

Memorandum



DATE: September 9, 2016

TO: Honorable Members of the Public Safety Committee:
Adam Medrano (Chair), B. Adam McGough (Vice Chair), Sandy Greyson, Tiffinni A. Young,
Jennifer S. Gates, Philip T. Kingston

SUBJECT: **Geographic Information Systems**

On Monday, September 12, 2016, you will be briefed on Geographic Information Systems by Deputy Chief Charles Hampton of the Dallas Fire-Rescue Department.

The briefing materials are attached for your review.

Please contact me if you have any questions or need additional information.



Eric D. Campbell
Assistant City Manager

[Attachment]

cc: Honorable Mayor and Members of the City Council
A.C. Gonzalez, City Manager
Christopher D. Bowers, (I) City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Ryan S. Evans, First Assistant City Manager

Jill A. Jordan, P.E., Assistant City Manager
Mark McDaniel, Assistant City Manager
Joey Zapata, Assistant City Manager
M. Elizabeth Reich, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council

Dallas Fire-Rescue Department

Geographic Information Systems

Public Safety Committee

September 12, 2016



Geographic Information Systems

- Purpose
 - Explain Geographic Information System (GIS)
 - Explain how GIS integrates with Public Safety
 - Explain importance of GIS for day to day operations
 - Explain importance of GIS for large scale event planning and emergency response
 - Describe how DFR GIS integrates and works with COD departments to foster effective information sharing





- The preceding anecdote would not happen on the White Rock Trail today.
- A collaborative effort between Dallas Fire-Rescue's GIS section the Dallas Parks Department
- Enterprise GIS Division and the Parks Department has resulted in the implementation of a highly effective trail marking system on many of the trails in Dallas.
- Let's imagine another story as it might happen on another Dallas trail today.....

Address



Cross Streets:

00:00:32

Apt#

Bldg #

City:

Location Name:



Caller Name:

Phone:

Ext:

Called From:

Call Type:



Map Page: Firebox:

Priority:

Source:



- Additional Information
- Assignments
- Activities
- Call Backs
- Comments/Notes
- Edit Log
- Times
- Transport Info
- User Data
- Attachments

Unit	Alarm Level	Type	Status	Responding From	Elapsed	Response Number

Resources Needed...

Resource / Capability	Order	> Time	Substitute With...	> Time	Respond With...

-
-
-
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-
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Call Taking- Incident ID [Pending]

Address	101 BRIDGES ST		Cross Streets:	NOT FOUND/FREDDIE ST	00:01:59		
Apt #	<input type="text"/>	Bldg #	<input type="text"/>	City:		Dallas	
Location Name:	CFM114 (CRAWFORD MEMORIAL PARK)			Caller Name:		<input type="text"/>	
Phone:	<input type="text"/>	Ext:	<input type="text"/>	Called From:		<input type="text"/>	
Call Type:	<input type="text"/>			Map Page:	<input type="text"/>	Firebox:	<input type="text"/>
Priority:	<input type="text"/>			<input type="text"/>	<input type="button" value="Update Address"/> <input type="button" value="Add Police"/>		
Source:	<input type="text"/>						

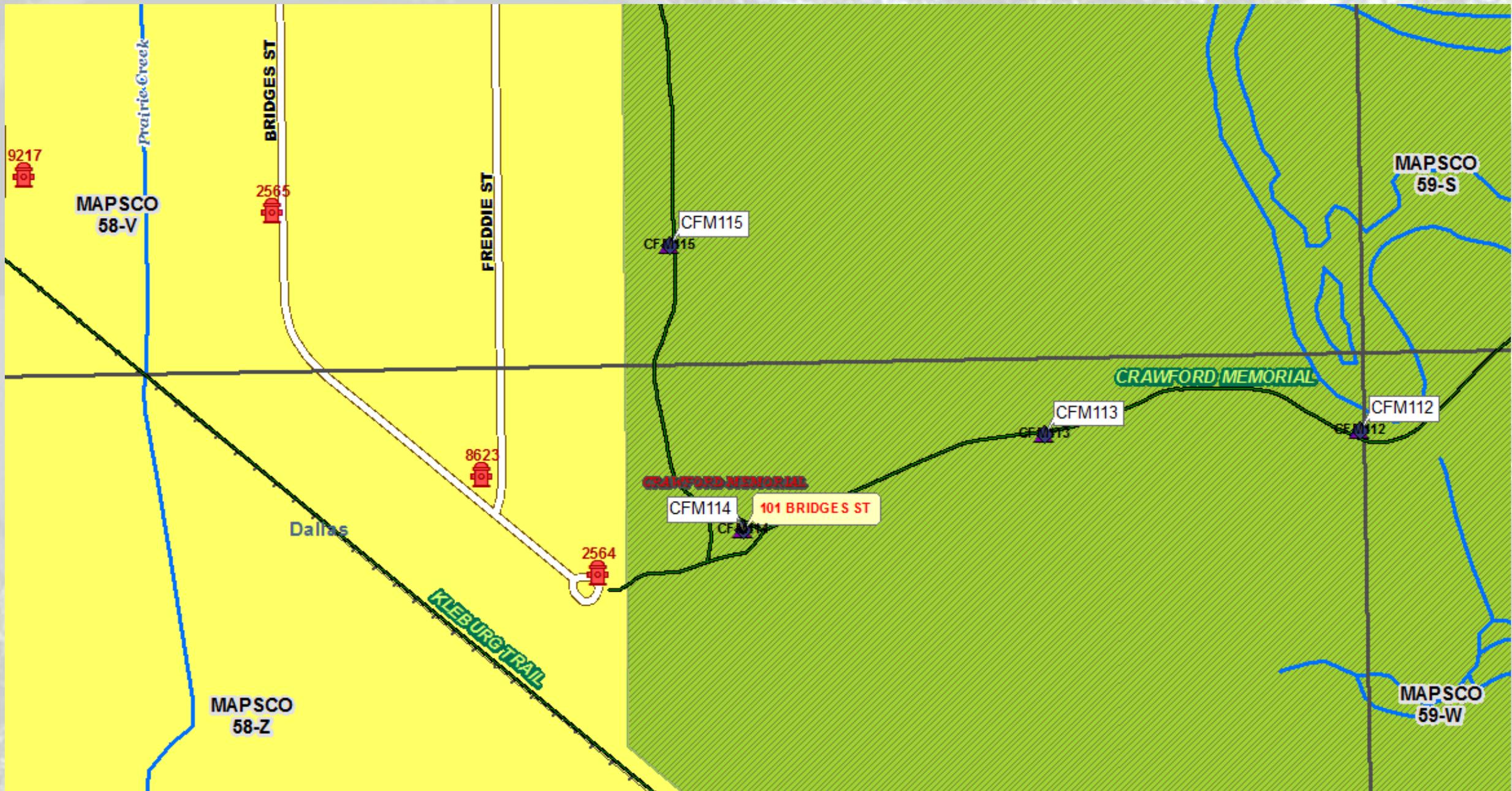
- Additional Information
- Assignments
- Activities
- Call Backs
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Unit	Alarm Level	Type	Status	Responding From	Elapsed	Response Number

