Workflow Efficiencies with ArcGIS Collector & Web App Builder

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DuPage County  Illinois
GIS Division
DuPage County Illinois

- Approximately 30 Miles West of Downtown Chicago
- Second Largest Populated County in Illinois
- 246.26 Sq. Miles
  - Covering 9 Townships with 39 Municipalities
  - 218 County Maintained Roadways
  - 336,000 Parcels
Making Workflows Work

Understand the Old Ways

- Department noticed and understood the need for efficiency
- Current Sign Inventory Application MS2 was not meeting their needs
- County DOT was looking at a High End Costly Sign Application
- Contacted GIS for Cost Effective Solution
Making Workflows Work

*Understand the Old Ways*

- We documented their inefficient workflow
- Pulled & Reviewed Work Forms
- Reviewed Old Application
- Human Action in Workflow
- Consolidated Sign Types
- 142 Types Placed in Subtypes
CALL IN LOCATE (JULIE Web Ticket)

Dig #

Date/Time CLEAR

Stakes 0 1 2

White  Pink

ED MORGAN

Bob Nickrand

E-31

E-39

H-110

SIGN SHOP/SNWCMDC

NEED TO FABRICATE

Date 14/15

County Highway

75th St

Location ψ Modeff Rd

*Sign(s)

KR

Facing: North South East West Corner: N/E S/E NW SW O/H

Side of Street: North South East West Median - S/S N/S of intersection

Job Task

Relocate

Straighten: Post / Sign (Twisted, Reset, Update)

Cut Brush Back (Sight Distance Issue)

New Installation

Remove: Sign / Post / Reflector

Band / Rebolt or Lag to Post

Replace: Sign / Post / Reflector (Knockdown, Graffiti, Missing)

Accident Police Report #

Pictures Taken Yes No

Crews

North Side E-39

South Side E-31

Key & Paul

<<Crew Members>>

Date & Time Repaired (1/16/16) 9:50 A.M.

