

The Information Broker For the 21st Century Innovative Uses Of Internet Technology

By
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I. An Information Broker?

A Call To Arms!

This is a Call To Arms! The *forces* are being mustered - are we ready? The call is in response to present and future demands of *The Information Revolution*, otherwise known as the Information Age. It is here, it is real and we, in the Assessment Industry, whether or not we realize it, are in the unique position of having the most enviable compilation of information existing in any local, state or federal government. The Assessing Professional will become, if he and she respond to the call, *The Information Broker For The 21st Century*. This paper will detail a number of ways this task may be undertaken and present a few examples of how some are already responding to the call to disseminate information. The prime vehicle for presentation of information to the public in the 21st century will be the Internet.

An Information Age? Is It Real? If So, How Did We Get Here?

Some say that the Information Age, when viewed by historians 50 years from now, will be more significant than the Industrial Revolution. As mentioned above, the Information Age really is an Information Revolution. Ways and means of communicating seem to be changing daily. But what is it? How did we get here? For centuries, traditional modes of transmitting information were the spoken word, delivered personally or through couriers; or the written word, through letters or documents. Then came the introduction of *Atelecommunications*,@ first with the *telegraph*, then the *telephone*, and *television*.

Then along came computers, designed at first to handle, process, and disseminate data within a company. Computers were and are designed to process information (data) faster than could be done before. At first, companies and governments were the only ones who could afford a computer.

Then along came PCs and the rides become so exciting and fast tracked, its sometimes hard to hold on and enjoy the thrills. PCs were well named, personal computers. Millions of homes and virtually all business (large and small) now utilize PCs to perform most of their communications work (secretarial, listing, tracking, organizing, etc.). I'll bet no one realized, when naming them Personal Computers, that, in addition to being computers, they would truly become the vehicle which would revolutionize the communications world. Technology has allowed the size of PCs to become so small, we now have portable PCs, commonly referred to as lap tops.

After PCs we began to see wireless telephones, cellular phones. While PCs got the computer out of the business and into the home, cellular phones introduced the concept of mobility to the communications business. Wireless transmission meant one could communicate from anywhere, while doing anything!

The latest innovations in modes of communication utilize several of these technologies. Each seems to exponentially increase the potential flow of information. The mode of transmitting information appears to change almost daily. We now have lap top computers with cellular phone, fax, CD, infrared beams and sound technology built in so that one can communicate by computer from anywhere in the world to anywhere in the world. This can be accomplished using any means desired such as visual, using interactive and on line cameras; verbal, using built in phones; through the written word, by fax (cordless infrared technology); and perhaps through a number of others that I'm not aware of at this moment!

The most current delivery vehicle for information is the Internet. Using the Internet, information can be transmitted in a matter of seconds to any point on the entire globe. The Internet is also called the World Wide Web. The flow (in terms of speed and amount) of information on the Internet is greater in scope and magnitude than most people could previously fathom. Use of the Internet for delivering assessment related information to the public is the primary focus of this paper.

The Internet not only offers seemingly infinite possibilities for the flow of information, there is more information available there than any one person could imagine, much less actually access and read. To get a grip on the possibilities, imagine having access to all of the books in all of the libraries in the world, and all the newspapers in the world, and all the weather stations (including up to date radar pictures), sports information, all the information on any topic you desire. And one can access all of this from a desk top computer at work or at home (or a portable PC from anywhere), at no charge for the information. One can shop, bank, read, research, write letters to friends and family, view photographs, you name it and it is available out there - the Internet! If you have not availed yourself of its services, you have a wonderful surprise awaiting.

A more detailed presentation on the Internet (the World Wide Web) is presented in Appendix 3 of this paper. At this point, suffice it to say that the Internet is basically a world wide web of communications networks and computers, intertwined dependently and interdependently, which allow communication across the globe at no virtually cost. It is literally like picking up the phone and making a local call.

How Does This Relate To Me, The Assessing Official?

One must understand that, in the eye of the beholder, *perception* is almost always reality. This is also true of *self* perceptions, individual or corporate. We are, or tend to be, what we *think* we are. The most limiting factor in one reaching their own personal potential is a perception that they cannot perform a particular task or at a certain level. The most significant key to

performance is the belief, the *perception*, that one's goals are attainable and that one has the skills to attain them.

To take our proper place in the forefront in the Information Revolution, to *answer the call*, requires that we, the Assessing Profession (corporately), have the proper perception of our role as purveyors of information. The assessing professional, individually, is a real estate appraiser, a manager, a mapper, an abstractor, computer technician, etc. Corporately, however, the assessment profession is in the information business. The assessment administrator manages a data base of information critical to all areas of federal, state and local government. This information relates directly to Realtors, appraisers, state, local and regional land planners, developers, economists, desirous home sellers or purchasers and many others viewing any type of econometric data. Computerized maps (Geographic Information Systems -GIS) containing parcel layers with associated land and building data (and associated other governmental data) will, one day, be part of a nationally linked system of maps and related information. The managers and maintainers of the core of this tremendous information base are our local assessing professionals.

The dissemination of this information to the public has, traditionally, been an *over the counter* operation. With the tools of today, the modern assessor has an opportunity to move to the front of this parade of information. To accomplish this, we must recognize our unique role as information brokers and capitalize on the opportunity through transforming our perception into reality!

