Policing Hot Spots in London

Barak Ariel, Lawrence Sherman and Mark Newton

Today’s seminar is about crime prevention

- Do visible saturated police patrols reduce crime and calls for service, in the London Underground (LU) environment?
- We will talk primarily about crime hotspots, hotspots policing, and choices
- LU platforms are interesting, because they were not exposed to ‘preventative patrols’ before our study
- The findings have immediate implications for the anticipated surge in frontline resources in England and Wales

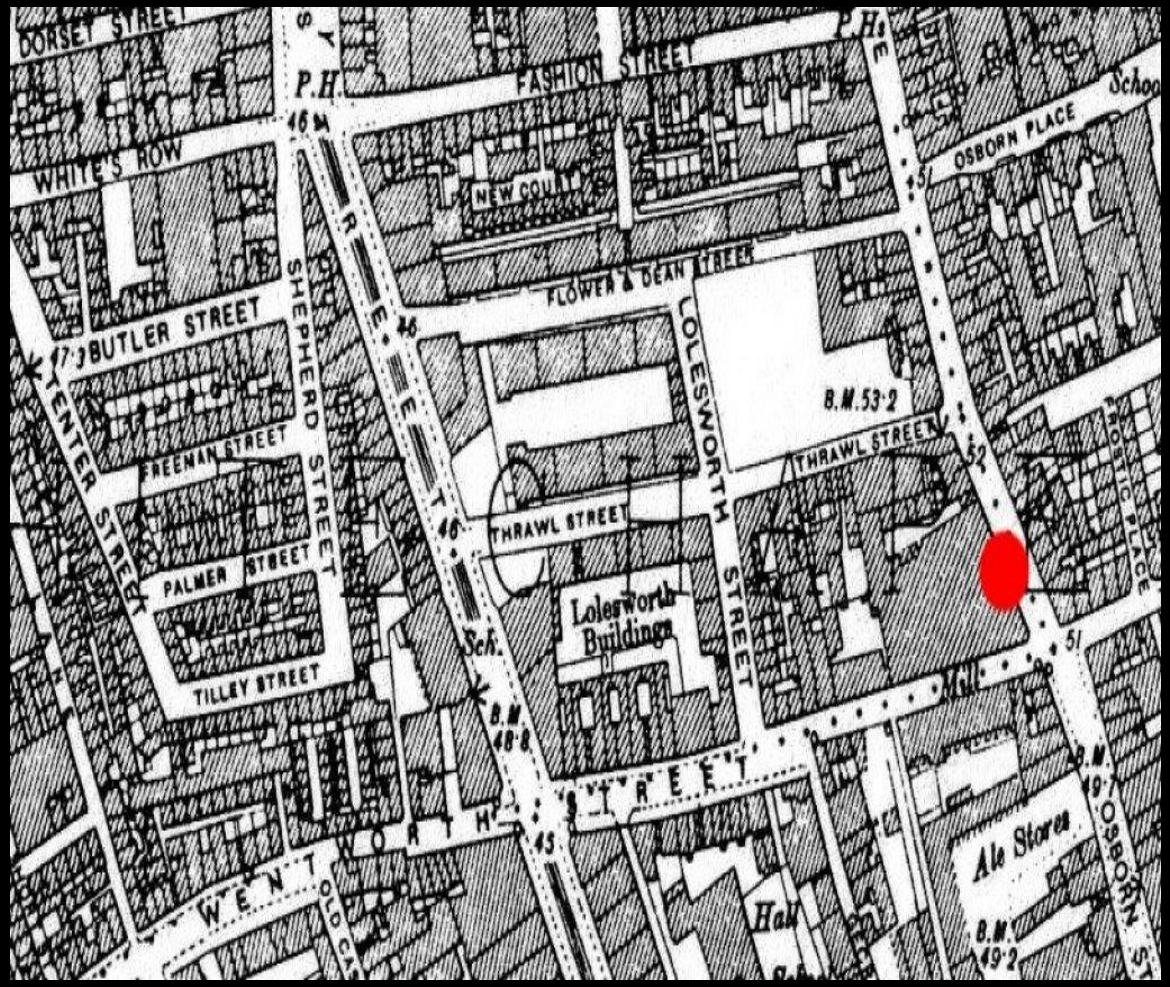
Crime Patterns and Events

- Before exploring hotspots policing, it is first important to consider a fundamental question: ***is crime a random event?***
- If crime is random, we cannot predict it
- If we cannot predict crime, we cannot prevent it
- Under what conditions is crime predicable?
- What is the level of error we can accept when making predictions?

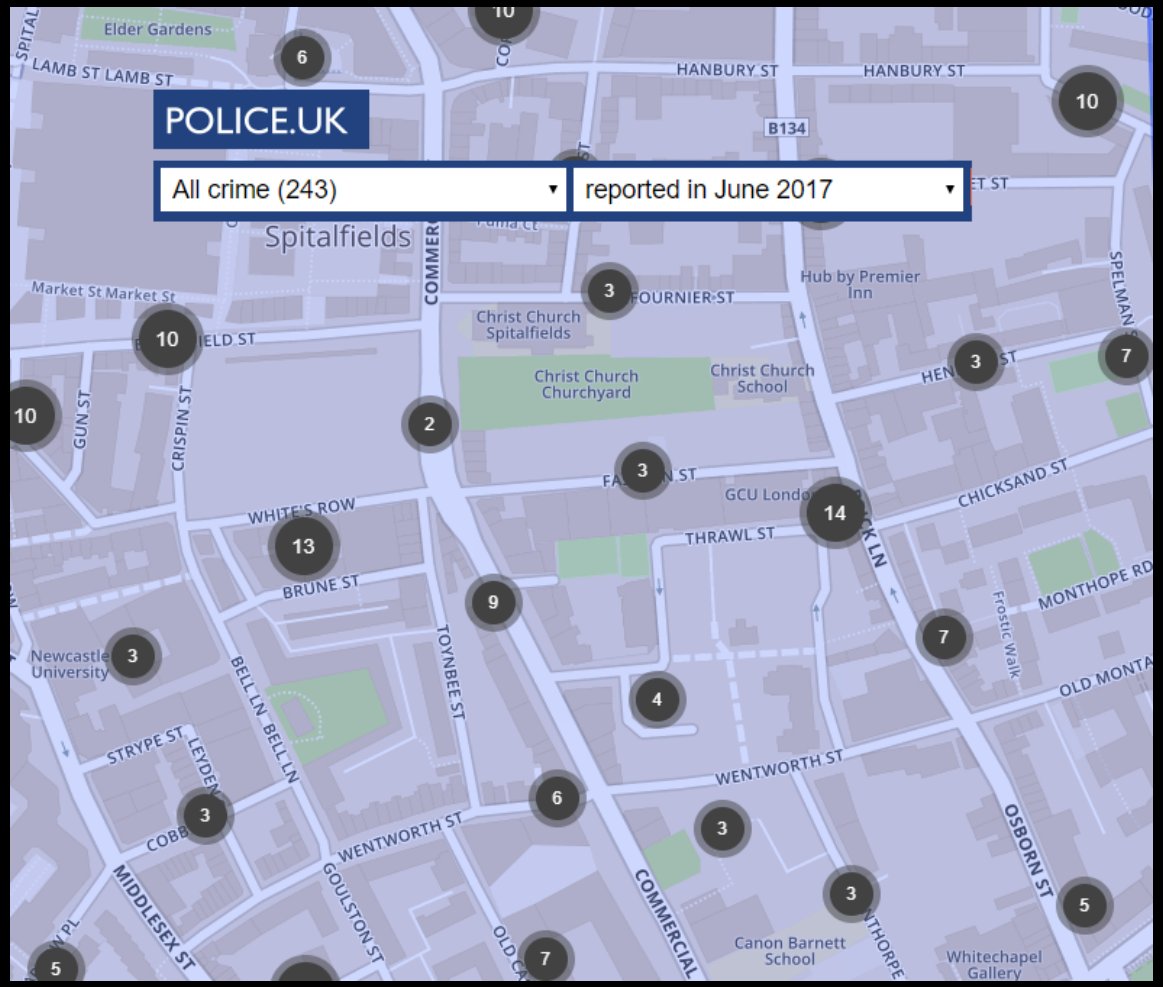
Consider the following coupling: Crime and Place

- Crime occurs in certain places for a reason
- Crime is not a random event
- Crime has an inherent geographical quality

Pick Pocketing Hotspot in London’s Spitalfields



1894 ordnance survey map of Spitafields
(Source: The *Rookery Rogues*)



2017 crime map of Spitafields
(Source: www.police.uk)

Three major interrelated concepts

- Pareto curve; “Power few of the power few (PFPF)”

  (Sherman 2012; 2018)

- "*Law of concentration of crime at place [and time]*”

  (Weisburd 2015; Weisburd, Telep, Braga & Groff 2010:167; Sherman et al 1989)

- *Human behaviour is predictable based on basic patterns*

  (Daniel Kahneman, Nobel Prize Winner, 2012)

