North Carolina Geospatial Data Archiving Project

2008 Local Government Geoarchives Survey

Survey conducted by

NC Center for Geographic Information & Analysis

Under a Partnership with

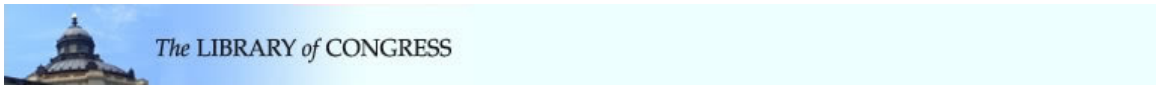
The Library of Congress

National Digital Information Infrastructure and Preservation Program (NDIIPP)

and

North Carolina State University Libraries

1 February 2009



North Carolina Geospatial Data Archiving Project

2008 Local Government Geoarchives Survey

Investigating the Frequency of Capture of Geospatial Data in County and Municipal Government

Project Introduction

The North Carolina Geospatial Data Archiving Project (NCGDAP) is a collaboration between North Carolina State University Libraries and the North Carolina Center for Geographic Information and Analysis (CGIA) in partnership with The Library of Congress National Digital Information Infrastructure and Preservation Program (NDIIIPP). NCGDAP's focus is on the collection and preservation of digital geospatial data content harvested from state and local government agencies in North Carolina.

The objectives of the NCGDAP project include:

- Identification of available resources through the NC OneMap data inventory
- Acquisition of "at risk" geospatial data, including static data such as digital orthophotos as well time series data such as local land records and zoning data
- Development of a digital repository architecture for geospatial data, using open source software tools.
- Investigation of automated identification and capture of data resources from remote servers using emerging OpenGeospatial Consortium specifications.
- Development of a model for data archiving and time series development.
- Outreach to the NC GIS community about the preservation of geospatial data.

Survey Overview

The 2008 Local Government Geoarchives Survey is a follow-up to a similar survey conducted in 2006. The goal of both surveys has been to measure the prevalence and maturity of preservation efforts for geospatial data in local government agencies. A heavy focus is placed on geospatial content that is "at risk" of being lost. Vector layers such as: parcel, street centerlines, jurisdictional boundaries and zoning are updated regularly and superseded copies are often overwritten and lost for future use. A secondary focus is on digital orthophoto imagery, which is highly valuable for historic mapping and change analysis. Additional survey questions attempt to evaluate the technical processes used to manage and provide access to archived data. Another key area of interest has been to make a determination about the business drivers for data archival as well as investigating how local governments are using superseded data.

This survey was designed in coordination with both the NC Geographic Information Coordination Council's (GICC) Local Government Committee (LGC) and the Archives and Long Term Access Ad-Hoc Committee and additional input was received from the Geospatial Multistate Archive and Preservation Partnership (GeoMAPP), another NDIIPP initiative that includes participants from North Carolina, Kentucky and Utah.

The survey was launched via an "LGC alert" and email announcements were sent to the NC GIS, PMA, CURISA, LGISA, and Planning listservs, which have around 3,200 combined total subscribers. The survey was administered between June 10 and June 30, 2008 using the SurveyMonkey.com web service.

Survey Objective

The objective of this survey is to document the current practices of county and municipal GIS practitioners as related to the frequency of capture of geospatial data for their archives and long-term access. The survey delineated the difference between routine backups and data archival practices on the survey introduction page in an attempt to focus the responses on data that are being preserved for long term use and analysis. Since this is a follow-up survey, selected analysis has been performed to compare 2008 results to the findings from 2006 in an attempt to identify trends or anomalies.

Response Status

In addition to the launch and advertising of the survey conducted via listservs, targeted emails were also sent to local government GIS contacts representing all 100 counties, the 50 largest municipalities and registered municipal NC GIS Inventory contacts outside of the largest 50 most populous towns and cities. In North Carolina, local geospatial framework datasets are often produced and managed by counties. Land records (cadastral data) as well as street centerlines and orthophotos are typically managed by county GIS or planning staffs. Municipalities typically help manage geospatial representations of jurisdictional boundaries as well as planning and permit-related datasets.

2008 respondents:

There were 104 valid responses to the survey, representing 64 of the state's 100 counties and 40 municipalities. This was a strong response to an online survey and response rates were up from the 2006 survey where 61 counties and 11 municipalities responded.