II. The Data

Managing The Data

As mentioned earlier, Assessors have data desired by many other professionals, as well as the public. Managing this data has always presented a challenge and managing it for potential world wide dissemination certainly Aups the ante. The data is usually maintained in several different platforms:

Administrative Data - Names, addresses, tax rates

Appraisal Data - Real Estate and Personal Property, where applicable

Locational Data/Maps - Manual or GIS maps and Aerial Photography

All of these together are a part of **Geospatial Data**.

CAMA systems provide the most common means of organizing and reporting all information. The two primary types of CAMA systems are those built Ain house@ and those purchased from vendors. Either may linked Administrative and Appraisal Data, to internal modules or to those developed separately. Most have common reporting capabilities, to include programs specified and required by local or state agencies and those used internally for analytic purposes. Many CAMA systems also contain ad hoc *report writers*, which allow users to define any reports which may be used on a periodic basis or for specific one time uses.

Disseminating The Data

Regardless of the current manner of managing data, our industry of assessing professionals will soon be addressing the issues of wide spread dissemination of that data which they, in some instances, may have regarded as Amy data. Individual states may vary in the extent of disclosure of public records, but all states will allow some portion of the assessors data to be part of *the public record*, meaning that it must be available for public perusal in some form. The advent of Internet technology has, literally, opened Pandora's box wide open, in terms of how (and what) data should be available and through what means (delivery vehicle). Requests for masses of information will be forthcoming from state and federal agencies who will wish to make this tremendous real estate data base part of their own state or national data base.

Real Estate/Personal Property Data

Our data base, like most assessment offices, includes all real estate - land and buildings, residential and commercial/industrial (specific property income and expense data is legally confidential); and all tangible personal property (detailed data is legally confidential). We actively encourage outside agencies and business to use our data base to assist them in doing their jobs. We receive frequent requests from our sixteen cities, their Chambers of Commerce, and their Economic Development Commissions to use our information. For example, we received 228+ requests for data requiring computer program runs during the past 12 months. Our basic slogan is that If it doesn't breathe or ride on wheels, we have it on our data base!@ We truly believe that our information is their information and we want them to be able to access it and use it.

GIS (Geographic Information Systems) Data

In addition, we have parcel maps which reside on our computerized GIS (Geographic Information System). GIS technology represents another gigantic step into the Atech-no-world@ for assessment offices. GIS maps, when printed, look just like any other maps one might be used to viewing. The difference is that, while they may be printed on paper, they *reside* in a computer in a digital format. This means that one can print out a map at virtually any scale (1"=600', 1"=200', 1"=50', etc.) as desired for the particular requirement. In addition, the maps are *seamless*, meaning that any area of the county may be the center of any map, again depending on the need for that map. No more edge matching of maps (or putting four maps together to get one)!

While these features are wonderful, the greatest attribute of GIS technology is that maps and data may be viewed together and printed together. The amounts of data which can be used are almost limitless. Parcel maps are but one *layer* of data which may be viewed on GIS maps. A few additional layers of data which would be available in virtually any area are:

Planning/zoning lines
Street center lines,
City/jurisdictional boundaries,
Water/sewer lines,
Fire hydrants,
Utility easements,
Flood planes,
Topographical contour,
Hydrology,
Vegetation

An appraiser/analyst can, for example, use GIS to produce maps with any combination of the following information, plus much, much more. For example, maps containing:

Parcel lines
Land uses
Property class uses
Neighborhood boundaries
Economic data
Sales: By area (city, neighborhood, block, etc.)
 Vacant sales by date and square foot
 Improved sales by abstracted sales price per square foot
 Improved sales by total price per square foot of building area

GIS technology is very expensive and complete implementation (to the point of using data with maps) usually takes a matter of years, instead of months. However, GIS can become useful within weeks of bringing up the software by scanning small scale maps (1"=2,000') into the system allowing some governmental functions to begin almost immediately. Detailed mapping work however, requires that Assessors, public works officials, right of way and engineering personnel have large scale accurate maps (down to 1"=100' or 1"=50'). A sound mapping system has always been an essential part of every manual or computerized mass appraisal system.

Digital Aerial Photography - Measuring Buildings From The Air?

One of the most important components within any mapping system are the aerial photographs. Aerial photographs traditionally were flown at certain heights (i.e. 10,000 feet) based on the desired delivery scale (i.e. 1" on the delivered photograph = 400' on the ground). While varying scales can be delivered from the same film negative, the delivered aerial photographs were to a pre-set contractual scale with any additional variations requiring additional funding. The best, and most expensive, aerial photography was and still is *ortho rectified*. Ortho rectification means that the photograph is accurate all the way to the edges of the print. Since the camera is on an angle and there are angles to the ground, use of non rectified aerials introduces a level of inaccuracy to photo interpretation.

Modern aerial photos are available in a digital format. This means that aerial photographs, when delivered, may be stored in a computer and printed out at any scale in a seamless fashion. It also means that the photographs may be combined with GIS software and data may be transferred from the GIS system directly onto the aerial photograph, or visa versa.