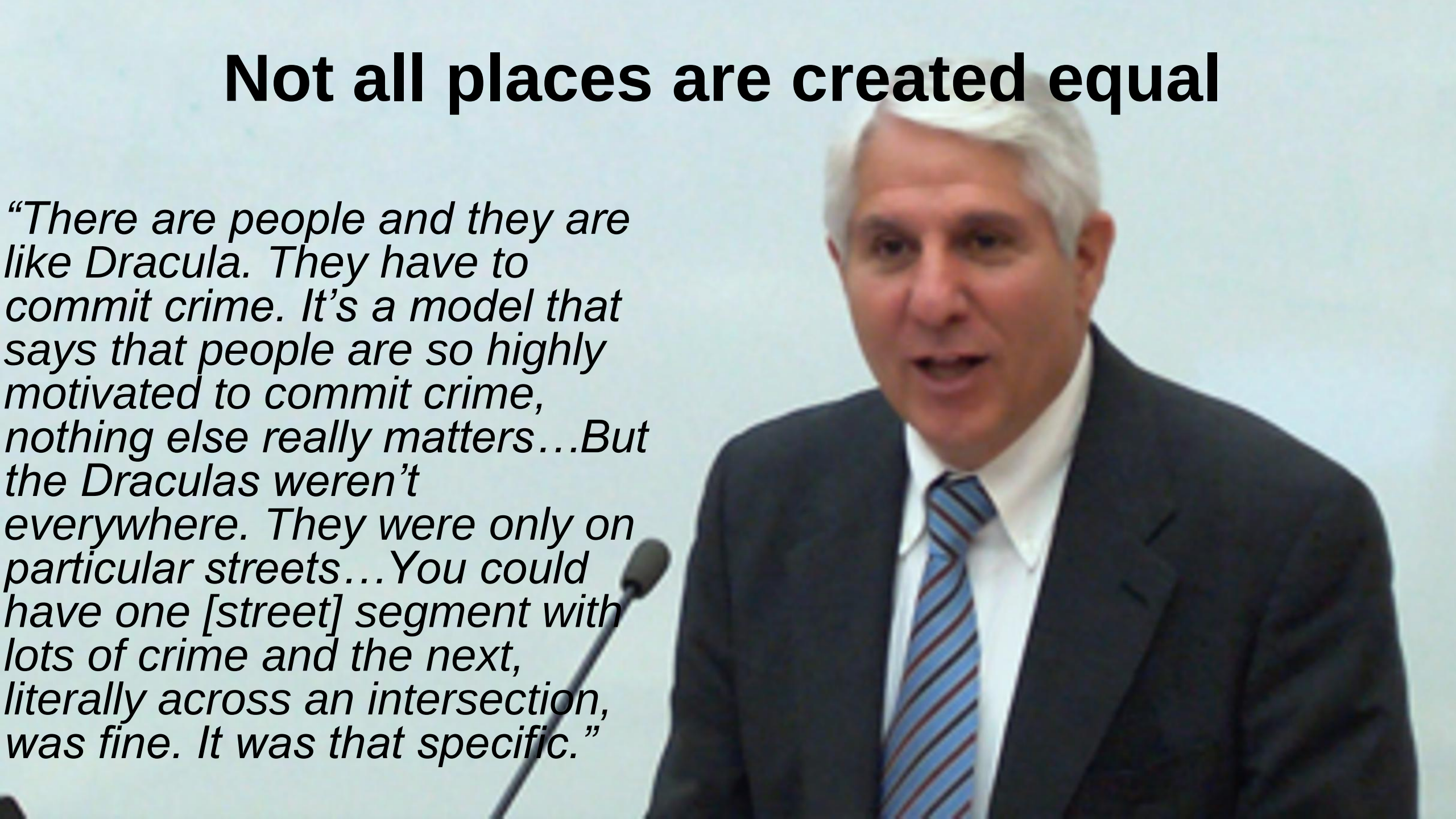
The idea of hot spots

A leading sociological theory of crime is the "routine activities" approach (Cohen and Felson, 1979). The premise of this ecological theory is that criminal events result from likely offenders, suitable targets, and the absence of capable guardians against crime converging nonrandomly in time and space. Yet prior research has been unable to employ spatial data, relying instead on individual- and household-level data, to test that basic premise. This analysis supports the premise with spatial data on 323,979 calls to police over all 115,000 addresses and intersections in Minneapolis over 1 year. Relatively few "hot spots" produce most calls to police (50% of calls in 3% of places) and calls reporting predatory crimes (all robberies at 2.2% of places, all rapes at 1.2% of places, and all auto thefts at 2.7% of places), because crime is both rare (only 3.6% of the city could have had a robbery with no repeat addresses) and concentrated, although the magnitude of concentration varies by offense type. These distributions all deviate significantly, and with ample magnitude, from the simple Poisson model of chance, which raises basic questions about the criminogenic nature of places, as distinct from neighborhoods or collectivities.

Sherman, L. W., Gartin, P. R., & Buerger, M. E. (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*, *27*(1), 27-56.

Not all places are created equal

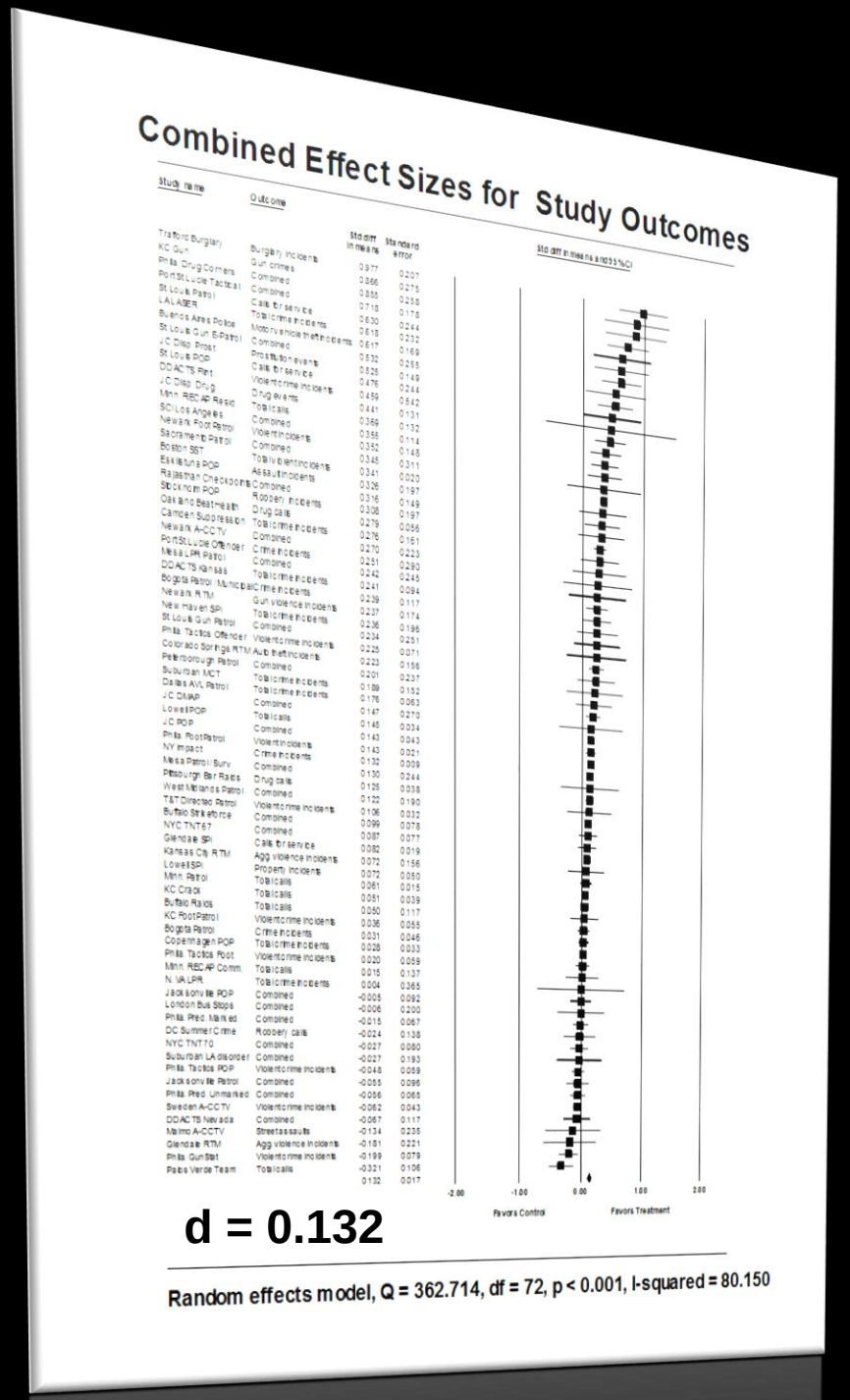
“There are people and they are like Dracula. They have to commit crime. It’s a model that says that people are so highly motivated to commit crime, nothing else really matters…But the Draculas weren’t everywhere. They were only on particular streets…You could have one [street] segment with lots of crime and the next, literally across an intersection, was fine. It was that specific.”



“The nastiest area in Montevideo, Uruguay”

Ariel, B. (2014) “Downtown Montevideo: ‘a bad neighbourhood with very little crime’.” Presented at the Uruguay Ministry of Interior Policing Symposium (Montevideo, Uruguay 2014)

“Hot Spots Policing”