The group of respondents included a wide range of sizes (population) and GIS capabilities. On average, the counties that responded have larger resident populations than the counties that did not respond as shown in Table 1. This population to response rate/trend of the counties was not evident on the municipal side as there was little population difference between responders and non-responders. This could be due to the fact that four of the largest six cities did not complete the survey, while eleven of the respondents represented municipalities with less than 15,000 residents. (Table 2)

Table 1: Population of County by Response Status

Status of County	Population	mean	median
Responded (N = 64)	6,722,588	105,040	56,167
No response (N = 36)	2,133,917	59,275	46,262

Table 2: Population of Municipality by Response Status

Status of Municipality	Population	mean	median
Responded (N = 40)	2,183,143	55,978	28,480
No response (N = 23)	1,335,518	58,066	21,378

Results

Table 3 shows that 88% of the combined group of respondents (both county and municipal) are archiving either vector or raster datasets. The archival rates between county and municipal agencies are very similar. Slightly more jurisdictions appear to be archiving vector data than raster, while only around half are archiving both vector and raster. Respondents that are not capturing geospatial data for long-term retention tend to be smaller in terms of population as shown in Table 4.

Lists of jurisdictions that do and do not capture data for archives are shown in Appendix A.

Table 3: Archival Activity by Data Type and Organization Type

Counties (64)				
Response	**Archiving Raster**	**Archiving Vector**	**Archiving Both**	**Archiving Either**
Yes	63%	73%	47%	89%
No	38%	27%	53%	11%
Municipalities (40)				
Response	**Archiving Raster**	**Archiving Vector**	**Archiving Both**	**Archiving Either**
Yes	65%	68%	48%	85%
No	33%	30%	50%	13%
All Respondents (104)				
Response	**Archiving Raster**	**Archiving Vector**	**Archiving Both**	**Archiving Either**
Yes	63%	71%	47%	88%
No	36%	28%	52%	12%

Table 4: Population of Locality by Status of Archival Data Capture Practices

Status of Locality	Population	mean	Median
Capture data (N = 91)	8,539,648	93,842	48,399
Do not capture data (N = 12)	366,083	30,507	17,388

A map of survey respondents and localities archiving geospatial data is shown in Figure 1. There appear to be parallels between survey response and the current participation (data serving) in the NC OneMap map viewer (Figure 2). 65% of counties that archive data are also One Map participants. 56% of counties participating in One Map responded that they are archiving geospatial data.

Figure 1: Data Capture Status by County

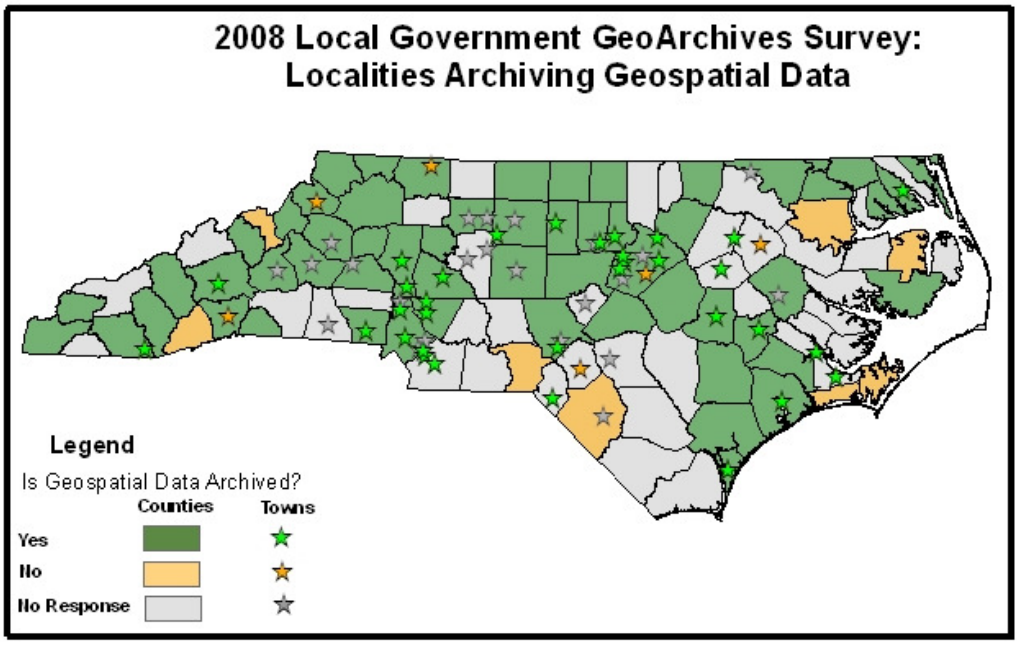
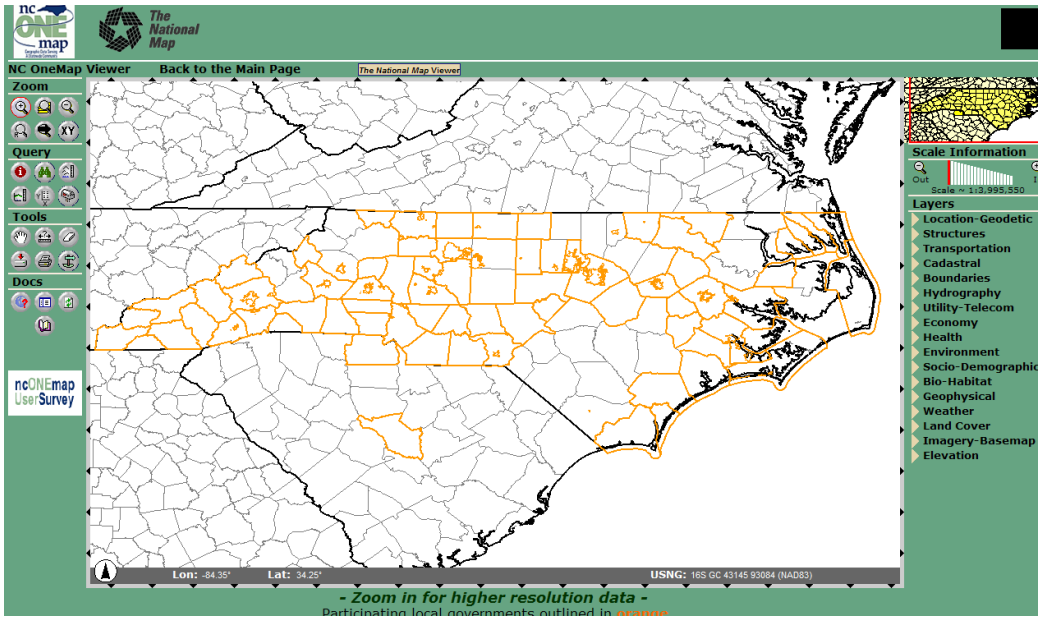


