

Risky Places and Public Housing: Understanding Gun Violence in NYC

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New York City Public Housing as RISKY PLACES for GUN VIOLENCE

- **Crime is concentrated in Risky Places...**
- **(Eck) J-Curve Distribution, Policy Options**
- **(Brantingham) Crime Generator vs. Attractor, Influence of land-use and design**
- **(Bowers) Crime Radiators vs. Crime Absorbers**
- **(Hardie) SAT and Situational Mechanisms, applying Risky Times to Risky Places**
- **(Newton) Concept of Busyness, Peak/Off-Peak**
- **(Wiebe) Victimization is both concentrated AND varies from one location to another**
- **(Levine) Crimestat, Evening and Late-Night effects, concentration effects**

New York City, USA - 5 Counties or 'Boroughs'



Bronx: 1.45M
43 sq.miles, 112sq.km

Manhattan: 1.65M
23 sq.miles, 60sq.km

Queens: 2.3M
109 sq.miles/282sq.km

Brooklyn: 2.65M
70 sq.miles/182sq.km

Staten Island: 480k
59 sq.miles/153sq.km

New York City Public Housing Authority (NYCHA)

- **Created in 1935**
- **Largest Public Housing Authority in the U.S.**
- **\$4.1 Billion budget**
- **Low-Moderate income housing throughout NYC (mean household income in NYCHA is \$24,423)**
- **Average Rent \$522 / month**
- **308 'Projects' / 'Developments'**
- **177,763 apartments (rental units)**
- **NYCHA is \approx 8% of the total NYC housing units**
- **NYCHA is \approx 7% of the total NYC population**

Most Populated NYCHA – Baruch Houses (17) Lower East Side of Manhattan, POP: 7k



Most Populated NYCHA – Baruch Houses (17)



Least Populated NYCHA – Morris Park Senior Citizens Home (1) East Harlem, POP: 105



Least Populated NYCHA – Morris Park Senior Citizens Home (1) East Harlem, POP: 105



NYCHA Population (2019)

- Total Population: 391,600
- Average (tenure) Years in NYCHA: 20.5 years
- Total Minors (<21): 33%
- Total 'Elderly' (>62) 21%
- 26% unemployment rate

RACE	Race as %
White	4.0%
Black	45.5%
Hispanic	44.6%
Asian	5.1%
Other	0.8%
Total Population	100%

Crime In and Around Public Housing

- Overall, trends show some NYCHA crime is going up...
- 'Risky Developments' have significant increases
- NYCHA is Riskier now, than in the last 10 years...
- 15 Projects (4.8%) make up 20% of NYCHA shootings

CRIME	3-Year Average	NYCHA (% of NYC)
Murder	53	16%
Shooting (Vics)	263	25%
Rape	148	11%
Robbery	1144	7%
Assault	2142	11%
TOTAL VIOLENT	5173	10%

Gun Violence in NYCHA – ‘Tale of Two Cities’

- **NYC Averaged 1297 shooting victims annually (2010-2019)**
- **NYCHA Averaged 348 shooting victims annually 2010 – 2019 (27%)**
- **NYC 5-year trend is -32.3% decrease in victims**
- **NYCHA 5-year trend is -7.5% decrease in victims**

Gun Violence in NYCHA – ‘Tale of Two Cities’

- Understand Victimization Rates (not just Hot Spots)

Victimization Rate:

$$\frac{\text{\# of Crimes (per year)}}{\text{Population}} \times 100,000$$

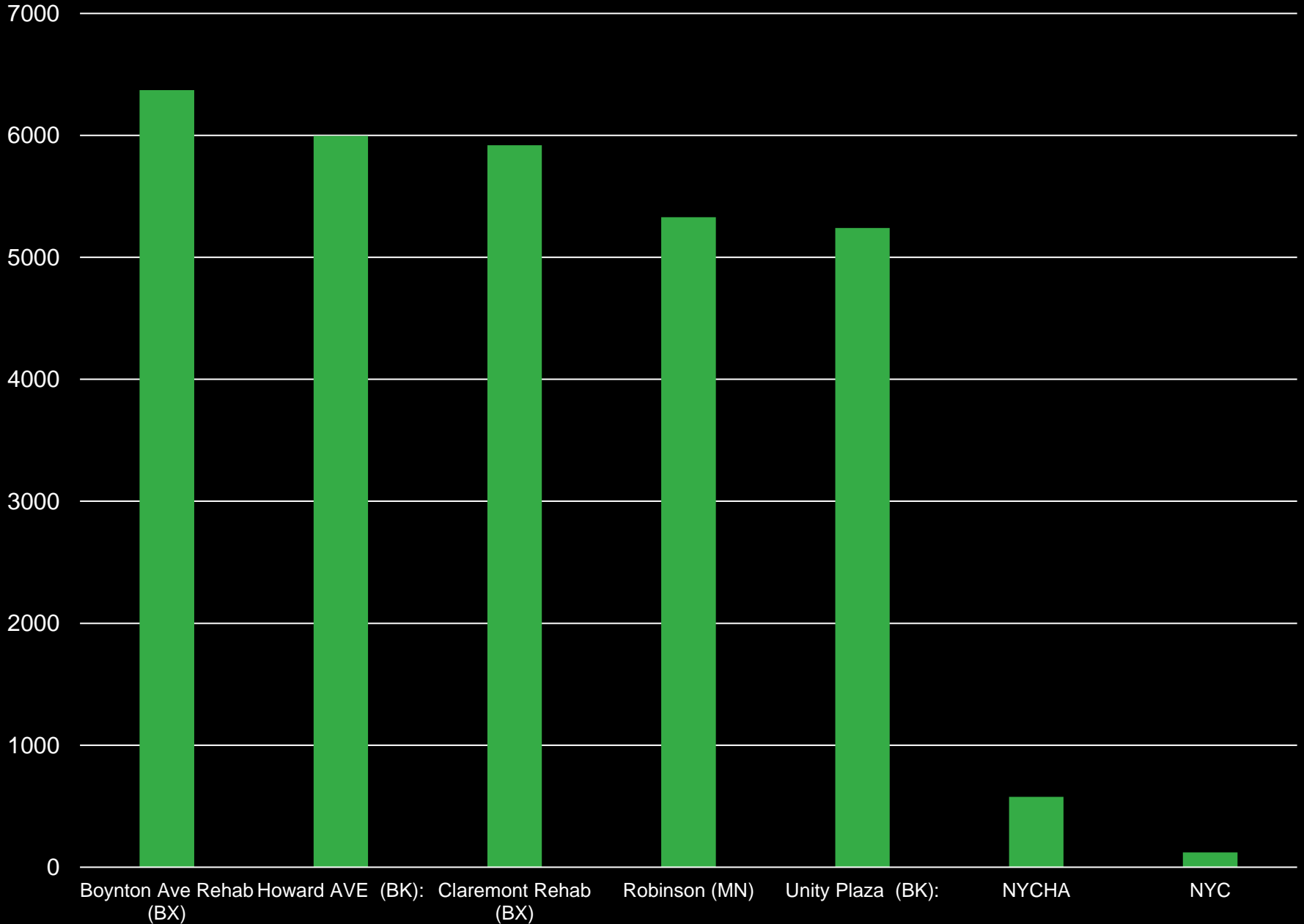
Gun Violence in NYCHA – ‘Tale of Two Cities’

- **NYC Victimization rate** **120 / 100k**

- **NYCHA Victimization rate** **576 / 100k (4.8X)**

- **Unity Plaza (BK):** **5240 / 100k (44x)**
- **Robinson (MN)** **5329/ 100k (44x)**
- **Claremont Rehab (BX) :** **5919 / 100k (49x)**
- **Howard AVE (BK):** **5996 / 100k (50x)**
- **Boynton Ave Rehab (BX):** **6372 / 100k (53x)**

