



Advanced Mobile Workflows for Work Orders Using ArcGIS

Pamela Kersh



Workforce for ArcGIS

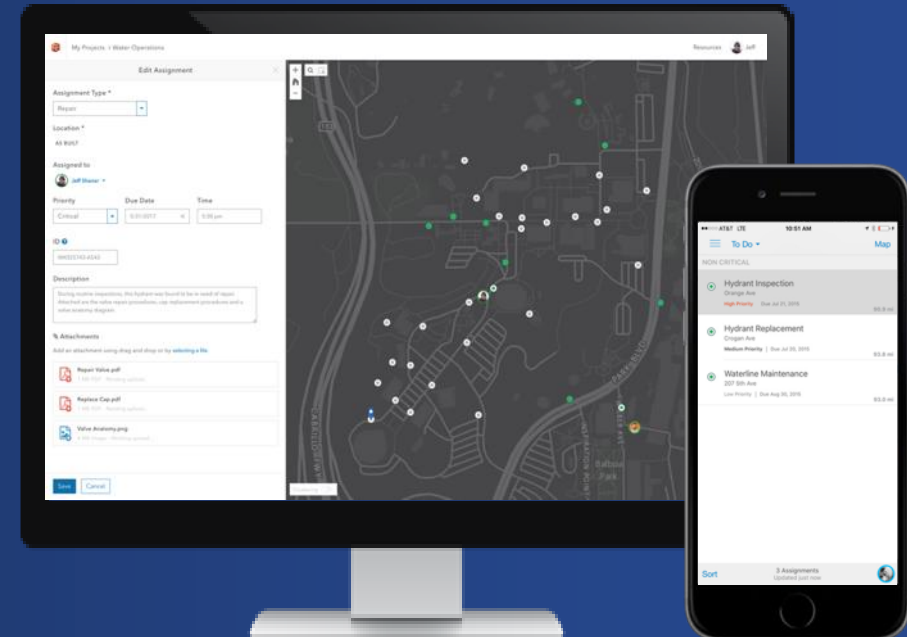
Coordinate field work



Plan, coordinate field work

Location Awareness

Optimize field operations



Workforce for ArcGIS

Integrate ArcGIS Apps to streamline field workflows

- Manage To-Do list, report location and work status
- Navigate directly to your work
- Capture and update data:
 - Map: Collector for ArcGIS
 - Form: Survey123 for ArcGIS
- Complete field work



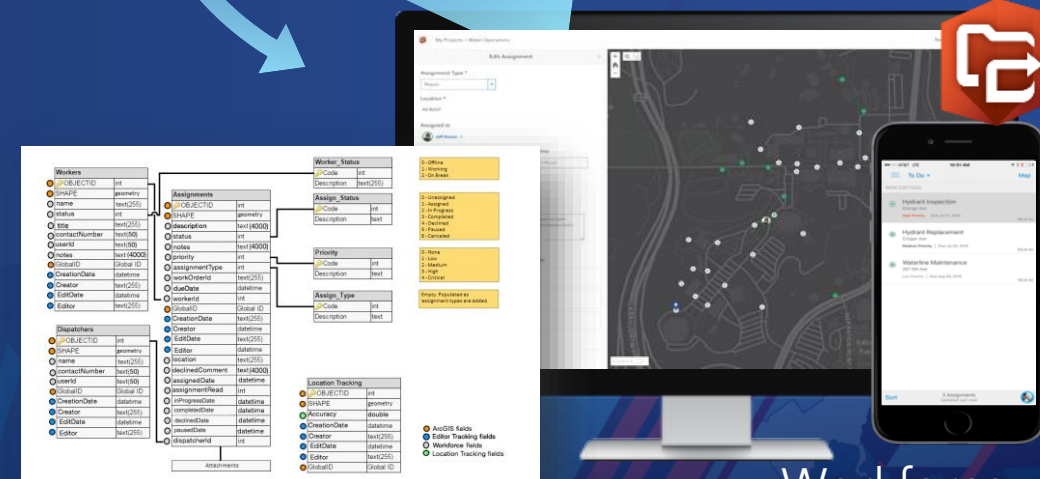
Workforce | Opportunities

- **Small organizations**

- A location solution to replace paper-based workflows
- Works seamlessly with ArcGIS apps for the field