Figure 2: NC OneMap Participating Local Governments, July 2008



Survey Result Highlights

Survey results show that almost 90 percent of local government GIS coordinators are capturing a snapshot of at least one thematic layer of geospatial data for archival purposes on at least on an annual basis. The frequency of capture varies widely for those who capture data more often than annually. In the case of parcel data, 43% of those archiving are capturing snapshots annually while 12% capture every 6 months, 4 % capture quarterly, 16% capture monthly and 10% responded that data is captured weekly or daily. While many layers are typically archived only once a year, a majority of localities archiving jurisdictional boundaries generate a snapshot any time a change is made.

As seen in Table 5, parcel data is the most commonly archived vector layer and over 60% of respondents are archiving superseded ortho imagery. Parcel and street data are archived at higher rates by counties, while a larger percentage of municipal respondents are archiving jurisdictional boundary and zoning data. These results are likely driven by county government's role as creator and authority on cadastral datasets and municipality's greater focus on zoning and jurisdictional issue

Table 5: Archival Rates of 'Focus' Data Layers

Layer	County	Municipality	Overall
Parcel	63%	45%	56%
Street Centerlines	52%	43%	48%
Jurisdictional Boundary	44%	60%	50%
Zoning	38%	53%	43%
Orthos	66%	60%	63%

Local government holdings of orthophotos span a larger time period than collections of vector data. 64% of localities have ortho data that is older than 10 years old while only 37% have archived vector data older than 5 years.

While only 10% of respondents are updating metadata records when archiving data, around half are including a metadata record with their data when it's archived.

The most commonly identified business drivers for data arching include: historic mapping (36%), records retention policy (28%), change analysis (25%), information technology policy (24%), and tax administration rules (22%). A number of respondents also indicated that Geoarchives are implemented as good GIS practice.

Lastly, in a question about data use, several localities cite the value of using archived geospatial data for historical analysis. Other unique uses of archived data include: research material for legal cases, resolution of tax and zoning issues and use as a resource to validate newly created maps.

Summarized survey results can be found in Appendix B.

Quantifying the Scope of Local Government Archives Program

In an attempt to measure the aggressiveness of a jurisdiction's archival program as well as to highlight individual jurisdictions that have implemented an extensive archives program, a weighting matrix was applied to specific survey question responses. Points were given for each unique dataset being archived as well as for other archiving best practices such as metadata creation, online storage media, and data access. Two examples of the results follow:

Mecklenburg County had the highest total of points, influenced heavily by the large number of datasets currently included in their archives. The county is capturing parcels, street centerlines, zoning and 11 other critical vector layers on an annual basis and captures municipal and county boundaries any time an official boundary change occurs. They have been archiving vector datasets for more than 5 years. Mecklenburg County also has extensive raster archives holdings including ortho and satellite imagery, elevation and land use data. The county stores both vector and raster archives in an online server environment and grants restricted online access to their archived data.

The Town of Wilson had a median value for points. Highlights of their archives program include over 5 years worth of server-stored vector data including annual snapshots of parcels and zoning, with municipal boundaries being captured when changes occur. The town also archives orthoimagery data on both external drives and servers, and makes this superseded imagery available online to the public. Wilson is also including locally defined metadata records with its archived datasets and is updating the metadata when the layer is archived.