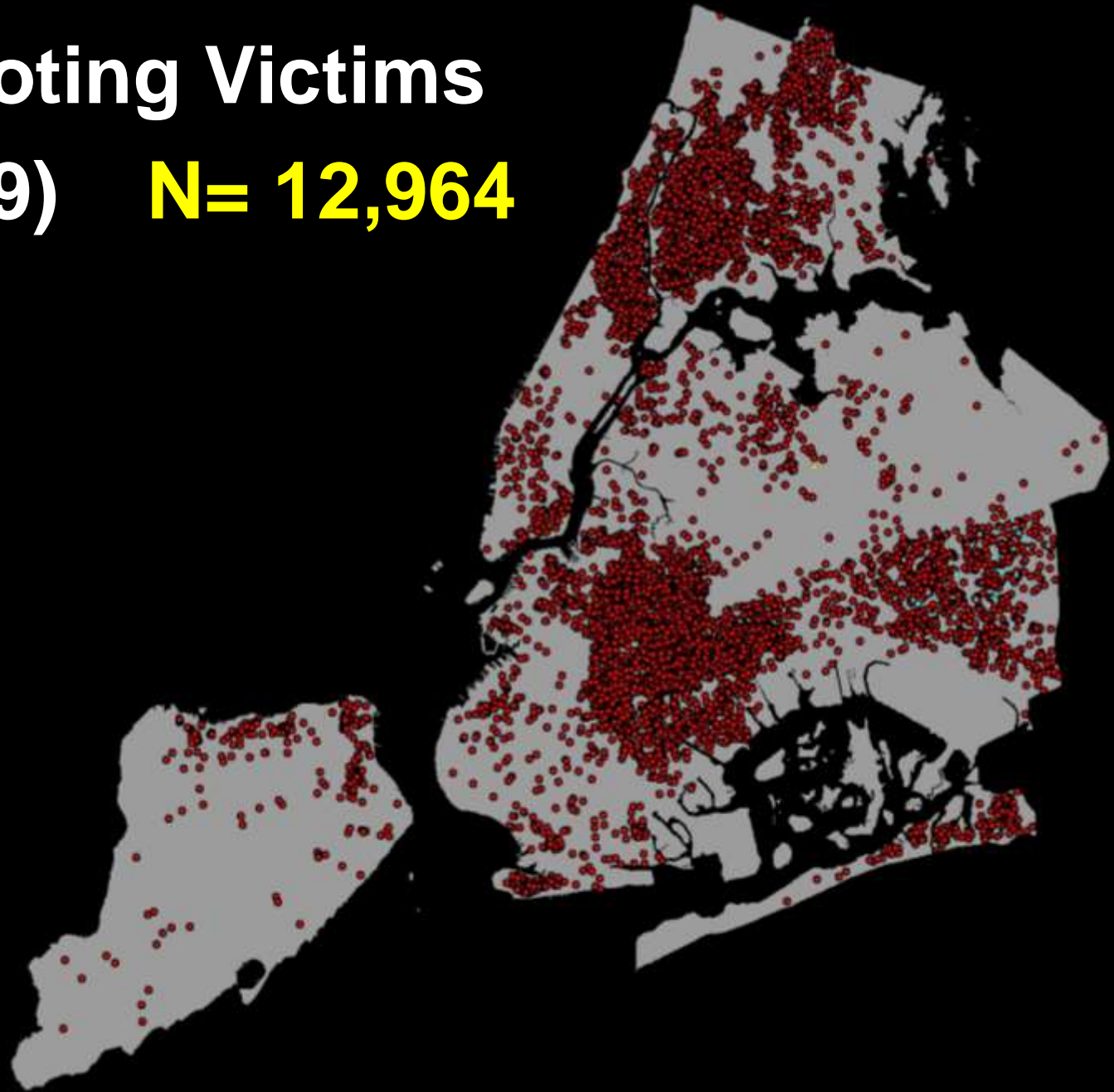
Shooting Victimization Rates (per 100k Population)



NYCHA Developments n=308



NYC Shooting Victims (2010-2019) **N= 12,964**



NYC Shooting Victims (2010-2019)

N= 12,964

	FATAL (17%)	NON-FATAL (83%)
Male	90%	91%
Female	10%	9%
White	3%	2%
Black	73%	73%
Hispanic	22%	23%
Asian	2%	1%
Other/Unk	<1%	1%

NYC Shooting Victims (2010-2019)

N= 12,964

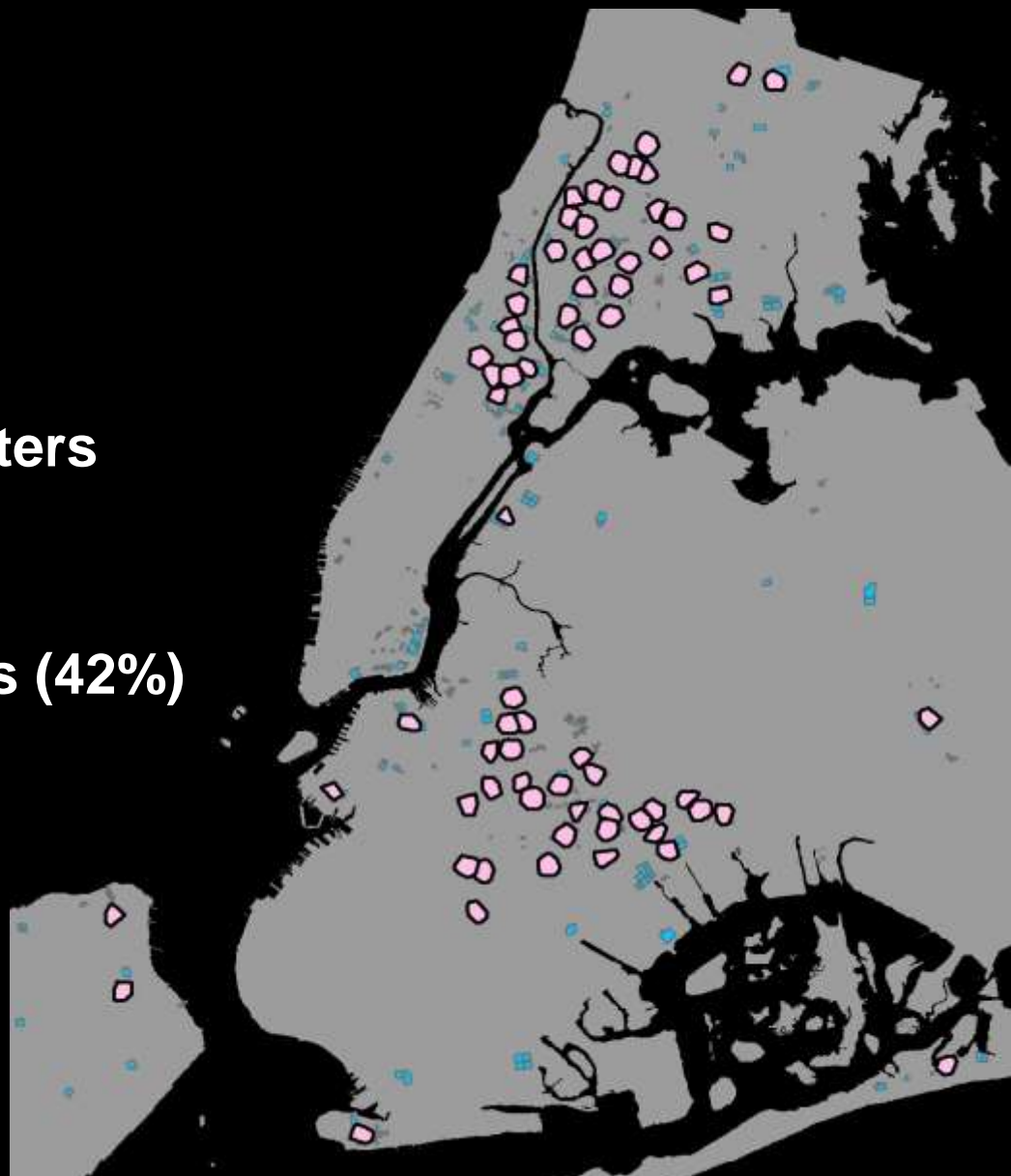
AGE	FATAL (17%)	NON-FATAL (83%)
<18	7%	11%
18-24	33%	40%
25-44	50%	43%
45-64	9%	6%
65+	1%	1%

