

Geographic Information and Land Record Registration System for Wise County, Virginia

Jessica Swinney
J. Jack Kennedy, Jr.

Abstract

The Wise county Circuit Court Clerk's office began developing an E-GIS system after a 1997 implementation requiring parcel identification numbers on all land records filed in the county.

In 2002, more than 80 layers are available to find a piece of property on a map, view the tax assessments, check delinquent taxes, view a sixty year property history, view land instrument images pertaining to the property, as well as all the traditional information about the property such as water, sewer, school zone, voting precinct, etc.

The Land Records Division of the Circuit Court for Wise County has created an innovative and modern electronic web-based system to view nearly 100-layers of geographic information including a point information database. The system authorizes the user to apply to gain access to the real estate conveyance documents in tiff images for printing remotely after clicking on the parcel and viewing the real estate tax assessment data. It is the only-one-of-its-kind in Virginia and only a handful exist in the United States today.

a. 

Image of the Wise County and City of Norton Circuit Court clerk's office homepage. The website offers links to all the online applications available through the clerk's office including, but not

limited to, Wise County's Geographic Information System, subscription based databases, and e-filing.
 (The link offered will direct you to the Wise County and City of Norton's Circuit Court clerk's office website)



Image of online Geographic Information System providing nearly 100 layers of critical information pertaining to Wise County. The image illustrates the system's capability of identifying the current owner and significant information of a parcel of land.
 (The link offered will direct you to the GIS homepage)

c.

e-government

WISE COUNTY, VA
Property Assessment Data Detail Page

image evolution

[New Search](#)

[Associated Deed 1](#)

[Associated Deed 2](#)

[Property History Data](#)

[Main Page](#)

[Logout](#)

Parcel Information

Tax ID:	013372	Property Map No:	038A2 (01) 039A1
Property Page No:	235	Property Rec No:	2582

Property Owner Information

Property Owner:	BOWMAN ERICK A		
Property Co-Owner:			
Add. Owner Info:			
Property Owner Addr.:	208 NOTTINGHAM AVE		
Property Owner City:	WISE VA 24293		

Property Features

Legal Description:	WISE 0.310 AC (ROBERTS HS)	Prop. Districts:	WISE
Prop. Type:	MINERAL LAND	Acreage:	0.31
Prop. Class:	TOWN		

Property Assessment and Tax Information

Assessments/Taxes	2002	2001	2000	1999	1998
Land:	\$12,000.00	\$12,000.00	\$12,000.00	\$12,000.00	\$12,000.00
Improvements:	\$129,300.00	\$129,300.00	\$129,300.00	\$129,300.00	\$129,300.00
Minerals/Reserve:					
Minerals/Developments:					
Total Assessment:	\$141,300.00	\$141,300.00	\$141,300.00	\$141,300.00	\$141,300.00
Total Property Taxes (1):	\$734.76	\$734.76	\$734.76	\$734.76	\$734.76
Delinquent Wise County Taxes?	NO (SEE BELOW)				

Image of online property assessment data obtained using the Geographic Information System's (GIS) ability to identify parcels of land. The page includes property history data dating to 1940, past and current property assessment values, and a link to a subscription only database to view the deed. A unique parcel identification number is used to link multiple databases together from various offices increasing the usability of the information.

(The link offered will direct you to the property assessment database)

d.

eFileCX **Wise County & City of Norton Circuit Court** **MIXNET**
 Wise County, Virginia
 ▶ [Wise County Property Assessments](#) ▶ [City of Norton Property Assessments](#)

RETAILED INSTRUMENT RESULT PAGE

NAME	CULLEY, GREGORY A	TYPE	Grantor
ADDRESS			
CITY		STATE	
		ZIP	

BOOK		PAGE		Event Date	
INSTRUMENT NO.	990004777	RECORDING DATE	10/21/1999	TIME	12:08
FILE NO.	1				
INSTRUMENT GROUP	LR -- DEEDS AND LAND RECORDS				
INSTRUMENT TYPE	LK + DBS -- DEED OF BARGAIN AND SALE				
DESCRIPTION	0.310 AC M/L WISE GLADE				
TAX NO.	013322				

Page 001 | [View](#)

REVERSE PARTY

NAME	NAME TYPE
BOWMAN, ERICK A	E
CULLEY, DONNA	R
CULLEY, GREGORY A	R

[Instrument Select Page](#) | [New Search](#) | [Logout](#)

Image of online subscriber index, which allows the subscriber to view pertinent parcel information and includes a link to view the deed.

