



2012

Catawba County Project Portfolio

Contents

What Does Value Mean to You?	4
Values	5
Project Value Matrix	6
My Catawba County	7
Promoting Transparency	8
Public Health Electronic Health Record System-Insight	9
IT Project Central	10
Tax Billing and Collection System Upgrade	11
Video Production	12
Unified Electronic Payment Processing System	13
Permit Center Application Replacement	14
PeopleSoft Enterprise Initiative	15-18
Special Needs/ Critical Care Database	19
Tracking for School Nurse Program	20
Mental Health Partners PeopleSoft Instance	21
Microsoft Upgrades	22
Computer Replacement	23
H1N1 Grant Fund Digital Signage	24
Automated Appointment Reminder System	25
800 MHz VIPER System	26
VisionMobile and AVL for Emergency Vehicles	27
Ortho-Photography	28
Oblique Photo Project	29
Business Address Layer Project	30
Creation and Implementation of Joint Address Points Layer with Municipalities	31
GIS Website Enhancements	32-33
Tax Mapping Project	34
Virtual Technology/SAN Upgrade	35-36
Infrastructure Upgrade	37
Laserfiche Imaging/Document Software Expansion	38
Avamar Backup Project	39
Web Site Redesign and Social Media	40-41
Archival System	42
Voice over IP (VoIP)	43
Regional GIS Website	44
Joint City Limit/ETJ and Zoning Layers	45
911 Microwave	46

What Does Value Mean to You?

This sounds like a simple question. What does value mean to you? And it may be simple for you to answer. But when we asked several groups this question, we found that there were about as many answers as there were people answering. We also found that the answers varied depending on whether you were looking at it from a citizen's standpoint or from a government standpoint. It even varied depending on the department being represented.

While the definitions varied, there was a lot of commonality. People were quick to convey that value is not just monetary. The intrinsic value or the underlying perception of the true value included all aspects of the organization in terms of both tangible and intangible factors.

As we evaluate the technology projects we have completed over the past five years, these group discussions play a critical role in understanding the value of each project. Through consolidation of definitions, value was summarized to these seven areas: Savings, Efficiency, Relationship, Citizen, Expectations, Risk, and Strategic.

Savings related to all of the ways to save money like reducing personnel, holding growth, time savings, or just the biggest bang for the buck. Efficiency was defined by efficient processes, time savings, process improvement, improved services and the ability to match needs with resources. Relationship value represents the relationships with the public and the internal relationships that are extremely important for any organization. Citizen value includes increased levels of service, but it goes well beyond that to include removal of constraints, providing useful information and making a positive change in behavior, attitude and well being.

Expectation may seem like a strange value, but it has become part of the delivery of services. People expect to have choices based on their personal preferences, they expect more online services, they expect accessibility, and simplification. They also expect security in their dealing with the government which brings us to the next value, risk. Reducing risk is of high value today. Data security, integrity and the preservation of data and institutional knowledge are all part of the risk value assigned to projects.

Strategic value is the last of the seven. Sometimes the value is in the priority of a service that is needed or desired. Sometimes value is generated by an opportunity that would be lost if not acted upon. Or maybe it is just part of the business outcomes.

On the next page there is a summary of the terms from our value discussions. They are broken into the seven summary areas. Perhaps your definition of value falls into one of the areas, or maybe you have other definitions. The important thing to realize is that we may all look at things a little differently; however, when it comes to providing valuable services to the citizen we must review every project for its contribution to the County's overall well being.

Values

Money Savings (Savings)

- Reduce Personnel/Hold the growth
- Time Savings
- Cost in relationship to alternatives
- Biggest bang for your buck
- Cost savings- resources, personnel
- Limited resources

Better Efficiency (Efficiency)

- Efficient
- Time Savings
- Process Improvement
- Ability to match resources to need
- Improved Service Delivery
- Improved Communications

Public Relation Value (Relationship)

- Public perception
- Human Resources Support
- Relationships- human and tangible

Better Service to the Citizen (Citizen)

- Increased Level of Service
- Removal of Constraints
- Positive change in behavior, attitude or well being
- Useful Information

Expectations (Expectation)

- Personal preference
- Desirable
- Choice
- Ability to do more
- Anything that increases the quality of life
- Access /Accessible
- Meeting expectations
- Ease of use/transaction/interaction

Mitigates risk (Risk)

- Reducing risks
- Data Security and Integrity
- Increased Security
- Institutional Knowledge

Strategically important (Strategic)

- Priority
- Needed/desired
- Opportunity Lost/Cost
- Business Outcomes



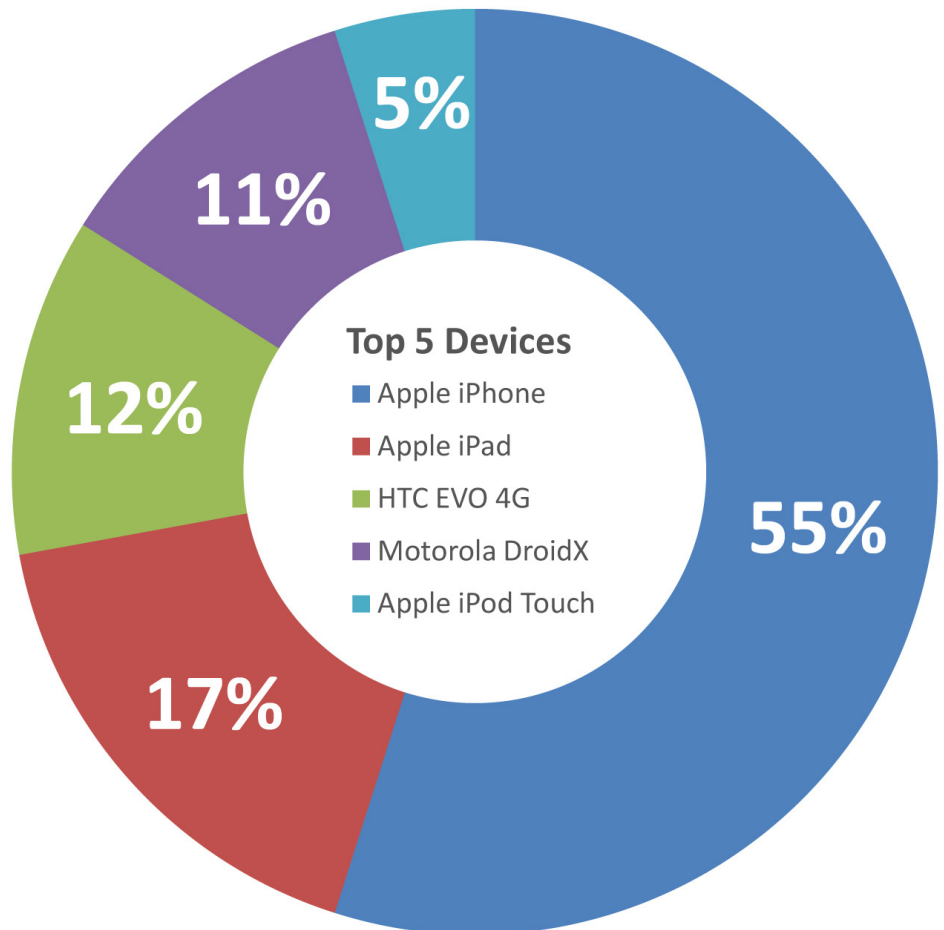
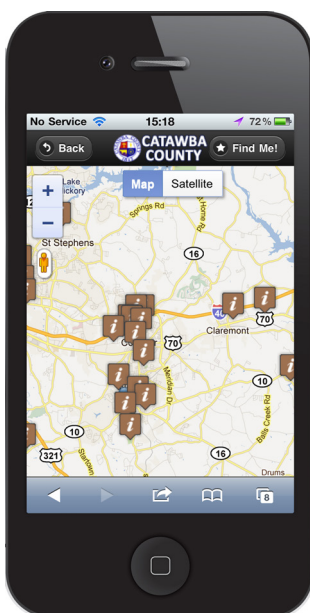
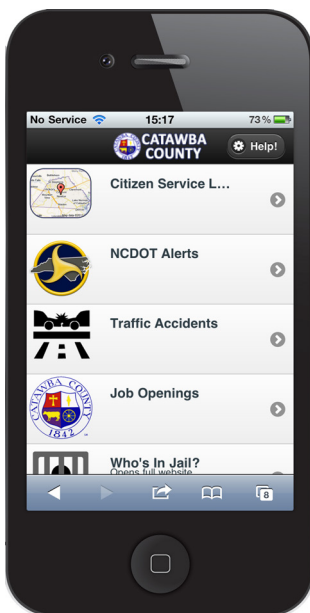
Project Value Matrix

Project	Savings	Efficiency	Relationship	Citizen	Expectation	Risk	Strategic
My Catawba County	•	•	•	•	•		
Web Data Sets and Reports	•	•	•	•	•		
Public Health Electronic Health Record System-Insight	•	•				•	•
IT Project Central		•			•		•
Tax Billing and Collection System Upgrade	•	•			•		•
Video Production Services				•	•		•
Unified Electronic Payment Processing System		•	•	•	•	•	
Permit Center Application Replacement		•	•	•	•	•	•
PeopleSoft Enterprise Initiative	•	•			•	•	•
Special Needs/Critical Care Database	•	•		•	•	•	•
Tracking for School Nurse Program		•	•		•	•	
Mental Health Partners PeopleSoft Instance			•	•			
Microsoft Upgrades		•				•	•
Computer Replacements		•			•	•	•
H1N1 Grant Fund Digital Signage		•	•	•			
Phone Tree Call System	•	•					
800 MHz VIPER System	•	•	•	•	•	•	•
VisionMobile and AVL for Emergency Vehicles		•		•	•	•	•
Ortho-Photography	•	•	•	•	•		•
Oblique Photo Project	•				•	•	•
Business Address Layer Project	•		•	•	•		•
Creation and Implementation of Joint Address Points Layer with Municipalities	•	•	•	•	•	•	•
Tax Mapping Project		•			•	•	•
Virtual Technology/SAN Upgrade	•	•			•	•	•
Infrastructure Upgrade		•				•	•
Laserfiche Imaging/Document Software Expansion	•	•				•	•
Avamar Backup Project		•				•	•
Website Redesign and Social Media	•	•	•	•	•		•
Archival System		•			•	•	
Voice over IP (VoIP)		•			•	•	
Regional GIS Website	•	•	•	•			•
Joint City Limit/ETJ and Zoning Layers	•	•	•	•	•	•	•
GIS Website Enhancements		•		•	•	•	
911 Microwave	•	•		•	•	•	•

My Catawba County <http://m.catawbacountync.gov/mycatawbacounty/>

My Catawba County is a mobile web app that was created in conjunction with Western Carolina University as a tool to help the public explore Catawba County. The decision was made to create a mobile web app so that it would be viewable on several different devices, and made available to more people. Some of the features of My Catawba County include a Citizen Service Locator to help find services near you, traffic alerts, job openings, who's in jail, and what's the score, to see restaurant sanitation scores near you. My Catawba County will continue to be upgraded and enhanced to meet the needs of the public.