Analytical Mapping using Crimestat IV

- **NNH Clustering:** very fast, easy, exports shapefile with the number of points in a specified area
- **Single Density:** not as fast, not as easy, exports to a shapefile with generalized estimates of crimes over the entire study area.
- **Dual Density:** exports to shapefile with comparative estimates of crimes over the entire study area (2009-2013 vs 2014-2018)

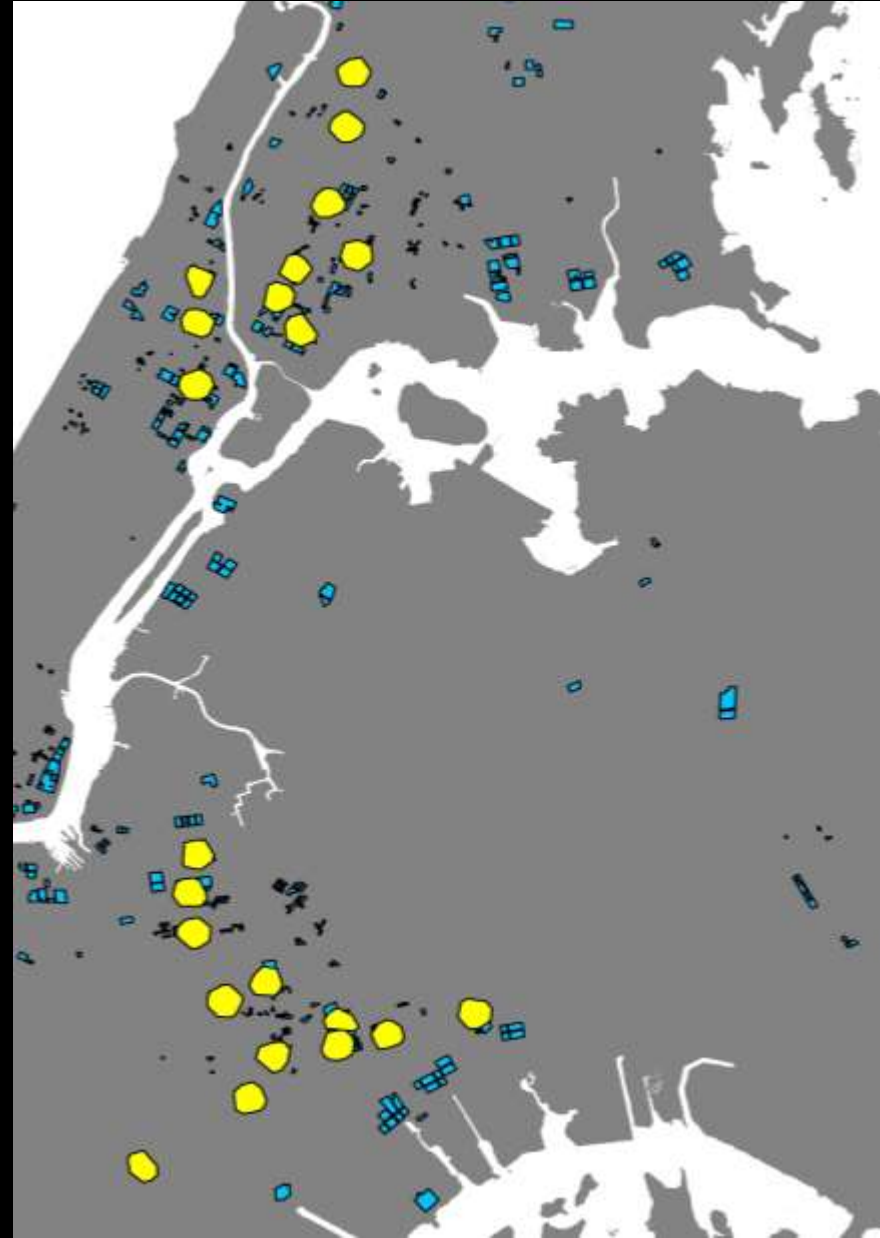
Nearest Neighbor Hierarchical Cluster Map (50 or more shootings within .25 mile area / .65sq.km)

- 72 Quarter-Mile Clusters
- 50+ shootings per cluster
- 54 out of 72 shooting clusters intersect NYCHA (75%)
- 141 out of 336 NYCHAS intersect shooting clusters (42%)



Nearest Neighbor Hierarchical Cluster Map (80 or more shootings within .25 mile area, .65sq.km)

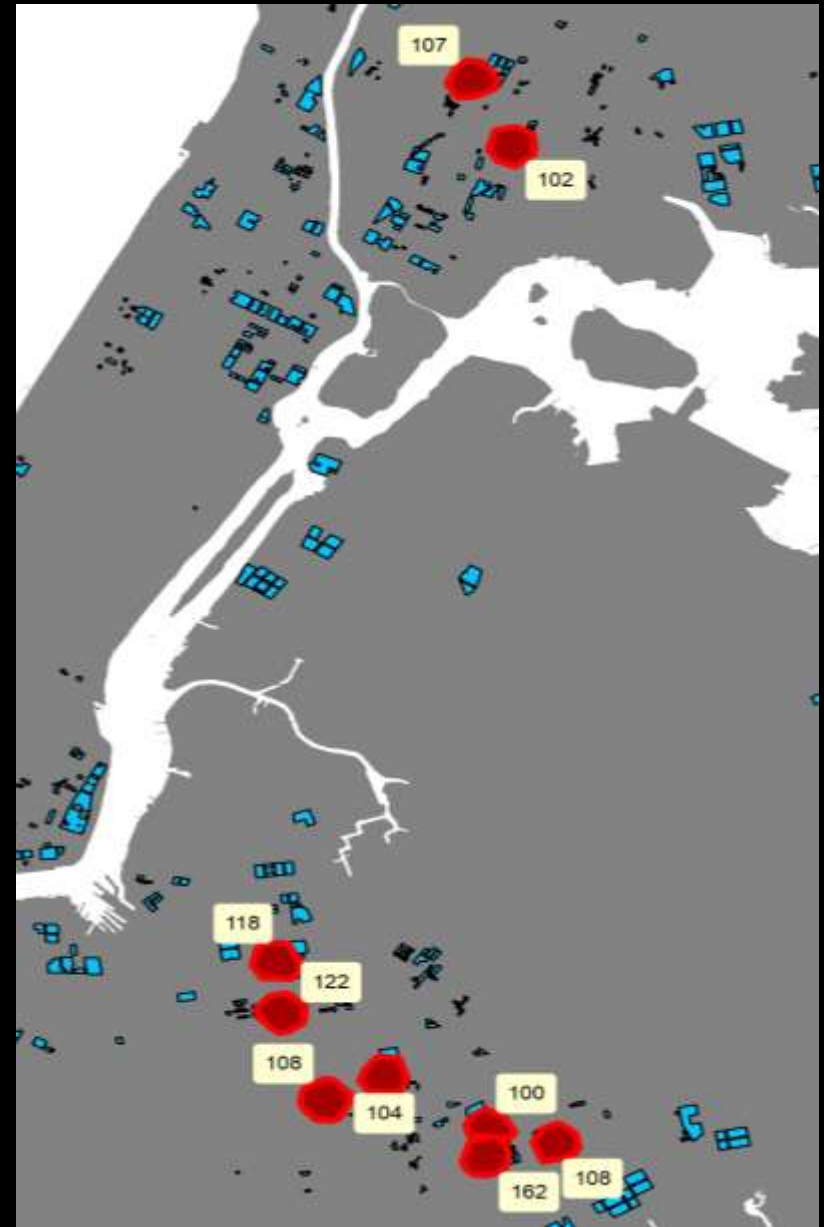
- 22 Quarter-Mile Clusters
- 80+ shootings per cluster
- 18 out of 22 shooting clusters intersect NYCHA (82%)
- 67 out of 336 NYCHAS intersect shooting clusters (20%)