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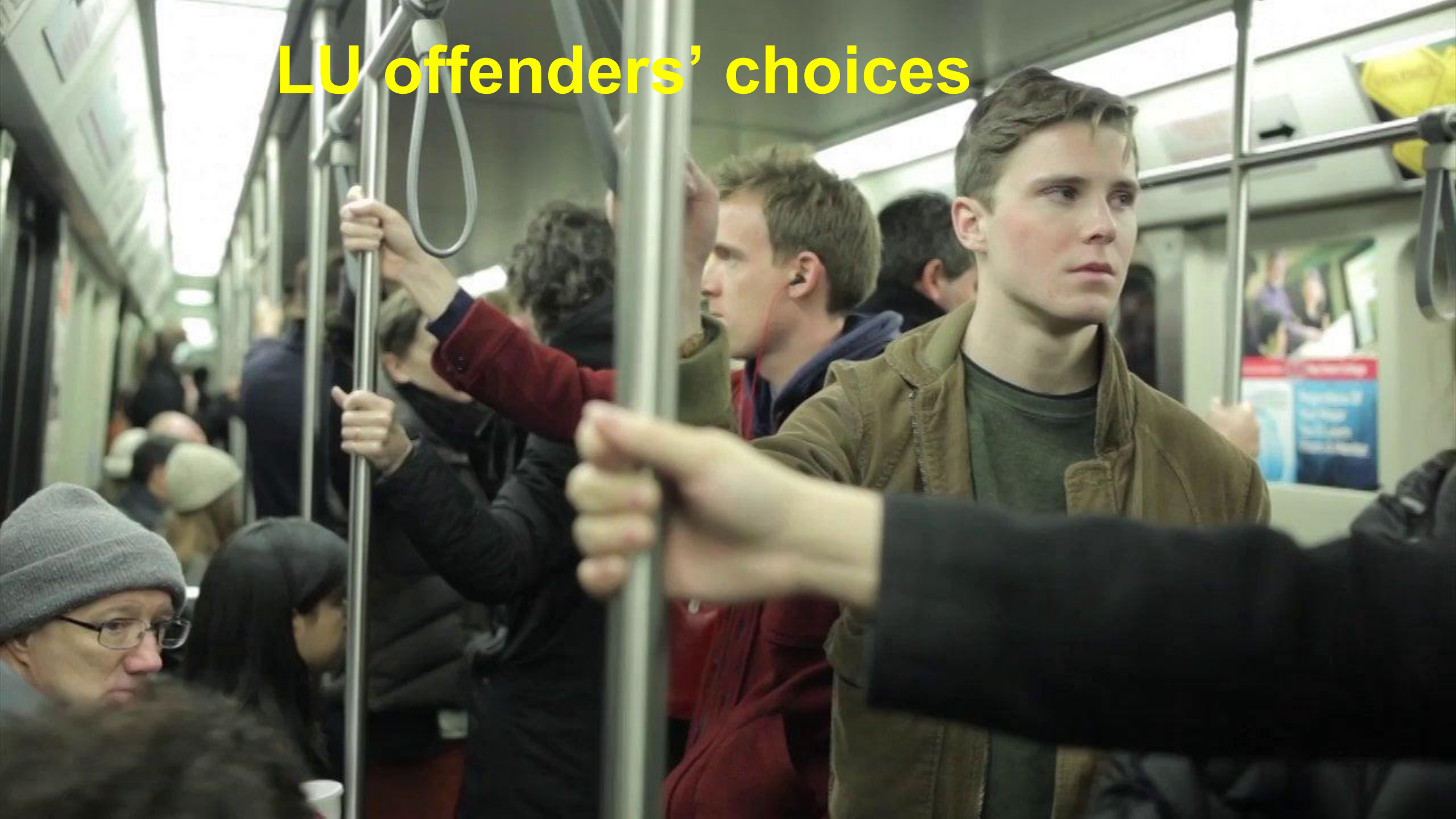
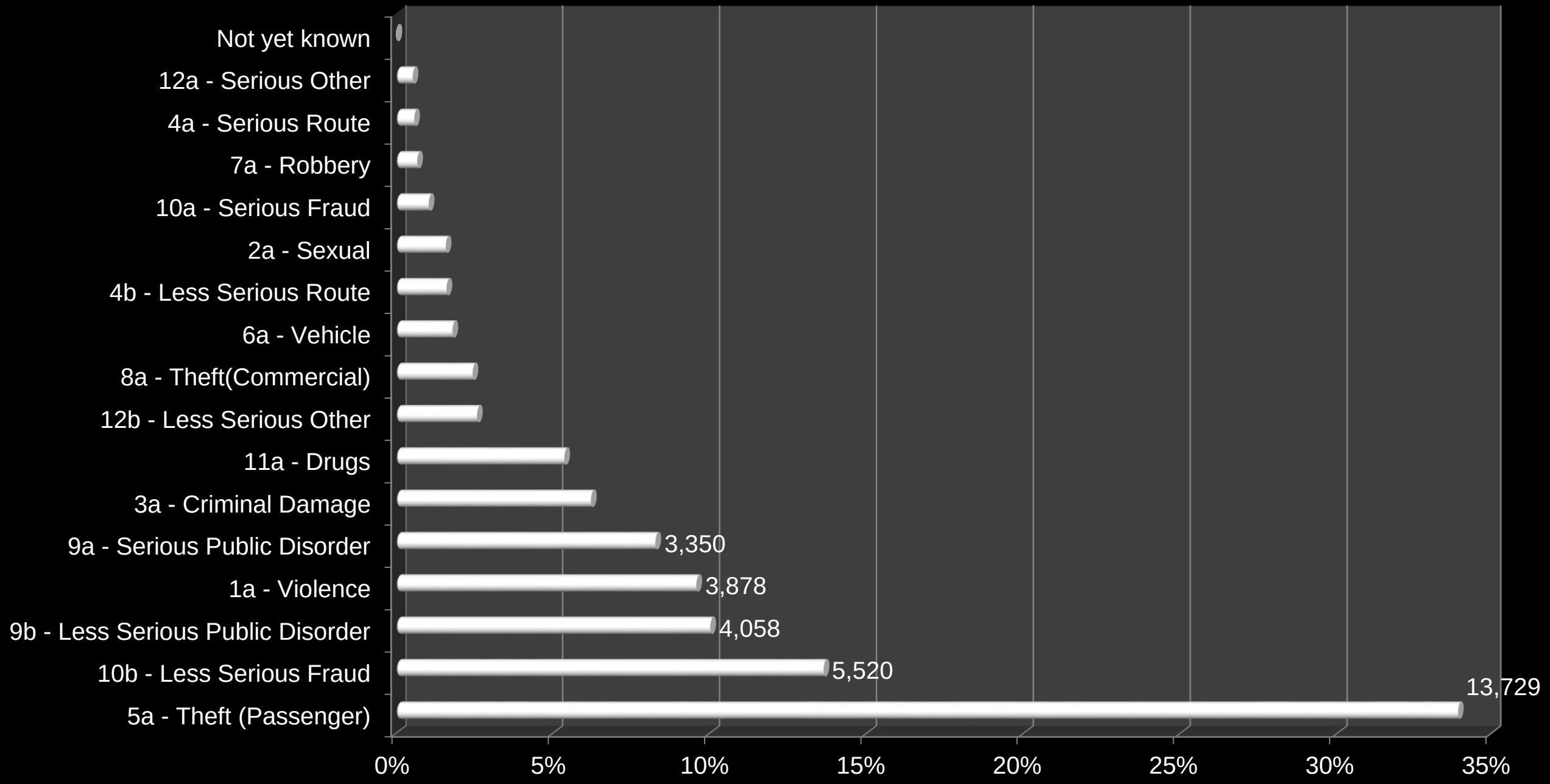
Crime Context: Baseline Analysis

LU offenders' choices



Crime Groups (n=40,476 in 3 years of data)