- ☒ Savings
- ☒ Efficiency
- ☒ Relationship
- ☒ Citizen
- ☒ Expectation



Value Added:

- **Time Savings** - Citizens are able to access information quickly and on the go.
- **Biggest bang for your buck** - Developed in-house.
- **Improved Communications** - Citizens are able to access information on multiple mobile devices.
- **Access** - Since this is a webapp, it is accessible from virtually any device.

Promoting Transparency

Open government is a top priority for Catawba County Government. The purpose of providing a list of datasets and reports is to make public data easier to access, and in the process make government data more useful for everyone. This open data initiative allows Catawba County Government to partner with the public to use this data to create solutions for citizen needs.

Number of times the Registered Voters in Catawba County dataset has been downloaded since Oct. 2011

- ☒ Savings
- ☒ Efficiency
- ☒ Relationship
- ☒ Citizen
- ☒ Expectation



Value Added:

- **Savings** - Making public data easily available online is not only convenient for the public, but it has saved County employees numerous hours of work that they would have to spend filling requests to provide data to the public.
- **Efficiency** - Online data sets and reports is a time saver for the County as well as the public. Making public data accessible “on demand”, when the public wants it, rather than only during normal business hours is a more efficient way to deliver information.
- **Relationship** - By providing the public with open data, we look forward to making it easier for people to create solutions for citizen needs.
- **Citizen** - Eliminating the need for a citizen to have to go through a request for information process is a major time saver for the citizen and the County employee that would normally have to take time and resources to fulfill the request.
- **Expectation** - People expect to have access to public data. Providing data sets and reports meets this expectation.

Public Health Electronic Health Record System-Insight

The Insight billing and clinical management system positions the Public Health Department to begin using electronic health records. It provides more accurate tracking and follow up on claims for services provided. North Carolina requires county agencies to use their state provided HIS system to process Medicaid claims and this system interfaces with that system to eliminate duplicate entry.

- ☒ Savings
- ☒ Efficiency
- ☒ Risk
- ☒ Strategic



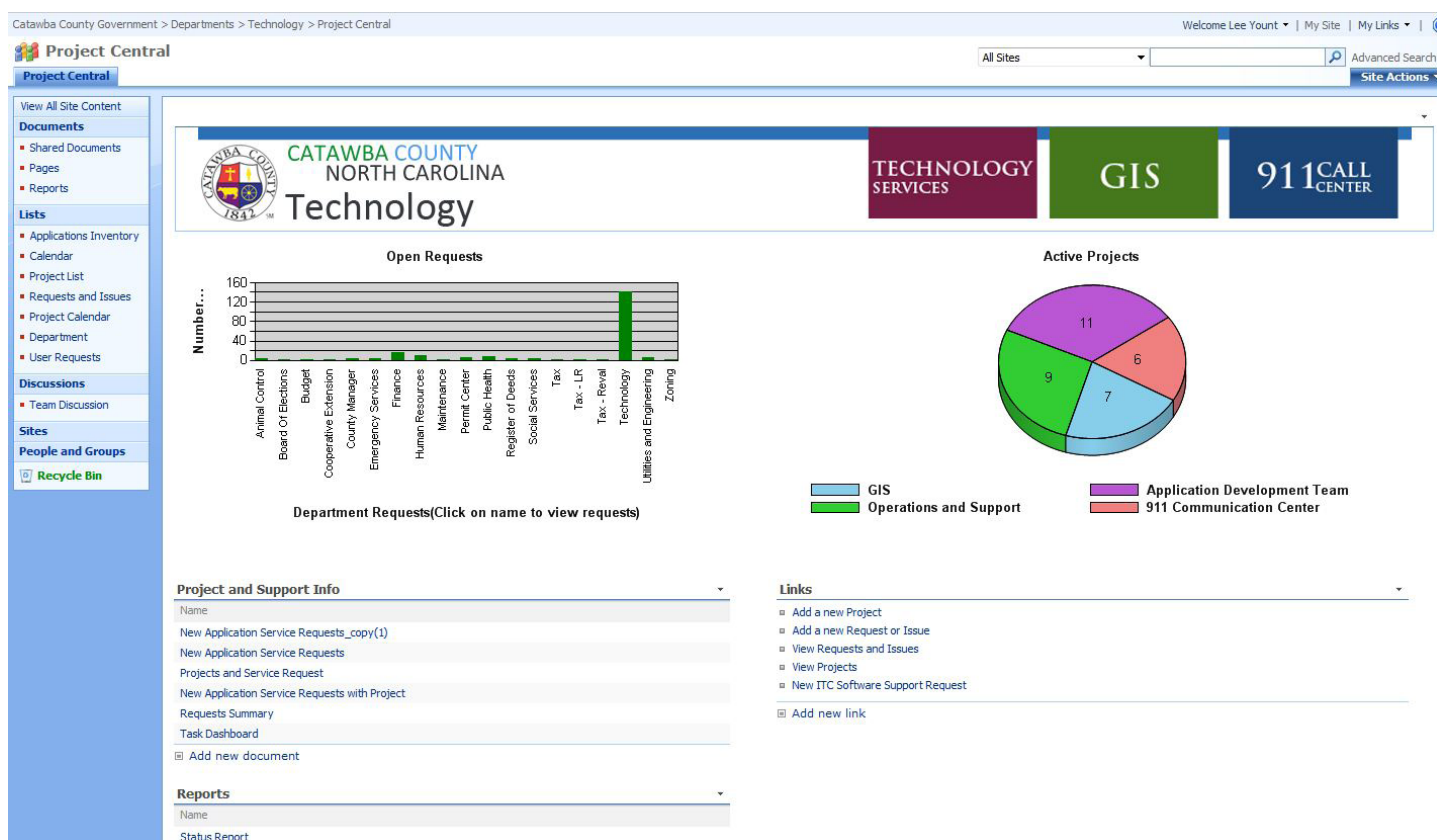
Value Added:

- **Savings** - Reduces staff time for interfacing with the State HIS system by approximately 28-34 hours per week
- **Efficiency** - Saves approximately 10 minutes per client in the registration process with an average of 78 clients per day
- **Risk** - Allows for consistent, reliable data storage and retrieval by using a standard database management system
- **Strategic** - Creates a better position for upcoming electronic medical record requirements

IT Project Central

The four divisions of the Technology Department regularly have between 20 and 40 active projects at any point in time. IT Project Central was designed to provide more efficient project portfolio management. It was developed in a SharePoint environment and allows detailed tracking of projects and service requests with dashboard reports, charts and graphs that provide instant summary or detailed information as requested. The tool saves many hours per week by consolidating the information and presenting it in several formats.

- ☒ Efficiency
- ☒ Expectation
- ☒ Strategic



Value Added:

- Efficiency** – provides a single source for IT Project Portfolio Management and prevents compiling information from various sources
- Expectation** – portfolio information and statistics can be provided at any point in time in various formats
- Strategic** – a centralized, comprehensive history and status of County IT Projects provides a valuable tool for future planning

Tax Billing and Collection System Upgrade

The Tax Billing and Collection system was upgraded to include new features for better managing delinquent collections, processing mail payments and tighter integration with other systems such as Register of Deeds and document management. Implementing the new functionality is calculated to save more than 1000 hours in employee processing time per year.

- ☒ Savings
- ☒ Efficiency
- ☒ Expectation
- ☒ Strategic



Value Added:

- **Savings** – will save an estimated 1,000 hours per year in employee processing time
- **Efficiency** – streamlines delinquent collection and mail processing
- **Expectation** – further optimizes efficiencies and improves services
- **Strategic** – moving to a more standard database system enhances integrations with other systems

Video Production

Catawba County's YouTube channel provides a valuable opportunity to engage with and inform citizens. Many public service videos such as biweekly previews of the Board of Commissioner meetings, Emergency Preparedness Tips and Guidelines, and Public Health publications are available as well as educational information on various topics such as "How to get a copy of a birth certificate".



Value Added:

- **Citizen** – serves to inform and further engage with citizens
- **Expectation** – the public expects to be informed in a variety of formats
- **Strategic** – now and in the future it is important to be able to share events and information in multi-media formats that are easily accessible via the Internet

Unified Electronic Payment Processing System

Catawba County had limited electronic payment options for the public. Citizens could pay their tax bill online but could not use credit or debit cards at the counter. The Register of Deeds accepted debit cards and Permitting accepted credit cards over the counter.

To give the public more payment options and to provide a consistent approach across the County, department heads requested a payment system that could be used with all departments over the counter and online and provide a consolidated bill and payment method for citizens. Research for the County's website revealed that online payments were a high priority.



A vendor was chosen to provide services. To date, the Tax Department, Register of Deeds, Permit Center, Planning/Zoning, Public Health, Libraries, Animal Control, Cooperative Extension and GIS offer over the counter payment. The Tax Department, Permit Center, Library and Cooperative Extension have the option of online payments via Catawba County's web site.

Online payments for consolidated bills were made available at the end of 2008. With this, the public can go online and make one payment for all of their county obligations: taxes, permitting, landfill and sludge waste fees in one location.

2008-2009 Fiscal Year-
Total Transactions: 13910
Total Dollars: \$2,404,241.82

2009-2010 Fiscal Year-
Total Transactions: 18262
Total Dollars: \$2,967,181.44

2010-2011 Fiscal Year-
Total Transactions: 22279
Total Dollars: \$3,353,421.46



Value Added:

- **Citizen Expectations** - citizens now have more options and access for paying for services.
- **Savings** - improved collections at Library & others (paper, phone calls, etc...)
- **Efficiency** - provides better tracking of payments for customers and Catawba County.
- **Risk Mitigation** - we use a secure PCI compliant vendor to process transactions to further protect the county from risk and to keep citizen's information safe.
- **Public Relations** - citizen requested this service since many pay their bills online or with a card Catawba County responded with this project.

Permit Center Application Replacement

In 2008, it was determined that the Tidemark system used for permitting and inspections was over 10 years old and could not provide the services that are expected by the building community. The software could not be modified and was not being supported by the vendor. A recommendation was made for Energov Solutions by the project team to the Board of Commissioners.

In 2009, Catawba County and City of Hickory began using the new system. The Energov system tracks everything related to the building process from planning and permitting to final inspection. The departments that were affected by this project were Building Services, Code Enforcement, Environmental Health, GIS, Planning and Zoning, Tax, Finance and ES-Fire Marshall's Office. The system is totally integrated with billing, EH inspections, document imaging software, GIS and electronic payment system. We began Phase II that was to include implementing Energov throughout the remaining 7 jurisdictions, which we completed for Conover and Maiden. During Phase II, the vendor released a web based version of their software that included many new enhancements so we delayed Phase II and began the upgrade. The upgrade has been completed and we are in the process of implementing Phase II (expanding to the remaining jurisdictions) and Phase III (Electronic Plan Review).