- **Mid-to-large size organizations**

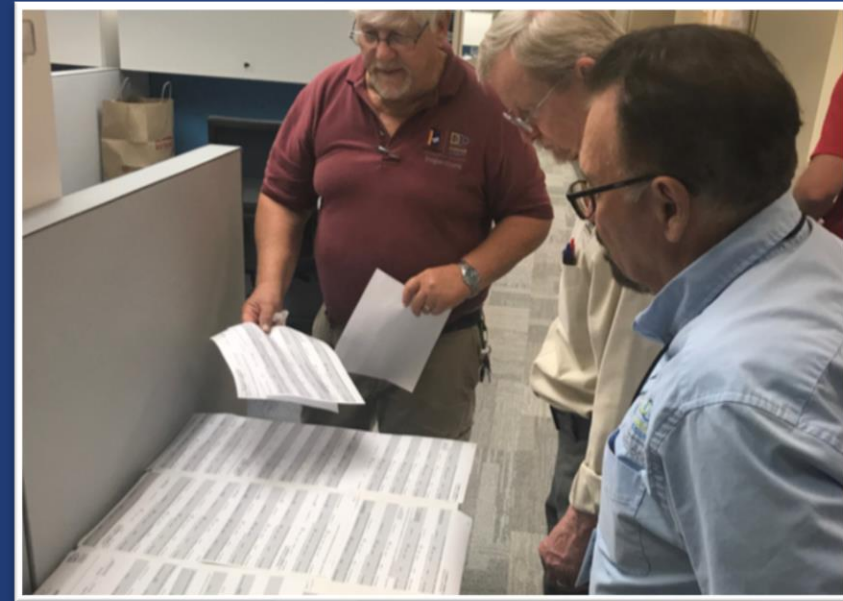
- Complement work management systems
- Integration Python scripts on GitHub
- Partner opportunities
 - System Integrators
 - Customized solutions



Workforce

Scenario: Durham, NC

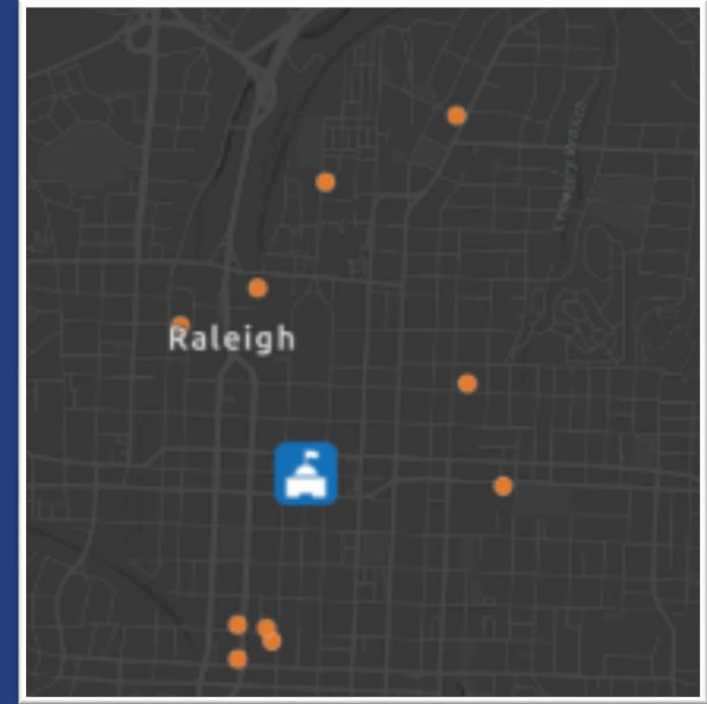
- Distributing assignments
- How do I get my assignments?



