

# Visualizing Urban Traffic Data

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# Objectives

- **Provide traffic engineers and public with urban traffic information in an intuitive and easy to understand geographically-referenced format.**
- **Harness synergy from combining urban traffic information with other transportation and related information databases.**

# Outline

- **Examples/applications**
- **Synergy that can be generated from data fusion**

# Georgia Department of Transportation's NAVIGATOR - Speed and Radar Sites



# Georgia Department of Transportation's NAVIGATOR - Changeable Message Sign Sites



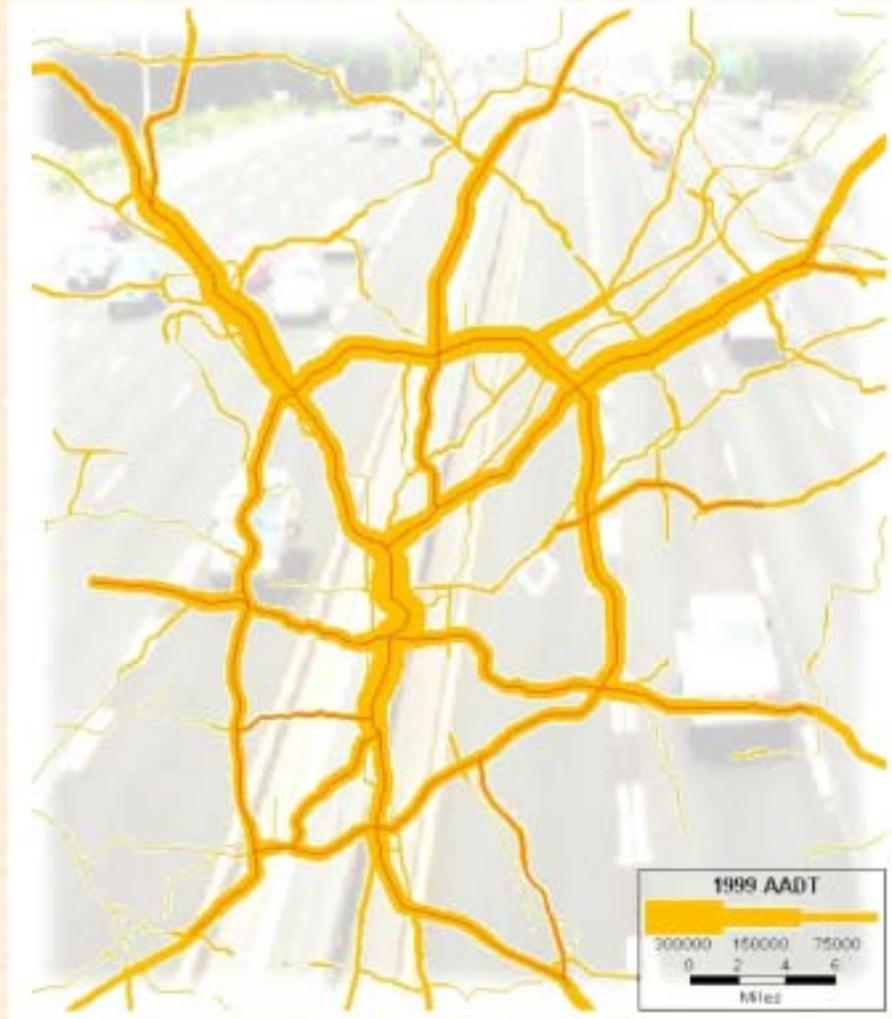
# Georgia Department of Transportation's NAVIGATOR - Camera Sites



