

The GeoSpatial Knowledge Worker

Eric Brady
Bergmann Associates



Presentation Agenda

- Background
- Bergmann GIS
- GIS in Organizations
- GIS Knowledge Worker
- Your GIS Future (aka jobs)



Eric Brady Resume

- GIS Project Manager Bergmann Associates (7 yrs)
- 15 years professional experience
- BA Human Ecology 1995 / MA Geography 2000
- Work Experience:
 - Intern Niagara Mohawk
 - GIS Manager Seneca Nation
 - Programmer-Analyst Osmose
 - Programmer URS
 - GIS Manager Bergmann
 - Project Manager
 - Programmer



Bergmann Geospatial –Who We Are

- Architectural-Engineering-Planning Firm (375 people)
- Nationally recognized, award winning GIS Department
- 20 Years of GIS at Bergmann
- 9 Professional staff / 100+ years combined experience

Managers

Programmers

Analysts

- Esri Partner



Bergmann GIS

- Clients:
 - Local Government
 - Private Industry
 - Internal
- Project Types
 - Data Development / Conversion
 - Application Development
 - Desktop/ Web/ Mobile
 - 3D
- Staff /Roles
 - Project Manager/ Programmers/ Analysts/ Technician



Current Business Model

- Focus on Expert Services
 - Technical Consulting
 - Enterprise Solutions
 - GDB Design
 - Application Development
 - .Net (C#)
 - Silverlight / Flex/ HTML5
 - System Integration
 - 3D Modeling
- Internal Support



our **people** and our **passion** in every **project**

Bergmann GIS Demonstrations



GIS Growth

- “Mega-Technology” -up there with Nanotechnology and Biotechnology
 - Growing at about 35% a year / expected to add at least 330,000 jobs between 2008 and 2018*
 - 100,000 Organizations using GIS
 - Maps Everywhere!
 - Need for Geo-Spatial literate workers
-
- *<http://www.directionsmag.com/articles/geospatial-technology-the-land-of-milk-and-honey/175871>



GIS Organizations – Where GIS is Used

- Consultants
- Software Companies
- Government
- Private Sector
- Non-Profit



GIS Consultants

- A/E Firms: Architectural Engineering
- GIS 'Services'
 - Data
 - Applications
 - Enterprise Design
 - 'One-off'
 - Some Products
- Technical 'Consultancy'
- Find you own work
- Billable hour structure
- Positions: Technician/ Analyst/ Programmer/ Manager



GIS Software Companies

- GIS Product
- GIS centric / IT focused
- Product focused
- Implementation services
- Continued Investment
- Positions
 - Programmers/ Designers/ Testers/ GUI Development/ Managers / Sales/ Support/ Trainers

Cityworks®



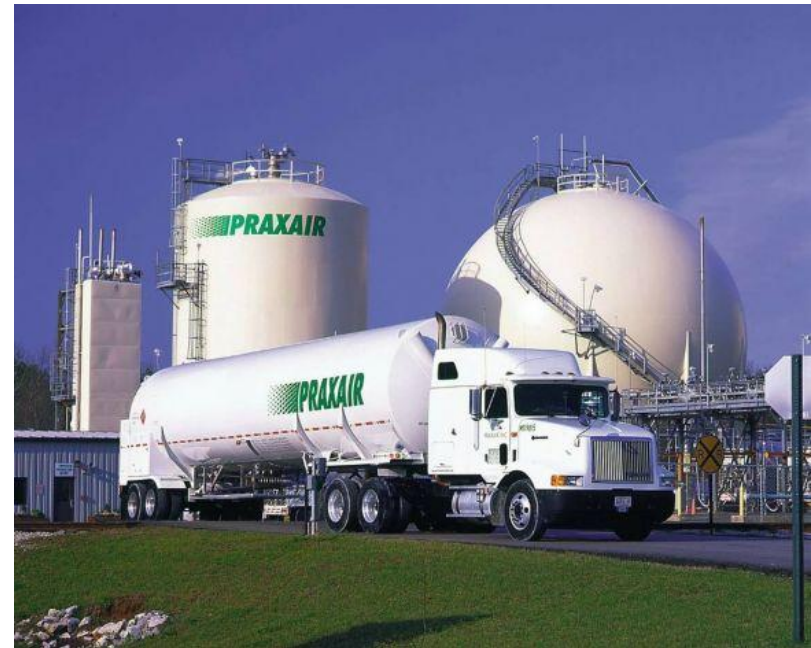
Government

- GIS to support department operations
- Bring outside-inside
- Asset management AM/ FM
- Business process support
 - Office – Field
- More with Less
 - “Accountability”
 - Government 2.0
- Positions
 - GIS Coordinator/ Analyst/ Programmer