(The link offered will direct you to the subscriber index)

e.

990004777 000047 OCT 21 99

P. Heath Reynolds, Esq.
 WOLFE & FARMER
 470 Park Ave.
 Norton, Va 24273

THIS DEED made and entered into on this the 20th day of October, 1999 by and between GREGORY A. CULLEY AND DONNA CULLEY, his wife, parties of the first part, and ERICK A. BOWMAN, 107 6th Street, N.W. Apt. 204, Norton, Virginia 24273, party of the second part.

-WITNESSETH-

THAT FOR and in consideration of ONE HUNDRED TWENTY THOUSAND (\$120,000.00) DOLLARS, cash in hand paid, the receipt of which is hereby acknowledged, the said parties of the first part do hereby grant, bargain, sell and convey with covenants of GENERAL WARRANTY OF TITLE and Modern English Covenants of Title unto the said party

Image of deed obtained online through the subscriber database featured in image d. This advanced technology allows subscribers to obtain land records from their home or office computer thus relieving the workload of individuals, businesses, and the clerk's office.
(The link offered will direct you to the online deed)

In addition thereto, the Land Records Division has enabled the utilization of a web-based electronic filing system for real estate interest conveyance documents. Electronic transfer of ownership interests includes deeds, bank mortgage certificates of satisfaction, and local health department conditional sewer permits. Wise County recorded its first electronic deed in September 2000 and was the first public agency in the United States to authorize electronic real estate conveyance.

f.

eFileCX Welcome **Melanie Salyer** **MIXNET**
 imagine evolution

My Home **My Profile** **What's New** **Logout**

Your subscription program is: **Government User Annually!**
 Your subscription started on: **3/31/2003** and ends on **3/31/2004**
 Since your registration you have logged on **249** times.

It is now: **7:57:01 AM on Monday, May 5, 2003**
 Your current IP Address of has been recorded.
 We prosecute fraud to the fullest extent of the law.

INDEX SEARCH MENU	
Instrument Index 1:	- Land Conveyance Index starting Jan. 2, 1996 to Apr. 23, 2003 - Land Conveyance Deed Book Images starting Jan. 2, 1996 - Marriage Licenses starting 1857 (images available on CD-ROM) to Mar. 28, 2003 - Wills & Fiduciaries starting 1856 (some images available) to Apr. 2, 2003 - Judgements from starting 1979 (some images available) to Apr. 23, 2003 - Financing Statements starting 1993 to Apr. 2, 2003
Instrument Index 2:	Land Conveyance Index: Jan. 2, 1970 - Dec. 29, 1995 Land Conveyance Deed Book Images from Jan. 2, 1970 - Dec. 29, 1995
Wise County Property Assessments	Property Assessment data for 2002 provided by the Commissioner's Office
City of Norton Property Assessments	Property Assessment data for 2002 by the Commissioner's Office
Building Permits	Building Permits from Apr. 5, 2001 to Apr. 5, 2001 and online permits since February 19, 2001
Survey Maps	Search for Wise County Survey Maps
Plat Maps	Search for Wise County Plat Maps
Highway Plat Maps	Search for Highway Plat Maps

Anytime you exit the system please press the LOGOUT button on the bottom of each screen.
 This will prevent future log on problems for you. Thank you.