2006 to 2008 Analysis

As mentioned above, a very similar local government Geoarchives survey was conducted in 2006. While several new questions were added to the 2008 survey and there were a few instances of question rewording, a careful effort was made to keep the instruments as similar as possible between surveys to allow for some comparison and trending. To that end, here are a few items that stood out while comparing the results of both surveys:[1]

- While the overall percentage of respondents archiving vector data was similar, there was an increase in the percentage of localities archiving street centerlines (up 7% to 48% in '08) and zoning (up 5% to 43%), both considered to be "at risk" layers.

- While shapefiles remained the most popular archival format for vector layers, there was a decrease in use of ESRI coverages coupled with an increase in ESRI geodatabase format usage for archives storage. Geodatabase use in archives increased 20% in the two years (from 30% in '06 to 50% in '08). An expanded use of geodatabases for archives may also explain the reduction of converting geospatial data from one format to another between surveys (from 40% to 25%) and an increase in saving attribute data with the key archived vector data (up 10% to 96%).

[1] The results of the 2006 study can be found here:
http://www.nconemap.com/Portals/7/documents/NCOneMap_NDIIPLocalGovSurvey_1106.pdf

- Another positive identified trend is an increase in saving metadata with archived data. Metadata is now included with the archived data around 50% of the time (up 10% from 2006) and 65% of archived metadata is FGDC compliant.

- The 2008 survey also revealed a shift in media technologies used for storing archived data. While server/online storage was the primary storage media used in both surveys, there was a decline in the use of tapes and CDs (65% combined use in '06 to 26% in '08) and a 5% increase of DVD use for archive storage.

- The results involving the supporting business drivers for the archival of geospatial data are highlighted by a significant increase in awareness of formal archives practices. In both surveys historical mapping was cited as the most prevalent driver for archival practices (36% in '08 and 55% in '06). However, in the 2008 survey records retention policy became the second most frequently identified driver (up to 38% from 17% and 5th most popular in '06). It is unclear whether this increase was driven by local actions or from recent outreach efforts by State Archives, but it appears to be a positive trend of awareness of archival policy and/ or implementation of dedicated archival practice.

Conclusion

One of the primary goals of this effort was to learn about current archives practices of local government GIS data creators and to compare current results to those of the 2006 survey to measure progress and technological shifts. Administration of the survey also acted as a vessel for outreach; spreading the word about preservation and archives of digital geospatial data to over 3000 local government GIS professionals. The 2008 Local Government Geoarchives Survey outreach effort included:

- Feedback and sponsorship from local government GIS decision makers involved in sub-committees of the GICC.

- Delivery of the "message" of Geoarchives to the email inboxes of several thousand GIS users and creators across the state via the survey launch and advertising message sent to GIS-centric statewide listservs.

- Several targeted communications to GIS process owners for every county in the state as well as a large number of municipalities.

- Receiving survey responses from 104 unique local government GIS organizations including valuable information about their Geoarchives practices, business drivers and uses, and recommendations for best practices.

The survey also served as a foundation for three other Geoarchives surveys targeting: NC state agencies; state GIS coordinators through the National States Geographic Information Council (NSGIC); state archivists through the Council of State Archivists (CoSA) and the National Association of Government Archives and Records Administrators (NAGARA) as part of the NDIIPP GeoMAPP initiative which will further the overall Geoarchives outreach effort.

The survey results are promising. Almost 90% of local governments in North Carolina are archiving some form of geospatial data and over 50% are archiving “at risk” layers such as parcels, jurisdictional boundaries and ortho imagery. While many of the local Geoarchives programs are new and developing, many of the efforts appear to be driven in part by formal archives and records retention policies and geospatial data retrieved from these archives are being used to support critical business functions.

Appendix A: Archival Practices by Locality

Localities Archiving either Vector OR Raster Data

Locality	County/ Municipality	Data Archived	Population
Aberdeen	Municipality	Both	5,052
Alamance	County	Both	142,661
Alexander	County	Raster	36,177
Alleghany	County	Vector	10,912
Apex	Municipality	Both	30,208
Ashe	County	Vector	25,499
Asheville	Municipality	Raster	72,789
Avery	County	Both	17,674
Buncombe	County	Both	222,174
Burke	County	Both	90,054
Burlington	Municipality	Both	48,399
Cabarrus	County	Both	156,395
Caldwell	County	Both	79,841
Cary	Municipality	Both	112,414
Caswell	County	Both	23,546
Catawba	County	Both	153,784
Chapel Hill	Municipality	Both	49,919
Charlotte	Municipality	Both	630,478
Chatham	County	Raster	60,052
Cherokee	County	Both	26,309
Concord	Municipality	Both	62,587
Currituck	County	Vector	23,770
Davie	County	Vector	40,035
Duplin	County	Both	52,790
Durham	Municipality	Both	209,009
Durham	County	Both	246,896
Elizabeth City	Municipality	Raster	19,056
Forsyth	County	Both	332,355
Franklin	County	Both	55,886
Gaston	County	Both	199,397
Gastonia	Municipality	Vector	69,904
Gates	County	Raster	11,527
Goldsboro	Municipality	Raster	38,203
Graham	County	Raster	7,995
Greenville	Municipality	Both	72,052
Guilford	County	Vector	451,905
Harnett	County	Vector	106,283
Havelock	Municipality	Vector	21,906
Haywood	County	Vector	56,447
Henderson	County	Vector	99,033
Hertford	County	Both	23,581
High Point	Municipality	Both	97,796
Highlands	Municipality	Vector	944
Huntersville	Municipality	Vector	38,796