# National Highway Planning Network Atlanta Area



# Highway Performance Monitoring System Annual Average Daily Traffic



# Time Lapse Web Cam Animation



# Time Lapse Delay Animation



# **Examples Using Traffic Accident Data (based on Fatal Accident Reporting System)**

- **Accidents at railroad crossing**
- **Response time to fatal accidents**

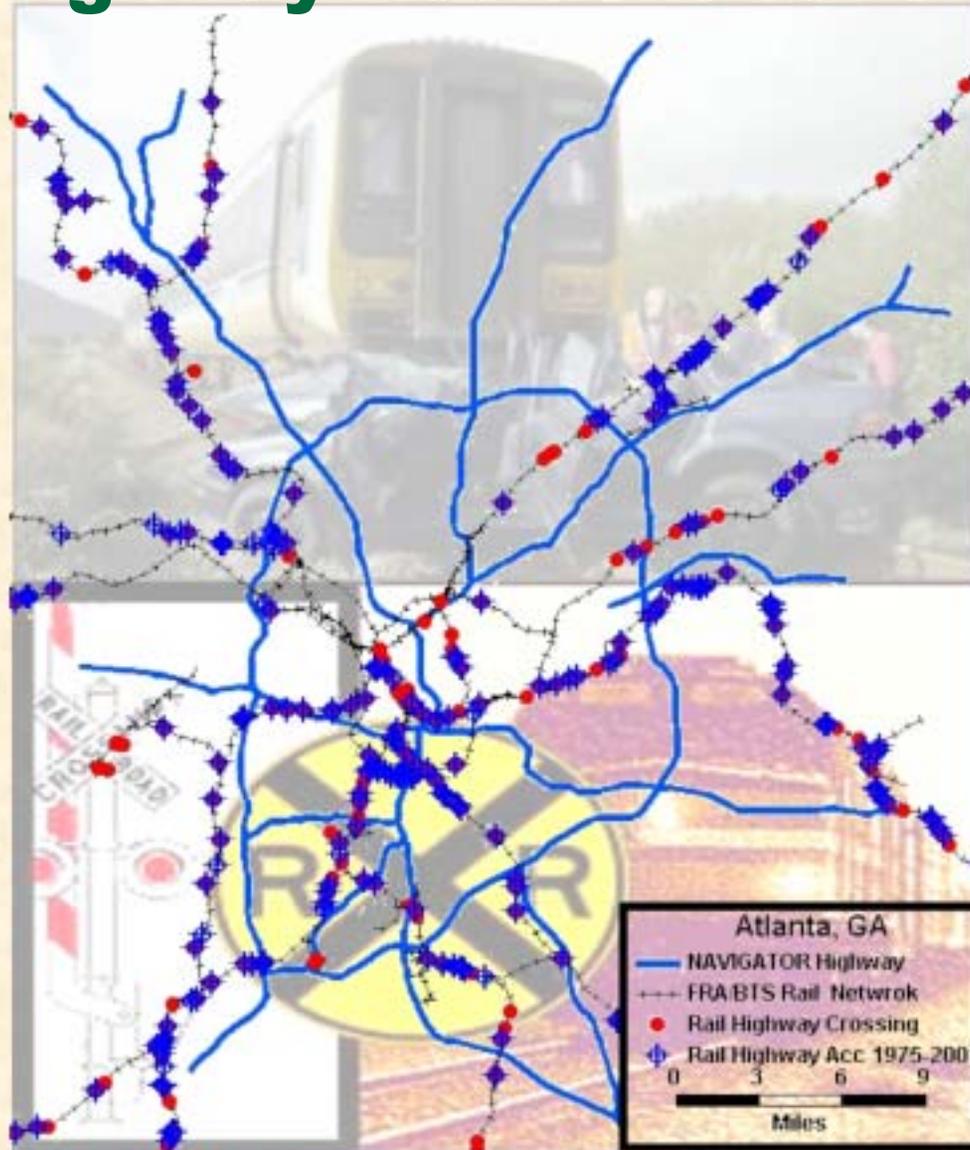
# Rail Network (1:100,000 Scale)