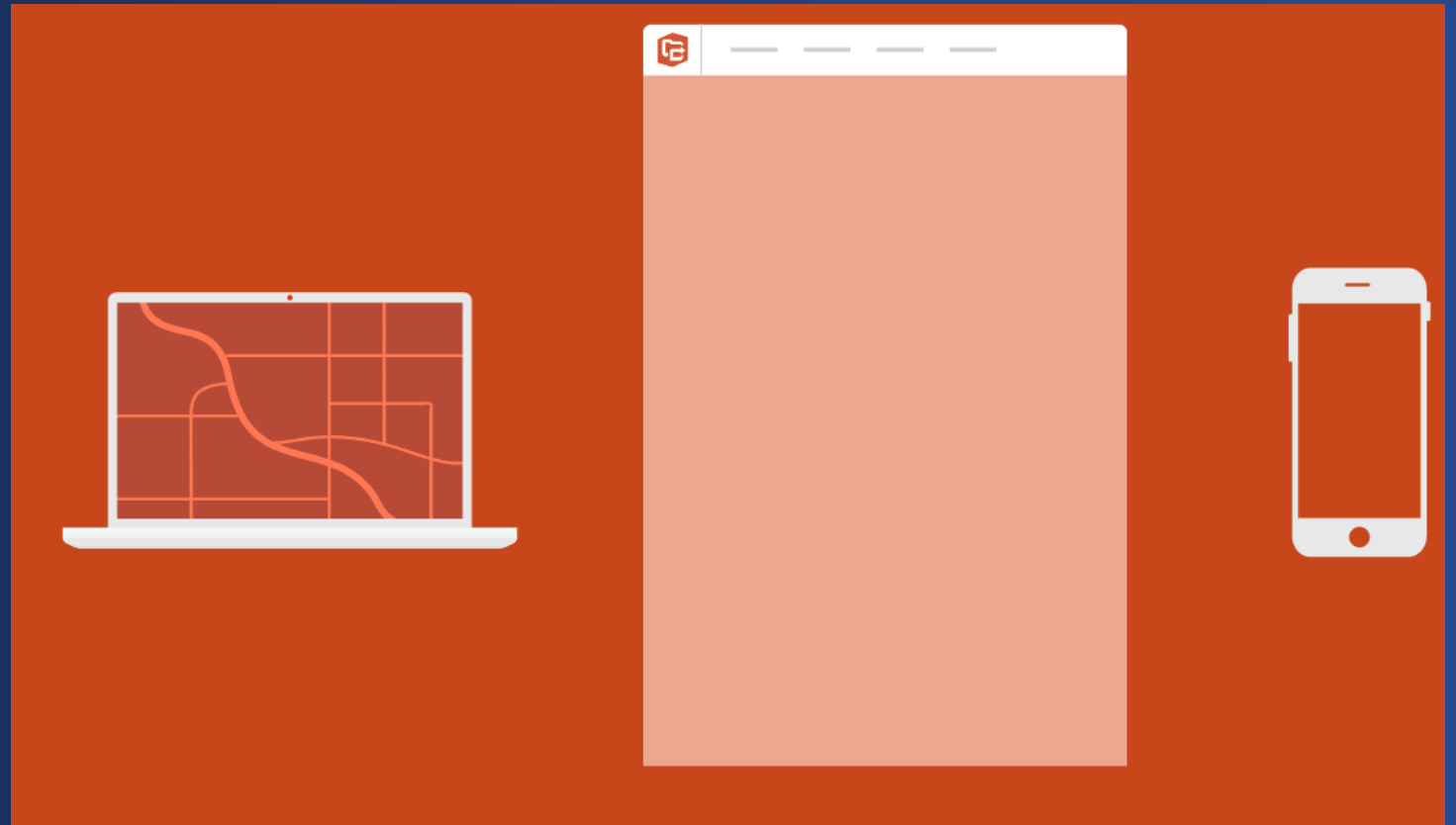
3 – 6 Employees | 1 HR Daily

Common Scenario:

- Points on a map that need to be assigned
- Territory system vs. vehicle routing problem
- Want to have optimized stop order
- Want assignments and routing on a mobile device
- Want organization control vs. chaos



Demo



Esri on GitHub:

Optimally Creating and Assigning Work Orders Based on Routes

A pretty common task for organizations is optimally distributing work orders. Suppose our organization needs to perform restaurant/brewery inspections in the Greater Portland, Maine area. Let's assume that there are around 25 breweries that need to be inspected and that there are 5 workers that are available to do the inspections. As the supervisor of these workers I'm going to develop a Python Script (well, Jupyter Notebook in this case) that will optimally create distinct routes for my workers, create assignments at the hydrant locations, and then assign the assignment to the correct worker.

Scenario 1: Creating and Assigning Assignments From Planned Routes

In this scenario we are going to generate one route per worker. Each route will have up to 5 breweries (stored in an existing Feature Layer) that must be visited and inspected. For each of the generated routes, we'll see which breweries need to be inspected and create assignments for them. We'll also assign the assignments to the worker that will be driving that route.

