to small municipalities have expanded in recent years. These groups demonstrate that even small municipalities can, by combining their resources, find ways to provide e-government services to their communities.

Develop policies

It is imperative that a government clarify the limits for their municipal website through official policy. This policy needs to be clearly stated. Website policy can include terms of use, description of content limitations including external links, privacy policy and accessibility policy. It should also include a disclaimer delineating the municipality's responsibilities for content accuracy and currency.

Some municipalities post only an abbreviated version of their policy to the site or opt to include a few lines of disclaimer and/or general policy statements on each page of their site instead of posting their entire policy to a single webpage. However, all municipalities, whether they post all of the policy or a synopsis of it, should provide visitors to the site a method to obtain the entire document.

The following are links to policies of municipalities from many areas of the country. These and others can be used to help develop a policy for your site. They cover a wide range of topics and use different methods of making the policies available to the public.

> http://town.warren.me.us/privacy.cfm
>
> http://www.la-quinta.org/Index.aspx?page=293
>
> http://www.haliburtoncounty.ca/main.asp?function=municipal&subfunction=municipal&section=websitepolicy

http://www.ashevillenc.gov/generic/default.aspx?id=206

http://www.delmar.ca.us/Pages/WebsitePolicies.aspx

http://ci.casa-grande.az.us/web/guest/websitepolicy

http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=12803

http://www.windhamnewhampshire.com/updated/disclaimer.htm

http://www.ci.hayward.ca.us/policy.shtm

http://digitaltowpath.org

http://www.townofdover.us/uploads/WebsitePolicy0806.pdf

http://www.middletowntownship.org/vertical/Sites/%7BE08CD8FE-6BF2-4104-AF8F-C16770381A63%7D/uploads/%7B2F93EBCD-1708-4811-86FB-C1EF16AED531%7D.PDF

http://villageofellenville.com/websitepolicy.aspx

Implement the site

Once the planning and development stages of the website are complete, it is time to implement it. This not only means making the website publically available through the internet, it also means letting your community know the site exists. Use press releases and other communication methods. Train staff to suggest to callers that they use the website to obtain forms and applications instead of waiting for them to be mailed. Add your domain name to letterhead and business cards. Include your domain in voice mail messages so citizens know they have a way to get quick answers to their questions even if you are unavailable.

Monitor usage and adapt the site as needed

There are many tools available that will track website usage and report which pages are visited most often, what days of the week visitors choose and what time of day they visit. If your site is hosted, you may be able to purchase this service from your hosting service provider. Also, online surveys can be used to get direct feedback from visitors to the site.

Whatever the tools used, act on the information they gather, adapting your website to provide requested information or access to services, as possible. A website should be an organic process. It should change as needed to meet the goals outlined during the development process and new goals discovered through the monitoring process.

Website Security

Municipal websites have been attacked in a number of ways over the years. In order to provide a website a combination of server software, website or web-applications software like a WCMS, and client-side (local user) software is used. New vulnerabilities are discovered day to day in all of these types of programs. You can't control how citizens protect their own computers but you can and should protect visitors to your site from inadvertent infection.

Security tools have been developed to counteract known vulnerabilities but, as with any security procedure, these tools must be used correctly to accomplish their task of making your website data safe from unauthorized changes, your webpages safe from defacement, access to your website safe from denial of services attacks, and, if you provide transactions that include personal information or money, safe traffic to and from your server as well as safe storage of information on your server.

If your municipal website is hosted through a reliable hosting services provider, securing the server software will be a part of the services they provide. If the website is hosted in-house, your staff must follow good security practices to protect your site, keeping all patches up to date; limiting access - both electronic and physical; and using cyber security tools to find and eliminate vulnerabilities.

Securing the website software also requires careful attention. The code used to develop the website must be written carefully in order to avoid known vulnerabilities. If your site is developed in-house your staff must provide the know-how to build webpages securely. If you use a WCMS, be sure that it was written securely. Attend, too, to any web-applications you offer through your website, making sure that security concerns have been addressed in their development.

