22,500 Traffic Signs.
750 Miles.
5 Months.
1 System.

Gwen Ford, GISP
GIS Analyst
Transportation Department

HIGH POINT
NORTH CAROLINA'S INTERNATIONAL CITY

THE TRIGGER:

2009 FHWA Retroreflectivity Requirements

May 2012 Revision

2014

Implement assessment/management method

only for regulatory & warning signs

2015

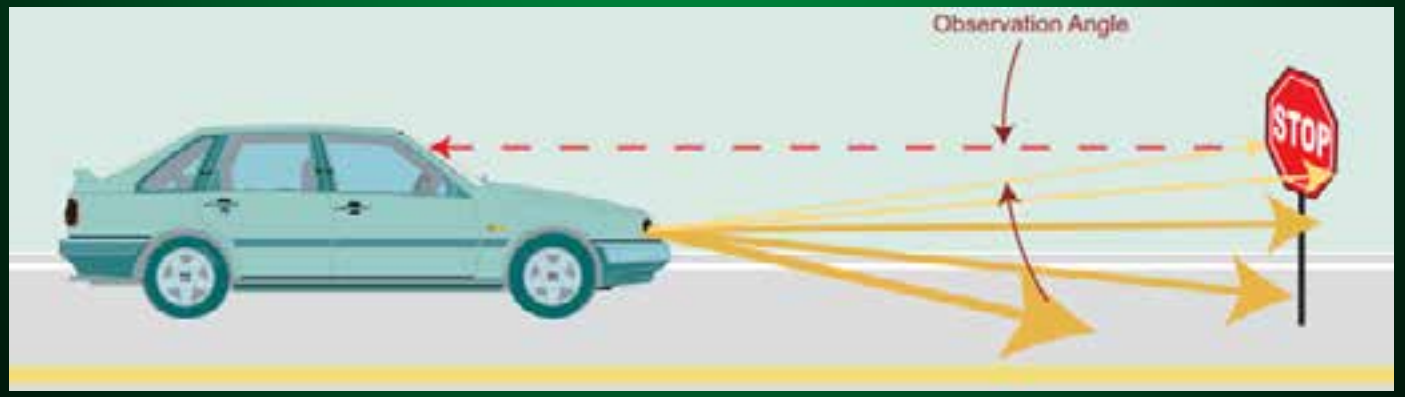
Replace all sub-standard signs (except street names)

2018

Replace all sub-standard street name signs

PREVIOUS MAINTENANCE METHOD

Authorized overtime to find substandard stop & yield signs using headlight illumination



But no management method in place to predict sign change-outs

Before we can manage our signs, we need to know what signs we have

HOW TO BUILD THE SIGN INVENTORY?

In-House vs Out-Source

- ESRI software & licenses already available enterprise-wide
- Inventory to be collected and maintained by sign shop staff, not engineers
- We do the work & we own the data
- Custom map and tools as requested by staff to reduce training time