Image of online subscriber database. The database includes land records dating from 1970 to the present, property assessments, building permits, survey maps, plat maps, and highway plat maps.
(The link offered will direct you to the log on page where a user name and password must be provided to view the online databases)

g.

eFileCX **Wise County & City of Norton Circuit Court** **MIXNET**
 Wise County, Virginia
 imagine evolution

You have entered the following search value(s):

Name: **Kennedy, J** Instrument Group: **LR -- DEEDS AND LAND RECORDS**

SEARCH RESULTS:
 Total number of records found: 67, Current Page: 1 to 15

NAME	NAME TYPE	RECORDED	INSTR. GROUP	INSTR. TYPE	INSTR. NO.
KENNEDY, J JACK, JR	Grantor	12/28/2001	LR	DOT	200105361
KENNEDY, J JACK, JR	Grantor	1/6/1998	LR	CS	980000053
KENNEDY, J JACK, JR	Grantee	1/6/1998	LR	CS	980000053
KENNEDY, J JACK, JR	Grantor	6/8/1998	LR	DOT	980002917
KENNEDY, J JACK, JR	Grantor	6/9/1998	LR	CS	980002924
KENNEDY, J JACK, JR	Grantee	6/9/1998	LR	CS	980002924
KENNEDY, J JACK, JR	Grantor	1/6/1998	LR	DOT	980000052
KENNEDY, J JACK, JR	Grantor	8/17/1999	LR	DOT	990002743
KENNEDY, J JACK, JR	Grantor	8/24/1999	LR	CS	990002831
KENNEDY, J JACK, JR	Grantee	8/24/1999	LR	CS	990002831
KENNEDY, J JACK, JR	Grantor	7/3/2000	LR	DG	200002549
KENNEDY, J JACK, JR	Grantor	7/26/2000	LR	DOT	200002812
KENNEDY, J JACK, JR	Grantee	12/28/2001	LR	DBS	200105360
KENNEDY, J JACK, JR	Grantor	1/11/2002	LR	DBS	200200201
KENNEDY, J JACK, JR	Grantor	2/7/2002	LR	CS	200200595

[Next Page](#)

Image of deeds and land records index. Through the subscription database names may be searched in order to view the information and deed for the grantor or grantee.
(The link offered will direct you to the log on page where a user name and password must be provided to view the online databases)

The Geographic Information and Land Registration System has saved many hours of paper process while enabling the public to interact with a key governmental agency without regard to time or location leading to higher efficiency, productivity, and lower operational costs. The nearly 100-GIS layers have been built as a result of a highly creative student intern program academically accredited with the Virginia Community College Systems (VCCS) leading students who spend 18-months plus in the work/study program to a professional certificate in Geographic Information Systems after 28-semester hours of study with the land records division.

The system is exemplary not only because of its applications and its level of utilization by the public and local governmental departments but, moreover, it originates from a rural Central Appalachian Mountain county in the southwestern section of the state with a population of 40,000.

The system was motivated by the clerk of court's experience as a real estate title attorney prior to his election to the post in 1995. The system evolved from an office with no fax machine and one 33 MHz computer to a web-based workflow environment that exists in 2003.

The system was created to enhance access to real estate information first through access to an electronic index of real estate records and other stored paper documents (1997-1998); then to tiff image access to the real estate documents (1999); the first electronic filing of real estate documents (2000); the first Wise County Geographic Information System linked to real estate conveyance documents (2001) with subsequent months being expended expanding the GIS layers and electronic filing work flows with local government departments and the private sector utilizing information stored by the clerk of court office in the electronic database.

The unexpected benefits have been many but the highlight has been the creation of a student intern program involving students from Mountain Empire Community College; The University of Virginia's College at Wise; The University of Virginia (Charlottesville); the University of Tennessee; East Tennessee State University; Bluefield College. The students are all indigenous to the county of Wise.

Moreover, the student program has gained the financial support of Virginia's Center for Innovative Technology (CIT), the Appalachian Regional Commission (ARC), the National Aeronautics and Space Administration (NASA) and an array of other public and private entities to build GIS, GPS, remote sensing, database, and other visualization skill sets among the local youth. Eight students received the first GIS Professional Certificates from Mountain Empire Community College in May 2003 with a host of others now in the pipeline.