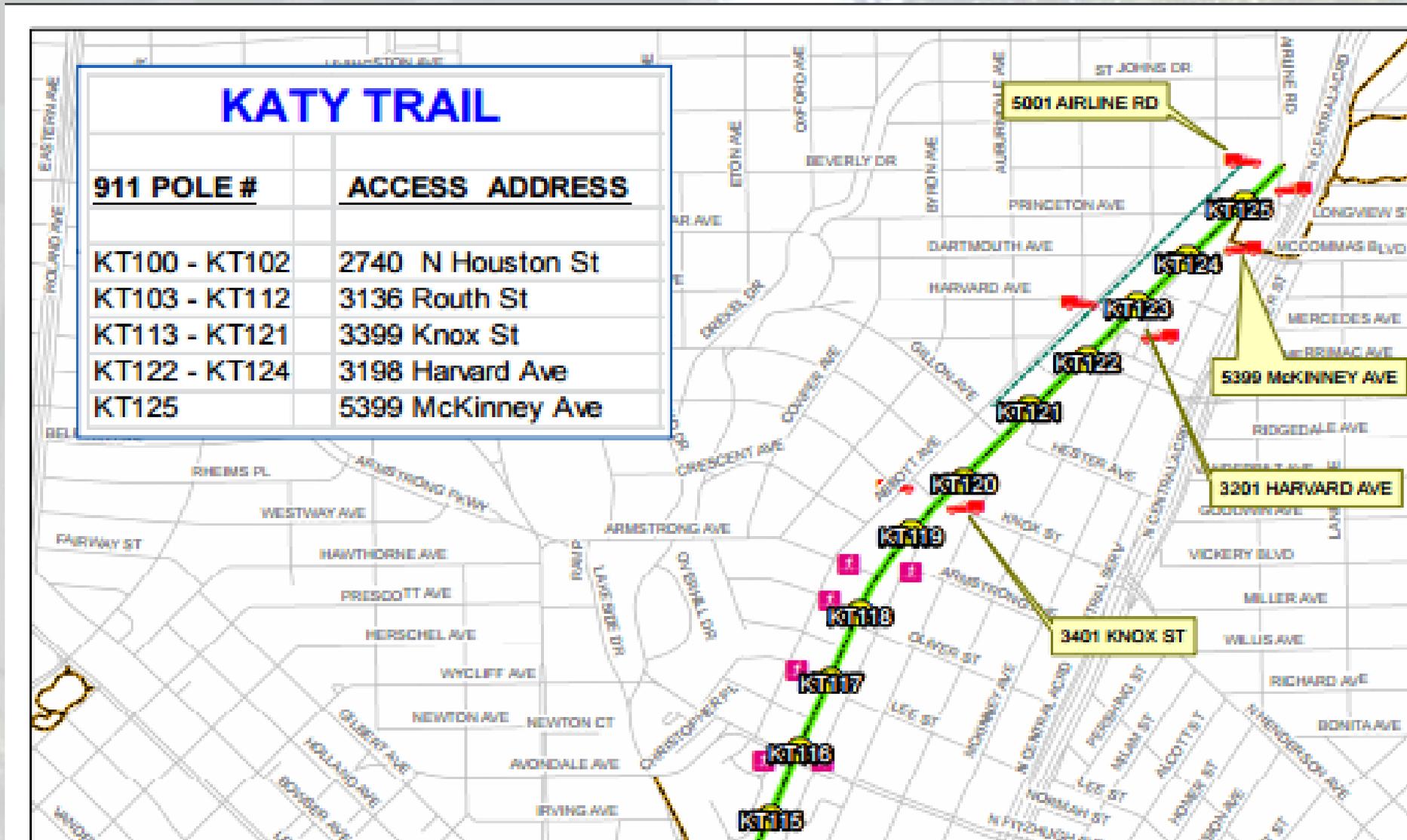
Resources Needed...

Resource / Capability	Order	> Time	Substitute With...	> Time	Respond With...

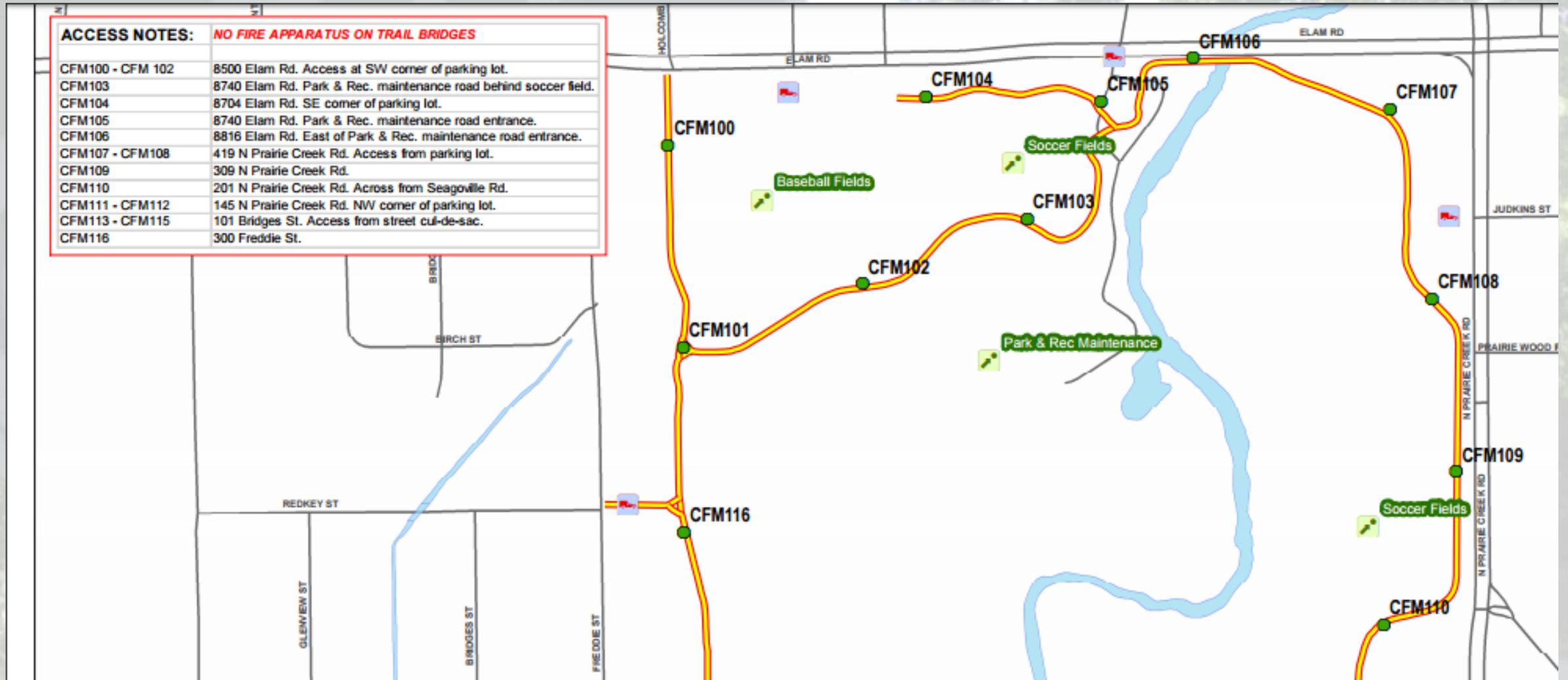
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In addition to the MDC (mobile data computer) map, hard copies of all trail maps are provided to every Dallas Fire and Ambulance fleet response unit. The maps not only display locations of trail markers, but the nearest access points as well.



