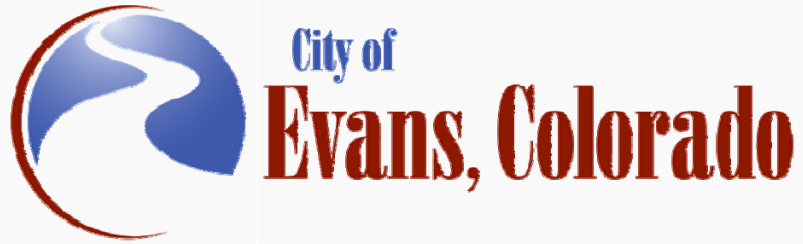


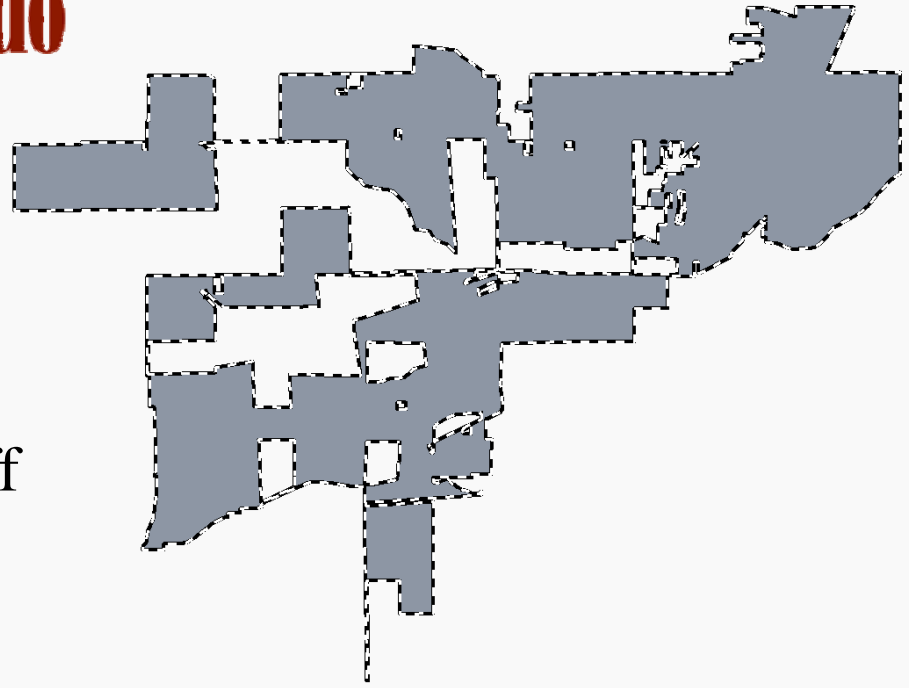


Accident Mapping in ArcGIS Online: Making the Search Simple

**Kalen Myers, GIS Analyst
City of Evans, CO**



- Northern Colorado
- 20,000 Population
- 110 Full-Time City Staff
- 1 GIS Staff



The Project

- Provide engineering department with accident data
- Traffic Signal Warrant Studies
 - Warrant 1, Eight-Hour Vehicular Volume
 - Warrant 2, Four-Hour Vehicular Volume
 - Warrant 3, Peak Hour
 - Warrant 4, Pedestrian Volume
 - Warrant 5, School Crossing
 - Warrant 6, Coordinated Signal System
 - **Warrant 7, Crash Experience**
 - Warrant 8, Roadway Network

Manual on Uniform Traffic Control Devices

- Accident data used for warrant #7



Accident Data

- 400-500 accident reports/year in Evans
- PDF format
- Location – address, block or intersection
- Coded values
- Overlay sheet is used to decode reports

G 01	<p>G. ROAD CONDITION</p> <table> <tr> <td>01. Dry</td> <td>08. Dry W/Visible Icy Road Treatment</td> </tr> <tr> <td>02. Wet</td> <td>09. Wet W/Visible Icy Road Treatment</td> </tr> <tr> <td>03. Muddy</td> <td>10. Snowy W/Visible Icy Road Treatment</td> </tr> <tr> <td>04. Snowy</td> <td>11. Icy W/Visible Icy Road Treatment</td> </tr> <tr> <td>05. Icy</td> <td>12. Slushy W/Visible Icy Road Treatment</td> </tr> <tr> <td>06. Slushy</td> <td></td> </tr> <tr> <td>07. Foreign Material</td> <td></td> </tr> </table>	01. Dry	08. Dry W/Visible Icy Road Treatment	02. Wet	09. Wet W/Visible Icy Road Treatment	03. Muddy	10. Snowy W/Visible Icy Road Treatment	04. Snowy	11. Icy W/Visible Icy Road Treatment	05. Icy	12. Slushy W/Visible Icy Road Treatment	06. Slushy		07. Foreign Material	
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DR 2447 (03/03/06) COLORADO DEPARTMENT OF REVENUE
STATE OF COLORADO TRAFFIC ACCIDENT REPORT
 MAIL TO: STATE OF COLORADO MOTOR VEHICLE TRAFFIC RECORDS DENVER, CO 80281-0018