Municipal governments within Wise County acknowledging the many benefits of the land record modernization effort contributed thousands of dollars to the parcel mapping of 33,585 individual parcels with an electronic database of information about each parcel ranging from conveyance documents, real estate tax assessments, fire hydrant locations and pressure, water, sewer, natural gas, other utility infrastructure mapping, and so forth.

Privacy advocates argue that the system opens the possibility of identity theft from Internet access to public documents by elimination of "practical obscurity" --- defined as a persons motivation to trek to the local court house to view paper indices and paper-based records. In the post 9/11-era, concern has been raised to the level of access to aerial imagery, base mapping, and the vast amount of data opened to the web by a nearly 100-layer GIS.

Access advocates, on the other hand, have praised the land record modernization effort as providing unparalleled availability of information outside the 9 AM to 5 PM vaults of the clerk of court real estate division.

Citizen outreach to local, state, and federal officials along with the general public by student intern presentations focused on their latest additions to GIS combined with the older features has been a marvelous means to gain greater understanding and appreciation for the Geographic Information and Land Record Registration System.

The balance between access and privacy has been to create an artificial barrier requiring subscription access to the real estate conveyance documents because a few contain Social Security numbers of mortgage grantors placed on the public document by the bank agent and signed by the person.

Geographic Information System data remains open and free to every person on the planet, nonetheless.

Geographic Information and Land Record Registration System of Wise County is differentiated from others because it is not simply a group of electronic maps; nor is it just access to electronic real estate conveyance documents, survey images, highway plats, building permits, and much more. It is different because what are normally silo operations of two different departments is made electronically seamless.

Few local governments throughout the United States offer both electronic access to real estate documents through a GIS parcel base mapping system. Even fewer have the vast array of information to be query searched via a one-stop visualization database 24 x 7.

Electronic legal real estate conveyance documents remain in its infancy but the practical applications of such an information technology driven system has been operational in Wise County, Virginia for nearly 30-months and expands daily.

The implementation of the Geographic Information and Land Record Registration System has been incremental over the past six-years to enable technological system research, and human and financial resource gathering.

Throughout 1996 the legacy data was reviewed and a plan developed to provide public access to electronic real estate conveyance documents leading to its implementation in 1997. Millions of keystrokes were undertaken by student interns under staff supervision to give Wise County a nearly 150-year span of an electronic probate and marriage record index. One hundred year old-plus marriage records were indexed and scanned to CD-ROMs enabling the paper documents to be taken out of public circulation. A 20+ year judgment lien index was keyed and created.

In 1998 an imaging system was funded and included in the land records division to start scanning of paper documents live-forward while legacy microfilm conversion to tiff was started.

By late 1999, the first Internet access to real estate conveyance documents was launched with over 3,000 free subscribers to the database. The first county-owned aerial images were obtained (now in third generation of aerial imagery).

h.

eFileCX Welcome **Melanie Salyer** **MIXNET**
image solution

My Home	My Profile	What's New	Logout
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Your subscription program is: **Government User Annually!**
Your subscription started on: **3/31/2003** and ends on **3/31/2004**
Since your registration you have logged on **249** times.

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We prosecute fraud to the fullest extent of the law.

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Image of online subscriber database. The database includes land records dating from 1970 to the present, property assessments, building permits, survey maps, plat maps, and highway plat maps.
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In 2000, the Geographic Information and Land Record Registration System scanned Wise County Building permits and created an electronic index back to 1997; thousands of private surveyor paper documents were scanned and electronically indexed to aid the planned GIS parcel base mapping layer. In the fall of that year, the Big Stone Gap

Redevelopment and Housing Authority electronically filed the first remote electronic deed with the clerk of court office land records division.

i.