An example of the hard copy map for Crawford Memorial Park



What makes all of this possible?

Geographic

+

Information

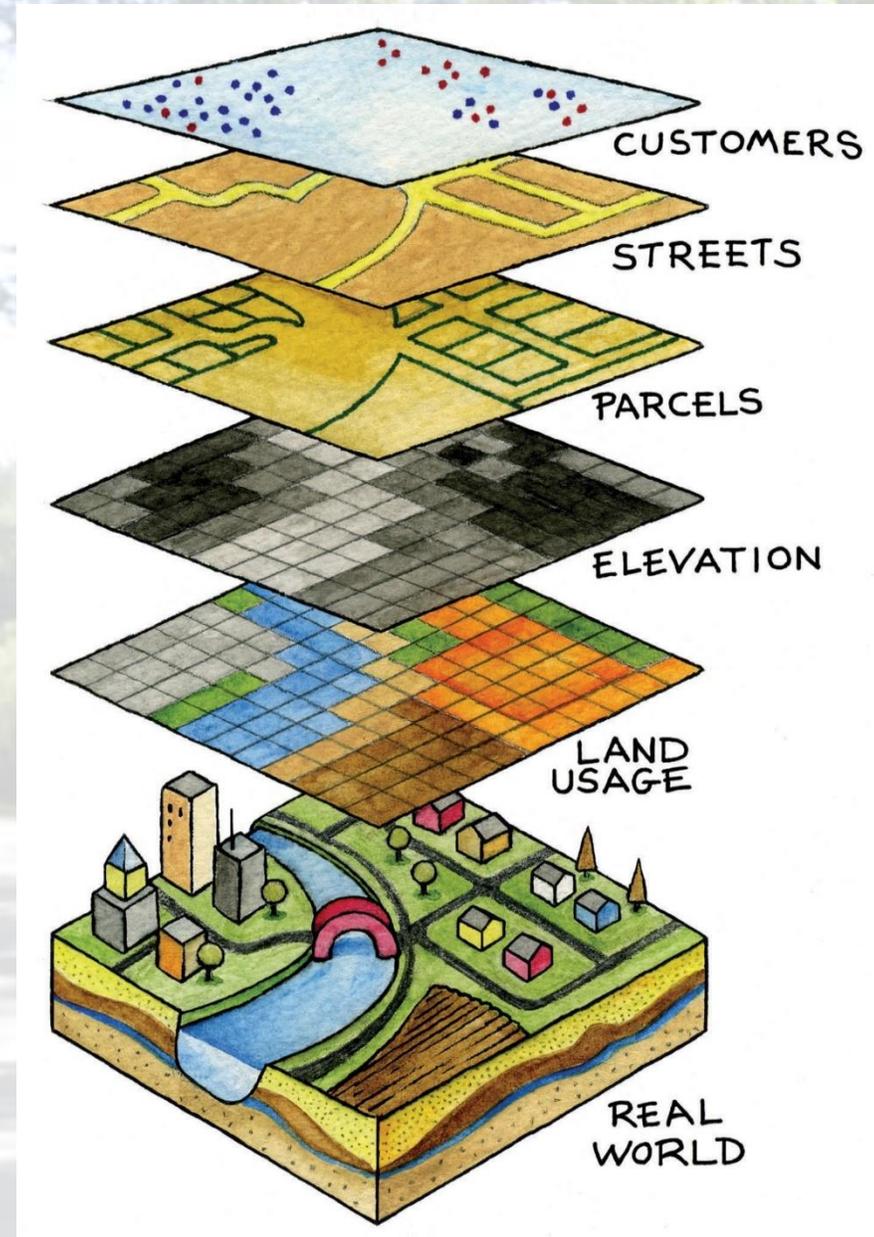
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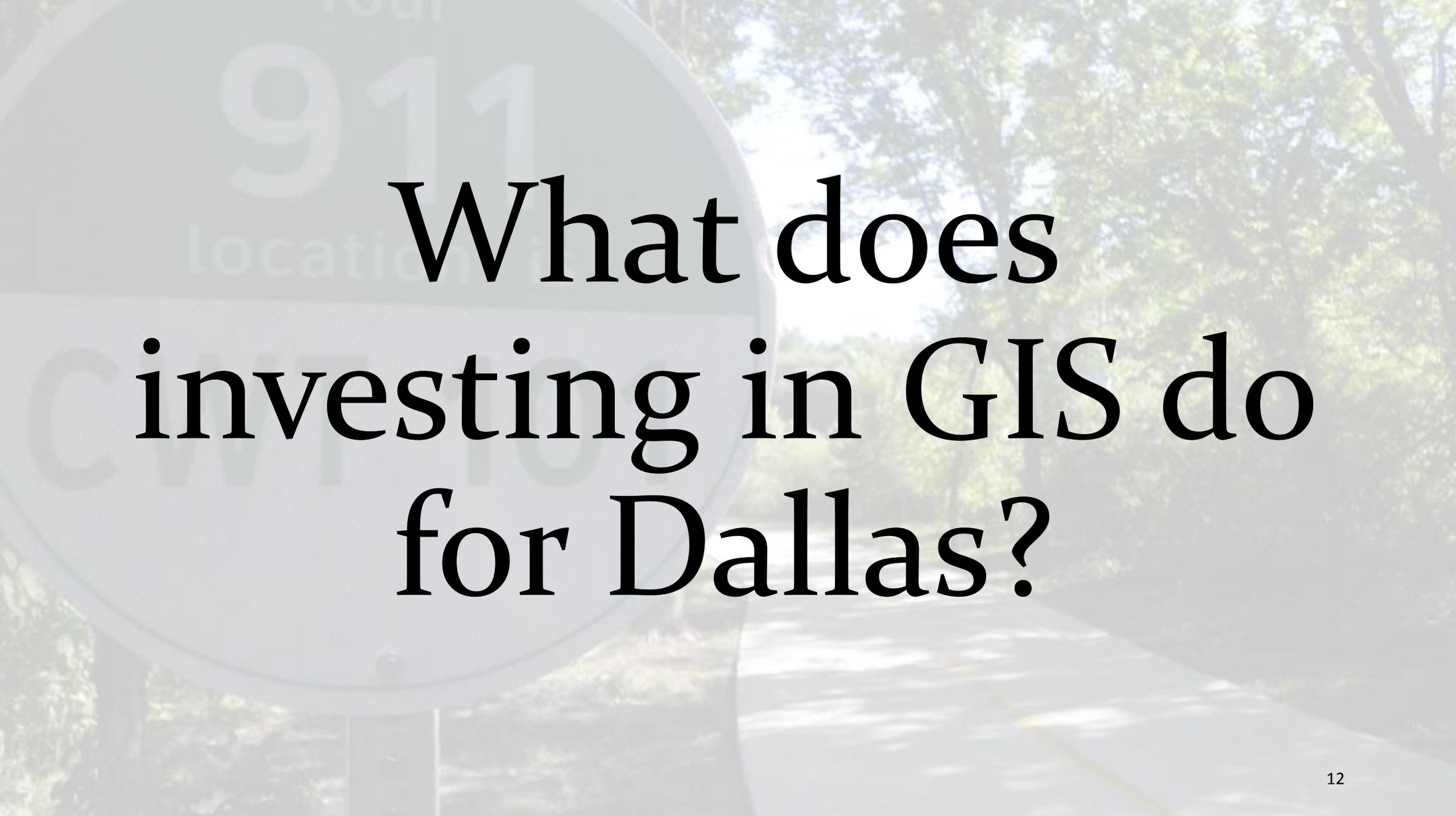
Systems



