WILL PAPER SURVIVE THE DIGITAL REVOLUTION?

Printed Maps in the Digital Age
Presented by Philip Young

Champaign Bike Summit - October 28th, 2015

Presenter

- Philip Young
- Research Associate - Northern Illinois University
- Director - Geovisual Mapping Laboratory
- Cartographer (former) - Encyclopedia Britannica
- Cartographic freelance (former) - Rand McNally
- Has worked in the field of Cartography and GIS for the past 25 years

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Process to Create a Paper Map

- Who, what, where
- Budgets and timelines
- Outside expertise
- Data collection
- User clarification
- Data verification
- Proofing
- Partnerships
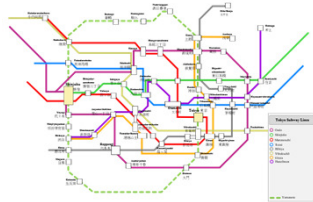
Who is Your Intended User?

- Private sector
- Public sector
- Non Governmental Organizations - NGOs
- You

What Information Needs to be Presented?

- Subject matter/extent
- Existing data: graphic and nongraphic
- Supplemental data
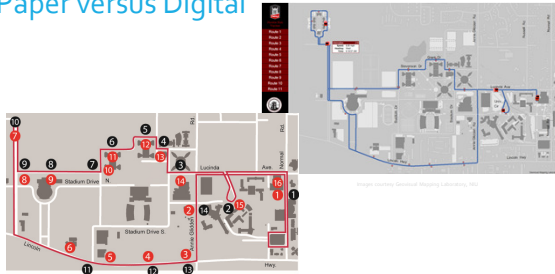- Images/photos
- References
- Sponsors/advertisement

What is the Best Format?

- Depends on the needs of the end user
- Budget of the agency producing the map
- Outsourcing versus in-house
- How often will you update it
- Large scale versus small scale
- Digital, paper or both
- GIS, CAD, desktop, etc.

Paper versus Digital

Processes of Cartographic Design

- Collecting and selecting the data for mapping
- Manipulating and generalizing the data, designing and constructing the map
- Reading and viewing the map
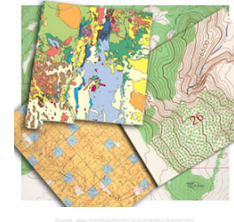- Responding to or interpreting the information

Book source: Robinson, Morrison, et al, "Elements of Cartography", 6th edition, Wiley, 1995

Cartographic Elements
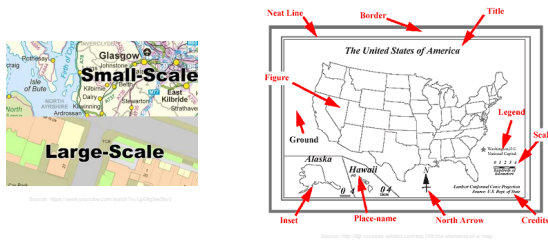
Types of Paper Maps

- General reference
- Thematic
- Charts
- Cadastral
- Plans

Project Management

- What is a Project?
  - Has a definable goal
  - Has interrelated and dependent activities
  - Is finite in duration
  - Provides a unique product, service or information
- What is Management?
  - Planning
  - Organizing
  - Supervising
  - Staffing
  - Controlling

Budgets and Timelines

- Current financial times
- Grants
- Contracts
- Intergovernmental agreements
- Utilize Project Management software
- New project versus update
- Fiscal year versus calendar year
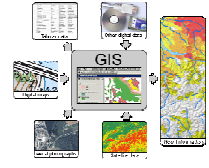- Seasonal help, internships

In-house versus Outsourcing

- Time frame
- Costs
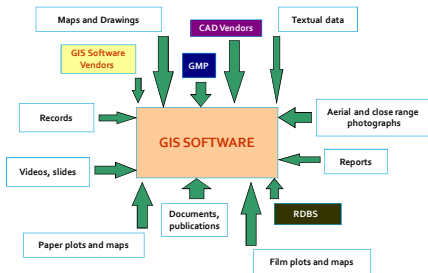- Skill set
- Equipment
- Software
- Expertise

What is a Geographic Information System (GIS)

- Focuses on **geography** and the **geographic relationships** between places or things
- Consists of **information**, or data, describing the characteristics or properties of geographic entities
- **Systematically** enables us to manage, organize, manipulate, analyze, and display that information

Sources of Geographic Data

Maps and Drawings
CAD Vendors
Textual data
GIS Software Vendors
GMP
Records
Aerial and close range photographs
GIS SOFTWARE
Videos, slides
Reports
Documents, publications
RDBS
Paper plots and maps
Film plots and maps

Software Utilized

- ESRI - ArcGIS Desktop
- Hexagon/Intergraph - GeoMedia Professional
- Open Source - QGIS
- Autodesk - AutoCAD, 3DS
- Adobe - Illustrator, Photoshop
- LizardTech - Mr SID
- Terrago - Geo PDF
- Trimble - Sketchup Pro
- Microsoft - SQL

Hardware Utilized (CPU)

- Intel based desktop CPU (most GIS software only runs on Windows OS)
  - i7 or Xeon multi-processor
  - CAD based graphic card, with 1-2 gigs onboard ram
  - 12 - 24+ gigs of ram
  - SSD primary OS drive, 500 gigs
  - SATA secondary drive(s), 2 terabyte, 7200 - 15000 RPM drives, RAID configuration
- Battery backup
- Single monitor (30") or dual monitors (24 - 27")
- 2 button mouse
- 3D puck controller

Hardware Utilized (cont.)

