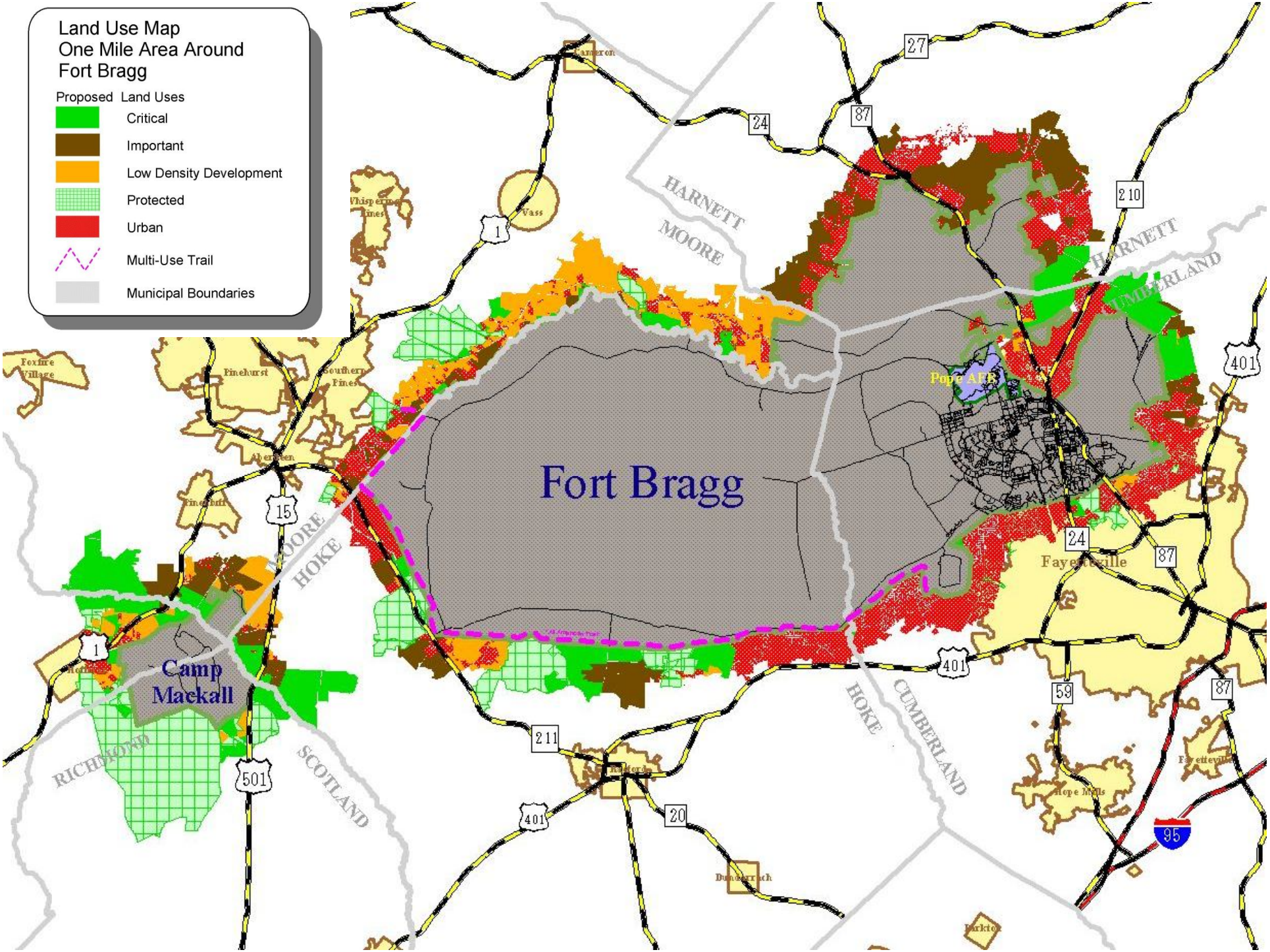
Data

Susan Pulsipher
NC Dept of Commerce,
Division of Community Assistance

NCAPA
September 25, 2008

GIS-based data

- *Sandhills spatial data clearinghouse*
- Data requirements for suitability project
- Specific layers: creation & maintenance


Land Use Map
One Mile Area Around
Fort Bragg
Proposed Land Uses
Critical
Important
Low Density Development
Protected
Urban
Multi-Use Trail
Municipal Boundaries
Fort Bragg
Camp Mackall
Pope AFB
Fayetteville
HARNETT
MOORE
CUMBERLAND
HOKE
SCOTLAND
RICHMOND
Foxfire Village
Pinehurst
Southern Pines
Aberdeen
Vass
Cameron
Hope Mills
Dunn
Parkton
1
15
24
27
87
210
401
501
211
20
59
95

Primary data layers used in 2003 Joint Land Use Study

- Census 1990 & 2000
- Parcels
- Noise & accident potential zones
- Managed & protected land
- Significant natural heritage areas
- Prime farm land
- Flood zones
- National wetlands inventory
- Water supply watersheds

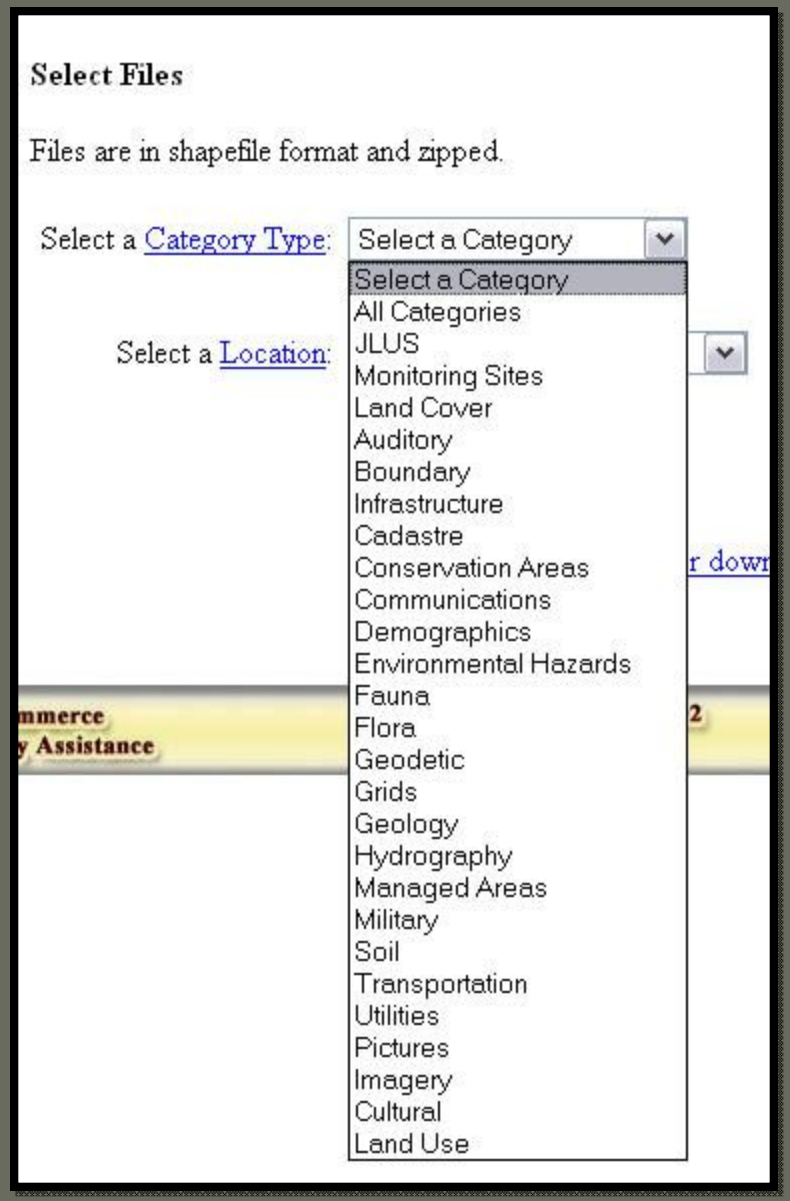
- Background data
  - Primary roads
  - County boundaries
  - Municipal limits
  - Orthophotography

