



**Traffic Sign  
Inventory  
and  
Maintenance**

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This is a presentation on how the City of Edmond, Oklahoma developed its Traffic Sign Inventory database and maintains the database in an ArcGIS environment. This presentation is a case study of a project the City undertook with The CEDRA Corporation.

# Topics to be Covered

- ◆ Brief Intro to CEDRA and City of Edmond
- ◆ Overview of Developing the Traffic Sign Inventory
- ◆ Traffic Sign Inventory Database Design
- ◆ Traffic Sign Inventory Collection Process
- ◆ Maintenance and Updating Process
- ◆ Summary then Q&A



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During the course of the presentation the above items will be discussed. The goal of the presentation is to illustrate how a Traffic Sign Inventory can be established and maintained in an ArcGIS environment. As we know, if a database is not maintained, it becomes useless pretty quickly. You'll also notice there are a number of signs that appear in some of the slides. You'll want to read them, some of them are very funny. Those of you interested in the link where these signs appear will want to visit this site:

**<https://www.bing.com/images/search?q=traffic+signs&qpv=traffic+signs&qpv=traffic+signs&qpv=traffic+signs&FORM=IQFRML>**

# Before We Begin

- ◆ How many have a Traffic Sign Database they maintain?
- ◆ How many are thinking of developing a Traffic Sign Database?



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Before we start let's get a feel for the type of audience we have. How many folks currently have a Traffic Sign Inventory database? Now, how many folks are interested in developing a Traffic Sign Inventory database?

# Who Likes Puppies



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Now, how many people like puppies? Here's a little dog trivia for you. What is the most popular dog breed? The answer, Labrador Retrievers. German Shepherds, is number 2 and Golden Retrievers is number 3. The following link:  
<http://www.akc.org/content/news/articles/labrador-retriever-is-once-again-americas-most-popular-dog/> identifies the top breeds. For you dog lovers out there.

# The CEDRA Corporation

- 1985 The CEDRA Corporation is established
- 1987 CEDRA begins a long standing relationship with Esri.
- 1993 CEDRA becomes an authorized Esri Business Partner and Developer.

CEDRA offers engineering/GIS solutions in the form of **software** and **services** to governmental agencies, engineering consultants, tax assessors, oil companies and various utility enterprises.



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Here is a brief description of The CEDRA Corporation. As can be seen CEDRA has been in business for over 30 years and an Esri Business Partner for close to 25 years. CEDRA also has a great deal of experience in dealing with municipalities throughout the U.S.

# The City of Edmond

- ❖ In 1996 The City began creating its GIS.
- ❖ The City utilizes an ArcGIS environment comprised of ArcGIS Desktop, ArcGIS Server and ArcGIS Online.
- ❖ The City utilizes Desktop and Web based applications.
- ❖ The City's GIS is an integral part of its daily operations.
- ❖ The City's population is approximately 90,000 with more than 27,000 water and 36,000 electric accounts.



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Here is a brief description of The City of Edmond and how GIS is utilized throughout the City.

# The City of Edmond

The City offers the following data layers amongst others:

Waste Water	Engineering Projects
Water	Engineering Districts
Storm Water	Forestry
Parcels	Public Trees
Easements	Fire Access
Street Centerlines	Storm Shelters
Outdoor Warning Devices	Planimetrics Topo
Electric	Ortho Photo



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As you can see GIS is widely deployed throughout the City.

# Reasons for Creating Inventory

- ❖ Municipal owned assets.
- ❖ Safety/Design and Manual on Uniform Traffic Control Devices (MUTCD) standards need to be met.
- ❖ Signage may be needed where it is not present.
- ❖ Prioritization for Repair/Replacement.
- ❖ FHWA mandate.



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Here are a few of the driving reasons a municipality should be interested in establishing a Traffic Sign inventory.

# Developing the Inventory

- ❖ 2012 The City undertakes the establishment of a Traffic Sign Inventory database.
- ❖ The Manual on Uniform Traffic Control Devices (MUTCD) was used as a guide.
- ❖ In-house staff used to collect the data.
- ❖ Trimble GeoExplorer 6000 Series GeoXH equipment used.



