Proactive and Real-time Crime Management Strategies Using GIS

City of Baton Rouge
Parish of East Baton Rouge

2018 Esri User Conference
July 11, 2018
Baton Rouge - Small Town Values, Big City Problems

- Incorporated in 1817
- Population:
  - City of Baton Rouge - 230,000
  - Greater Baton Rouge Area - 825,000
- Area: 88.12 square miles
- Violent Crime (per 100k): 952
- INRIX Traffic Rank: 67
- City Police Officers: 645
Defining Challenges and Goals

• Shortcomings
  – Lack of shared information - “Data Silos”
  – Outdated and not easily obtained information
  – Ineffective way of visually displaying data

• Solutions
  – Secure
  – User friendly
  – Aggregate sources
  – Adaptive
  – Near real-time
  – Historical crime data
  – Proactive versus reactive
Public Safety Common Operational Platform

- Accessible from any device
- Secure login
- Easy to manage
  - Control content
  - Create web maps and applications
  - Assign roles
  - Manage groups

- Common Operational Picture
  - Up-to-date
  - Centralized data
  - Various sources
  - General overview/ deep analysis
Crime Analysis Dashboard

- User-friendly
- CAD data
  - Incident Type
  - District
- 96-Hour
- Recent trends
Daily Operations Dashboard

- User-friendly
- CAD data
- AVL data
- Near real-time
Overall View of Crime

Reactive

Historical data helps aid in analyzing and investigating

Past

Proactive

What will happen? Predicting vs. Preventing

Future

Situational awareness of what is happening right now

Present
So... Is It “Predictive”? 

• Risk Terrain Modeling (RTM)
  – *Developed by Leslie Kennedy and Joel Caplan, Rutgers Center on Public Safety*
  – *Objective and transparent*

• Focus on spatial dynamics of crime, not demographics

• Goes beyond “Hot Spot” analysis
  – “Where to go”
  – “What to do when you get there”

• Helps to prioritize and proactively deploy resources
Risk Based Policing

- Evidence-Based and Data-Driven
- Statistically Significant Probability
- Model’s Parameters Are Flexible and Meaningful
- Micro-level Analysis (500’ X 500’)

[Image of a map with colored squares indicating risk areas]
Risk Based Policing Dashboard

- Quarterly Model
- Elevated Risk Areas
- Attractors of Crime
Risk Based Policing Dashboard

- Target Patrols
- Location Specific Data
- Community Engagement
Risk Based Model Accuracy Rate

Percentages and totals are based on crime data from 2/1/17 to 4/30/2018

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Total Number of Violent Crimes</td>
<td>3,016</td>
<td></td>
</tr>
<tr>
<td>Models Average Coverage of City</td>
<td>8.5 sq mi</td>
<td>9.5%</td>
</tr>
<tr>
<td>Violent Crimes Inside of a Grid Cell</td>
<td>1,442</td>
<td>47.8%</td>
</tr>
<tr>
<td>Violent Crimes Within 500' of a Grid Cell</td>
<td>2,138</td>
<td>70.8%</td>
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<tr>
<td>Violent Crimes Within 1000' of a Grid Cell</td>
<td>2,478</td>
<td>82.2%</td>
</tr>
<tr>
<td>Violent Crimes Within 1500' of a Grid Cell</td>
<td>2,632</td>
<td>87.3%</td>
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</tbody>
</table>

*Average Accuracy Rate of 5 Model Iterations*
Recognition

Rutgers Center on Public Security
2017 RTM Exemplary Award

International Data Corporation
2018 Smart City North America Awards - Police and Law Enforcement
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