Private Sector

- GIS support for a core business
 - Analysis of data
 - Cartography
 - Programming
- Use of OTS software
- Variety of business uses
- Positions:
 - GIS Manager
 - Analyst
 - Programmer



Non-Profits

- Environmental/ Social
- Small Staff
- Small Budgets
- Grant –funded
- Multiple roles



Workplace Skills for the GIS Knowledge Worker

Knowledge Workers:

“Think for a living”

“Spend time creating, developing, sharing and consuming information”

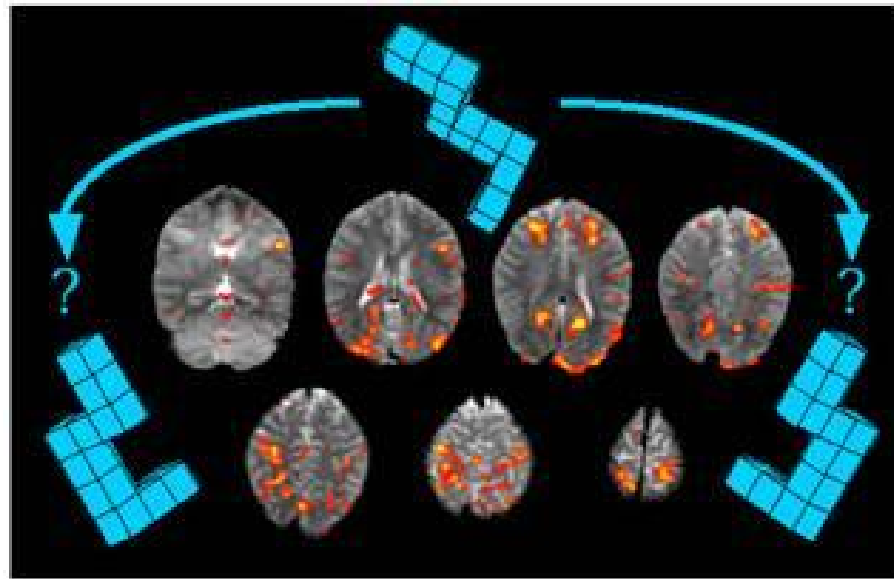
Using technology regularly

- GIS centric vs GIS as one of many tools
- Continually adapting
- Find and create value



Innate GeoSpatial Skills

- Creative Problem Solving
- Spatial Sensibility
- Logical
 - “Step-wise thinking”
 - Geoprocessing
- Technically Fearless !



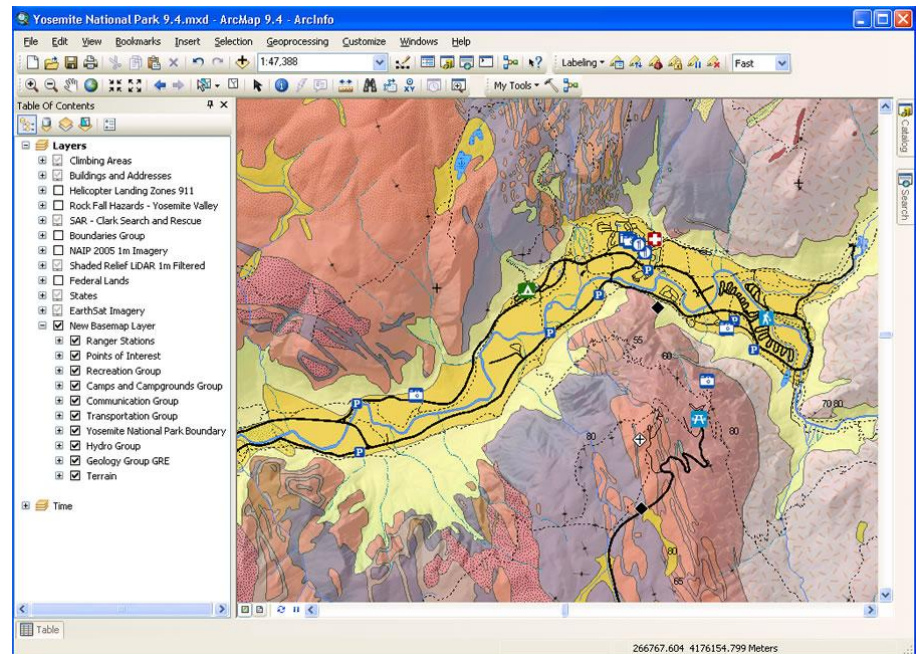
Workplace Skills

- Communication
 - Interpersonal skills
 - Written and Oral
 - Technical Language
 - Know your audience!
- Independence and Reliability
- On the job learning
- Passion – self study and growth
- Find Mentor
- Make your boss successful!