So what is GIS?

- A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data.



The background of the slide features a photograph of a paved road lined with green trees. Overlaid on the left side is a large, semi-transparent circular sign with the number '911' and the word 'location' below it. The main text of the slide is centered and reads:

**What does
investing in GIS do
for Dallas?**

It helps get us where we need to go!

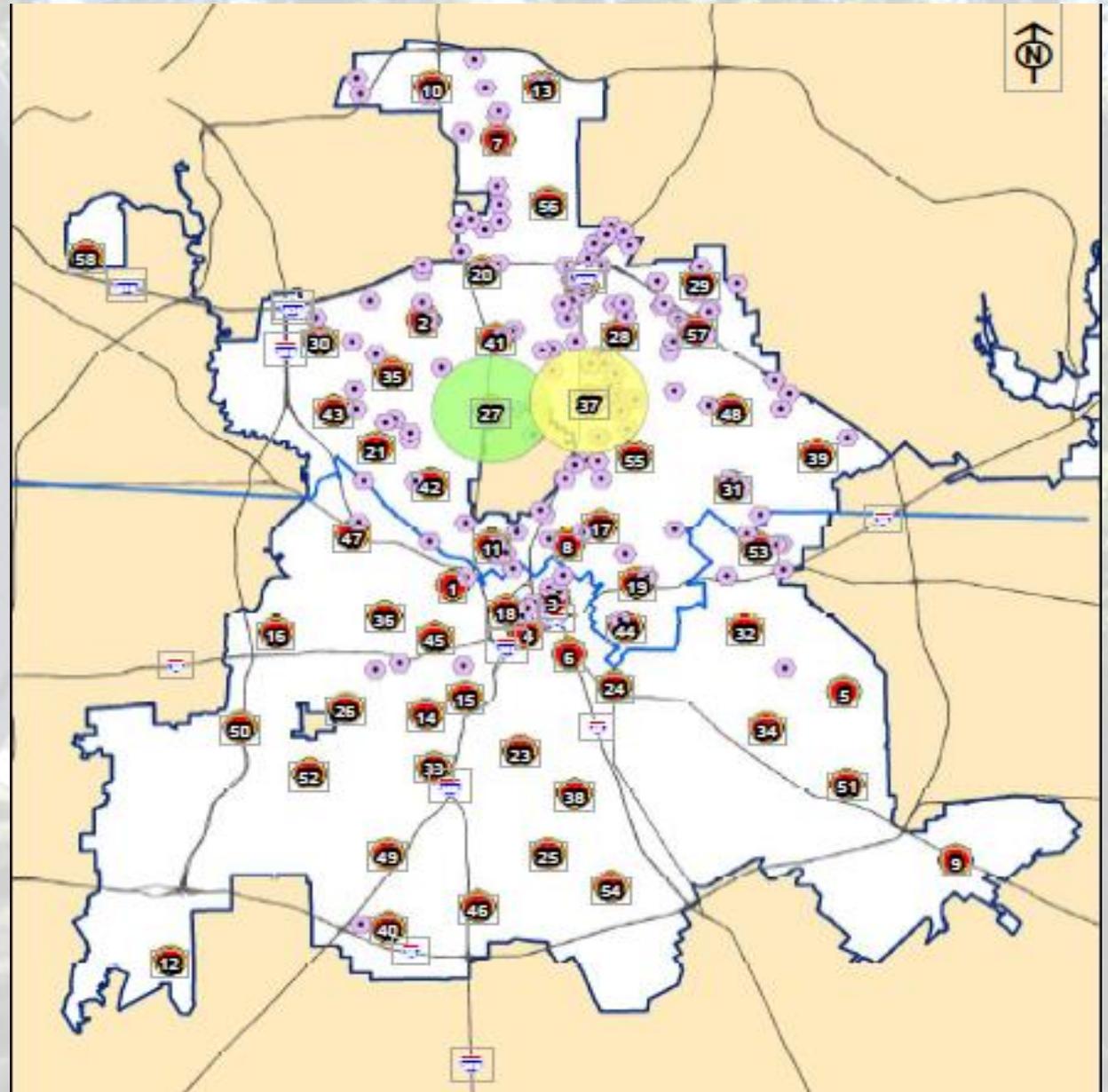
- The City of Dallas street file is called “Dalroads”. Dalroads is:
 - Maintained by the Dallas Water Utilities Enterprise GIS Division
 - The authoritative source for City of Dallas street information
 - Full of detailed information for every segment of every street.
 - Used by 9-1-1 CAD system for selecting the closest unit to respond to an incident
 - Used for by 9-1-1 CAD system for routing Police, Fire and EMS to emergency incidents
 - Updated frequently with the latest information (change is constant).
 - Updates are pushed out to all Police and Fire Mobile Data Computers
 - Absolutely critical for both DPD and DFR
 - Is also used by many other city departments.