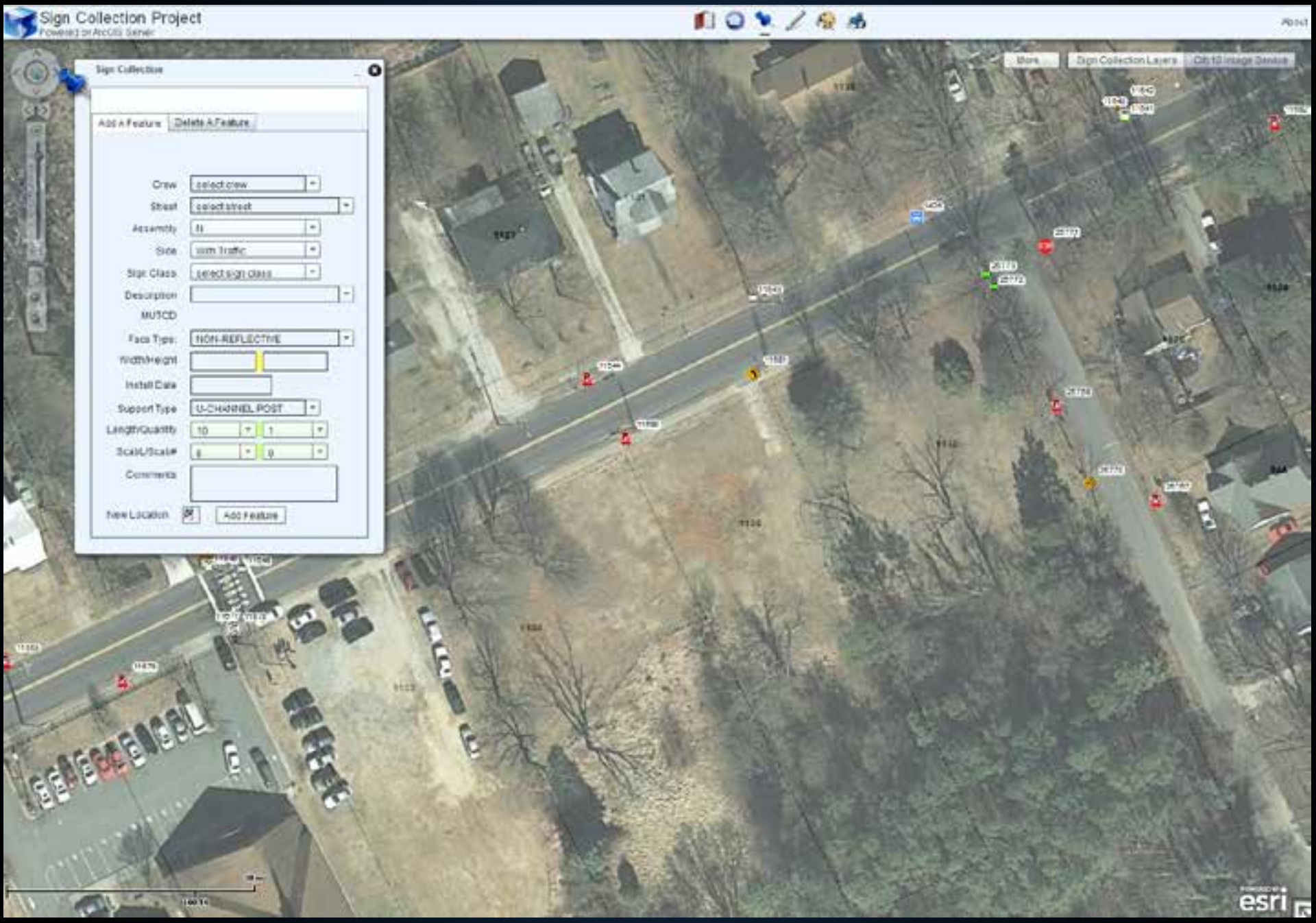
- Purchase software & pay annual license fee per laptop/desktop
- “Built for transportation engineers by transportation engineers”
- Data ownership varies per company
- Factor time and money to train staff to new program and GUI

