Webinars in Retrospect

A GOTUG UPDATE

Jeremy Aycock
GOTUG co-Chair
Web/Mobile GIS in Transportation

- Usage Increasing in GIS Workflows
- Growing Market for Web-based GIS Tools
- DOTs are large and geographically spread out
- Sharing GIS data state-wide has historically been challenging.
- Provide an easy way to access and visualize transportation data
Transportation Agencies have Differences

- Funding emphasis
- Staffing/Workforce Organization
- Size of Coverage
- Data Architecture (GIS and Non-GIS)
Agencies Share Similar GIS Challenges

- Data “Division” Within Transportation Divisions and Units
- Storage of Public Data
- Sharing of Geographical Information
- Field data collection
- Emergency preparedness/Disaster Response
- Need for COTS solutions/Minimal customization
What Is GOTUG?

► AASHTO sponsored User Group
► Focused on the use of Web/Mobile-based GIS tools
► Brings transportation professionals, GIS, and engineering disciplines together
► Forum to exchange ideas about web/mobile-based geospatial applications in transportation
► Created as a response to rapidly increasing pace for development of web-based GIS tools and applications

What does GOTUG Do?
GOTUG History

- UPlan- First AGOL data portal for State Transportation
- Began in September 2015 as an AASHTO Innovation Initiative (A.I.I)
- A.I.I. assembled a working group under the AASHTO Standing Committee on Planning, Subcommittee on Data
GOTUG History

- First phase of UPlan A.I.I. initiated by John Thomas at UDOT
- UDOT team assisted 14 other states with web mapping portals
- Second phase of UPlan targeted 23 additional states, led by John Farley at NCDOT
A.I.I working group was tasked to providing ongoing support

Given a Name:

Geospatial Online
Transportation User Group

Now part of the Committee on Data Management and Analytics
The lead states involved in the AASHTO Innovation Initiative UPLAN II team have established a User’s Group for ongoing development of the benefits of comprehensive GIS-based online collaboration platforms. These platforms serve as decision tools that allow data sharing (open or selective) among various units within an agency as well as between agencies, with other transportation agencies nationwide and with the public for the purposes of advancing transportation priorities.
Key People

Co-Chairs

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AASHTO Liaison

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GOTUG Webinars

- Hosting began September 2015
- Hosted Quarterly
- First Wednesday of March, June, September, December
- 1:30 pm EST

Geospatial Online Transportation User’s Group (GOTUG)

Webinar 13: March 6, 2019
1:00 PM – 2:30 PM Eastern
GOTUG
Webinar Goals

Provide a platform for DOTs and business partners to showcase implementation of web-based GIS tools to meet business needs*

► Project Planning
► Infrastructure Maintenance
► Asset Management
► Environmental Compliance
► Traffic Operations
► Project Delivery

*AASHTO and GOTUG do not endorse any brand of products.*
Past Webinars

Available on our GOTUG Website:

https://gotug.transportation.org/
Show & Tell

Overview of Notable Past Webinars
One of the initial adopters of the AASHTO Innovation Initiative

Discussed the motivations and challenges concerning deployment of AGOL Environment for ITD

- Data was stagnant
- Business units wanted up-to-date data
- Other units didn’t know or understand what AGOL/IPLAN could do for them
AGOL architecture and configuration initially contracted out

After transfer to IDT GIS Group
- Worked with contractors to create ETLs
- Encouraged usage at the district levels
- Refreshed IPLAN’s image
After a short period of promotion to the rest of ITD:

- More business units “jumping on the bandwagon”
- AGOL Collector Integration
- Increased transparency with the public and other agencies
- Benefits for collaboration within districts and headquarters
- Data more accurate and up-to-date
Sept 2015- Track A Plow: Eric Abrams, Iowa DOT

http://trackaplow.iowadot.gov

- Using GPS Integrated Sensors on Snow plow trucks
- Web-based Real-Time tracking applications
- Data Collected:
  - Speed
  - Location
  - Blade Position
  - Material Applications
  - Air and Pavement Temp
  - Photos
Sept 2015- Track A Plow: Eric Abrams, Iowa DOT

Analysis Benefits:
- Fleet Management
- Storm Response
- Material Usage Tracking
- Traffic Response
- Blade Longevity
- Plow Speed
Sept 2015 - Track A Plow: Eric Abrams, Iowa DOT

Implementation Challenges:

► Maxing out AGOL
► Real-time Edit Configurations
► Web map design
Sept 2015 - Track A Plow: Eric Abrams, Iowa DOT

Public App Was a Hit:

We have 217 plows out in eastern Iowa where snowy roads are causing some travel troubles. This is U.S. 16 just east of Charles City today (11/24/2014 at 8:27 a.m.) Check out the current plow location and photos from the windshield of some of the plows at http://trackaplow.iowadot.gov. You can find road conditions and incident reports at www.511ia.org.
June 2016: AGOL Collector
Shawn Blaesing Thompson: Iowa DOT