It answers questions

It allows us to make information “Visual” and understandable so we can make better decisions. The map to the right was created in response to the following request from an executive:

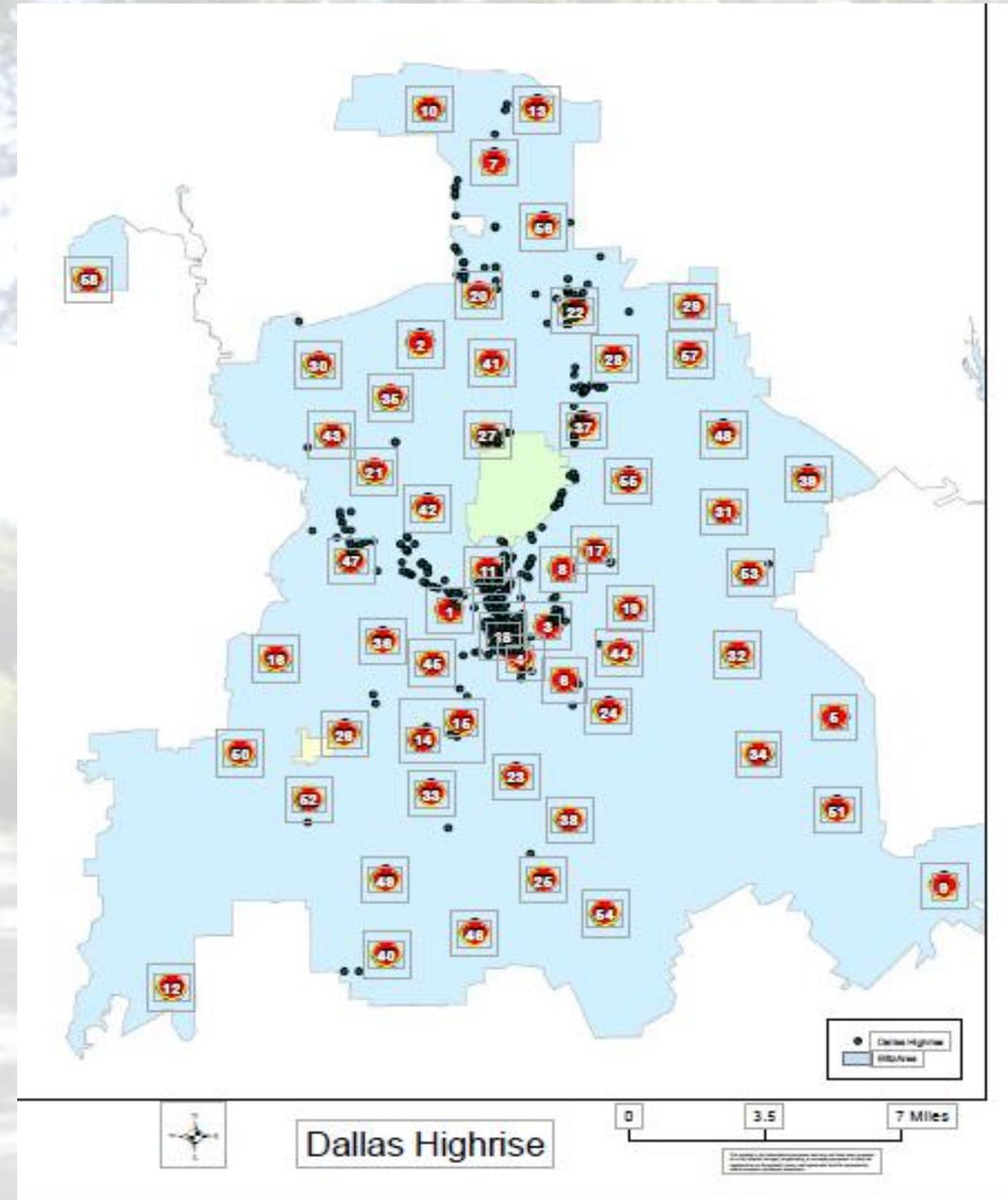
“I’d like to see all the incidents that the Deputy Chief for Area 1 responded to in the last year in relation to the two stations being considered for the permanent location for that Deputy Chief.” (...or any other fleet unit movement study)