Delivery scales for digital aerial maps introduce a new type of scale, such as 1 pixel (on the digital aerial data base) = 1 foot (or 1 meter or 6 inches, etc.) on the ground. When purchasing digital aerial photography it is important to realize the limitations of the delivered scale. For example, 1 pixel to 1 meter resolution begins to blur when enlarged beyond the following scales:

- 1 pixel to 1 meter resolution provides clear pictures up to 1" = 600' scale.
- 1 pixel to 1 foot resolution provides clear pictures up to 1" = 100' scale.
- 1 pixel to 6 inch resolution provides clear pictures up to 1" = 25' scale.

The *U. S. Geological Survey (USGS)* has digital aerial photography available for most of the United States. While the 1 pixel to 1 meter scale of these photographs makes photo interpretation somewhat limited, they are an excellent buy. The reader is referred to the USGS for current pricing.

Software already exists which can recognize every part of the light spectrum on digital aerial photographs. That means that we can already recognize building and other features on the photograph with software. This author has also viewed *digital stereoscopic* aerial photos in a seamless fashion on a PC. For the uninitiated, a *stereoscope*, traditionally was a device you placed over two aerial photos, matched together, which enabled you to see a 3 dimensional picture. An example use was Timber foresters utilizing them to measure stands (amounts) of timber in a given area. Currently, software exists which can glean height and depth from stereoscopic photos. It requires only a small step further, developmental wise, to take a properly scaled digital photograph (minimum of 1 pixel to 6 inches) and, using software, determine building height and dimensions. This author was involved in an experiment in the late 1970's attempting to document the feasibility of using aerial photos to measure buildings. The physical measurement of buildings takes 50 - 60% of an appraiser's time on a site, if only measuring the exterior. That experiment was successful in both estimating building height and square foot size of the building footprint, when compared to those made from appraisers on the ground!

Digital aerial photography, in this author's opinion, offers significant cost savings potential for the mass appraisal industry, world wide. The availability of seamless maps to any desired scale provides virtually unlimited use of digital photographs for many governmental users. Specific applications, such as measuring buildings, pavings, out buildings, etc., and recognizing other building features (exterior materials, etc.) hold exciting possibilities for the future of our industry.

CAMA/GIS Interactive Systems

Because of the interdependent nature of the assessors databases, mapping functions, and other governmental and private business desires to use our data, CAMA systems of the future will be designed to interact directly with GIS data bases. Many private vendors and progressive assessment jurisdictions have already begun the process and are currently merging maps and data, allowing other users direct access to this impressive array of information.

In some jurisdictions, this same data is available over the Internet. Digital maps present a challenge, in terms of data size, storage and processing as one plans for Internet accessibility. Presenting GIS parcel maps on the Internet present a significant challenge due to the sheer amount of data (digital bytes) associated with parcel maps. For example, our jurisdiction has 467 parcel maps, covering 1,250 square miles of property and 292,126 parcels of property. Presenting all of the maps, with all of the available parcel information will require a sizeable server on the local side of the Internet connection. One can, however, limit the amount of data available on each map and carefully construct how the maps are configured and be able to present very workable, usable maps on the Internet.

In long term planning for systems needs, one must address potential data *storage* problems, but should not consider them to be *show stoppers*. Technological advances involving computer storage capacities and processing speed seem to move forward much faster than we can keep up the pace. Increases in the ability to store data and decreases in the time required to process data have been two of the few constants in technology progressions over the past few years. Generally speaking, technology advances have tended to far outstrip the average (and many above average) person's ability to keep up with it. One could say that our only limitations are truly *our own imaginations*.

The inter-relational nature of our data with so many other governmental agencies will dictate, in my opinion, an inevitable combination of CAMA and GIS technology and software. Combined or inter-relational databases exist now and will be the format of the future CAMA systems. This eventual outcome should impress upon the assessment industry the absolute importance of moving forward into the information revolution as a proactive player.

And Who Needs All This Data, Anyway?

As inferred in the introductory remarks to this paper, assessment administrators need to recognize their important role in the information revolution. Many other governmental, as well as non-governmental agencies and people have need of the data which we maintain. It does not restrict one's imagination much to list a few users and types of assessment information.

City or County	Values, jurisdiction wide
Governmental	Values by taxing sub-district
Manager	Exemptions Totals
	Totals by Taxing Authority
	Totals by Millage Group (group of authorities)
	Use of Assessor's data and skills for damage assessment activities

after a natural disaster.

Assessment information combined with other governmental data from planning, zoning, building permits, public works, etc.

Real Estate Appraiser, Mortgage Company	Property Locations & Legal Descriptions Individual values Sales data Assessment data (individual property descriptive information). Income and expense data (on some properties) [confidential in many areas] Maps
John Q. Public, Taxpayer	Names and address searches (a privacy issue on some web sites) Location of property when looking to buy/sell Viewing of local area equity in valuation/payment of taxes County or City Assessment Totals Viewing of maps for: Parcel data Location of parks, golf clubs, boat ramps, fire stations, city data, etc.
World Wide Citizen	Economic development data Location of all vacant lands (for possible development) Location of improved commercial/industrial lands (to view trends) Simply to locate where a city is located, along with what size, population, amenities, etc. Location of parks and recreational facilities (for vacation purposes) Location of subdivisions (purchase of summer home)

III. Governmental Advances In The March Along The Information Highway

The Best Game In Town . . .