AMENDED/SUPPL. UNDER \$1,000 COUNTER REPORT PRIVATE PROPERTY PAGE 1 OF 2 PAGES

CDOT Code INTERSTATE HWY STATE HWY CITY ST/CNTY RD

Case # 1600290

Date of Accident 01/07/2016
 Time (24 Hr) 1412
 Officer Number 145
 Officer Name PATROL OFFICER GARCIA
 Agency EVANS
 Agency PD EVANS PD
 County WELD
 County # 03

Number Killed 0
 Number Injured 0
 Location Route, Street, Road 3247 23RD AVE
 Miles Feet
 N S E W OF:
 At: At:

Date of Report 01/07/2016
 Agency Code 1600290
 Investigated @ Scene 1
 Total Vehicles 2
 District Number 2
 Public Property/Employee
 Photos Taken
 Railroad Crossing Related
 Const. Zone Related
 Highway Interchg. Related
 Bridge Related
 Traffic Unit # 1 or 2 Veh. Parked Bicycle Pedestrian Non-Vehicle Non-Contact Veh. Traffic Unit # 2 or 2 Veh. Parked Bicycle Pedestrian Non-Vehicle Non-Contact Veh.

Last Name First MI Last Name First MI
 Street Address Personal Phone Street Address Personal Phone
 City State ZIP City State ZIP
 Driver License Number CDL State Sex DOB Driver License Number CDL State Sex DOB

Primary Violation DUI CARELESS DRIVING CAUSED BODILY INJURY
 Violation Code Violation Number Common Code Violation Code Citation Number Common Code
 Year Make Model Body Type Year Make Model Body Type
 License Plate Number State or Country Color GRN License Plate Number State or Country Color
 Vehicle Identification Number Vehicle Identification Number
 Vehicle Owner Last Name First MI
 Address Same City State ZIP Address Same City State ZIP

Towed Due to Damage By: Towed Due to Damage By:

Trailer VIN# Trailer VIN#
 0 1-Slight 2-Moderate 3-Severe
 0 1-Slight 2-Moderate 3-Severe
 0 Undercarriage Undercarriage Undercarriage Undercarriage

Insurance Company None No Proof Exp. Date Insurance Company None No Proof Exp. Date
 Policy Number Policy Number

Owner Damaged Prop. Last Name First MI Address City State ZIP
 Owner Damaged Prop. Last Name First MI Address City State ZIP