Nearest Neighbor Hierarchical Cluster Map (100 or more shootings within .25 mile area, .65sq.km)

- The Riskiest NYCHAs
- 9 Quarter-Mile Clusters
- 100+ shootings per cluster

- 9 out of 9 shooting clusters intersect NYCHA (100%)
- 34 out of 308 NYCHAS intersect shooting clusters (11%)



7 of 9 Highest Nnh Clusters within 3-miles

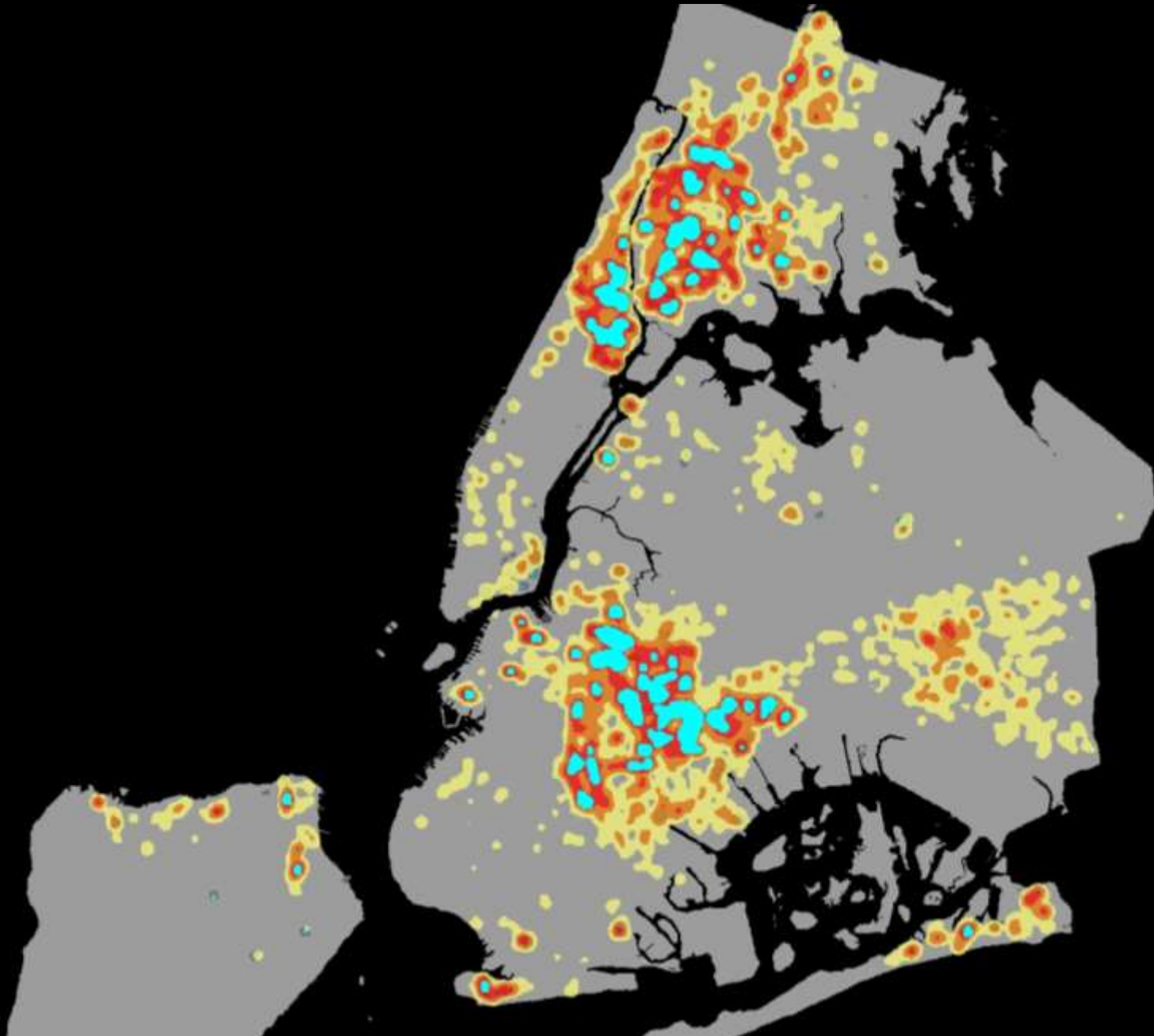


- **But what does this Extremely Risky Area really look like....**
- **Google Earth**
- **Brownsville Houses**
- **Tilden Houses**
- **Van Dyke I**

