# Local Government: Small Staff, Lots of Work; What to Do?

**By**

**Matthew Cieri**

## Abstract:

Do you have a small staff, a lot of applications, and a lot of projects and task? We here at the City of Kissimmee do. Every department in our city has different needs and there are only three of us supporting 500 users. What are we to do? This paper will try to show how numerous ESRI applications, both out-of-the-box and customized, are used to make most people relatively happy. Also this paper will give tips and tricks to make this easier and try to give suggestions about what you can do with limited staff, time, and budget.

## Introduction:

As you all probably already know the biggest problems facing government today are small staffs, lots of work, and an inadequate budget. The City of Kissimmee is no different. First I will talk a little about the city, who we are, where we are located, and some general information. Then I will discuss the ESRI applications that we use with out of the box functionality. Followed by Customized and 3$^{rd}$ party applications we use. These applications help us to provide more service and functionality with less resources needed. Finally I will try and discuss the obstacles we face and how we go about getting through them through organizational structure, training, resource utilization, and flexibility.

## City Information:

The City of Kissimmee is a city of about fifty-two thousand people in Central Florida. We are located about 30 minutes from Downtown Orlando, 15 Minutes from Walt Disney World and the Atlantic Ocean and the Gulf of Mexico are less then an hour and a half away. This puts us right in the middle of Florida.

Our location makes us a prime location to host tourist. We have numerous hotels restaurants and attractions. The tourist industry is the bread and butter of our local economy. As everyone knows the tourist industry has dropped since 9/ll; this has hurt the city finances immensely. We have to do a lot more with less. Also, being such a tourist town a lot of our residents are in the service industry. Typically these types of jobs are not the highest paying.

The City of Kissimmee has over 500 employees and a majority of the staff uses GIS in some form or another. To support these users there are 2 full time GIS staff, which are located in the IT Department (where the GIS is centrally managed). To add to our support responsibilities the city's department of water resources just formed a water utility. The utility adds 200 more staff members and this adds a lot to our work load.

Each department in the City has a "GIS Lead" where the department employees go to for mapping needs and basic support. The full time GIS staff helps with tech support and other needs beyond the scope of the leads.



