ArcGIS Online for a Local Survey Control Network

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ArcGIS Online for a Local Survey Control Network

• Why we established a local control network

• How we designed, implemented and maintain the network

• How we use interactive web maps to provide control info

• Closing comments and Q&A
2001 LOJIC Partners funded creation of a local survey control network

The business case for the control network…

- Foundation support for Louisville Metro Land Development Code/Subdivision Regulations
- Streamlined land records maintenance workflows
- Increased spatial accuracy of local land records
- Consistent horizontal/vertical control for photogrammetry
- Elevation references for NFIP CRS Programs
- Resource for local surveying, engineering, construction projects
- Annual budget for maintenance…recovery, resets, densification
Local Control + Plat Regulations = Better Land Records
Control for Photogrammetry

- New orthos and plan/topo updates every 2-3 years
- Eliminates $50,000+ for photo control on each project
- Permanent control meets photogrammetry requirements and numerous other needs
2001 LOJIC Partners funded creation of a local survey control network

The design of the control network...

• Incorporate GPS monuments set for original 1986 photogrammetry
• Inventory/inspection of existing interior control for suitability/reliability for use in the new network
• Approximate 2-mile grid of control; goal that new developments be within 1 mile of control monuments
• Control set in inter-visible pairs (primary and azimuth)
• Control database (50 attributes/point) maintained in LOJIC GIS and summarized on description sheets
Attachment 3: County Contract Map

Proposed 2-Mile Geodetic Control Network for Jefferson County, Kentucky

Map Key
- Existing GPS Monuments
- Control Monuments
- Noncritical Exist Control
- Critical Exist Control
- New GPS Monuments
- Exit HARP Monuments
- 4-Mile Master Control Grid
- City of Louisville
LOJIC Control Network consists of…

- 269 control monuments…
- 95 existing monuments set by others (USGS, NGS, KDoT, MSD)
- 174 set by LOJIC GIS (GRW, JTL)
LOJIC Control Network as a Public Resource

- Interactive web map…initially desktop only, ultimately mobile
- Navigation by address, intersection, parcel ID, control ID
- Library of control creation and maintenance documentation
- Static map of latest control locations and status
- Source for control descriptions and photos

ArcIMS ➔ ArcServer ➔ AGOL
Survey Control MXD + Web Service

https://ags1.lojic.org/arcgis/rest/services/LOJIC/SurveyControl/MapServer
Survey Control Web Map on ArcGIS Online

Added layers
- Survey Control service
- Labels for Survey Control monuments
- Address labels
- Parcel lines

Configured pop-up
Survey Control Web App using Web AppBuilder

Added Widgets
- Print
- Info
- Basemaps
- Legend
- Measure
- Simple Buffer

Search
- Local Addresses
- Local & Federal monuments
Survey Control Web App
Demo
LOJIC Survey Control
Our control network is our persistent “ground truth”

Confirmed business case for our local control network…

✓ Put teeth in our local subdivision regulations
✓ Our parcel data are cleaner and more accurate going in
✓ No more one-off field collection projects for photogrammetry
✓ Contributes to CRS flood insurance rate reduction
✓ Recognized, accessible GIS resource for surveyors
✓ Annual maintenance built trust and confidence in the network
✓ Interest from sister counties in expanding the network
✓ Increased communications with our surveyor community
✓ Web-based GIS (ArcGIS Online) is the way to “free the data”
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Thanks for listening.
Any questions?