Hyde	County	Raster	5,341
Indian Trail	Municipality	Both	17,491
Iredell	County	Both	146,206
Jackson	County	Both	35,562
Jacksonville	Municipality	Vector	69,688
Johnston	County	Raster	152,143
Jones	County	Raster	10,204
Kannapolis	Municipality	Vector	40,223
Kinston	Municipality	Both	22,729
Knightdale	Municipality	Both	6,479
Laurinburg	Municipality	Raster	15,766
Lenoir	County	Both	57,662
Macon	County	Raster	32,395
McDowell	County	Raster	43,414
Mecklenburg	County	Both	827,445
Monroe	Municipality	Both	30,871
Moore	County	Both	83,162
Mooresville	Municipality	Both	20,944
Morrisville	Municipality	Raster	12,513
New Bern	Municipality	Vector	27,650
New Hanover	County	Both	182,591
Northampton	County	Raster	21,247
Onslow	County	Raster	150,673
Orange	County	Both	120,100
Pasquotank	County	Both	39,591
Pender	County	Raster	48,630
Perquimans	County	Vector	12,337
Person	County	Both	37,341
Pitt	County	Raster	145,619
Polk	County	Raster	19,226
Randolph	County	Raster	140,410
Rockingham	County	Both	93,063
Rocky Mount	Municipality	Both	57,057
Rowan	County	Both	136,254
Salisbury	Municipality	Raster	28,480
Stallings	Municipality	Both	4,073
Statesville	Municipality	Raster	25,511
Surry	County	Both	72,687
Wake	County	Both	786,522
Wake Forest	Municipality	Raster	22,651
Warren	County	Raster	19,605
Watauga	County	Vector	42,700
Wayne	County	Both	113,847
Wilkes	County	Raster	67,310
Wilmington	Municipality	Both	95,944
Wilson	Municipality	Both	47,380
Yancey	County	Both	18,421

Localities NOT Archiving Either Vector or Raster Data

Locality	County/ Municipality	Population
Bertie	County	19,094
Carteret	County	63,584
Garner	Municipality	23,741
Hendersonville	Municipality	11,808
Mitchell	County	15,681
Mount Airy	Municipality	8,457
Raeford	Municipality	3,611
Richmond	County	46,555
Robeson	County	129,021
Tarboro	Municipality	10,564
Transylvania	County	29,780
Tyrrell	County	4,187

Appendix B: Questions and Results: 2008 Local Government Geoarchives Survey

Summary of Survey Results

Do you create and retain periodic snapshots of any VECTOR datasets/ layers for long term retention/ archival purposes?		
Answer Options	**Response Percent**	**Response Count**
Yes	63.1%	65
No	36.9%	38
	answered question	103
	skipped question	0

How often do you make snapshots of PARCEL geometry for long term retention/ archival purposes? (choose frequency closest to your practice)		
Answer Options	**Response Percent**	**Response Count**
Annually	40.0%	26
Every 6 Months	12.3%	8
Quarterly	6.2%	4
Monthly	18.5%	12
Weekly or Daily	10.8%	7
Not Saved	12.3%	8
	answered question	65
	skipped question	38

In what formats do you save PARCEL geometry snapshots when archiving them? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Shapefile	76.8%	43
Geodatabase	53.6%	30
Arc Coverage	7.1%	4
Arc Interchange (e00)	1.8%	1
ASCII (i.e .txt)	0.0%	0
XML	0.0%	0
Other	1.8%	1
Not Sure	0.0%	0
	answered question	56
	skipped question	47

Is the archived PARCEL geometry stored in the same data format used for maintenance and analysis?		
Answer Options	**Response Percent**	**Response Count**
Yes	60.7%	34
No	37.5%	21
Not Sure	1.8%	1
	answered question	**56**
	skipped question	**47**

