# CRIME, TRANSPORTATION, AND MALIGNANT LAND-USE COMBINATIONS

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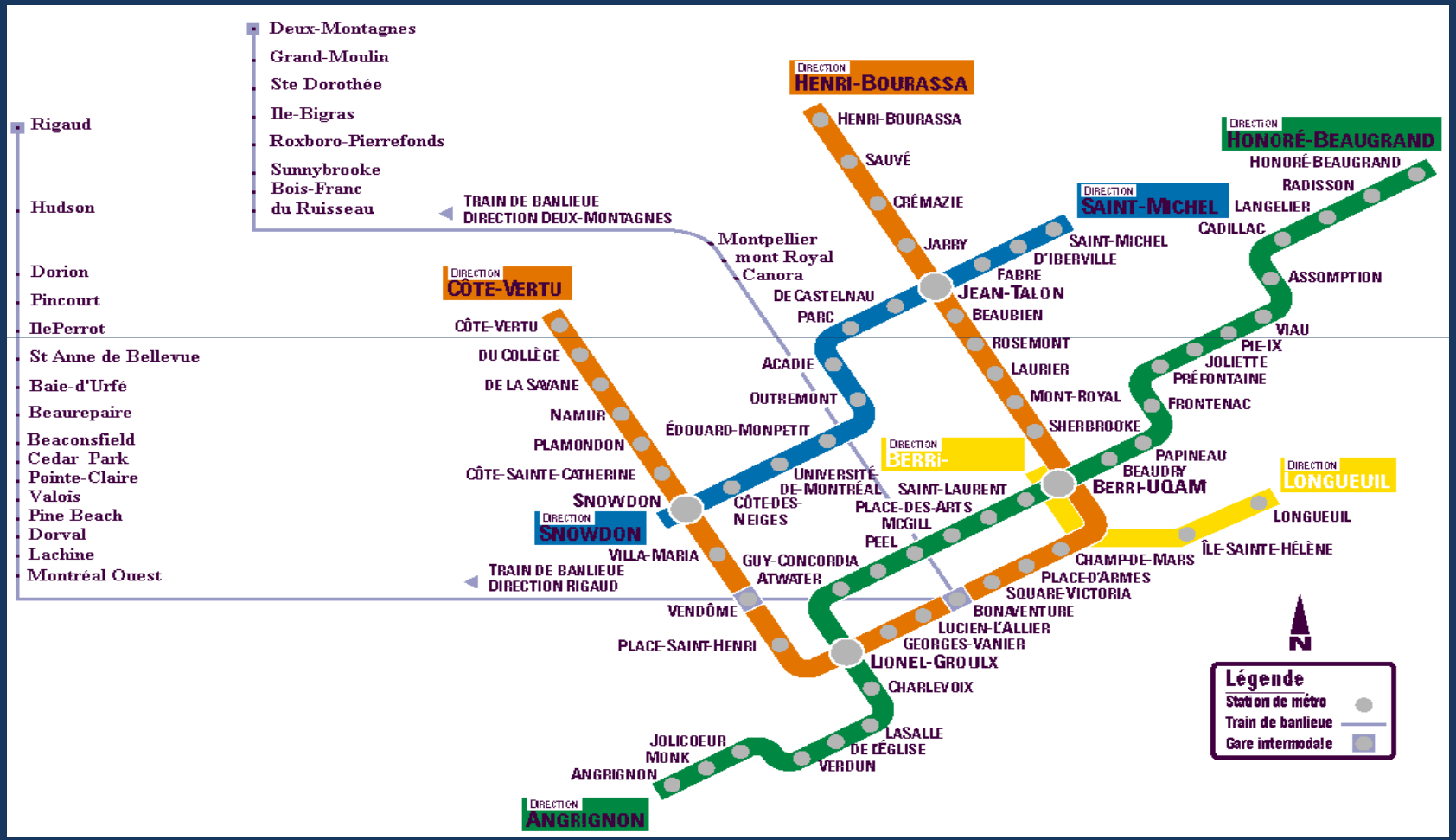
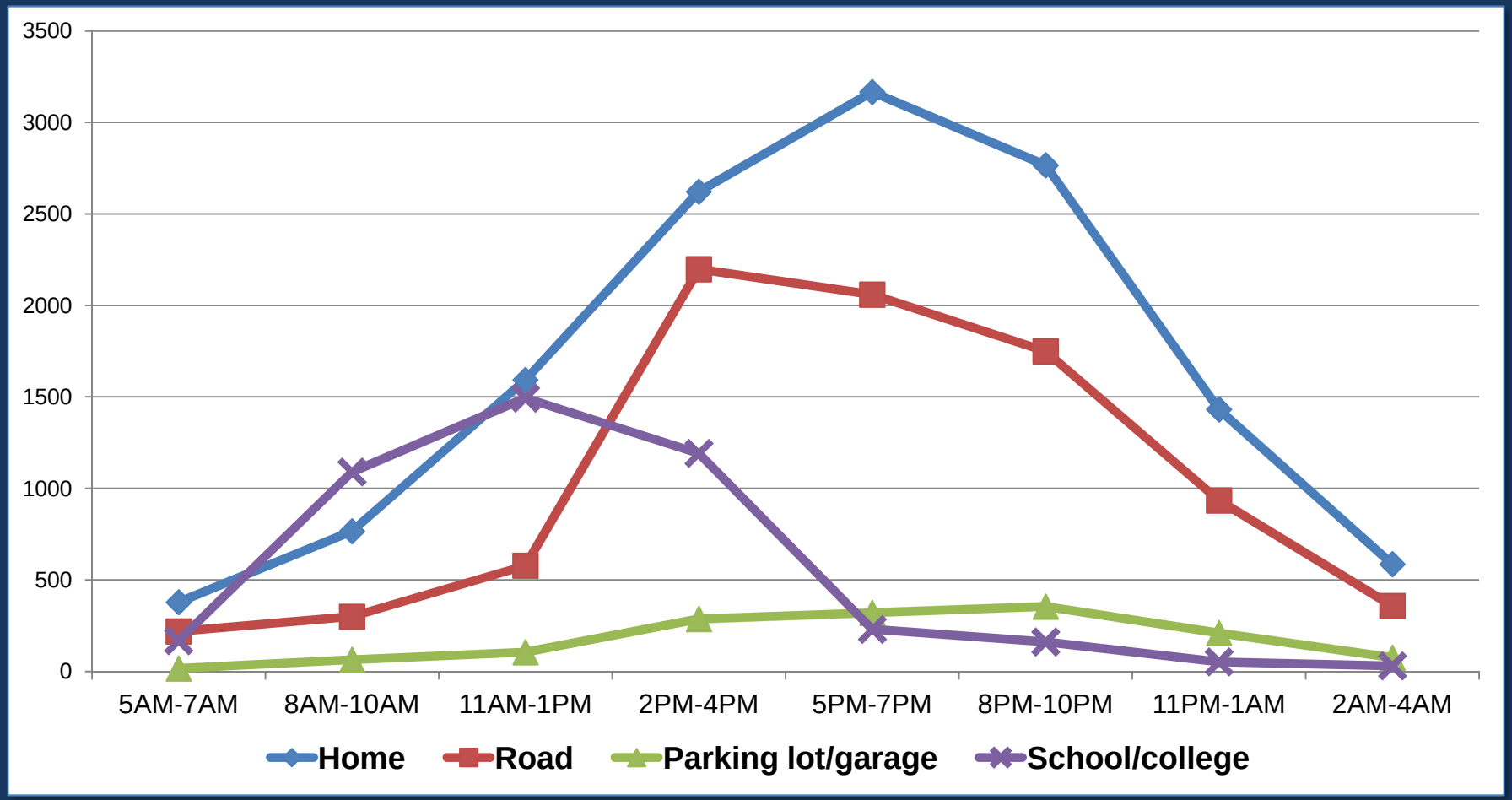
- Crime often concentrates in or near central transit nodes, such as main train and bus stations (Block and Davis, 1996).
- Brantingham, Brantingham, and Wong (1991)
  - Vancouver elevated monorail : Problems near shopping areas
- LaVigne's (1996) classic dissertation on security in the Washington, DC. metro
  - highest risk in transit system were parking areas of suburban stations where cars were left unattended during the daily commute
  - Downtown nodes in D.C. metro found to be relatively safe

