

Maintaining Your GIS Investment

Presentation to the Local Government Center
Conference
November 18th, 2010
Manchester, NH

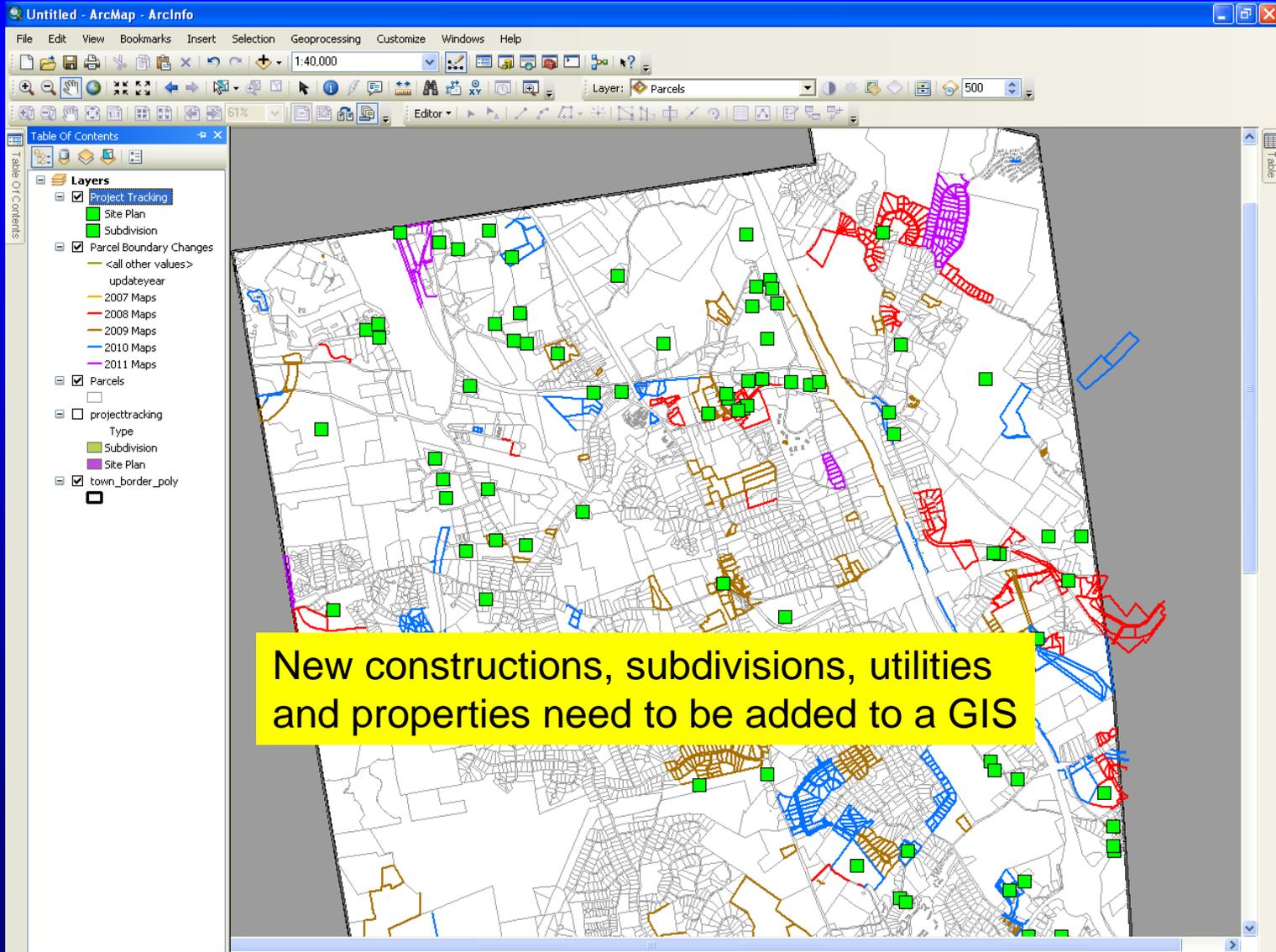
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The one sure thing is change...