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In developing an inventory the first question that needs to be resolved is, will in-house resources be used or will the work be out-sourced. Some municipalities will use summer interns while others will use utility or line maintenance staff who have down time from their typical duties.

# Inventory Database Design

- ❖ The design is based upon a Traffic Sign Pole feature layer and a Traffic Sign table.
- ❖ Features in the layer represent traffic sign poles.
- ❖ Records in the table represent signs on a pole.
- ❖ Records in the table are linked to features in the layer based upon a Traffic Sign Pole Facility ID value.
- ❖ Traffic Sign Poles can have one or more signs.



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In designing the database, the City's approach was to have a feature layer represent the traffic sign poles and a table record represent a traffic sign. An ID assigned to the traffic sign pole would then be used to relate the records in the table to the feature in the layer.

# Traffic Sign Pole Attributes

Field	Value
OBJECTID	138241
LENGTH	8
WARRANTYDATE	<null>
CONDITIONDATE	<null>
FACILITYID	137842
Shape	Point
Status	
Type	
Location	
Mounting Style	Ground
Pole Type	Round
Condition	Poor
Removal Date	<null>
Hyperlink	
Symbol Rotation	<null>
Modified By	Sign Inventory
Modified Date	11/6/2015
Legacy	
IntersectionID	

**The FACILITYID attribute is the one that is used to relate the Traffic Sign to the Traffic Sign Pole**

**This value will appear in the Traffic Sign Table for every sign belonging to the Pole**



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Here are a few of the attributes assigned to the Traffic Sign Pole Layer.

# Traffic Sign Attributes

Field	Value
OBJECTID	145132
SIGN_TYPE	
LEGEND	
FACE_MATERIAL	EG - Eng
BLANK_MATERIAL	A - Alum
DATE_INSTALLED	7/25/2012
SIGN_DIMENSION	18x24
WARRANTYDATE	<null>
CONDITIONDATE	7/25/2012
ASSETID	145132
SIGNPOLFACID	137842
SIGNPOOLID	137842
TPOLEFACID	<null>
ELIGHTFACID	<null>
STATUS	<null>
DATE_REMOVED	<null>
HYPERLINK	P:\Traffic\SIGN
MODIFIED_BY	Sign Inventory
MODIFIED_DATE	7/25/2012
TRAVEL_DIRECTION	
CONDITION	POOR
DIRECTION_FACING	W - West
MOUNT_TYPE	Bolts

**Pertinent Sign information such as the Sign's Face Material, Installation Date, Condition and so forth are stored in the Traffic Sign Table**

**This information can then be analyzed**



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Here are a few of the attributes assigned to the Traffic Sign Table.

# Inventory Collection Process

- ❖ A form filled template was created enabling the crews to enter the appropriate information.
- ❖ Multiple crews used to collect field data.
- ❖ 2.5 year period to collect majority of inventory.
- ❖ ~8000 Poles and >14,000 Signs collected.
- ❖ On going collection being performed.
- ❖ Digital images of signs were taken.

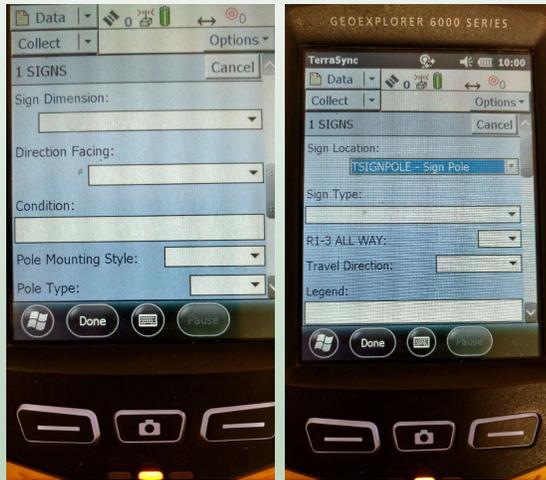


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The collection process, as stated previously, was performed by City personnel over a multi-year period. Initially began with 3 staff members collecting data for 2.5 years which eventually dropped to 2 and now currently 1 who performs routine maintenance pick-up.