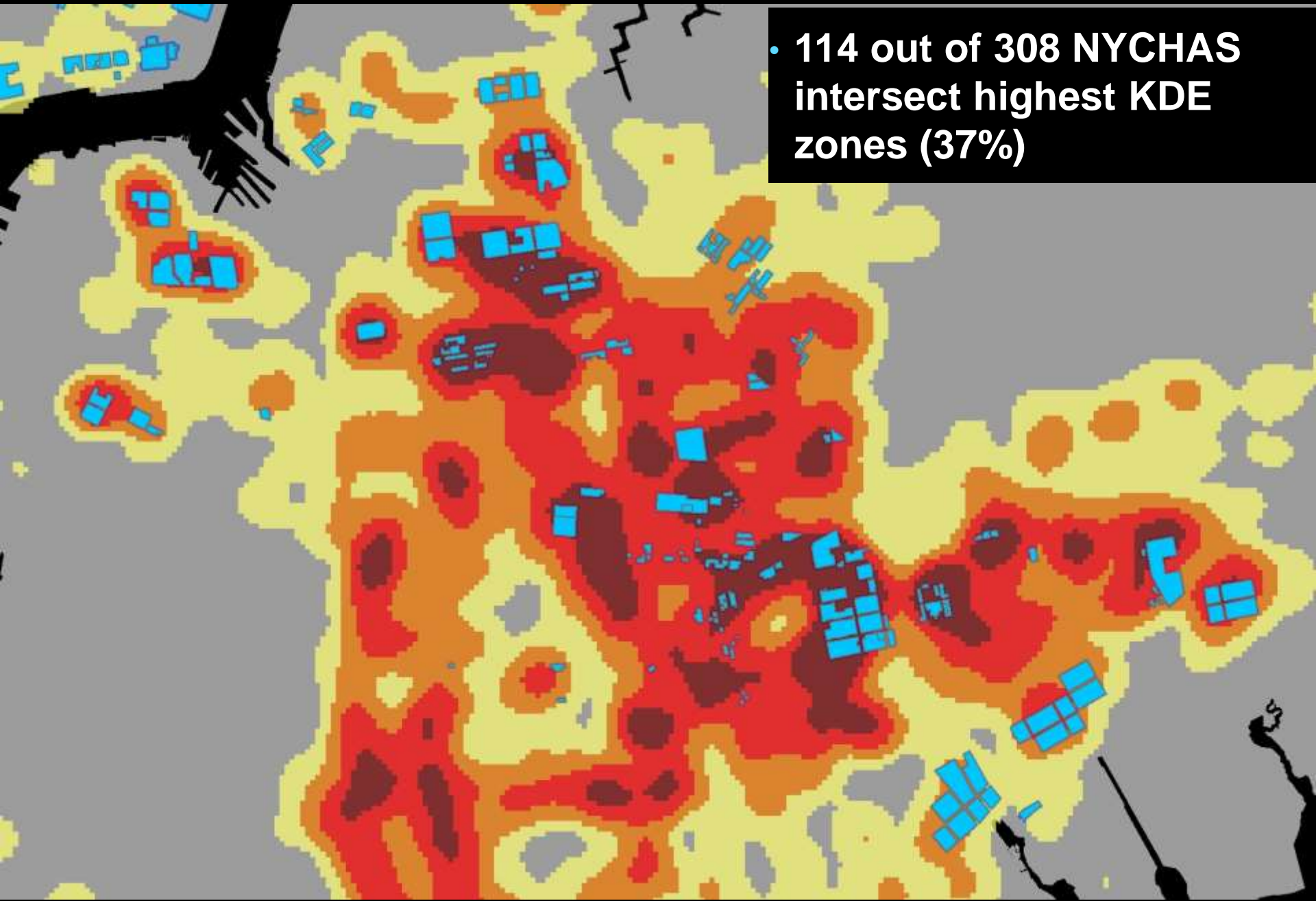
Analytical Mapping using Crimestat IV

- **Single Density:** not as fast, not as easy, exports to a shapefile with generalized estimates of crimes over the entire study area.
- **Dual Density:** exports to shapefile with comparative estimates of crimes over the entire study area (2009-2013 vs 2014-2018)

Single Kernel Density Estimation



Raster Calculator, Export, Dissolve, Intersect



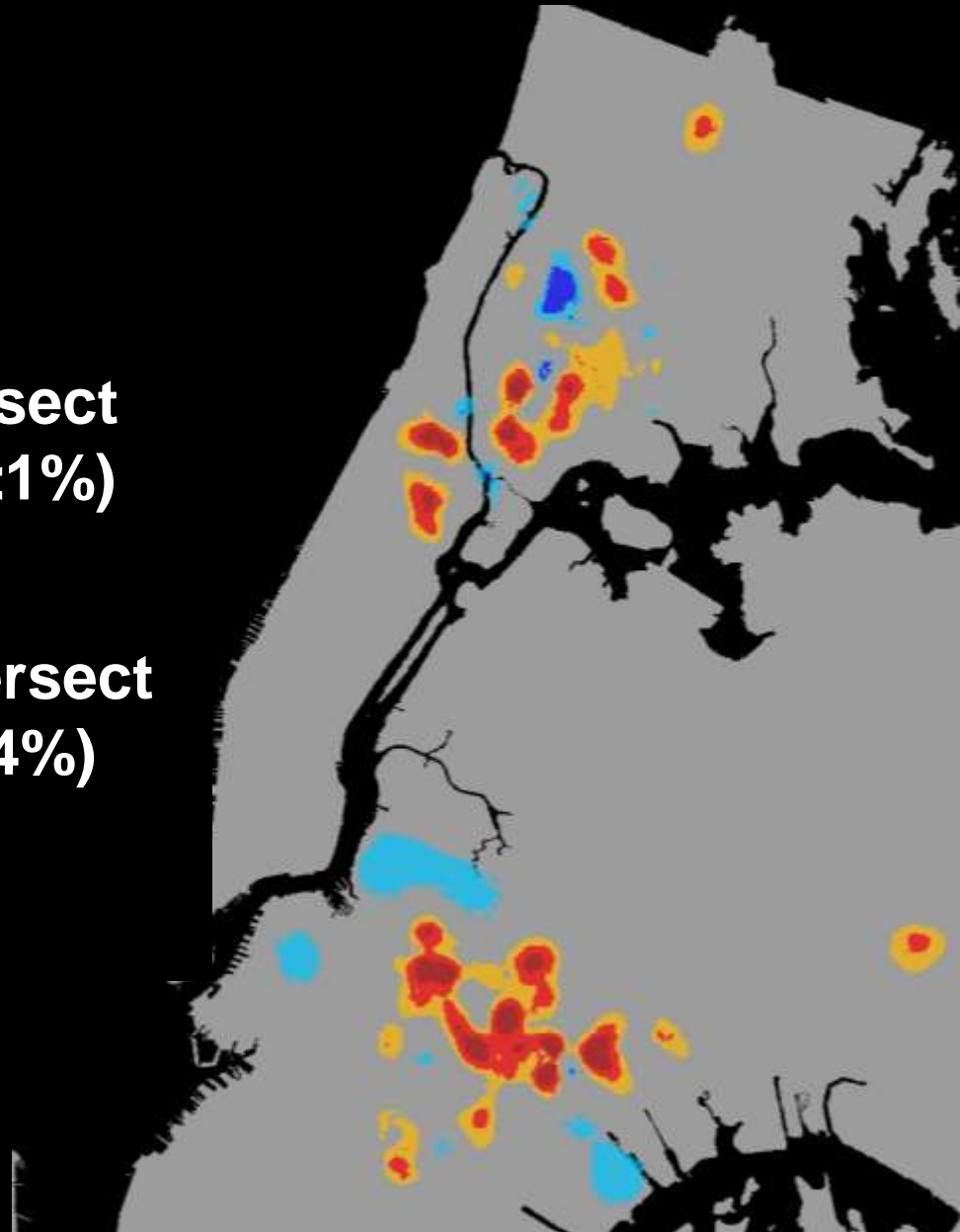
- 114 out of 308 NYCHAS intersect highest KDE zones (37%)

Analytical Mapping using Crimestat IV

- **Dual Density:** exports to shapefile with comparative estimates of crimes over the entire study area (2010-2014 vs 2015-2019)
- 'Spatial Division'