# Figure 1. Montreal Shopping district and Metro

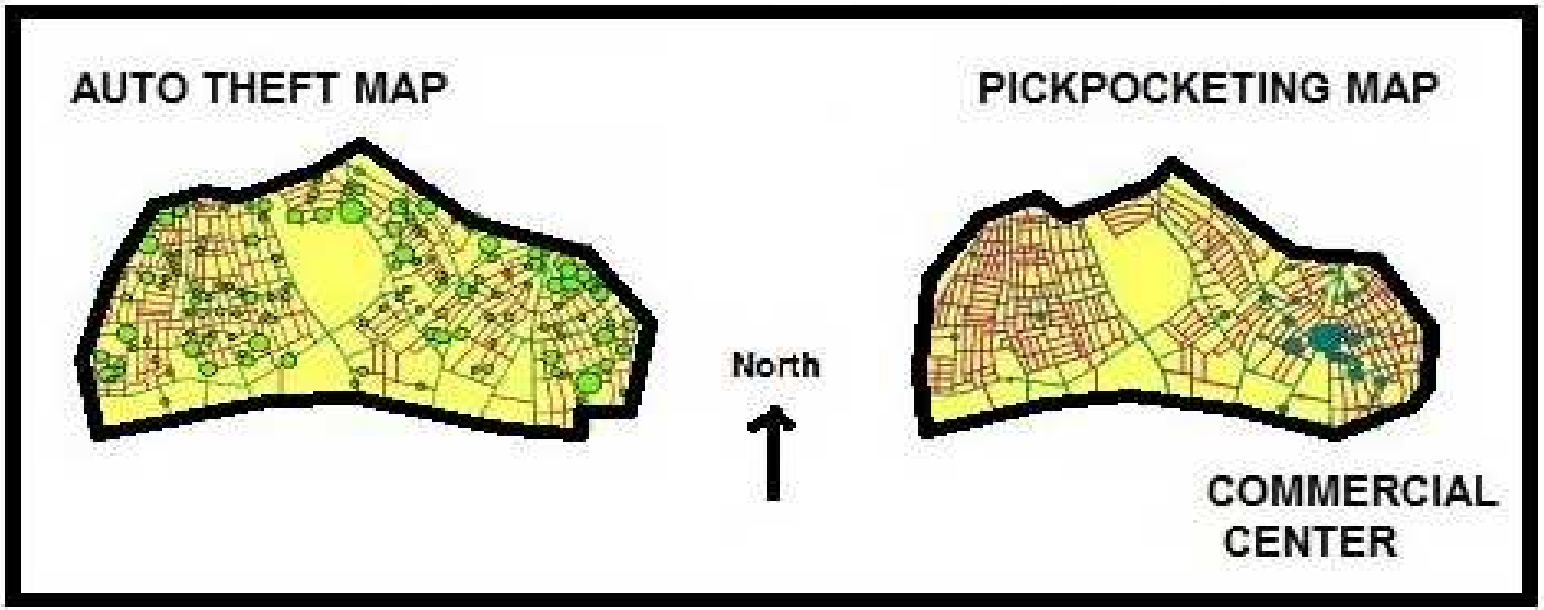


# Figure 2. Spatiotemporal patterns of aggravated assaults, Youth ages 15-17



# Figure 3. Auto theft and Pickpocketing Turkey, 2003

Pickpocketing vs. Auto Theft Maps, Ankara, Turkey, 2003

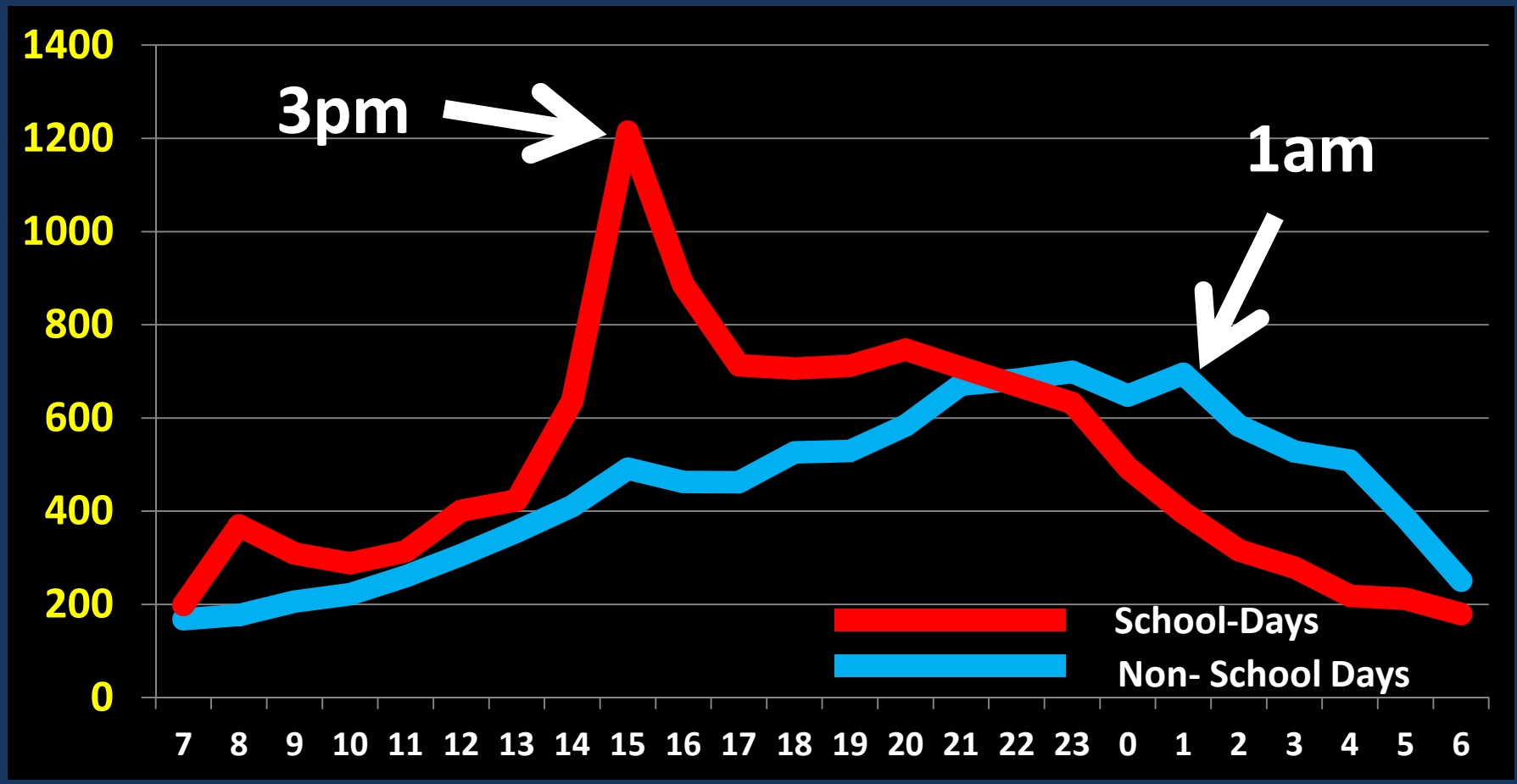