- Project began in 2010 with limited success
- Necessary Functions:
  - Disconnected Editing
  - Performance and connectivity
  - Cloud based versus transactional databases
  - Ability to collect and store photos
  - Related table functionality
  - Skip Logic – If/Then questions in form
  - Data driven forms
  - Multi-User Functionality
  - Device Flexibility
  - Consistent look and feel over multiple “apps”
  - Ease of use
Mobile Collection Tools Tried

- Fulcrum App
- PDF Maps App
- GeoCortex
  - Several pilot projects in trail
  - Web-based
- ESRI Collector App / ArcGIS Online
  - Already deployed several applications at Iowa DOT
- Transcend Spatial
- ESRI Survey123
  - Beta software in 2016
June 2016: AGOL Collector  
Shawn Blaesing Thompson: Iowa DOT

► Eventually went with Collector/iPad deployment

► Challenges Faced
  ► Setting Up Databases (schema, domains, porting existing data)
  ► Incorporating Subtypes and Skip Logic
  ► Pushing and Pulling Data to Oracle DB
  ► Working with Attachments
  ► Enterprise AD authentication
June 2016: GeoCortex
Mark McCart: Iowa DOT/HTNB

- Developed by Latitude Geographics
- Powerful Framework Built on ESRI Platform
- COTS Solution: Serves as an alternative to custom development
- Provided Mobile App Framework/HTML5 Viewer
- Accepted Hybrid Development Model
Mobile app:

- Customizable data entry forms (i.e., cascading combo boxes)
- Integrated geoprocessing services during data collection
- No need for dedicated app development team
June 2016: GeoCortex
Mark McCart: Iowa DOT/HTNB

Geocortex Essentials Web Viewer

- Application provided Online Editing
- Customizable/Extensible
- Integrates with AGOL and Portal
Outlined Recent Completed Projects:

► Utilizing ArcGIS Collector for Multiple Projects
► Using AGOL to Manage NCDOT Remnant Properties
► RoadNC Product Suite creation (SLD Viewer and analysis tools)
Demo of Collector Projects:

- Core Sample Collection
- Pavement Treatment Collection
- Hurricane Matthew Storm Damage/Assessment Collection
Asset Inventory Presentation:

- Online Maintenance of Asset Data
- Material Suppliers Regulation
- Markers and Striping Inventories
- Statewide project to build an inventory and condition assessment of:
  - Retaining walls, noise walls, and large pipes (over 48”) on all state-maintained roads
  - Maintenance pipes (48” and below) and inlets on primary roads
Identifying problematic barrier designs

Understanding the funding picture for their replacement

Using GIS to identify, score, and prioritize barrier by risk and exposure
From 2006-2016, UDOT’s Barrier Assets

- Were hit by nearly 40,000 vehicles
- Estimated to have prevented 177 fatal and 829 serious injury crashes
- Estimated $3.63 billion reduction in crash costs
Mandli Lidar Collected 10,927 barrier and guardrail assets on state routes

Data collected:
- Location, route, milepost, type, high end treatment, low end treatment, post type, height, and offset
Identified major barrier issues after initial collection:

- Texas Turndowns
- Cable Loop (Jersey Barrier, retrofits)
- Funding Gap (Current funding is $1.5-4 million per year short)
Online GIS Benefits:

- Roadview Explorer imagery
- Remote Inspection using Web Maps
- Prioritized Barrier Replacement by overlaying AADT and Speed Limit
  Scoring = Barrier Risk * Speed Risk * AADT Risk
- Incorporated Story Maps into Workflow
AGOL Usage Dashboard

- Uses REST services and applications from ArcGIS Online to look back at services and how they performed
- Identify usage patterns and how popular certain services or applications are
- Used internally for Metrics Tracking
AGOL Dashboards in Transportation
David Runneals : Iowa DOT

FME Dashboard

- Looks at statistics from FME Server such as runtime, number of jobs ran, number of failed jobs, etc on a daily basis.
- Dashboards can be integrated for showing system performance
MARC 2 Dashboard

- Expansion of Track a Plow Application
- Allows the public to view plow cams in their area (county, school district, or route).
- In Production and Publicly Promoted
We’ve Also Hosted Vendor Presentations
How to Get Involved with GOTUG

- Sign-up for Webinar Invites at https://gotug.transportation.org/
- Present your Unique or Challenging Web/Mobile GIS Project at a GOTUG webinar
- We are Actively Soliciting Presentations
Webinar Ideas for the Future

- OPEN SOURCE WEB/MOBILE GIS SOLUTIONS
- OPEN DATA PORTALS
- AGENCY/VENDOR PROJECT PARTNERSHIPS
- EMERGENCY RESPONSE
- YOU TELL US!
THANK YOU!

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