Automated Mapping for Local Public Safety & Emergency Dispatching

Presented by:

Michael Olkin
molkin@appgeo.com
www.appgeo.com
Why Automate Dispatch Mapping?

• Faster, More Effective Response
  • Reduce or eliminate effort to find call locations
    – Automated mapping saves the dispatcher up to a minute
    – Desire for Unit-Level Locations for Apartments & Condos
  • Determine equipment needs before dispatching a crew
    – Know the distance to hydrants or water sources
    – Know about on-site hazards
  • Replace paper map sets
    – Multiple sets are typically in use, not always up to date
  • Take advantage of and Integrate with existing resources
    – Enhanced 911 systems transmit electronic address information
    – NFIRS requires incident reporting, typically produced electronically
    – Community GIS data usually includes parcels, providing an address base
Design Objectives

• Directly Match Incoming Address to an exact location
  – If building footprints or orthophotos are available, the flaws of centerline address-matching are usually apparent
  – Requires exact match of point address attribute to E-911 address

• Integrate External Data Sources
  – Community’s GIS Data Resources
  – Various Databases (hazmats, past incidents, permits, etc)

• Simple & Automated, for non-GIS users
  – Intuitive enough for part-time users
  – Easy to find addresses, navigate, measure & adjust locations

• Give the Users a Reason to Throw Away paper maps
Challenges

• Contributing data typically is maintained by different departments for different purposes

• Community Street Name “Standards” Not Always Consistent
  – Tax Parcels (often the initial source for mapped locations)
  – City or Town Clerk’s Records (official street names)
  – Enhanced 911 (statewide street name standards)

<table>
<thead>
<tr>
<th>Standard</th>
<th>Full Street Name</th>
<th>Direction</th>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clerk</td>
<td>BOULEVARD</td>
<td></td>
<td>BOULEVARD</td>
<td></td>
</tr>
<tr>
<td>Assessor</td>
<td>SOUTH BOULEVARD</td>
<td>SOUTH</td>
<td>BOULEVARD</td>
<td></td>
</tr>
<tr>
<td>E-911</td>
<td>S BLVD</td>
<td>S</td>
<td></td>
<td>BLVD</td>
</tr>
</tbody>
</table>

• Locating Apartment & Condo Units
• Integration into existing dispatch workflow
• Minimize impact upon desktop real estate at the dispatch center
Solutions

• Standardize Addresses with a Street Name Database
  – Relational Database “translates” between standards
    • Tip: Enhanced-911 Address List can be used as a base because street names are parsed into several fields
• Use the opportunity to “scrub” databases of anomalies
• Geocode E-911 Addresses to Parcels & snap to buildings
• Work with Emergency response staff to locate un-matched addresses, including apartments and condominiums
• Structure supporting databases to be restricted to a standard list of street names
Example Communities

• West Springfield, MA
  – Fire & Ambulance Dispatching
  – More than 50 Fire Dept Staff, each taking turns at the dispatch desk
  – Staffed Community GIS with parcels & base-map data
  – Existing reporting system
  – Home-grown fire permitting & HazMats databases

• Falmouth, MA
  – Fire Dispatching
  – Small Group of Dispatching Specialists
  – Staffed Community GIS with parcels & base-map data
  – No pre-existing digital reporting system
Example Communities

- **West Springfield, MA**
  - Objective: a simple mapping system to run along side of reporting system, while integrating with existing databases
  - Address Data Automation Approach: Involvement by Fire Dept staff in locating apartment units and other un-matched addresses through field verification
  - Addresses Matched to one set of points

- **Falmouth, MA**
  - Objective: all-purpose mapping, equipment mgmt & reporting system
  - Address Data Automation Approach: Parcel Centroids used until dispatching staff refines addresses and landmarks
  - Three Levels of Locations: Addresses/Landmarks, Parcel Centroids, Street Intersections
Application Demonstrations