1,340,000,000 passenger per year

270 stations, 250 miles, 11 lines

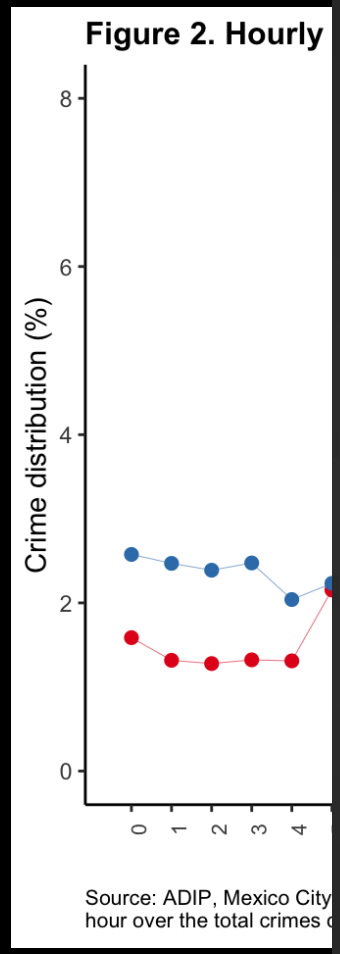
750 officers

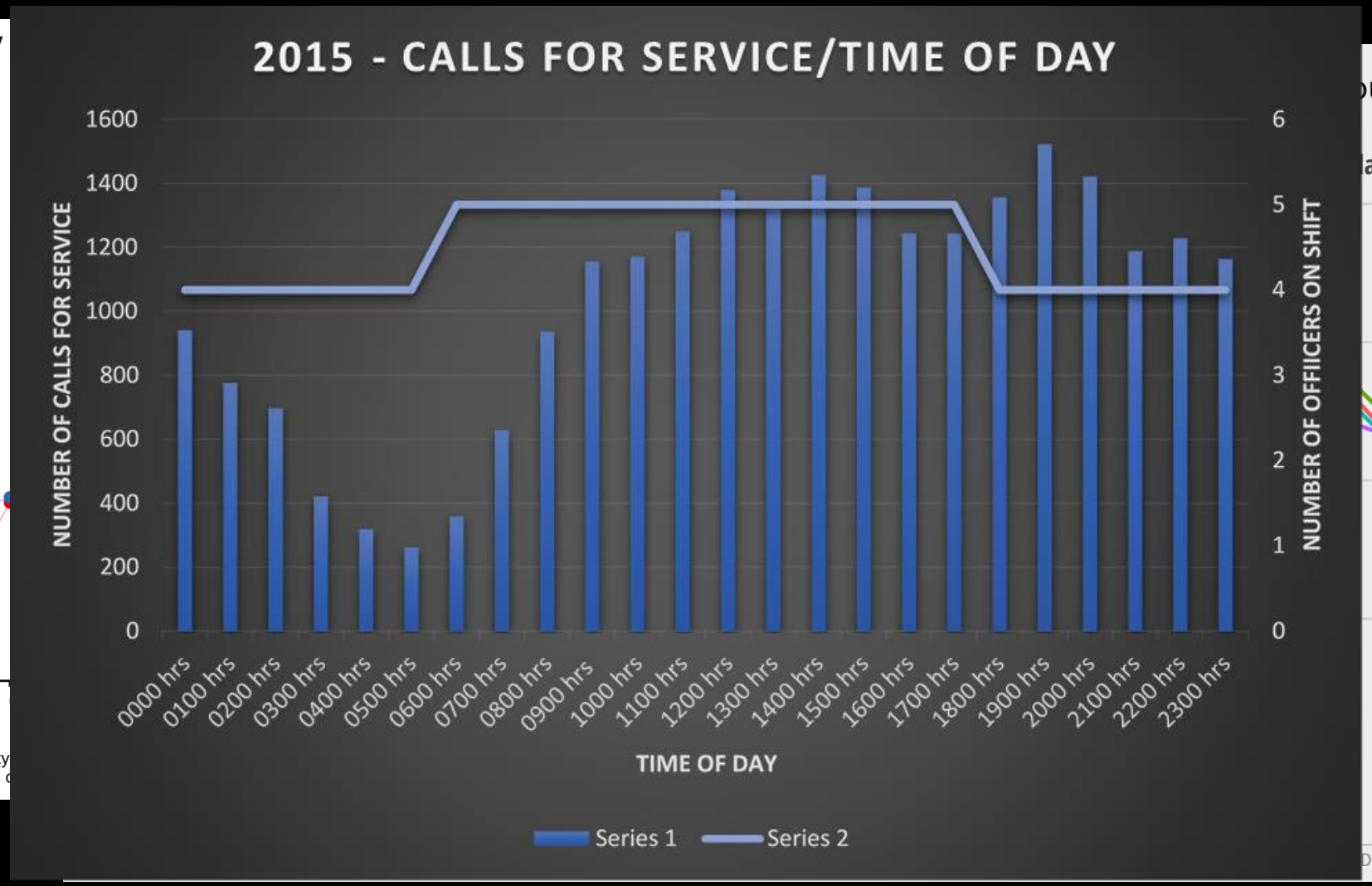
Where to target?
Spatial Analysis

LU Stations? 3 years of data

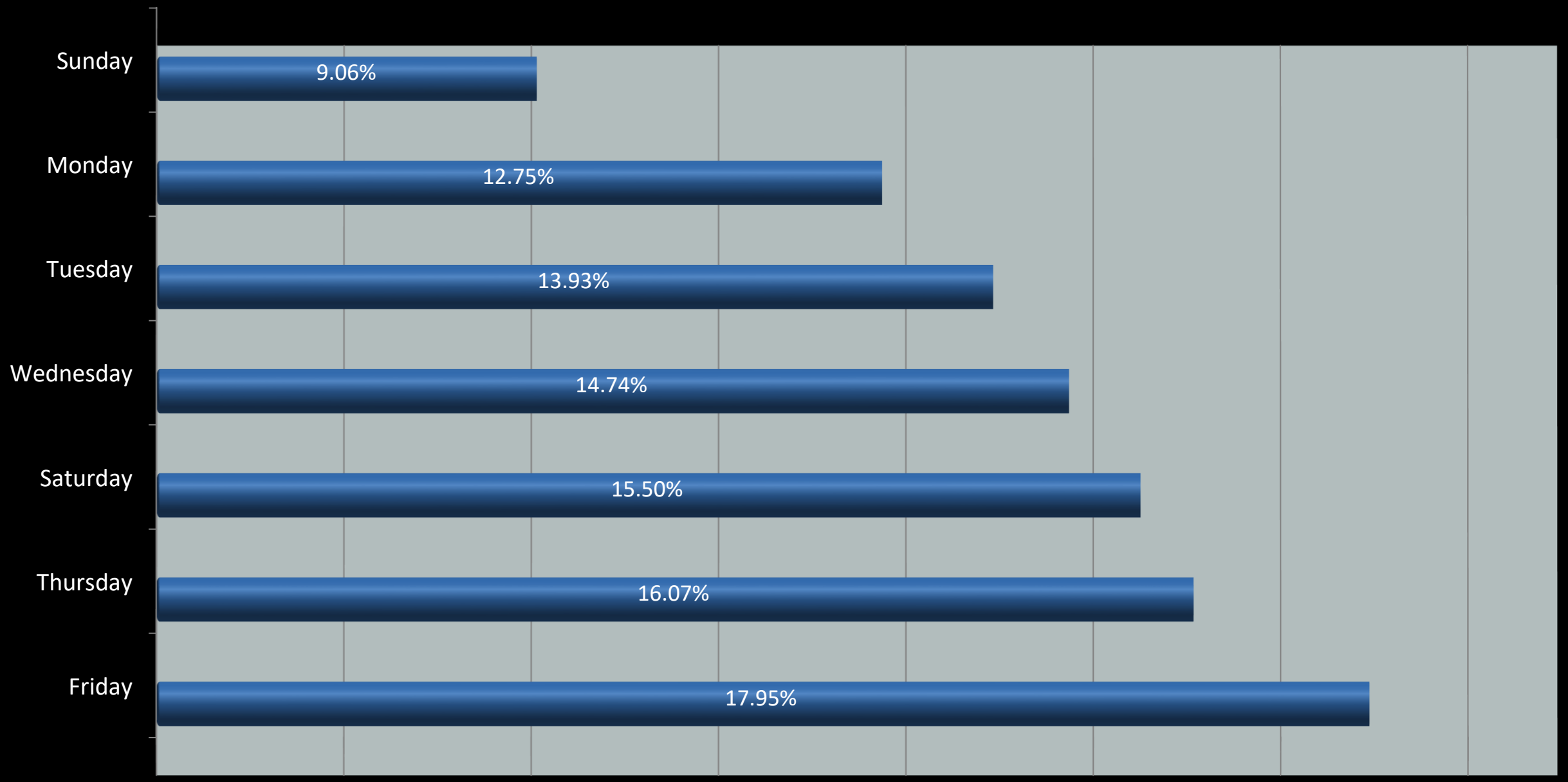
N=349	Cum. %	Station	N=40,484	%	Cum. %
1	0.28%	Stratford l03	1,477	3.65%	3.65%
2	0.56%	Kings Cross l02	1,327	3.28%	6.93%
3	0.85%	Victoria l02	1,175	2.90%	9.83%
4	1.13%	Oxford Circus	1,055	2.61%	12.43%
5	1.41%	Leicester Square	869	2.15%	14.58%
6	1.69%	Liverpool Street l02	808	2.00%	16.58%
7	1.98%	Holborn	684	1.69%	18.27%
8	2.26%	London Bridge l08	615	1.52%	19.79%
9	2.54%	Piccadilly Circus	595	1.47%	21.26%
10	2.82%	Earls Court	582	1.44%	22.69%
11	3.11%	Green Park	580	1.43%	24.13%
12	3.39%	Tottenham Court Road	550	1.36%	25.48%
13	3.67%	Baker Street	543	1.34%	26.83%
14	3.95%	Waterloo l08	530	1.31%	28.13%
15	4.24%	Bank Monument Complex	507	1.25%	29.39%
16	4.52%	Hammersmith District	460	1.14%	30.52%
17	4.80%	Mile End	428	1.06%	31.58%
18	5.08%	Shepherds Bush Central	398	0.98%	32.56%

When to target?
Temporal Analysis

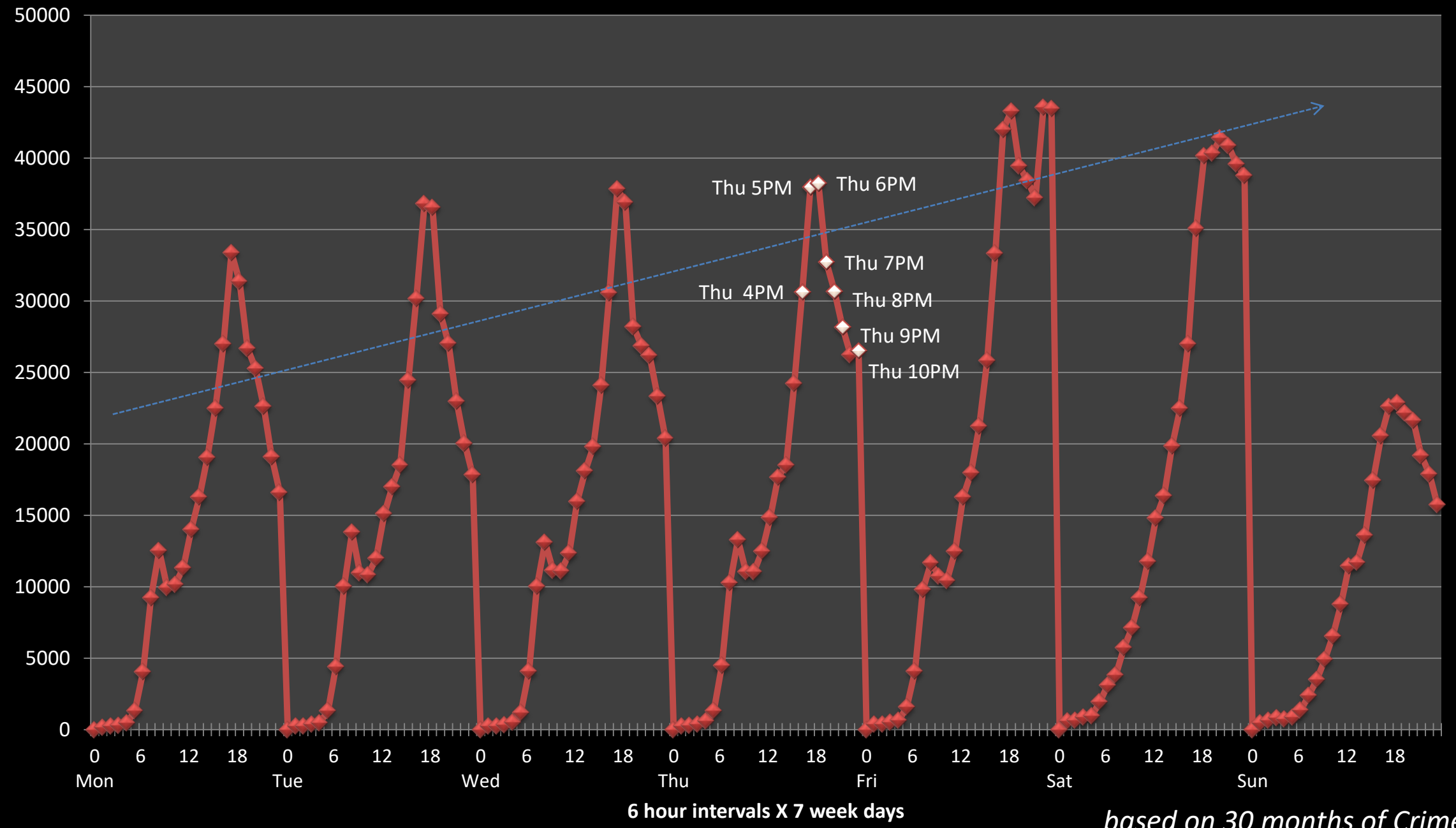




Day of crime


Sunday
9.06%
Monday
12.75%
Tuesday
13.93%
Wednesday
14.74%
Saturday
15.50%
Thursday
16.07%
Friday
17.95%