Connecting to the Organization and Workforce project

First let's connect to our GIS and fetch the Brewery Inspection Workforce Project.

```
In [1]: import pandas as pd
import arcgis
from arcgis.gis import GIS
from arcgis.apps import workforce
pd.options.display.max_columns = None

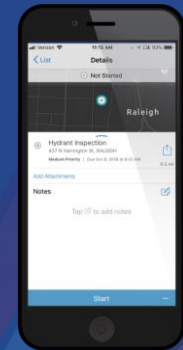
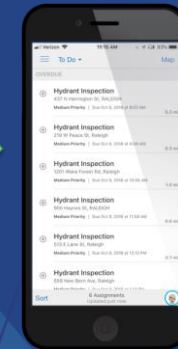
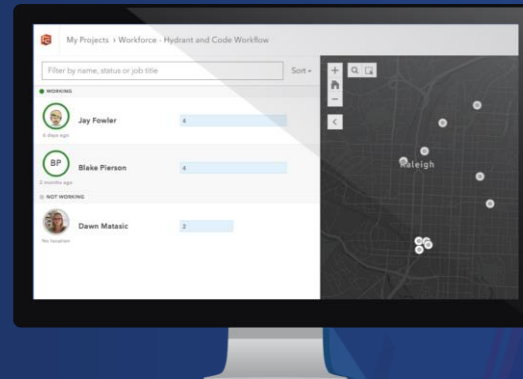
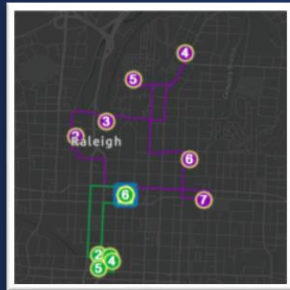
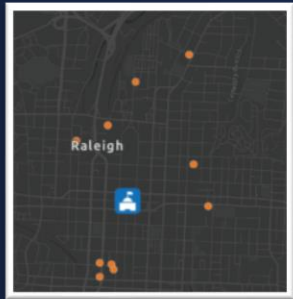
gis = GIS("https://arcgis.com", "workforce_scripts")
project = workforce.Project(gis.content.search("type:'Workforce Project' Brewery Inspections")[0])
```

Enter password:

Link: <https://bit.ly/2FyFRNO>

Workflow Details

- **User Friendly**
 - Takes point
 - Splits into routes with optimized stop order
 - Pushes routes into Workforce for ArcGIS
 - Assigned with Optimized stops



Durham, NC – Idea Starter 2018



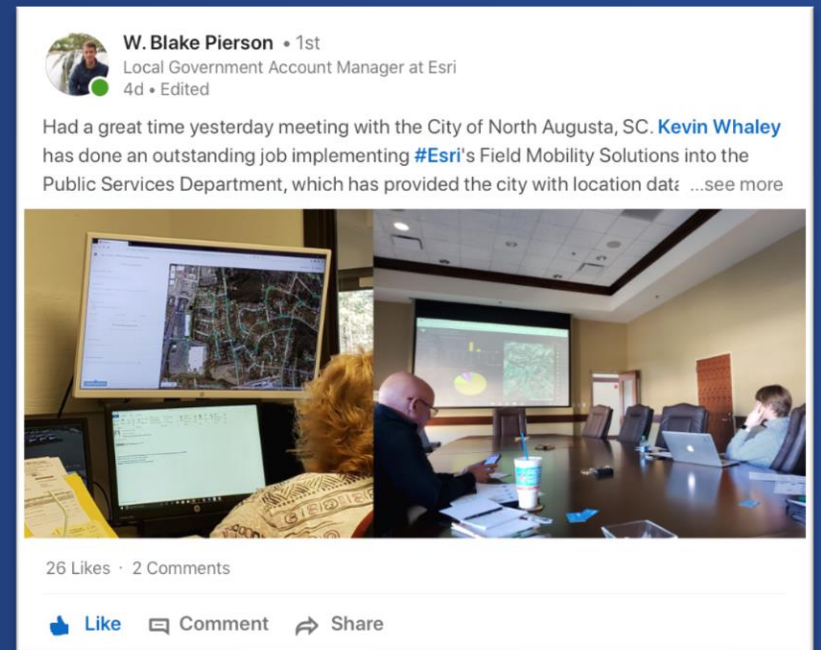
Link: <https://bit.ly/2CH6dLg>

ROI

- City of Durham – cost savings ~ \$62,520 annually/labor costs
 - Reduced Carryover inspections
 - Equitable distribution of assignments
 - Reduced time spent distributing work
 - Communication with public about inspector
 - Who's my inspector?

