

# Success Through Innovation and Adaptation

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# The Mission of the Office of Transportation Data(OTD)

- Collection, Quality Assurance and Reporting of the States roadway and transportation data.
  - Official Department State Wide LRS
  - Traffic Count Data
  - Road Inventory Database
  - Annual HPMS Report as well as various other State and Federal Reports

# The Mission of the Office of Transportation Data

- Mapping
  - Official County Series Maps
    - 159 County Maps produced at least every 5 years by State Code
  - Official State Highway Map
    - Provide GIS line work and project management and coordination with Department of Community and Economic Development
  - Various specialty maps for internal customers in the State government

# The Problem at the Macro Level

- Shrinking Budgets
  - Inability to replace retiring staff and/or the institutional knowledge they possess.
  - Inability to do field based manual road inventory data collection
- Increased Data demands by internal and external customers
  - Increased accuracy and quality expectations as the Departments data is more efficiently distributed by the Enterprise
  - Increased data requests from FHWA

# The Problem at the Micro Level

- Staff
  - 3 years ago OTD had a staff of ~85 full time employee's and 6 to 12 in house contractors
  - Geographically dispersed over 7 District Offices one of which was the main office in the Atlanta Area
  - Technical Skill levels and savvy are very low, many old school cartographers and manual data collectors
  - Very little exposure to GIS and relational database concepts
  - Low trust in leadership and low morale, toxic relationship between some State staff and in house contractors

# The Problem at the Micro Level

- The Software and the Hardware
  - Arc 9.3.1
    - No service packs or patches
    - Highly accessorized with third party extensions
    - Glitchy and problematic
  - Low power workstations
    - 2GB Ram
    - Low speed CPU's
    - Small Monitors

# The Problem at the Micro Level

- Production workflows
  - 159 individual County based file geodatabases
  - Many copies of the same dataset on many different local hard drives as well as the common share
  - No standard base map layers (County and city boundaries, imagery)
  - Geographically dispersed work groups
    - Road Inventory doing manual data collection across 7 offices in the state and updating a tabular very non-normalized road characteristic database.
    - Main GIS Centerline (not routes) Creation with new roads creation triggered by notification from locals GPS data, and State System Revisions
    - Route Features created and calibrated to the Road Characteristic data base by the Information Technology Outreach Services(ITOS) at the University of Georgia.

# The Innovation and Adaptation

- Staff
  - We now have a staff of 34 State Employee Positions and 9 In house contractors
  - One central office where all Staff are located
  - Rising technical skill levels and educational levels
    - A growing number of staff now have specialized undergrad or grad degrees in GIS or a related discipline.
  - Extensive effort has been made by leadership to increase transparency, demonstrate consistency and cultivate a professional work environment held together by trust.



# The Innovation and Adaptation

- The Hardware and the Software
  - Arc 10.2.1 fully patched
  - Virtualization of Production workstations
  - Citrix Xen desktop
  - Early feedback from users is good, most issues revolve around SDE database and output of scratch datasets

# The Innovation and Adaptation

- Production Workflows
  - One statewide fully edge matched SDE feature class in a maintenance database that get pushed to the published database quarterly
  - Versioned editing with established Post and reconcile protocol
  - Standard base map layers
  - Road Inventory Data collection, GIS Centerline Digitization and Route Feature Creation all happen with the same editor, with route features calibrated to the as digitized shape lengths.

# Key Paradigm Shifts

- Data Collection
  - Past- Manual GPS and visual field based inspection/collection
  - Now- Office based imagery data collection centerline digitization, data mining department systems for open to traffic projects. Utilization of Video Log for ground truthing the Federal Aid Eligible system and QA of Centerline digitization and route lengths against high accuracy GPS and as driven lengths

# Key Paradigm Shifts

- Road measures
  - Past-Road Characteristic Data Base measures driving the GIS Route Feature M-Values
  - Now- As digitized shape lengths calibrate the route features, route features calibrate the Road Characteristic database

# Key Paradigm Shifts

- Staff
  - Past-Large number of specialized lower tech staff
  - Now-Small number of high tech cross trained staff supplemented by a flexible group of in house consultants.

# Key Innovations

- Acquisition of talent (Very important)
  - Relationship building with GIS/Geography Programs at local Universities and Colleges
- Key Service Contracts and Partnerships with Vendors-
  - Transcend Spatial Solutions, Pathway Services Inc. (Video Log), ESRI, Transmetric (Traffic Server)
- Automation of Production Tasks Utilizing Python Scripting and ArcGIS Model Builder
  - Example OTD'S Route Building Process

# Next Steps

- Local data partnering
  - How do we get Map-21 Mire data items on the local roads
- Inter-department Partnerships
  - Pavement Management
  - Safety
  - Asset Managent
- Edge matching to neighboring states
- Route Features for Divided Roads in the decreasing
- Roads and Highways implementation
- New and improved Road Characteristics Database
- Documentation and Knowledge Transfer
  
- Questions, Comments?
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