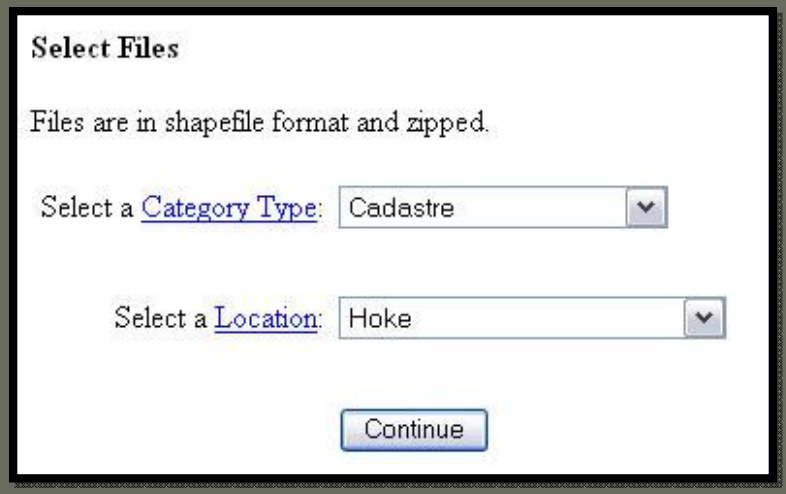
- Data sources
  - Local governments
  - NGOs
  - State agencies
  - Federal agencies

Add in around here

- SGISA regional contacts. Association
- Collabortion
- Need people using same set of data for regional planning
- Collaboration planners & GIS professionals in region
- Mix come to meetings.
- We are seeking integration

GIS shapefiles for download





Members Section

Data:

- tr_streets_rob.zip
- tr_streets_mont.zip
- tr_streets_blad.zip
- tr_streets_lee.zip
- tr_trail_brag.zip
- tr_hwy13corridor_cumb.zip
- tr_railroads_aberd.zip
- tr_rdsprimary_rich.zip
- tr_rdsprimary_samp.zip
- tr_rdsprimary_ss.zip

Sandhills Spatial Data Clearinghouse

Statistics

- 24 categories of data
- 448 data layers for download

- Data used in regional projects
- Data obtained from many sources
- Some data verified against parcel data or other sources; some data layers created

Data Layer Extents

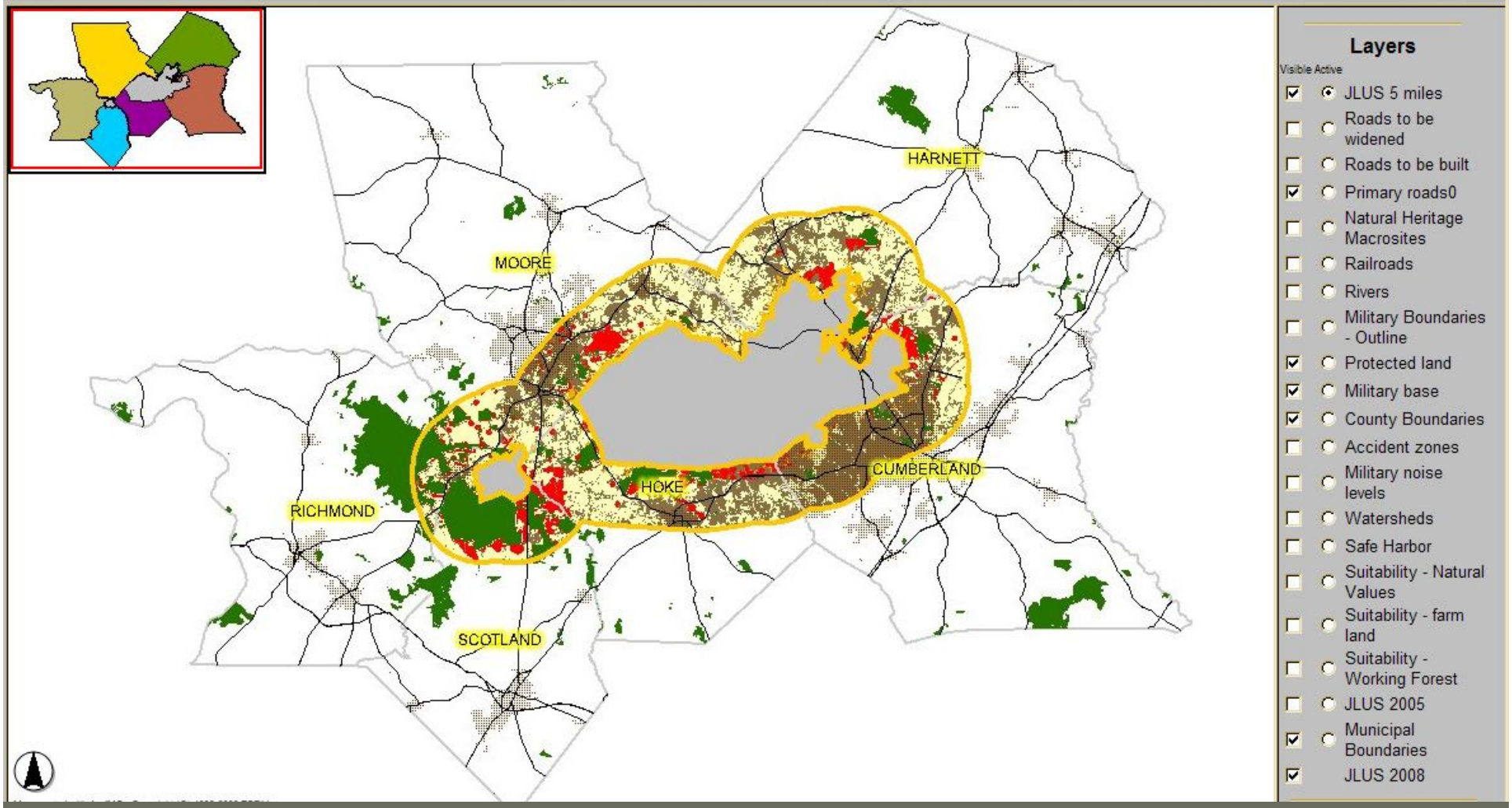
- Individual municipality & county boundaries
- JLUS study areas
- 6 counties around Fort Bragg
- 11 counties included in landscape suitability models and BRAC-RTF studies

http://www.sandhillsgis.com

Interactive web maps for:

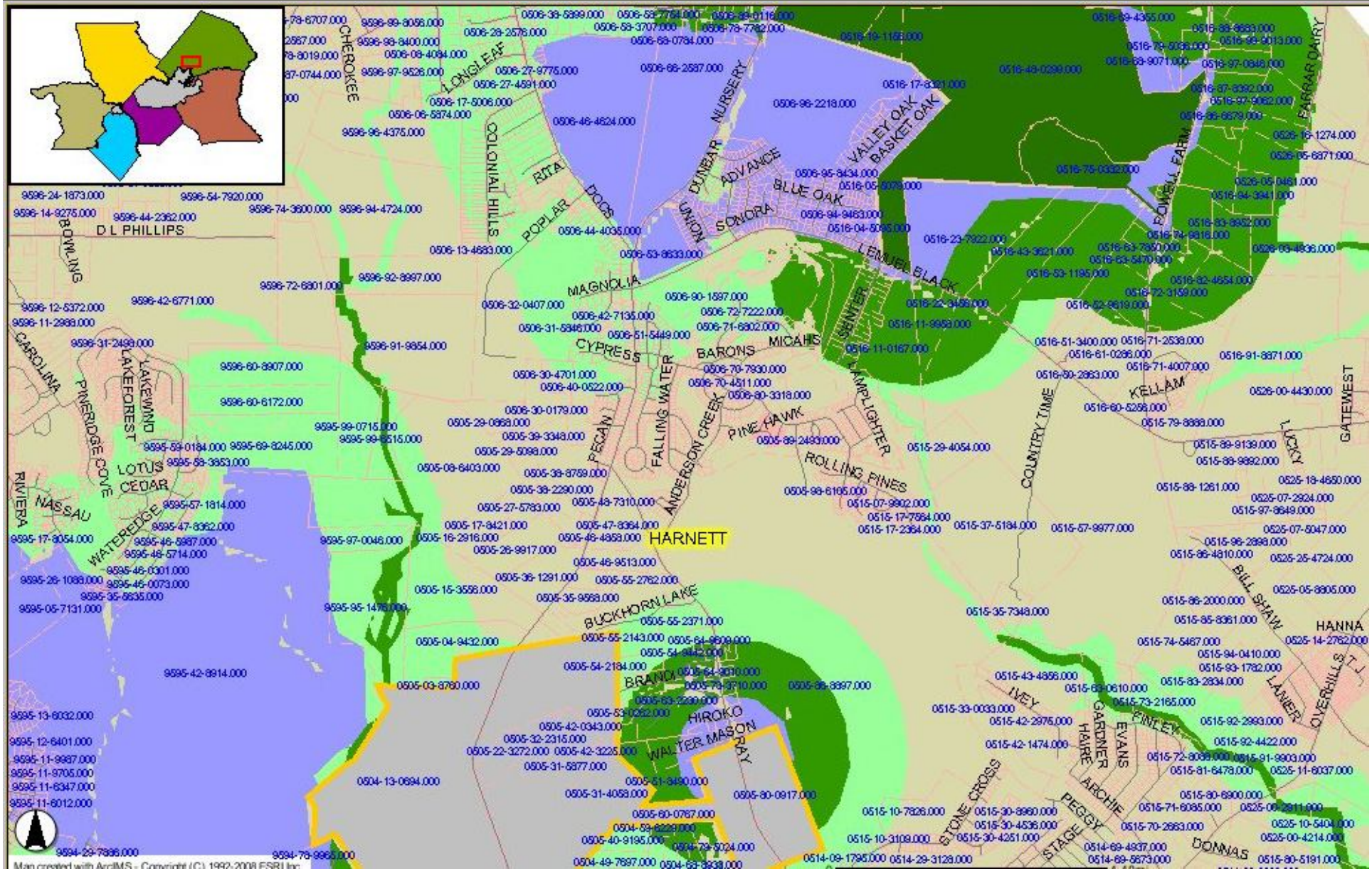
JLUS 2003
JLUS 2008
Protected Lands
Water Resources

JLUS 2008 web map



Detail from JLUS 2008 web map

displaying Natural Values landscape suitability layer & parcel data

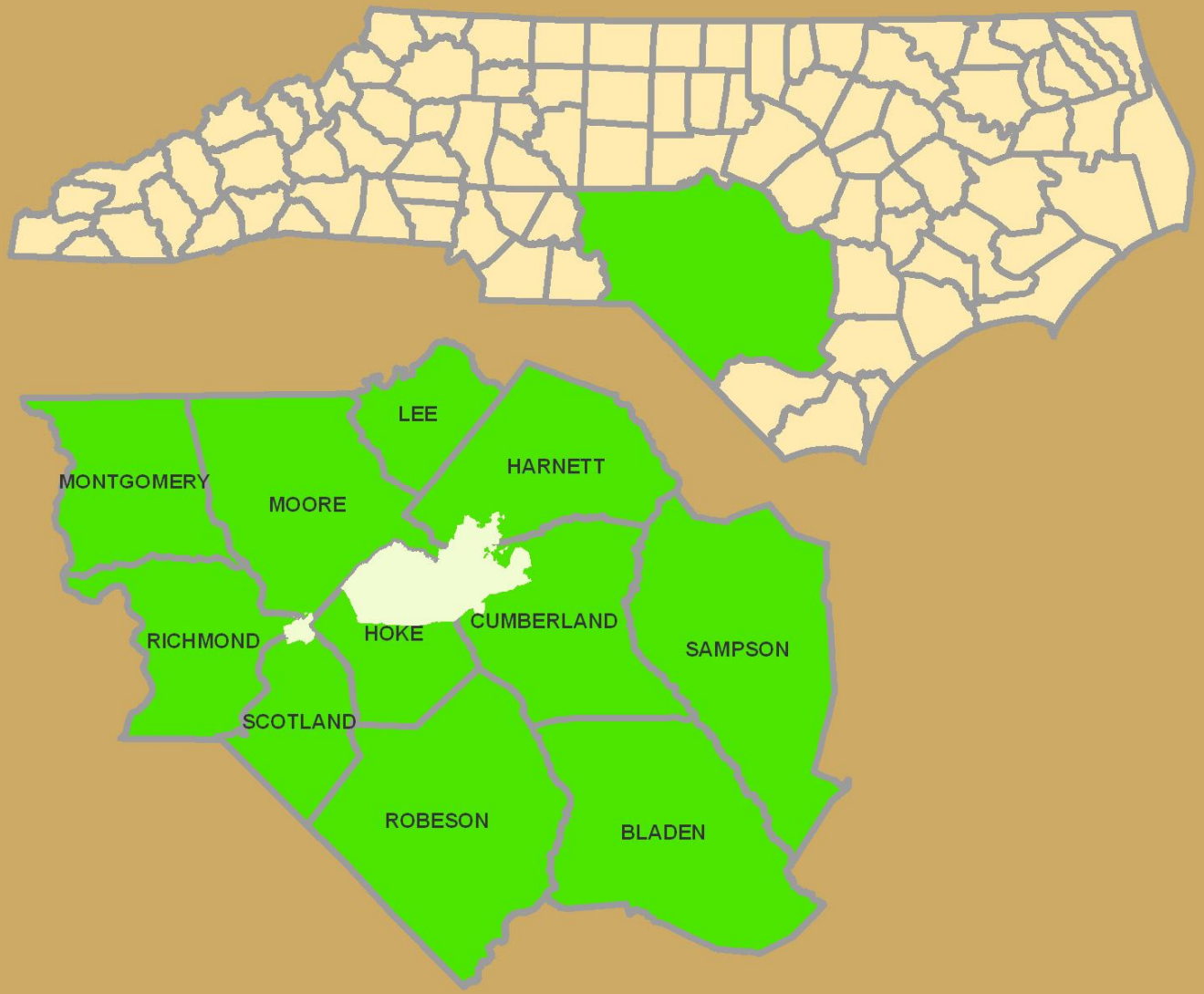


Key points

- Build on existing data resource
- Share data

GIS-based data

- Sandhills spatial data clearinghouse
- *Data requirements for suitability project*
- Specific layers: creation & maintenance



North Carolina counties in project

Bladen

Cumberland

Harnett

Hoke

Lee

Montgomery

Moore

Richmond

Robeson

Sampson

Scotland

Requirements of data

- Cover all 11 counties (exception for soil data only)
- Be ‘reasonable’ to obtain and merge in GIS format
- Be representative of factors affect decision making
- Be explainable
- Keep updating of tool straightforward

Exclude

- Data easily changed (example: zoning, existing land use)