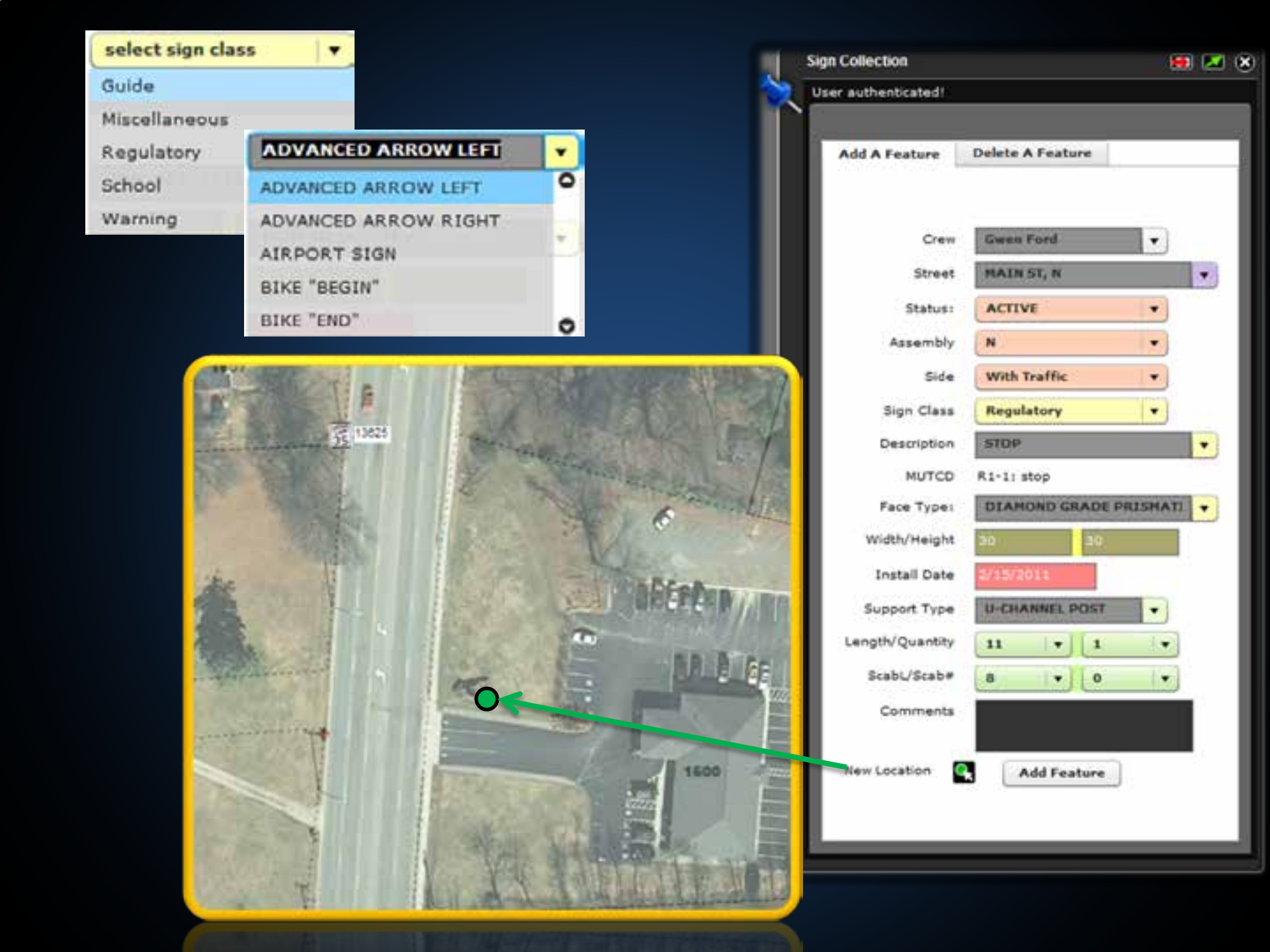
HOW TO BUILD THE SIGN INVENTORY?

FLEX	VS	GPS
Laptops/tablets = $0 Air cards = $	EQUIPMENT	GPS Receivers = $$$
Live update to SDE	DATA	Download (& post-process)
3” resolution aerials	ACCURACY	Depends on receiver, surroundings, satellites
Mainly in vehicle	COLLECTION ENVIRONMENT	Outside near sign