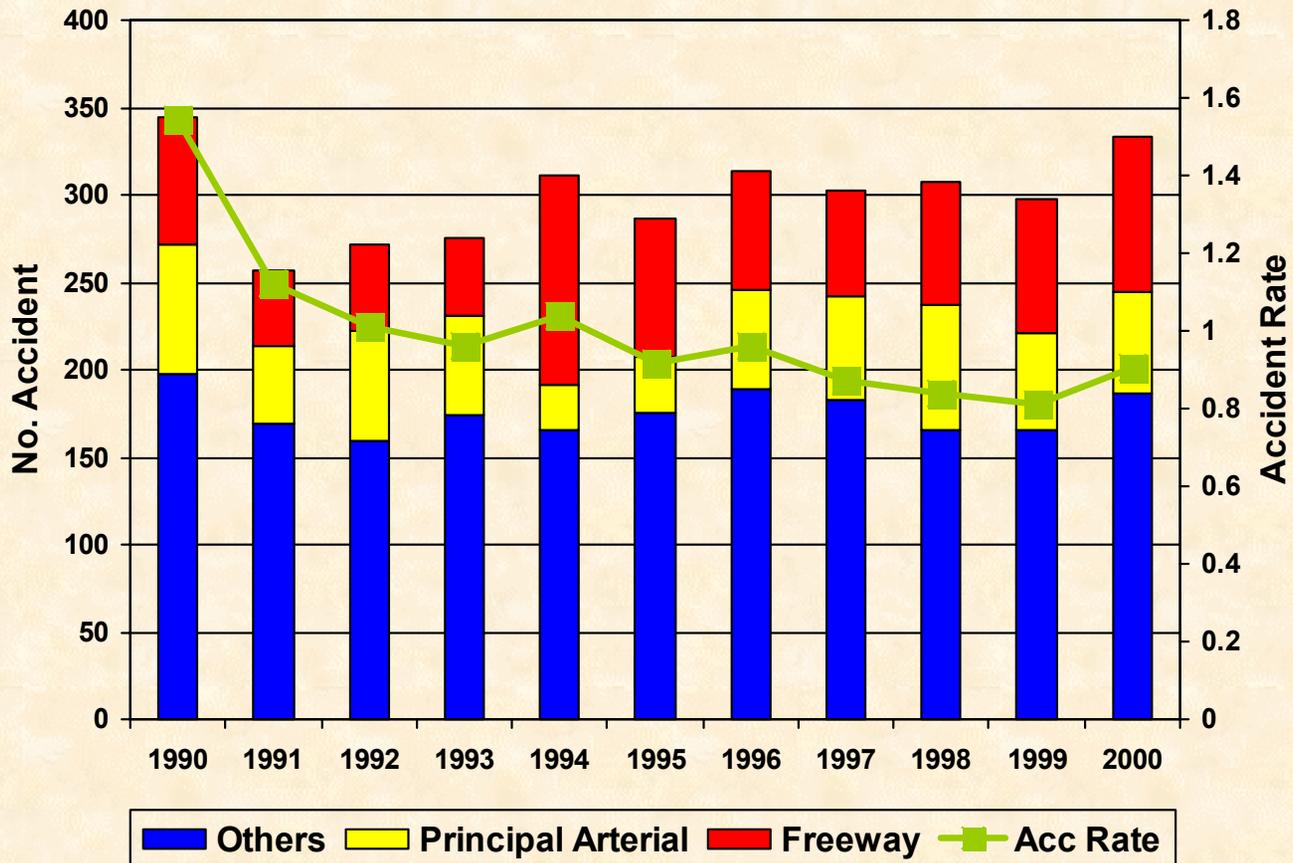
# Railroad/Highway Crossing



# Rail Highway Accident 1975- 2001



# FARS Accidents by Roadway Type (1990 - 2000)



# FARS Data (1990 - 2000)

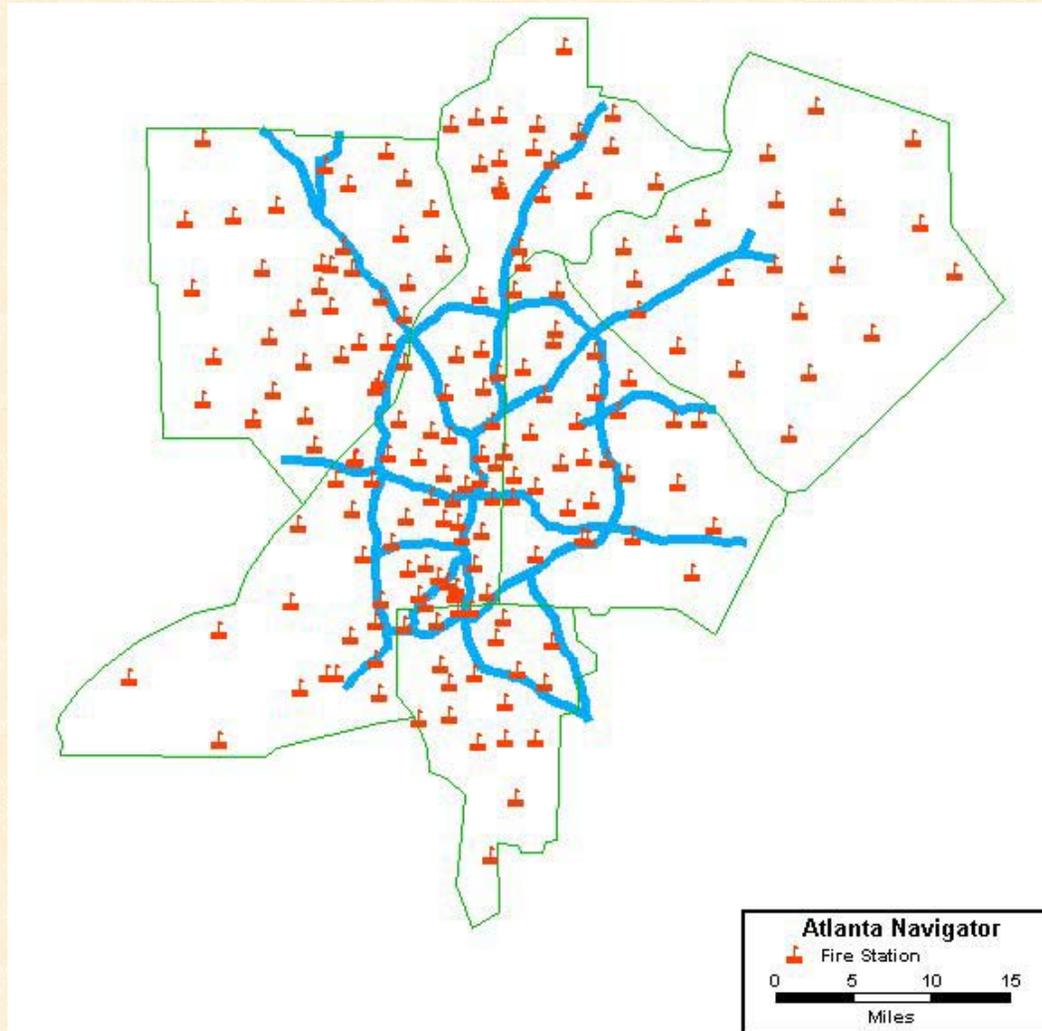