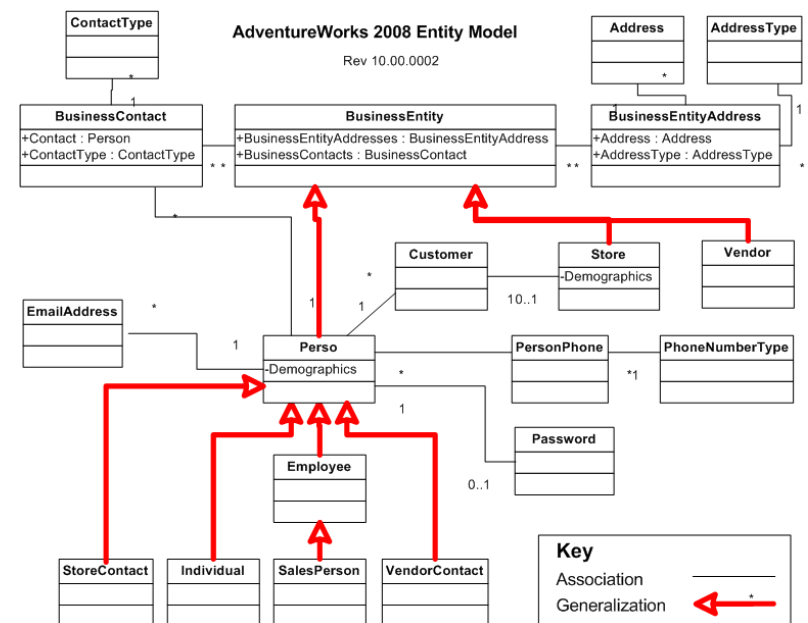
Technical Skills – GIS Software

- Minimum Commercial GIS Experience
 - Use-Case identification
 - Data Development
 - Analysis
 - Cartography



Technical Skills- Database

- Relational Database Design
- Learn MS Access!!
 - Structured Query Language (SQL)
 - AdventureWorks Sample
- Database Administration
 - User Permissions
 - Views / Stored procedures
 - SDE / Geodatabase
 - Versioning
 - Indexes



Technical Skills - Code

- Programming / Scripting
 - “Hello World!”
 - Python (Model Builder)
 - Google – Examples
 - Copy –Paste -Modify
 - Esri Client API's
 - Silverlight/ Flex/ JavaScript
 - .Net/ Java
 - Apps
 - iOS / Android

```
protected void Page_Load(object sender, EventArgs e)
{
    isFromURL = false;

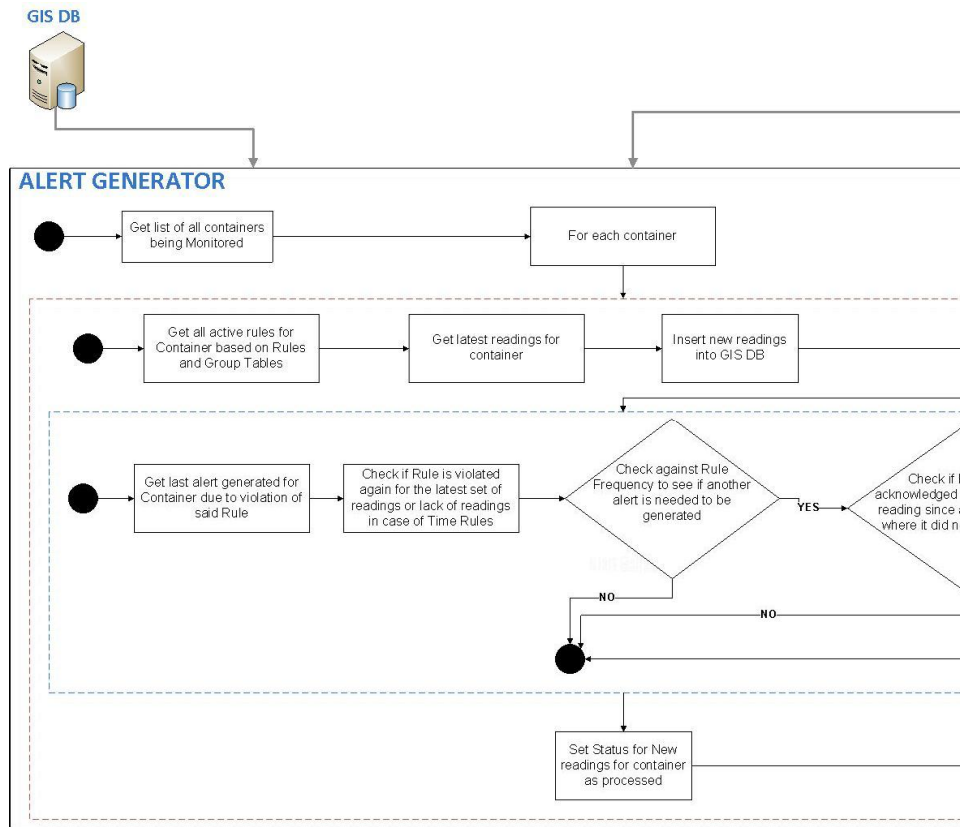
    if (Request.QueryString[parcelQueryStringName] != null)
    {
        this.parcelID = Convert.ToInt32(Request.QueryString[parcelQueryStringName]);
        isFromURL = true;
    }

    if (!ScriptManager1.IsInAsyncPostBack)
    {
        if (Request.QueryString[parcelQueryStringName] != null)
        {
            ShowAllParcelForm();
            ViewParcelInfo();
        }
    }
}
```