Development models

Non-development models

Commercial

Working Forest

Residential

Farm land

Industrial

Natural Values

Data needed for two models

Working Forests
Land characteristics – asset
Land cover Soils good for woodland management Large parcels Low assessed value per acre
Location factors – constraint
Primary roads High population density Industrial plants or hog lagoons
Exclude from analysis
Developed land Lakes and ponds Military base

Industrial Development
Infrastructure -- asset
Interstate highways Other primary roads Active rail Public sewer service Public water service
Land factors -- constraint
Slope (percent) Soils (hydric) Floodzone 100 year Wetlands
Exclude from analysis
Lands managed for conservation & open space Water supply watershed critical protection area Lakes and ponds Military base

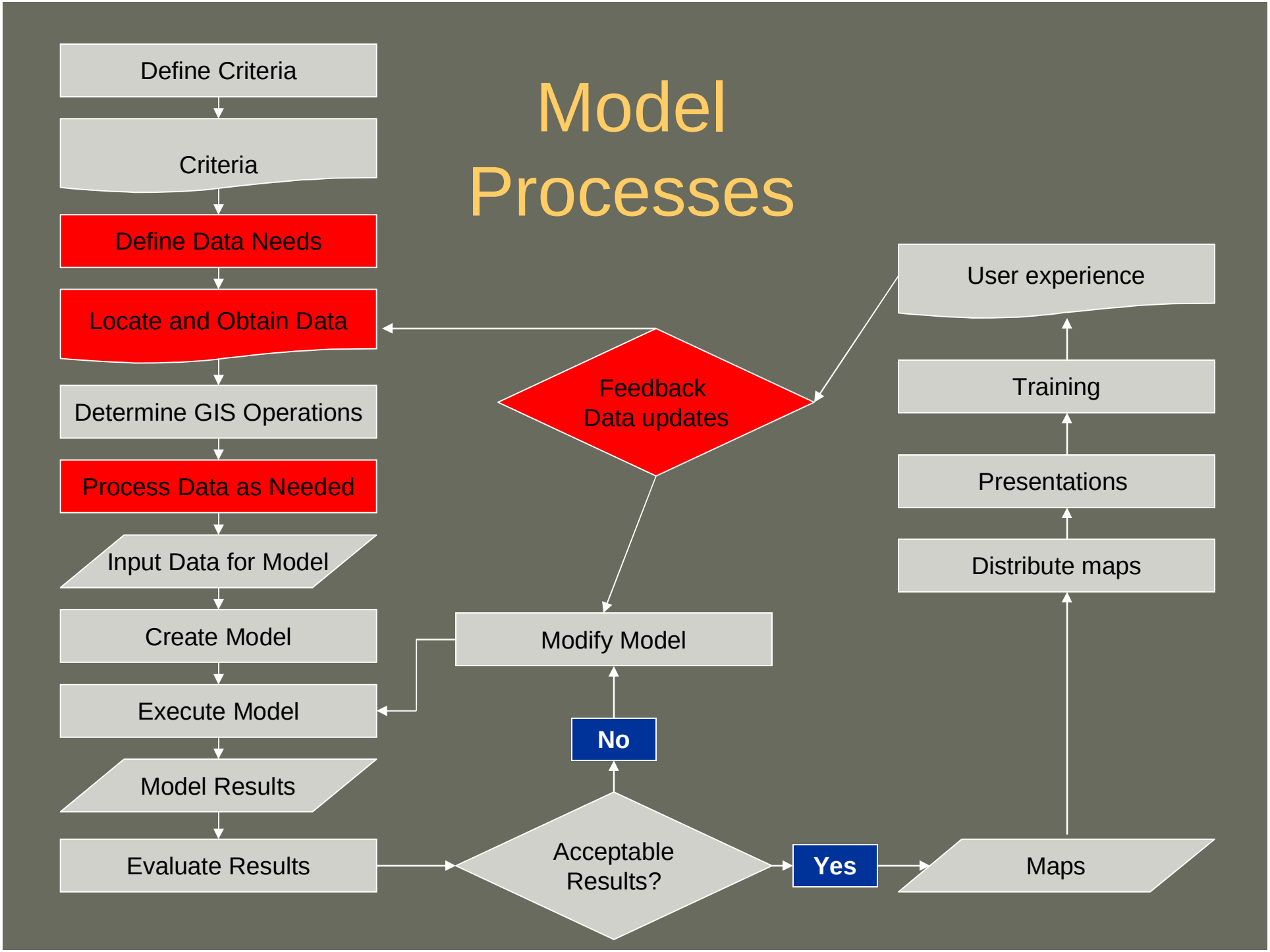
30+ data layers used

A=asset C=constraint

	Industrial	Commercial	Residential	Natural Areas	Farm Lands	Working Forest
City limits	A	A	A	C	C	C
Parcel size	A	A	A			
Value land				C	C	C
Primary roads	A	A	A	C	C	C
Active rail	A					
Wetlands	C	C	C	A		
Public sewer	A	A	A	C	C	C
Woodland soils						A
School rating			A			
100 yr flood	C	C	C			

AND MORE .....

Complete list on project web page
http://www.sandhillsgis.com/modeling.htm

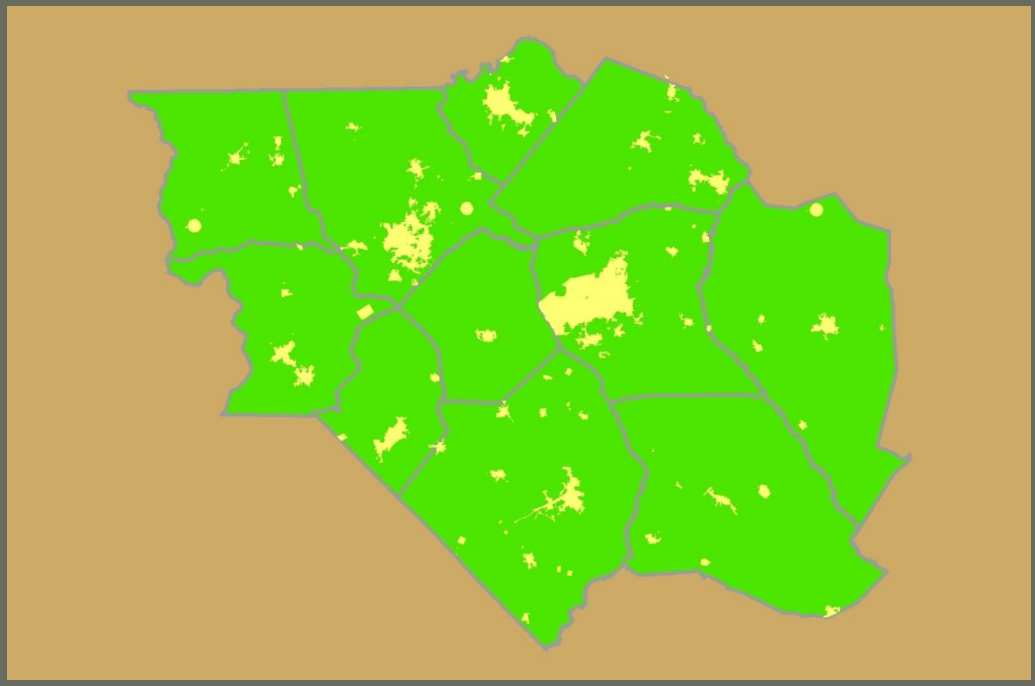

Model Processes
Define Criteria
Criteria
Define Data Needs
Locate and Obtain Data
Determine GIS Operations
Process Data as Needed
Input Data for Model
Create Model
Execute Model
Model Results
Evaluate Results
Acceptable Results?
No
Yes
Modify Model
Feedback Data updates
User experience
Training
Presentations
Distribute maps
Maps

GIS-based data

- *Sandhills spatial data clearinghouse*
- Data requirements for suitability project
- *Specific layers: creation & maintenance*