BIG STONE GAP HOUSING AUTHORITY

EFILE ID 000000004 | INSTRUMENT DATE FORMAT MM/DD/YYYY

Instrument prepared by:

Organization:

First Name: Last Name:

Address:

City: State: Zip:

Recording paid by:

Name:

This Instrument:

made on: / / by and between

as Grantors, and

	Last Name	First Name	Middle Name	Suffix
Grantee1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grantee2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grantee3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grantee4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grantee5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Grantee Address:	<input type="text"/>			

In early 2001, the county's first 20-layer GIS went on the web providing a link to the parcel maps and various data sets including but not limited to a tiff image of the associated parcel real estate conveyance document along with a 50-year title transfer history, tax assessment, and the delinquent tax assessment data --- a title abstractor's dream.

j.

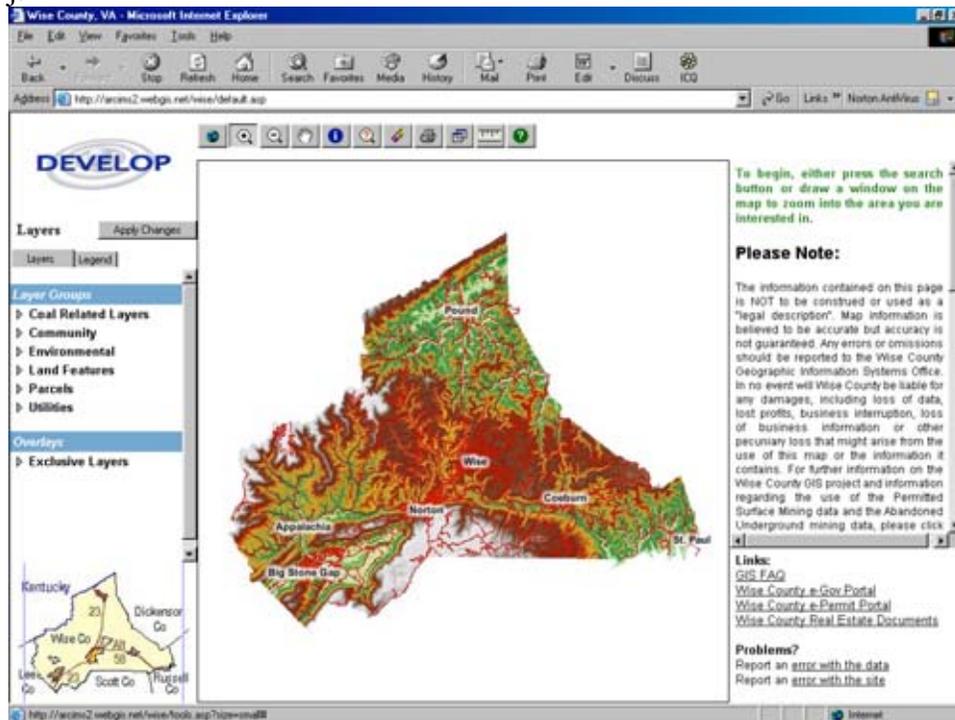


Image of Wise County GIS default Page. Layers are listed on the left. The link offered will direct you to the Wise County GIS default page.

Throughout 2002 data was collected from various local, state, and federal agencies to build content layers for the GIS. Student interns used GPS to locate point source pollution, fire hydrants, and other key points of interest. Approximately 85-layers of GIS maps were complete by year end including a student project mapping the wireless broadband Internet signal shed and coal mine slurry ponds throughout the mountainous coal laden terrain of Wise County.