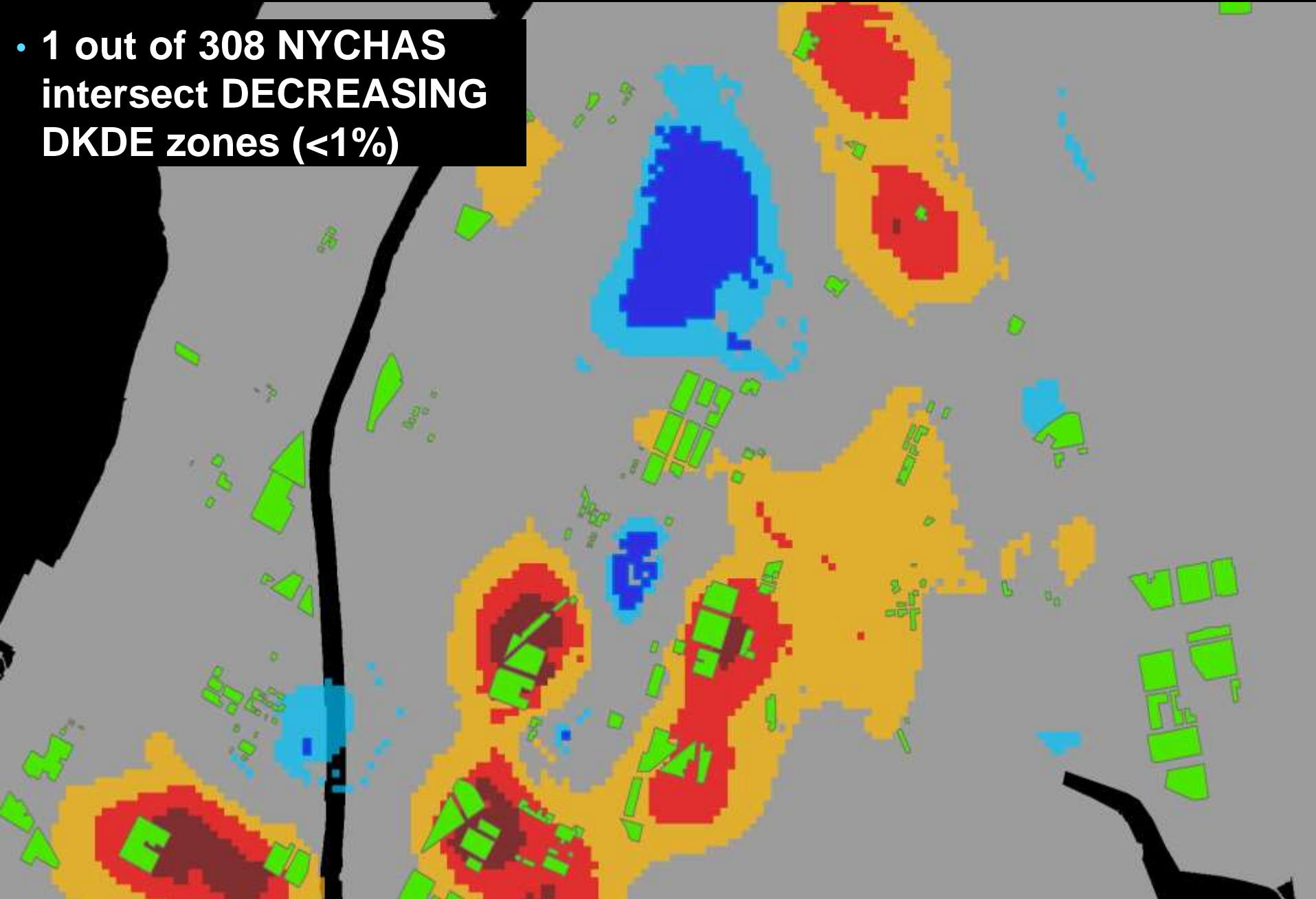
Dual Kernel Density Estimation

- ‘Comparative Density’
- 2010-2014 vs 2015-2019
- 1 out of 308 NYCHAS intersect decreasing DKDE zones (<1%)
- 42 out of 308 NYCHAS intersect increasing DKDE zones (14%)



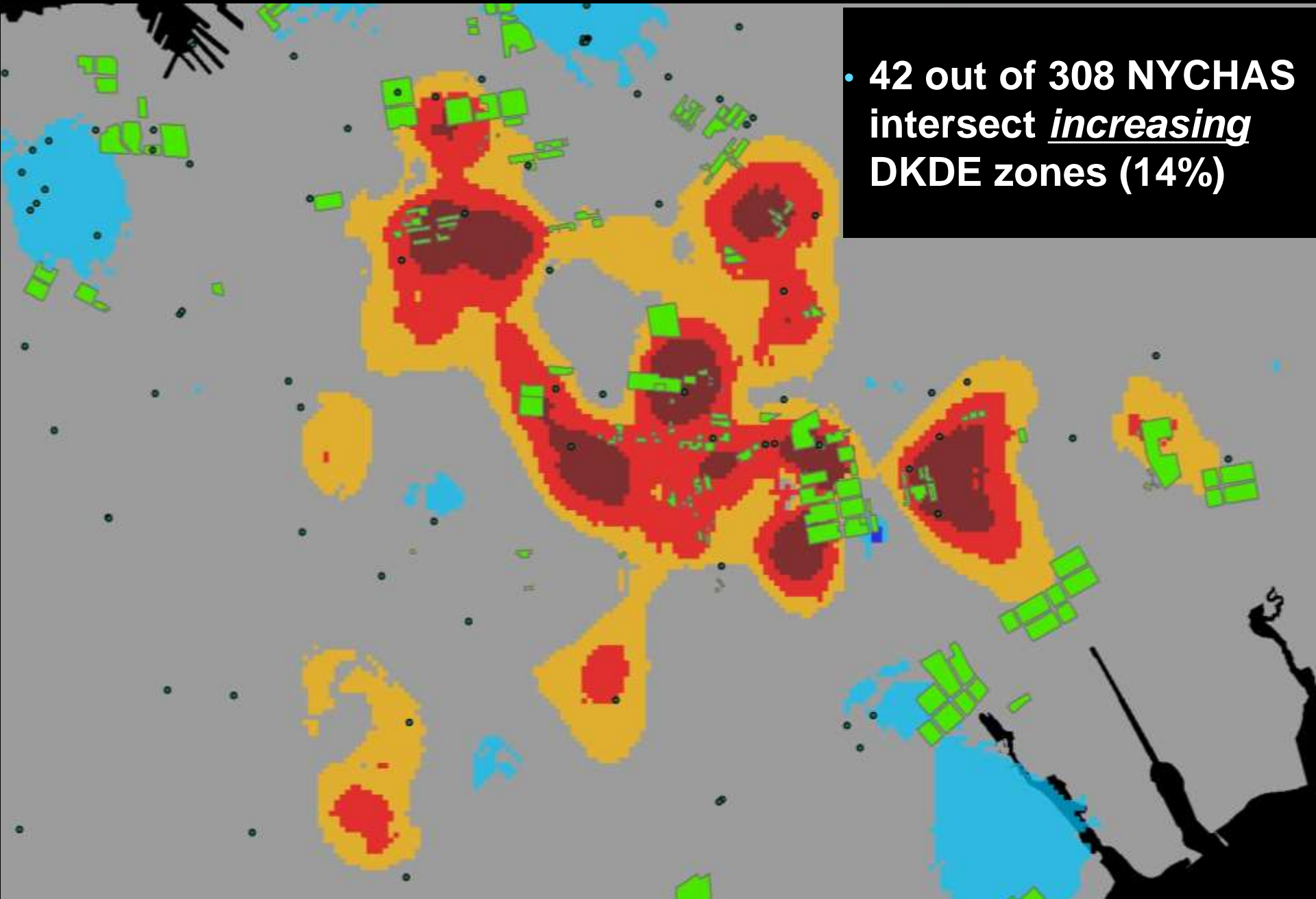
Dual Kernel Density Estimation – Decreasing Crime

- 1 out of 308 NYCHAS intersect DECREASEING DKDE zones (<1%)