The only agencies financially capable of dealing effectively with multi jurisdictional, multi-national issues of the magnitude (in terms data, potentials for data duplication and cost of implementation) presented by the Internet are governmental agencies. Therefore, while massive consolidations of information can and are happening everyday on the Internet, *systematic, organized* presentations of information will continue to require the involvement of government. Governments (federal, state or local) should establish formal mechanisms so as to structure their efforts, through organization and funding, specifically toward maximizing participation and minimizing data duplication and associated costs. An example of how the State of Florida is doing that is presented below in the section on State Government.

The Federal Government

The Federal Government has established the *FGDC (Federal Geographic Data Committee)* as the official group to coordinate visions and actions relating to federal interests regarding geodata (GIS maps as well as associated layers of data). The FGDC's primary function is to coordinate surveying, mapping and related spatial data activities between federal agencies. There is a plan to develop . . . a national digital spatial information resource, with the involvement of Federal State, and local governments and the private sector. This national information resource, linked by criteria and standards, will enable sharing and efficient transfer of spatial data between producers and users@ (quote from October 19, 1990, Circular No. A-16, Revised, EOP-OMB, see URL

<http://www2.whitehouse.gov/WH/EOP/OMB/html/circulars/a016/a016.html> for the entire document.) The FGDC (Federal Geographic Data Committee) is headed by the Secretary of the Interior. Having direct Cabinet level participation facilitates important issues rising to the proper decision level of the federal government. A listing of the membership of the FGDC indicates the importance placed on proper coordination of governmental information by the federal government:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Energy
- Department of Housing & Urban Development
- Department of the Interior
- Department of State
- Department of Transportation
- Environmental Protection Agency
- Federal Emergency Management Agency
- Library of Congress
- National Aeronautics and Space Administration
- National Archives and Records Administration
- Tennessee Valley Authority

There is a FGDC Coordination Group, a Working Group, and a Coordination Group which are designed to facilitate in planning and execution. The FGDC is currently working at the state level to actively seek cooperative alliances with state and local agencies so as to minimize duplication of effort and therefore, costs. In addition, there is a National Spatial Data Infrastructure (NSDI) which A . . . is conceived to be an umbrella of policies, standards, and procedures under which organizations and technologies interact to foster more efficient use, management, and production of geospatial data. The NSDI requires and will facilitate cooperation and interaction among various levels of government, the private sector, and academia.@ This quote was copied from URL [http:// www.fgdc.gov/nsdi2.html](http://www.fgdc.gov/nsdi2.html).

The *U. S. Census Bureau* is another governmental agency seeking cooperative alliances. They

are currently seeking to cooperatively obtain street line and address information for the upcoming *Census 2000*. In return, they will provide access to all of their many layers of Census Tract information.

The Census Bureau has an interesting web site at <http://tiger.census.gov/>. Perhaps since the name, *U. S. Census Bureau*, might not instill imaginative, exciting images of anything in one's mind while surfing the Internet, the site is called, *TIGER Mapping Service*. I actually went to the site for the first time without knowing it was a U. S. Census Bureau site. Aside from the content of this site, it serves as a wonderful example of how to attract attention to a web site. If you cannot draw people to a web site, the information offered there is for naught.

To get an idea of the commitment of the Census Bureau, here is the opening paragraph, describing the purpose of their web site:

The main purpose of the TIGER Map Service project is to provide a good quality, national scale, street-level map to users of the World Wide Web. This service is freely accessible to the public, and based on an open architecture that allows other Web developers and publishers to use public domain maps generated by this service in their own applications and documents. We planned to provide high-quality street maps, with simple GIS capabilities such as point display (by lat/lon or address) and statistical choropleth mapping.

Quoted from 1st paragraph of the U.S. Census Bureau's web page at <http://tiger.census.gov/> More information, also printed directly from this web page is attached as Appendix 1 (U.S. Census Bureau's TIGER Map Service).

As mentioned earlier, the *U. S. Geological Survey (USGS)* now offers digital aerial photography as a virtual no cost option to anyone. USGS digital aerial photography was the subject of some detailed quality reviewing within the state of Florida. The quality of the USGS digital photos, as reported to the Florida Geographic Information Board (FGIB), was very good.

State Governments

State Government's certainly have a stake in the implementation of new technology, including GIS and all of the information becoming available over the Internet. There is great potential for cost savings by having some centralized direction for the dissemination of information. For example, in 1995, the State of Florida set up, by legislation, a Board to review all applicable areas where GIS (Geographic Information Systems) information might be used and to establish plans for minimizing costs and implementation of this important technology. The following membership of the *FGIB (Florida Geographic Information Board)* provides insight into the comprehensive intentions of the legislative mandate.

FGIB Membership:

Director of Planning and Budgeting, Office of the Governor
 Executive Director of the Game and Fresh Water Fish Commission
 Executive Director of the Department of Revenue
 State Cadastral Surveyor
 State Geologist

Heads of State Agencies or Designees:

Department of Agriculture and Consumer Services
 Department of Community Affairs
 Department of Environmental Protection
 Department of Transportation
 Board of Professional Surveyors and Mappers

Gubernatorial Appointees from membership of:

Florida Association of Counties
 Florida League of Cities
 Florida Regional Council=s Association
 Executive Committee of Water Management Districts
 County Property Appraisers Association(s)

Ex-officio

Executive Director, Information Resource Council
 Chair of the Geographic Information Advisory Council

The FGIB (Florida Geographic Information Board) has authority to write Rules and advise the Governor and Legislature on all matters relating to GIS technology. It=s directions will directly affect the sixty-seven counties, four hundred cities, water management districts and all state government agencies. The FGIB is a successor organization, with some legislative authority, to earlier successful organizational efforts at coordination. The Florida Association of Cadastral Mappers (FACM) and the Base Mapping Advisory Committee (BMAC) provided the initial impetus and were successful in establishing standards in the area of computerized mapping (GIS). The BMAC was established at the initiative of the Governor=s office and is, basically, being replaced by the FGIB. The BMAC has written standards for Small Scale Base Mapping and for Digital Geospatial Metadata.