# Field Collection Process



On average 1 to 2 minutes to collect data per sign, 17 attributes



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Here is an image of what the survey crews actually work with in the field. As you can see it's basically a form fill-out process that is employed. An average range of signs that was collected by a single field crew member in a day ranged between 60 and 70.

# Maintaining/Updating Process

- ❖ Field crews were bringing in many files that needed to be processed.
- ❖ An automated process was needed to update the TSignPole Layer and TSign Table.
- ❖ The ability to handle addition of new features as well as modifying existing features.
- ❖ The ability to check the results prior to committing to the database (i.e. Work\_Type codes, existing database Street Names).



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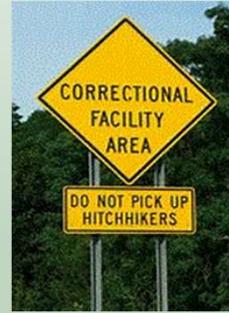


Once the field crews began to collect the data and bring it back into the office the next task was to update the database with the field information. The City initially began to manually process the information but quickly came to the realization that an automated process had to be created in order to effectively and efficiently process the survey information. In processing the data the automated process needed to handle various scenarios or cases. Specifically, 4 cases needed to be accounted for.

# Case I

## New Post with One Sign

In this case, the field survey point is not close to any existing poles and there is only one field survey point at this location. Under this condition, the command adds one feature to the TSIGNPOLE layer and one record to the TSIGN table. The coordinates of the new Traffic Sign Pole feature will match those of the field survey point.



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Here is the description for Case 1.

# Case 2

## New Post with Multiple Signs

In this case, there are field survey points that are not close to an existing pole and these points are within the proximity tolerance. Under this condition, the command will add one feature to the TSIGNPOLE layer and one record for every field survey point to the TSIGN table. The coordinates of the Traffic Sign Pole feature will be the average of the field survey points.



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Here is the description for Case 2.

# Case 3

## Add Sign(s) to Existing Post

In this case the field survey point is close to an existing post. Additionally, the field survey point must have the WORK\_TYPE attribute with the value NEW\_SIGN assigned to it in order for this case to function. Under this condition, the command will add one record to the TSIGN table for every sign appearing at the existing post.



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Here is the description for Case 3.

# Case 4

## Replace Sign(s) on Existing Post

In this case the field survey point is close to an existing post. Additionally, the field survey point has the WORK\_TYPE attribute value set to "REPLACE\_SIGN" or the attribute is not present. In order to determine which sign is to be replaced the SIGN\_TYPE and LEGEND fields in the field survey shapefile are examined. Using the SIGN\_TYPE attribute, a sign code is extracted using the space character as the delineating character.



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Here is the description for Case 4.

## Case 4 (cont'd)

### Replace Sign(s) on Existing Post

In the TSIGN table the records associated with a post will contain the post's Facility ID. These records are then examined to make a match on the sign code. If there is only one record in the TSIGN table the existing record is modified using the TSIGN field mapping information. If there are two or more records the processing varies depending upon the sign code value.

*Substantial Custom Logic Involved in this Case*



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As you can see Case 4 involves some custom logic that was implemented to facilitate the updating of existing signs.

# All Cases

## Attribute Assignment

In all 4 cases previously mentioned, field survey data needed to be transferred to the appropriate fields in the Traffic Sign Pole Layer and Traffic Sign table.

Two text files called TSIGNPOLEMAPPING and TSIGNMAPPING files are used to indicate what fields the survey information is to be stored in the Traffic Sign Pole Layer and Traffic Sign table.



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For all 4 cases the information collected by the survey crew had to be transferred to the feature layer point and the table records. To provide flexibility Attribute Transfer Files were employed. In so doing should the City wish to incorporate new attributes or use different field name, no programming is required.