GIS Organizational Structure Within the City
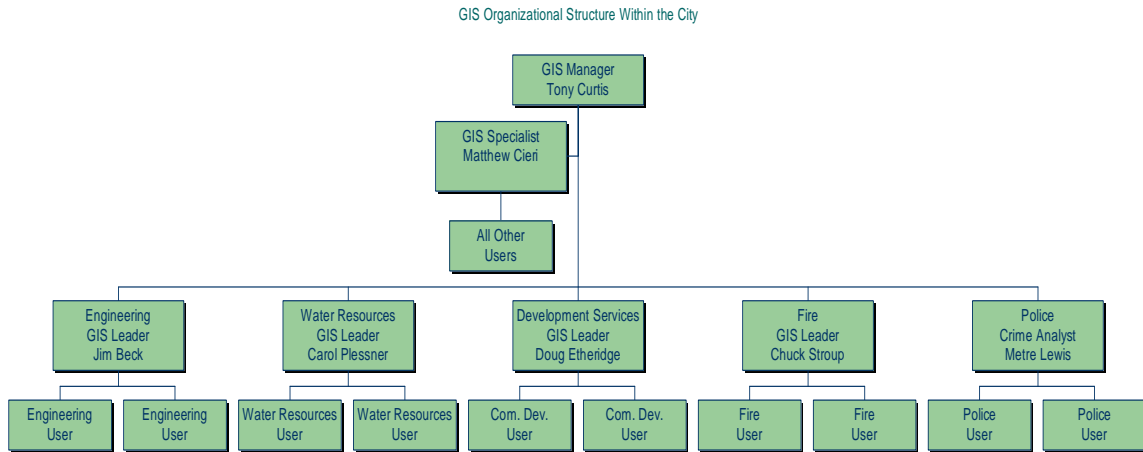
We have 6 ArcInfo Licenses, 3 ArcEditor Licenses, and 2 ArcView Licenses for 15 users. Each department creates there own data and it is stored on a central server administered by the IT Staff. The rest of the users use ArcIMS for queries and basic mapping. There are also about 20 users who use ArcView 3.x for needs that ArcIMS can't meet at the current time. In the near future we plan to discontinue the use of ArcView 3.x and have all basic users use ArcIMS for there mapping needs or add a few more ArcEditor licenses. A basic user is defined as a staff member that uses GIS functionality such as mapping, querying, and identifying features but doesn't create or modify data.
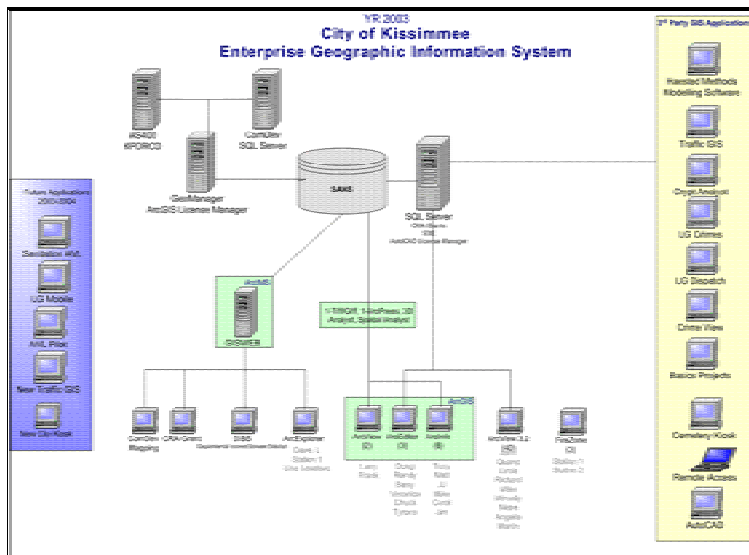


Currently our GIS data is stored in shapefiles, Personal Geodatabases and an ArcSDE Geodatabase. In the long run we would like to store everything in SDE but we don't see that happening for a while. We have many applications that still rely on

shapefiles and will continue to until we replace the application.  The reason for this is that we want to create a good database design so users will learn once and not have to keep dealing with changes.  Also, we still have many applications that can't use SDE layers due to older technology.

The city has many GIS applications to support.  These applications can be divided into 3 categories Out of the Box, Customized, and 3$^{rd}$ party. Some of the Out of the Box applications are ArcGIS, ArcIMS, ArcSDE, AutoCAD and ArcView. For our customized applications we have DIBS (Department Based intranet ArcIMS site), sign management application, ArcGIS scripts and automation tasks, a grant management program for the redevelopment agency and an information kiosk.  3$^{rd}$ party application include programs like LGCrimes and LGDispatch for the police department, Remote Access for the fire department, a cemetery kiosk (used for occupant location), and Crypt Analyst(cemetery management).  Along with the applications we have numerous systems working together for a final product such as AS400s, SQL Server tables, license servers, and web servers that we are responsible for with the help of other IT staff.  Also in the very near future we will be dealing with integration with GIS of Laserfiche (document imaging), a WMS (Work Management System), new SDE database for the water authority, and data conversion from as-builts.  With a staff of 2 the taxing of our time is going to increase immensely, so we are going to have to find a way to keep the GIS moving forward and support users in a timely manner.


## Out of the Box:


The City of Kissimmee is a total ESRI shop when it comes to GIS.  90% of our data creation and a 100% of our mapping is in done using ESRI products.  The other 10% comes from AutoCAD converted into shapefiles or Geodatabases.  All of our ArcGIS users use the software out of the box with very little customization.  I will discuss the customizations in the next section.  ArcGIS is used for data creation, data modification, mapping and data analysis.  Along with ArcGIS Desktop we also use 3D analyst (mainly for selling GIS and keeping up with ESRI's future direction) and ArcPress (for printing specialized colors on zoning and land use maps).