Many other states have established agencies to coordinate the information flow. To illustrate the extensiveness of state wide involvement, listed below are twenty-three (23) state organizations which are, respectively, addressing the management of geospatial data.

<u>State</u>	<u>Agency Name*</u>
Alaska	Alaska Geographic Data Committee
Arizona	Arizona Geographic Information Council
California	California Geographic information Association
Florida	Florida Geographic Information Board (FGIB)
Georgia	GIS Advisory Council (GIASC)
Kansas	GIS Policy Board
Kentucky	Kentucky Geographic Information Advisory Council(KGIAC)

Louisiana	Louisiana Geographic Information Systems Council
Michigan	IMAGIN (Improving Michigan=s Access to Geographic Networks)
Minnesota	Land Management Information Center (LMIC)
Mississippi	Mississippi Automated Resource Information System (MARIS)
Nebraska	Nebraska GIS Steering Committee
New Jersey	New Jersey State Mapping Advisory Committee
New Mexico	New Mexico Geographic Information Council
North Carolina	North Carolina Geographic Information Coordinating Council (CGIA)
Oregon	State Mapping and Advisory Council (SMAC)
Texas	Texas GIS Planning Council
Utah	Utah GIS Advisory Committee
Vermont	Vermont Center for Geographic Information, Inc.
Virginia	Virginia Geographic Information Network Advisory Board (VGINAB)
West Virginia	State GIS Coordinator
Wisconsin	Wisconsin State Cartographer=s Office
Wyoming	Wyoming Geographic Information Advisory Council

*Sources - Florida Geographic Information Board (FGIB), National Association of Counties (NACO), National States Geographic Information Council (NSGIC).

One Interstate Governmental Organization

The National States Geographic Information Council (NSGIC) is an national organization whose stated purpose it to A... encourage the coordinated development of geographic information and related technologies to ensure that information may be integrated at all levels of government.@ This is not an endorsement of the NSGIC, just a mention to inform readers of some of the numerous efforts on many levels at coordination and planning for the express purpose of minimizing duplication and costs.

Local Governments

Many local city and county governments have web sites available to the public, offering information from all areas of local government. Florida Property Appraisers (called Assessors in most other states) are also very active in offering their data. Florida=s property tax administration occurs at the county level with no other local property tax assessing officials. Of the sixty-seven county Property Appraiser=s offices, fourteen have web sites (21% of the counties). Most of these offer the ability for the public (world wide) to access detailed, property record card level information on individual properties. For a listing of URL=s (Uniform Resource Locator, the *address* of web sites) for Florida=s Property Appraisers, see Appendix 2.

Many more cities and counties have web sites offering everything from County Commission

meeting schedules to scheduled game times at the local parks and recreation ball fields. Just in the state of Florida, the Florida Communities Network lists eighty-four (84) Florida cities (of about 400) and forty-three (43) counties (of 67) with web sites. Thirty-eight (38) of one hundred fifty-four (154) Florida City Chambers of Commerce have web sites.

IV. Creating A Comprehensive Web Site

If the reader is totally unfamiliar with the Internet and web site technology, at this point it might help to refer to Appendix 3, a training guide we use with our own staff in an effort to introduce them to the Internet. In addition to the verbiage (definitions, etc.) contained on the two pages provided, our training materials contain a printed copy of the entire web site so that they can page through the materials without having to worry about a keyboard, phone line. We call it our *low tech, no tech* training guide.

Sometimes it is instructive to visually *see* something before you get lost in the details of how it was constructed. For this reason, the organization and content of the Volusia County web site is presented below. Keep in mind that we can add pages, topics, etc., in a matter of minutes when we have information (charts, computer runs, forms, etc.) we think the public might find of interest. One of the primary keys, when planning for a site is to remember the target audience. In most instances this is your public. Shown below is a brief outline of our web site data organization, printed directly from our web site (<http://volusia.org/property>).

**The Volusia County Property Appraiser=s
World Wide Web Service Center**

The Volusia County Property Appraiser maintains a web site on the **World Wide Web** to assist those seeking information about property appraisal issues. In addition to providing assessment and appraisal information including a **property record search module**, this site also has a variety of demographic and Aproperty use@ defined GIS maps. A variety of **economic development** information via charts and spreadsheets is also available and can be printed as needed by the home or office user. The URL address is: **<http://volusia.org/property>**. A brief outline is as follows:

Home Page

- Main Menu
- Mail Station
- Speed Buttons
- Appraiser=s Resume

Main Menu

Mission Statement

- Mission Statement
- Office Organization Chart

Administrative Information

- 1996 Budget
- Trim Notice and Taxing Authority Information
- 1996 Property Tax Information
- Summary Value Totals by Count and Class (spreadsheet)
- Pie Chart Breakdowns for Volusia and all Cities (real property)