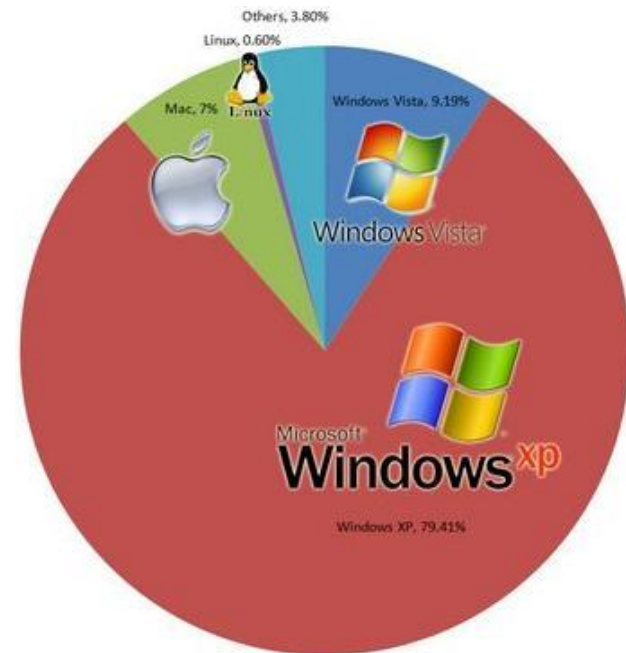
Technical Skills - Design

- System Design Process
 - Logic of a system
 - Business process modeling
 - As-Is / To-Be
 - System Modeling
 - Activity Diagram
 - Database Modeling
 - Wireframe Design
 - Iterative / Review



Technical Skills – IT Professional

- Hardware
 - Tablet vs. Phone vs. Desktop vs. Server
- Operating Systems
 - Win 7 /Win 8 /Win Server 2008
 - Network / IT
 - Users/ Permissions
 - Virtualization
- Web Server
 - Web Services - SOA!
- 1-Person IT Shop