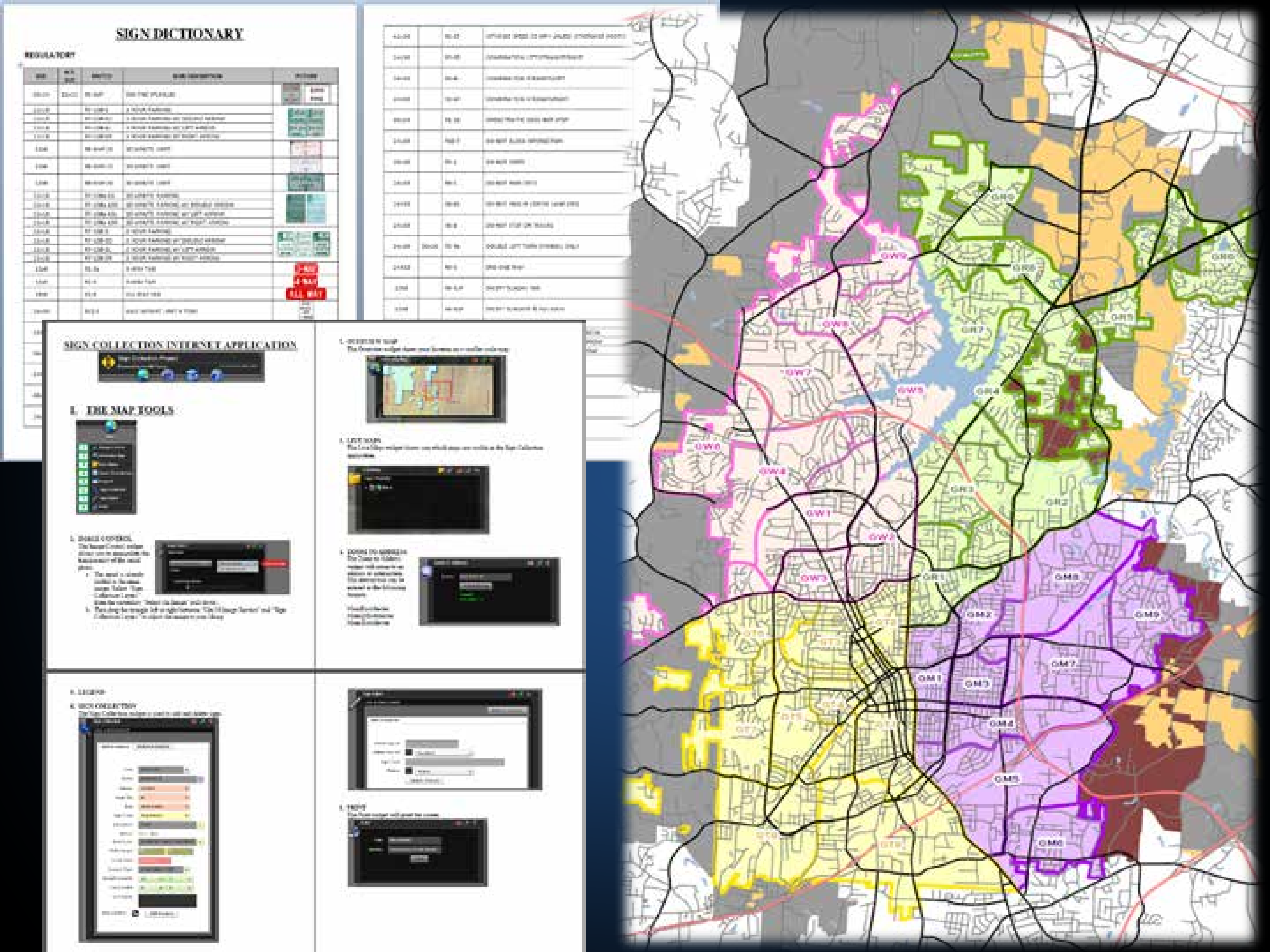
ESRI ArcGIS Flex API & Viewer

- Flex is designed to get a working web-based mapping application up and running quickly with minimal time spent coding
- Leverages great design tools from Adobe
- Uses pure HTML and JavaScript – no add-ins to your browser are required
- Created apps load fast and perform well
- Can create custom widgets for map behaviors, functionality, and layouts
- Design your own basemap from existing GIS data
- Design map layout the way YOU want it to look