Data example: Municipal boundaries

74 municipalities

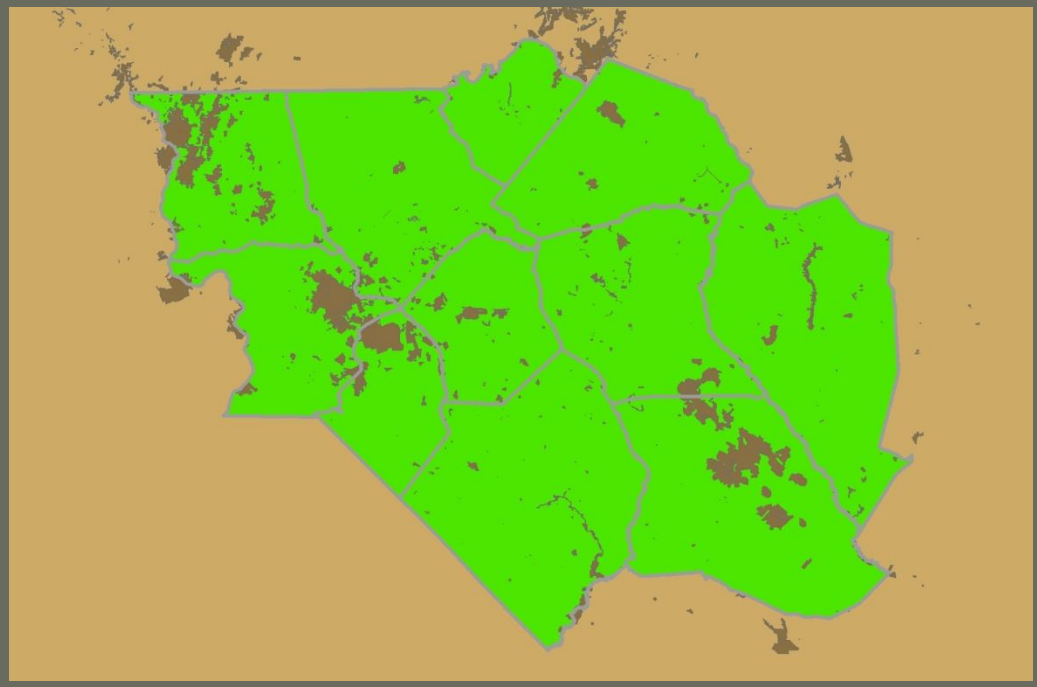


Boundaries

- maintained by town or by county
- change on irregular timescale

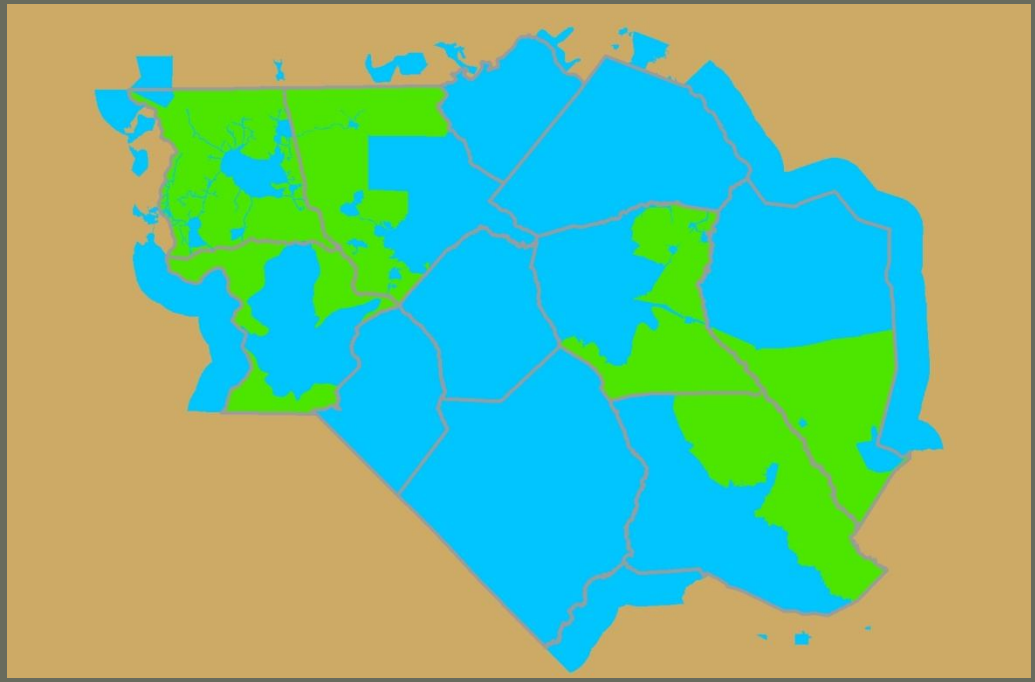
Data example: land managed for conservation & open space

- Originally created for JLUS
- Contains 1,252 sites
- Parks, conservation easements, forests, gamelands
- Public & private property
- Compilation of data from many sources
  - Land trusts
  - Nature Conservancy
  - Local governments
  - State property office
  - LMCOS
  - Federal land



Data example: public water service areas

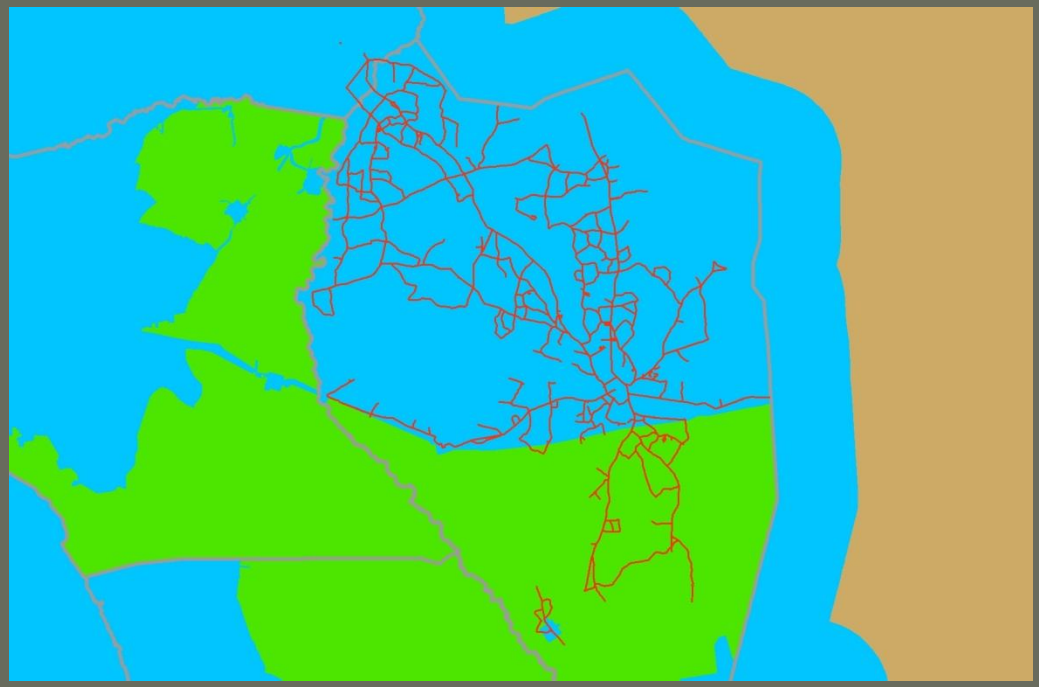
- Layer created from 2003 data for N.C. Rural Economic Development Center
- Problems:
  - Old data
  - Does not show location of pipes
  - Do not know if pipes at capacity
  - Unable obtain pipe data for all 11 counties for Version 1