Esri Skills

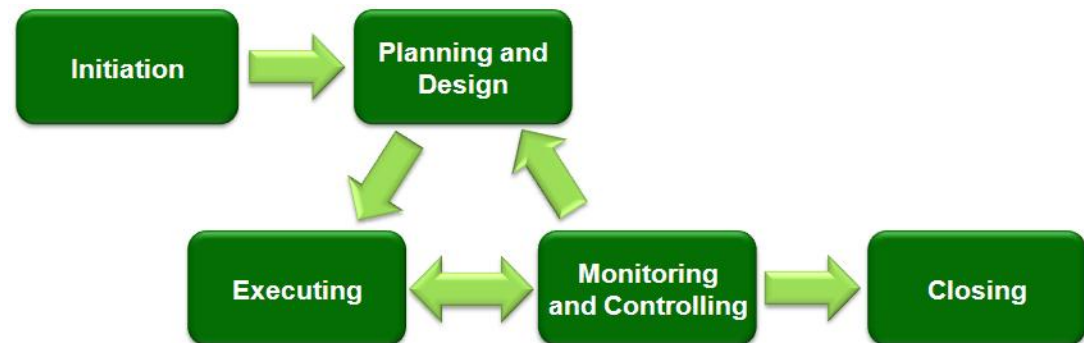
- Data
 - Feature class vs Shapefile/ Multipatch/ Terrain
 - Shapefile/ FGDB / Enterprise GDB
- Products:
 - ArcMap (View/ Editor/ Info – Basic/ Standard/ Advanced)
 - ArcCatalog
 - ArcGIS for Server
 - ArcGIS for Mobile
 - ArcPad / ArcEngine
 - ArcGIS Online
 - Templates
- 30 Day trials



Productivity Skills

- Project Management

- Scope
 - Requirements
- Schedule
 - Critical path
- Budget
 - Estimates
 - Materials