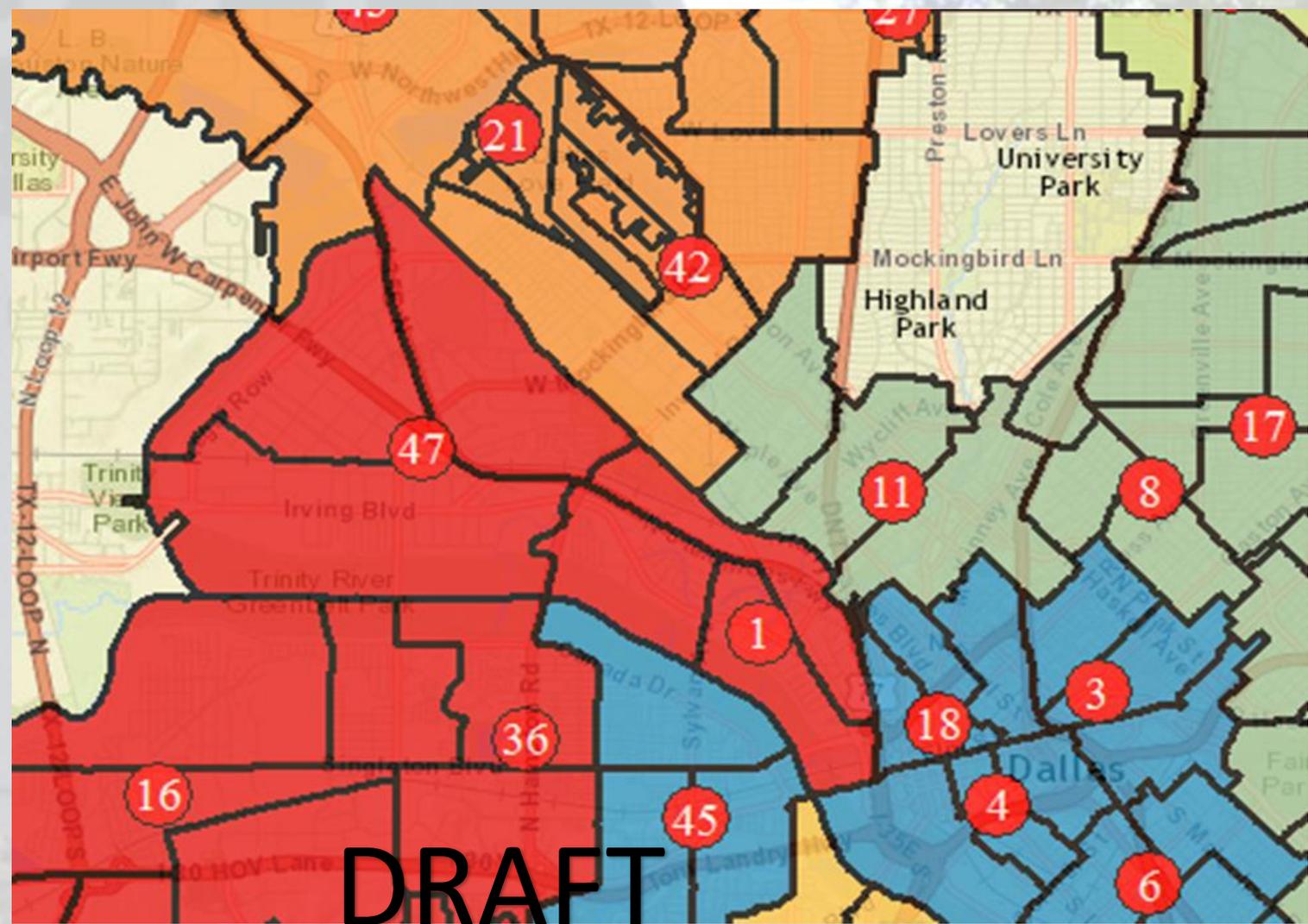
It helps us understand our city

This map was created in response to the following request:

“I’d like to see a map showing how high rise buildings are dispersed throughout the city of Dallas and their location relative to fire stations”



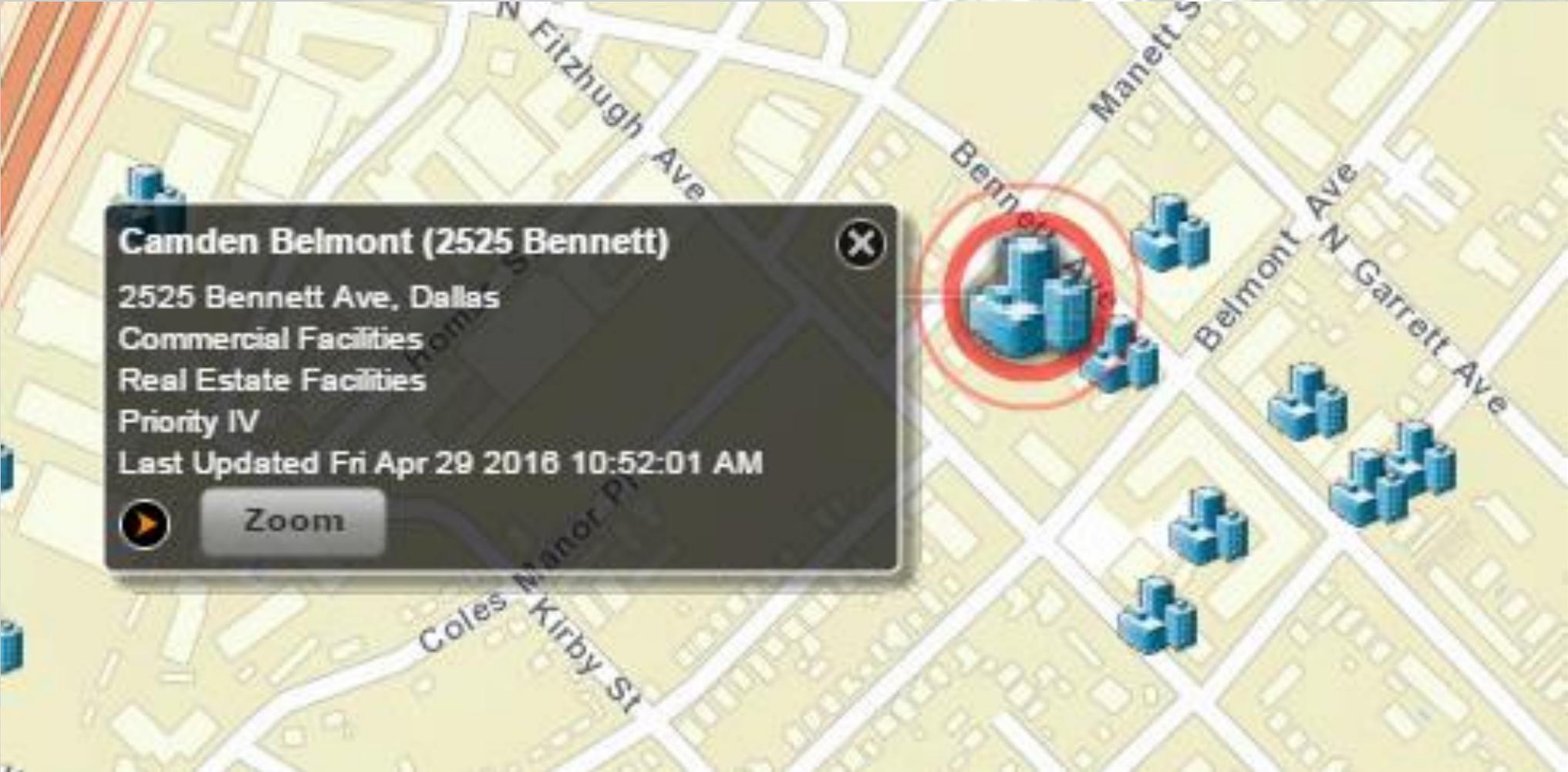
It delineates our administrative districts.....