Target Audience & Objectives

Target Audience:

- Persons with GIS base data but limited experience/expertise in maintenance
- Persons with knowledge of data characteristics
- Person with time to update & manage data

Objectives:

Overview of data maintenance requirements and procedures

Overview and Outline

1. Administrative Tools
2. Hardware Tools
3. Personnel Needs
4. Thematic Update Requirements
5. Update Procedures
 - CAD Submissions
 - Scanned Deeds/Plans
 - COGO
 - ‘Heads-up’ digitizing
 - GPS
6. Resources for help

1. Administrative Tools

Digital Submission Requirements

- Recommend defined layering schema and required projection
- Submitted at end of planning board review

Certified Foundation Plans

CIP Funding

Regular use/exposure of GIS applications

1. Administrative Tools

Peterborough Example:

System Originally Funded with 1997 FEMA Grant

Maintained with Joint Funding from DPW and
Community Development Operating Budgets

CIP Line Item at \$15,000 per year for full flyover
every 5 – 7 years

1. Administrative Tools

Cost Savings/Avoidance:

	A	B	C	D
1	Source	Project	Savings	Data Used
2	Steven Halloran, P.E., Edwards and Kelcey	Hospital Connector Rd Design	\$5,000	1997 Full Planimetrics, Topo and Orthos
3	William J. Graham, GeoInsight	Landfill Monitoring	Priceless	2005 Planimetrics, Topo and Orthos
4	Jeffrey Porter, Asst Director, SWRPC	Wilder Thermometer Factory	\$2,800	1997 Planimetrics, Topo and Orthos
5				
6				

2. Hardware & Software Tools

Hardware:

- Plotter
- Centralized Database Server
- GPS (not necessary but nice)
- Plan Scanner (not necessary but really nice!)

Software:

- ArcGIS
- Adobe Acrobat , Photoshop, & Illustrator
- Keep your software maintenance current!!!

3. Personnel Needs

Data Manager:

- A trained “go-to” or point person is essential
- Needs to have some understanding of the data, formatting and end-user needs
- Don't start unless you can finish



4. Thematic Update Requirements

	Original Source	Maintenance Source	Update Schedule
Aerials	Aerial mapping project	Re-fly (No- Substitute); possible data from state or private sources; Treat as a capital project	5-7 yrs
Landbase	Aerial mapping project	Re-fly for complete update; Spot updates per CAD submissions, heads-up digitizing/ Scanned plans/GPS	As Conditions warrant

4. Thematic Update Requirements

	Original Source	Maintenance Source	Update Schedule
Parcels	Usually based on pre-existing maps	Recorded deeds, CAD submittals, COGO, Scanned plans, aerial interpretation	Regularly for April 1 st conditions
Utilities*	Usually derived from engineering Maps, aerial interpretation, tie-sketch, as-built plans & GPS	Field review, CAD submittals	Project specific or as funding permits