Known Impacts:

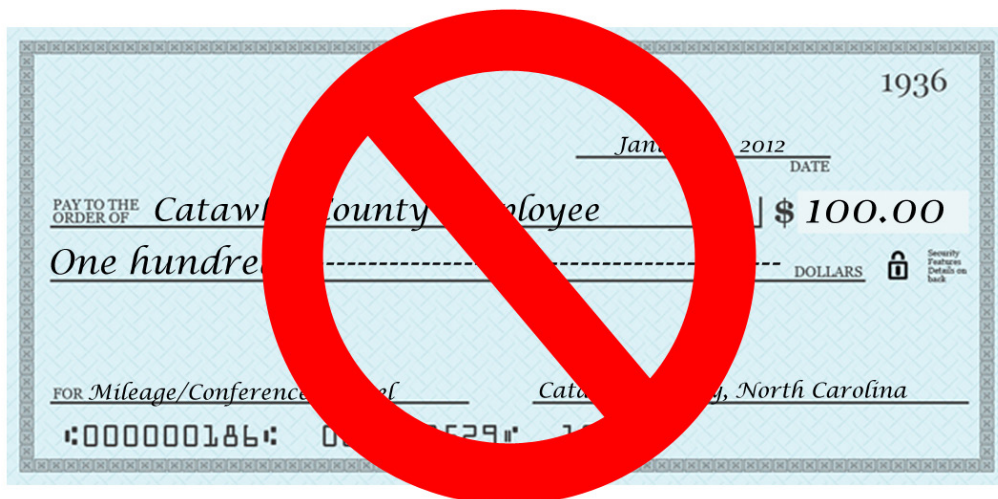
- Since the system was put in production, in October 2009, we have processed ~21,500 permits/cases.
- Progress and inspection notes can be viewed online and there is tight integration with the County GIS.
- Allowed seamless integration with multiple internal departments and City of Hickory
- Online access for contractors to view up-to-date info, request inspections and make payments online ~200 contractors have created accounts in CAP
- Gives Mobile inspectors more info than legacy system out in the field
- Gives Mobile inspectors more control and up-to-date data in the field
- Allowed code enforcement department to expand case tracking and case follow up abilities
- Saved county \$7800 year to dissolve CDP contract for Well and Septic, EH handling Well and Septic within the Energov software
- Since go-live October 2009-2209 inspections requested via IVR and CAP, previous average with IVR was 720 year in legacy system

Value Added:

- **Efficiency** - online access to permit information from virtually anywhere where there is an internet connection.
- **Relationship** - several departments, local agencies, and cities working together.
- **Reduces Risk** - elimination of unsupported product as well as multiple 3rd party software contracts.
- **Citizen expectations** - Citizens are able to access real time data in an easy to read format.
- **Strategic** - utilizing a enterprise software to eliminate disparate systems throughout departments.

PeopleSoft Enterprise Initiative

The County has made a significant investment in PeopleSoft. In order to maximize that investment, the County is moving appropriate business processes and functions to PeopleSoft. Projects to date revolve around Human Resources and Finance but this initiative expands the use to broader categories including the Critical Care Special Needs Database Project. Since this project is constantly being redefined, no completion date is set.



- ☒ Savings
- ☒ Efficiency
- ☒ Expectation
- ☒ Risk
- ☒ Strategic

Online Expense Reporting: An online expense system has been developed within the PeopleSoft application. Employees can go online and submit expenses like mileage, conference costs, travel and others. Once expenses are submitted, they are automatically routed to supervisors for approval and then to Finance for payment. Payment is electronic and is included as a separate item on the employees next pay check. This eliminates the paper check in the expense reimbursement process and allows for a completely automated process. Cost savings are realized by not having to print paper checks and since the reimbursement is included in the regular payroll check, bank charges for multiple transactions are reduced. On the employee side, the process is simpler and they are not longer required to go to the bank to cash expense checks.

Value Added:

- **Efficiency & Reduced Workload** – expense information is recorded one time by the employee rather than recorded, printed, signed by employee then sent to Finance where it was keyed again; expense checks are not printed, the amount is added to employee direct deposit pay checks.
- **Tracking** – employees and approvers can see all expense reimbursement information from a single source.
- **Green** – mileage reimbursement forms and expense checks are no longer printed.
- **Expectation** – the public and employees rely on the County to provide efficient business processes

PeopleSoft Enterprise Initiative

Maintenance Work Order System: The Maintenance division of the Finance Department wanted to automate the work order process and allow requests to be submitted and tracked electronically. The current help desk module of PeopleSoft was modified to accommodate this request. Integration with Blackberry devices allow maintenance employees to access and update the information more easily and from anywhere in the field. The system was fully implemented July 2008.

Work Order Requests

Work Order ID: 13214
Date of Request: 10/19/2012 2:53PM
Print
Delete the entire Work Order

Requested By: 4296
First Name: Duncan, Amand
Last Name: Amanda
Phone: 828/464-2424

*Building: Govt. Center
Date Needed:

Add New Assignment

List Maintenance Technician Assignments
Find First 1 of 1 Last

Type of Work: Routine Maintenance
Priority:
Delete

Technicians

Technician	Hours	Resolution		
Brooks, Dean H			+	-

Down Date: 10/19/2012
Down Time: 2:53PM
Floor:
Room:

Describe Work Needed:
Please have the Curbside voter signs at the Newton Library raised about 3 of 4 feet. We have lines at the library for voting and people are standing in front of the signs. Curbside voters in their vehicles.

Maintenance Comments:

Email Maintenance Technician
Apply Techs to all Assignments
Email all Techs in all Assignments

Call Resolved

Work Order Status/Completed: Not Completed
Up Date:
Up Time:

Save
Return to Search
Previous in List
Next in List
Add

Value Added:

- **Efficiency** – electronic records are more easily accessed by all departments and can be accessed remotely via mobile devices
- **Better Tracking** – electronic files are much easier to produce statistics and reporting
- **Green** – paperless and less gas
- **Easily shared with departments** – status of work orders is readily available to departments

PeopleSoft Enterprise Initiative

Tracking of “Green” Purchases: It is the practice of Catawba County to purchase products that are recycled or from renewable sources when possible. This project was to modify PeopleSoft Financials applications to capture selected fields when purchasing “green” products and to report the total amount of “green” products purchased.



Value Added:

- **Expectations** – the County promotes recycling for the public and is helping to set an example
- **Green** – this encourages vendors to provide environmentally friendly product choices
- **Useful information** – provides ability to demonstrate the level of participation in the program

PeopleSoft Enterprise Initiative

\$11,000 + SAVINGS

E-Payables: E-Payables allow vendors that Catawba County owes money faster access to their payment after approval, etc. With ACH there is a waiting period, with the card less E-Payables system there is no wait time.

Value Added:

- **Expectations** – modern business practices dictate electronic payment options
- **Efficiency** – Less time is required to process electronic transactions versus printed checks; no postage fees
- **Green** – reduces electricity and paper required to print checks



Procurement Card: The procurement card module in PeopleSoft allows for faster reconciliation of the credit charges. The charges are imported and manipulated.

Value Added:

- **Expectations** – Current business practices allow online management of procurement card purchases.
- **Efficiency** – Many hours are saved by having the software complete and verify calculations.

Special Needs/ Critical Care Database

In times of emergency, some citizens require special assistance or care to maintain health and safety. For example, people with oxygen, wheelchairs, insulin, etc. need to be sure these things are available if they need to be moved to an emergency shelter for any reason. Multiple departments have been maintaining either a special needs database or a critical care database with this information for many years so County emergency staff can provide medical care and safety for these citizens. There were six separate department databases with essentially the same data in each one. With so many points of entry, consistent reliable data was almost impossible. In this project, one database was created so any of the departments can add or modify the data and share the updated information. This project is built on the “enter once, use many concept”. To date, Emergency Services, three divisions of Social Services, Communication Center and the Sheriff’s department are sharing resources to track the data. During an emergency – either a 911 call or evacuation – staff is automatically alerted with a current list of citizens having special needs and citizens’ 911 addresses are electronically displayed on a large map in the Emergency Operations Center to facilitate the most efficient routing if evacuation is required.

- ☒ Savings
- ☒ Efficiency
- ☒ Citizen
- ☒ Expectation
- ☒ Risk
- ☒ Strategic



Value Added:

- **Safety** – More current, consolidated data helps assure safety for citizens
- **Risk Mitigation** – emergency personnel have advance notice of special requirements and are better prepared
- **Expectations** – citizens depend on emergency personnel to keep them safe
- **Efficiencies** – (1) the addresses with special needs are displayed on a map to facilitate most efficient routing if evacuation is required; (2) data is entered once rather than multiple times
- **Useful Information** – Planning and emergency responses are greatly enhanced with this consolidated approach to tracking the information

Tracking for School Nurse Program

Catawba County Public Health department provides the services of registered nurses for school children throughout the County. Services are provided at 41 Catawba County schools by 23 nurses who are equipped with mobile computers. This solution provides a means to accommodate statistical and generic information. The information collected is consolidated into one report that is presented to various boards. The individual student health records are kept secure in a separate application. A custom PeopleSoft application was developed to track summary information. Each nurse collects data as services are provided and records the information in a web-based application.

Periodic reports are generated and sent to appropriate governing and funding groups. The nurses use the system to collect and maintain statistical information only. This drastically reduced reporting time for funding that is required by each school nurse.



Efficiency



Relationship



Expectation



Risk



Value Added:

- **Efficiency** - reporting time is greatly reduced by having a system to sort and calculate summary information
- **Useful Information** – funding for the school nurse program is provided by various agencies that require the summary information
- **Risk Mitigation** - the data collected provides information that helps target health programs to reduce health risks

Mental Health Partners PeopleSoft Instance

On April 1, 2008 the decision was made to proceed with a new installation of PeopleSoft and a project team was created. The project team decided that the new installation for Mental Health Partners should use PeopleSoft 9.0 and create a new “Company” in the existing PeopleSoft HRMS database. The project team began work immediately. For the financials system, the team originally implemented General Ledger, Payables and Commitment Control. Shortly into the project the scope was modified to include Purchasing. The methodologies were similar to how the County had kept books with minor changes. These included approval rules and multiple bank accounts. The Financials system actually went live early and under budget. For the HRMS system, a new “Company” was created within the existing HRMS installation. The County had only one Company previously – this required all reports to be modified. The existing County payroll staff continues to produce the payroll, but now run a payroll for each “company”. All time periods, rules, and benefits remained the same. The County completed the first payroll (which because of the time period the Mental Health Partners employees actually go a check from each “company”) was completed July 25, 2008 for the time period 06/28/2008-07/11/2008. The project team completed a new installation of Financials and made significant changes to business practices in a 3 month period. The County considered this a very successful project.