And helps firefighters know hazards existing in buildings and facilities across the city:

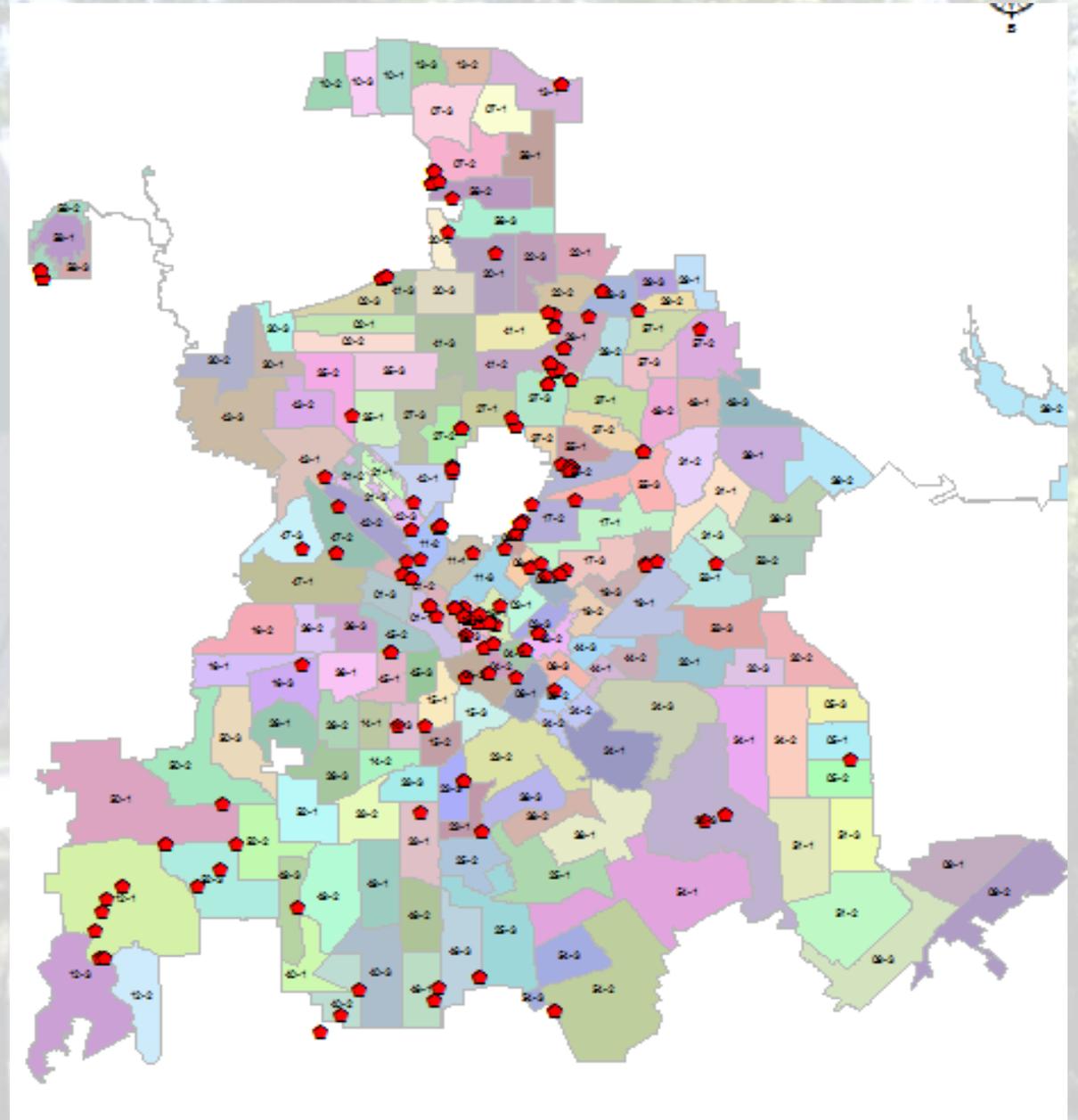


It enhances our Pre-Incident Planning



It allows us to leverage data from other Departments

This map illustrates 'New Construction' projects using data from building permits. This can be used to alert firefighters of this new construction in their area and the need to conduct a site visit to create a pre-incident plan.