# Field Mapping Files

## TSIGNPOLEMAPPING

```
/*  
POLE_TYPE,POLE_TYPE  
/*  
POLE_LENGTH,LENGTH  
/*  
POLE_MOUNT,MOUNTING_STYLE  
/*  
GPS_DATE,MODIFIED_DATE  
/*  
/* Hard coded value to be stored in MODIFIED_BY  
"SIGN_INVENTORY",MODIFIED_BY
```

## TSIGNMAPPING

```
/*  
SIGN_DIMEN,SIGN_DIMENSION  
/*  
DIRECTION_,DIRECTION_FACING  
/*  
CONDITION,CONDITION  
/*  
REPLACEMEN,REPLACEMENT_SIGN  
/*  
DATE_INSTA,DATE_INSTALLED  
/*  
COMMENTS,COMMENTS  
/*  
IMAGERY,HYPERLINK
```



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Here are excerpts of the Field Mapping files used for transferring data from the Survey shapefile to the Pole Feature Layer (TSIGNPOLE) and Sign Table (TSIGN). The /\* characters denote a comment line, which is disregarded during processing. On a data line two entries are specified with the first being the attribute in the Survey shapefile and the second being the attribute in the Pole Feature Layer or Sign Table that the Survey shapefile attribute value is to be transferred to.

# Survey GPS Shapefile

Attributes of SIGNS20120725

FID	Shape	SIGN_LOCAT	SIGN_TYPE	RT_3_ALL_W	TRAVEL_DIR	LEGEND	FACE_MATER	BLANK_MATE	MOUNT_TYPE	SIGN_DIMEN	DIRECTION
40	Point	TSIGNPOLE - Sign Pole	R2-1 SPEED LIMIT		NB - North Bound	45 MPH		A - Aluminum	Bolts	30x24	S - South
41	Point	MASTARM - Mast arm	R10-12 LEFT TURN YIELD ON G		WB - West Bound			A - Aluminum		24x30	E - East
42	Point	MASTARM - Mast arm	R10-12 LEFT TURN YIELD ON G		SB - South Bound		D03	A - Aluminum	Bolts	24x30	N - North
43	Point	MASTARM - Mast arm	R10-12 LEFT TURN YIELD ON G		EB - East Bound		D03	A - Aluminum	Bolts	24x30	W - West
44	Point	TSIGNPOLE - Sign Pole	D3 STREET NAME			SANTA FE AVE	D03	A - Aluminum			BW - East West
45	Point	TSIGNPOLE - Sign Pole	D3 STREET NAME			COVELL RD	D03	A - Aluminum			BW - East West
46	Point	MASTARM - Mast arm	R10-12 LEFT TURN YIELD ON G		NB - North Bound		D03	A - Aluminum	Bolts		S - South
47	Point	TSIGNPOLE - Sign Pole	R2-1 SPEED LIMIT		WB - West Bound	45 MPH	VP	A - Aluminum	Bolts	24x30	E - East
48	Point	TSIGNPOLE - Sign Pole	W3-1 STOP AHEAD		WB - West Bound		VP	A - Aluminum	Pop Rivets	36	E - East
49	Point	TSIGNPOLE - Sign Pole	R2-1 SPEED LIMIT		EB - East Bound	45 MPH	D03	A - Aluminum	Pop Rivets	24x36	W - West
50	Point	TSIGNPOLE - Sign Pole	BUS STOP		SB - South Bound		D03	A - Aluminum	Pop Rivets	30	N - North