Another out of the Box application we use is ArcIMS.  We have a few sites that we use out of the box for certain staff that the customized IMS site isn't functional enough for.  Even though the out of the box browsers are not very stylish they have a lot of functionality and can be overkill to a lot of our users.

We also use ArcSDE out of the box. The only changes we have made so far are to the dbtune file.  This file sets things like database storage parameters and cross database visibility.

Third party vendors also provide out of the box applications for departments such as the cemetery, police, fire, and sanitation.  These applications provide task based needs for departments with out a lot of in-house development.  By using these types of products we can work on things we know well and leave the venders to use there expertise.  Another plus with using vendors is they are responsible for tech support on there products saving us a lot of time in debugging and we get enhancements without our development time.

## Customized Applications:

While we do have a lot of out-of-the-box applications, we do provide our customers with many customized solutions.  Not all of them are extremely complicated some are as simple as a query script and some are whole applications.  ArcGIS and ArcSDE are the least customized of the applications we use. There are a few reasons for this, first of all most of our ArcGIS users are willing and able to use the functionality provided, they are willing to look around the application to find what they need.  They don't need a button for everything.  If this was not the case I feel we would be doing a lot more customizations to the interface. Some of the things we did customize, for simplicity and productivity, for ArcGIS we have a few simple VBA query scripts, a Disclaimer creator and a mailing label generator. Also every year we have the need to create about 80 maps of people's homes for a school of government program.  The school of government is a program where 40 citizens come in and learn about how out government works and functions.  It would take about a week to make nice looking laminated maps.  So, to save time year after year I wrote a program that loops through and zooms to the class members and creates an MXD for each of them.  The only customization we made to ArcSDE is changing a few parameters in the dbtune file and creating a separate database to store the data. These customizations help us control data storage and database visibility, making it easier to add or increase the size of the data files and allow one logon to see all data in different databases. These simple customizations have saved a lot of time and effort for the users.

The application we spent the most time customizing is ArcIMS, due to the fact that we can give all the city access to our data for no additional cost.  We have numerous applications some from consultants/vendors and some in-house customizations.  Our most used internet and intranet site is called DIBS (Departmental Intranet Browser Solution).  It was written by GTG Inc to be the general user GIS tool for searching, basic mapping, and other general GIS functionality.  This application has been a major time saver.  Another ArcIMS based application is our city's kiosk.  This kiosk allows citizens, developers and business owners to obtain building permits, occupational licenses, and other basic functions from an onsite kiosk and from the internet.  An asp page using the ActiveX connector (created in house) provides the mapping and geographic search functionality.  There are also many other customized mapping site for individual needs.  We have proven time and time again that users like simple customized sites that contain only what they need.  It keeps the learning curve very small and the intimidation to a minimum.

## Obstacles and Solutions:

The City of Kissimmee has certain issues that are common to most small to mid size municipalities: small staff, lots of projects and tasks, small budget, new wants and needs as staff sees what GIS can do, and lack of time.  I hope to give you some things that we have done to help minimize the effect of these problems.

The single most important part of our GIS is our Organizational Structure.  Our main GIS staff is located in the IT department with "GIS leads" in the other departments.

This structure works for us in many ways.  The major reason for having us in the IT department is it keeps us working close with the networking and helpdesk staff.  As most of you already know the network and data servers are one of the most if not the most important part of an enterprise wide GIS.  Without them it makes sharing data, backing up data, and storing data very difficult.  In our organization, if the network goes down GIS is not possible.  The second reason is it helps take down departmental walls by being another technology that IT provides for all.  If the GIS is in planning things like zoning, land use and parcels are the most important data sets.  In Public Works things like roadways, storm water, and drainage takes precedence and so on through the departments.  Keeping all major data controlled by an independent internal service and different departments creating and storing data on a central location makes internal sharing easier.  Finally having a "GIS lead" saves a lot of time in tech support because the leads answer all basic questions and mapping needs.  The leads are the GIS "go-to" for there department.  This frees up our GIS staff to do higher level tasks and customizations.

