WV GIS Technical Center (2012)
Mission

• Provides focus, direction and leadership to users of GIS in West Virginia
  – Geographic Information Network Services
  – Technical Support, Educational, & Training Services
  – Assist with Standards Development
  – Mapping Projects and Applications
  – Build and disseminate State’s Spatial Data Infrastructure
L to R: Corey Schafer (programmer), Kevin Kuhn (analyst), Xiannian Chen (programmer), Trevor Harris & Greg Elmes (co-directors & geography professors), Eric Hopkins (analyst), Evan Fedorko (analyst), Frank Lafone (tech lead), Kurt Donaldson (manager)
Maneesh Sharma

• Energy Projects
  – Carbon sequestration
  – Unconventional Energy
  – World Resources Institute (water issues)

• ORISE Faculty Fellowship at DOE
## Staff Education

<table>
<thead>
<tr>
<th>Degree</th>
<th>Geography/GIS</th>
<th>Geology</th>
<th>Computer Science</th>
<th>Other</th>
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<td><strong>5</strong></td>
<td><strong>4</strong></td>
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Graduate Students

Jessica Brewer  
(SHPO/Energy Projects)

Andrew Kaufman  
(Flood Map Project)

Ryan Stanley  
(Trail/Soil Projects)

Jennifer Smith  
(Training Development)
Geographic Services

MapWV.gov
Dynamic & Static Maps

WVGISTC website (wvgis.wvu.edu)
State GIS Data Clearinghouse, GIS People Directory, other resources

WVAGP Communication Networks

GIS News
Surveys
Shared Presentations
Conferences
Event Registration
Training

• Certified Esri & URISA instructor
• In 2012 assisted with 20 training workshops
• Example Training
  – National Hydrography Dataset
  – Esri ArcGIS 10 Desktop I, II, III; tips & tricks
  – ArcGIS Python
  – Internet mapping
WVGISTC Training
GIS Day Outreach
2012 WV GIS Conference

- Over 200 people and 22 exhibitors registered for the conference
- 8 plenary sessions, 37 individual oral presentations, 16 posters, 4 hands-on workshops
- Speakers State Senator Sypolt, Marion County Assessor Jim Priester, & GISCI Executive Director Sheila Wilson
- 3 evening socials for networking with professionals and friends
- 14 awards presented
- 4 WV GIS’s recognized by GISCI Executive Director
- Published GIS Roll Call Report for not-for-profit agencies
- Geospatial Jeopardy and Geocaching and more!
2012 WV GIS Conference
# Map Projects & Internet Application Development

<table>
<thead>
<tr>
<th><strong>Federal:</strong></th>
<th><strong>State:</strong></th>
<th><strong>Local:</strong></th>
<th><strong>Non-Profit:</strong></th>
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<tr>
<td>FEMA</td>
<td>DHHR</td>
<td>Cities</td>
<td>WVAGP</td>
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<td>NRCS</td>
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<td>Counties</td>
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<td>SHPO</td>
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2012 Mineral Parcel Mapping

- 1,000 mine maps digitized (new blocks of coal)
- Located and digitized 340 mineral parcels
- Partners WV DTR and WV GES
Question: Does WV offer interactive mapping that includes layers such as: Parcels, Roads, ROW, Subdivisions, Land marks, etc that the public can search? I'm particularly interested in Wayne County. Ohio offers the following resource –

http://www.dalisproject.org/pages/imsweb.htm. The general tab will take you to the interactive map.

Thanks,

Jerrit
Delaware County, Ohio
26 November 2012
US DOE National Carbon Sequestration
US DOE Unconventional Resources
Flood Hazard Area: Selected site is NOT WITHIN identified flood hazard area, but within 75 feet of an identified flood hazard area.

Additional Hazard Info: Click here

Advisory Flood Height: N/A Disclaimer

Elevation: About 932 feet

Location (long, lat): (-79.848768, 39.658173)

Location (UTM 17N): (598758, 4390452)

FEMA Issued Flood Map: 54061C0150E

Contacts: Monongalia County

Parcel Label: 19-29.1

Root ID: 31-18-19-29-1

District: 18 (Union)

Map: 19

Parcel: 29

Suffix: 1
WV SHPO Cultural Resources
WV DHHR Surface Water Program

Source Water Assessment and Wellhead Protection Program

Layers and Legend

- **Public Water Systems**
  - Community
  - Non Community
  - Non Transient Non Community

- **Public Water Sources**
  - Ground water
  - GWDI
  - Surface water

- **Potential Contaminant Sources**
  - Agriculture
  - Commercial
  - Industrial

- **Protection Areas**
  - Zone of Critical Concern
  - Wellhead Protection Areas
  - Secondary Wellhead Protection Areas

For watershed Delinrated areas go to the Search and Query Tool.
### Interagency Coordination Tool

The Interagency Coordination Tool (ICT) is a conservation planning tool that allows NRCS planners to receive avoidance measures and potential impacts (both beneficial and adverse) to federally Threatened, Endangered or Candidate species including eagles through an Endangered Species Act programmatic agreement.

