Geospatial Technologies and Your Career

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How can GIS benefit how you do business?

“Geospatial technology is already helping our users... your work provides the evidence. A new Geospatial Platform is emerging... Organizing Geospatial content and making it broadly available. This platform will transform our collective business... growing new opportunities... delivering geographic knowledge everywhere.”

Jack Dangermond – ESRI Founder
The hats I wear

- Cartographer
- Data Modeler
- Data Developer
- Programmer
- Database Administrator
- Web Designer
- Help Desk / Instructor
- Project Manager
- Sales Woman
- Proposal Writer
- Collaborator
- Report Generator
Iowa DOT Online Resources
GIS Technologies Available

GIS Site has an applications menu on the left and services menu.

http://www.iowadot.gov/gis/default.htm

Geospatial data news

- New 10.22 ArcGIS Server rolled out
- Iowa 511 Events KML Layer now available
- Checkout our list of useful GIS services
- Check out our latest applications utilizing GIS that we have built
- Low distortion projections now available for download
- Iowa DOT projections now available for download
- 2014-2018 Program Management (five year) in shapefile and KMZ formats

REST services

Representational State Transfer (REST)
- Iowa DOT REST directory
- DNR REST directory

Links

- Iowa DOT Interactive Map Portal
- Iowa Geographic Map Server
- The Federal Geographic Data Committee
- Geodata.gov
- Quick GIS task sheets
Rest Services Available

CARS 511
http://services.arcgis.com/8IRhdTsQyJpO52F1/ArcGIS/rest/services/CARS511/FeatureServer

Snow Plows
http://services.arcgis.com/8IRhdTsQyJpO52F1/ArcGIS/rest/services/Operations/FeatureServer

Cameras
http://services.arcgis.com/8IRhdTsQyJpO52F1/ArcGIS/rest/services/cameras/FeatureServer

Local projects
https://geonexusr.iowadot.gov/arcgis/rest/services/Local_Projects

Bridge data
https://geonexusr.iowadot.gov/arcgis/rest/services/Bridges_Structures/NBI/MapServer

Main Service Links
http://services.arcgis.com/8IRhdTsQyJpO52F1/ArcGIS/rest/services
https://geonexusr.iowadot.gov/ArcGIS/rest/services
We have several interactive map available through our ArcGIS Online portal http://iowadot.maps.arcgis.com/home/
Track a Plow App

Shows current plow locations, road conditions, weather and what plows are doing. Some trucks have a photo out the front window of the plow (400 of 900 trucks have cameras)
Leveraging ArcGIS Online for Roadside Feature Inspections
Tablet Deployment

- Building tablet usage to integrate into field maintenance processes
- Maintenance Tablets in the field = 180 multiple iPad Gen4/Air2 tablets are deployed to our 109 garages
- Maintenance field management using tablets
- Construction staff have 90 to do the paperless plan pilot projects – using pdfs and ProjectWise Explorer to manage documents in the field
What is Asset/Feature Management for the Field?

- Infrastructure Based Assets – Things you can see and touch in the field (roads, signs, bridges, etc.).
- Things that can impact the safety of the traveling public.
- Information collected about those features – design data, GPS data, business data such as physical attributes, current condition, etc.
ArcGIS Collector Application

- Doing a primary inventory
- Doing inspections over time
- Using a series of pick lists

Login to DOT ArcGIS Online Account - View of Culvert Application Start Menu
Menu provides data driven forms to minimize typing

- Concrete
- Concrete Pipe
- Corrugated Metal Pipe
- Metal Sheet Pile
- Plastic
- Steel
- Steel/Plastic
- Wood Walls
- Combination Concrete Pipe/Metal

Add a photo to record and submit
Sign Interface

Guardrail and Crash Cushions Interface
Beyond Inspections

- Databases are being developed which allow information to be consumed at other points in the data life-cycle.
- It is also expected in the future to be able to leverage inventory information stored during design tabulation at letting as well as from as-built updates in the field.
- The hope is that the Collector Apps being built for inspections can be spun off for use by Construction in their As-built process for the 2015 construction season.
Transportation Infrastructure Life-Cycle

Planning

Design

Survey

GIS

Maintenance

Construction

Operations
GIS Professional Certification

Time consuming and expensive... is it worth it?
YES!
GIS Professional Certification

- This is an internationally recognized certification program formulated in 2004. [http://www.gisci.org/](http://www.gisci.org/)
- The exam is based on the Geospatial Technical Competency Model (GTCM) and the GIS&T Body of Knowledge
- The focus is on Ethics, Education, Experience, and Contributions to the Profession when doing the portfolio review.
- This is the only recognized certification program for geospatial professionals outside of programs offered by specific software vendors.
GIS Professional Certification

- After July 1\textsuperscript{st}, 2015 applicants are required to take and pass an exam, have a portfolio review and pay a fee.
- Applicants need four years of geospatial experience to complete the certification process but may start the process before this time.
- After July 1\textsuperscript{st}, 2015 - $100 Application Fee (can be submitted before requisite experience collected), $250 exam fee, and portfolio review fee $100.
- It uses a point based, weighted portfolio review.
Use your resources to build your experiences

- In Iowa we have IGIC – Iowa Geographic Information Council
- ICIT – Iowa Counties Information Technology
- Vendor related free training/webinars
- Grassroots groups – GSAM – GIS for Strategic Asset Management
What does the future hold for you?

“The future belongs to those who see possibilities before they become obvious.”

John Scuffy

Things I have learned that support my success... Look for problems that need to be solved (and find a solution), stay up with the current processes and technology (even things outside the ESRI basket) and don’t be afraid to push the envelope and think outside of the box for your solutions.
QUESTIONS?

Thank you!

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