Are PARCEL attributes (such as tax record information) saved with the PARCEL geometry data?		
Answer Options	**Response Percent**	**Response Count**
Yes, as attached attributes	71.4%	40
Yes, in a separate table	19.6%	11
No	8.9%	5
Not Sure	0.0%	0
	answered question	**56**
	skipped question	**47**

How often do you make snapshots of STREET CENTERLINE geometry for long term retention/ archival purposes? (choose frequency closest to your practice)		
Answer Options	**Response Percent**	**Response Count**
Annually	31.7%	20
Every 6 Months	12.7%	8
Quarterly	4.8%	3
Monthly	14.3%	9
Weekly or Daily	14.3%	9
Not Saved	22.2%	14
	answered question	**63**
	skipped question	**40**

In what formats do you save STREET CENTERLINE geometry snapshots when archiving them? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Shapefile	76.0%	38
Geodatabase	44.0%	22
Arc Coverage	4.0%	2

Arc Interchange (e00)	2.0%	1
ASCII (i.e .txt)	0.0%	0
XML	0.0%	0
Other	4.0%	2
Not Sure	2.0%	1
	answered question	50
	skipped question	53

Is the archived STREET CENTERLINE geometry stored in the same data format used for maintenance and analysis?

Answer Options	Response Percent	Response Count
Yes	70.0%	35
No	28.0%	14
Not Sure	2.0%	1
	answered question	50
	skipped question	53

Are STREET attributes (i.e. street name) saved with the STREET CENTERLINE geometry?

Answer Options	Response Percent	Response Count
Yes, as attached attributes	96.0%	48
Yes, in a separate table	0.0%	0
No	0.0%	0
Not Sure	4.0%	2
	answered question	50
	skipped question	53

For which of the following JURISDICTIONAL BOUNDARY datasets do you create snapshots for long term retention/ archival purposes? (check all that apply)

Answer Options	Response Percent	Response Count
County Boundaries	39.7%	25
Municipal Boundaries	82.5%	52
Extraterritorial Jurisdictions	52.4%	33
None	17.5%	11
	answered question	63
	skipped question	40

How often do you make snapshots of JURISDICTIONAL BOUNDARY geometry for archival purposes? (choose frequency closest to your practice)		
Answer Options	**Response Percent**	**Response Count**
Any time an official boundary change occurs	50.0%	26
Annually	25.0%	13
Every 6 Months	1.9%	1
Quarterly	1.9%	1
Monthly	15.4%	8
Weekly or Daily	3.8%	2
Not Sure	1.9%	1
	answered question	**52**
	skipped question	**51**

In what formats do you save JURISDICTIONAL BOUNDARY geometry snapshots when archiving them? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Shapefile	78.8%	41
Geodatabase	46.2%	24
Arc Coverage	1.9%	1
Arc Interchange (e00)	0.0%	0
ASCII (i.e .txt)	0.0%	0
XML	0.0%	0
Other	5.8%	3
Not Sure	0.0%	0
	answered question	**52**
	skipped question	**51**

Is the archived JURISDICTIONAL BOUNDRY geometry stored in the same data format used for maintenance and analysis?		
Answer Options	**Response Percent**	**Response Count**
Yes	76.9%	40
No	21.2%	11
Not Sure	1.9%	1
	answered question	**52**
	skipped question	**51**

How often do you make snapshots of ZONING geometry for long term retention/ archival purposes? (choose frequency closest to your practice)		
Answer Options	**Response Percent**	**Response Count**
Annually	16.1%	10
Every 6 Months	3.2%	2
Quarterly	6.5%	4
Monthly	11.3%	7
Weekly or Daily	4.8%	3
Any time a zoning change occurs	25.8%	16
Not Saved	32.3%	20
	answered question	**62**
	skipped question	**41**

In what formats do you save ZONING geometry snapshots when archiving them? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Shapefile	65.0%	26
Geodatabase	60.0%	24
Arc Coverage	0.0%	0
Arc Interchange (e00)	0.0%	0
ASCII (i.e .txt)	0.0%	0
XML	0.0%	0
Other	7.5%	3
Not Sure	0.0%	0
	answered question	**40**
	skipped question	**63**

Is the archived ZONING geometry stored in the same data format used for maintenance and analysis?		
Answer Options	**Response Percent**	**Response Count**
Yes	77.5%	31
No	22.5%	9
Not Sure	0.0%	0
	answered question	**40**
	skipped question	**63**

Are ZONING attributes saved with ZONING geometry?		
Answer Options	**Response Percent**	**Response Count**
Yes, as attached attributes	95.0%	38
Yes, in a separate table	2.5%	1
No	2.5%	1
Not Sure	0.0%	0
	answered question	**40**
	skipped question	**63**