Relationship



Citizen

Value Added:

- **Collaboration** – allows Mental Health Partners to provide better service to customers/citizens



Microsoft Upgrades

SharePoint Implementation: SharePoint is a collaboration and document storage tool. It provides work and collaboration spaces for departments to post, write, and discuss documents and project plans as they move through the process from draft to final. SharePoint is an extension of our existing Microsoft Office platform. The main purpose for using SharePoint is to provide a place for collaboration and at the same time have a common storage area for institutional knowledge. Previously documents were stored in folders and subfolders by department on network drives. When an employee left it was sometimes difficult to find the latest versions of documents. SharePoint allows users to store documents in a searchable format and easily allow a secure platform for sharing, editing, and posting. It also tracks versions as a document moves through the creation process. In addition, SharePoint provides for efficient document storage by providing one location and one copy of a document to be stored and shared by many. This eliminates the requirement for everyone who needs access to a document to store it in individual folders on networks drives. As a result, less storage space is needed and less backup time required. Currently, SharePoint has been setup to provide work areas for each department, project management, and the County Intranet.

**Value Added:**

- **Institutional Knowledge**- provides a central location for storing documents
- **Collaboration** – allows sharing of documents, maps, photos and enhances communication
- **Risk Mitigation** – version control and single source for critical documents
- **Efficiency** - search, versions, sharing information



Computer Replacement

The County maintains a goal to replace 20 percent of the desktop and notebook computers, excluding DHR agencies, yearly. This maintains compatibility with other agencies and software standards imposed by vendors. The county has met the 20% goal for the last two years. While it has been the standard in the past to replace desktops and notebooks, it should be noted that new technologies like tablets and smart devices may be a better option and that they may be the replacement of choice.

- ☒ Efficiency
- ☒ Expectation
- ☒ Risk
- ☒ Strategic

Value Added:

- **Efficiency** – We replace computer that are over 5 years old to reduce downtime and speed up processors which allows us to run updated software.
- **Compatibility** – Computer software has to be upgraded to maintain vendor support and as new features are added more hardware resources are required.
- **Removal of Constraints** – By maintain a minimum level of hardware we are able to run the latest versions of in all departments as needed.
- **Expectations** – We are expected to be able to exchange current versions of application data with other agencies and departments. This would not be possible without providing minimum standards for hardware.



H1N1 Grant Fund Digital Signage

H1N1 grant funds were received to educate the public concerning H1N1 prevention and care. The funds are being used to implement electronic/digital signage in clinics and other targeted areas where clients will have the opportunity to learn more about this and other timely health concerns. Currently, eight digital signs have been placed at Public Health and two at the Department of Social Services. In the near future, one digital sign will be placed at the main library branch.



Efficiency



Relationship



Citizen

Value Added:

- **Useful Information** - displays critical information to the public at several locations
- **Public Relations** - allows Public Health to publish marketing and health announcements electronically
- **Efficiency** - saves printing of posters for bulletin boards, information can be added and updated from a central location

Flu Fact

MYTH: Antibiotics can fight the flu.

FACT: Antibiotics can cure bacterial infections – not viral infections. Viruses cause the common cold and the flu. Antibiotics will not help cure the infection or make you feel better.

If you have any questions contact Catawba County
Public Health at (828)695-5800 or visit our website
www.catawbacountync.gov/phealth

Automated Appointment Reminder System

Added a "Phone Tree" system at Social Services to automate calling clients to remind them of appointments. Family NET uses the system to make an average of 50 calls per day. Staff time for reminder calls was reduced from approximately 2 ½ hours per day to the 5 minutes per day to load the call list to the network. Transportation uses the system to make approximately 40 to 50 calls per day. This has reduced the number of "no shows" by a noticeable amount. Reimbursement is based upon number of successful pickups so this has a positive impact on revenue as well. At this rate, the maximum return on investment would be less than 3 months. (\$1,819 (system cost)/(\$14.00 (per hour pay of callers)/2.5 hours per day).



Savings



Efficiency

Value Added:

- **Efficiency** - reduced staff time to call by 2 ½ hours a day and an approximate savings of \$9100 labor cost per year
- **Money** - reduced the number of no shows for transportation-DSS receives reimbursements based on number of successful pick-ups



familynet

The hope families want. The help children need.

800 MHz VIPER System

This project enhances our ability to talk to Public Safety officials in our county and surrounding counties. We had coverage issues in the county with the VHF system that needed to be addressed. Viper is established here and the build out of tower sites is taking place in our area. By partnering with the North Carolina State Highway Patrol, Catawba County upgraded its communications system using the infrastructure provided by the state. In partnership with the fire and rescue departments in the county and EMS we received a \$803,964.00 grant to purchase radios for the departments. The Sheriff's Department also received a grant for \$254,000 with a 50% match for radios. Completion Date: December 31, 2010



Value Added:

- **Risk Mitigation** - 800 Mhz has more coverage in the county and interoperability with the State
- **Money** - Partnering with the State has reduced the cost and grant money has brought close to \$1million into the county.
- **Efficiency** - Shared resources
- **Collobaration** - All of the fire departments and rescue squads worked together to develop plan and apply for the grant.
- **Public Relations Value** - Working with leaders and departments
- **Expectation** - Citizens expect a system that works

VisionMobile and AVL for Emergency Vehicles

Catawba County has been using VisionAir products since March 1998 and includes systems for Computer Aided Dispatch, Records Management System, Field Based Reporting, Fire Service Management, GeoLynx Mapping, and the Jail Management System. VisionAIR mobile enhances our current investment by enabling the flow of information to and from units in the field. In addition to data and reports, it incorporates GPS tracking with Automated Vehicle Locating(AVL). Units can then be dispatched based on the closest available unit as opposed to the current base dispatched method. Once dispatched, call information is sent to the unit's onboard computer with address and mapping directions for the incident. VisionMOBILE is designed to fully enhance the VisionAIR Public Safety Suite that Catawba County currently uses and transform the Public Safety division into a mobile platform.



Known Benefits and Impacts:

- Increase Officer Safety using GPS and AVL technologies
- Improve Response Times by having visual maps of the nearest Public Safety Units
- Improve Response Times by sending information of dispatched calls to the Public Safety Units
- Deliver valuable information to Public Safety laptops from existing databases (warrants, criminal history, hazmat, etc.)
- Officers can enter reports directly from the field

Value Added:

- **Risk Mitigation** – Reduces the risk of life threatening situations for emergency workers and the public by providing more current information
- **Efficiency** – Provides GPS mapping information and allows the 911 center access to mapping locations so they can direct vehicles to the destination
- **Collaboration** – Hickory, Newton and Conover also use the product
- **Expectation** - The public expects us to respond as quickly as possible to emergencies taking advantage of current GPS and mapping tools
- **Removal of Constraints** - More time is spent in the field while on duty. Central database information can now be retrieved from within the vehicle allowing inquiries and reports can be completed in the field rather than from desktop computers. Travel time and fuel for the officers.
- **Savings** – Time and fuel saved by not having to travel back to the office so frequently to get information or complete reports

Ortho-Photography

Traditionally, the county has contracted every four years to update our ortho-photography. In 2005 and 2009, we partnered with several of our surrounding counties in joint fly-over projects to reduce costs.

In 2010, the State contracted for aerials for the entire state at no additional costs to the County. We support the State's proposal to continue to capture ortho-photography. The next anticipated fly-over for our area is scheduled for spring 2014.

- ✓ Savings
- ✓ Efficiency
- ✓ Relationship
- ✓ Citizen
- ✓ Expectation
- ✓ Strategic



Value Added:

- **Useful Information**—provided to the public
- **Collaboration**—has fostered cooperative working relationships
- **Cost Savings**—the collaboration increases buying power and reduces costs
- **Expectation**—ortho-photography is desirable, and has become an expectation
- **Business Outcomes**—capitalizes on the County's investment in GIS
- **Efficiency**—improves service delivery by providing current information

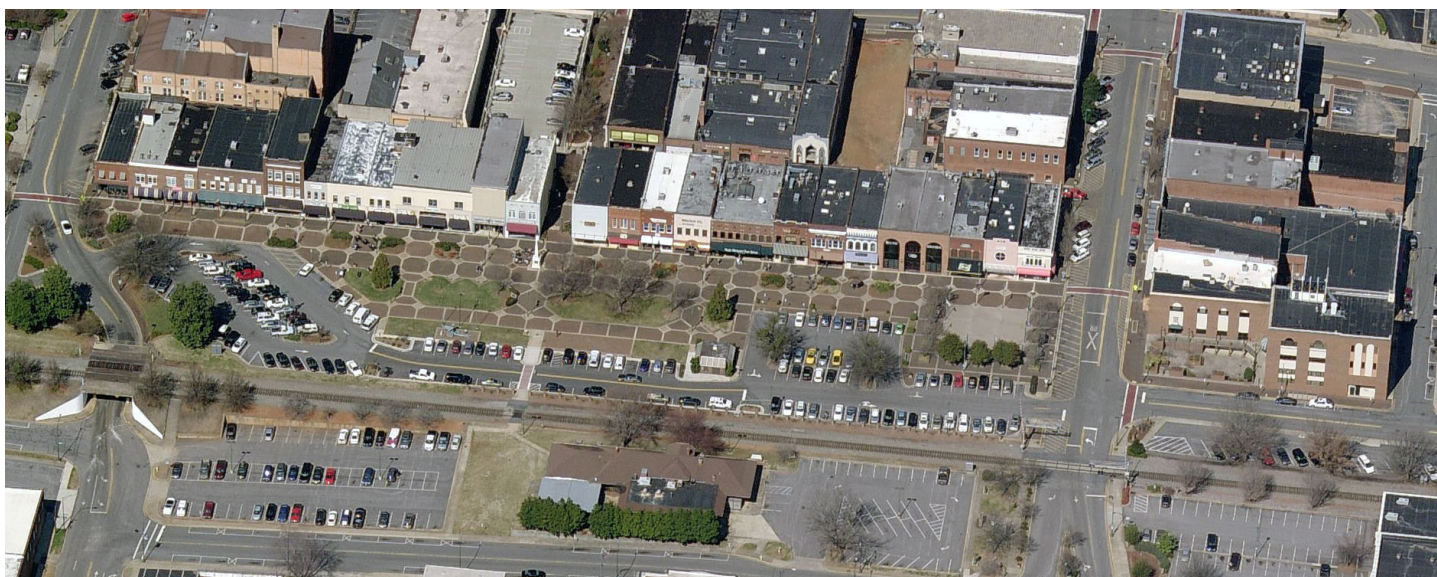
Oblique Photo Project

In addition to the ortho-photographs, in 2009 we also contracted for oblique photos to provide side angle views of buildings. This photography immediately began being used by detectives to plan drug busts on structures not previously visible from the road. They've expressed that this information has been an invaluable aid in safely planning these busts. This photography was also used extensively during the initial response and the subsequent investigation of a home explosion on Lake Hickory in October 2009. When responders arrived on the scene, they did not yet know if anyone had been inside during the explosion. They used this photography to determine where the bedrooms in the home were located since the explosion occurred during the early hours of the morning. The oblique photography also proved very beneficial for the Tax Appraisers in their evaluation of new property values which became effective January 2011; and has been very useful to code enforcement personnel in documenting and substantiating code violations.