Sign Collection Project
Powered by ArcGIS Server
About
Sign Collection
Add A Feature
Delete A Feature
Crew
select crew
Street
select street
Assembly
Side
Sign Class
select sign class
Description
MUTCD
Face Type
NON-REFLECTIVE
Width/Height
Install Date
Support Type
U-CHANNEL POST
Length/Quantity
10
1
Scale/Scale#
Comments
New Location
Add Feature
More...
Sign Collection Layers
esri


select sign class
Guide
Miscellaneous
Regulatory
School
Warning
ADVANCED ARROW LEFT
ADVANCED ARROW LEFT
ADVANCED ARROW RIGHT
AIRPORT SIGN
BIKE "BEGIN"
BIKE "END"
Sign Collection
User authenticated!
Add A Feature
Delete A Feature
Crew
Gwen Ford
Street
MAIN ST, N
Status:
ACTIVE
Assembly
N
Side
With Traffic
Sign Class
Regulatory
Description
STOP
MUTCD
R1-1: stop
Face Type:
DIAMOND GRADE PRISMATI
Width/Height
30
30
Install Date
2/15/2011
Support Type
U-CHANNEL POST
Length/Quantity
11
1
ScabL/Scab#
8
0
Comments
New Location
Add Feature
13625
1600

Sign Collection
Add A Feature
Delete A Feature
Crew
Gwen Ford
Street
GREENSBORO RD
Assembly
Y
Assembly Pic #
0052
Side
With Traffic
Sign Class
Guide
Description
INTERSTATE 74 SIGN
MUTCD
M1-1-74
Face Type
HIGH INTENSITY
Width/Height
24
24
Install Date
10/22/2004
Support Type
U-CHANNEL POST
Length/Quantity
10
2
Scabl/Scab#
8
2
Comments
New Location
Add Feature
GREENSBORO RD
WEST
EAST
74
74
NORTH
SOUTH
311
311


SIGN DICTIONARY
REGULATORY
SIGN COLLECTION INTERNET APPLICATION
I. THE MAP TOOLS
GW1
GW2
GW3
GW4
GW5
GW7
GW9
GR1
GR2
GR3
GR4
GR7
GM1
GM2
GM3
GM4
GM5
GM6
GM7
GM8
GM9

High Point

— City —

City of High Point

Seal

Nickname(s): Furniture and Hosiery Capital of the World, The Point, HP, City of the Future