### Log In

<table>
<thead>
<tr>
<th>User Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password:</td>
</tr>
</tbody>
</table>

- [ ] Remember me next time.

[Log In] [Register] [Forgot password]
How to ICT

1. Log In
2. Launch the ICT
3. Draw Area of Interest

- Interagency Coordination Tool
  - Step 1: What is the name of the site?
  - Step 2: Who is the client?
  - Step 3: What is the location?
  - Step 4: Use the tool on the right to digitize the area of interest.
How to ICT
Intragency Coordination Tool

Threatened, Endangered, Candidate, Eagle and Rare Species Report

Inquiry Date: 4/30/2012  County: Preston  Acreage: 4.77
Client: Evan  SiteName: Evans Chicken Farm  Location: Masontown

I. POTENTIAL SPECIES AND IMPACT INFORMATION

Based on the information submitted, there appear to be no known populations or critical habitat of any federally listed species. It has been determined that the following adverse impacts could potentially occur as a result of installation of one or more of the conservation practices.

### POTENTIAL ADVERSE IMPACTS

No known potential adverse impacts are provided by installation of this practice(s).

II. REQUIRED STRATEGIES & EFFECT DETERMINATION

Based on the information submitted, the following strategies are **REQUIRED** to be implemented to avoid adverse affects. The strategies listed below must be incorporated into the conservation plan, layout and/or specifications.

<table>
<thead>
<tr>
<th>PRACTICE</th>
<th>REQUIRED ADDITIONAL STRATEGIES FOR PRACTICE IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Road (560)</td>
<td>No additional strategies are required</td>
</tr>
<tr>
<td>Animal Mortality Facility (316)</td>
<td>No additional strategies are required</td>
</tr>
</tbody>
</table>
How Does It Work?

• Web front end, user management and report management system (.NET); Arc Server mapping application built in Flex; Python scripting for geoprocessing
WVDOT Trails Database (iPad)
Consuming Web Map Services

- Commercial Map Services (ESRI, Bing)
- Geocoding Services (state and national sources)
- WV Map & Web Services (WV DHSEM, WV DEP, WVGISTC)
- GIS Data from federal, state, and local agencies
- Geoprocessing & Query Map Services
MapWV Viewer (Shared Services)

Shared Data Services Seamless to Users

*CIR image and roads consumed from WV DEP & WV DOT Servers*
Computer Servers

- 2 Node VM Cluster
  - 96 GB RAM
  - 2 six core processors
  - 120 TB storage
- Bandwidth
  - 1 gbit to building
  - 300 mbit from college
GIS Base Layer Development

WVGISTC Website
Statewide Imagery

Statewide Digital Imagery

- 1996-99 USGS DOQQ, 1-meter CIR, leaf off
- 2003 SAMB, 2-ft natural color, leaf off
- 2007 USDA NAIP, 1-meter, leaf on, natural color & CIR
- 2009 USDA NAIP, 1-meter, leaf on, natural color
- 2011 USDA NAIP, 1-meter, leaf on, natural color & CIR
- 2010-12 WV Sheriff Association (Pictometry), 1-ft (4” urban areas) natural color, mostly leaf-off, oblique and orthogonal imagery, license restrictions

Web Map Services (Viewing Only)

WV DEP:  http://tagis.dep.wv.gov/mapservices2.html
WVGISTC: http://services.wvgis.wvu.edu/ArcGIS/rest/services
Best Leaf-Off Imagery

Recently Received a Broadband Grant to Update Best Leaf-Off Imagery Service

High resolution (usually 6”) imagery for Charleston, Huntington, Morgantown, and Weirton areas incorporated into SAMB 2003 statewide leaf-off imagery
Statewide Imagery (Cont.)

Statewide Leaf-Off Imagery Mosaic (Best-Available Leaf Off)
   ** Imagery compiled from county and others sources **

- Bluestone Lake (USACE, 2009)
- Cabell County (2009)
- Brooke County (2007)
- Hancock County (2007)
- Monongalia County (2010)
- Raleigh County (2011)

Some counties make their 6” imagery available in the public domain, other counties for viewing as a Web map service only.