Records: 1 | Show: All Selected | Records (0 out of 51 Selected) | Options

---

Attributes of SIGNS20120725

CONDITION	POLE_MOUNT	POLE_TYPE	POLE_LENTH	DATE_INSTA	COMMENTS	IMAGERY	GPS_Date	GPS_Time	Latitude	Longitude
POOR	GROUND	ROUND	8	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_001641.jpg	7/25/2012	11:13:17am	35.683751977	-97.514006515
				7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_001742.jpg	7/25/2012	11:17:37am	35.682181620	-97.514167250
				7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_001743.jpg	7/25/2012	11:20:07am	35.682012140	-97.514444614
				7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_001844.jpg	7/25/2012	11:26:15am	35.682038924	-97.513911254
	GROUND	SQUARE	10	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_001945.jpg	7/25/2012	11:28:36am	35.682162761	-97.513910215
	GROUND	SQUARE	10	7/25/2012	9 X 36		7/25/2012	11:31:10am	35.682186549	-97.513906936
				7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_002046.jpg	7/25/2012	11:36:24am	35.682256670	-97.513964865
	GROUND	ROUND	10	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_002047.jpg	7/25/2012	11:41:30am	35.682151652	-97.514273839
	GROUND	SQUARE	10	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_002148.jpg	7/25/2012	11:47:13am	35.682003710	-97.528750300
	GROUND	ROUND	10	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120801A-files\MO_00478.jpg	7/25/2012	11:52:22am	35.681996250	-97.530950291
	GROUND	SQUARE	10	7/25/2012		P:\traffic\SIGNINVENTORY\SSSF_INTR\20120725-files\OLC_002150.jpg	7/25/2012	11:57:30am	35.682099387	-97.528687742

Records: 1 | Show: All Selected | Records (0 out of 51 Selected) | Options



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The field survey file is brought into ArcMap as a point shapefile containing the various information collected by the field crew.

# Sign Pole Layer - TSIGNPOLE

Attributes of TSIGNPOLE

FID	Shape*	LENGTH	WARRANTYDA	CONDITION	FACILITYID	STATUS	TYPE	LOCATION	MOUNTING_S	POLE_TYPE	CONDITION	REMOVAL_DA	HYPERLINK	SYMBOL_ROT
475	Point	90	<Null>	<Null>	1962	Inactive		HOLLOWDALE	Ground	Standard		<Null>		0
476	Point	100	<Null>	<Null>	1963	Active			Ground	Standard		<Null>		0
477	Point	100	<Null>	<Null>	1965	Active			Ground	Standard		<Null>		0
478	Point	100	<Null>	<Null>	1966	Inactive			Ground	Standard		<Null>		0
479	Point	105	<Null>	<Null>	1967				Ground	Standard		<Null>		0
480	Point	100	<Null>	<Null>	1968				Ground	Standard		<Null>		0
481	Point	70	<Null>	<Null>	1969				Break Away	Standard		<Null>		0
482	Point	70	<Null>	<Null>	1970				Break Away	Standard		<Null>		0
483	Point	70	<Null>	<Null>	1971	Inactive			Break Away	Standard		<Null>		0
484	Point	105	<Null>	<Null>	1972				Ground	Standard		<Null>		0
485	Point	50	<Null>	<Null>	1974				Ground	Standard		<Null>		0
486	Point	50	<Null>	<Null>	1975				Ground	Standard		<Null>		0

Record: 92 | Show: All Selected | Records (0 out of 7708 Selected) | Options

Attributes of TSIGNPOLE

FACILITYID	STATUS	TYPE	LOCATION	MOUNTING_S	POLE_TYPE	CONDITION	REMOVAL_DA	HYPERLINK	SYMBOL_ROT	MODIFIED_B	MODIFIED_D	LEGACYID	INTERSECTI
1962	Inactive		HOLLOWDALE	Ground	Standard		<Null>		0		<Null>		
1963	Active			Ground	Standard		<Null>		0		<Null>		
1965	Active			Ground	Standard		<Null>		0		<Null>		
1966	Inactive			Ground	Standard		<Null>		0		<Null>		
1967				Ground	Standard		<Null>		0		<Null>		
1968				Ground	Standard		<Null>		0		<Null>		
1969				Break Away	Standard		<Null>		0		<Null>		
1970				Break Away	Standard		<Null>		0		<Null>		
1971	Inactive			Break Away	Standard		<Null>		0		<Null>		
1972				Ground	Standard		<Null>		0		<Null>		
1974				Ground	Standard		<Null>		0		<Null>		
1975				Ground	Standard		<Null>		0		<Null>		

Record: 92 | Show: All Selected | Records (0 out of 7708 Selected) | Options



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Here is the attribute table for the Traffic Sign Pole feature layer.