TJ. # POS. RESTENO. SAFETY EQUIP. AIR BAG EJECT SUSPECTED INL. ALCOHOL/DRUGS SEV. AGE SEX NAME/ADDRESS

Approved By [Signature] I.D.# 132 Date 01/07/16

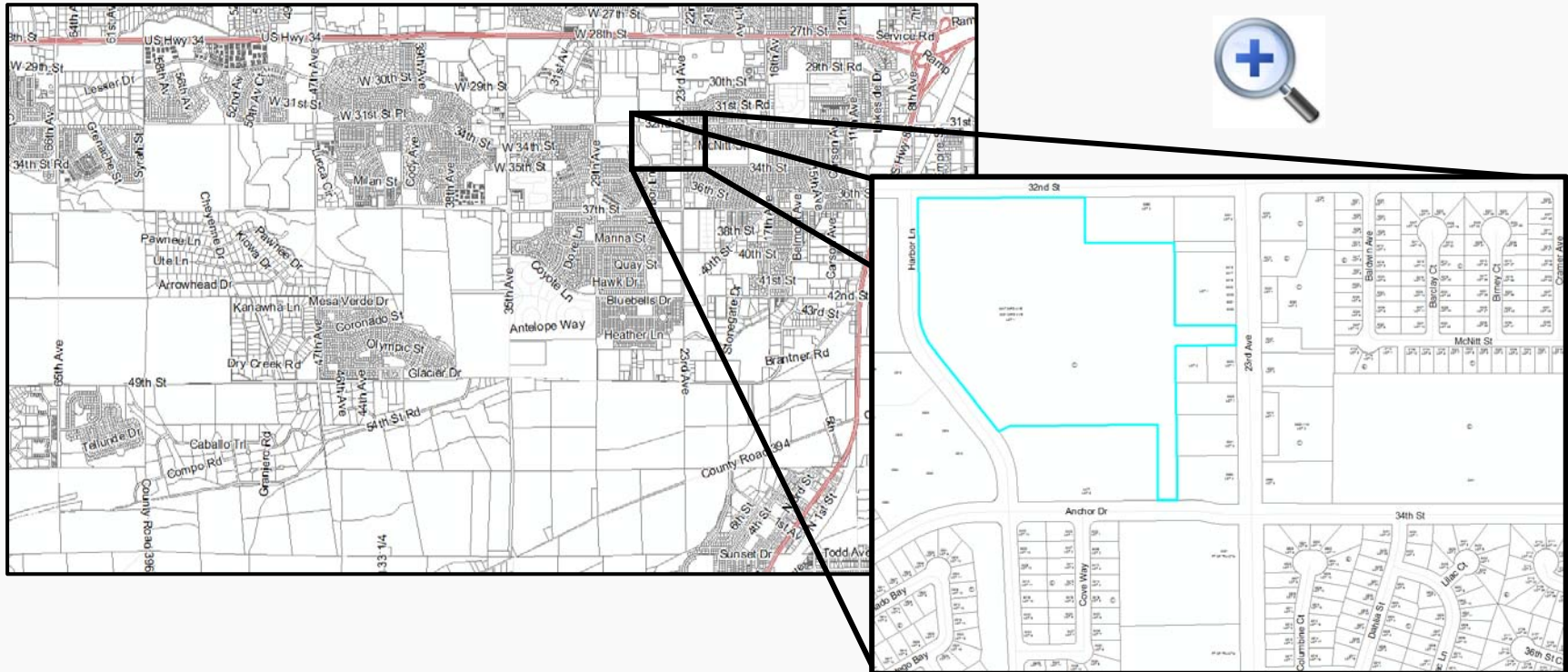
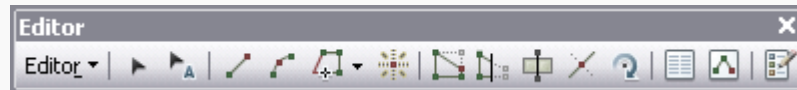


Feature Class Creation

- There are about 30 sections of a traffic accident report
- Attribute selection:
 - Number of people Injured
 - Number of Vehicles involved
 - Harmful Event Sequence, ex: overturning, mailbox
 - Driver Action, ex: impeded traffic, improper turn
 - Human Contributing Factor, ex: asleep at the wheel, DUI
 - Road Condition
 - Lighting
 - Weather
- Domains assigned to most fields
- Hyperlinks to PDF reports

Placing an Accident Point, ArcMap

- Must be familiar with the software
- Time-consuming if unfamiliar with the City




Challenges

- The deadline = 1 Month
- About 750 back-logged reports
- 20 hours of intern time...
 - Not an Evans resident
 - No GIS experience



Decision to use ArcOnline

- ✓ User-Friendly Interface
- ✓ Saves time
- ✓ Smart mapping
- ✓ Interesting web applications