In 2003, the Geographic Information and Land Record Registration System added electronic filing of bank mortgage certificates of satisfaction; electronic filing of conditional sewer permits with the local health department; and electronic filing of building permits with the local building and zoning department.

k.

eFILE

Application, document and file service provider

MIXNET

emagine.esolution

Wise County Department of Building & Zoning

Office of County Administrator

Courthouse

P.O. BOX 570

206 E. Main Street

Wise, Virginia 24293

Email: buildzone@naxs.com * Tel: 540.328.2321 * Fax: 540.328.9780

**Permit Application Status Page for Application ID: 11
as of: 10:59:36 AM Wednesday, March 13, 2002**

Permits applied for under this application			
Permit No.	Type	Payment	Status
2001-01872	EP	\$348.80 due on	inspector approved; officer signed;
2001-01873	PL	\$11.00 due on	inspector approved;
2001-01891	EL	\$20.00 due on	Under Creation
2001-01892	EL	\$40.00 due on	inspector approved;
General Permit Information			
Case No.	013556-2001-001		Open Time
Open Date			MAP No.
TAX ID	013556		027 282B
Property Location	224 Valley Street		
Use	Residential		Use Group
Type Construction			Zoning District
Permit Applicant Information			
Permit Applicant	COOMER MARK		
Fed ID			
Address	224 VALLEY STREET		
City	WISE		
State	Va		Zip
Daytime Phone	540-679-3275		24293
Email			Fax
			540-679-3294
Applicant Relationship to Owner	NEW OWNER		
Property Owner Information			
Owner Name	VANOVER JULIA WH		
2 nd Owner Name			
Address	5909 SNOWDENS RUN RD		
City	ELDERSEBURG		
State	MD		Zip

Image of Electronic Building Permit.

(Link offered will direct you to the Building Department Logon.)

Certificate and Affidavit of Satisfaction
 Commonwealth of Virginia

Wise County/City of Norton, Virginia, Circuit Court in the location of the following record referenced by the instrument:

Date, Book of Title/ Mortgage/ Other Doc: 03/13/2004
 Book: 104 Page: 573 Nat. Indus. Mort. No.: _____ Tax Map Reference No.: _____ Parcel Desc./Section No.: 132-18800

Name(s) of Grantor(s)/Mortgagor(s)	First Name	Middle	Last Name	S/U	Business/Person	Tax Status?
	<u>John</u>	<u>R</u>	<u>Parsons</u>	<u>---</u>	<u>Person</u>	<u>Sta.</u>
Name(s) of Grantee(s)	First Name	Middle	Last Name	S/U	Business/Person	Tax Status?
	<u>John</u>	<u>R</u>	<u>Parsons</u>	<u>---</u>	<u>Person</u>	<u>Sta.</u>
	<u>John</u>	<u>R</u>	<u>Parsons</u>	<u>---</u>	<u>Person</u>	<u>Sta.</u>

Amount and Total Received: \$ 31,000.00
 Other: _____

(NOTE: Value(s) of the above-mentioned record(s) secured by the above-mentioned deed of sale, mortgage or other lien, do hereby certify that the same together bear said = 50% and the lien therein created and secured is hereby released.)
 Date: 03/12/2004

John R. Parsons

Signed by: John R. Parsons for: John R. Parsons
 Holder of Record, Beneficiary or Other Beneficiary of Debt
 City/County: Wise County, Virginia

Notary Public:
 My Commission Expires on Date: 03/2008

Shepherd Hunt

Signature and Printed Name of Notary Public: Shepherd Hunt
Wise County/City of Norton Circuit, VA Circuit Court Clerk's Office
 This record and affidavit of satisfaction was presented and, with the Certificate attached, admitted to record on:
 Document Number: 00000077 at File ID: 000000
 Recording Date: 03/12/04 and Time: 09:30 Clerk's Fee of \$ 18.50 has been paid.
 Clerk of the Circuit Court: John Parsons, Jr.

1.

John R. Parsons

Image of a recorded electronic certificate of satisfaction

In the balance of 2003, several new projects relating to the Geographic Information and Land Record Registration System are being expanded, to wit: 1) electronic filing of judgment releases; 2) GIS mapping of underground coal seam ownership with related ownership documents; 3) GIS mapping of incidents of crime; 4) updated GIS flood zone maps using LIDAR; 5) GIS census block mapping of population income and education; 6) GIS mapping of real estate values. The projects shall be completed using student teams working in association with experts in the fields of endeavor from the community.

