Using GIS Data and GPS Mapping to Expedite Area Recovery from Natural Disasters
Who is this guy?

Thomas B “Toby” Sanford

• GIS Manager for GTPDD
  13 years

• Bachelors Degree from Mississippi State University
  Geology

• Masters Degree from Delta State University
  Geospatial Technologies
Who is this guy?

• I have overseen the mapping and readdressing of 6 Counties and 15 municipalities

• From the addressing projects, I have done;
  1) School Bus Routing
  2) Trash Truck Routing
  3) Corrected Voter Rolls
  4) Helped Tax Assessors
  5) Corrected Web Map Data
  6) Too many to name!!
Who is Golden Triangle?

A nonprofit organization formed in June 1971 to improve and enlarge economic development and civic improvement in 7 counties within the state of Mississippi.
Mississippi
Planning & Development Districts
Who is Golden Triangle?

Counties include:
- Choctaw
- Clay
- Lowndes
- Noxubee
- Oktibbeha
- Webster
- Winston

The goal of the organization is to assist local units of government and small businesses with highly specialized areas that fall outside of its range of expertise.
Who is Golden Triangle?
Services Offered

A variety of services are offered via GTPDD to the counties we serve. These include:

• Support for Senior Citizens
• Human Services to Promote Independence for Individuals
• Pharmacy Support
• Planning Services for communities and small businesses
Planning Services Division

- Economic & Community Development
- Geographic Information Systems
- Utility Services
- Small Business Loans
- IT Support
Equipment Used

SUB-METER
HEMISPHERE GPS

YUMA
TRIMBLE
Solo-field Mapping software
Equipment Used
Geographic Information Systems

Map all structures in our counties and cities to true coordinates.
Coordinates

- LATITUDE & LONGITUDE
  - LATITUDE 33.311899
  - LONGITUDE -89.173092
- dd.ddddd
- dd dm.mmm
- dd mm ss.sss
- USNG
- UTM
1. Go out and map a County and City to all structures true coordinates.

2. Create a good street network using the official county road register making sure all roads have the correct name and spelling.

3. Make sure that each road is in the correct location spatially and that it is properly center-lined.
Why Map?
Ensuring County (Or governing body) Receives Revenue Due

- Using the solid waste billing database and the physical addressing database, the county can locate all residents that are not being billed by the solid waste department
- In Webster County, MS the 911 addressing located 946 residences that were not receiving a solid waste bill.

$113,520 was saved per year for the County Tax Payers
Direct Savings to School Districts

By re-routing the City / County school busses we were able to save the school district, and City / County tax payers

$85,000.00 per school year  (Fuel Savings Alone = $3,092.27)
City/County Geo-Database

- Some layers are created from the field mapping, some exist and can be acquired from USGS, MARIS, etc. and all can be utilized to put all the pieces of the puzzle in place.
- What do these things do for a community?
  1) Correct voter roll problems
  2) Correct Address Errors
  3) Routing of city services such as trash, school bus, fire truck, and police
  4) Maintenance on roads and city services become easier to manage and know where the problems are
Use for 911 Emergencies

We go a step further and re-define the county addresses using the 911 National Standard

- Address every 5.28 feet
- 5280 feet = one mile
- 1000 addresses per mile
- Address 1000 is one mile from the beginning of the road

Faster response time for police, fire and EMS
Card Front

NEW ADDRESS NOTIFICATION

Structure Type: Wood Frame
Your New Address:
474 Old Cumberland Rd
Maben, MS 39750

GTPDD
PO Box 828
Starkville
MS 39760

OR CURRENT RESIDENT
Rt 2 Box 485
Maben, MS 39750

If you notice any error or have questions, contact us at 888-324-9000. gis@gtpdd.com
PUT YOUR NEW ADDRESS ON MAILBOX AND HOUSE
HELP EMERGENCY PERSONNEL HELP YOU

Card Back

IMPORTANT
Your Postmaster will notify you of the effective date of address change shortly. From that date on, you will receive mail by your existing or new address for a period of ONE YEAR. After one year, your rural route address will be obsolete and only your new physical street address will be used for delivering mail.