- GIS server (Windows 2012) with RAID 10 high performance drives
- Backup data system (Cloud based or peripheral device)
- Gigabit network
- Large format (E size) plotter
- Large format (D size) scanner
- Ink jet printer
- Color laser printer
- E size cutting board
- Large format laminator

Challenges

- Budgets
- Training and retaining skilled workers
- Unified database versus several disjoined systems
- Project Management
- Changing technologies: both hardware and software
- Leadership
- Differing views on what the project should be
- "Better Information": information that is more current and accurate

Why Paper Maps?

- A proven method: most used form of navigation for the past 3000 years
- Do not need to worry about batteries dying
- Do not need to worry about dropped Wi-Fi or cellular signal
- Waterproof (Tyvek), crushproof, light weight, flexible
- Easier user interface
- Larger output screen (paper)
- Everyone does not own a smart phone

Why Paper Maps cont.

- If lost or stolen no real investment lost
- Traveling in rough terrain
- Most Trade Shows and Conventions use paper posters, not digital screens
- Mailers: wedding receptions, party invites, 10 K run, etc.
- Field use: construction crews, first responders, orienteering, etc.
- Paper map cheaper than cell phone and reoccurring monthly charge
- No typing or query on tiny keyboards to get information
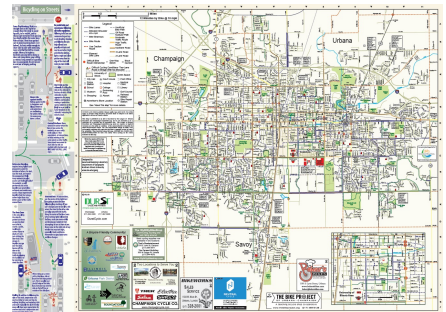
Final Reasons to Use Paper Maps

- In a true emergency, "failure is not an option"
- "Big Brother" may be tracking you
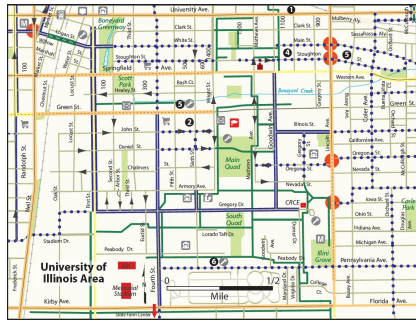- Pandemic - avian flu, virus, zombies

Examples of Bike Maps

- Champaign - Urbana - Savoy Bicycle Guide and Map
- Vermillion County - City of Danville
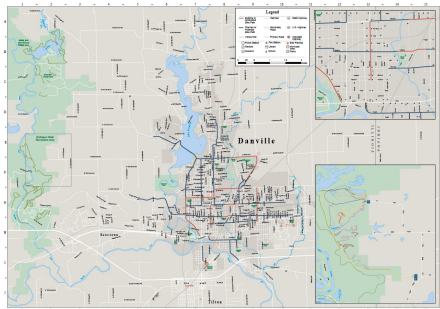- IDOT Bike Maps

Champaign - Urbana Bike Map

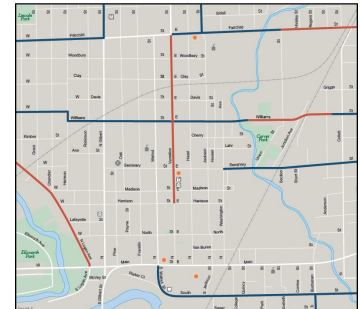Champaign - Urbana Bike Map
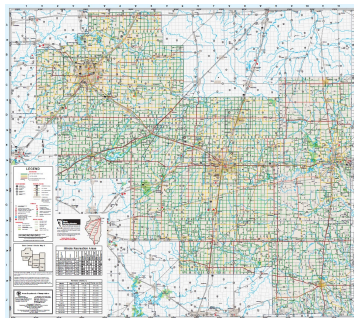

Champaign - Urbana Bike Map
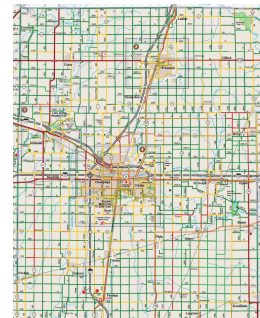

Vermillion Bike Map

Currently Under Construction

Vermillion County City of Danville Bike Map

IDOT Bike Maps
Covers Nine Districts

IDOT Bike Map District 5

IDOT Bike Map District 5

The Foreseeable Future of Maps?

- Google Earth/Maps
- Printed maps
- Automotive GPS navigation
- Web-based mapping systems: Cloud based
- Open Source GIS
- Simplified GIS user interfaces
- Wearable devices: Apple Watch, Google Glasses, Fitbit, etc.
- Three dimensional and holographic

NIU GIS Certificate - Online

Certificate of Undergraduate Study in Geographic Information Systems (GIS)

Contact Information

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Additional Mapping Resources

- GML   http://www.niu.edu/geog/laboratories/index.shtml
- GITA   https://www.gita.org/
- URISA   http://www.urisa.org/
- ESRI   http://www.esri.com/
- Hexagon   http://www.hexagongeospatial.com/products/producer-suite/geomedia
- AAG   http://www.aag.org/
- NACIS   http://nacis.org/
- ILGISA   http://www.ilgisa.org/
- GIS Lounge   http://www.gislounge.com/organizations/
- IL GIS CH   https://clearinghouse.isgs.illinois.edu/