Dual Kernel Density Estimation – Increasing Crime

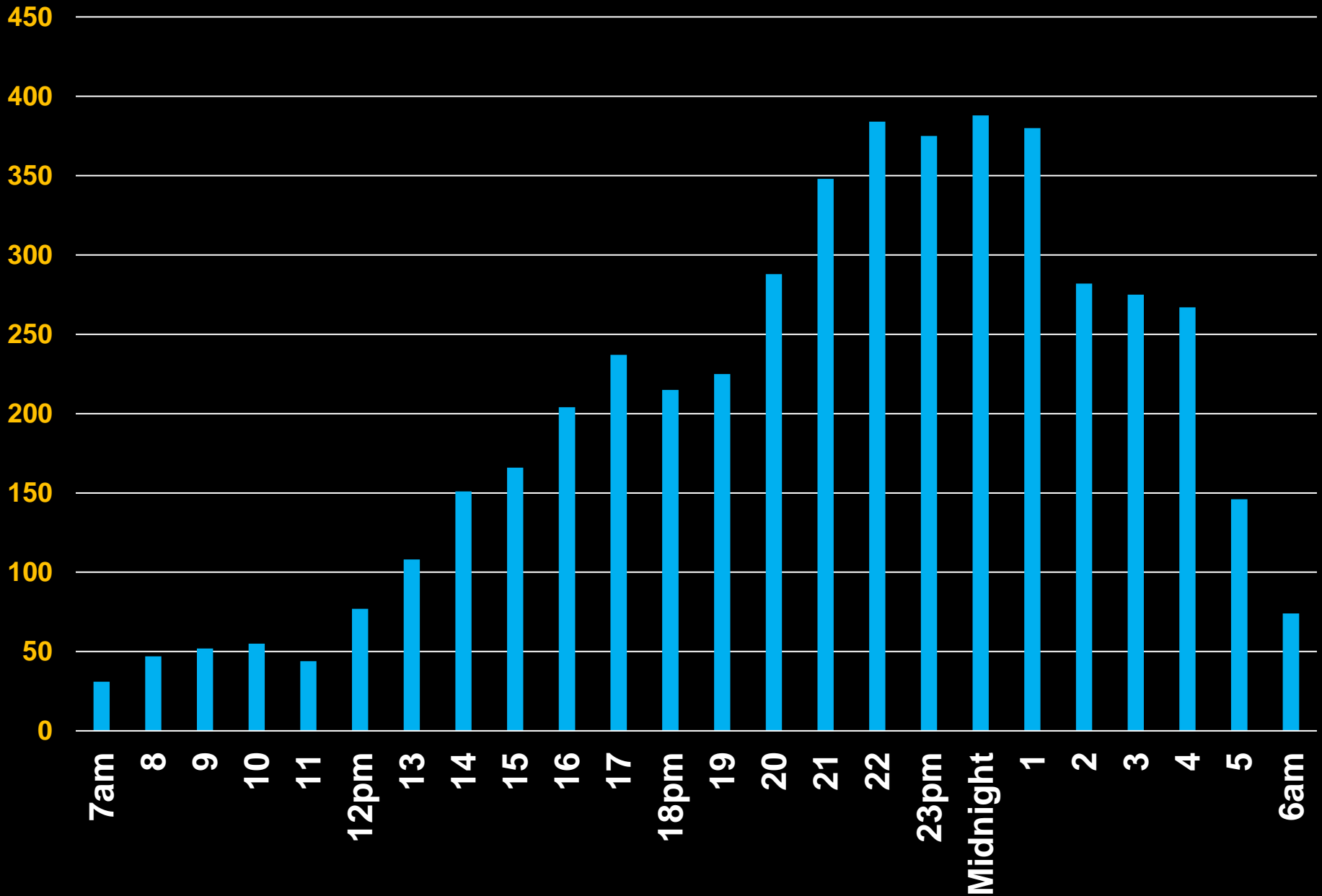
- 42 out of 308 NYCHAS intersect increasing DKDE zones (14%)



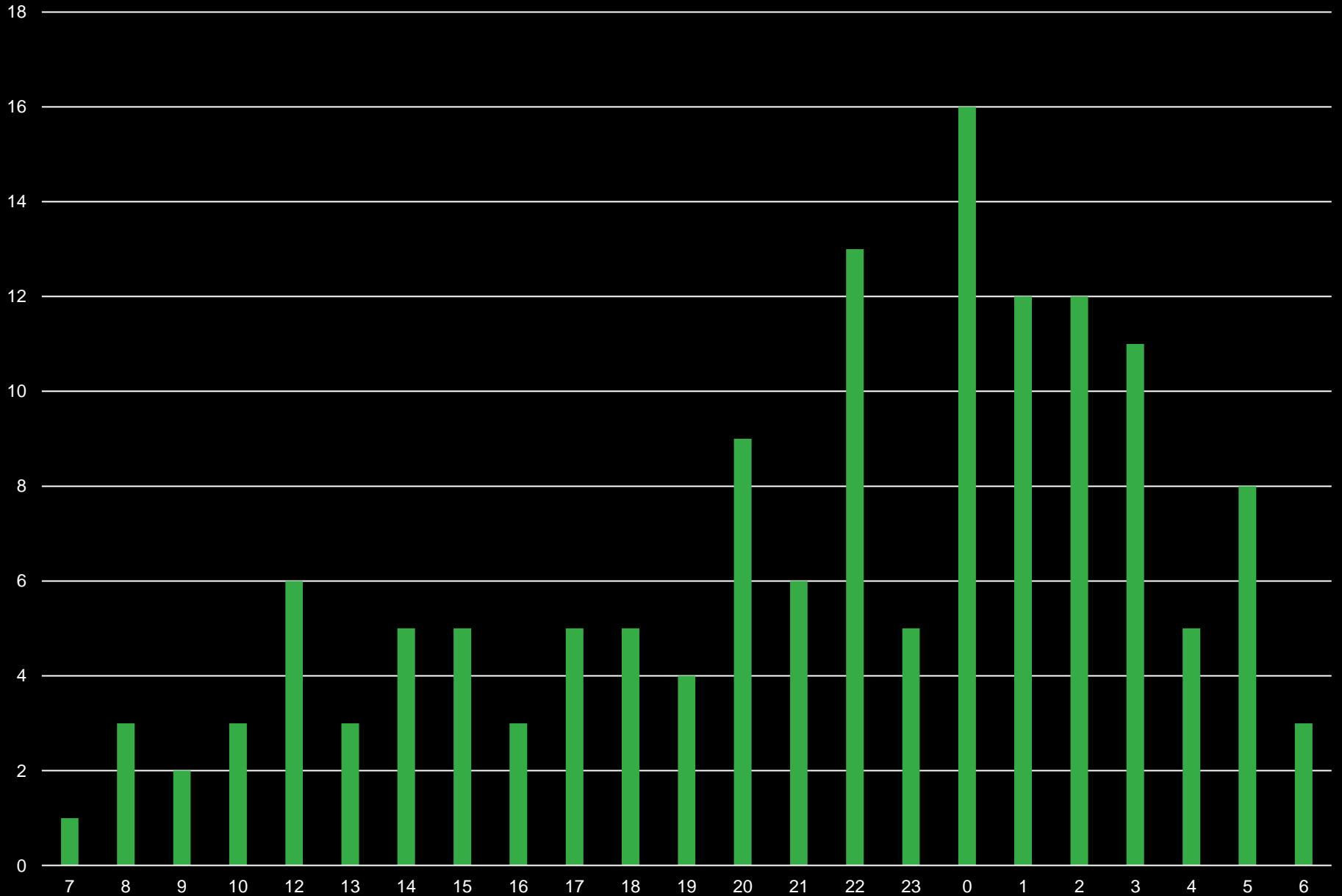
Analytical Mapping – Spatiotemporal Analysis

- **Spatiotemporal Analysis**
- **Understanding when:**
 - **Riskiest Time of Day**
 - **Riskiest Days of Week,
Riskiest Weeks/Month/Seasons**
- **Time (hour) of Day**
- **Day of Week**
- **Week of Year (seasonality)**