The system design has evolved as the technology has improved such as web-based GIS access and system design for electronic filing. Yet all the systems now in-place were visioned and planned from the start. The use of the Internet (as opposed to an Intranet) has enabled wider public access in a rural community that has struggled with affordable broadband citizen and governmental agency access.

Utilization of out-source hosting of the data has enabled Wise County's land record division to build redundancy into the levels of access without placing the original data set at any security risk.

The real estate document access is largely used by real estate attorneys, title abstractors, real estate agents, bank loan officers, Medicaid eligibility case workers, state coal mine inspectors and mine permit review personnel, professional surveyors, engineering firms, genealogists, utility planners and managers, and a myriad of local government officials.

The Geographic Information System was designed to reflect the community. For example, persons interested in wireless Internet access may now see a visual of the signal shed. Interested persons from the citizen-homeowner to the fire fighter may review the location of fire hydrants, its water pressure, and last date of inspection. A hunter or fisherman may check the game survey data and locations through utilization of GIS. Commercial development planners may provide wider access to mapping of infrastructure to better enable project costs. Elected public officials may visualize through GIS the number of households claiming real estate property tax exemptions or the number of households failing to remit real estate taxes. The examples could go on and on and on.

m.

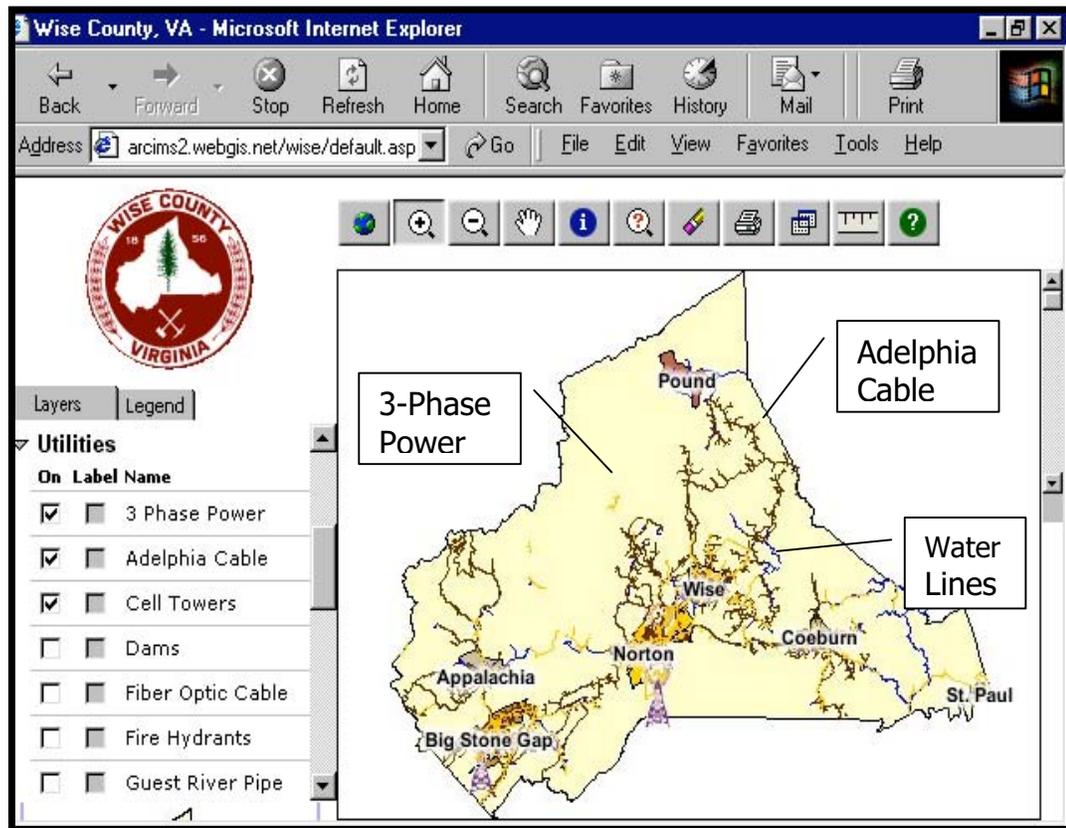


Image of Wise County Utilities: specifically 3-Phase Power, Adelphia Cable, and Water Lines.
(Link offered will direct you to the Wise County GIS)

Never before held user group meetings are held by community sectors to gain input on improvements, e.g. realtors, surveyors, attorneys, and community service organizations. Innovation comes from places sometimes quite unexpected.