ORDINANCE ON POSTING OF DESIGNATED NUMBERS
The Board of Supervisors of the County of Webster, Mississippi, do ordain, as follows (excerpt):
The person in charge of any dwelling or structure to which a physical address has been assigned shall within 30 days, after receiving the date of address change notification from the Postmaster, affix/display the physical address number (reflective) in a conspicuous place where the height of the number(s) is not less than 3 inches so as to be visible from the street. Mailbox must have address on both sides. Remove other numbers.

When a structure is occupied by more than one business or family unit, each front entrance must display a separate number. For structures not visible from the street, or no mailbox is located beside the driveway, a sign or number post should be erected, where the number may be displayed either vertically (top down) or horizontally to remain visible at all times from the street with no obstructions or vegetative growth blocking the view.

PENALTIES: Failing to affix the physical address number within the 30-day period shall be subject to a fine of not less than ten ($10) dollars per day, after 30-day period.
For details/questions on Ordinance, call your Supervisor at 258-4831.
IF YOU NOTICE ANY INACCURACIES IN NAME, ADDRESS OR PICTURE, CONTACT: 888 324 9000 or gis@gtpdd.com

GOLDEN TRIANGLE
Planning and Development District, Inc.
Make your own map

It's easy to make your own map. Just follow these steps:

1. Choose an area.
   Pan and zoom the map to an area or search by its name or address.

2. Decide what to show.
   Choose a Basemap then Add layers on top of it.

3. Add more to your map.
   Add map notes to draw features on the map.
   Display descriptive text, images, and charts for map features in a pop-up.

4. Save and share your map.
   Give your map a name and description then share it with other people.
Recovery for Natural Disasters

F4 Tornado hits
Winston County, MS

April 28, 2014
After the Storm
Emergency Recovery Process Begins

Mississippi Governor
Phil Bryant
Mayor - Will Hill
EMA Director – Buddy King
MEMA Director – Robert Latham
Senator – Roger Wicker

Congressman – Greg Harper

GOLDEN TRIANGLE
Planning and Development District, Inc.
Documentation of Damage

Digital images with Geo-location data
Devastation
Before and After Documentation

ADDRESS: 134 Armstrong St
STRUCTURE: BRICK
ADDRESS TYPE: RESIDENCE
OWNER:
PARCEL OWNER: MCDANIEL MARY HUGHES ESTATE
PARCEL ID: 141220301 0300100
DAMAGE: DESTROYED
TOTAL VALUE: 37475
PERCENT LOSS: 100%

COORDINATES:
LATITUDE: 33.108761295609997
LONGITUDE: -89.04722372099998
SUPERVISOR: 3
ROAD NAME: ARMSTRONG ST
COMMENT:

GOLDEN TRIANGLE
Planning and Development District, Inc.
Results of Having GIS Information

• 646 Smart Images (photos with GPS data embedded) taken within 1.5 days
• Direct impact to Winston County budgets known within 24 hours
• Paperwork completed and filed with MEMA/FEMA within 48 hours
• Request for funds processed completely within 28 days
• Currently, this event is the fastest storm-recovery response in history within the State of Mississippi

NOTE: One year later, other counties affected by storm are still trying to get necessary documentation needed for FEMA reimbursement
## Financial Impact

<table>
<thead>
<tr>
<th>DAMAGE</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESTROYED</td>
<td>295</td>
</tr>
<tr>
<td>MAJOR</td>
<td>81</td>
</tr>
<tr>
<td>MINOR</td>
<td>102</td>
</tr>
<tr>
<td>AFFECTED</td>
<td>168</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>646</strong></td>
</tr>
</tbody>
</table>

| CASUALTIES    | 10    |

Loss Calculated from Tax Roll*

$32,212,137.00

Loss at 20% added to total

$38,654,564.40
Apply for grant money to support GIS mapping in county

GTPDD began mapping Winston County

GIS Mapping completed

Tornado hits Winston County, MS

Visit to area to document damage using MapSight

Data & maps turned over to county and MEMA/FEMA

“If you need the GIS data and images, and you don’t have it... it’s too late!”
Questions?
Thank you!

Toby Sanford
GIS Manager
GTPDD
Phone - 662-324-7860
tsanford@GTPDD.com