How often do you capture these additional VECTOR layers for your archives or long term retention? (check Not Applicable if you don't archive this layer)					
Answer Options	**Monthly**	**Quarterly**	**Annually**	**Not Applicable**	**Response Count**
Elevation (Spot points, Contours)	2	0	9	51	62
Hydrography/ Watershed boundaries	3	0	11	48	62
Address Points	16	3	16	27	62
Geodetic Control Points/ Networks	2	0	5	55	62
Airports & Airfields	3	0	7	52	62
Railroad Lines	5	0	7	50	62
Land Use	6	2	15	39	62
Utilities (water/ sewer lines, etc)	6	2	9	45	62
Schools (districts, locations, etc)	6	1	13	42	62
Emergency/911 (police/ fire stations/precincts)	8	1	14	39	62
Election/Voting	5	0	20	37	62
				Other Vector Layers?(please specify)	5
				answered question	**62**
				skipped question	**41**

Other Vector Layers?(please specify)
Protected land (amalgamated data set)

Annexations, Storm water, Fire Hydrants, Trash/Recycle
Building Footprints in place of address points updated monthly until completed.
hillside subdivisions, townships, community codes. all saved when changed
too many to list
Fire District Tax Jurisdictions

How far back do your archive of vector data snapshots go?

Answer Options	Response Percent	Response Count
More than 5 years	37.1%	23
3-5 years	33.9%	21
1-2 years	25.8%	16
Less than 1 year	3.2%	2
answered question		62
skipped question		41

Have you created digital versions of any of the following?

Answer Options	Response Percent	Response Count
Historic hardcopy maps, scanned only	26.0%	25
Historic hardcopy maps, scanned and georeferenced	11.5%	11
Aerial photos, scanned only	15.6%	15
Aerial photos, scanned and georeferenced	20.8%	20
None	49.0%	47
If YES, Please list any historic maps that have been digitized/ vectorized for analytical purposes.		10
answered question		96
skipped question		7

If YES, Please list any historic maps that have been digitized/ vectorized for analytical purposes.
we have 218 mylar maps of the county that were scan for our GIS project
Aerials/Orthos - 1958, 1974, 1981, 1988 Property Maps - 1991
all historic maps owned by the county (tax maps, soils, aerial photos, etc)
historic surface water maps

Tax Maps, Zoning Maps
scanned and geo-referenced a couple of old aerial photos for a specific project.
Historic aerial photographs
Previously recorded plats only. This was contracted by the Register of Deeds.
1988 imagery, working on some imagery from the 50s. Plans for 1985, 75, 65 imagery as well
2003 aerial maps

Which RASTER datasets do you archive? (check all that apply)

Answer Options	Response Percent	Response Count
Digital Orthophotos	67.7%	65
Elevation (i.e. DEM)	14.6%	14
Land Cover	2.1%	2
Satellite imagery	7.3%	7
We don't archive raster data	31.3%	30
Other Raster layers? (please specify)		1
answered question		96
skipped question		7

How are historic/ superceded digital ORTHOPHOTOS being stored? (check all that apply)

Answer Options	Response Percent	Response Count
Tape	3.0%	2
CD	28.8%	19
DVD	45.5%	30
External Hard Drive	25.8%	17
Server or Online Storage	69.7%	46
Other	6.1%	4
Not Stored	3.0%	2
answered question		66
skipped question		37

For what time period does your locality retain historic/ superseded DIGITAL ORTHOPHOTOS?

Answer Options	Response Percent	Response Count
10+ years	63.6%	42
5-9 Years	15.2%	10
2-4 Years	0.0%	0
We just retain the last previous (superseded) copy and current orthos	15.2%	10
We don't retain historic Orthophotos	6.1%	4
	answered question	66
	skipped question	37

What METADATA types are saved with the snapshot data?

Answer Options	Response Percent	Response Count
FGDC format	26.1%	24
Locally defined metadata	12.0%	11
NC OneMap metadata starter block	1.1%	1
None	38.0%	35
Not Sure/ N/A	25.0%	23
	answered question	92
	skipped question	11

Are updates made to the metadata record once the dataset is formally archived (to reflect the data's new status as "archived" and/or describe any processing that may have taken place)? (choose one)

Answer Options	Response Percent	Response Count
YES	6.5%	6
NO	59.8%	55
N/A (Not Sure)	33.7%	31
	answered question	92
	skipped question	11

In what STORAGE environment are the archived (non-Ortho) snapshot data saved? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Tape	10.9%	10
CD	15.2%	14
DVD	21.7%	20
External Hard Drive	14.1%	13
Server or Online Storage	50.0%	46
Other	3.3%	3
N/A	23.9%	22
	answered question	**92**
	skipped question	**11**

Is data COMPRESSED prior to saving for archives?		
Answer Options	**Response Percent**	**Response Count**
YES	17.4%	16
NO	62.0%	57
N/A (Not Sure)	20.7%	19
	If YES, what tool/technique used (i.e., WinZip, RAR, etc)	9
	answered question	**92**
	skipped question	**11**