The system has had an impact on Virginia public policy as others seek to replicate the design throughout the state raising state policy issues relating to access and privacy. The system has been the topic of the state legislature every year since 1997 with legislative

measures being passed either enabling applications or seeking to restrict access.

The level of access continues to be a hot topic with various state legislative committees studies underway.

The GIS parcel base mapping component has resulted in Wise County's 25,000+ parcels being updated from 1966 paper maps. The result has been a vast increase in both accuracy and customer satisfaction through the 24 x 7 access. Title abstractors now regularly include a GIS scan as a part of title opinions -- not so much for legal aspects, but for the sake of accuracy and attendant related public infrastructure, e.g. utilities, highways, etc. Previously this was either not possible or cost prohibitive.

Genealogists from across the nation may now pour through thousands of probate index entries or view probate documents with a few clicks of a mouse from hundreds of miles away. Previously a genealogist would have to call, write, or seek local historians to assist in pouring through these records.

The real estate land recordation may begin with a paper document requiring a Land Record Cover Sheet (if not electronically filed). The Land Record Cover Sheet Agent has a 2-D bar code that is initially scanned and taken into the indexing and financial management systems. The paper document is then scanned and linked to the new electronic index entry. The data is then available on-premises.

The Cover Sheet was developed for Wise County by International Lands Systems (ILS) in early 2000 as a Virginia pilot. The scanner used is a high end Fujitsu. The indexing and financial management systems are a WAN developed by the Supreme Court of Virginia and Unix as well as Informix. The data is stored on-premises on a Hewlett Packard 9000 series server.

n.

Image of Land Record Cover Sheet Agent with 2-D Bar Code
(Link offered will direct you to online Cover Sheet Application)

The remote Internet access to real estate documents (via subscription) is hosted by MIXNET Corporation on a dedicated T-1 and server. The index and images are sent via FTP to the remote server frequently. MIXNET supports electronic filing in a customized package with web-based fill-in-the-blank templates.

The GIS data is hosted by Anderson & Associates using ESRI's ARCIMS server package. It is updated on a monthly basis.

An on-premises computer lab (a converted vault) is host to six networked personal computers to collect, maintain, and build GIS layers by six-to-ten student interns at any given time.

The systems integration is brought together seamless via a web page www.wisecircuitcourt.com or www.courtbar.org hosted on twin T-3s by Pro Hosting to off site links to MIXNET (documents) and Anderson & Associates (GIS).

The system software used is ESRI Arc View 3x and 8x, Spatial Analyst, 3-D Analyst, Microsoft Access, Internet Explorer and Excel. Edge, NovaLIS Parcel Editor, Adobe Acrobat, and Supreme Court of Virginia's Record Management Software to support the scanning, data collection, and database development.

The databases used for the project are multiple. The indexing information is stored an Informix database. The GIS files are stored as Dbase files and ESRI ArcView shapefiles. Other database files include Microsoft Access and Excel databases. Images are stored as *.blob images on an HP Surestore Optical Jukebox for backup and also on the HP 9000 server.

Ten to 12 FTEs are used to support the expansion the Geographic Information and Land Record Registration System. However, nine of the FTEs are student interns who are paid an educational stipend and earn college level credit for a GIS professional certificate.

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Co-Author: J. Jack Kennedy, Jr., Circuit Court Clerk, Wise County Circuit Court, 206 East Main Street, Wise, VA 24293, 276-328-6111 voice, 276-328-0039 fax, jack@jackkennedy.net