Records/Exemption Information

- Homestead Exemptions
 - Forms
 - Blind Exemption
 - Disability
 - Widows/Widowers
- Non-profit Information
 - Non-profit form
- Agriculture Classification
 - Agriculture Application Form
- ASave our Homes@ Amendment 10 Information

Appraisal Related Information

- Appraisal District Information
- Agricultural Appraisal
- Tangible and Personal Property
- Appraisal and Appeals Process

Views of Volusia (mapping)

- Topo and Millage area maps
- Land Uses (including 14 use maps)
- Economic Data maps (Population and Income)
- Damage Assessment maps (7)
 - Hurricane Andrew
 - Tornado damage from Josephine
 - Storm Surge information

Parcel Record Search (please see handout)

- Location Address
- Parcel Number
- Alternate Key

Attached as Appendix 4 is a listing of the maps we have on the web site at this point in time. We have received some great comments on the maps. They are not digital (for zooming in and out at the present time, but are planned to be in the future). Printed below, also from our web site, is a description of our online Parcel Record Search. From a review of available sites, we find some variety in the style of presentation and quantity of data provided. We converted all of our codes to regular English language to avoid confusion and unnecessary call-ins (A...what=s a FGR?). We also have included a complete data dictionary of all terminology. Appendix 5 contains a sample of the data dictionary.

**The Volusia County Property Appraiser=s
Parcel Record Search**

The **Volusia County Property Appraiser=s office**, in association with the **Embry Riddle Aeronautical University Software Center** has made available a search module that allows users to search out individual Parcel Records Information on the Internet. Parcels may be searched and selected by location address, parcel number or alternate key.

The information available on individual parcels will be very similar to the appraisers record card print-out except that we have substituted real descriptions instead of codes and have tried to remove specialized industry jargon that may be unfamiliar to the public. The property record information will include information on :

- Parcel Number**
- Alternate Key Number**
- Millage Group and Amount**
- Location Address**
- Legal Description**
- Historical Assessment Information**
- Sales Information**

- Land Data**
- Permit Data**
- Miscellaneous Improvements**
- Building Characteristics**
- Floor Area Information**
- Building Sketches**

Although owner name and mailing address is not part of the information supplied on the Internet, it is, as always, still available at any of our four Service Centers in Volusia County (DeLand, Daytona Beach, New Smyrna Beach, Orange City).

About the Search Engine

The same data that is on record for our in house appraisal staff is copied to a file once a week for uploading into a database that users may search. Our upload process makes sure that there is never a physical link of the Internet search engine to Volusia=s live database. This way we don=t have to worry about any deliberate or accidental intrusion into our taxpayer=s data systems.

Three of these database fields have been selected for a Akeyword@ type search - **location address, parcel number** and **alternate key number**. Users will have a choice when entering the search site to choose one of these modes.

Costs For Web Site Development

The cost for web site development is totally variable. A web site can literally be created from one on their PC, at home, at essentially no cost to anyone. One Florida County spent \$30,000 for a consultant to design and prepare their web site for input and maintenance by all county departments. No suggestions are offered by this author as to which methodology is best. Most governmental jurisdictions have their own style and will enter the Internet somewhere between the two examples above. My most enjoyable visits to the Internet occur when I find a well organized web site where data is presented as straight forwardly as possible, requiring a minimum of *paging* through minutia to find that which is sought.

Justification For Costs Or Why Would I Want A Web Site, Anyway? Will Anyone Visit it?

Every governmental office receives requests for information. Every request requires some level of research or accessible information in the hands of the reciever of the inquiry. For example, Volusia County, Florida, over the past year, had the following requests for information:

40,533	people come into one of our four offices for information
87,094	telephone calls were received
<u>40,751</u>	mail requests were received (not mailed in forms, actual requests for information)
168,378	total requests for information, from one source or another, over one year (765 per day, 96 per hour, 1.6 per minute)

If one makes conservative assumptions, like an average time spent per customer of three (3) minutes and an average cost of \$12.35 (including salary and all benefits) per hour, the total annual cost of answering our requests for information was \$103,973 per year (((168,378 requests X 3 minutes each) / (60 minutes per hour)) X \$12.35) = \$103,973. Another way to look at this cost is to divide the total cost by the number of requests (\$103,973 by 168,378) for a cost per request of \$0.62. One could impute this as cost savings for *hits* (each visit to a web site is called a *Ahit@*) on a web site, in a cost justification exercise. Part of most web sites is a counter to keep track of the level of activity, both in total and in terms of what parts of the site receive the most and least attention. The total cost for bringing up the Volusia County web site, including building a search engine (required custom programming), design, equipment and implementation was about \$30,000. Annual maintenance costs are estimated to be much less, with our parcel level data being updated once a week.

Below are some actual web site *hit* counts from four Florida Property Appraiser offices, who have had sites active for some months.

<u>County</u>	<u># Real Estate Parcels</u>	<u># Web Site Daily Hits</u>	<u>% Parcels Hit Daily</u>
Hillsborough (Tampa)	338,934	1,500	.44 %
Leon (Tallahassee)	89,206	338	.38 %
Orange (Orlando)	287,576	1,500	.52 %
St. Johns (St. Augustine)	68,980	140	.20 %
Totals	784,696	3,478	.44 % aggregate mean .385 % simple mean

Volusia County has a web site, but not for sufficient time to establish reliable *hit* statistics on parcel level requests. However, based on the above, and assuming that .44% is reasonably reliable, one could expect approximately 1,100 inquiries a day (252,000 real estate parcels X .0044 average hits = 1109).