Distribution of All Crimes: time of day X day of week



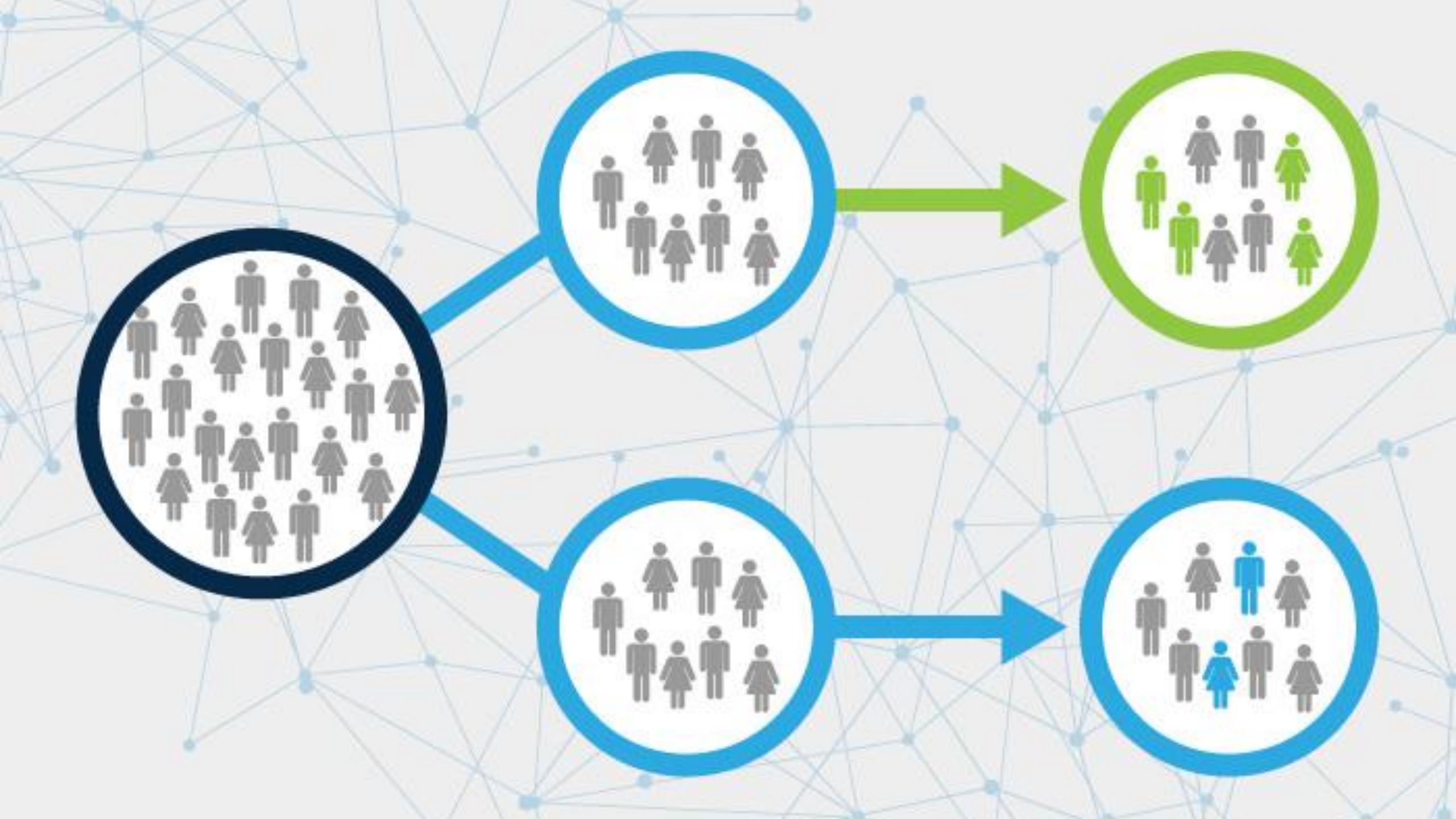
based on 30 months of Crime data

Setting up the test





Randomised Controlled Trials



Targeting the BTP LU Hotspots

- Hotspots are required to be "small enough" for deterrence theory to work
  - See and be seen
  - Rational decision-makers calculate costs-benefit ratios
  - When the perceived likelihood of apprehension is elevated, crime is less likely to occur

- For BTP/LU, "hotspots" were defined as platforms with at least 2 serious crimes in the 12 months preceding the experiment*
  - Crimes, not Calls for Service (CFS)
  - Mappable

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* Sherman and Weisburd (1995): at least 20 per year

* Ariel, Sherman and Weinborn (2016) in Peterborough : 36 per year

Eligible Platforms

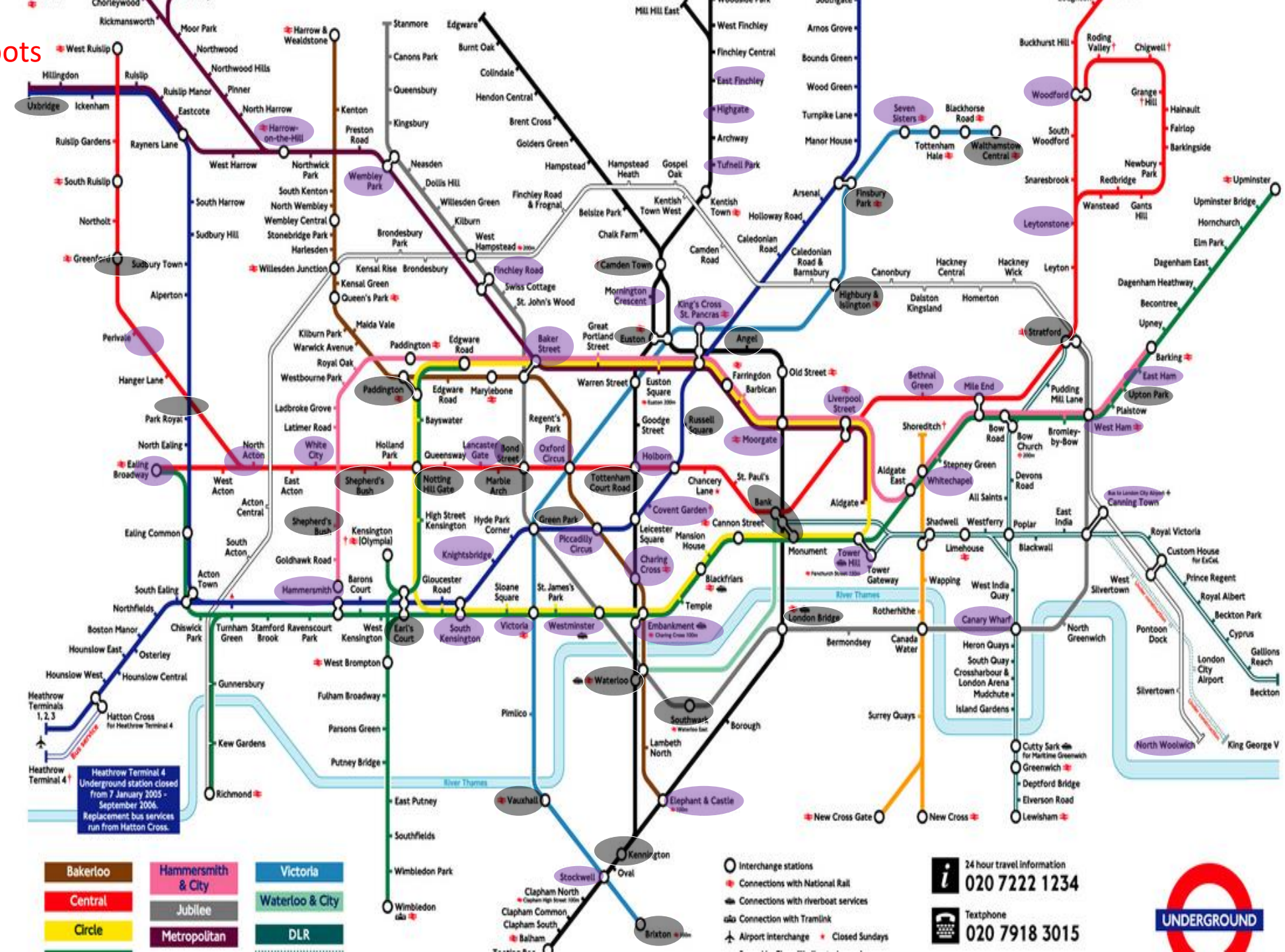
- 115 platforms (out of thousands)
- Average number of crimes per hotspot per year = 4.72 (SD=4.8)
- All over London

Random Assignment

Top 60 Hotspots

Control

Exp't Group 1



Dosage, Treatment and Implementation


RUSSELL SQUARE
RUSSELL SQUARE
RUSSELL SQUARE
RUSSELL SQUARE
© Alamy

Dosage

- 15 minutes, 4 times a shift, 4 days a week
- Wed.-Sat., ¬3PM - ¬10PM
- Over 90% hit the target +/- 5 minutes

