Improved Routing Efficiency Using Out-of-the-Box ArcGIS Online

Jeremy Manny, GIS Technician
Clayton County Water Authority

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Clayton County, Georgia

- South of Atlanta
- Atlanta International Airport populates the Northwest portion
- One of the smallest counties (143 miles$^2$), but densely populated (~275,000 residents)
- Six incorporated cities completely within
Clayton County Water Authority

- Serving Clayton County since 1955
  - Services 76,000 Customer Accounts
- 370 Employees
- 2013 GAWP Collection System of the Year Award for Large Systems
- 2011-2015 GAWP Collection System Gold Award
- 2015 GAWP Collection System Platinum Award
• Constructed Wetlands
  - wetlands for the recycling of treated wastewater
  - Recycling over 10 million gallons per day of reuse water
  - Sustained water supply through 2007 drought
A Need for Automatic Routing

- Transient population
- 800 customer accounts/day
  - Connects/Disconnects
- Manual route creation
  - 10 Meter Technicians
  - 1 hour per technician/day
  - ~50 hours/week
Old Process

- Daily list generated by CIS (NorthStar)
  - Supervisor divides Cycle and Walk (Meter System Breakout).
  - Assigns Cycle to Meter Technicians
- Each Meter Technician uses assigned Cycle from NorthStar to build their routes
  - Google Maps and the Addresses within their file
  - Knowledge of Clayton County roads and Customer Accounts
- Mid-day additions are added to end of route or wherever convenient.
Why ArcGIS Online?

- Automates an otherwise lengthy, manual process
- Route efficiency
- Simple user interface
- Self Reliance
- Current Longtime Esri Shop
Daily list generated by CIS (NorthStar)
- Supervisor divides Cycle and Walk (Meter System Breakout).
- Assigns Cycle to Meter Technicians

Exports the Master list to a CSV file

The Master CSV file is geocoded into ArcGIS Online template map
- Meter feature class
- Geocoded meters
ArcGIS Online Process (Meter Technician)

- Meter Technician filters Master file by EMPLOYEID
  - Exports to Cycle CSV file
- The Cycle CSV file is geocoded into ArcGIS Online template map
  - Meter feature class
  - Geocoded meters
Plan Routes Tool

- Each Meter Technician generates a route for their designated stops
  - “Analysis” > “Use Proximity” > “Plan Routes”
- Plan Routes variables are determined
  - Number of vehicles
  - Number of stops
  - Total time spent at each stop, etc…
- Route with Designated Stops layer is created
Generate Directions

• Next, Turn-by-Turn Driving Directions for designated stops is created
  - “Route to all Features”
  - Generates directions and creates another layer in the web map
31.34 miles • 1 hour 20 minutes

1. Start at Route1

2. Go west on Battle Creek Rd toward Southlake Pkwy
   0.2 mi

3. Turn right on Southlake Pkwy
   1.66 mi 4 minutes

4. Turn right on Jonesboro Rd (GA-54)
   1.39 mi 3 minutes

5. Turn right on N Lake Dr
   0.29 mi 1 minute

6. Turn right on Clayton State Blvd
   0.03 mi

7. Continue
   0.02 mi

8. Turn left on N Lee St
   0.12 mi

9. Turn right on Caldwell Dr
   0.13 mi 1 minute
Meter Tech / Master Web Maps

- Meter Technician saves updated web map
  - Route, Directions, Stops layers
  - Layers are pulled into Master Web Map by the Supervisor

- The “Plan Routes” and additional web maps processes are continued for the number of Meter Technicians for that given day.
En Route

- Meter Technicians perform designated tasks
  - Connects/Disconnects, Other
- Edit the Meter point to “Completed”
  - Meter re-symbolizes from red to green
- If a new stop is to be added (Customer Call):
  - “Route to all Features”
  - Adds Account number to end of the list
  - Generates new directions
  - Moves it up the directions list
Master Map Meters

Contents
- Completed Meters
- Not Completed Meters
- All Assigned Stops
- All Routes

Legend:
- Meter Technician 1
- Meter Technician 2
- Meter Technician 3
- Meter Technician 4
- Meter Technician 5
- Meter Technician 6
- Meter Technician 7
- Meter Technician 8
- Meter Technician 9
- Meter Technician 10

Topographic

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Results

• Inefficient process made Efficient
• Time Saved
  - ~15 minutes/day route creation
  - ~38 hours saved/week
  - More work, faster
• Accountability
  - Master Map with Completed Meters
Questions?

Further Questions: jeremy.manny@ccwa.us