# **FARS Data Geo-coded to NHPN LRS 4.0**

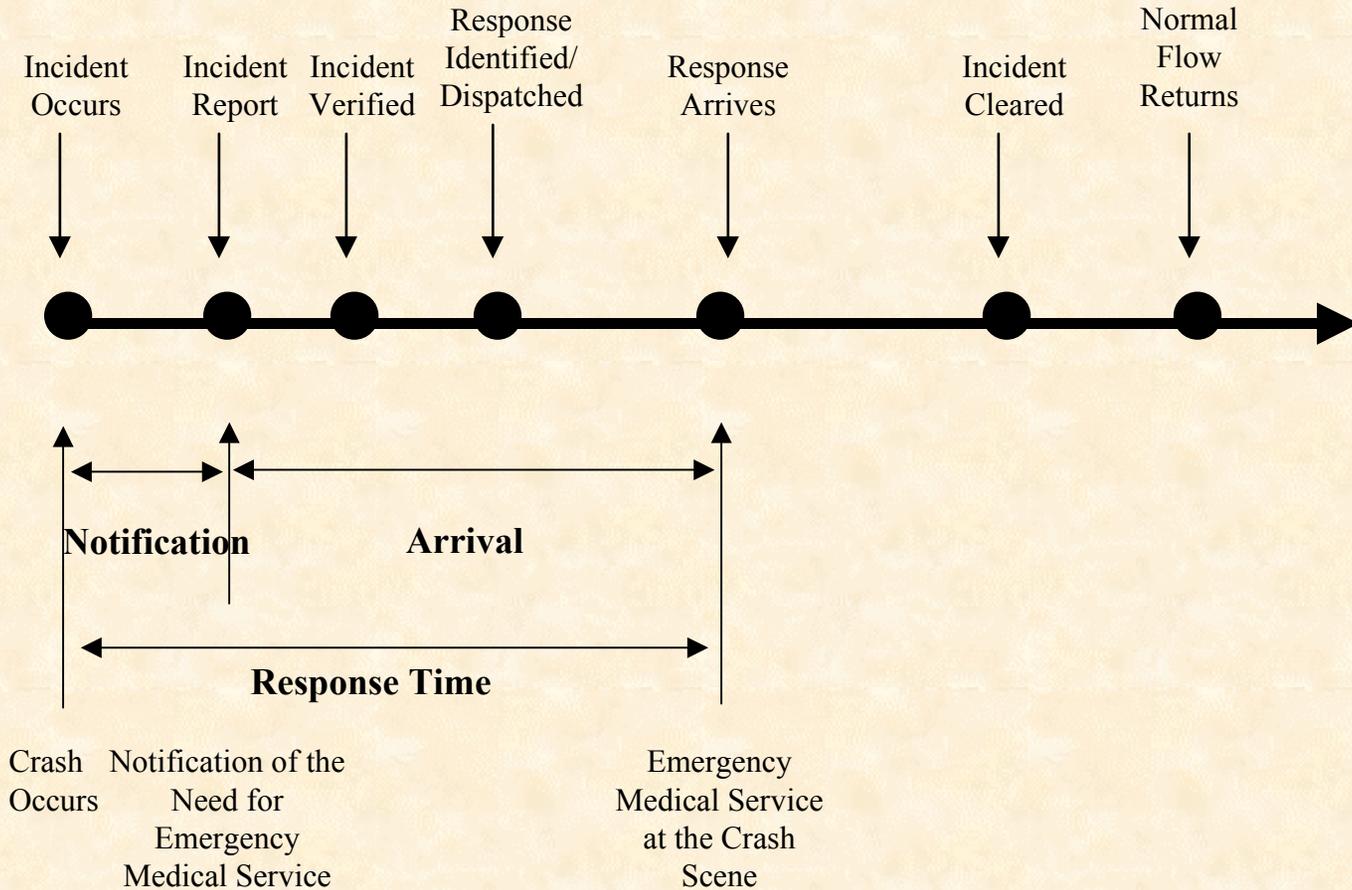
**(1990 -2000)**

	<b>Accidents from FARS</b>	<b>Accidents geo-coded</b>
<b>Interstates</b>	<b>632</b>	<b>258</b>
<b>US Highways</b>	<b>451</b>	<b>359</b>
