

Interim Report

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Project Title:

Metadata 101: Hands-on Training and Support for North Carolina

**Organization:**

Center for Community Safety
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Collaborating Organizations: None

Executive Summary

The Transforming Communities Research Lab (TCRL) staff at the Center for Community Safety developed a 2-day training workshop focused on GIS metadata. There are 5 workshops throughout the grant year at the TCRL, which is a one stop GIS-based lab located in Center for Community Safety at Winston-Salem State University, located in Winston-Salem, North Carolina. At the time of this interim report, two of the workshops have already been completed while another three will be given in October, December and February. While the TCRL focuses on anthropologic quality of life issues such as crime and public safety, the TCRL maintains a robust GIS database and performs spatial analysis at a variety of different scales in support of the many disciplines that Winston-Salem State University has to offer. The training is open to anyone who practices GIS for the state of North Carolina. This includes members of academia, non-profit organizations, contractors, state employees and regional or national GIS specialists that include GIS data for the state of North Carolina in their work.

Project Narrative

GIS metadata training undertaken by the TCRL has taken on a variety of different forms. Students will have lectures, demonstrations and hands-on laboratory exercises focused on all facets of accessing, editing and programmatically manipulating metadata. Given the sparse coverage of metadata in GIS curriculum at the college level, students have learned a lot and thus far have been receptive to the workshop.

The one major success in this course has been in introducing attendees to tools and programming tips to help assess, streamline and automate the metadata process. One major complaint about metadata is the time that it takes to populate metadata elements, some of which are redundant. This workshop discusses basic ArcObjects programming tools so users could automate the process of populating redundant features such as contact names, distribution contacts, metadata contact, access/use constraints and accessibility for an organization's data. This could save an organization valuable time and resources. Previously, this programming was done by GIS programmers with specific knowledge. Most organizations which attended the workshop did not have the manpower or resources to hire someone with such skills. Users were given an opportunity to create these tools specific to their organization and guidance on how to bring them into their own GIS system.

In addition, students have come to understand and appreciate the value of metadata. Populating only the FGDC minimum requirements is not acceptable for most organizations. Attendees are now able to think critically about their data assets and determine which metadata elements are necessary during the data collection and development process. Attendees were introduced to the variety of accuracy measures (spatial, attribute, temporal, semantic) and how these accuracies can be encapsulated within the confines of current metadata standards. Retaining this information not only substantiates the data used in map creation and analysis, but the organization used to create the data or perform the analysis. Another major success in this workshop has been in introducing students to the FGDC and documentation about metadata and larger GIS data standards. Through the exercises, students have become aware of the USGS as not only an administering agency, but an organization which actively publishes and creates GIS data for use in the GIS community. Given the current economic climate, attendees could integrate low-cost and reliable GIS data into their work as opposed to more expensive and resource intensive alternatives.

The one challenge in this workshop has been trying to teach to all different skill sets and experience level of the participants. Some attendees have little GIS experience and know very little about metadata while others want to enhance their existing advanced metadata skills. Finding a happy medium between these people has been a challenge. Another challenge is in providing assistance from a distance. While we had a positive reception from throughout the state, current economic constraints have prevented people from far away from attending. Two people (one from NC State and another from Jacksonville) have inquired about us teaching the workshop at their facilities. If something cannot be figured out in this grant period, we would to provide this training in the future.

Training and outreach assistance:

The training workshop consisted of a combination of lectures and hands-on exercises. It incorporated elements from the FGDC Metadata Workshop Core Curriculum to help determine a minimum content standard for those attendees. This content, combined with custom exercises provided a holistic approach about effective strategies to create, edit and ultimately manage metadata. The workshop provided hands-on guidance to attendees about tools and techniques that can streamline the metadata population processes. Attendees were given a workbook with the class presentations, exercises, and answers to the exercise questions, sample code to automate metadata creation and assessment, and directions to customize this process to suit their needs. A CD with all of the aforementioned materials was also provided.

