



# Tracking Technologies for 911

Steve Marzolf

Virginia E-911 Coordinator



# Technologies

- ◆ Wireline E-911
  - Automatic number/location information
- ◆ Wireless E-911
  - Phase I/II location information
  - Link to mapping/GIS data
  - Subscriber information
- ◆ Future technologies in 9-1-1
  - Telematics
  - Voice over Internet protocol
- ◆ Other technologies in 9-1-1 centers



# Wireline E-911

- ◆ Provides the following information for all callers to 9-1-1:
  - Registered name
  - Physical address
  - Telephone number
  - Class of service (RESID, BUSN, Non-Pub, etc.)
- ◆ Center can manually “look-up” entries by telephone number
- ◆ Information available for exigent circumstances even if 9-1-1 not called



# Wireless E-911

## ◆ Phase I

- Call back number
- Address of cell site processing the call

## ◆ Phase II

- Phase I data
- Longitude/latitude for caller (accuracy dependent on technology)



# Phase II - Accuracy

## ◆ Handset Based Solution

- Global Positioning System (GPS) in handset
- Requires handset replacement/activation
- 50 meters / 67% of the calls
- 150 meters / 95% of the calls

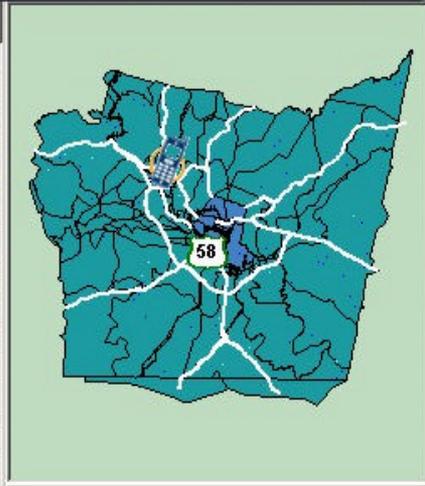
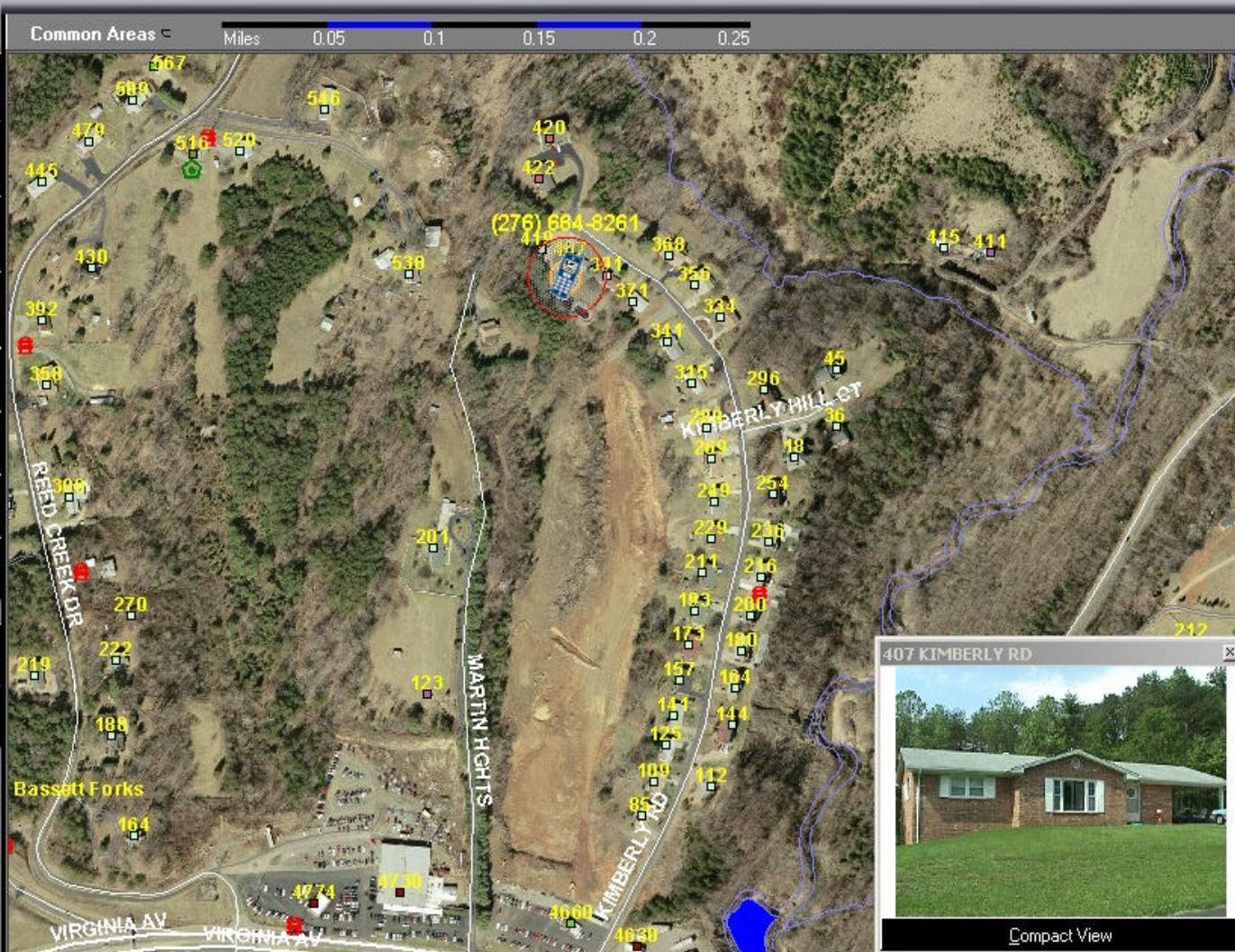
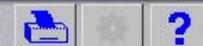
## ◆ Network Based Solution