- ✓ Savings
- ✓ Efficiency
- ✓ Expectation
- ✓ Risk
- ✓ Strategic

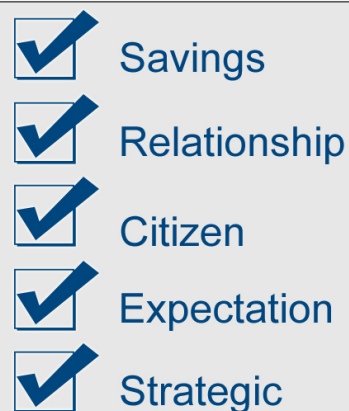
Value Added:

- **Cost in Relationship to Alternatives**—research and planning can be done remotely saving driving time and costs
- **Ease of Use**—staff has information at their fingertips
- **Business Outcomes**—provides information and appropriate tools to staff to perform job more efficiently
- **Risk Mitigation**—planning events and/or dangerous maneuvers can be performed in the safety of the office environment
- **Strategic**—photography is needed/desired

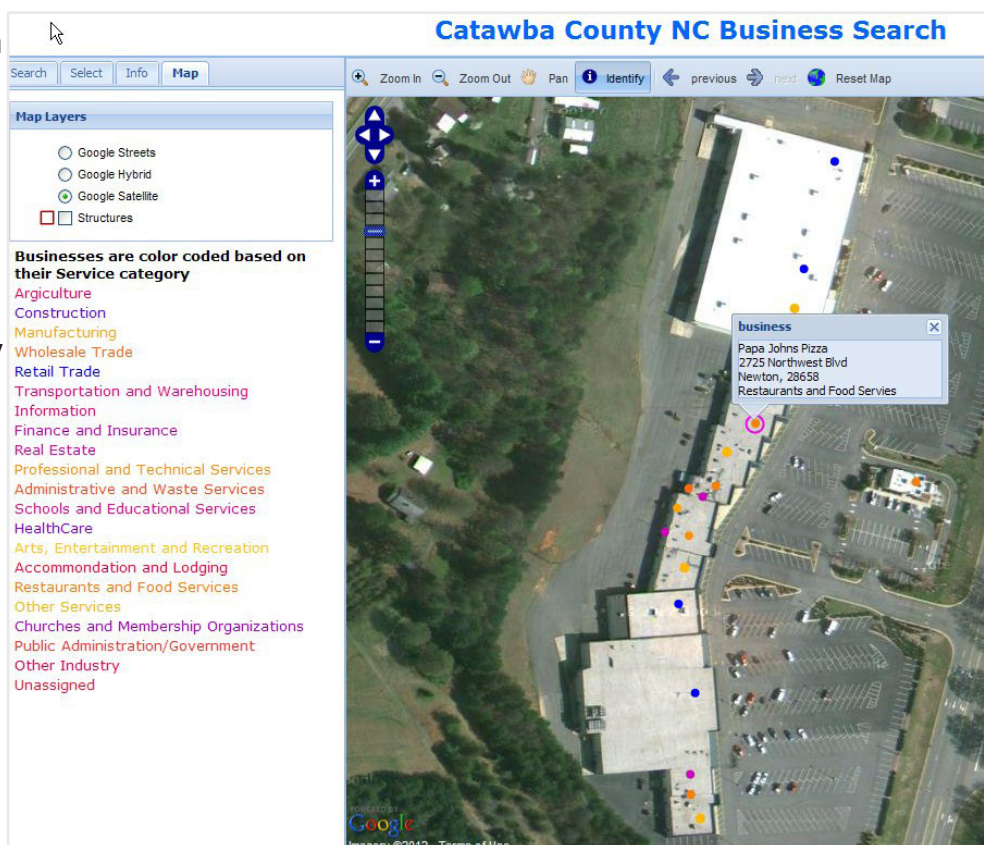


Business Address Layer Project

In an effort to create a more complete dataset of businesses in the area, we obtained a business dataset purchased by the Western Piedmont Council of Governments, a membership list from the Chamber of Commerce, and the fire inspection list from the Fire Marshall's office; compared, and then combined the information. The result is a much more accurate set of data than any of these agencies previously had access to. We believe there will be many uses of this data. One of the uses will simply be to make people aware of the services provided in Catawba County, and hopefully, encourage them to use these resources instead of seeking services elsewhere. Searches on Business or Landmark names, using this data, have been included in our GIS Real Estate site.



We've been in discussions with the EDC, the municipalities, and the Future Economists Group who each believe they will have multiple uses of this information. It will be a huge undertaking to keep the data current. A website allowing editing capabilities has recently been established and we're beginning to publicize this to trusted agencies. The idea being that distribution of the maintenance responsibilities will lessen the burden and provide the most accurate data available.



Value Added:

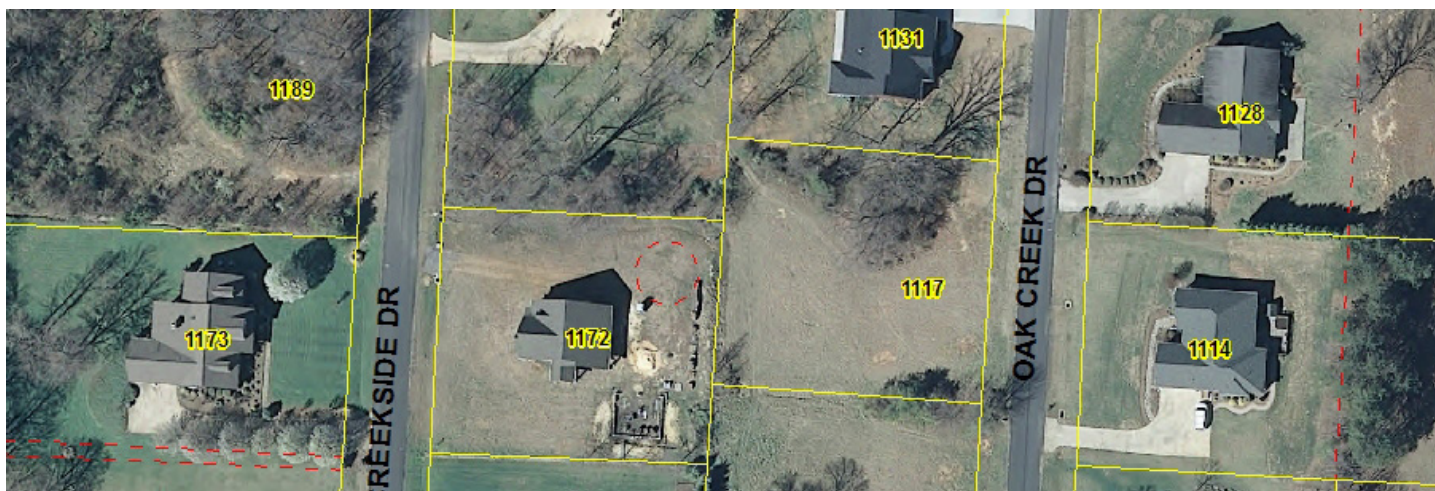
- **Useful Information**—to the public and internally
- **Collaboration**—combines several data sources; edited by many; used by many – both publicly and privately
- **Money Savings**—information previously had to be purchased. Accuracy level is greater, yielding more accurate reporting
- **Expectation**—desirable by many agencies
- **Business Outcomes**—benefits many

Creation and Implementation of Joint Address Points Layer with Municipalities

In early 2009, the County began working on an Address Points Layer as a solution to a long existing issue with multiple addresses located on one parcel. Several databases we've used throughout the years have only allowed storing one address per parcel record and applications have been limited to searching for one address. This layer alleviates that issue because each address point can be identified and stored individually. This is particularly useful for mobile home parks, multilevel apartment complexes, and strip malls. The ability to search for and display these multiple addresses is extremely beneficial to the E-911 Communication Center and to Public Safety Personnel.

This project is a joint effort with the municipalities. This layer is the first to be edited by both municipal and county staffs within their jurisdictional area. This eliminates duplication of effort among jurisdictions and promotes accuracy. This is a substantial benefit to all the jurisdictions; and is an example we believe will be followed in future projects.

- ✓ Savings
- ✓ Efficiency
- ✓ Relationship
- ✓ Citizen
- ✓ Expectation
- ✓ Risk
- ✓ Strategic



Value Added:

- **Risk Mitigation**—Saves time looking for addresses by public safety personnel, possibly saves lives
- **Collaboration**—joint project among jurisdictions; substantial benefit
- **Improved Service Delivery** – One authoritative source for addresses
- **Removal of Constraints** – eliminates restriction of maintaining one address per parcel resulting in better service to citizens
- **Useful Information**—for citizens and various agencies
- **Savings**—incurred by eliminating duplication of effort among jurisdictions
- **Process Improvement** —one file for all jurisdictions to refer to for addressing – a master address layer
- **Expectation**—avails all addresses for each property, not limited to a primary address

GIS Website Enhancements

The Geospatial Information Services websites are some of the County's most popular sites, averaging 80,250 hits per day in FY 2010/11. In late 2011, we began a soft roll-out of a new GIS Real Estate site, our most visible site, to take advantage of new technology and offer some enhanced services.

One of the enhancements is an auto-fill. As you begin to type an address, an owner name, or a subdivision name; matches display below the input box. The new site also offers the ability to search on a business or landmark name, and it links to both Google and Bing maps.

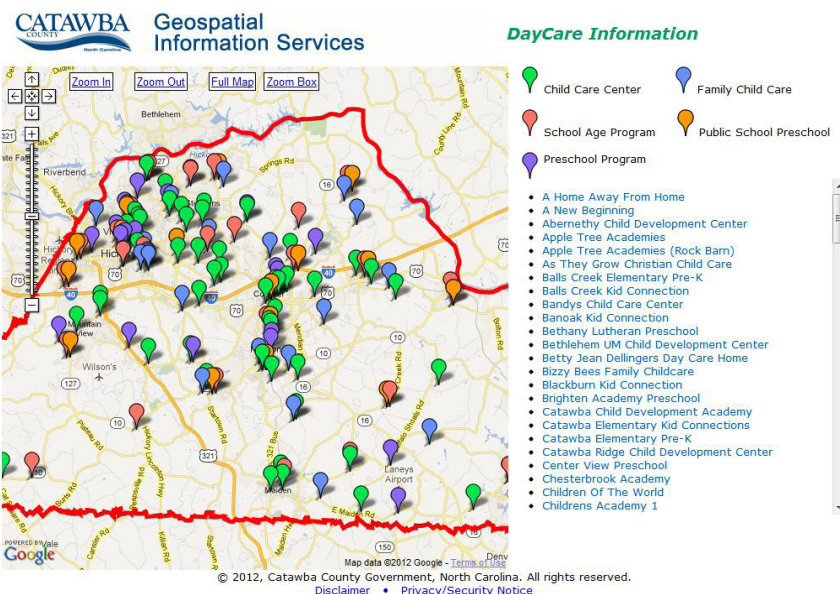


Previous enhancements include allowing users to perform searches on specific criteria they choose as it relates to real property. They can choose acreages, property values, sales prices or sales dates and receive detailed reports and maps of their particular search. They have the ability to scale the information to the level of detail that they need.