Location in Guilford County and the state of North Carolina

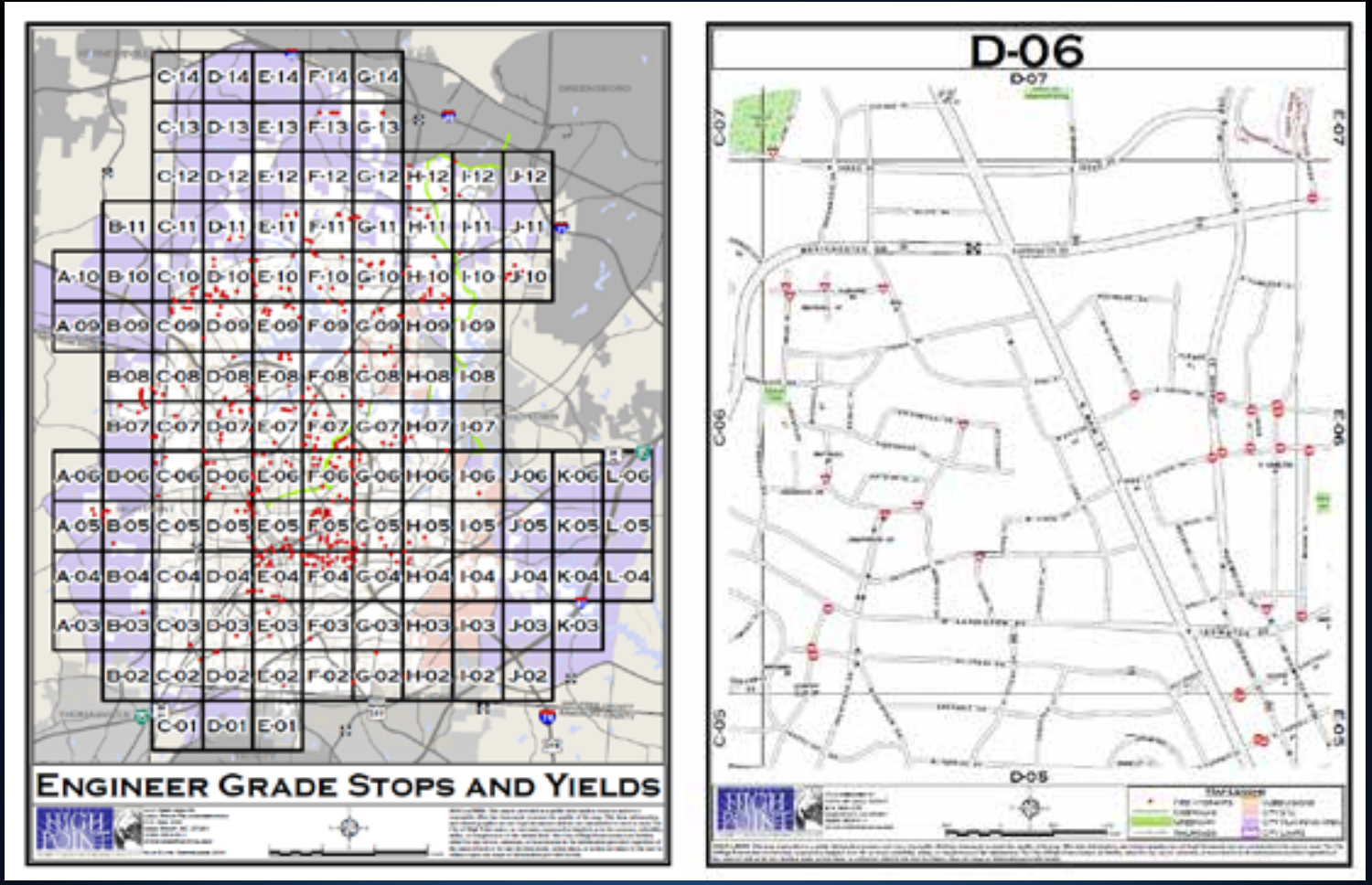
Coordinates: 35°58′14″N 79°59′51″W

Country	United States
State	North Carolina
Counties	Guilford, Davidson, Randolph, Forsyth
Government	
• Mayor	Bernita Sims (D)
Area	
• City	96.1 sq mi (205.3 km²)
• Land	94.7 sq mi (204.2 km²)
• Water	0.4 sq mi (1.1 km²)
Elevation	1,007 ft (286 m)
Population (2010)	
• City	104,371
• Urban	150,000
• Metro	1,603,101
Time zone	EST (UTC-5)
• Summer (DST)	EDT (UTC-4)
ZIP codes	27260-27265
Area code(s)	336
FIPS code	37-31400[1]
GNIS feature ID	0986755[2]
Website	http://www.high-point.net