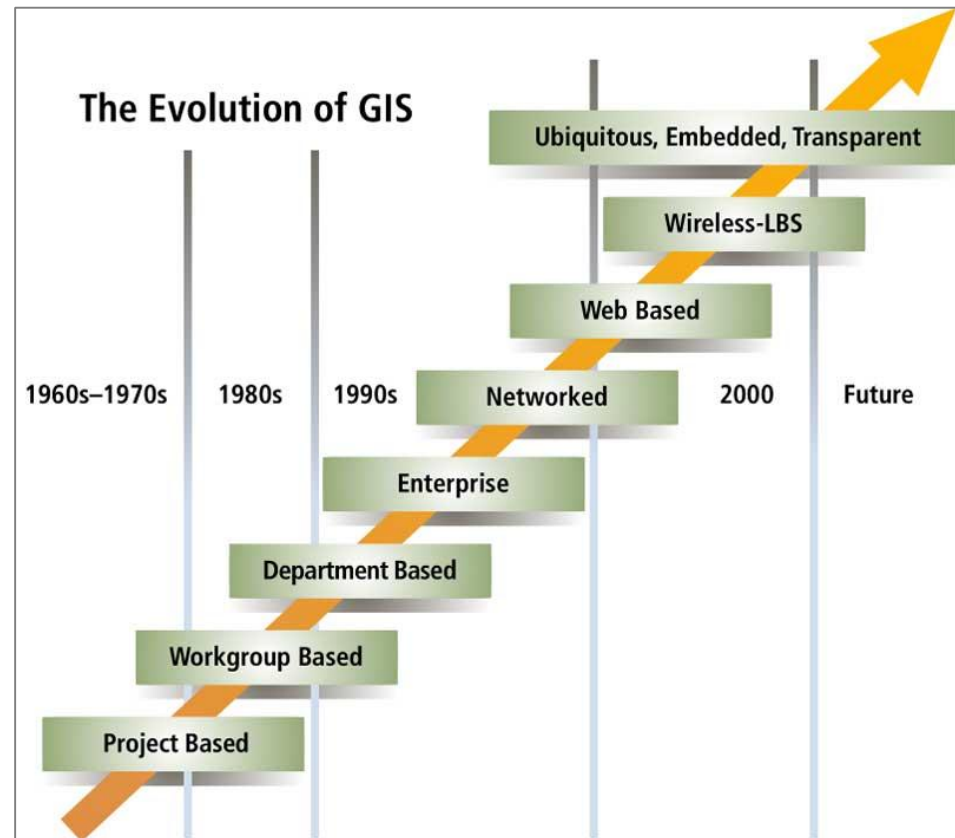


- Always learn – Always look forward
 - Blogs / Seminars / Conferences



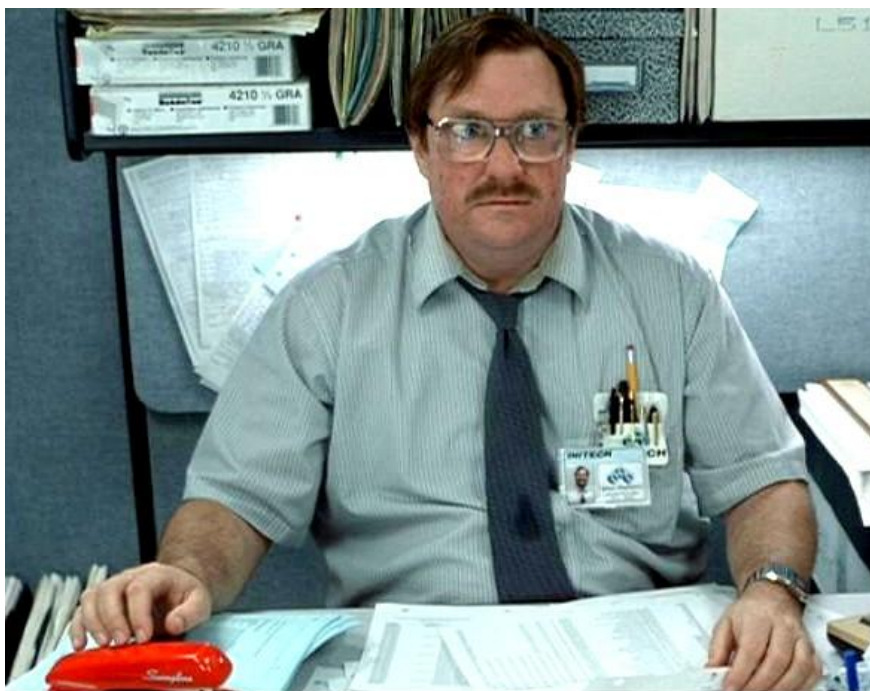
GIS Technology Trends

- Maps everywhere!
- New Devices
- Customization vs Code
- SAS / Cloud
- System Integration
- 3D



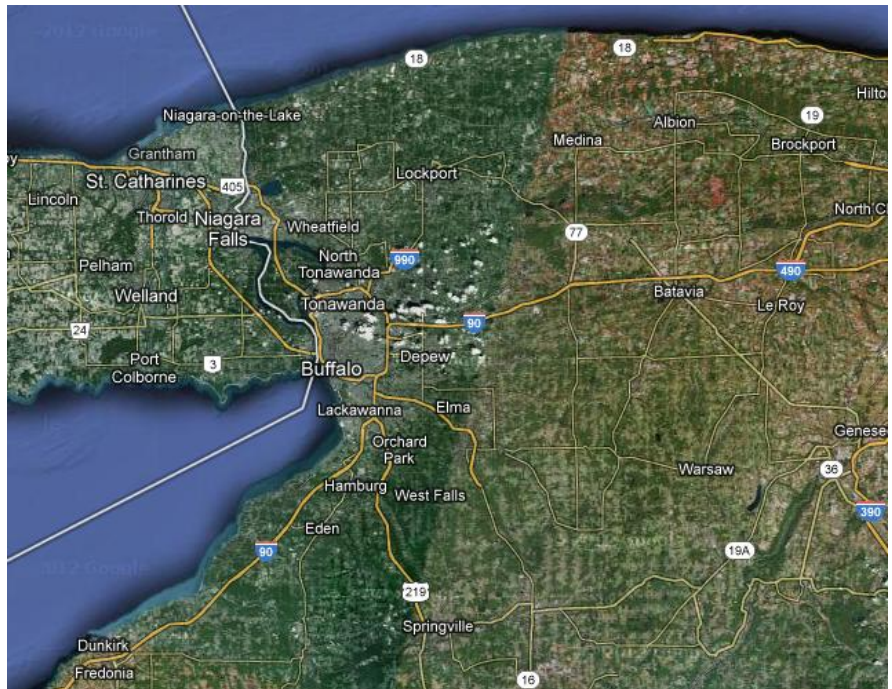
How to Find a GIS Job

- 35% Annual Growth
- Web Jobsites
 - GIS Job Clearing House / Dice
- Types of positions:
 - Manager
 - Programmer
 - Analyst
 - Technician
- EXPERIENCE !!
 - Intern / Volunteer



WNY GIS

- Bergmann Associates
- Ecology and Environment
- Wendel
- URS
- Buffalo Computer Graphics
- Osmose
- Utilities
- Government
- WNYGIS Association



Homework

Storage Array RAID Spatial Query Object-Oriented
AutoCAD Definition Query Server-Client
3D Massing DB Schema Project Milestone
Flat file AVL
Stakeholder UML Network Share
API LiDAR SDK
Interoperability QA/ QC Read-Only SaaS Subscription
Normalized Database Post Processed GPS
Event Log Domains Database SA Context menu



Thank You!

Eric Brady
GIS Manager - Bergmann Associates
ebrady@bergmannpc.com