Source: Figure 3.6 in Esra Polat, MA Thesis, Middle East Technical University, Geodetic and Geographic Information Technologies, 2007.

# “Malignant” Mixes

Two or more land uses that in combination produce crime problems, but not always separately.

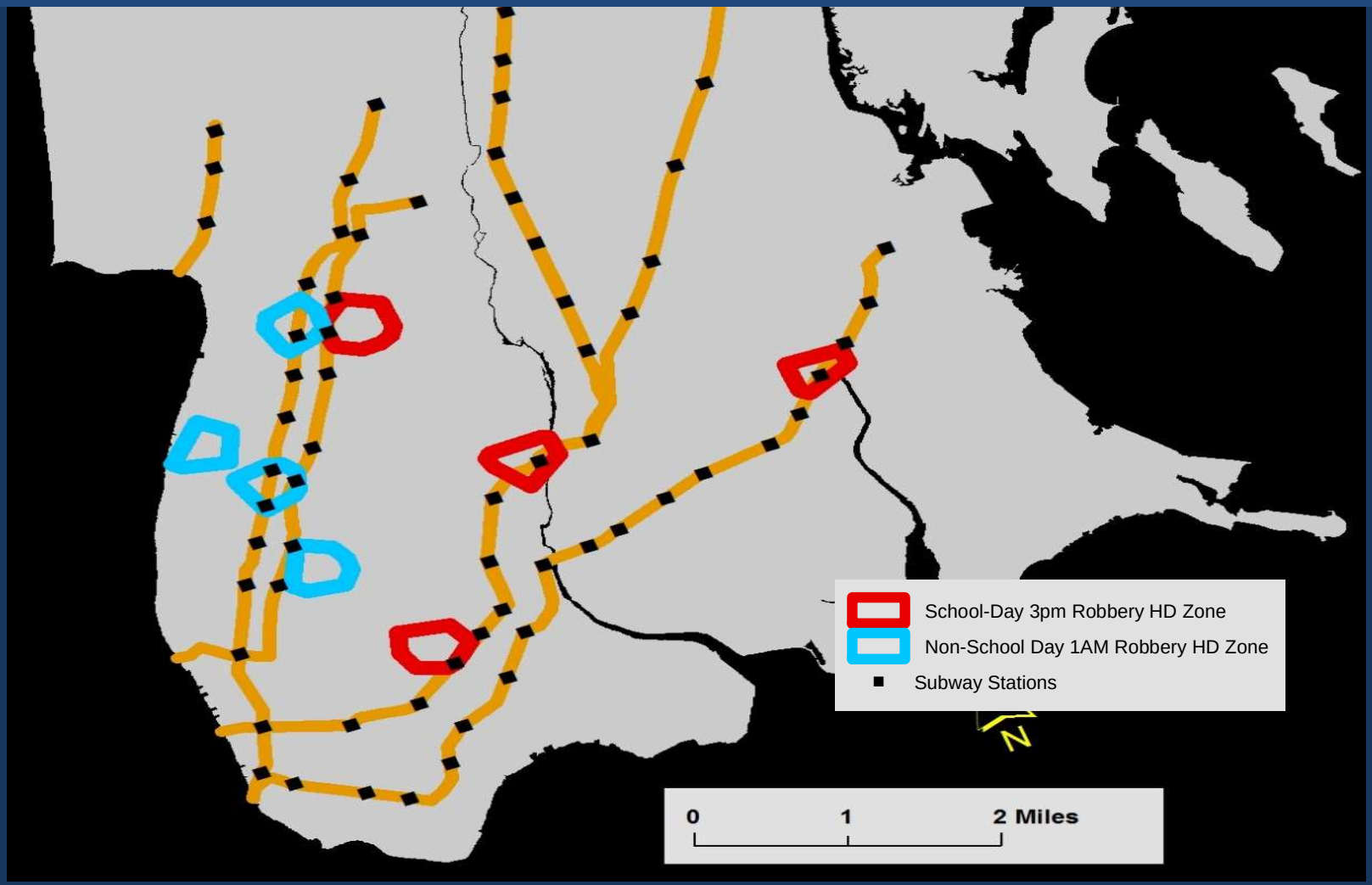
# Figure 4. Temporal Malignant Mix, the Bronx, New York, 2006-2010