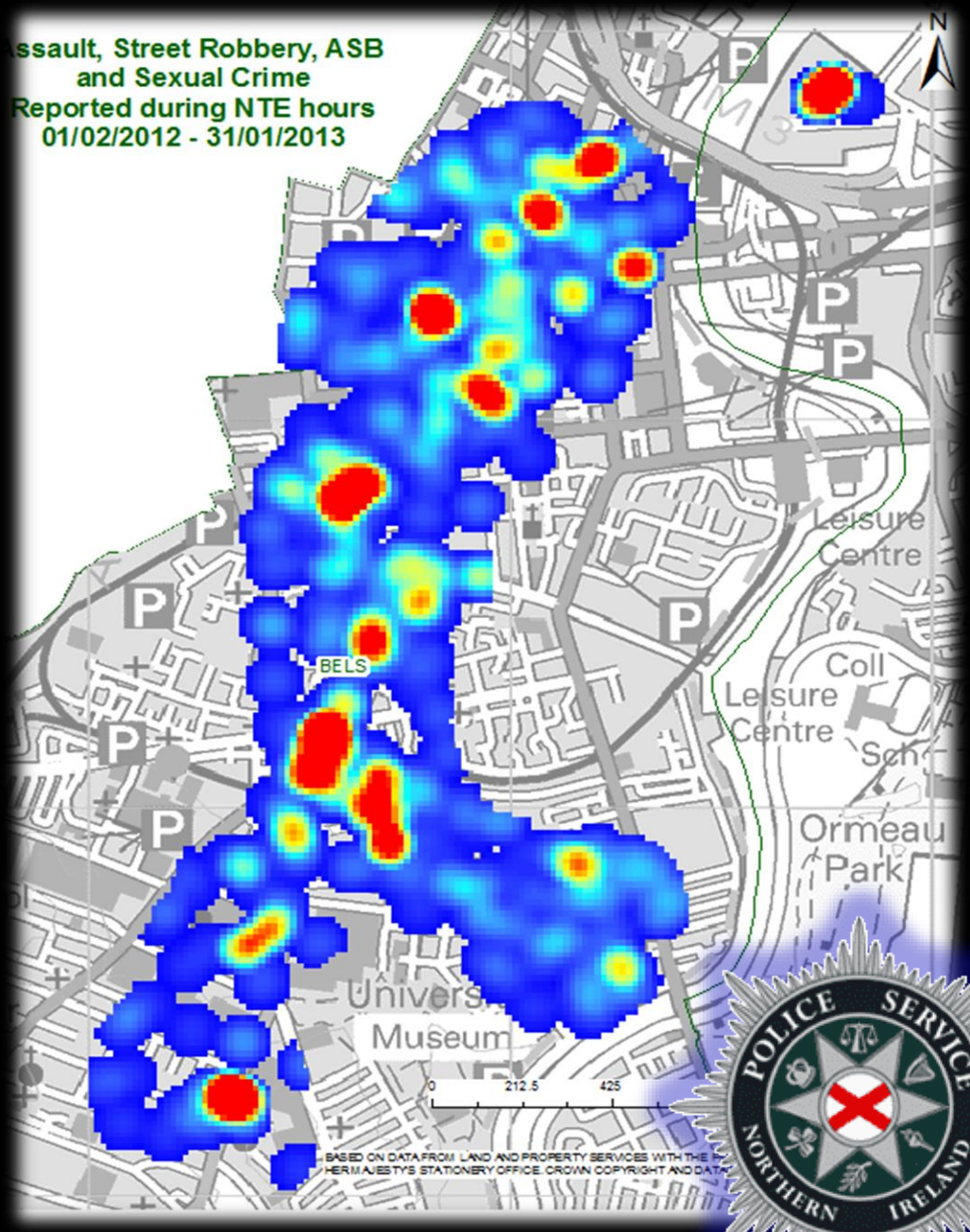
Assigned	Delivered
23,272	**20,272**

Tracking Resources

- 2.5 sergeants full-time, for six months
  - *"I hate you and what you have done to my life"*
- Constantly reporting back to base when entering/leaving the hotspots
  - Accountability on the one hand, but loss of discretion on the other (Wain and Ariel, 2014; Wain, Ariel and Tankebe 2017)
- Arguably less exciting than hunting gang members
  - ("Chasing minutes")
- Pen and paper tracking system is unsustainable in the long-run (de Britto and Ariel 2017)

PSNI Hotspots "Compliance Target"

Malone Road	225
Blackstaff Square	75
The Odyssey Complex	75
Botanic Avenue	225
Donegall Place	225
Tomb Street	75
Pattersons Place	75
Skipper Street	225
Ann Street	75
Dublin Road	225



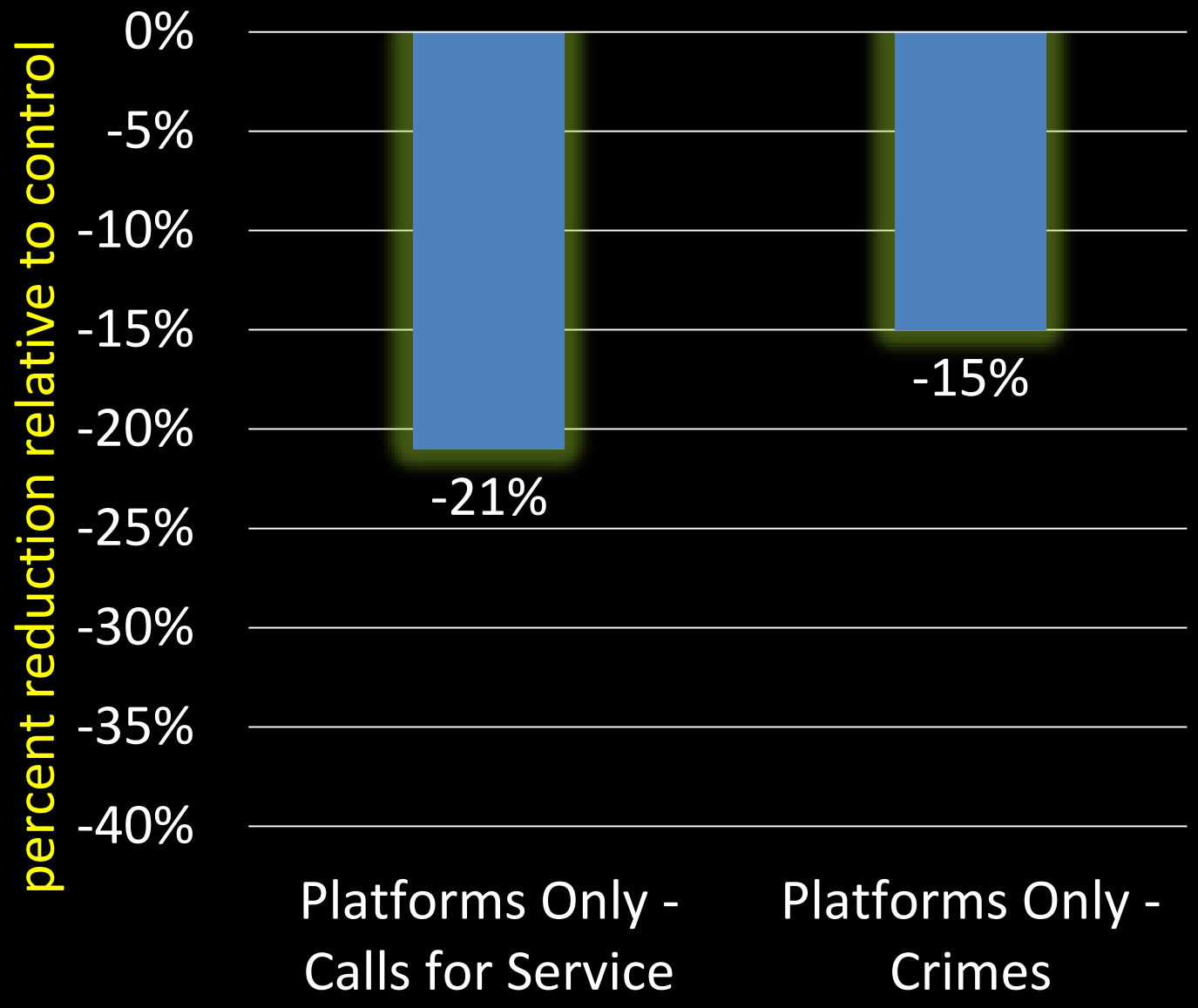
Goddard, N., and Ariel, B. (2014). "How much time should officers spend in nighttime economy hotspots? Lessons from a "Randomized Controlled Trial in Northern Ireland." Presented at the Annual American Society of Criminology (San Francisco, CA, November 18-20, 2014).

PSNI Hotspots	"Compliance Target"	Measures of Compliance (in minutes)			
		Friday 1	Saturday 1	Friday 2	Saturday 2
Malone Road	225	5	7	10	1
Blackstaff Square	75	7	16	21	64
The Odyssey Complex	75	-	-	-	3
Botanic Avenue	225	87	67	39	15
Donegall Place	225	122	17	12	84
Tomb Street	75	2	0	1	0
Pattersons Place	75	8	88	85	68
Skipper Street	225	11	9	33	6
Ann Street	75	36	5	6	5
Dublin Road	225	6	9	14	10

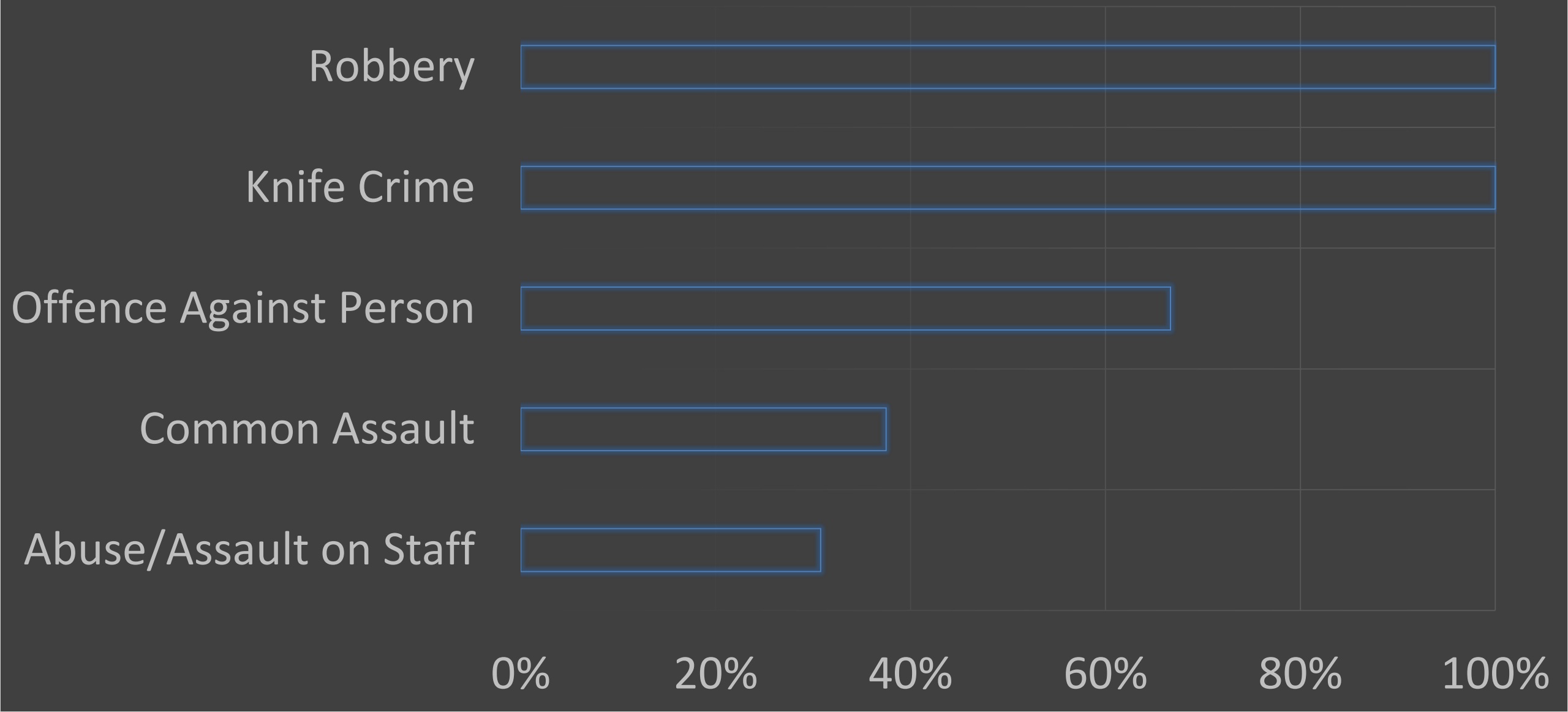
Goddard, N., and Ariel, B. (2014). "How much time should officers spend in nighttime economy hotspots? Lessons from a "Randomized Controlled Trial in Northern Ireland." Presented at the Annual American Society of Criminology (San Francisco, CA, November 18-20, 2014).