Water service areas in blue

Sampson County water service

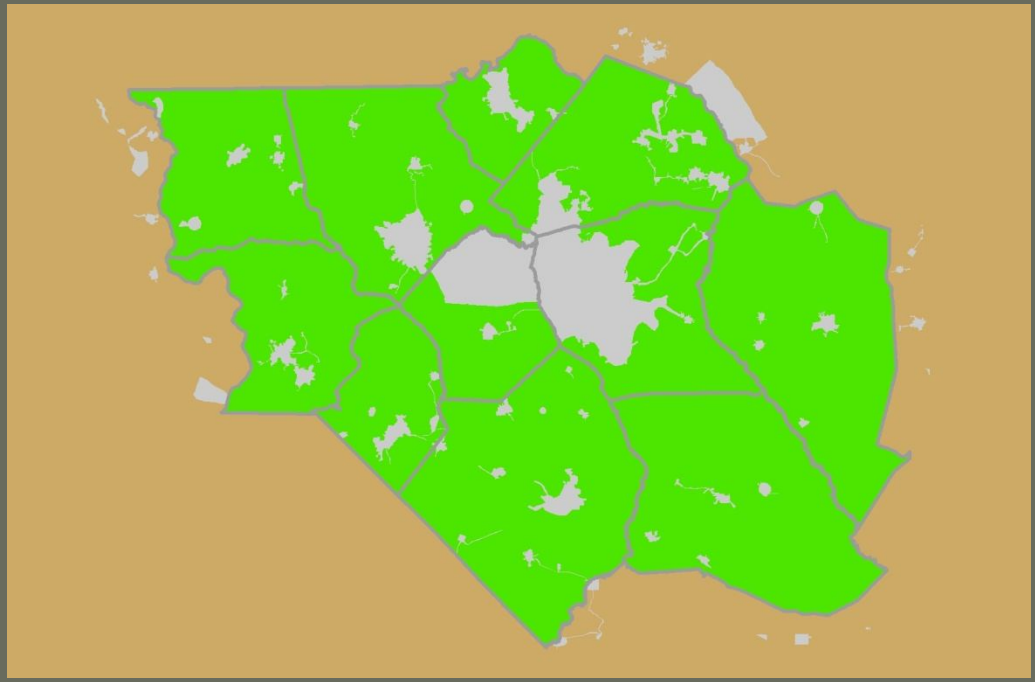
Compare 2003 water service area with most recent water pipe location data



Water service areas in blue

Data example: public sewer service areas

- Layer created from 2003 data for N.C. Rural Economic Development Center
- Problems:
  - Old data
  - Does not show location of pipes
  - Do not know if pipes at capacity
  - Unable obtain pipe data for all 11 counties for Version 1

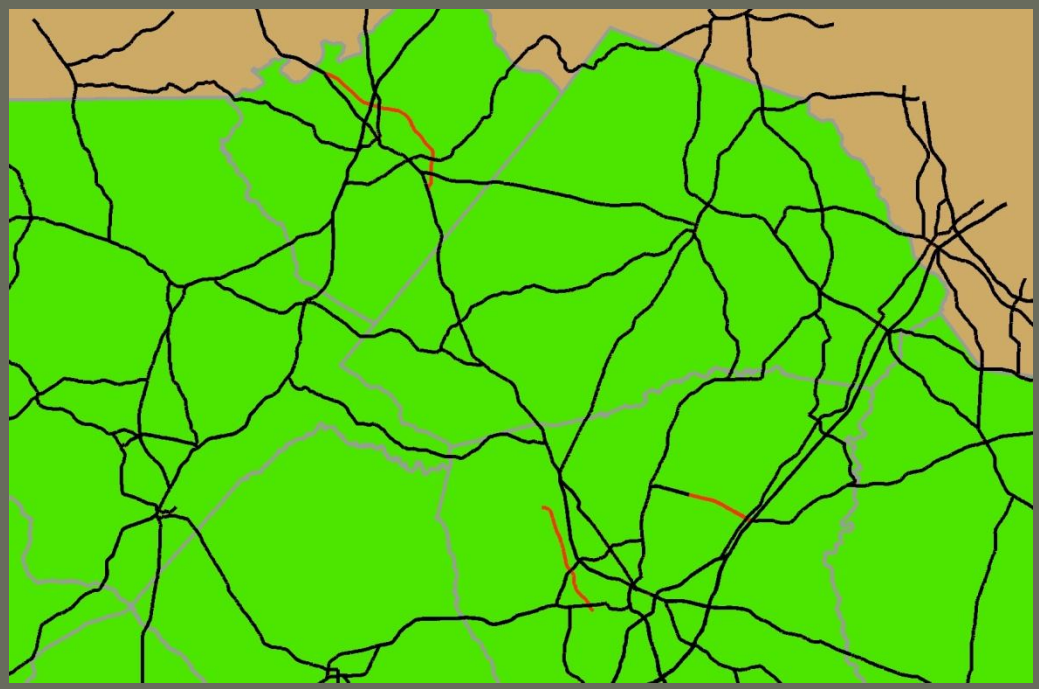


Crosswalk: parcel data

	PARCELS	Specifications used in edited files								
2										
3	**FIELD**	**STANDARD**	**Bladen**	**Cumberland**	**Harnett**	**Montgomery**	**Moore**	**Richmond**	**Robeson**	**Sa**
4	PIN	S 16 0 0	PIN	NAD83_PIN	PIN	PIN1	PIN	PIN2	PIN_NUMBER	PI
5	NAME	S 30 0 0	NAME	OWNER_NAME	NAME	NAME	NAME	NAM1	OWNAM1	CU
6	MAILADDR	S 50 0 0	ADDRESS	add ST_NUM + ST_NAME + ST_	ADDR3	ADDRESS_2	ADDRESS	ADRS	OWADR1	CU
7	MAILCITY	S 20 0 0	split CITYSTATE	CITY	CITY	split from ADDRESS_3	CITY	split from CITY	OWCITY	sp
8	MAILSTATE	S 2 0 0	split CITYSTATE	STATE	STATE	split from ADDRESS_3	STATE	split from CITY	OWSTATE	sp
9	MAILZIP	S 5 0 0	split ZIP	ZIP	split ZIP	split from ADDRESS_3	ZIP (formerly split ZI	ZIPC	split from OWZIP	sp
10	ZIPEXT	S 4 0 0	split ZIP	ZIP_EXT convert from num (skip	split ZIP		split ZIP stripped out	4 chars	split from OWZIP	
11	ACRES	D 19 18 11		ACRE	TOTAL_ACRE	ACRES	CALC_ACRES	CALACRES	MAPACRE	CA
12	TOTVAL	L 9 9 0	VALUATION	TOT_ASMT	ASSESSVAL	TOTAL_MARK	TOTAL_VAL	Add LAND+BLI	TOTFMVREV or TOTFMVCUR (if	
13	BLDGVAL	L 9 9 0		add TOT_BVAL + TOT_XFEATV		add BUILDING_MARKE + OUT_BUILD	BUILD_VAL (former	add BLDG + O	IMPFMVREV or IMPFMVCUR (if	
14	LANDVAL	L 9 9 0		TOT_LVAL		LAND_MARKE	LANDVALUE	LAND convert t	LNDFMVREV or LDFMVCUR (if 1	
15	DEED_DATE	S 15 0 0	split from DEEDREF1							
16	DEEDBKPG	S 13	split from DEEDREF1					DEED		BK
17	PROPDESC	S 53	DESCRIPTION	LEGAL	LEGAL1	LEGAL2	PROP_DESC	DSCR	LEGDESC1	
18	TWNSHP	S 5				TOWNSHP_COD	TOWNSHIP convert	TNSH		
19	FIREDIST	S 40 0 0	FIREDIST		FIRE		FIRE_DIST			
20	COUNTY	S 15 0 0								
21	PROPERTYID	S 18	PROPNUM				LRK			
22	DEEDACR	shortnum 4								
23	ACCNUM	S 18	ACCOUNT			ACCOUNT				
24	YEAR									
25	DEEDBOOK	S 10		DEED_BOOK	DBOOK	DEED_BOOK	DEED_BOOK		DEEDBOOK	
26	DEEDPAGE	S 6		DEED_PAGE	DPAGE	DEED_PAGE	DEED_PAGE		DEEDPAGE	
27	ZONE_DESC	S 40 0 0								
28	LAND_CODE									
29	LANDUSE	S 4		LANDUSE			LANDUSE			
30	NBRH	S 4		NBRH		NEIGHBORHO	NBHD		NBHCODE	