This workshop has been scheduled for 5 times throughout the year over a 2 day period. Given the size of the lab and the availability of instructors, a maximum 10 attendees were allowed at the time of registration. The scheduled workshop dates are:

- June 8 - 9, 2009 (already completed)
- August 10 -11, 2009 (already completed)
- October 22 - 23, 2009
- December 7 - 8, 2009
- February 22 - 23, 2010

A Sample Schedule for the Workshop is Below:

Day 1	
Time	Activity
8:00 – 8:30	Welcome and Refreshments
8:30 – 9:00	Welcome to WSSU and Course Logistics
9:00 – 9:45	Introduction to FGDC Metadata
9:45 – 10:00	Break
10:00 – 10:45	Understanding FGDC Metadata
10:45 – 11:45	
11:45 – 1:00	Lunch
1:00 – 2:00	Exercise Understanding and Viewing FGDC Metadata
2:00 – 3:00	Editing FGDC Metadata
3:00 – 3:15	Break
3:15 - 4:45	Exercise Editing FGDC Metadata
4:45 – 5:00	Follow Up Break for Day

Day 2	
Time	Activity
8:00 – 8:30	Welcome and Refreshments
8:30 – 9:15	Advanced Topics in GIS Metadata
9:15 – 9:45	Exercise Advanced Topics in GIS Metadata
9:45 – 10:00	Break
10:00 – 10:15	Extending the CSDGM
10:15 – 11:45	Using ArcObjects to Access and Manipulate GIS Metadata
11:45 – 1:00	Lunch
1:00 – 2:30	Exercise Creating Tools to Automate Metadata Creation
2:30 – 2:45	Working Backwards: Getting Information from GIS Metadata
2:45 – 3:00	Break
3:00 - 4:30	Exercise Creating Tools to Assess Metadata
4:30 – 5:00	Final Comments and Course Evaluation

Thus far, two workshops have been completed with 17 attendees at both workshops. While the workshops were full at registration, there were 3 no-shows at the workshops. The contact information for attendees is in Table 1 in the Appendix.

The October and December workshops are already full. The only available workshop is in February. The TCRL has received a positive reception from both workshops. Given our previous teaching experience at the college level and access to teaching resources, the TCRL has made a smooth transition between our research and teaching work. While there were some technical issues with the course

evaluation, the results from the respondents regarding their opinion of the course are in Table 2 in the Appendix.

Status of Metadata Service

Metadata for the exercises in this workshop were derived from data holdings residing at the TCRL. We currently have our GIS data residing in a few file geo-databases, only accessible to proprietary TCRL GIS staff. Most attendees were from smaller organizations that had their data in this configuration. A few attendees had their GIS data and metadata saved in some enterprise database format, but did not participate in high-level metadata sharing and harvesting. Attendees were introduced to the need for metadata through the Geospatial One-Stop Portal and were given a demonstration of geodata.gov during the workshop.

Most attendees worked for local organizations that had retained little legacy information about their assets. Some were newer personnel looking for ways to populate metadata under these constraints or seeking guidance on where to start. We asked that attendees bring current metadata so we could help develop organizational metadata standards for the future. The TCRL helped develop the metadata for approximately 20 layers to serve as at least placeholders for future research upon return to the office. However, I doubt that any metadata created as a result has made its way to these high-level repositories as of yet.



Images from the August 10 – 11 Workshop Held at the Transforming Communities Research Laboratory, Winston-Salem State University

Next Steps:

The next phase of the project is to continue giving the workshop in the same way as it has been. Given the relatively positive reception that this workshop has received, minor changes to the schedule and lectures will be done, but no major overhaul of curriculum or exercises are planned at this time.

It is our hope that the metadata activities can continue into the future. We have been approached at traveling to other sites to provide this training. At the very least, we will maintain our web site and be receptive to technical support so attendees can contact us with any questions about metadata. We also hope to migrate the teaching materials used in our workshop into the GIS curriculum at Winston-Salem State University and other universities. We have spoken to the North Carolina Center for Geographic Information and Analysis about our workshop and potential ways to market the workshop and hope that they can support our endeavor to market it after the grant period.

In terms of future projects of this nature, we would like to migrate this project and our expertise of this project into the future CAP grant projects. One of our course attendees is working on a project to facilitate data sharing partnerships across local, state and even federal government as part of a community indicators project to assess quality of life issues in Forsyth County. We intend to spatially distribute this information so users can make comparisons at the local, state and national level. Metadata would serve as stepping stone to this larger endeavor to help display and validate the data integrity for this project.

Appendix

Table 1: Attendees at June 8-9 and August 10-11, 2009, Metadata 101 Workshop at Winston-Salem State University.