<b>State Routes</b>	<b>739</b>	<b>364</b>
<b>Others</b>	<b>1,478</b>	<b>0</b>
<b>Total</b>	<b>3,300</b>	<b>981</b>

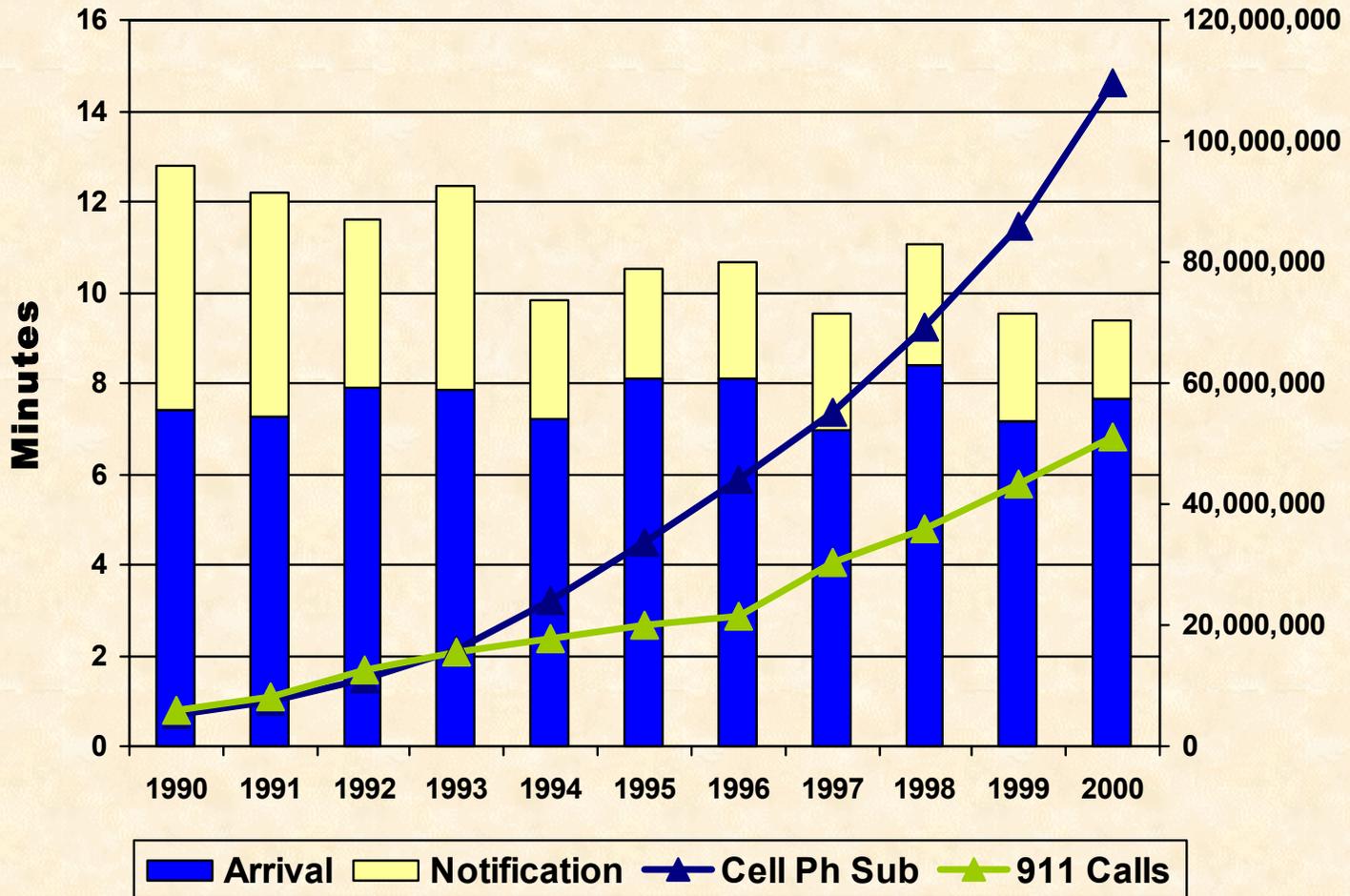
# Locations of Fire Department Station Atlanta, GA