- Triangulating based on at least three cell sites
- Works with existing handsets/carrier controlled
- 100 meters / 67% of the calls
- 300 meters / 95% of the calls



# Mapping/GIS

- ◆ 9-1-1 center have access to multiple databases
  - Digital aerial photography
  - Assessment/property owner data
  - Building photographs/plans
  - Previous incident history



Show Images  
 Catalogue: Color Images

Map Layers

- Sites
- LZONE
- TPARKS
- HYDRANTS
- CHYDRANTS
- IFLOW
- Accessory Buildings
- Landmarks
- Cell Towers
- Emergency Agencies
- Major Roads
- Roads
- Driveways



My Calls Active ActiveCAD

Date/Time	House	Street	Type Call	Tel #	Community
Apr 15, 2003 08:46:18	3200	KINGS MOUNTAIN RD	FOL - FOLLOW UP INVESTIGATION...	999-999-9999	MARTINSVILLE
Apr 15, 2003 08:46:06	223	MOSS	SER - SERVING WARRANT ...	999-999-9999	MARTINSVILLE
Apr 15, 2003 08:45:29	1026	ASKIN ST	SER - SERVING WARRANT ...	999-999-9999	MARTINSVILLE
Apr 15, 2003 08:39:22		CLEARVIEW/OVERLA...		999-999-9999	
Apr 15, 2003 08:36:57	3379	VIRGINIA AV	F90 - FIRE ALARM	999-999-9999	COLLINSVILLE

ANI:(276) 664-8261 CPN:(2)  
 WIRELESS-US Cellular(X)  
 0 8722251243 677 Ferndale  
 Collinsville  
 ESN = 6021  
 BLDG UNIT

# Subscriber Information



- ◆ Wireless Communications and Public Safety Act of 1999 (U.S. Code Title 47, Section 222)
  - Subscriber and location information protected
  - Exception “solely for purposes of assisting in the delivery of emergency services in response to an emergency”
  - Access to subscriber information for emergency notification systems
- ◆ Communications Assistance for Law Enforcement Act of 1994 requires court order for other subscriber and location information



# Future Technologies

## ◆ Telematics

- Transmission of collision data to 9-1-1 center
- Potentially assist determination of response

## ◆ Voice over Internet protocol

- Need to track location on the Internet
- Routing calls to the appropriate 9-1-1 center



# Other Technologies

- ◆ Virginia Criminal Information Network (VCIN/NCIC)
- ◆ Automatic look-up in local law enforcement files of “names” entered
- ◆ Mobile data access to records or transmission over radio system
- ◆ All lines are recorded (public information)