In 2008, a day care lookup site was updated by merging data from Google Maps with County Data which provides a map and information about day cares in Catawba County

A Voluntary Agricultural District layer was added in 2010 to advise purchasers of real estate in Catawba County that these districts have been established to protect and preserve agricultural lands and activities; and further advise that these activities include, but are not limited to pesticide spraying, manure spreading, machinery and truck operation,

livestock operation, tree harvesting, sawing, and other common farming activities any time during the day or night.



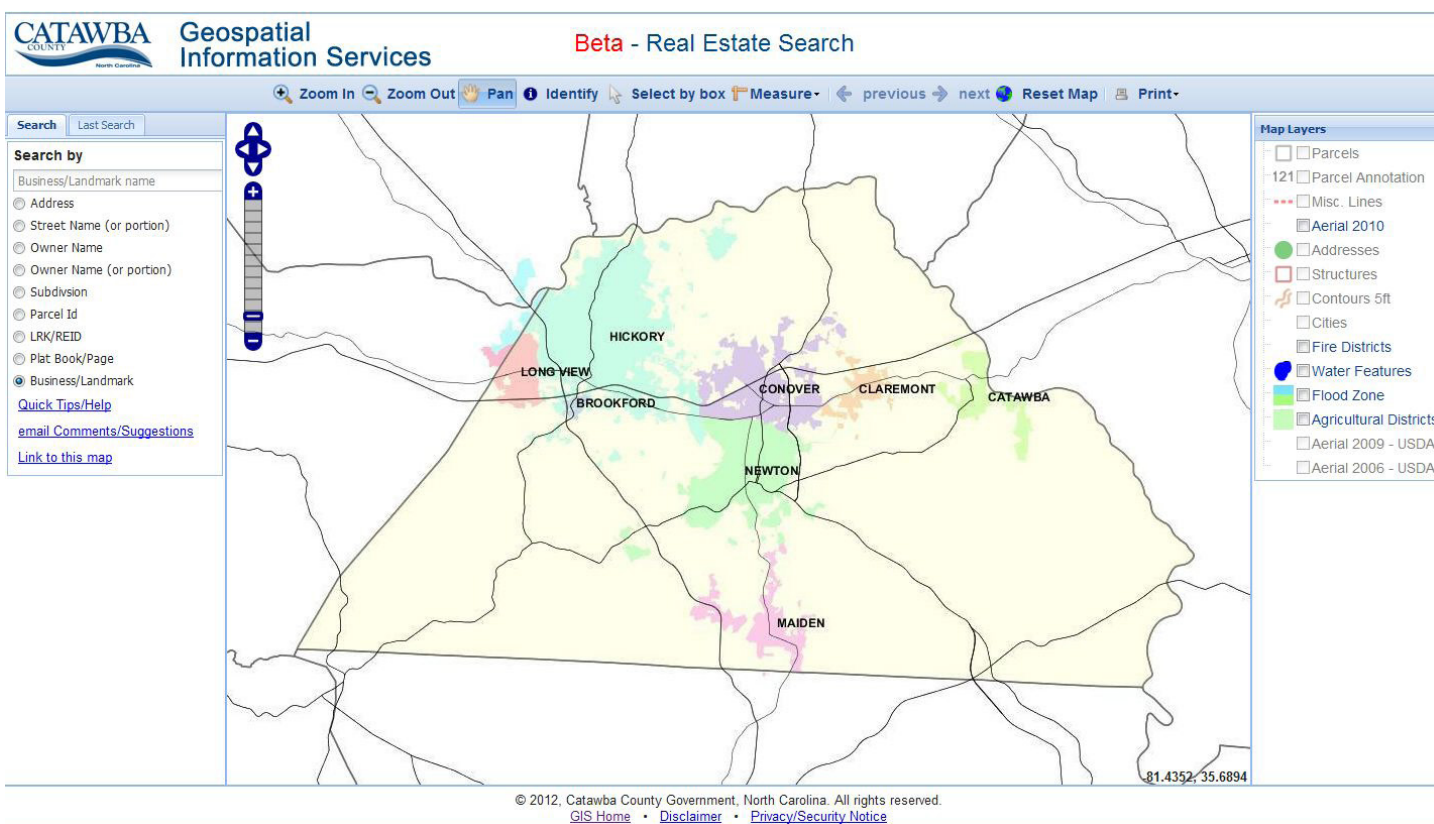
And, Maps and schedules for early voting are placed on the website during the early voting periods. The Early Voting site receives a considerable amount of activity during that period.

2 Million+ Hits PER MONTH

GIS Website Enhancements Con't

GIS Website Statistics

Hits/Day	80,250
Visitors/Day	1,735
Unique Visitors/Month	14,259
Total Hits/Month	2,433,701
Total Parcel Reports Generated/Month	247,370
Total Assessment Reports Generated/Month	20,920



Value Added:

- **Efficiency** – efficient way to deliver information to our customers—the public and various departments
- **Public Relation Value**—used on a daily basis by citizens....see web stats below
- **Removal of Constraints** – allows information at user's fingertips that was previously only available on-site
- **Useful Information**—for various departments and the public
- **Business Outcomes** —provides greater accessibility to information using fewer resources
- **Money Savings to Citizens**—information available without making a trip to a government facility
- **Expectation**—desirable method of providing access to our customers

Virtual Technology/SAN Upgrade

The Disaster Recovery Plan revealed that a redundant data center was needed to provide for recovery in case of an incident in the main technology center. It also revealed that the current server structure and replacement model could not be maintained at current funding levels. A SAN solution was purchased and installed. A redundant SAN was also installed at another location in the county. The virtual environment reduced the county's 70 plus physical servers to 18 physical servers running 300 plus virtual servers. In 2011 we increased the total storage from 27tb to over 67tb at each location to keep up with increasing information storage requirements. Besides providing the security of a redundant system, replacement and operating cost where reduced. Completed Aug 2007, virtual technology and the SAN saved the County over \$900,000 in the first four years.

- ☒ Savings
- ☒ Efficiency
- ☒ Expectation
- ☒ Risk
- ☒ Strategic



Value Added:

- **Efficiencies - Money Savings** – To continue to purchase physical servers would have cost us in terms of physical space, power, cooling, and the actual increased cost of individual servers
- **Green** – We only have to provide power to 18 physical blades instead of 70 physical servers saving energy on power and cooling electricity.
- **Risk Mitigation** – The virtualization of servers allowed us the ability to replicate the servers to a remote location for disaster recovery
- **Collaboration** – we are currently using the technology to support the Public Safety applications, Permit and inspections, GIS and Tax information with the Cities
- **Removal of Constraints** – The ability to create a new virtual server for the applications to migrate to during upgrades allows for offline testing and reduced downtime
- **Data security and Integrity** - By duplicating servers at a disaster site we are in a position to recover in a matter of hours from a disaster as opposed to weeks to replace physical boxes and restore data from backups

Virtual Technology/SAN Upgrade

VMware vSphere 5.0 Upgrade: The County continues to stay current with the latest technology. Virtualization technology is changing at an alarming rate. VMware is running over 300 virtual servers which are about 95% of all the Counties total servers.

Value Added:

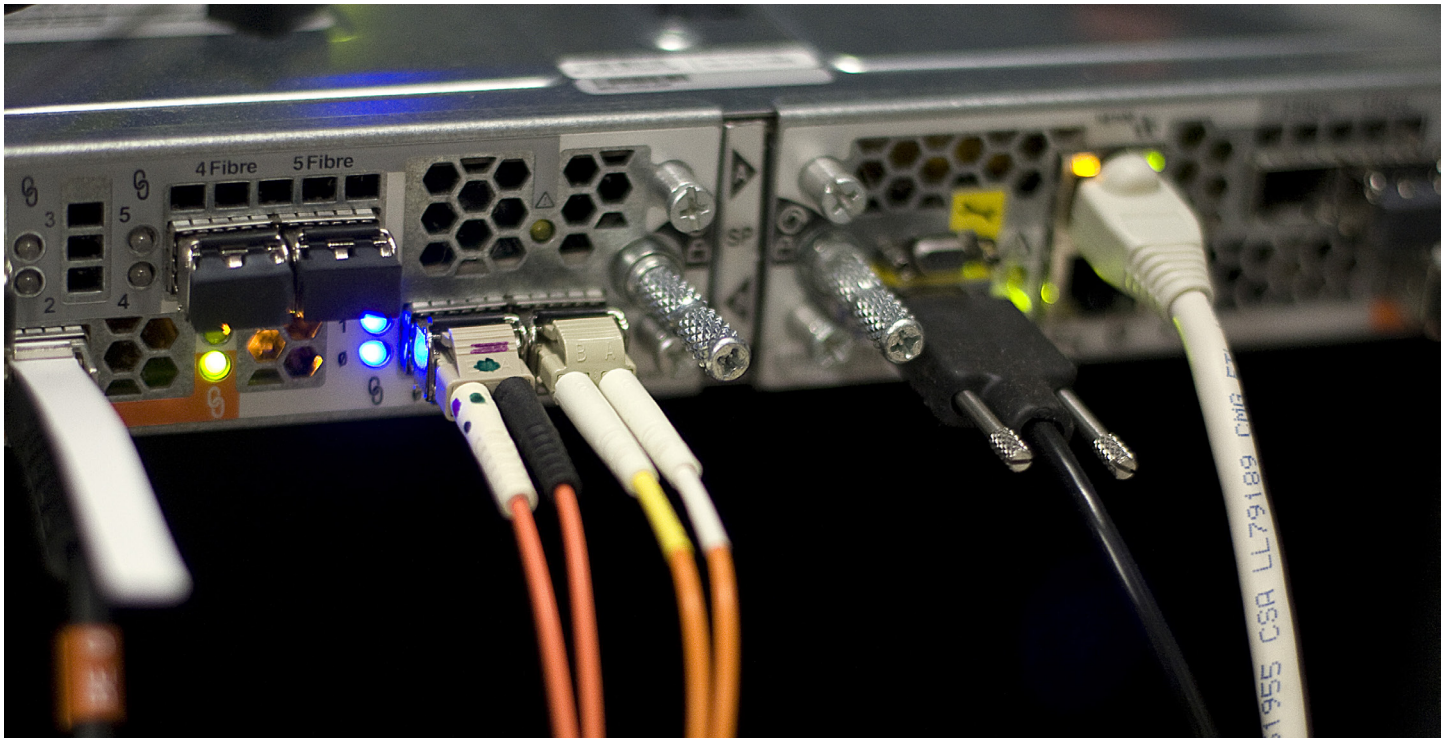
- **Efficiency (Storage)** — The unified block size, 1MB, enables easier deployments and reduced complexity from an architectural and operational aspect while maintaining the scalability and the flexibility that were previously found only with large block sizes. 1MB unified block size. Dead Space Reclamation informs the array about the datastore space that is freed when files are deleted or removed from the datastore by Storage vMotion. The array can then reclaim the freed blocks of space.
- **Efficiency (Availability)** — The vSphere HA (high availability) feature has been completely rewritten by VMware from the ground up. This was done to increase the scalability, reliability, and usability of vSphere HA. The new model incorporates a master-slave relationship between the nodes in a cluster, where one node is elected to be a master and the rest are slaves.
- **Efficiency (Capabilities)** — 32-way virtual SMP. ESXi 5.0 supports virtual machines with up to 32 virtual CPUs, which lets us run larger CPU-intensive workloads on the VMware ESXi platform. 1TB of virtual machine RAM. We can assign up to 1TB of RAM to ESXi 5.0 virtual machines.
- **Money** — The County can now configure the number of virtual CPU cores per socket in the Virtual Machine Properties. With this new feature, a virtual server can be assigned a single CPU with multiple cores which translates to a cost savings when SQL Server Licenses are sold per processor.
- **Business Outcomes**—opportunity to take advantage of latest technology