ROI

- **North Augusta, SC**
 - Reduced response time from 33 hrs to 8 hrs
 - Saves fuel and mileage
 - Reduced trips to operations office from 4 to 2
- **Clayton County, GA – Saving 7.5 hrs per week**



Uses Cases:

Inspections

Work Orders

Building Permits

Volunteer Outreach

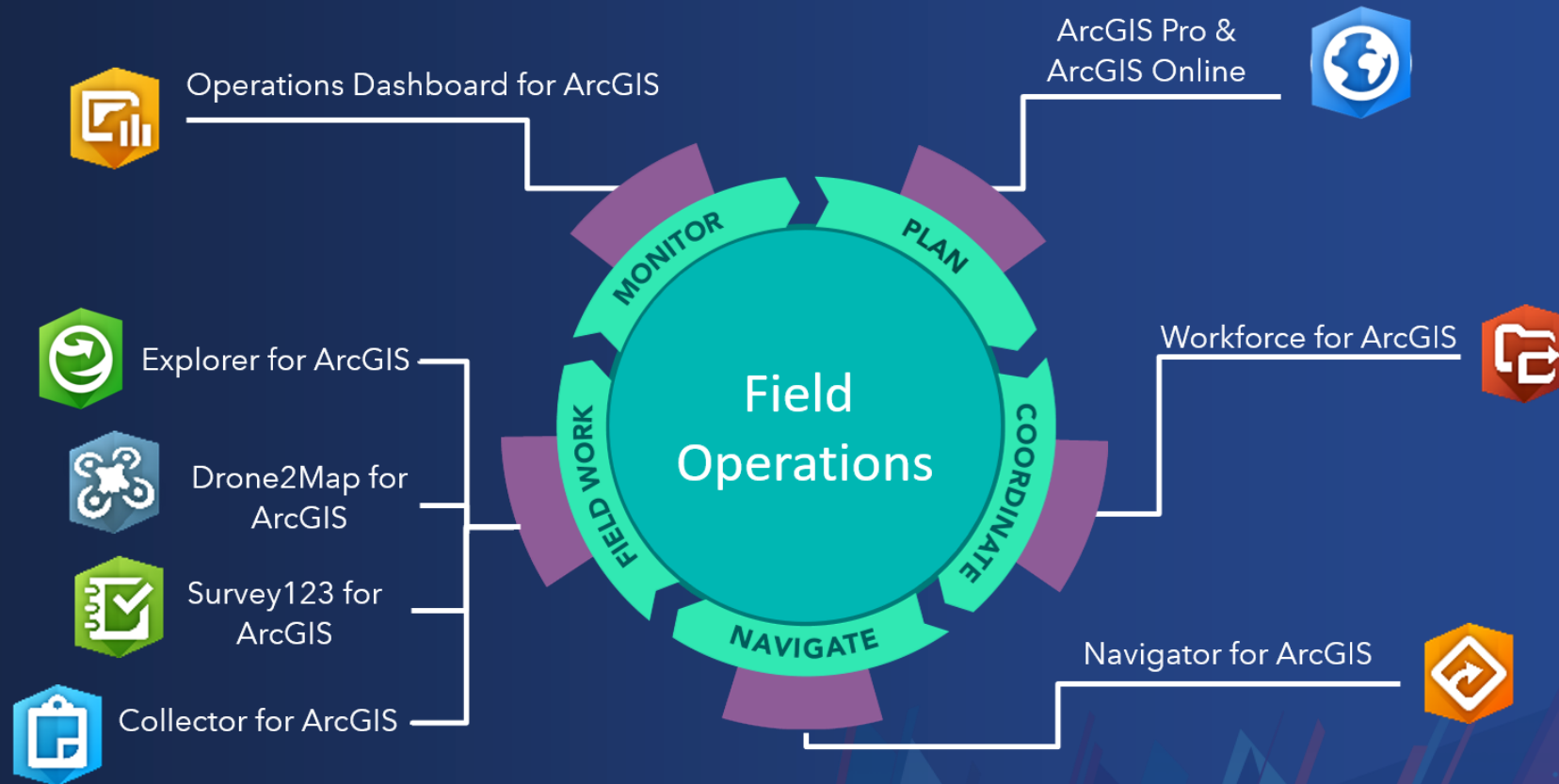
Public Works

Code Enforcement

Assessors

Etc...

Field Operations and ArcGIS





esri

THE
SCIENCE
OF
WHERE