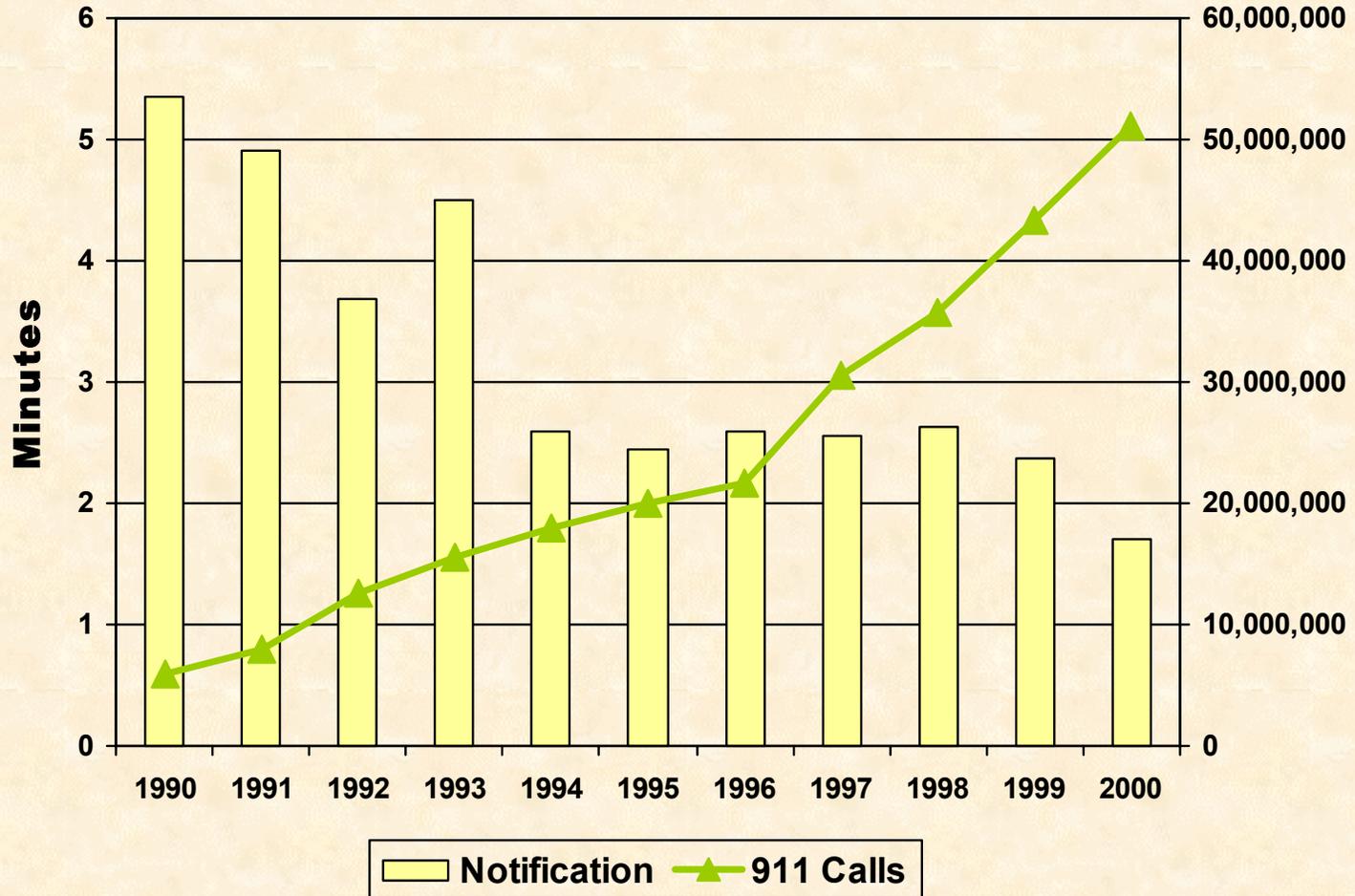
# FARS Timeline of a Crash



