GIS in the Field
Catch Basin to Pipeline Data Collection

NEAR C
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Outline

• ArcGIS Online
• Field Data Collection
• Pipeline Example (Demo)
• Infrastructure Example (Demo)
• Conclusions
• Questions?
Introduction

SGC Engineering
Westbrook, Maine

www.sgceng.com

150 +/- employees

8 on GIS/Data Management Team

Member of Lloyd’s Register group
ArcGIS Online

“ArcGIS Online is an online, collaborative web GIS that allows you to use, create, and share maps, scenes, apps, layers, analytics, and data.”

How many people have an ArcGIS Online Organization?
How many people actually use their ArcGIS Online Organization?

How we use our Organization?
• Data Sharing and Storage
  • Web Maps
    • Explorer for ArcGIS
    • Collector for ArcGIS
  • Web Viewer and Apps
    • Focused
    • Project Centric
Field Data Collection

There are many different solutions for collecting digital data in the field.

We use:
- Trimble GPS / Data Collector
- EOS Arrow / Collector for ArcGIS
- Garmin GLO / Collector for ArcGIS

Esri has other Apps for specific needs - Survey123, Workforce, etc.

Why Collector for ArcGIS?
- Fully supported App we do not have to maintain
- Completely integrated into our workflow using ArcGIS Online
- Scalable based on the data we need collected
- Data/database driven
Field Data Collection - Accuracy

Positional Accuracy – sub-centimeter to meter
  Trimble GPS = 8 millimeters to 20 centimeters
  EOS Arrow = 1 centimeter to 30 centimeters
  Garmin GLO = 3 meters

Accuracy dependent on Project
  Pipeline – Construction
    Staking – workspace, pipe centerline – high accuracy
    Materials Tracking (Tally) – location of pipe outside of ditch – low accuracy

Infrastructure – Stormwater
  Mapping Location – catch basin, manhole – high accuracy
  Inspections – general location – low accuracy
Field Data Collection - Hardware

Hardware – need to understand your workflow and the data you need to collect – *What would work best for you?*

Deciding Factors

- Operating System
- Size, weight, and ergonomics
- Functionality requirements
- Cost

Options

Laptop, Tablet, Handheld, Phone

We selected a Handheld

- Ergonomics
- Functionality - need of a barcode scanner
Pipeline

Tasks – Construction

Staking – accurate location; simple attributes – GPS Data Collector
  • Points collected, processed, and placed in a feature class in ArcGIS Server
  • Reviewed and analyzed
  • Used in Web Viewers and Web Apps

Tally – general location; detailed attributes – Handheld/Collector
  • Entering information off of pipe – barcode scanner
  • Points collected and placed in a feature class in ArcGIS Online
  • Reviewed and analyzed
  • Used in Web Viewers
Pipeline - Demonstration

Staking

Project Viewer
- Web App built using WebApp Builder
- Web Map contains Map Services from ArcGIS Server
- Viewer to display and query project data
- Used by staff and the client

Operations Dashboard
- Data from features classes aggregated by SQL View
- Simple but powerful displays of data
- Displays project progress by Task
- Used by managers and the client
Pipeline - Demonstration

Tally Collector

- Form – feature class driven
- Establish fields and domains
- Data uploaded to ArcGIS Online
- General location and pipe attributes
- Photos – document pipe labeling

Tally Viewer

- Displays Tally data collected in the field
- Used by staff and client to ensure correct information is collected before pipe is placed in the ground
Infrastructure

Task – Catch basin inspections

Inspection – general location; detailed attributes – Tablet
  • Data collected in ArcGIS Online
  • The status of the inspection is tracked by watershed
  • Used in Web Viewer and Operations Dashboard
Infrastructure - Demonstration

Inspections

Collector

- Form – feature class/table driven
- Establish fields and domains
- Data uploaded to related table in ArcGIS Online
- General location and catch basin inspection attributes

Management Viewer

- Displays catch basin status using symbology changes
- Used by management to determine inspection progress for each watershed
Conclusions

Understanding what needs to be collected in the field is the first step.

The feature class/database used for the data collection is the key to a successful project.

Mobile solutions are abundant:

- ArcGIS Online gives you a platform from which to work with.
- Collector is scalable to meet a variety of needs.
- The hardware exists to support these efforts.
Questions?

David W. Pollock
Project Manager
david.pollock@sgceng.com
www.sgceng.com