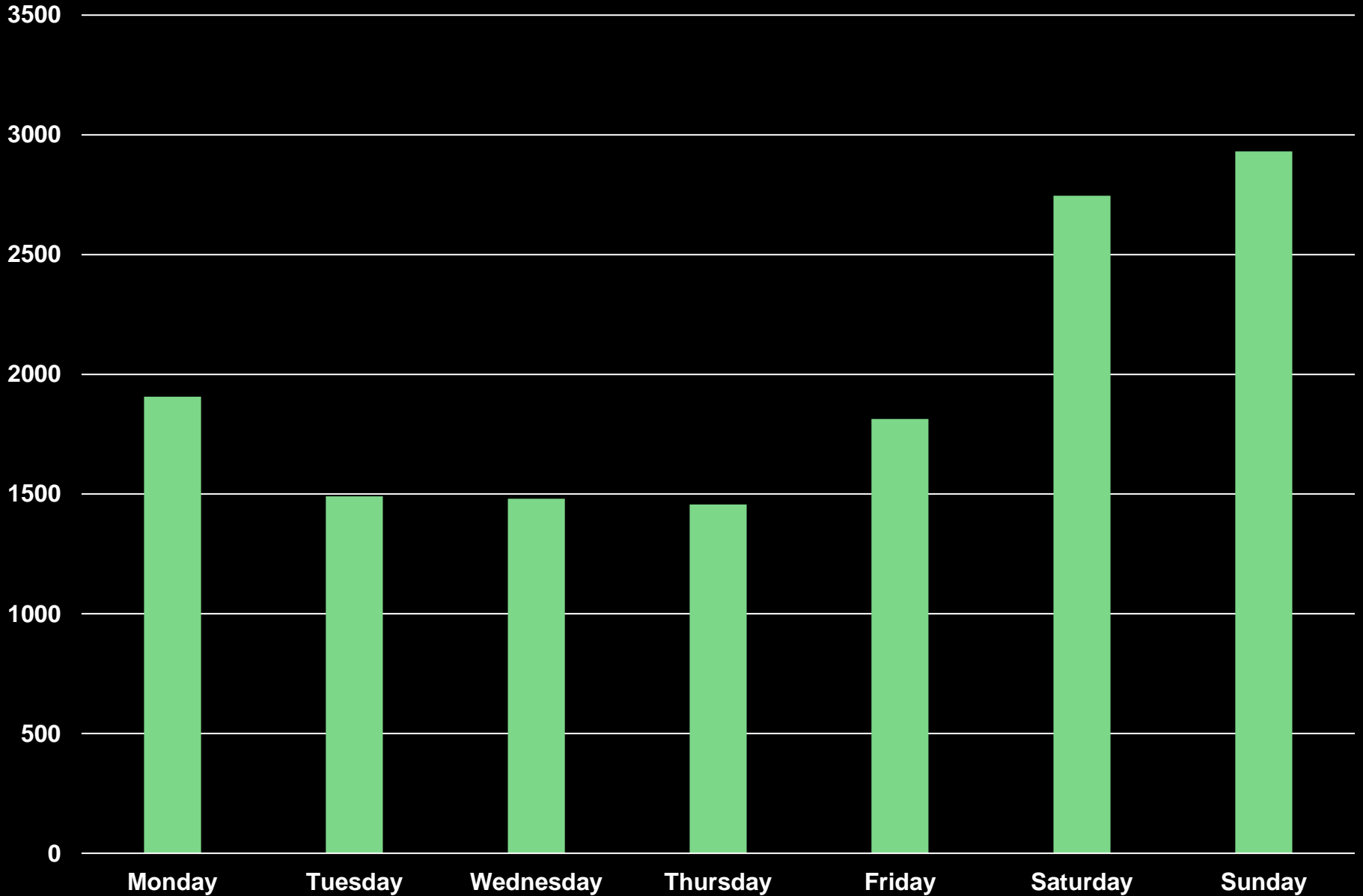
2010 – 2019 Shooting Victims by Time of Day



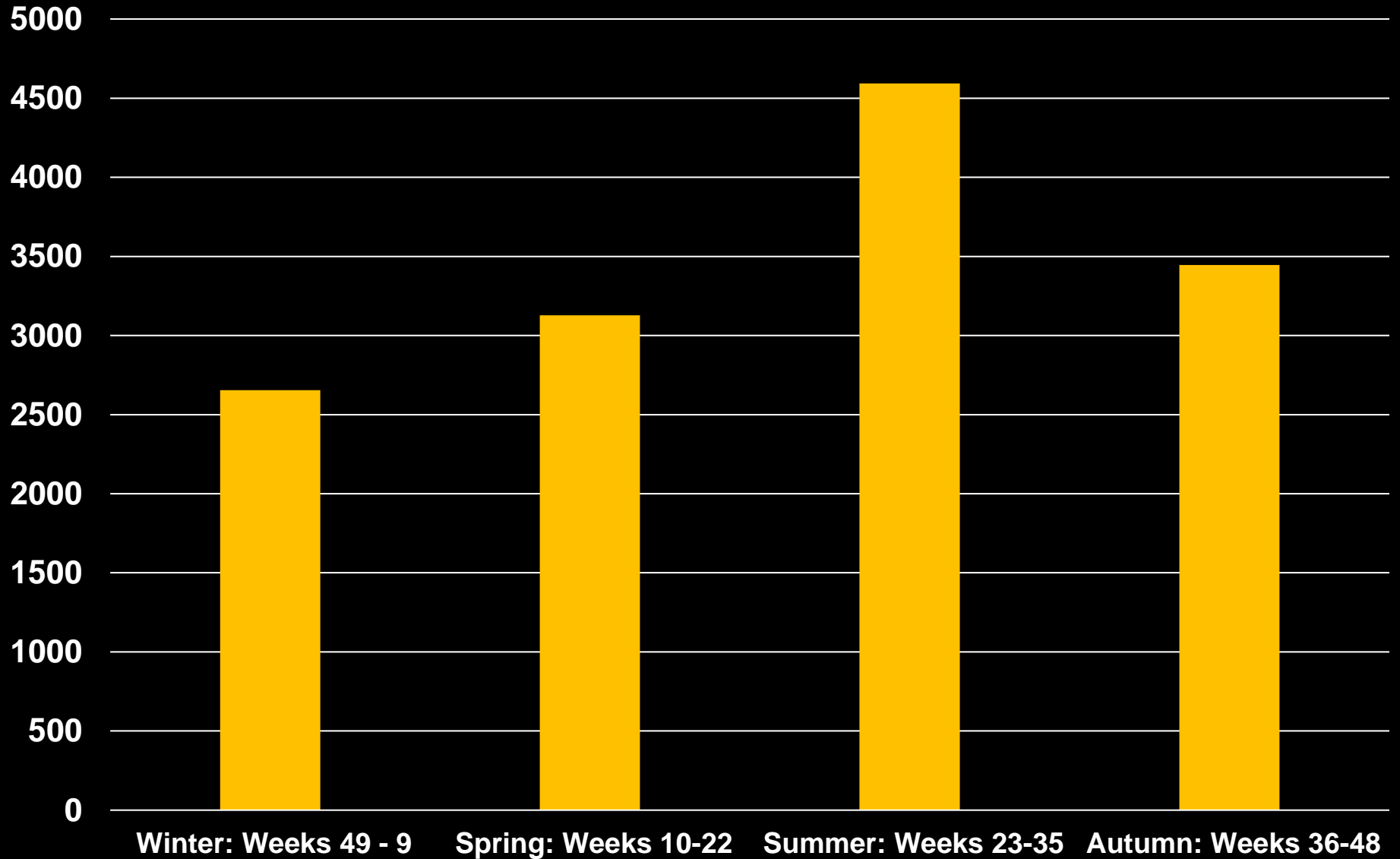
2010 – 2019 CLUSTER Victims by Time of Day



2010 – 2019 Shooting Victims by Day of Week



2010 – 2019 Shooting Victims Week of Year (Seasonality)



Mayor's Action Plan (MAP)

- \$180 million dollars invested in Top 15 NYCHA
- Improved lighting
- 'Not Wanted List'
- Expand CCTV locations
- Expand Shotspotter installations
- Expanded Childcare / Youth / Jobs Programs
- Reentry Programs (At-Risk Probation Youth)
- Improved NYPD / NYCHA partnerships
- Public Art

2015-2019

NYC Trend: 10.7% decrease in shooting victims

NYCHA Trend: 9.8% decrease in shooting victims

**Questions, Comments,
Thoughts, Ideas, Suggestions ?**

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**Thank you and enjoy the rest of
your Risky Places presentations.**