* Water/Sewer/Drainage infrastructure

4. Thematic Update Requirements

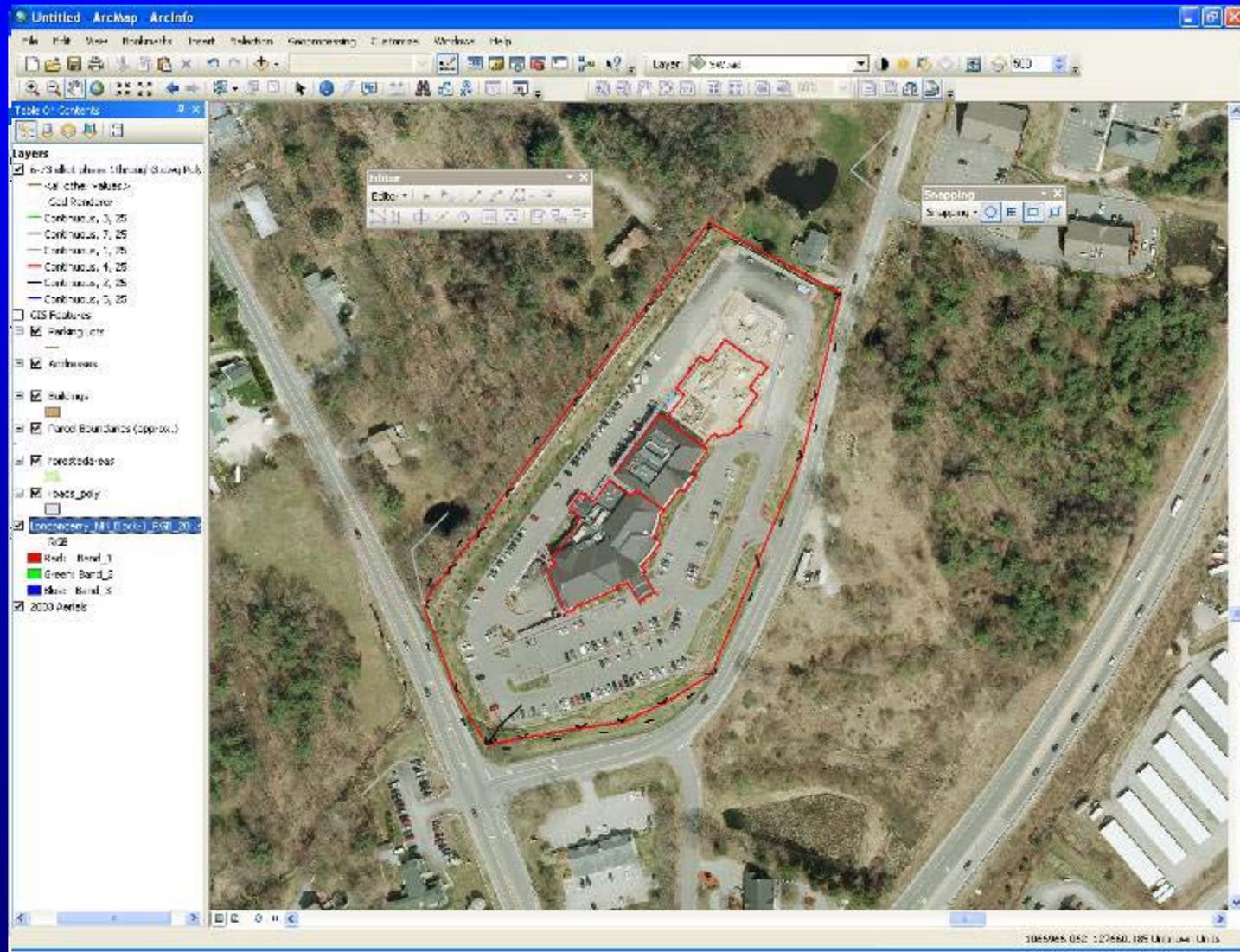
	Original Source	Maintenance Source	Update Schedule
Departmental*	Interpretation from other, existing Datasets; field review; GPS	Field review; meeting minutes; town records; GPS	As needed

* Zoning, Conservation Lands, Land/Building Sales, Project tracking, Cemeteries, etc

5. Update Sources

- CAD Submissions
 - DWG (AutoCAD files) are required as condition of planning board approval
 - Regulations define layering schema and local projection
 - Editing involves using GIS editing tools to trace/copy features from CAD Drawing into GIS layers in whole or in part