Effect of Patrol on Calls for Service and Crime

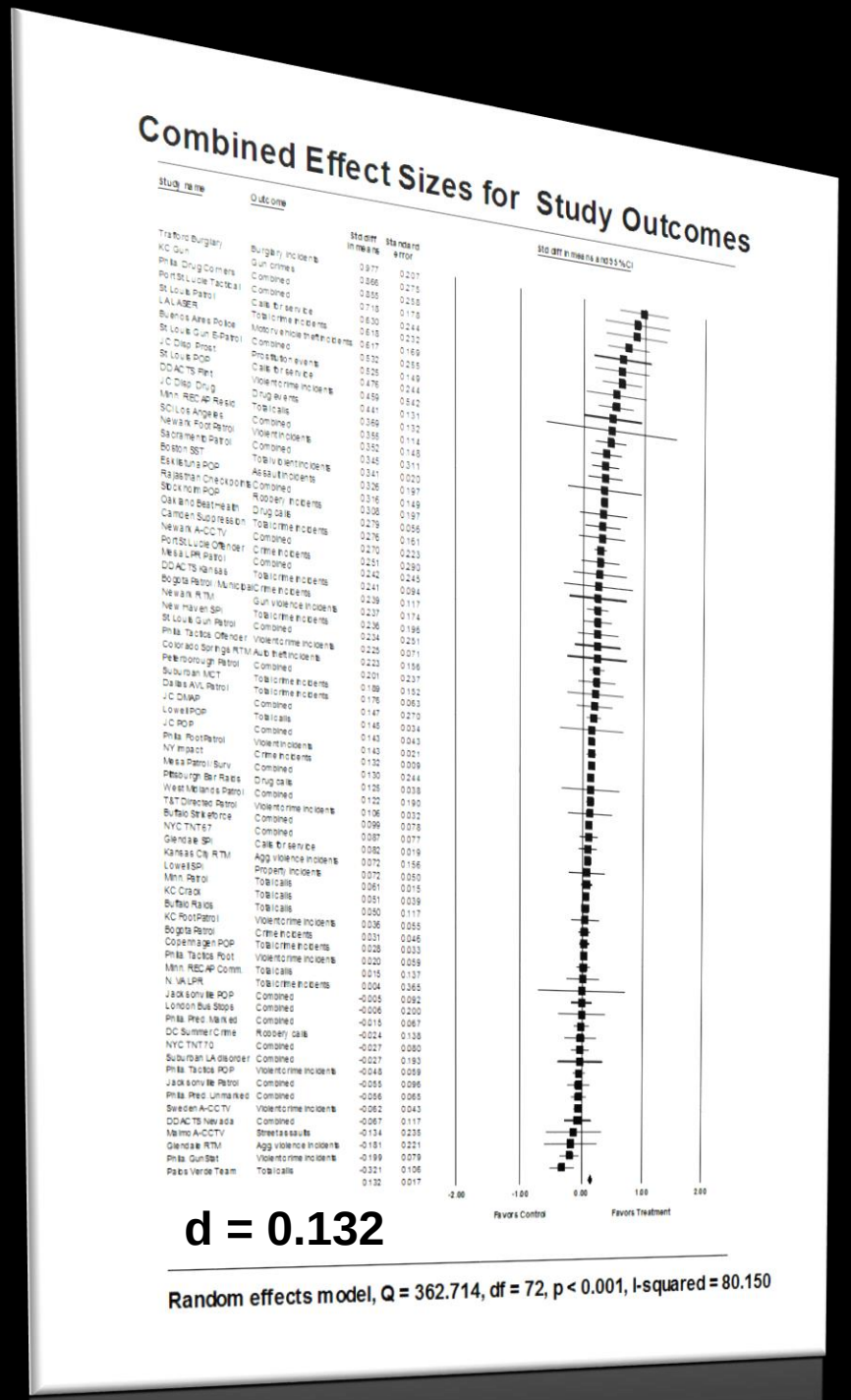
Op Beck Results - Calls for Service + Crimes – Reductions Compared to Control Hotspots



Percent Reductions in Violence: Treatment Platforms Relative to Control Platforms



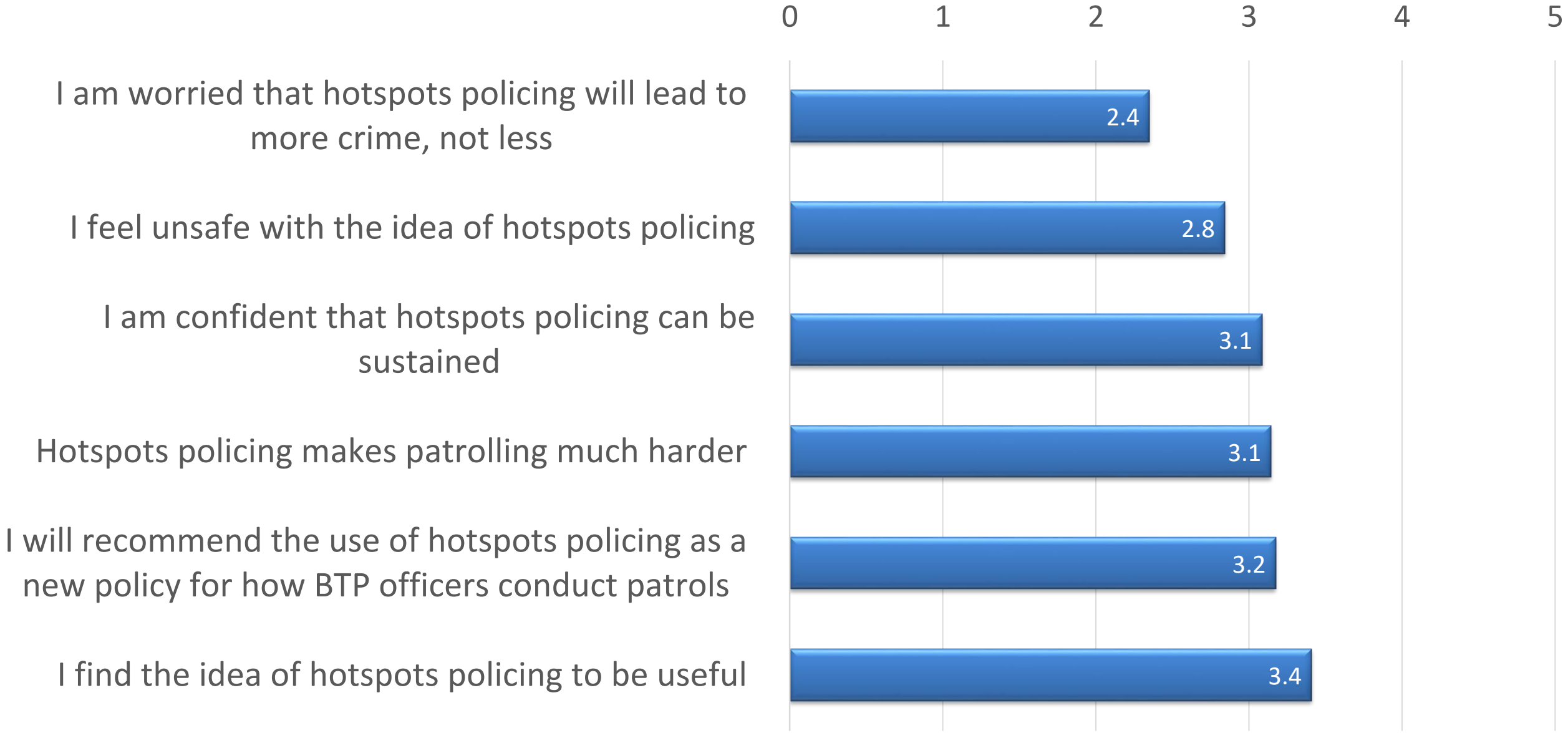
Why is the LU RCT different?



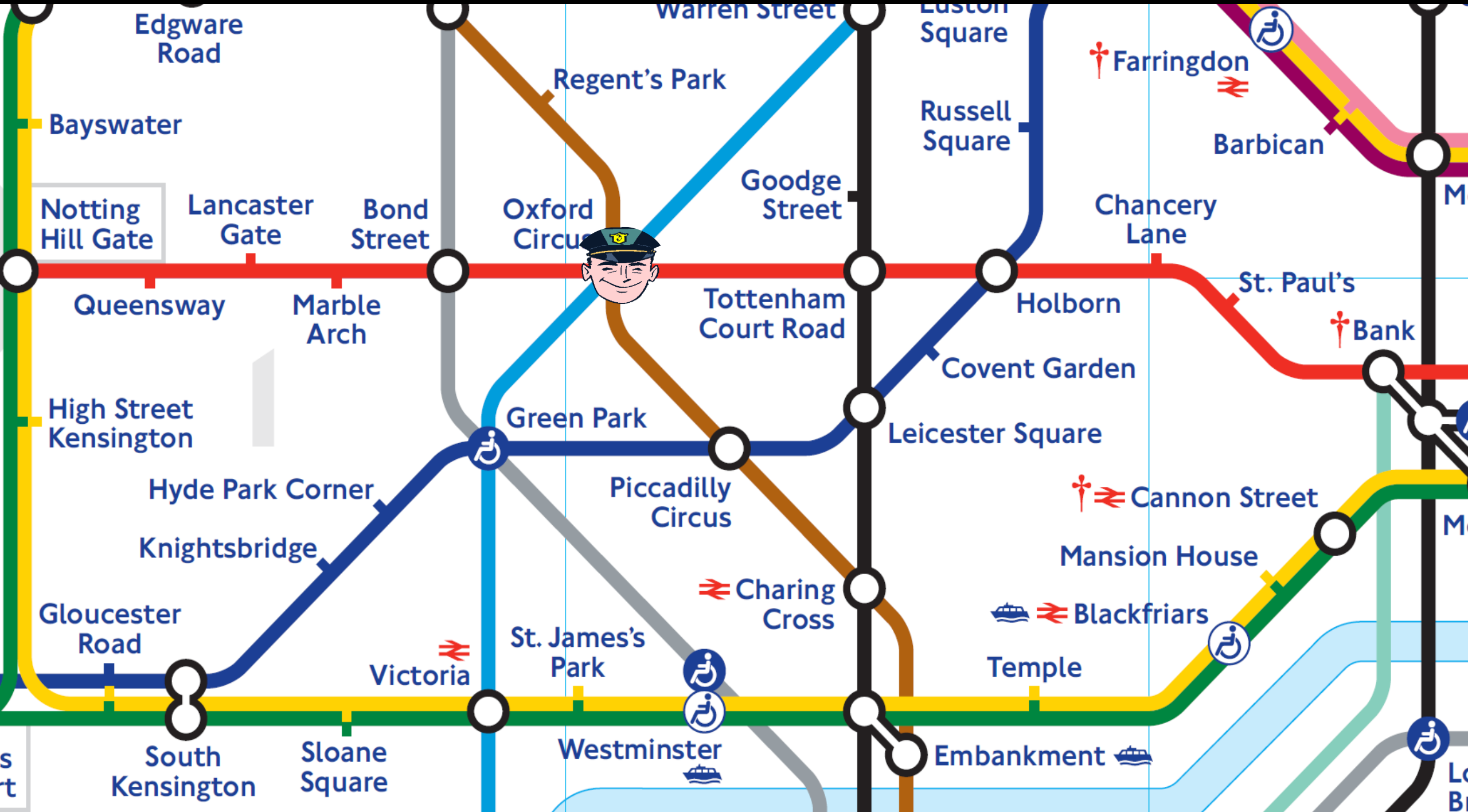
Experiment	Effect Size (d)	N of hotspots	T= Percent Time Patrolled, Treatment (How Measured)	C= Percent Time Patrolled, Control (How Measured)	T:C Ratio
Minneapolis (Sherman & Weisburd 1995)	-.06	110	14.9% (Observed)	7.5% (Observed)	1.99:1
Sacramento (Mitchell, 2017)	-.10	42	10.3% (GPS)	3.4% (GPS)	3:1
Peterborough (UK) (Ariel, Weinborn & Sherman 2016)	-.21	72	8.9% (GPS)	3.8% (GPS)	2.3:1
London Underground	-.69	115	12% (Admin Records)	0 (Admin Records)	N/A