If YES, what tool/technique used (i.e., WinZip, RAR, etc)
windows xp built in .zip format
Winzip
WinZip
WinZip
not sure
WinZip
winzip
zip
winzip

Where physically, are the archive data stored?		
Answer Options	**Response Percent**	**Response Count**
Onsite	51.1%	47
Offsite	4.3%	4
Both Onsite and Offsite	30.4%	28
N/A (Not Sure)	14.1%	13
	answered question	**92**
	skipped question	**11**

What local business RULES and/or USES drive the long-term retention of geospatial data in your jurisdiction? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Information technology policy	23.9%	22
Records retention/ archival policy	28.3%	26
Other	6.5%	6
Tax administration rules	21.7%	20
Legal or statutory purposes	10.9%	10
Change analysis (land use/land cover, population, etc)	25.0%	23
Historic mapping	35.9%	33
Cultural preservation	10.9%	10
N/A	25.0%	23
	Other (please specify)	6
	answered question	**92**
	skipped question	**11**

Other (please specify)
data repository
I do this on my own, just in case...
GIS Business Practice
GIS deems necessary.
GIS practice
We keep some Town records annually and depend on the County for the Tax and parcel records.
personal preference

How would you best describe ACCESS to your data once it has been archived?		
Answer Options	**Response Percent**	**Response Count**
Online/ open public access	17.4%	16
Online/ restricted access	8.7%	8
Offline/ By request only	52.2%	48
Media not easily accessible (vault)	17.4%	16
N/A (Not Sure)	16.3%	15
	If multiple, please explain (i.e Orthos: online/ public, Parcel: by request)	7
	answered question	**92**

If multiple, please explain (i.e Orthos: online/ public, Parcel: by request)
Aerial Photos are online, everything else is internal use only
online (internal network)
Parcels on line for employees, orthos on line for public, other data on line but with restricted access.
Orthos Online / Public Parcels by Request
our historic imagery is available on our website as we get it digitized and georeferenced.
Some media stored offsite and not easily accessible
Not accessible to public at this time. A work in progress

How are archived data being used in your county/ municipality?
Response Text
Archived data is used for regional projects and by request by researchers, local jurisdiction officials, etc. Data coverage by location and age varies but is for an eleven county region.
historical comparative with present needs
FOR OUR GIS
historical information
They are not.
I don't think anybody even know I have some archived data
Historical orthophotos are used from time to time.
As an aid to correct mapping discrepancies
Research on legal cases.
on website
Tax Appraisal
for historical research and comparison.
Occasional data requests for land planning activities
visual change detection
Historical perspective, change analysis

historical data retrieval
Have not had to use so far.
Used on as needed basis for specific project.
Planning and Tax Depts. look at old parcel layers for zoning and tax problem resolution.
Orthos - To see change in land cover over time, and also to see if structures had been built before zoning changes so that they can be 'grandfathered'.
Primarily now to research property ownership and tax valuation issues.
just informational purposes at this point. zoning data being kept for legal purposes but has not been used.
re-creation of historical data for analysis or interest
Both vector and raster data is used in real property appraisal and reval. Planning is also beginning to use the raster data.
not sure
Issue research

Please share any lessons learned/ best practice recommendations or thoughts/ experiences you may have pertaining to the process of retaining superseded geospatial data:

Response Text
Consistency.
save it both on and offsite
JUST ALWAYS REMEMBER TO BACK IT UP, WHETHER ON YOUR PC OR YOUR SERVER
We are constantly retrieving this data, always need to know information contained with this data, it is useful for identifying changes.
need better awareness
NA
None
Keep back up copies of all of your data, regardless of its format. If there is data loss, at least there is astaring point if there is a need for disaster recovery.
All of our datasets are backed up nightly. The following night the data is overwritten. However the datasets described in the survey are created for long term archiving and never erased or overwritten.
Since 9-19-07 we are using ArcGIS Archiving for all layers. We also extract parcels with attributes to shapefile monthly, and have been doing this for many years.
data is backed-up but not archived. Maps are made with the data, and those maps are archived as a TIF file (town utilities or a zoning map)
Right now I am backing up ArcSDE geodatabases using SQL tools. The problem is recovering geodatabase data that is in a different ArcGIS release than I am currently using, e.g. recovering 8.3 data at version 9.2. The data is version specific so it can be a real challenge to get really old geodatabase information from backup. I would be interested in hearing what others are doing to make their SDE backups version-independent.
Jackson County is relatively new to keeping an archive, but it is proving invaluable from a Tax Administration standpoint.

Would you like to participate in FORUMS concerning preservation of local geospatial data?		
Answer Options	**Response Percent**	**Response Count**
Yes	30.1%	25
Not sure	34.9%	29
No	34.9%	29
answered question		**83**
skipped question		**20**