NAME	TITLE	ORGANIZATION	EMAIL	TELEPHONE
Jennifer Goble	GIS Intern	City of Salisbury	jgobl@salisburync.gov	(704) 245-9376
Kathryn Clifton	GIS Coordinator	City of Salisbury	katclif@salisburync.gov	704-638-5246
Penny Miller	GIS Director and Research Analyst	Kotis Properties	penny@kotisprop.com	(336)(601-0006)
William Moore	GIS Analyst	Surry County Tax Department	moorew@co.surry.nc.us	(336) 401-8130
Andrew Carlton	Planning Director	Town of Wilkesboro	planning@wilkesboronorthcarolina.com	336-838-3951
Cristina Starick	Associate support engineer	Tyonek Solutions	cristina.starick@us.army.mil	(336)(662 7111)
Jessica Brannock	GIS Planner	High Country Council of Governments	jbrannock@regiond.org	828.265.5434 x134
Dr. Doris Paez	Director, Forsyth Futures	Forsyth Futures	doris@forsythfutures.org	
Jacob B. Vares	GIS/Planner Technician	Cape Fear Council of Governments	jvares@capefearcog.org	910-395-4553
Kathy Blake	Planner	Town of Southern Pines	kblake@southernpines.net	910-692-4003
C. Lynn Ruscher	Principal Planner	City of Winston-Salem	lynnr@cityofws.org	336 747 7056
Julie Hawkins	GIS Technician	City of Winston-Salem	julieh@cityofws.org	336-747-7052
Geraldine Dumas	Planning Technician	Kerr-Tar Regional Council of Governments	gdumas@kerrtarcog.org	252-436-2110
Lil Jervey	Senior Consultant	The Jervey Group	jerveygroup@yahoo.com	336-287-6651
Chris Badurek	Assistant Professor	Appalachian State University	badurekca@appstate.edu	828 262-7054
Kevin W. Edwards	Transportation Planner	Winston-Salem DOT	kevine@cityofws.org	(336) 747-6881
Joyce White	Sr. Engineering Technician	Winston-Salem DOT	joycew@cityofws.org	336-747-6874

OVERALL	HELPFUL_TOPICS
Agree	all of the information was relevant
Agree	Ways to mass populate metadata
Agree	All of them
Agree	Use of ArcObject to handle metadata
Agree	Programming, XML, digest of standards into categories
Agree	automating metadata creation
Agree	auto populating Excel document with metadata
Agree	Automatic Metadata population
Agree	Requirements
Agree	The autopopulate elements.
Somewhat Agree	quality standards

TOPIC_LEAST

i don't think that there was any part of the presentation that was not useful

all were helpful

None of them

N/A

metadata value/intro, good but already familiar

Introduction to Metadata

N/A

None

NA

All of the topics seemed important.

not enough information on developing the text needed to complete metadata. Too much repeated information on data types, imagery types, and metadata format types

APPLICATION

we will be able to tighten our compliance to standards

I will begin to create metadata now that I know how important it is

Will not immediately

We will be able to correct oversights in metadata creation

provide training to other students

I will use it to auto-populate metadata I maintain saving me alot of time and money

inventory data layers that we have and what metadata we need to work on

school or work

Somewhat-not responsible for GIS, but for supervising GIS products

To update our metadata and streamline the process.

I can use this for my job

INSTRUCTOR_EFFECTIVENESS	LOGISTICS_COMFORT	LOGISTICS_TEMP	LOGISTICS_LIGHTING	
Agree	Agree	Agree	Agree	
Agree	Agree	Somewhat Agree	Agree	
Agree	Agree	Somewhat Agree	Agree	
Agree	Agree	Somewhat Agree	Agree	
Agree	Agree	Agree	Agree	
Agree	Agree	Agree	Agree	
Agree	Agree	Somewhat Agree	Agree	
Agree	Agree	Agree	Agree	
Disagree	Agree	Somewhat Agree	Agree	

LOGISTICS_OVERALL

Agree

COMMENT

Great workshop. Really learned a lot and felt very welcomed

Tim did an excellent job maintaining my interest in the class! He is very knowledgeable and enthusiastic about an overlooked but important topic! Mike provided a great environment to learn and discuss.

VERY helpful workshop!!!

Great facility! Enjoyed the class. Would love to hear of other opportunities, classes, etc. and the possibility to partner with Winston-Salem State University. (Kathryn Clifton, GISP)

Great class! I would recommend this class to anyone looking who works with GIS. Knowledge gained will be useful in making Metadata population easier and more efficient. Overall it was a great experience.

The next iteration of the course could be for persons who supervise GIS personnel but do not share the technical background.

The instructor seemed very knowledgeable on the topic and the course will help streamline our metadata process at work.