Infrastructure Upgrade

This project built redundant paths for data and eliminated single points of failure in the system. Part one consists of a wireless bridge from the Social Services/Public Health complexes to the Government Center. This built a ring into the infrastructure thus eliminating the single fiber path. We installed a secondary fiber run from the Government Center to the Justice Center to complete a second loop in the network.

- ✓ Efficiency
- ✓ Risk
- ✓ Strategic



Value Added:

- This reduced the risk that if critical trunk fibers are cut we can become operational in minutes as opposed to days it would take to splice and repair damaged cables.

Laserfiche Imaging/Document Software Expansion

Continued implementation and upgrading of the enterprise document management/imaging system has resulted in more reliable access to, sharing of and retrieval of documents for internal departments and citizens from the Internet. Electronic documents free up file cabinets and office space. For example, by converting personal property tax listing form storage and management to the imaging system, 10 file cabinets were removed and one additional office space was created.



- ☒ Savings
- ☒ Efficiency
- ☒ Risk
- ☒ Strategic

Value Added:

- **Money Savings** – This Enterprise system has offered savings in the following areas: office space, paper, time (cost per sf)
- **Green** – Many documents can be sent electronically to Laserfiche without ever being printed. This saves paper, time and electricity.
- **Risk Mitigation** – document retention, records management and security are improved
- **Efficiency** – time spent searching through file cabinets or asking other departments for documents is reduced
- **Data security and Integrity** – the electronic files are backed up and stored off-site daily. Only people with proper security access can view or edit documents and the audit trail component tracks and records each time a document is viewed, printed, changed or emailed.

Avamar Backup Project

Daily system backups (copies of data) are a critical function of the Technology Department. As data storage requirements tripled within the last four years, the backups were taking more than 24 hours to complete. This caused the backups to be less reliable and slowed data access during critical 8-5 working hours. With the Avamar system, the backup time was reduced by more than 33% and completed during non peak usage hours of 8:00 am and 5:00 pm. The County's data is more secure and accurate because of the investment in this technology.



Value Added:

- **Risk Mitigation** - backup to disk vs tape is much more reliable. Tapes will degrade over time and become unusable
- **Efficiency** – backups and restore processes require much less time and are more reliable
- **Data security and Integrity** – the ability to quickly recover data due to hardware or software failure is required and expected.
- **Removal of Constraints** – We were able to reduce the backup times to run after hours and complete a full backup each night



Web Site Redesign and Social Media

In coordination with the Public Information Officer, the current Catawba County web site is constantly evaluated and upgraded to offer new services to the public. The Technology Department works with each department to review the services that each department offers and how to best present those services to the public. The changes are incorporating many of the Web 2.0 design concepts. Along with this redesign, Catawba County is taking advantage of Web 2.0 services including Facebook, YouTube and Twitter. Due to the dynamic nature of the web site, work will continue indefinitely on this project. While the web site has been redesigned, it is very dynamic and will constantly be updated and redesigned. Recent additions include RSS feeds for job posting and podcasting of weekly news reports and public information announcements.

- ☒ Savings
- ☒ Efficiency
- ☒ Relationship
- ☒ Citizen
- ☒ Expectation
- ☒ Strategic

Date range: 01/01/2011 - 12/31/2011

Number of Website Hits	1,127,659
Number of Unique Visitors	407,667
Number of Twitter subscribers	1,023
Number of Facebook followers	2,690
Number of Foursquare followers	5,443
Number of RSS Feed subscribers	1,641



Search our site:

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[Your County Government](#) [Online Services](#) [Community Links](#) [Services](#)

Quick Links

- Bid Notices
- Board of Commissioners
- Community Alert System
- County Calendar
- Departments
- Job Openings
- Kid's Pages
- Online Deed Search
- Online Payments
- Online Permit Center
- Real Estate Maps
- Street Sign Repair
- Subscribe to e-News
- Tax Bill Search
- Who's in Jail

Catawba County Government
Post Office Box 389
100 A South West Blvd.
Newton, NC 28658-0389
Phone: (828) 465-8200
Fax: (828) 465-8392



North Carolina Association of County Commissioners honors three County programs



Shelter close



One-stop voting



Rabies clinics



Waste collection



Programs honored



Book donation

Did You Know?



Address Finder

Search ~260,000 addresses to see if they are in Catawba, Alexander, Caldwell, or Iredell Counties with this new GIS Address Finder!

Web Site Redesign and Social Media

Other Featured Website Applications:

Who's in Jail – <http://injail.catawbacountync.gov/WhosInJail/> - Lists all current inmates with relevant information. Greatly enhances efficiency for Clerk of Court, warrant management and magistrate's office.

Catawba County E911 Active Calls – this internal application displays all active calls with pertinent information so that Law enforcement, emergency management staff and other officials have information immediately.

Pet Adoption - <http://esweb.catawbacountync.gov/AdoptAnimal/> - Allows citizens to view photos and other information about pets at the animal shelter that are available for adoption.

Lost and Found –Pets <http://esweb.catawbacountync.gov/ASLF/Default.aspx> - Allows citizens to post information about lost or found animals. As of June 2012 there have been 2,618 postings of lost or found pets on the site.

E-News Letters - http://www.catawbacountync.gov/blog_list.asp - various agencies publish periodic newsletters that provide relevant topical information. As of June 2012, we have 3095 subscribers to the publications.

What's the Score? - http://www.catawbacountync.gov/environmentalhealth/pc_mobile_fli.asp - Search and find restaurants in Catawba County along with their sanitation score, link to directions, and other restaurants close by.

Value Added:

- **Efficiency** – the ability to have forms, applications, and information related to County services at the click of a mouse improves efficiency for visitors and staff (travel, postage, time)
- **Public Relation Value** – with over 11,500 visits per month, it is evident that the public relies on our web sites for a variety of purposes
- **Removal of Constraints** – business hours, transportation and County staff availability are no longer a limitation for many inquiries and services provided.
- **Useful Information** – regulatory, safety and interesting information
- **Green** – the amount of printed information and postage is reduced by providing information electronically.
- **Business Outcomes**
- **Money Savings to citizens** – being able to conduct business and gather information online, saves many trips to various agencies.
- **Expectation** – citizens and visitors rely on the Internet to provide information about various services, regulations, properties, health and safety information.

Archival System

The email archival system, Email Extender, has been a great benefit to the county. In the past we could only pull emails from a point in time. Now, every email that is sent or received is archived by the Email Extender. This has enabled us to better fulfill requests to view email from citizens. It has also helped us to be able to retrieve email more efficiently in personnel and legal matters. Another benefit of the email archive system is the ability to recover email that has been mistakenly deleted from an individual user's account. In the past, the email recovery process would have taken at least three hours and would not have included all received and sent emails. This process has now been reduced to fifteen minutes and includes both sent and received email. Because of the email archival system, the county now has all email that are sent and received and the data is also more accessible.



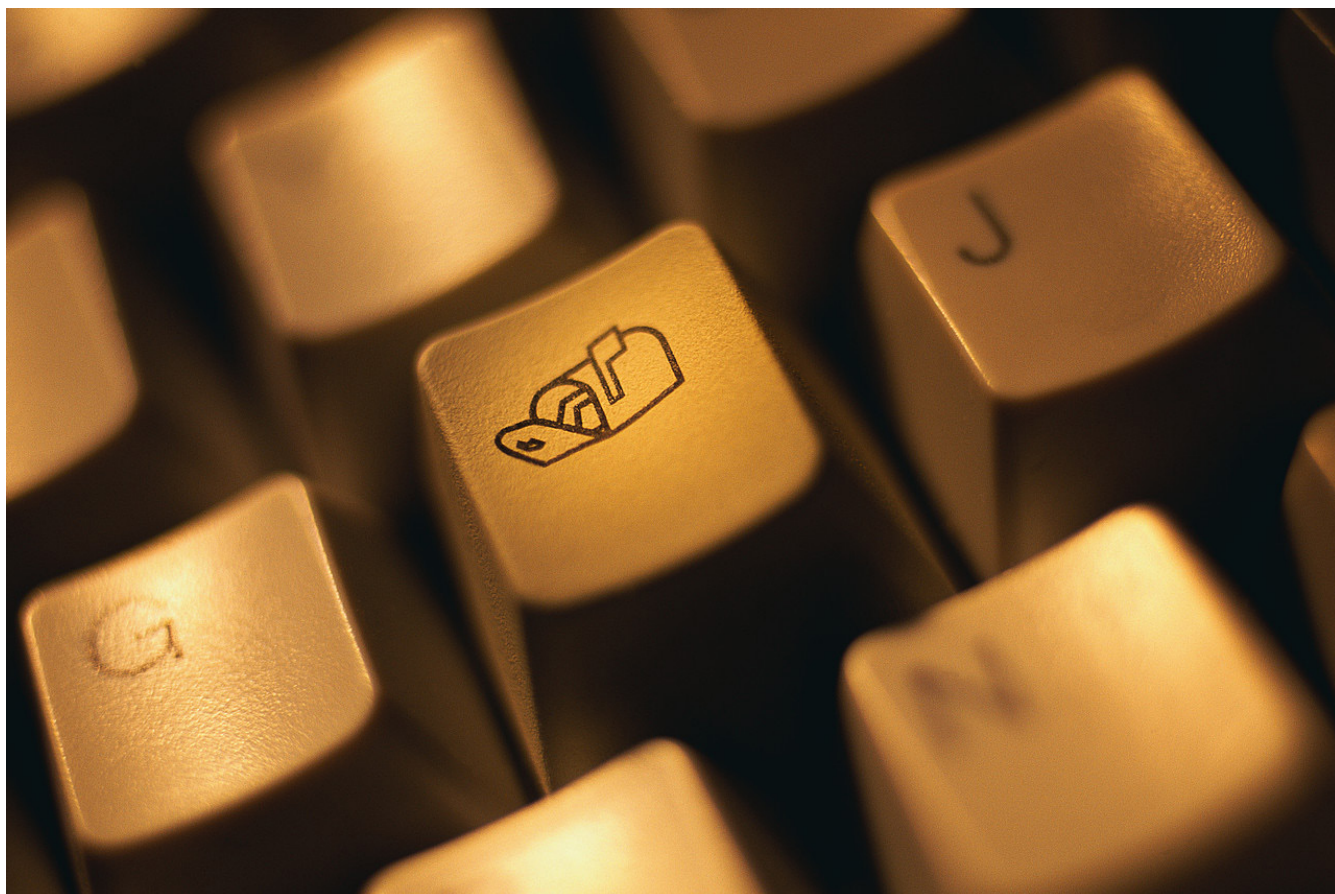
Efficiency



Expectation



Risk



Value Added:

- **Risk Mitigation** – complete record of email to restore from in much less time
- **Efficiency** - by having a complete record email is much easier to recover
- **Data security and Integrity** – the ability to recover data due to hardware or software failure is required and expected

Voice over IP (VoIP)

The Voice over Internet Protocol (VoIP) study showed that a new VoIP system would be less expensive and provide better phone service for County departments. In November 2006 the Board of County Commissioners approved the VoIP Project. In December 2006, they approved special funding arrangements for the project negotiated by the Finance Department. Installation of the system began in January 2007. The new VoIP system was installed by August 2007 with the installation of over 1,000 phones. This moved the County to one phone system that integrates with desktop software to provide for unified messaging. The system has a five year payback and at that point the County will pay only for upgrades and maintenance providing significant savings. As of the 2011/12 budget the loan for the VOIP system is paid in full and the county is showing a yearly saving on the phone system of \$225,000.



Efficiency



Expectation



Risk



Value Added:

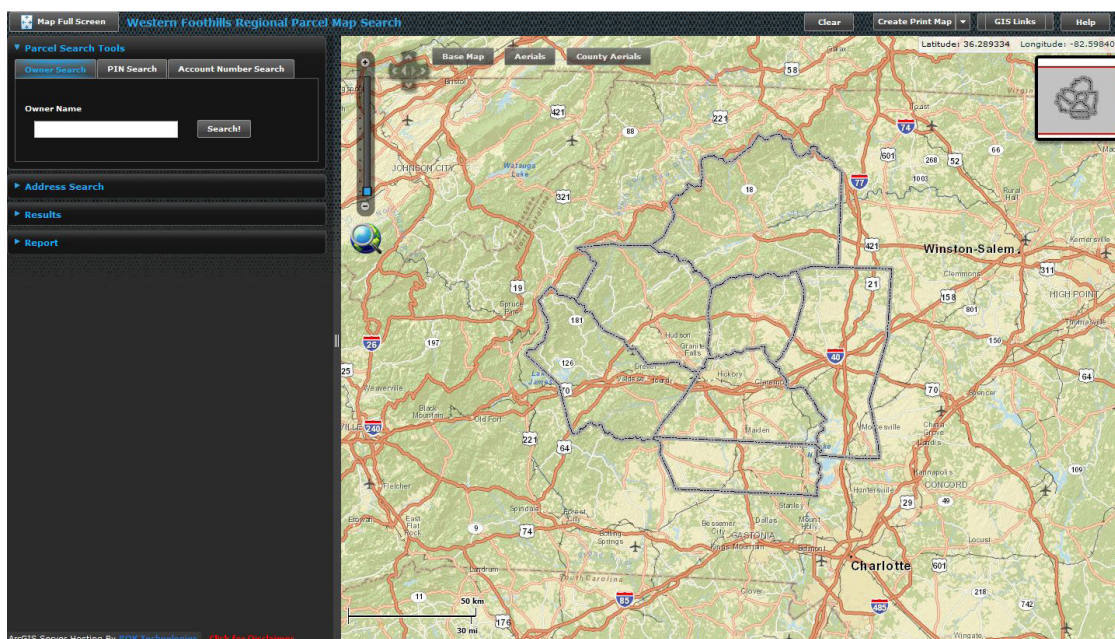
- **Money Savings** – the system paid for itself over five years.
- **Efficiency** – removed the need to maintain wiring plant for the analog phones. We standardized on one management console.
- **Removal of Constraints** – Have the ability to quickly move a phone from one location to another.
- **Network Integrity** – The new infrastructure gave us the ability to limit wired and wireless threats
- **Expectation** – secured wireless network

Regional GIS Website

In an effort to provide more efficient services, several counties in the Western Foothills joined together with ROK Technologies, a Charleston, SC firm specializing in GIS services, to create a regional GIS website. The Western Foothills Regional GIS website, located at <http://maps.roktech.net/WesternFootHills/>, allows users to locate addresses and property owners in Alexander, Burke, Caldwell, Catawba, Iredell, Lincoln, and Wilkes counties.

This website is beneficial for businesses and agencies performing multi-county searches on a daily basis. It eliminates the need to visit numerous county sites to collect data. The regional website benefits many county offices and agencies by providing neighboring address, street, and property information thus eliminating the need for calls to other counties to locate this information.

The regional website allows users to search for an address in this region without prior knowledge of exactly which county the address is located in. It provides basic parcel related information. If further information is required, a direct link to the appropriate county's website is provided.



Value Added:

- **Public Relation** –Used on a daily basis by citizens
- **Removal of Constraints** – Information at your fingertips for a 7 county region
- **Useful Information** – Used by various departments and the public
- **Business Outcomes** – Huge Bank for the Buck, vendor hosting site at no additional costs through an existing customer; provides greater accessibility to information
- **Collaboration** – Fosters great working relationships with surrounding counties, has and will continue to lead to future projects together
- **Efficiency** – improved service delivery
- **Savings** – time savings with parcel information for several counties located in one area

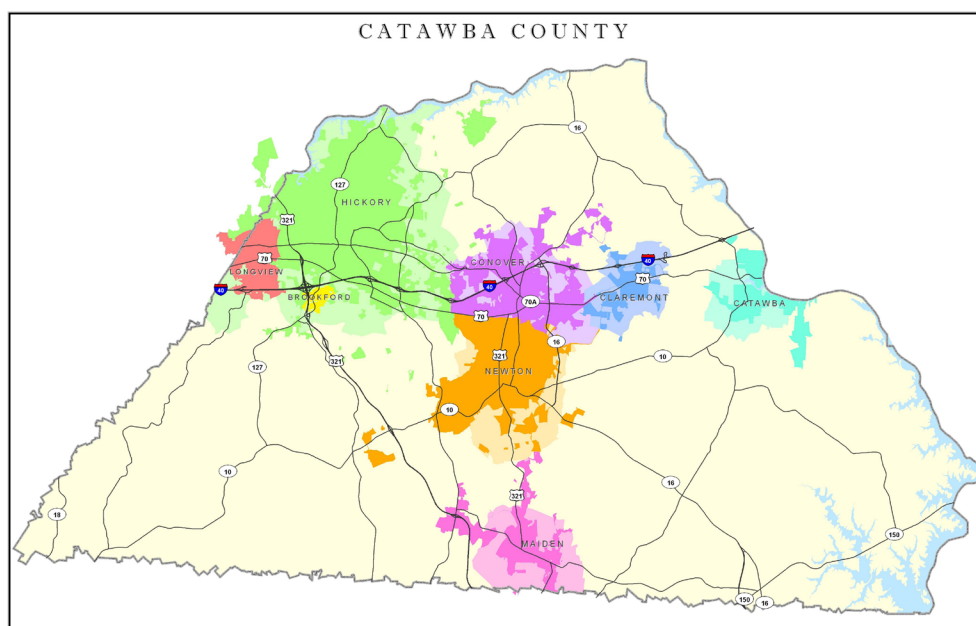
Joint City Limit/ETJ and Zoning Layers

Working through the GIS Steering Committee, and following the example of the Address Points Layer, the County and the municipalities are joining together to create unified city limit, ETJ, and zoning layers. These unified layers will be editable by each jurisdiction, within its territorial boundaries, in an effort to decrease duplication of work among jurisdictions. Currently each jurisdiction maintains their own layers and emails county staff with changes. This effort is then duplicated in the County's version of those layers. Not only is this duplication of effort, it reduces the level of accuracy with multiple copies being maintained, or the possibility that the change doesn't get forwarded at all. The public relies on the County's Real Estate website for accurate information. This is a way to ensure we are all using the most up-to-date, accurate layer, and our citizens are also accessing the most up-to-date information.

Value Added:

- **Collaboration** – joint project among jurisdictions benefiting all the citizens of Catawba County
- **Efficiency** – improved service delivery, more accurate, up-to-date information
- **Process Improvement** – one file for all jurisdictions to refer to for jurisdictional boundaries and zoning information
- **Useful Information** – to citizens and various agencies and departments
- **Savings** – time savings are incurred by eliminating duplication of efforts among jurisdictions
- **Expectation** – desirable to increase access to our customers, both public and private

- ✓ Savings
- ✓ Efficiency
- ✓ Relationship
- ✓ Citizen
- ✓ Expectation
- ✓ Risk
- ✓ Strategic



911 Microwave

Communication is one component of public safety that must not fail. However, communication equipment is often located in areas that make it more susceptible to the forces of nature. Catawba County's radio system was originally designed using T1 lines to its three main transmit sites on Baker's Mountain, Anderson Mountain, and Highway 16 North. There are two main weaknesses of T1s: they have an uptime guarantee of 95% but fail often during thunderstorms and two, they are relatively expensive. In order, to address both of these issues, Catawba County has replaced the T1's with microwave technology. This is a good example of providing better service for the same amount of money. Purchasing the technology over three years, the microwave technology is paid for and costs the citizens less money in 53 months. In addition to the cost savings, microwave technology provides over 99% uptime. In 10 years, that equates to an estimated 3506 more hours of uptime with little or no degradation in thunderstorms.

- ✓ Savings
- ✓ Efficiency
- ✓ Citizen
- ✓ Expectation
- ✓ Risk
- ✓ Strategic

Value Added:

- **Cost saving** - This system was paid for in 53 months, and now costs the citizens less
- **Improved Communications** - Microwave technology is more reliable during adverse weather.
- **Increased level of service** - Uptime was increased from 95% to 99+%.
- **Reduces risks** - Little or no degradation during thunderstorms.