# Sign Table - TSIGN

Attributes of TSIGN													
OID	OBJECTID	SIGN_TYPE	LEGEND	FACE_MATER	BLANK_MATE	DATE_INSTA	SIGN_DIMEN	WARRANTYDA	CONDITION	ASSETID	SIGNPOLFAC	SIGNPOLOID	TPOLEFACID
10694	145482	OM-3R		YP	A	11/7/2012	12:36	<Nub>	<Nub>		138079	138079	
10695	145483	OM-3L		YP	A	11/7/2012	12:36	<Nub>	<Nub>		138080	138080	
10696	145484	R2-1	35 MPH	EO	A	11/7/2012	24:30	<Nub>	<Nub>		138081	138081	
10697	145485	OM-3L		EO	A	11/7/2012	12:36	<Nub>	<Nub>		138082	138082	
10698	145486	R10-10R		EO	A	11/7/2012	12:36	<Nub>	<Nub>		138083	138083	
10699	145487	OM-3L		EO	A	11/7/2012	12:36	<Nub>	<Nub>		138084	138084	
10700	145488	R10-10R		EO	A	11/7/2012	12:36	<Nub>	<Nub>		138085	138085	
10701	145489	R2-1	45 MPH	YP	A	11/7/2012	24:30	<Nub>	<Nub>		138086	138086	
10702	145490	R1-1		YP	A	11/7/2012	36	<Nub>	<Nub>		138087	138087	
10703	145491	R2-1	45 MPH	EO	A	11/7/2012	24:30	<Nub>	<Nub>		138088	138088	
10704	145492	V3-1A		YP	A	11/7/2012	36	<Nub>	<Nub>		138089	138089	
10705	145493	R1-1		YP	A	11/7/2012	30	<Nub>	<Nub>		138090	138090	

Record: 1 | Show: All Selected | Records (0 out of 13524 Selected) | Options

Attributes of TSIGN														
CONDITION	ASSETID	SIGNPOLFAC	SIGNPOLOID	TPOLEFACID	ELIGHTFACI	STATUS	DATE_REMOV	HYPERLNK	MODIFIED_B	MODIFIED_D	TRAVEL_DIR	CONDITION	DIRECTION	MOUNT_TYPE
<Nub>		138079	138079				<Nub>		Sign Inventory	11/6/2015	VB	Good	E	Bolts
<Nub>		138080	138080				<Nub>		Sign Inventory	11/6/2015	VB	Good	E	Bolts
<Nub>		138081	138081				<Nub>		Sign Inventory	11/6/2015	WB	Fair	E	Bolts
<Nub>		138082	138082				<Nub>		Sign Inventory	11/6/2015	EB	Fair	W	Bolts
<Nub>		138083	138083				<Nub>		Sign Inventory	11/6/2015	EB	Fair	W	Bolts
<Nub>		138084	138084				<Nub>		Sign Inventory	11/6/2015	VB	Fair	E	Bolts
<Nub>		138085	138085				<Nub>		Sign Inventory	11/6/2015	VB	Fair	E	Bolts
<Nub>		138086	138086				<Nub>		Sign Inventory	11/6/2015	WB	Good	E	Pop Rivets
<Nub>		138087	138087				<Nub>		Sign Inventory	11/6/2015	NB	Fair	S	Pop Rivets
<Nub>		138088	138088				<Nub>		Sign Inventory	11/6/2015	SB	Fair	N	Bolts
<Nub>		138089	138089				<Nub>		Sign Inventory	11/6/2015	SB	Good	N	Bolts
<Nub>		138090	138090				<Nub>		Sign Inventory	11/6/2015	VB	Good	E	Bolts

Record: 1 | Show: All Selected | Records (0 out of 13524 Selected) | Options



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Here is the attribute table for the Traffic Sign Table. With these 3 data sources, the Survey GPS Shapefile, Sign Pole Layer and Sign Table, an ArcMap document file is created containing these data sources. As additional Survey GPS Shapefiles are generated, these can simply be added to the ArcMap document file for processing.