Data example: primary roads

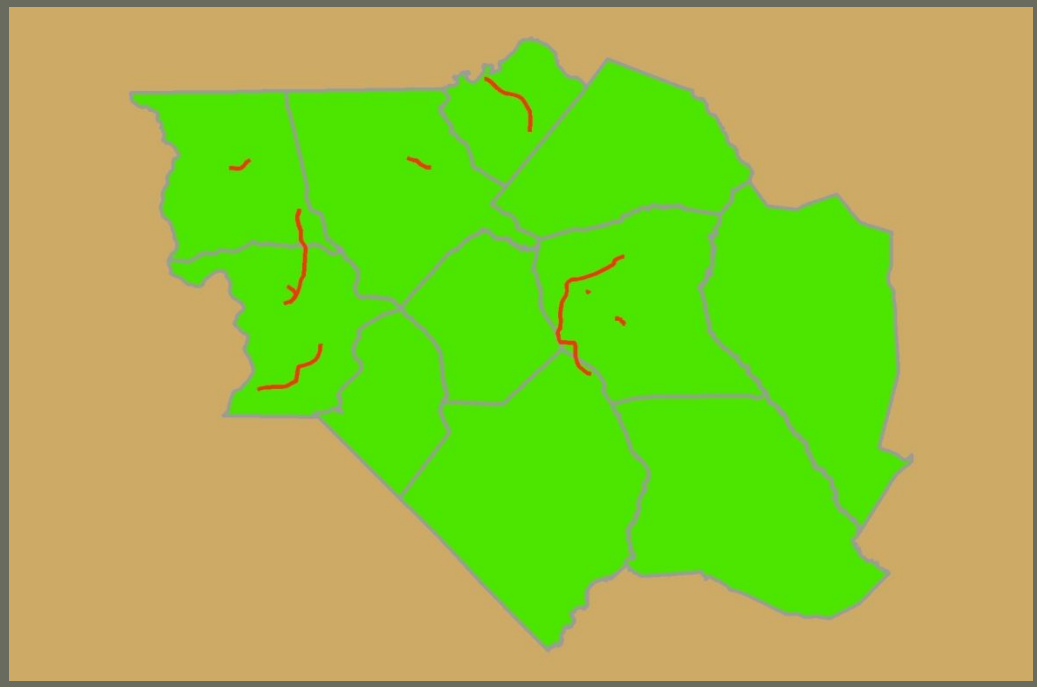
- Statewide layer slow to reflect local changes
- Local road use not always reflected in NC DOT definition of primary road



Roads in red added to project data layer

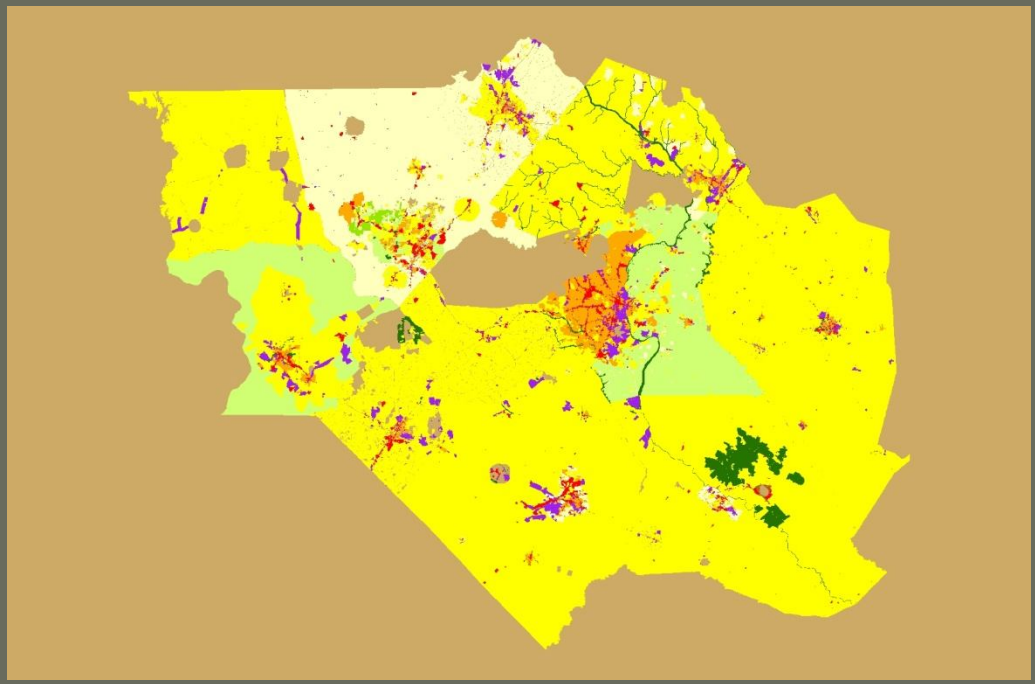
Data example: future roads

- For “predictive” modeling
- New roads that will be built when funding available
- Data scattered amongst transportation agencies
- Primary roads major factor in project models



Data example: generalized zoning

- Compilation data from 11 counties & 46 municipalities
- Not all zoning available as GIS data
- GIS data may not be maintained
- Crosswalk from local zoning codes to project zoning codes
- Use as overlay
- Use for cross jurisdictional policy assessment



Crosswalk: zoning data

ZONING DISTRICT	DISTRICT NAME	GENERAL CATEGORY
	BLADEN COUNTY	
RA	Residential/Agricultural	Medium Density
R	Residential	Medium Density
C	Commercial	Commercial
I	Industrial	Industrial
CON	Conservation	Open Space
	CUMBERLAND	
A1	Agricultural	Low Density
A1A	Agricultural	Moderately Low Density
RR	Rural Residential	Medium Density
R-40	Residential	Moderately Low Density
R-30	Residential	Medium Density
R-20	Residential	Medium Density

Key points

- Build on existing data resource
- Share data
- Importance of local knowledge/local contacts
- Use metadata
- Merging data time consuming
  - Use data standards

For More Information:

Project web page
http://www.sandhillsgis.com/modeling.htm

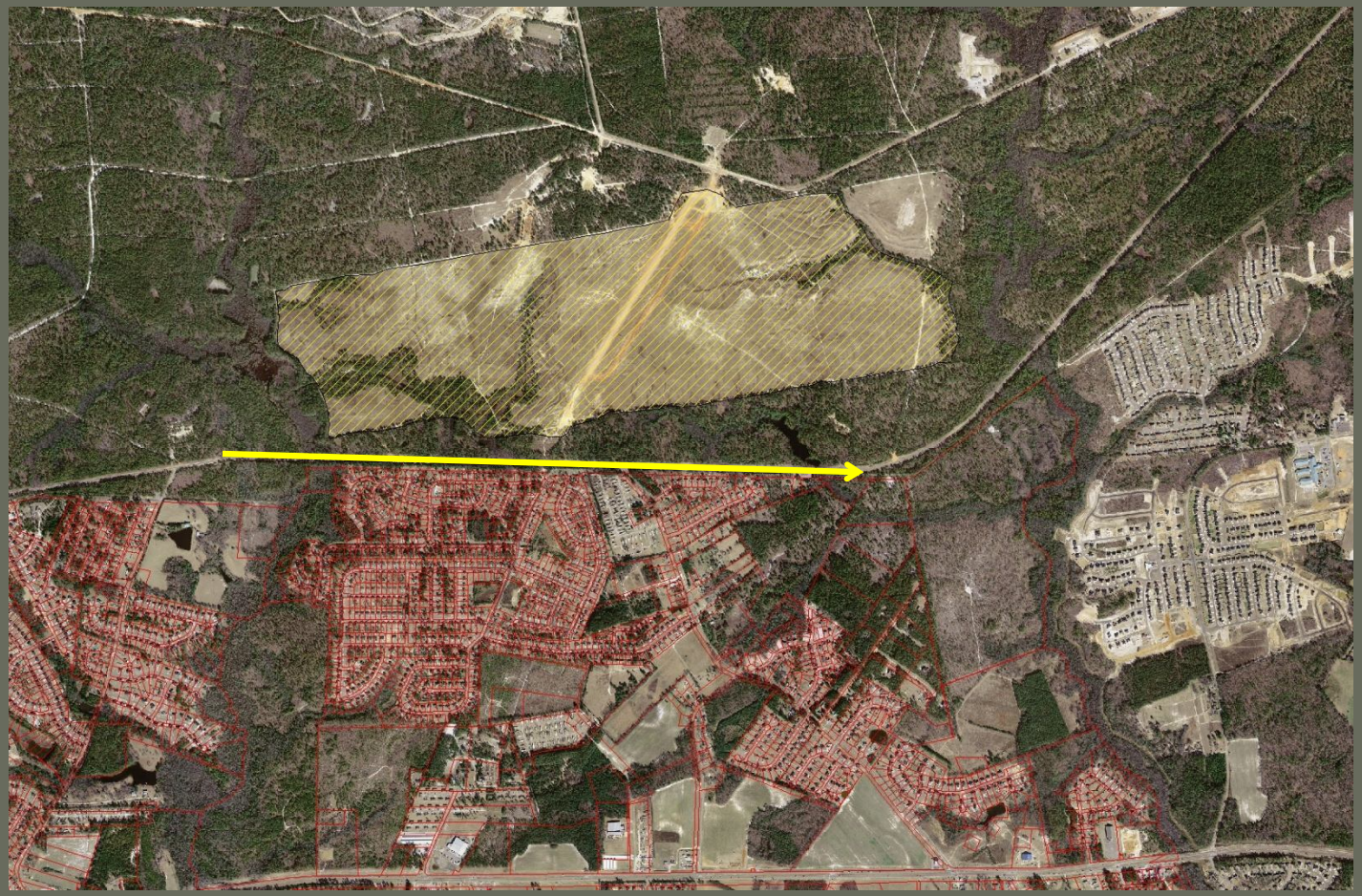
Susan Pulsipher
NC Dept of Commerce
Division of Community Assistance
(910) 829-6384
spulsipher@nccommerce.com

Data we'd like to have

Problems: data in multiple hands; state or private distribution restrictions

- Water pipe lines and capacity available
- Sewer pipe lines and capacity available
- Intensive livestock agriculture (chicken & turkey houses)
- Gas lines
- Telecommunication fiber lines
- Land Cover – redone regularly
- Land Use for counties and towns (different from land cover; not taken from tax records)
- Land actively managed for farming or forestry
- Cultural sites

Example: lack of foresight in planning

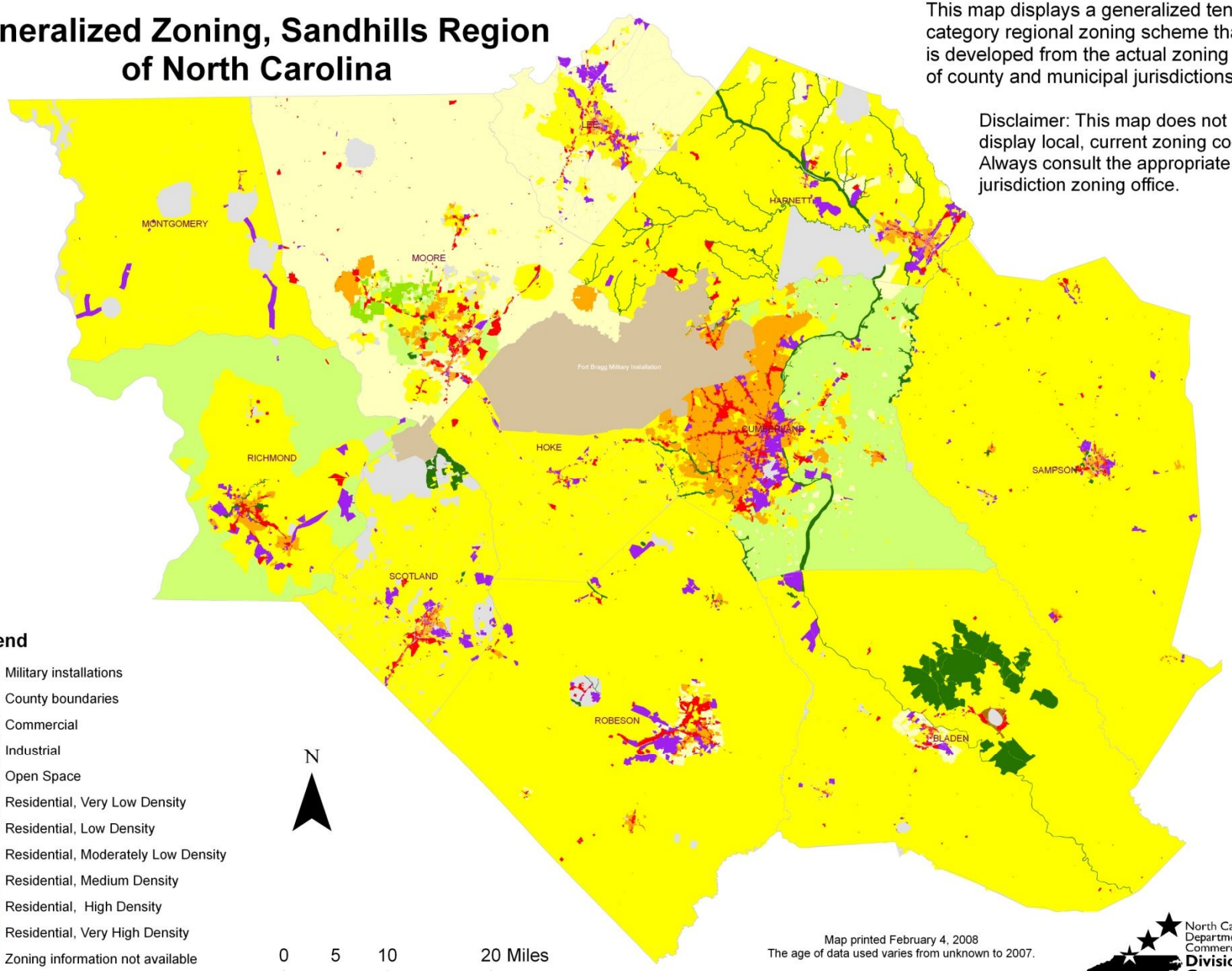


Military Drop Zone at top of screen.

Subdivision built against base southern boundary.

Result: cannot practice dropping tanks from planes at this site any more.

Generalized Zoning, Sandhills Region of North Carolina



2003 Fort Bragg/Pope AFB Joint Land Use Study

One mile study area over parts of six counties

Problem: ensuring military can train

Parachute Drop Zone

Cannot drop tanks.

Houses too close.