   The second most important part of our GIS is training.  All staff current and new have the opportunity to learn about the applications in our IT training room via custom in-house training, web training, etc.  They also are able to give input in future functionality that can be used to help them do there job in a more timely and efficient manner.  Most of the general users are taught in house through the IT department and the Leads and GIS Staff are trained by ESRI certified trainers and Virtual Campus Courses.  The more the staff knows and can work through issues themselves. The more tasks and projects can be completed independently or with little help from IT.

   The next tip I can give you is use all available resources to get a problem or task solved.  ESRI provides documentation, list servers, user forums, and online help.  Using all of these options can save tons of time and energy.  If you have a programming question you can enter it on the forum and within a few hours you can get a response back with code samples or suggestions that can make your task easier.  You can search the knowledge base for common issues there is no reason to reinvent the wheel or waste time looking for a fix if it is already there.  The GIS community is probably the best group for sharing information.  Everyone seems to be willing to help one way or another.  Some other resources that are available are the developer samples online and on the CD.  Also, don't be afraid to use a 3$^{rd}$ party application (especially from an established company) these companies have specialized in certain functionality.  A lot of times these extensions cost only a few hundred dollars. It is worth it, if it can save time and increase productivity.  There are many other resources out there; these are just a tiny few.  Take a few minutes and do some research, 9 times out of 10 some one has done some thing or had the same problem as you.  Save your self time and money by using the resources available.

   Finally prioritization of projects helps to keep our GIS inline.  By keeping everything in order, we are able to keep things going pretty much on time.  It can get very difficult to do all projects with the constant interruptions through out the day, but by keeping a plan of attack we get important things out quickly, keep the staff happy, and keep important datasets up to date.  This step is an on going project you have to keep your priorities flexible being able to change and move things around as needed.  With a small staff and not a lot of money, prioritizing can be a great help.

## Conclusion:

The City of Kissimmee is no different then most other small to mid-sized municipalities, in that we are having to do more and more with less. One thing that frees up GIS staff time is using "out-of-the-box" solutions when ever they exist such as ESRI product suite, LG Dispatch, Remote Access, etc. This enables us to support our users, identify new uses for GIS technology, develop new customizations, and maintain current IT infrastructure while getting external support and future developments for these out-of-the-box software packages. Although the out-of-the-box solutions are very functionally rich there is inevitably a need to customize them to cater to the user. We do customize our ArcGIS products using VB Scripts, as well as customizing ArcSDE, and ArcIMS. We do this with in-house expertise and it is on a single task based requirement as opposed to a new application. We have found it essential to have this expertise within the GIS team.

Our City has a centrally managed – distributed GIS organizational structure that allows us to provide effective GIS support while maintaining exploiting the departmental knowledge of the GIS Lead person. In our experience, it is absolutely imperative to have the GIS centrally managed by people in the IT department or in a separate department all together, with no allegiance to a particular application or data. Having GIS in the IT Department is also advantageous when it comes to training as the Department is already experienced in training users in technology. Another advantage of have our GIS in the IT Department is the heavy dependence GIS has on IT skills for things like networking, hardware, software, and IT purchasing.

With so much interest and need for GIS within the City, it is important to be able to prioritize projects and tasks yet be flexible to address the dynamic nature of IT and GIS. Keeping in touch with users, and having a central node where all Geospatial (GPS, GIS, CAD) type projects must go through, helps us accomplish this feat. The central management also has its strength when budget time comes. It prevents duplication of effort, allows us to identify cross-departmental requirements, and gives the budget committee the reassurance that the project managers for the GIS projects are GIS professionals being guided by knowledgeable users.

## Author Information:

Matthew R Cieri
GIS Specialist
City of Kissimmee
101 N Church St.
Kissimmee,Fl 34741
Phone - 407-518-2189
Fax - 407-932-0289
mcieri@kissimmee.org