# Traffic Sign Type Classification



Here is a display of the ArcMap document illustrating the classification used to distinguish the various sign types.

# Traffic Sign Update Command

Specify the Traffic Sign Parameters:

Traffic Sign Layer: TSIGNPOLE

Traffic Sign Table: TSIGN

Proximity Tolerance - ft (m): 3.0

Layer Facility ID Field: FACILITYID

Table Facility ID Field: SIGNPOLFAC

Layer Transfer Attribute File: TSignPoleMapping.txt

Table Transfer Attribute File: TSignMapping.txt

Survey WDRK\_TYPE Field: <none>

Survey SIGN\_TYPE Field: SIGN\_TYPE

Survey LEGEND Field: LEGEND

TSIGN Table SIGN\_TYPE Field: SIGN\_TYPE

TSIGN Table LEGEND Field: LEGEND

Store SIGN\_TYPE and LEGEND as Uppercase: No

Word Character Match Tolerance (%): 75

Report File: report.txt

**Prior to executing this command the user selects the GPS Shapefile(s) to be processed in the Table of Contents**

**A formal report file contains the results of the processing**



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Using the Traffic Sign Update Command that was created, the user is able to take a survey shapefile and update the Traffic Sign Pole feature layer and the Traffic Sign Table. As you can see there are a number of parameters that need to be specified. The user is able to save these settings and recall them prior to processing another survey shapefile. So that the user can fill out the form once and simply recall the previous values when the next survey shapefile is to be processed. In addition to updating the Traffic Sign Pole feature layer and Traffic Sign Table, a formal report file is generated which the user can review.

# The Report File - Header

Traffic Sign Data Processing

Traffic Sign Layer: TSIGNPOLE

Traffic Sign Table: TSIGN

Layer Transfer Attribute File: TSignPoleMapping.txt

Table Transfer Attribute File: TSignMapping.txt

Proximity Tolerance: 3



TSIGNPOL Highest Facility ID currently assigned is: 140271



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The formal report file is used to review the quality of the data collected by the field crew. The Header portion of the file simply contains some base information as shown above.

# The Report File – Part I

PART 1: Processing the active Survey Data Shapefiles

Processing SIGNS20120725 data

1. FID 0 existing Traffic Sign
2. FID 1 existing Traffic Sign
3. FID 2 existing Traffic Sign
4. FID 3 within 3 existing Traffic Signs
5. FID 4 within 3 existing Traffic Signs
6. FID 5 existing Traffic Sign
7. FID 6 existing Traffic Sign
8. FID 7 existing Traffic Sign
9. FID 8 existing Traffic Sign
10. FID 9 existing Traffic Sign
11. FID 10 existing Traffic Sign
12. FID 11 existing Traffic Sign
13. FID 12 new Traffic Sign
14. FID 13 existing Traffic Sign
15. FID 14 existing Traffic Sign



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Part 1 of the file contains a listing of the survey points and whether the survey point denotes a new traffic sign pole or an existing one.

# The Report File – Part I

**The end of Part I contains a summary of the survey data that was processed**

Total Points Processed: 51  
Total Points not close to Existing Sign: 5  
Total Points close to Existing Sign: 42  
Total Points close to Multiple Existing Signs: 4



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At the end of Part 1, the report file contains a summary of the total points processed, the number of points denoting new traffic sign poles, the number of points close to existing traffic sign poles and the number of points that are close to multiple traffic sign poles. The shots close to existing traffic sign poles need to be examined and then reprocessed, perhaps using a smaller proximity tolerance value.