New Signs Used 0 1 2 3 4

New Posts Used 0 1 2 3 4

Comet Inch 42 Inch 8 Fort 10 Fort 11 Fort

Pieces of Telespar 0 1 2 3 4 5 6

Signs in Assembly 0 1 2 3 4 5 6

Posts in Assembly 0 1 2 3 4 5 6

Reflectors Y G R 0 1 2 3 4

Notes
Old MS2 Sign Application
### Organizing Sign Types

<table>
<thead>
<tr>
<th>GENERAL SUBTYPE CATEGORY</th>
<th>NEW SIGN CODE</th>
<th>NEW SIGN CODE DESCRIPTION</th>
<th>CROSSWALK to existing sign code values and input from Ed and John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>D11-1</td>
<td>BIKE ROUTE</td>
<td>SAME</td>
</tr>
<tr>
<td>Destination</td>
<td>D12-2</td>
<td>CAR POOL</td>
<td>SAME</td>
</tr>
<tr>
<td>Destination</td>
<td>D-2</td>
<td>STREET NAME OVERHEAD</td>
<td>SAME</td>
</tr>
<tr>
<td>Destination</td>
<td>D-1</td>
<td>DIRECT W/ ARROW</td>
<td>NEW VALUE</td>
</tr>
<tr>
<td>Destination</td>
<td>D3-1</td>
<td>STREET NAME</td>
<td>CONSOLIDATE EXISTING: D3-1, D3-SN, D-3SN, D-3SN1</td>
</tr>
<tr>
<td>Destination</td>
<td>D3-10H</td>
<td>OVERHEAD</td>
<td>SAME</td>
</tr>
<tr>
<td>Destination</td>
<td>D3-2</td>
<td>ADVANCE STREET NAME</td>
<td>SAME</td>
</tr>
<tr>
<td>Destination</td>
<td>D9-2</td>
<td>HOSPITAL</td>
<td>SAME</td>
</tr>
<tr>
<td>Information</td>
<td>I1-1100</td>
<td>POPULATION SIGN</td>
<td>SAME</td>
</tr>
<tr>
<td>Information</td>
<td>I-GUIDE_CULT_REC</td>
<td>GUIDE SIGNS, FORST PRESERVE, WHT ON BR</td>
<td>NEW VALUE (consolidate existing): I-GUIDE_CULT_REC, Recreation and Cult Guide</td>
</tr>
<tr>
<td>Information</td>
<td>I-GUIDE</td>
<td>GUIDE SIGNS, SOC SEC., SEC STATE</td>
<td>NEW VALUE (consolidate existing): I-GUIDE, Guide</td>
</tr>
<tr>
<td>Information</td>
<td>I-7</td>
<td>METRA SIGN/TRAIN STATION DIR</td>
<td>SAME</td>
</tr>
<tr>
<td>Information</td>
<td>IO-1104</td>
<td>JURISDICTION SIGN</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M1-1</td>
<td>INTERSTATE MARKER</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M1-6</td>
<td>COUNTY ROUTE MARKER</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M3-14</td>
<td>BEGIN FOR COUNTY ROUTE</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M4-6</td>
<td>END FOR COUNTY ROUTE</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M6-1</td>
<td>ARROW</td>
<td>SAME</td>
</tr>
<tr>
<td>Marker</td>
<td>M6-3</td>
<td>ARROW</td>
<td>SAME</td>
</tr>
<tr>
<td>Z-ARCHIVE</td>
<td>N/A</td>
<td>N/A</td>
<td>CONSOLIDATE EXISTING: 109, 120, ALL, D99, S41102</td>
</tr>
<tr>
<td>Object Marker</td>
<td>OM3-1</td>
<td>OBJECT MRK LFT</td>
<td>CONSOLIDATE EXISTING: OM3-1, OM-3L</td>
</tr>
<tr>
<td>Object Marker</td>
<td>OM3-R</td>
<td>OBJECT MRK RT</td>
<td>CONSOLIDATE EXISTING: OM3-R, OM-3R</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-10</td>
<td>LFT/RT TURN SIG</td>
<td>CONSOLIDATE EXISTING: R10-10, R10-100</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-11A</td>
<td>NO TURN ON RED</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-15</td>
<td>TURNING VEHICLES YIELD TO PEDS</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-3</td>
<td>PUSH BUTTON TO CROSS</td>
<td>NEW VALUE - Includes all a, b, c, d, e - plaque</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-5</td>
<td>LFT TURN ON GREEN ARROW ONLY</td>
<td>CONSOLIDATE EXISTING: R10-5, R10-5V</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-6A</td>
<td>STOP HERE ON RED</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-7</td>
<td>DO NOT BLOCK INTERSECTION</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R10-9</td>
<td>DO NOT BLOCK DRIVEWAY</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R1-1</td>
<td>STOP HERE ON RED</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R1-2</td>
<td>YIELD</td>
<td>NEW VALUE</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R12-1</td>
<td>WEIGHT LIMIT</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R12-1-5</td>
<td>WEIGHT LIMIT 5 TONS</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R1-4</td>
<td>ALL WAY</td>
<td>SAME</td>
</tr>
<tr>
<td>Regulatory</td>
<td>R1A-1</td>
<td>TRUCK ROUTE</td>
<td>SAME</td>
</tr>
</tbody>
</table>
Main problem was that about 75% of paper copy forms need to be clarified by revisiting sign site
Completing or Correcting forms
Then updated into the MS2 Sign Application
DuPage County Street Sign Inventory and Maintenance Workflow

Public Notification

Crew Self-Reports

Call received from Public and Field Crew Staff to Back Office

Verification of Problem

Sign Crew is Assigned & Work Order Assignment is processed

Work Order Ticket is Generated

If Knockdown a Invoice is Generated, Back Office Staff Interpret information and adds incomplete information from forms to old Sign Inventory database

Tickets would have to go back out a be re-inspected to clarify changes in the information and data. Time consuming.

Crew Hand Writes Ticket Describing What Was Done, and or Replaced

Regular Annual Replacement
Making Workflows Work

*The Conversion Old to New*

- Conversion of old MS2 Database into a Geodatabase
- Set Up Useful Subtypes and Domains and relationship class within the Geodatabase
- Creation of ArcGIS Feature Service for remote editing
- Create users and content items within our ArcGIS online account for:
  - Field Crews
  - Back Office Staff
  - Supervisors
- Field Crews were issued Tablets
- Utilize ArcGIS Collector for Field Crew Users
- Utilize ArcGIS Web App Builder for Back Office Users
DuPage County Street
NEW
Sign Inventory and Maintenance Workflow

Work Order Ticket is Generated

Call received from Public and Filed Crew Staff to Back Office

Verification of Problem

Sign Crew is Assigned & Work Order Assignment is processed

Back Office Staff has access to Real-Time consistent accurate data coming in from the field. If Knockdown a Invoice is generated faster

Crew Using AR/Geos Collector: Log Repair or Replaced and other data real-time on location

Public Notification

Crew Self-Reports

Regular Annual Replacement

Citizen Reporter Application

Citizen Reporter Back Office Application
Live Demo
Sign & Pole Inventory
Making Workflows Work

What did we accomplish?

- Eliminated Paper Forms in the Field
- Eliminated Incomplete Data
- Reduced or Eliminated Back Office Data Input & Review
- Eliminated back and forth on data review and corrections sent out

Providing Faster Reliable Real-Time Data for DOT Staff.
Thank You

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Map Portal
http://dupage.maps.arcgis.com
Section Header

SUBHEAD INFORMATION