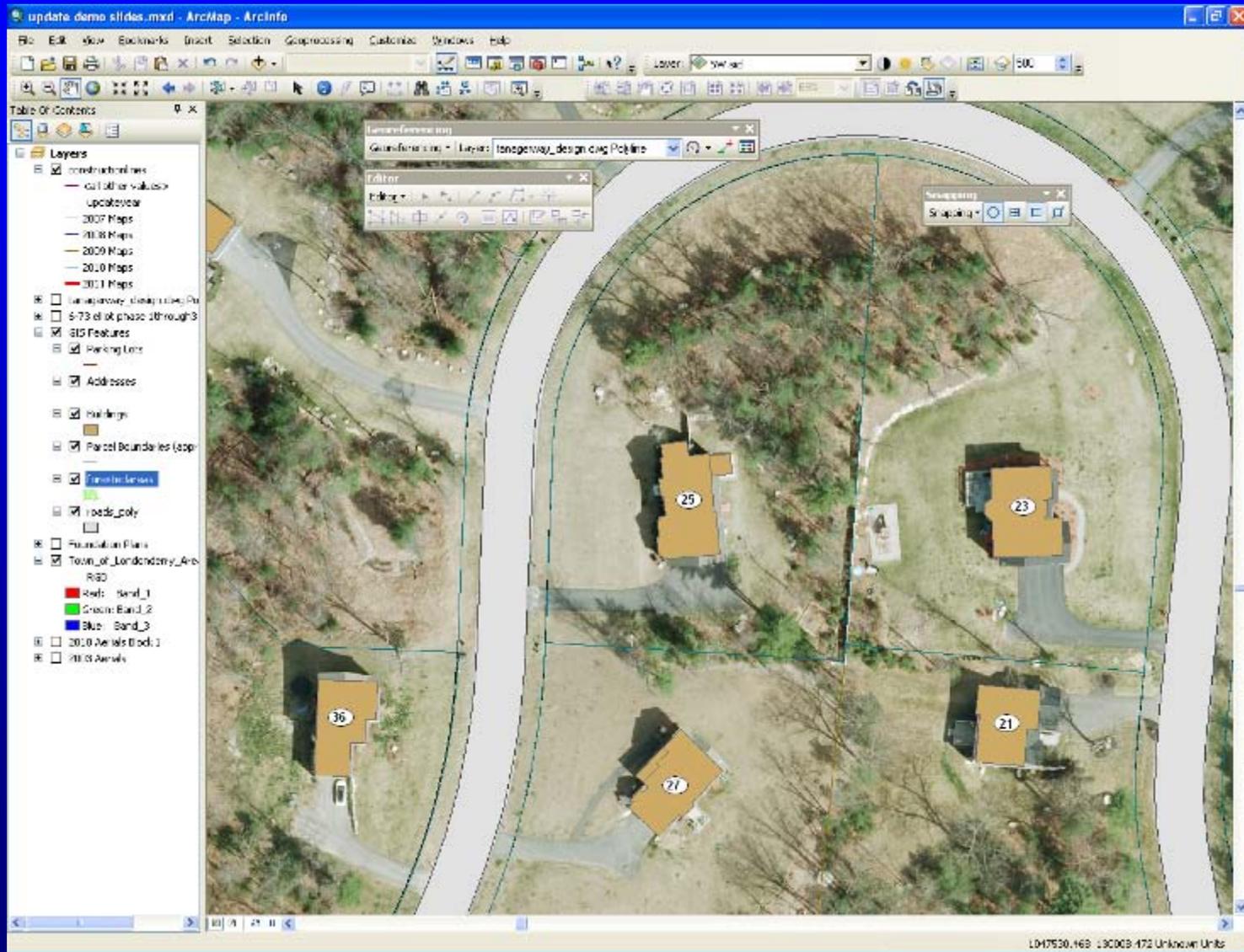
5. Update Sources



5. Update Sources

- Scanned Deeds/Plans
 - Recorded deeds can be obtained from the NH Registry; Signed plans are recorded at time of Planning Board approval
 - GIS tools can be used to 'geo-reference' (line-up and place in proper scale/orientation) scanned plans to existing data
 - Editing tools can be used to trace features from the plan into GIS layering
 - Same process applies for foundation plans
 - May require a plan-size scanner

5. Update Sources



5. Update Sources

- COGO ('Coordinate Geometry')
 - Applies GIS editing tools to convert direction-distance lines to parcel polygons
 - Usually trace features into a construction layer then use GIS tools to update related features (abutting parcels/zoning/conservation lands) to match
 - Requires a discernible deed for target parcels or abutting lots

5. Update Sources

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS THAT, We Kimberly A. Mayo, husband and wife of 81 Auburn Road Hampshire, for consideration paid grants to Fernand M. St husband and wife of 56A Harvey Road, Londonderry, New WARRANTY COVENANTS, the following described pr

A certain tract of land with the buildings thereon, situated i Rockingham and State of New Hampshire, being Lot No. 1 Subdivision of Land, Londonderry, New Hampshire owned Corporation, dated June 1973, and prepared by Thomas R. recorded in Rockingham County Registry of Deeds as Plan more particularly bounded and described as follows:

Beginning at a point on the northwesterly side of Old Auburn at the southeaster corner of Lot No. 11; thence

North 48° 11' 50" West Three hundred fourteen and thirty- to a point; thence

North 35° 54' 33" East one hundred forty-seven and sixty- feet to a point; thence

South 61° 56' 24" East three hundred twelve and eighty-eg feet to the northwesterly side of Old Auburn Road; thence

Southwesterly along the northwesterly side of Old Auburn of two hundred twenty-three and three one-hundredths (233

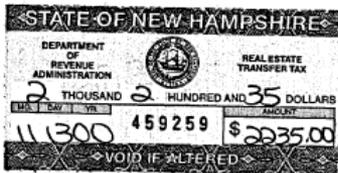
We the within grantors hereby release all rights of homeste

Being the same premises conveyed to the grantors herein by dated August 16, 1996 and recorded in the Rockingham Co Book 3173, Page 1387.