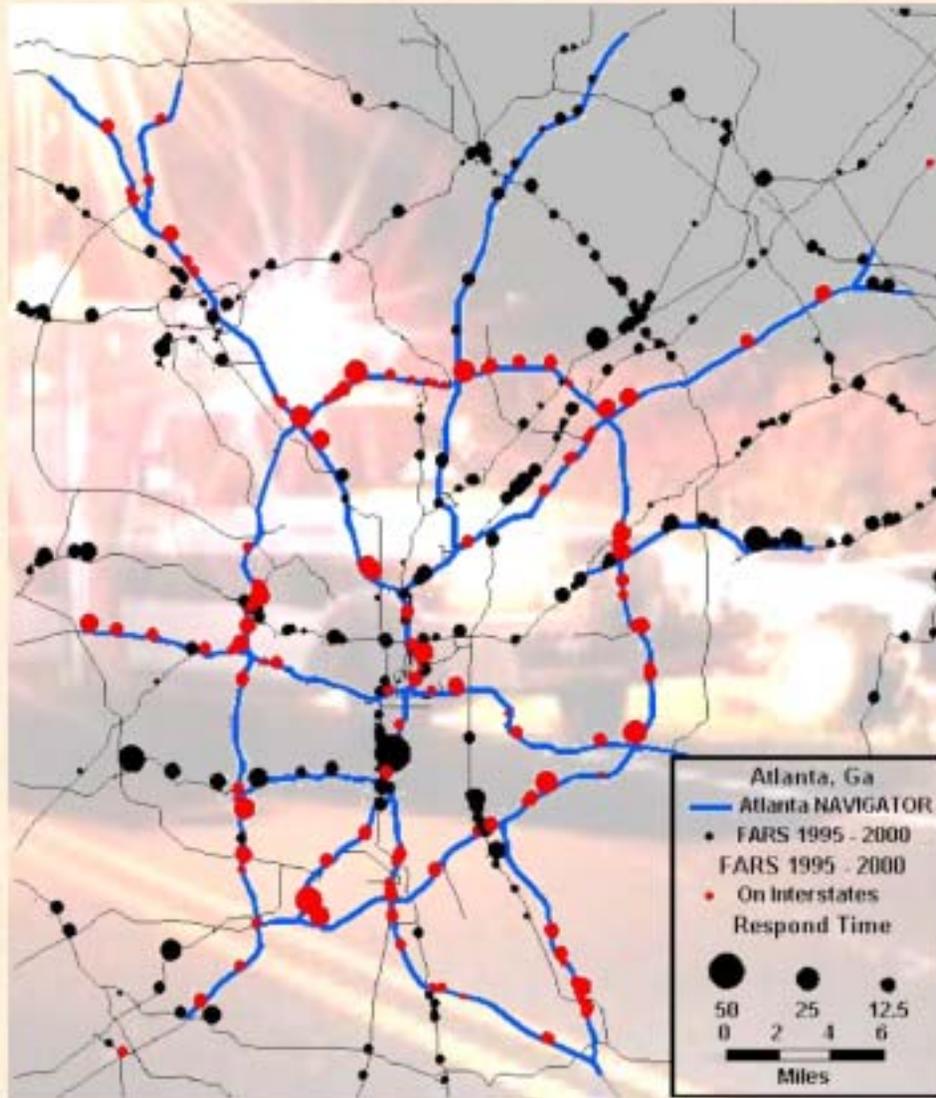
# All Roadway Response Time vs. Cell Subscribers (1990 - 2000)