# Figure 4 shows robbery disaggregated by school year:

- Distinct and dissimilar temporal patterns of robbery
- During school year robbery peaks at 3:00 pm
- During non-school year robbery peaks at 1:00 am

# Figure 5. Spatiotemporal patterns of robbery, the Bronx, New York, 2006-2010



# **Figure 5 shows**:

- Distinct and dissimilar temporal *and* spatial patterns
- During school year robbery peaks at 3:00 pm between stations near high schools
- During non-school year robbery peaks at 1:00 am between stations near barrooms

# Literature

***Groff and McCord (2012)***

- Neighborhood parks are associated with higher levels of crime. Some park amenities associated with lower crime

***Crewe (2001)***

- Proximity  to a large linear park resulted in a somewhat higher number of calls to the police

***Grinols, Mustard and Staha (2011)***

- Park visitors have no effect on either property or violent crime.

## Other important features of parks that deserve attention:

- A malignant mix of transportation in the form of roads and their presence in recreational facilities
- Waldo Tobler's First Law of Geography

# Research questions:

- Are parks that contain roads more criminogenic?
- Does proximity to other facilities play a role?

Table 1. Assaults occurring within 500 feet of park boundaries by roads within parks, Houston, Texas, United States, January 2000 to December 2009.

| Miles of roads | No. of aggravated assaults | No. of parks | Avg. aggravated Assaults |
|---|---|---|---|
| No roads (NH parks) | 1,038 | 105 | 9.89 |
| No roads (Non-NH parks) | 1,544 | 143 | 10.80 |
| Under 0.25 mi. | 1,162 | 82 | 14.20 |
| 0.25 to 0.49 mi. | 264 | 16 | 16.50 |
| 0.50 or more mi. | 567 | 17 | 33.35 |

# Table 2. Regression of assaults on roads within parks, Houston, Texas, United States, January 1, 2000 to December 31, 2009.

| Variable | B | Beta | t | Sig. |
|---|---|---|---|---|
| Intercept | 54.743 | | 5.636 | .000 |
| Dist. parks to school | -2.698 | -.142 | -2.733 | .007 |
| Distance parks to road | -3.054 | -.197 | -3.903 | .000 |
| No. of park amenities | .655 | .124 | 1.829 | .068 |
| Neighborhood | -3.131 | -.105 | -1.740 | .083 |
| Community | -7.279 | -.195 | -3.126 | .002 |
| Log acres | 1.686 | .203 | 2.964 | .003 |
| Park roads | 3.586 | .112 | 1.979 | .049 |

# Preliminary Findings:

- The presence of transportation in the form of roads does increase aggravated assault
- Proximity to roads important as well
- Spatial proximity to other facilities plays a role as well
- Limitations
  - Socio-demographic factors
  - Urban life is generally complex
  - All models are wrong, but some are more useful than others

# **Concluding thoughts**:

- We suggest paying greater attention to combinations of land uses or activities
- Malignant mixes are useful for interpreting local crime maps and considering how transportation interacts with other activities, thus affecting crime

Thank you

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