Documented above are 765 actual inquiries per day, based on taxpayers and others having to go to some trouble to make the inquiries. A web site will not replace all visitors to an office or calls on the telephone for information. However, we believe the multiplier 1.4 (765 actual inquiries to 1,100 web hits per day) to be in the realm of the possible, given that the Internet web site will be available to a much broader market and that access is much easier (from one's own office or home, at any time of day or night).

What Are The Steps In Creating An Internet Web Site?

1. **Planning** - As in any venture, plunging directly forward without some preliminary planning usually leads to a higher than usual amount of revisits to the beginning point. However cursory, planning is a highly recommended exercise.
 - A. Who is the prospective **audience**? Many are listed above in this paper, Realtors, appraisers, title companies, other governmental departments, private citizens, and others literally around the world.
 - B. What should be the **content** of the site? What are the data elements involved and how should they be organized? The organization of the pages, the *look*, can make it easier on future viewers. Consistency and uniformity between sites within one city or county government makes a site more visually attractive. A visit to other similar sites is the best way to resolve any issues regarding content. The Volusia County Property Appraiser's web site organized was presented a few pages back in this paper.
 - C. What are the **mechanics** of the site? Where is the data housed/located? Who

updates it? How is it going to work? How do I find a server for all this data? And then, who writes the programs to access the data once I have it in a data base (the search engine)?

The *server* is the name of the machine, usually a PC, where the data being accessed on the web site is physically located. It does not matter where the server is geographically located, because the data is moved over phone lines and the user is accessing the data from a phone line. The physical location of the server may or may not be divulged on the web site. The name and business location of the entity (i.e. Volusia County Property Appraiser) is the only name needed on the public web site page.

The most common computer used as a server is a PC. The more modern and up to date (storage, processor, modems lines, etc.) the PC is, the better the site will perform. Performance is measured in terms of how rapidly the system responds to requests (*response time* = time lapsed from entry of request until data comes back up on screen). The size of the Volusia County Government site is 6 megs (all of county government excepting the Property Appraiser=s data, which is on the **Embry Riddle Aeronautical University=s (ERAU)** server. The Property Appraiser=s data is 8 megs (excluding parcel information). The Embry Riddle Aeronautical University=s (ERAU) search engine server site (for our parcel level information) contains 1.6 gigs.

Volusia County and many others, are updating their web site once a week. This enables the real estate industry and all other users assurance that the data is up to date on an ongoing basis.

D. How do you **fund** the development of a web site? There are several cost options available regarding how to pay for the development of a web site and for the use of a server. The most common are as follows:

- **Academic assistance** - many universities will provide space for local governments on their web server, possibly *free of charge or at a much reduced cost* with the use of student aid and faculty assistance . We contacted **Embry Riddle Aeronautical University (ERAU)** about assisting us in the building of our search engine for our parcel information and about hosting the server for our entire site. ERAU responded by providing both faculty and student (both under and post graduates) assistance in a joint effort which has produced benefits for all involved. We have budgeted for the next year a couple of student interns as part of our ongoing desire to continue the relationship which enables us to continually benefit from their state of the art knowledge and technology and enables them to enjoy real world work experience. **Embry Riddle Aeronautical University** is the premier aeronautical University in the world and is headquartered in Daytona Beach with satellite locations (no pun intended) all over the world. We are paying **ERAU** for their consulting and student time, and they have been very generous in all of their dealings with us. Their students designed and built our *search engine*, have acted as on systems administrators and we would certainly

not be where we are without their efforts. Our first year funds were located in our existing budget and continued efforts are being budget for in subsequent years.

There are **Commercial vendors** who will provide server space *for rent*. If one does not have capability or access to develop in house and no university is available, this may be an option. Sample costs are about \$100 a month for 10 megs of data. For a relativity check, the Volusia County Property Appraisers site contains about 8 megs of data.

- Servers can be located **in house**, usually involving large application such as a combined GIS/CAMA application. The decision is usually based on cost considerations. For this option, expect equipment costs to be around \$11,000 (one time expense), with ongoing connection costs of around \$700 per month.

2. **Creation** - The actual creation of a web site, as mentioned earlier, can be accomplished at home on a personal computer. However, for one which is representing your office to the world wide public, caution is advised.

- A. Designate or hire a **web person**, your personal *Internet guru*. One person needs to be designated as coordinator/administrator of the site. This person will be responsible for organization, input and maintenance of the site. There will eventually be loads of information coming from all over your office and having one person designated as the *keeper of the key*, is a wise move.
- B. Organize your site carefully, use a flip chart or chalkboard and brainstorm with your staff. Spend a lot of time in the organization phase, you 'll have to live with the results (actually, updates and changes to the site are relatively easy). Our organization was presented earlier in the paper. Plan to have *hot buttons* at every available opportunity to make moving around in the site as easy as possible.
- C. In **creating/making the pages**, use the KISS Principle, (Keep It Simple, Simon). While pictures are nice to look at, they are very data intensive and tend to slow down one 's ability to move around on a site. We recommend the use of pictures sparingly.
 - **Converting data for input** to your web site is a task which can become time consuming. The easiest data to convert is from a *word processing document*. These will convert quickly and, for the most part, automatically. Scanned forms are like pictures, they are data hogs and take a lot of load time. If scanned forms are used, use descriptive links or thumbnails for large documents. Keep in mind, with scanned documents and pictures, that too many slow moving responses on a site can drive your users to another alternative.
 - **Incorporating an E-mail service** is recommended, in order to receive questions and feedback interactively from the web site. Try to make this process as easy as possible. Remember that if you have E-mail returning

to you, someone must be designated to receive and answer it. Understand that having E-mail on your site is a commitment for future personnel. Your Internet guru may or may not be the right person to write letters back to taxpayers answering their questions.