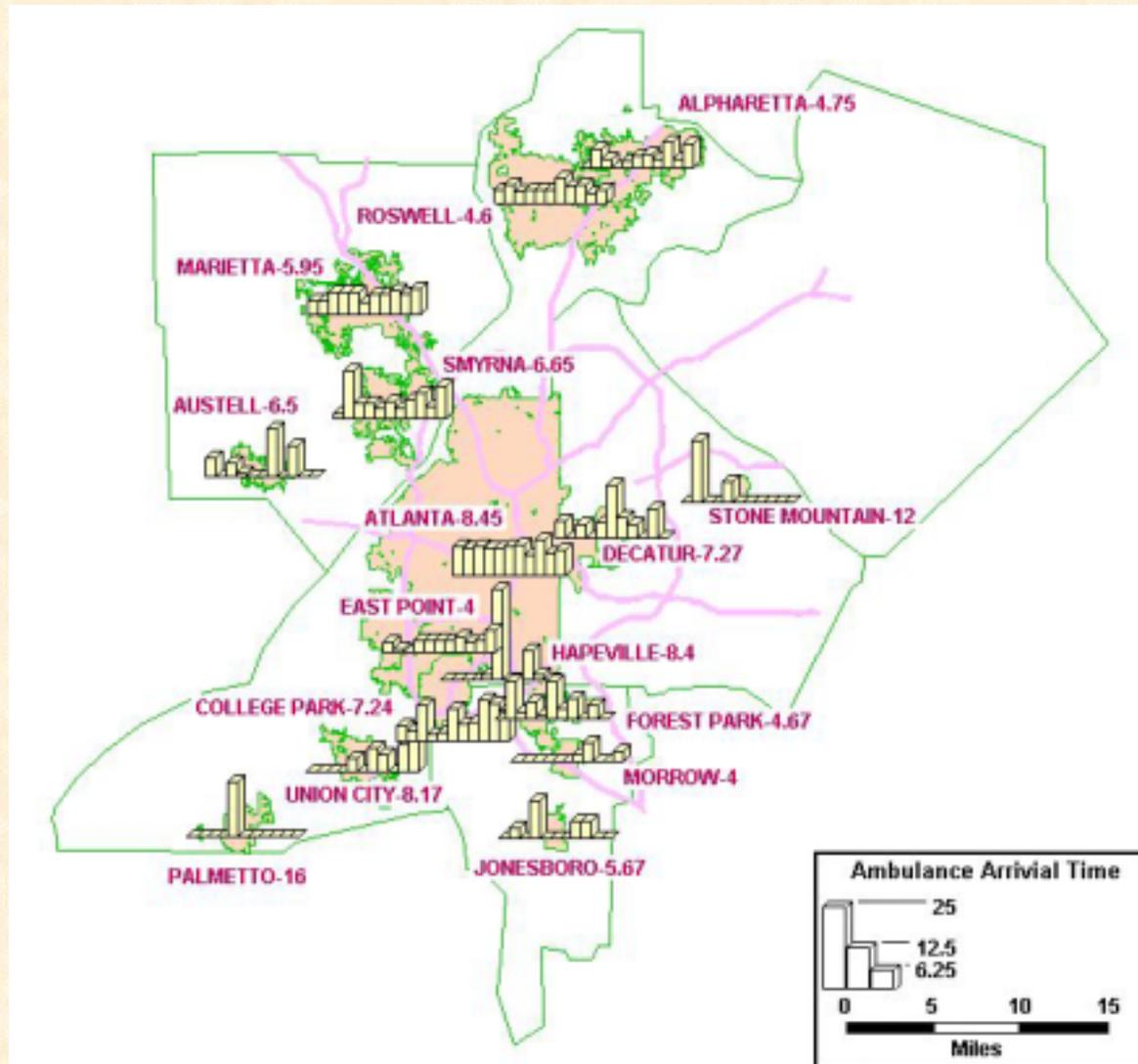
# All Roadway Notification Time vs. 911 Cell Phone Calls (1990 - 2000)



# Response Time - FARS (1995 - 2000)



# Ambulance Average Arrival Time



# Local Fire Department Statistics

## Roswell, GA

### *Roswell Fire & Rescue Department*

38 Hill Street Suite 235 Roswell, Georgia 30075 USA

*"Dedicating our time to protect the property and save the lives  
for the people who live and pass through our community each day"*

Category	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01
Fire Calls	145	139	119	122	158	140	141
Rescue Calls	320	372	346	333	347	281	315
Average Response Time	4:33	5:37	4:17	4:39	4:34	4:25	4:41

- **FARS shows 40 fatal crash records in Roswell, GA between 1990 and 2000**
- **Average arrival time is 4.6 minutes**

# Before-After NaviGAtor Comparison using FARS data (minutes)

	Notification	Arrival	Response	Trendline
1990-1995 Average	3.91	7.62	11.54	11.62
1996-2000 Average	2.37	7.66	10.03	9.92
Improvement	1.54	-0.03	1.51	1.70
% of Improvement	39.38%	-0.44%	13.06%	14.60%
1990 Average	5.35	7.42	12.77	12.39
2000 Average	1.71	7.67	9.38	9.31
Improvement	3.64	-0.26	3.38	3.09
% of Improvement	68.04%	-3.45%	26.50%	24.90%

# Summary

- **GIS tools enable traffic engineers and public view urban traffic patterns in an intuitive and easy to understand format.**
- **Related databases can be integrated.**
- **Applications are boundless.**
- **Synergy shall benefit driving public.**