Dated this 10th day of November, 2000.

Jeffrey A. Ma
Jeffrey A. Ma

Kimberly A. Mayo
Kimberly A. Mayo



FLEMING, ATTORNEY AT LAW

1067046.747 157499.368 Feet

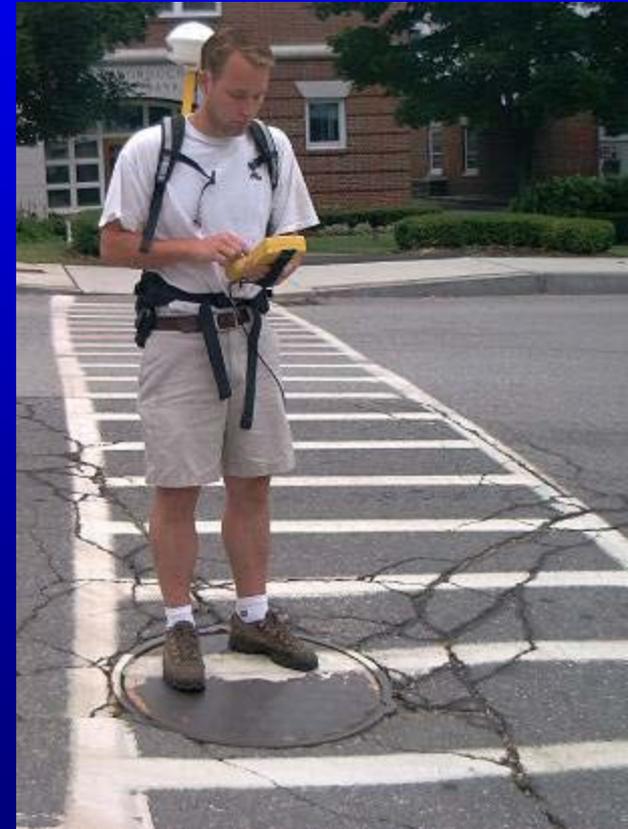
5. Update Sources

- Heads-Up Digitizing
 - Use GIS Tools to interpret aerial photos to add visible features to data sets such as buildings, driveways, stone walls, roads, manholes, etc...
 - Need to know where changes have taken place and have current aerials

5. Update Sources

- GPS

- Use GPS to save lat/long locations of features located in the field
- Mapping grade GPS's are accurate to sub-meter or sub-foot
- Can usually record and store feature attributes
- Best for validating mapped features or recording approximate locations



Take Away

- Budget/Funding
 - Pays for itself in Cost Avoidance for municipal design/preliminary site plans
- Dedicated Staff and Training
- Use it and Display It (or lose it!)

6. Resources for Help

NH GRANIT

<http://www.granit.unh.edu/>

ESRI Recorded Training Seminars

<http://training.esri.com/campus/seminars/recordings.cfm>

UNH Cooperative Extension

<http://extension.unh.edu/GISGPS/GISGPS.htm>

NH ArcUsers Group

<http://extension.unh.edu/GISGPS/ARCVIEW.htm>

Vermont Center for Geographic Information

<http://www.vcgi.org/techres/>

Academic Websites

Harvard School of Design <http://www.gsd.harvard.edu/gis/manual/>

Western Wash Univ <http://www.wvu.edu/huxley/spatial/tut/tutorials.htm>

6. Resources for Help

Geodatabase Information (ESRI)

<http://www.esri.com/software/arcgis/geodatabase/index.html>

<http://resources.esri.com/geodatabase/>

Resource Gateway (ESRI)

<http://resources.arcgis.com/content/arcgisdesktop/10.0/about>

<http://resources.arcgis.com/>

Getting to Know ArcGIS Desktop (ESRI Press, ISBN: 9781589482609)

Geodatabase Blog

<http://blog.geodatabase.com/>

ArcGIS Help (Online) – Has Tutorial Videos

<http://help.arcgis.com/en/arcgisdesktop/10.0>

ArcTutor (C:\ArcGIS) – Install with ArcGIS Desktop

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