- D. **Initial Processing** will involve *uploading files* to your server. We recommend testing your uploading processing on an outside machine, if possible. *Live* testing can be embarrassing.
- E. **Privacy issues** will be brought to your attention, plan ahead for them. We delayed the implementation, online, of our site for almost two months because of the privacy issue. Our initial plans were, like many other sites, to have searches by name, mailing address, situs location and alternate key. Florida has one of the most liberal public records laws in the country. Florida public records law allows protection from public access for all law enforcement personnel, judges, people working with child abuse cases and a number of other similar classifications. These people must notify the custodian of the public records if they want to be excluded. Since we had not been contacted by a single person, we notified all appropriate offices, departments, etc. of the provisions of the law. The newspapers ran a story and we were deluged with calls from everyone else! We expected some calls from both ends of the political spectrum, but really did not expect to hear from so many regular citizens and businessmen who were universally telling us they did not want their names and mailing addresses on the Internet. . . .AI am a successful business man who has spend thousands to keep my family safe and anonymous and you `re putting me on the Internet?!!!.@ . . . AI am 80 years old and live alone, why do you want to let the world know how to find me at home?@ . . . AMy mailing address is my attorney `s office, why are you telling everyone who my attorney is?@ . . . and many more . . . We decided not to put owner names or mailing address on our initial release and will not do so in the future unless the privacy issue becomes more settled. The national news media `s recent reporting on the issue of privacy on the Internet illustrates the level of attention on the issue.

Most of our citizens do not realize how much information is already out there. Individuals names, addresses, and maps to their homes are readily available to anyone who know how to search. Pinellas County, Florida (Clearwater) was the first county we identified to have withheld names from the Internet. Hillsborough County, Florida (Tampa) and Volusia County, Florida (Daytona Beach) are the only others we know of. This discussion is presented so that you are aware of the issue. Every area will find, in my opinion, that privacy is more than a small concern of the average citizen.

As this is being prepared, Newsweek reports that there is potential for all medical records to become available on the Internet. Stay tuned . . . , my prediction is that either federal or state governments will be forced to address privacy standards in the future.

3. **Implementation** - Actually going online, *live*, over the Internet.

- A. Consider having a **soft opening**. A soft opening would involve only releasing the web address to a select group for a week or two, to assist in ironing out the bugs (which will exist no matter how good you are). Possibilities for a target audience are some local real estate offices, mortgage companies, appraisal firms or even some family, staff or friends. This is a form of testing and will provide some good feedback for you. The manner in which you receive your feedback during this stage will, hopefully, be through your online E-mail. Otherwise, the manner of feedback is another issue to cover.
- B. Advertise your **public opening**. Remember the slogan from the movie, Field of Dreams, *Alf you build it, they will come.* If you have a web site with real estate information, *they will come*. And when they visit your site, you will be saving money on in the office calls and visits, as well as providing an excellent public service.
- Prepare **news releases** for TV, radio, and print media. A new public site is news and one or more of the above will be interested.
 - Consider **public training classes** in AHow To Use The Internet. There are millions of people out there who are waiting for the opportunity.
 - Make sure that you are linked into your **public library system** and that they are aware of your opening date. Many libraries have computers hooked into the Internet. This is another opportunity to reach out with your data.
- C. Plan for **ongoing maintenance** of your data. Maintenance refers to refreshing or replacing data as it ages. As mentioned earlier, we plan to update our web site parcel information once a week. We input new maps and other information as we see something we think will interest the public. Always be aware that anything you put out there will require maintenance.

V. Summary

This paper has attempted to present three points:

1. The assessment manager holds one of the greatest information jewels available in the Information Revolution. As an industry, we need to become proactive, not reactive. Change has come, more is coming and if we are not part of the solution, we may become part of the problem. We can effect change, we can be on the cutting front edge of providing essential information to the world. As they say, here in Volusia County, before the Daytona 500 Race, *ADrivers, Start Your Engines!* Let us start our corporate engines and let the race begin! We are all part of it and, in this instance, everyone can be a winner!
2. Information was presented to provide the reader with an appreciation of how far federal, state and local agencies have come in seeking cooperation among providers of information. We, as an industry, need to organize ourselves through the IAAO in a manner which serves the common good for all of our citizens, regarding access to our information. Again, the emphasis is on becoming a proactive player in the information process

3. An organization and format was presented for preparing your own web site. Some of our own was presented because, naturally, we like what we have done. We are also continually revising and updating our data and our organization. Our *web guru* has a very active and interactive mind. We encourage contacts regarding material presented in the paper or from future visits to our web site.