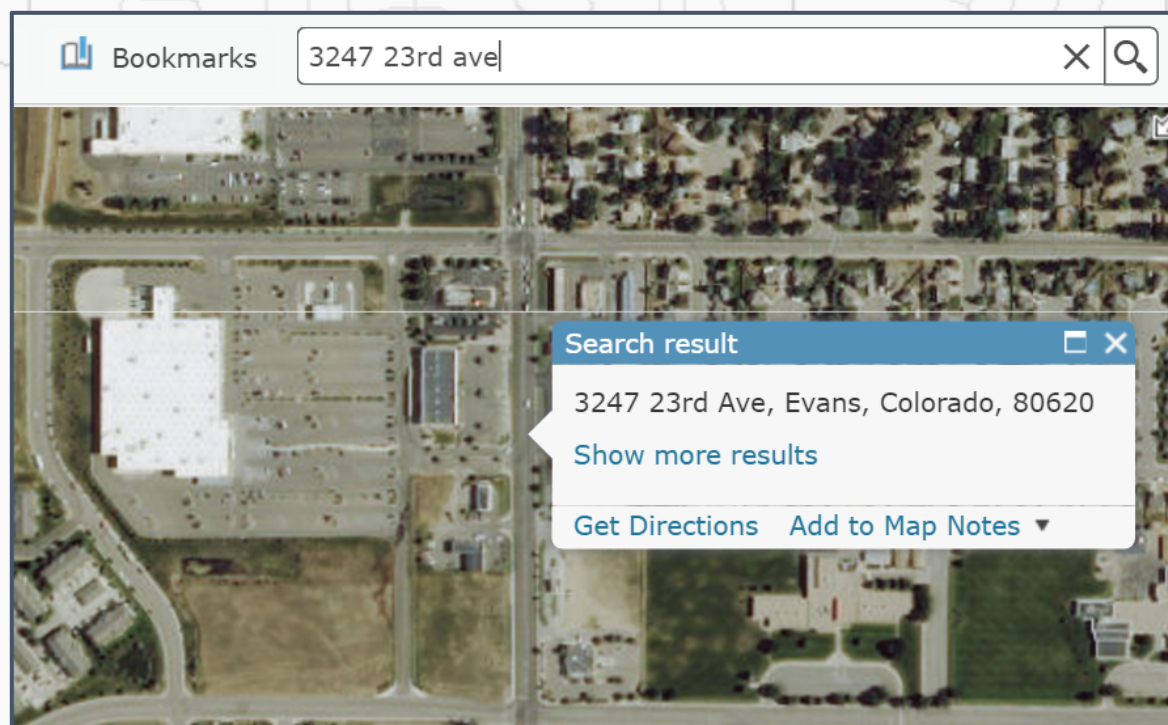


Traffic Accident Map
Evans Traffic Accident Map
Web Map by kmyers@evanscolorado.gov
Last Modified: February 26, 2016
★★★★★ (0 ratings, 0 comments, 109 views)

[Open](#) ▾ [Details](#)

Placing an Accident Point, ArcOnline

- User-Friendly interface means less training time
- Intuitive address search feature



Workflow

- Published a blank shapefile to ArcOnline
- Trained intern on data entry (10 minutes)
- Shapefile imported into geodatabase with domains assigned

Accidents_2015	
FID	245
CASE_NUM	1511866
DATE	August 24, 2015
NUM_INJURE	0
ADDRESS	
NUM_VEHICL	2
ROAD_COND	1
LIGHTING	1
WEATHER	0
ACTION	9
LOCATION	N
FACTOR	0.00
EVENT	8.00
ACCIDENT_P	NUM_VEHICL

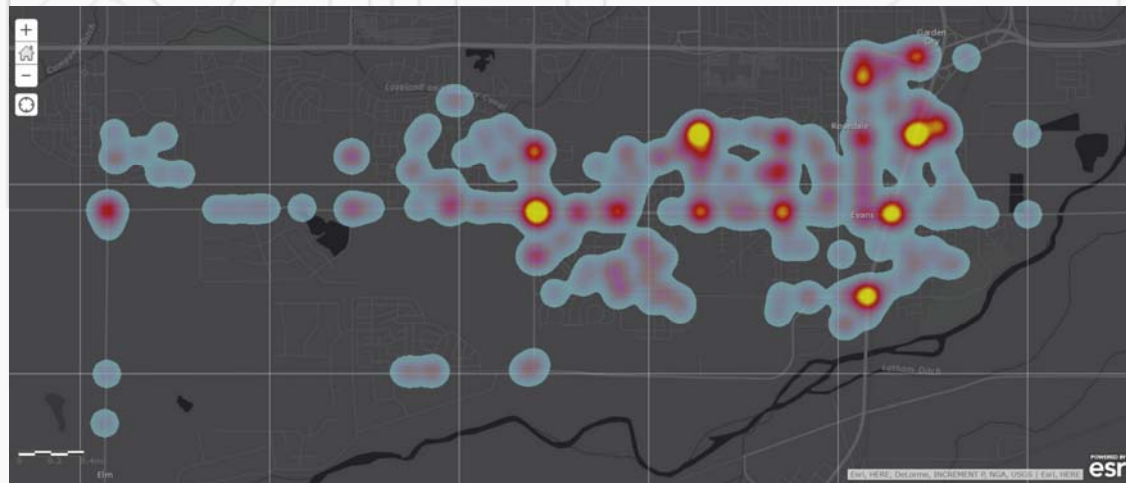


Field	Value
OBJECTID	270
Shape	Point
CASE_NUM	1511866
DATE	8/25/2015
NUM_INJURED	0
ADDRESS	<null>
NUM_VEHICLES	2
ROAD_COND	DRY
LIGHTING	DAYLIGHT
WEATHER	CLEAR
ACTION	OTHER IMPROPER TURN
LOCATION	ROADWAY
FACTOR	NO APPARENT CONTRIBUTING FACTOR
EVENT	FRONT TO SIDE

Identified 1 feature

Results

- 750 traffic accident reports were entered in 20 hours of intern time
- Traffic Accident data now searchable
- Traffic Signal warrant study completed by Engineering dept.





Considerations

- Simple yet effective
- I now prefer published feature services in ArcOnline over shapefiles
- How can we further improve this workflow?
 - Work with Police Department moving forward

A map of a residential area with several streets labeled: 35TH AVE, S 31ST AVE, W 29TH ST, 34TH ST, MONTEREY ST, ANCHOR DR, BOARDWALK, 37TH ST, BOR LN, and 23RD AVE. The map features several heatmaps with yellow and red centers, indicating high values or activity in those areas. A semi-transparent white box is overlaid on the map, containing the text.

Thank you!

Kalen Myers, GIS Analyst

City of Evans, CO

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