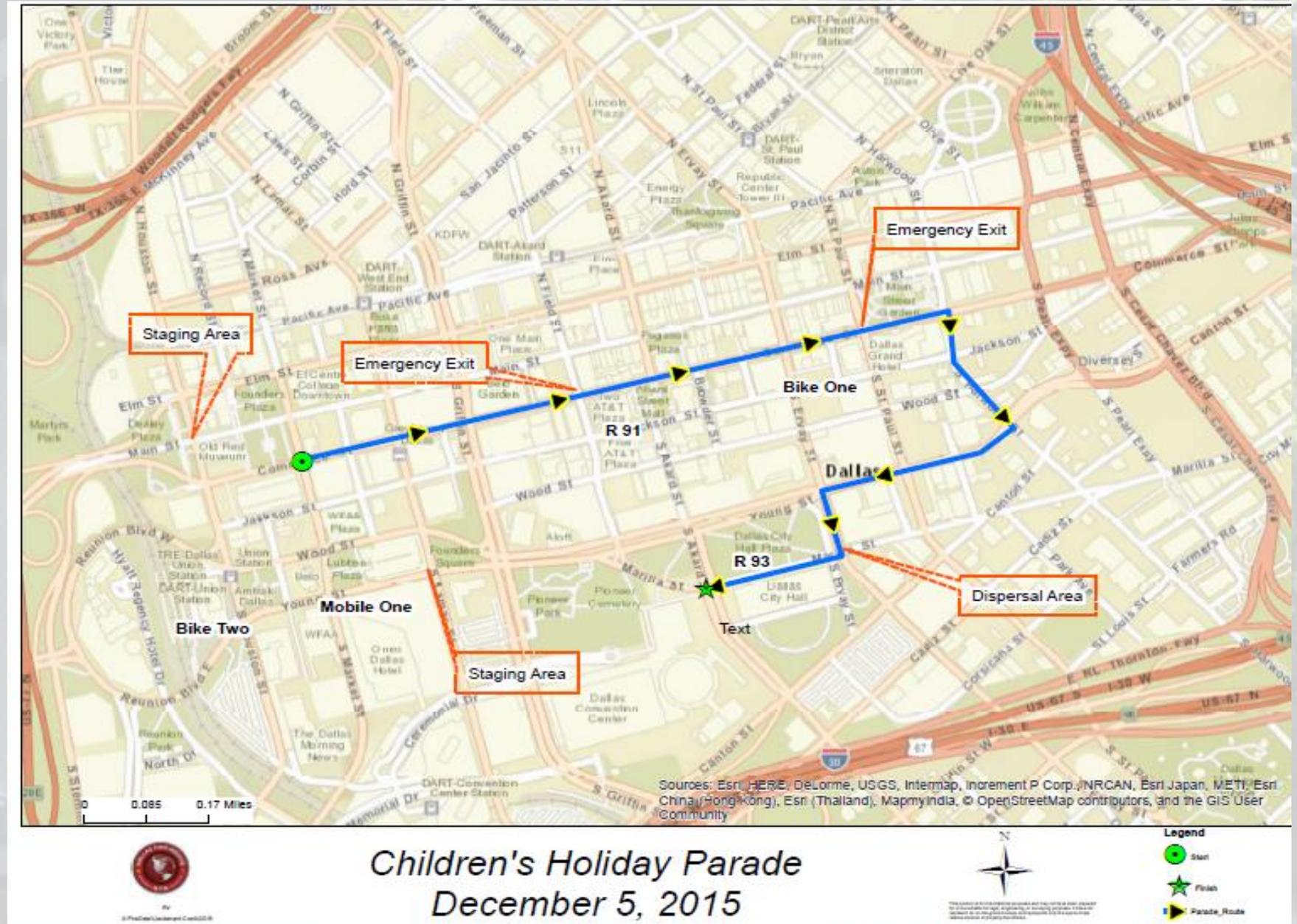


Apartment Maps

Having directed us to the correct address, GIS can then be used to pinpoint the correct apartment building in a large complex.



GIS helps us plan for Special Events and respond effectively and efficiently to any incidents at those venues



GIS and Information Management

The screenshot displays a web application interface for GIS and Information Management. On the left is a vertical sidebar with eight red buttons: Alarm Run Down, Digital Sandbox, Training, Maps / Streets, Station Info, New Construction, Forms / Symbols, and Hydrants. The main content area is divided into three sections. The top section, titled 'SEARCH MAPS', contains five red buttons: APARTMENTS, DART, TRAILS, DISTRICT, and INTERACTIVE MAP. The middle section, titled 'SEARCH STREET INFO', contains two red buttons: BOX INFO and GIS BLOCK INFO. The bottom section, titled 'Maps', has a grey header and contains the text 'Search information on maps online.'

SEARCH MAPS

APARTMENTS DART TRAILS DISTRICT INTERACTIVE MAP

SEARCH STREET INFO

BOX INFO GIS BLOCK INFO

Maps

Search information on maps online.

DFR GIS is aggregating data from multiple sources

Station #	Address	Phone 1	Phone 2	EN	TR	RE	PKR	CH	RD	BU
01	1901 Irving Blvd			EN				807		
02	4211 Northaven			EN						
03	500 Malcolm X			EN	TR	RE				
04	816 S. Akard St			EN	TR	RE		BC01		
05	2039 N. St. Augustine			EN		RE				
06	2808 S. Harwood St			EN		RE				
07	6010 Davenport Rd			EN				BC02		BU
08	1904 N. Garrett Ave			EN		RE		BC03		
09	2002 Coolmist Ln			EN						
10	4451 Frankford Rd			EN	TR	RE				
11	3828 Cedar Springs			EN	TR	RE				
12	7520 Wheatland Rd			EN			PKR			
13	6902 Frankford Rd			EN						
14	1005 W. 12th St			EN				BC06		
15	111 E. 8th St			EN		RE				

- Our objective is to enhance the ability of both firefighters and executives to get the information they need, in the form they need it, when they need it.

- This new webpage uses data from multiple sources and allows members to drill down for additional information by clicking on hyperlinks.

Clicking on a station number on the previous page provides details:

STATION DETAILS

STATION NUMBER: 03

ADDRESS: 500 Malcolm
X, Dallas ,75226

PHONE INFO: 214-670-1369
214-670-1366

UNITS AT STATION: EN,TR, RE, HZ,

NO OF BAYS: 4

UNLEADED GAS PUMP:NO

**APPARATUS ROOM
SQ.FT.:** 4353.75022888
(69.66*62.5)

LIVING ROOM SQ.FT.: 0 (0.0*0.0)



Who are the stakeholders?

- Citizens of Dallas
- Dallas Fire-Rescue
 - Firefighter / Paramedics
 - DFR Executive Chiefs
 - Special Operations Bureau
 - EMS Bureau
- DPD Officers
- Dallas Fire-Rescue Command Staff
- North Central Texas Council of Governments
- Dallas Water Utilities
- Office of Emergency Management
- Park and Recreation
- Trinity Watershed Management
- Other City Departments

Relationship with a primary stakeholder - Dallas Water Utilities Enterprise GIS Division:

- DFR GIS works closely with DWU Enterprise GIS on many projects related to streets, addressing, apartments and other issues.
- DWU provides office space for two DFR GIS Analysts.
- DWU is currently working with us on an apartment mapping project.
- DWU leveraged their relationship with ESRI (GIS system vendor) to send 3 DFR members to ESRI training. This resulted in a savings of \$4800 for the City of Dallas (specifically from DFR's budget).

DFR GIS, DWU Enterprise GIS, and Fire Hydrants

- DFR GIS is the liaison between the Dallas Water Utilities Department (DWU) which installs the fire hydrants and Dallas Fire-Rescue Emergency Response Bureau which maintains them.
- In this role, DFR GIS worked with our programmer to develop a new database that efficiently manages the entire program and also interfaces with DWU's SAP database.

The new database allows us to track hydrant maintenance, interface with DWU, create work orders and run reports

FIRE HYDRANT DETAILS

HYDRANT STATUS : OK

HYDRANT : 1698 DWUKEY : 1127028

ADDRESS : 4400 BELMONT AVE

MAPSCO : 35Z , BOX : 085001 , LATITUDE : 32.80818448 , LONGITUDE : -96.78905552

CROSS STREET : N CARROLL AVE

ADDITIONAL LOCATION INFO :

HYDRANT COLOR : SILVER

MAKE / MODEL : Mueller-Hauser , DATE CREATED : Oct 01, 2006 WATER DISTRICT : A

MAINTAINED : Y LAST MAINTAINED : Dec 02, 2015 COLLAR : N

ASSIGNED TO : EN08 B

HYDRANT HISTORY

[MAINTENANCE HISTORY](#)

[REPAIR REQUEST HISTORY](#)

REPAIR REQUEST

YEARLY MAINTENANCE

GIS also allows us to map hydrants



Why GIS is a critical investment

- Investing in GIS is smart business. GIS produces a significant return on investment.
- When data is removed from silos and made widely available to all members of the department, duplication of effort is reduced.
- When that data is then shared across departments, all members of the organization can work more efficiently. The ultimate beneficiary of such efficiency is the citizen.
- As an example, apartment maps developed by DFR benefit not only DFR, but DPD, Code Enforcement and Economic Development. It will also help prepare us for Next Gen 9-1-1 which will be very GIS intensive.



Questions?