Video 3: Analysis of Patterns and Crash-Prone Locations

Characteristics of Crash-Prone Locations

37,731 Fans at Fenway
37,461 crash deaths per year
Characteristics of Crash-Prone Locations

Source: https://desktop.arcgis.com/en/analytics/case-studies/analyzing-crashes-1-overview.htm
Characteristics of Crash-Prone Locations

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Characteristics of Crash-Prone Locations

- Environment
- Construction
- Bad intersection
- Direction of travel
- # of lanes
- Parking lots
- Stop signs
- Rural highways
- Cluster with other crashes/crimes
- Victim type

Characteristics of Crime Patterns

<table>
<thead>
<tr>
<th>Question</th>
<th>Sub-questions</th>
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</thead>
<tbody>
<tr>
<td>What?</td>
<td>Scope of issue, number of offenses, property</td>
</tr>
<tr>
<td>Who?</td>
<td>Offender and victim/target characteristics</td>
</tr>
<tr>
<td>When?</td>
<td>Time, day, season, intervals</td>
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<tr>
<td>Where?</td>
<td>Location, type of location, environment, movement</td>
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<tr>
<td>How?</td>
<td>Modus operandi, signature</td>
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<tr>
<td>Why?</td>
<td>Causal factors, motivations, correlates</td>
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<tr>
<td>So what?</td>
<td>Highlight commonalities, elements that lead to action</td>
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<tr>
<td>Now what?</td>
<td>Forecasts, specific recommendations</td>
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</tbody>
</table>
Characteristics: What?

What
- Crime type & characteristics
- Sequence of events
- Actions of participants

Characteristics: Who – Victim/Targets

Victim/Target
- Characteristics
  - Person
  - Location
- Activity before & after
Characteristic: Who - Offenders

Offender
- Characteristics
  - Physical
  - Behavior
- Vehicle
- Activity before & after
- Motivation

Characteristics: How & Why

How: modus operandi
- Location of Entry
- Method of Entry
- Weapon
- Property Stolen
- Suspect Actions
- Words Spoken
- Injury Inflicted
- Property Damage
- Method of Departure
- “Signature”

Why
- Applies to all other factors
- Why this crime?
- Why this target?
- Why this time?
- Why this location?
- Why this modus operandi?
**Temporal Relationships**

**When**
- Time of day
- Day of week
- Type of day
- Week of month
- Month of year
- Season/Cycle
- Proximity to other events
- Days between hits
- Temporal Progression of Pattern

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<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
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Spatial Relationships

Where
- Specific location
- Type of location
- Environment
- Route/Recovery
- Direction of Travel/Flight
- Geographic Progression of Pattern

Specific Locations
Spatial Arrangement
Location Types

- Restaurant
- Other Commercial

Vehicle Breaks

- Red Lobster
- Black Angus
- Izzy’s
- IHOP
- Olive Garden

Environment
Consider:
- "Acquisition" Site
- Crime Site
- Dump/Recovery Site
Geographic Correlation

What’s near the incidents in my crime pattern?
- Highways/major routes
- Methadone clinics
- Public transportation
- Budget motels
- Public housing
- Schools
- Gang territories
Regional Factors

Cross-Jurisdictional Activity

Geographic Progression

Car Jacking Series
Suspect is likely to hit on Friday, July 3rd, from 1800-2200 hrs.

Suspect will target a convenience store that sells the lottery, specifically that has a female clerk working alone.

There are 2 potential targets that meet the MO and environmental characteristics:

- Sunoco Station Canton, MA
- Shell Gas Station Westwood, MA

### Environmental Variables & Correlates

[Map showing geographic progression and environmental variables]
Summarizing Factors

Temporal Forecasting

Smithfield Convenience Store Robbery Series

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<tr>
<th>Location</th>
<th>Date</th>
<th>Interval</th>
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<td>05:00-06:00</td>
<td>Sun</td>
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Average: 16:00-17:00

Standard Deviation: 0.56

Maximum: 18:00-19:00
Spatial Forecasting

Identify target area
  • By concentration
  • By spatial progression

Identify at-risk targets within target area

Refine with
  • Environmental factors
  • Known correlations
  • Other characteristics of the crime

Identify Targets within Target Area

• Business database
• Assessor’s database
• Demographic data
• Google
Identify Targets within Target Area

Critical Thinking

Overall, consider the who, what, when, where, why and how. Use your experience, intuition, and creativity.
**Pattern Summary**

This pattern consists of (9, possibly 10) robberies of pedestrians on the street or alley occurring in beats 4, 7, and 8. The incidents are occurring Saturday through Wednesday from 1700 to 2100 over a two-month period.

The suspect follows victims, asks for change (with deceptive practices), demands money with a handgun or simulated weapon, then leaves on foot. In one case, the suspect hit the victim. The suspect takes primarily cash, jewelry, or the victim’s purse/wallet.

Suspect is described as a Hispanic male with short black hair, muscular build, an accent and a goatee, 5’9” to 5’11” from 175 to 185 lbs, around 16 years of age.

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**Example**

Old School Way

There’s been a ton of commercial burglaries in the downtown area on late nights. Let’s **saturate** downtown until we catch this guy!
Example

**SNCTC CRIME ANALYSIS**

WM Mustache Robbery Series

**Summary**

Between April 11th and June 16th a series of robbery events occurred at Subway and Radio Shack businesses within the Darienana area communities. Twenty-nine (29 events) occurred at Subway in the 11600 block of W. Touhy Ave. (31% of the 92 blocks) and 19 events occurred at Radio Shack, 13126 W. Touhy Ave. (30% of the 31 blocks). The last two events were committed at Radio Shack, 13126 W. Touhy Ave. (30% of the 31 blocks). Two events were committed at Radio Shack, 13126 W. Touhy Ave. (30% of the 31 blocks).

This suspect is described as a white male adult, approximately 25-35 years of age, with a mustache. The suspect is typically seen wearing a long-sleeved shirt, blue jeans, a business suit around his head (covering his face) and a wire glasses attached to a dark colored handbag, and white shoes or work boots. Upon entering the business, he usually pushes the employees behind the cash register and to put their hands on the counter. He then announces a bagpiper with his hand and demands the money from the register. The suspect then has the employees put down on the ground before he leaves the business. In 3 events, the suspect was seen fleeing in a small white van and 2-door pick-up truck.

**Example**

**Suspect is small; climbing through very small windows.**

**Analyze suspects who reside within 1 standard deviation of series.**
**Example**

**Actionable Response:** If the suspect(s) continues pattern, he/she is likely to it in this area on the upcoming Monday through Wednesday from 2200 to 0200 hrs. Locations hit once or twice are at highest risk of victimization again.

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**Example**

The actual hit was within 0.3 miles of the prediction location, the MO matches exactly, and suspect’s home address is in the exact center as the downtown series. Suspect has a history of arrest including shoplifting, domestic violence, disorderly conduct, and false inspection/registration. Most notably, he is only 5'2" and 125 lbs. – small enough to fit through the extra small windows smashed to gain entry.