WVGISTC Web Map Service
Web:  http://services.wvgis.wvu.edu/ArcGIS/rest/services
ArcMap:  services.wvgis.wvu.edu/ArcGIS/services
Best Leaf-Off Imagery – Monongalia County

2010 High Resolution Imagery
(1” = 100’, 0.5 ft. pixels)
Marilla Park, Morgantown, WV

See the people?
2010-11 WV Sheriffs (Pictometry) 12 "

Statewide Web Service
WV Sheriffs Association Imagery

WVGISTC Web Map Service

Web:  http://services.wvgis.wvu.edu/ArcGIS/rest/services
ArcMap:  services.wvgis.wvu.edu/ArcGIS/services
2010-12 WV Sheriffs Imagery (4 “)
WV Sheriffs Imagery – 12” & 4”
WV Sheriffs Imagery – 12” & 4”

Scale 1:282
WV Sheriffs Imagery – 4”

Find the horse?
Sheriffs Imagery (Standalone EFS)
(1) 1:24K National Hydrography Dataset (NHD). USGS funded maintenance for 74 miles across 143 NHD features within the Gauley River watershed. New NHD editing tools utilized.

(2) 1:4800 SAMB Local Resolution (2003)
Stems Updated in Mined Areas

Mined area with effected streams marked (red)

USGS funded project
NHD Steams Updated in Mined Areas

Mined area with effected streams marked (red)

2,000 High Resolution NHD features with an estimated length of 800 miles have been impacted by surface mining and require editing.
Geographic Names Updated

- arenas
- auditoriums
- bridges
- cemeteries
- city and town halls
- convention and conference centers
- courthouses
- fire stations
- golf courses
- hospitals
- libraries

- museums
- police stations
- post offices
- prisons
- schools
- shopping centers
- stadiums
- summits
- theaters

USGS funding updated 20 GNIS cultural feature classes, including 3,773 features identities
Zoom to **Geographic Name**

- Morgantown
- Morgantown Bible Church
- Morgantown Chinese Missionary Alliance
- Morgantown Christian Academy
- Morgantown Church of Christ
Status of County GIS Surface Parcel Management
January 2012

GIS Program Definition:
- Seamless countywide parcel map files
- Geo-referenced to a common coordinate system
- Linked to an external database via the property identification number
- Continual maintenance of parcel files
- Digital surface tax maps published according to state guidelines

Data Source: WV Department of Tax and Revenue
Map Created by WVGSTC, 1/17/2012
Parcel Web Map Service

WVGISTC Web Map Service

Web:  http://services.wvgis.wvu.edu/ArcGIS/rest/services
ArcMap: services.wvgis.wvu.edu/ArcGIS/services
Parcel Query
Parcels Availability for Web Map Service

Surface tax parcels provided by counties

For viewing purposes only
Address Labels as Reference Layer
West Virginia Site & Street Locator Services

- Build Reference Data
  - Extract data from SAMS
  - Create statewide point and street reference files
- Build Locator Services
  - Publish WV Site (point) and WV Street Locator Services
  - Update and enhance address locators
- Search Addresses
  - Customized Applications (WV Flood Tool)
  - Search by individual address
  - Search by Table

Geocoding Services created from WVDHSEM Statewide Addressing & Mapping System
Zoom to **Address**

- **Full Address**
  - 1900 Kanawha Blvd. East, Charleston, WV, 25305

- **Multi-line Address Input**
  - **Street**: 1900 Kanawha Blvd. East
  - **City**: Charleston
  - **Zip**: 25305

- **Locate Address**
Search on Address

Address Match with WV Site Locator

Search on Address
Other Framework Data Notes

- **Statewide Roads**
  - Major Roads from WV DOT
  - Local Roads from Census 2010

- **Boundaries (county, municipal)**
  - WVAGP sponsored BAS training in 2012

- **Land Cover**
  - WV DNR/NRAC created new land cover from 2011 NAIP. Published on Data Clearinghouse.

- **Elevation**
  - WVDEP/WVU NRAC have collected LiDAR for 96% of southern coalfields.
    - Coverage and Metadata: [http://tagis.dep.wv.gov/lidar](http://tagis.dep.wv.gov/lidar)
    - Download from WV View: [http://www.wvview.org](http://www.wvview.org)
  - WV DEP created aggregate hillshade Web map service
  - WVGISTC created 10 ft. contour Web map service

Framework data layers are often published as Web map services.
Future Geospatial Goals

- Publish new geospatial data, web services, and mapping applications
- Expand training and educational programs for WV GIS Community
- Develop applications for mobile devices
Questions???

Kurt Donaldson
WV GIS Technical Center
kdonalds@wvu.edu
(304) 293-9467