600+ TOTAL MILES OF CENTERLINE WITHIN CITY OF HIGH POINT

- 342 MILES OF SMALLER STREETS WERE DRIVEN ONCE
- 206 MILES OF 2+ LANE ROADS DRIVEN TWICE
- 0 MILES OF INTERSTATES

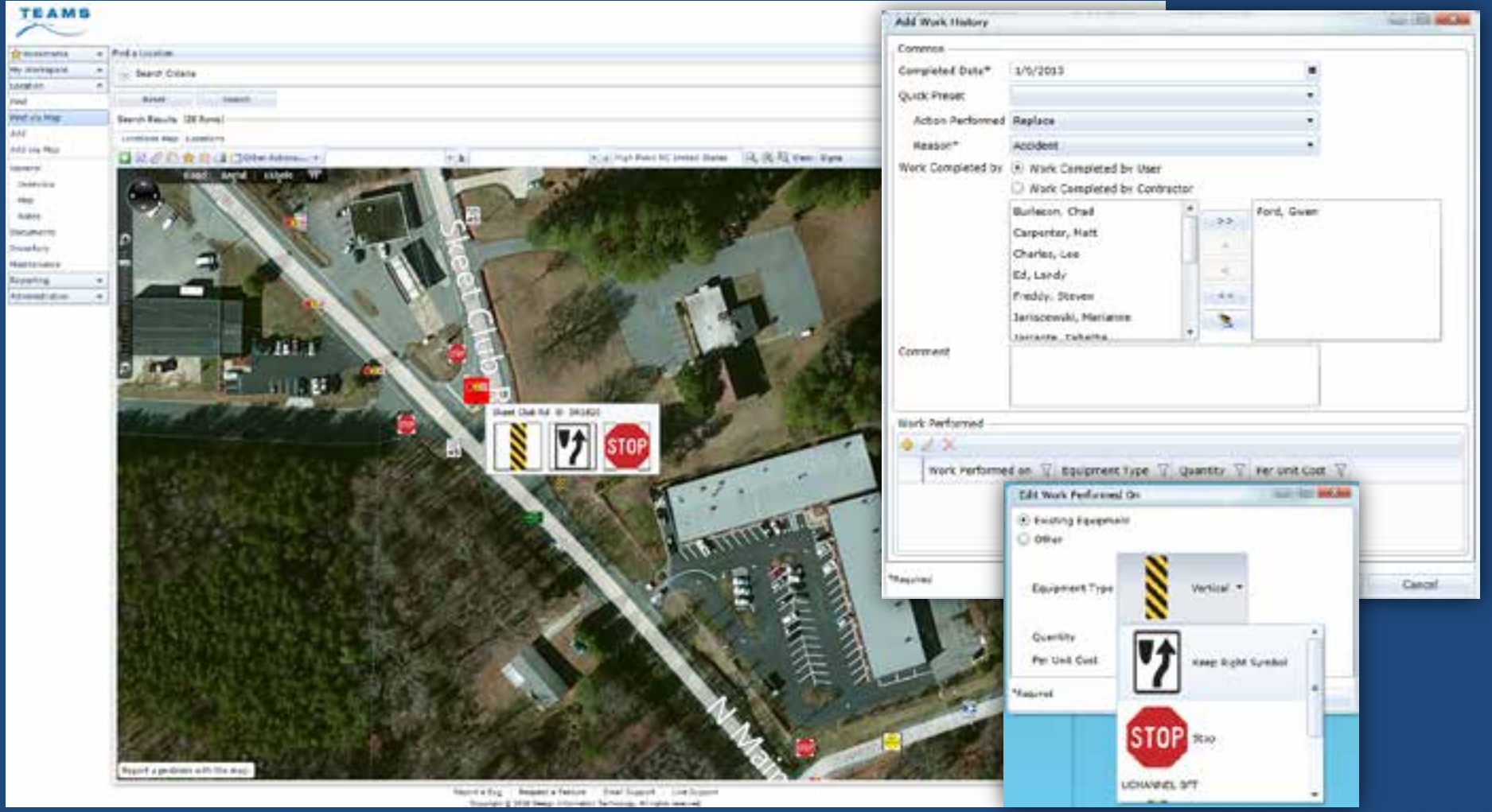
WE DROVE ABOUT 750 MILES IN 5 MONTHS TO COLLECT 22,470 TRAFFIC SIGNS

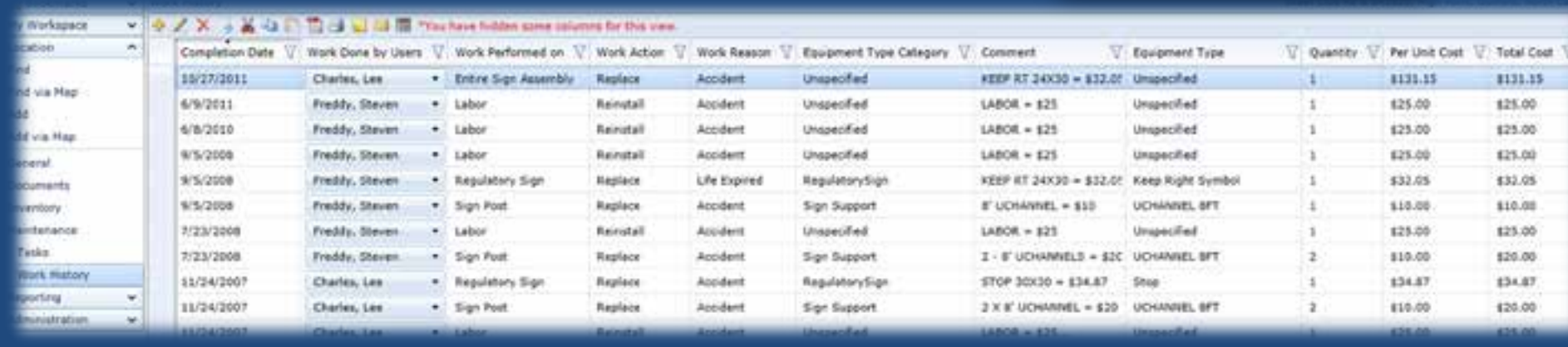


355 STOPS & 187 YIELDS ($38,000)

PLUS

12,753 MORE SIGNS NEED UPGRADING


TEAMS
Add Work History
Common
Completed Date*
1/5/2013
Quick Preset
Action Performed
Replace
Reason*
Accident
Work Completed by
Work Completed by User
Work Completed by Contractor
Burleson, Chad
Carpenter, Matt
Charles, Lee
Ed, Landy
Freddy, Steven
Jaroszewski, Marianne
Ford, Gwen
Comment
Work Performed
Work Performed on
Equipment Type
Quantity
Per Unit Cost
Edit Work Performed On
Existing Equipment
Other
Equipment Type
Vertical
Quantity
Per Unit Cost
Keep Right Symbol
STOP
Stop
UCHANNEL 8FT
Cancel
Sweet Club Rd
N Main
STOP


Completion Date
Work Done by Users
Work Performed on
Work Action
Work Reason
Equipment Type Category
Comment
Equipment Type
Quantity
Per Unit Cost
Total Cost
10/27/2011 Charles, Lee Entire Sign Assembly Replace Accident Unspecified KEEP RT 24X30 = $32.05 Unspecified 1 $131.15 $131.15