You can help protect the people who visit your website by providing them information about securing their own systems. The New York State Local Government Cyber Security Committee has produced a series of handbooks to help you understand the process of securing computer use. The manuals will help you understand the process of securing your municipality's technologies. They are available from the NYS Office of Cyber Security and Critical Infrastructure Coordination (CSCIC) website at: http://www.cscic.state.ny.us/localgov/. There is also a monthly cyber security newsletter that you can post to your municipal website to assist citizens in securing their own systems. It is available in electronic format through CSCIC and provided by the Multi-State Information Sharing and Analysis Center (MS-ISAC).

Examples of Lists of Items Important to the Development of a Good Municipal Website

Digital Towpath Cooperative
http://digitaltowpath.org/

Digital Towpath uses a website content management system that was developed by officials of small towns and villages in Central New York State. The underlying databases are populated through fill-in forms provided in subject matter collections termed modules.

Modules List:
1. Assessment Information
2. Boards & Committees
3. Calendars
4. Community Groups
5. Courts
6. Demographics
7. Departments
8. Economic Development
9. Educational Facilities
10. Emergency Management
11. Employment
12. External Links
13. History
14. Laws & Ordinances
15. Local Events
16. Minutes
17. Misc Webpages (Custom pages, user defined)
18. News (with subscription service)
19. Newsletters (with subscription service)
20. Offices/Officials
21. Parks & Recreation
22. Permits & Licenses
23. Public Safety
24. Real Property (assessment roll)
25. Religious Organizations
26. Stormwater Management
27. Tourism
28. Weather

Delaware Municipal Web Developers Group

www.ipa.udel.edu/mwdg

In 2009, the DMWDG surveyed the municipalities in Delaware to determine if they provided specific information. The survey covered the following items. The percentage range for each item is listed after it.

1. Name of city/town/village (>80%)
2. State name (>80%)
3. Address and phone number (>80%)
4. Links to county and state (>80%)
5. List of officials (>80%)
6. Description of community served (>80%)
7. Historical information (>80%)
8. Directory of services (>80%)
9. Utilities information (40 – 79%)
10. Public works information (40 – 79%)
11. Comprehensive plan (40 – 79%)
12. Site search (25 – 39%)
13. Staff directory (25 – 39%)
14. Meeting agendas and minutes (40 – 79%)
15. Archived documents (25 – 39%)
16. News (40 – 79%)
17. Frequently asked questions (25 – 39%)
18. Online citizen feedback (25 – 39%)
19. Online bill payment (<25%)
20. Online licensing (<25%)
21. Emergency services (<25%)
22. Interactive maps (<25%)
23. Local weather (25 – 39%)
24. Subscription service (<25%)

CityKeepers (Commercial Vendor)

http://www.citykeepers.com/

CityKeeper's website lists the following items as included on websites they develop for municipalities.

1. Mayor and Council pages
2. Minutes
3. Agendas
4. Downloadable applications and forms
5. Documents archive
6. Economic development tools
7. Tourism tools

8. Calendar of events
9. Community groups
10. Business directory
11. Subscription services

Virtual Town Hall (Commercial Vendor)

http://www.virtualtownhall.net/pages/index

The Virtual Town Hall website offers this check list of desirable features:

1. Meeting information: date, time, location, agenda
2. Minutes: last meeting and archived minutes
3. Current municipal budget
4. Bulletins & public notices
5. Design that is pleasant and inviting
6. Page Layout that is easy to understand
7. Information presently concisely so no need for continuous scrolling
8. E-mail subscriber
9. Downloadable forms
10. Contact phone/fax numbers
11. Department information
12. Contact e-mail addresses
13. Physical address of town, village or city hall
14. Search capability
15. Site map
16. Link to Home page on every page
17. Links all work
18. Consistent design (headers, footers, navigation bar, etc)
19. Online services
    a. Bill payment
    b. Recreation registration
    c. Property assessment lookup
    d. Geographic Information System (GIS)
    e. Online permit processing
    f. Access birth/death/marriage records

---

[i] State and Local Government Review, Vol. 40, No. 1 (2008): 12–26, *Functions of E-Government: A Study of Municipal Practice*

[ii] Syracuse University, College of Education, *Avoiding the Pitfalls: Conditions That Support the Implementation and Institutionalization of E-government Through Digital Towpath Websites, 2009.*

iii Brown University, *State and Federal E-Government in the United States, 2006.*

[iv] *Ibid.*