# The Report File – Part 2

PART 2: Adding New Features to TSIGNPOLE and New Records to TSIGN

1. Layer: SIGNS20120725 FID 12 added to TSIGNPOL and assigned Facility ID 140272  
Table: SIGNS20120725 FID 12 added to TSIGN and assigned Facility ID 140272
2. Layer: SIGNS20120725 FID 20 added to TSIGNPOL and assigned Facility ID 140273  
Table: SIGNS20120725 FID 20 added to TSIGN and assigned Facility ID 140273
3. Layer: SIGNS20120725 FID 24 added to TSIGNPOL and assigned Facility ID 140274  
Table: SIGNS20120725 FID 24 added to TSIGN and assigned Facility ID 140274
4. Layer: SIGNS20120725 FID 31 added to TSIGNPOL and assigned Facility ID 140275  
Table: SIGNS20120725 FID 31 added to TSIGN and assigned Facility ID 140275  
Table: SIGNS20120725 FID 32 added to TSIGN and assigned Facility ID 140275

Total New Traffic Poles Created: 4  
Total New Traffic Sign Data Created: 5



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Part 2 of the report contains a listing of the new traffic sign poles and new traffic signs. At the bottom of Part 2 is a summary of the total new poles and signs that were created.

# The Report File – Part 3

PART 3: Modifying Existing Data in TSIGNPOLE and the Table TSIGN

1. Layer: SIGNS20120725 FID 0 within proximity of TSIGNPOL FID 2328  
SIGN\_TYPE: W3-1 STOP AHEAD LEGEND:

Modified TSIGNPOL OID 2328

Table: SIGNS20120725 FID 0 within proximity of TSIGN OID 4249  
SIGN\_TYPE: W3-1A LEGEND: STOP AHEAD SYMBOL

Modified TSIGN OID 4249 SIGN\_TYPE: W3-1 LEGEND:

2. Layer: SIGNS20120725 FID 1 within proximity of TSIGNPOL FID 987  
SIGN\_TYPE: R1-1 STOP LEGEND:

Modified TSIGNPOL OID 987

Table: SIGNS20120725 FID 1 within proximity of TSIGN OID 2157  
SIGN\_TYPE: R1-1 LEGEND:

Table: SIGNS20120725 FID 1 within proximity of TSIGN OID 3164  
SIGN\_TYPE: R1-3-4 LEGEND:

Modified TSIGN OID 2157 SIGN\_TYPE: R1-1 LEGEND:



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Part 3 of the report contains a listing of the survey points that were close to an existing traffic sign pole and the action that was taken based upon the SIGN\_TYPE value.

# The Report File – Times

**At the end of the report file is the date and time  
the report file was generated**

Started: 02:27:11 PM 7 Mar 2017  
Stopped: 02:27:31 PM 7 Mar 2017  
Duration: 00:00:20



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At the very end of the report are the processing start and end times as well as the duration. As can be seen it did not take very long to process the 51 points in this file.

# Update Confirmation

- ❖ The Edits made to the TSignPole Layer and TSign Table are not committed but rather are placed in an Undo operation.
- ❖ The User can review the Report File and check if any problems exist.
- ❖ If there are problems the User can Undo the operation, make the appropriate modifications and then re-execute the command.



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Once the processing has finished, no edits have been confirmed to the database. Rather, the Editor is in an edit state where the modifications can be undone using the Undo command or by stopping the Editor and not saving the edits. This approach allows the user to review the report file and determine if any modifications need to be made either to the survey shapefile or the existing database depending upon the case.

# Summary

- ❖ Without the Traffic Sign Updating Tool a series of steps had to be manually performed that was time intensive and had to be repeated for every GPS file that was brought into the office.
- ❖ The Traffic Sign Updating Tool greatly reduced the time to process the GPS files and virtually eliminated user processing errors since an automated repeatable process was in place.

## *Series of Steps to Couple Button Clicks*



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As you probably are aware more and more municipalities are establishing traffic sign inventories. Some municipalities are even mandated to have such an inventory. The thing to remember is that these databases can get very large and you need to have a mechanism for efficiently transferring the GPS information collected in the field to the database with the ability to have some sort of quality control on the transferring. The Traffic Sign Updating Tool provided this capability for the City.

# Thank you!

## Questions And Answers



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Thank you for viewing this presentation and if you should have any questions or comments feel free to contact Nick Tonia at 585-414-6541 or [nicktonias@cedra.com](mailto:nicktonias@cedra.com).