6/9/2011 Freddy, Steven Labor Reinstall Accident Unspecified LABOR = $25 Unspecified 1 $25.00 $25.00
6/8/2010 Freddy, Steven Labor Reinstall Accident Unspecified LABOR = $25 Unspecified 1 $25.00 $25.00
9/5/2008 Freddy, Steven Labor Reinstall Accident Unspecified LABOR = $25 Unspecified 1 $25.00 $25.00
9/5/2008 Freddy, Steven Regulatory Sign Replace Life Expired RegulatorySign KEEP RT 24X30 = $32.05 Keep Right Symbol 1 $32.05 $32.05
9/5/2008 Freddy, Steven Sign Post Replace Accident Sign Support 8' UCHANNEL = $10 UCHANNEL 8FT 1 $10.00 $10.00
7/23/2008 Freddy, Steven Labor Reinstall Accident Unspecified LABOR = $25 Unspecified 1 $25.00 $25.00
7/23/2008 Freddy, Steven Sign Post Replace Accident Sign Support 2 - 8' UCHANNELS = $20 UCHANNEL 8FT 2 $10.00 $20.00
11/24/2007 Charles, Lee Regulatory Sign Replace Accident RegulatorySign STOP 30X30 = $34.87 Stop 1 $34.87 $34.87
11/24/2007 Charles, Lee Sign Post Replace Accident Sign Support 2 X 8' UCHANNEL = $20 UCHANNEL 8FT 2 $10.00 $20.00

Thank you.

Questions?

Gwen Ford
GIS Planner
Transportation Department

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