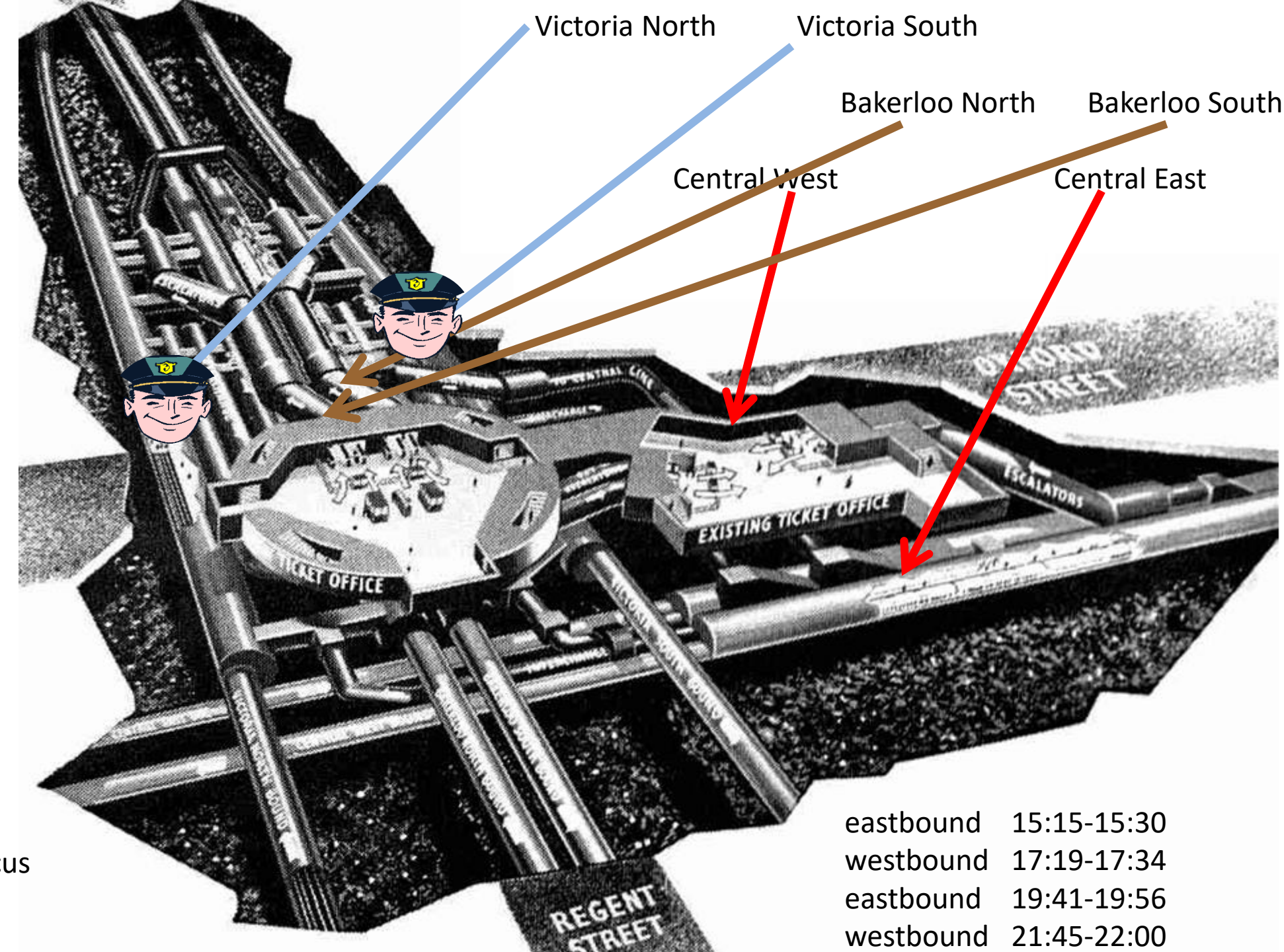
Officers Surveys

On a Scale of 1 to 5, how would you rate the following statements about your experiences during Op Beck?



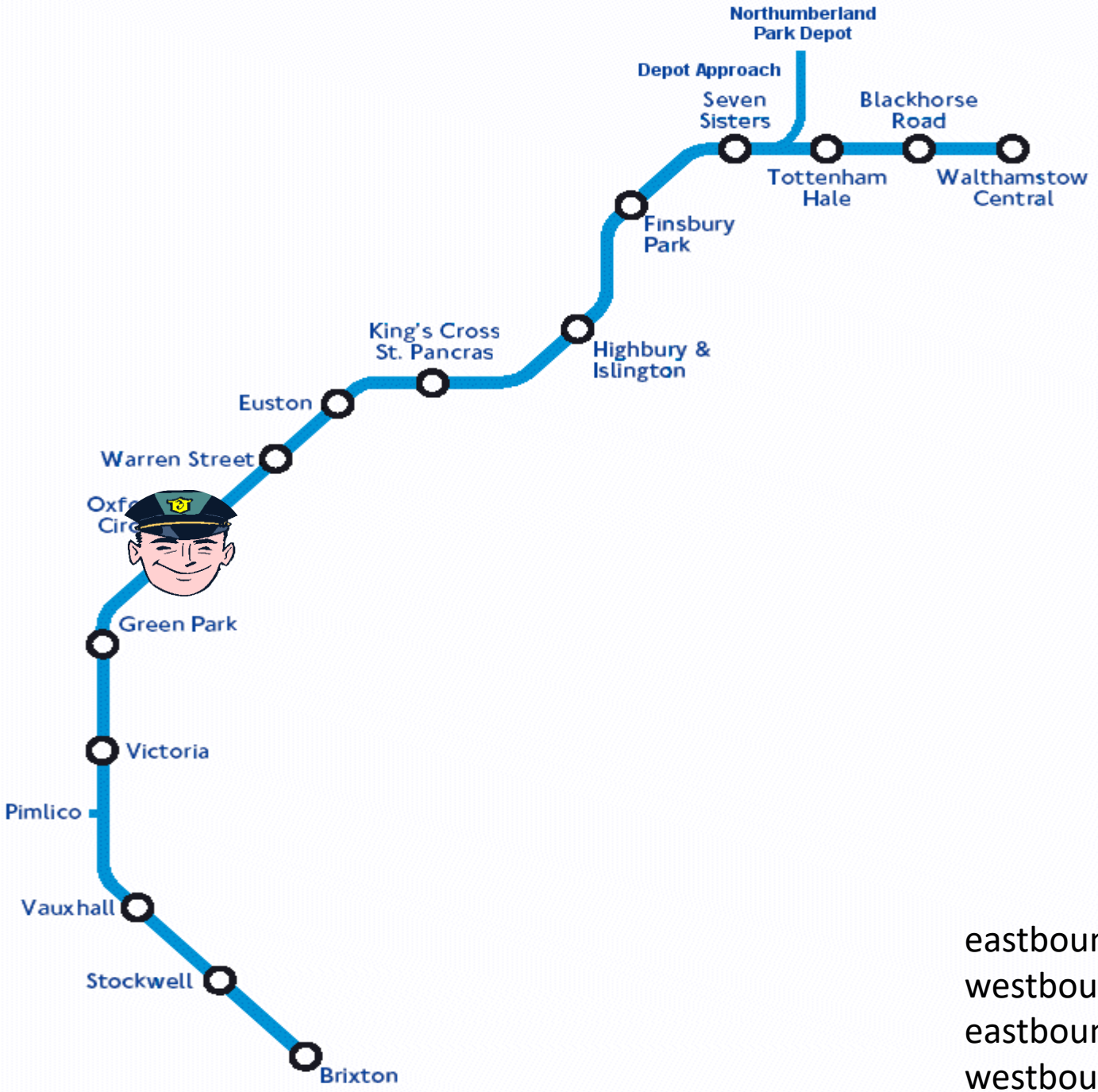
Won’t crime just move around the corner?


Edgware Road
Warren Street
Euston Square
Farringdon
Regent's Park
Bayswater
Russell Square
Barbican
Goodge Street
Notting Hill Gate
Lancaster Gate
Bond Street
Oxford Circus
Chancery Lane
Queensway
Marble Arch
Tottenham Court Road
Holborn
St. Paul's
Bank
Covent Garden
High Street Kensington
Green Park
Leicester Square
Hyde Park Corner
Piccadilly Circus
Cannon Street
Knightsbridge
Mansion House
Charing Cross
Gloucester Road
Blackfriars
St. James's Park
Victoria
Temple
South Kensington
Sloane Square
Westminster
Embankment



Oxford Circus

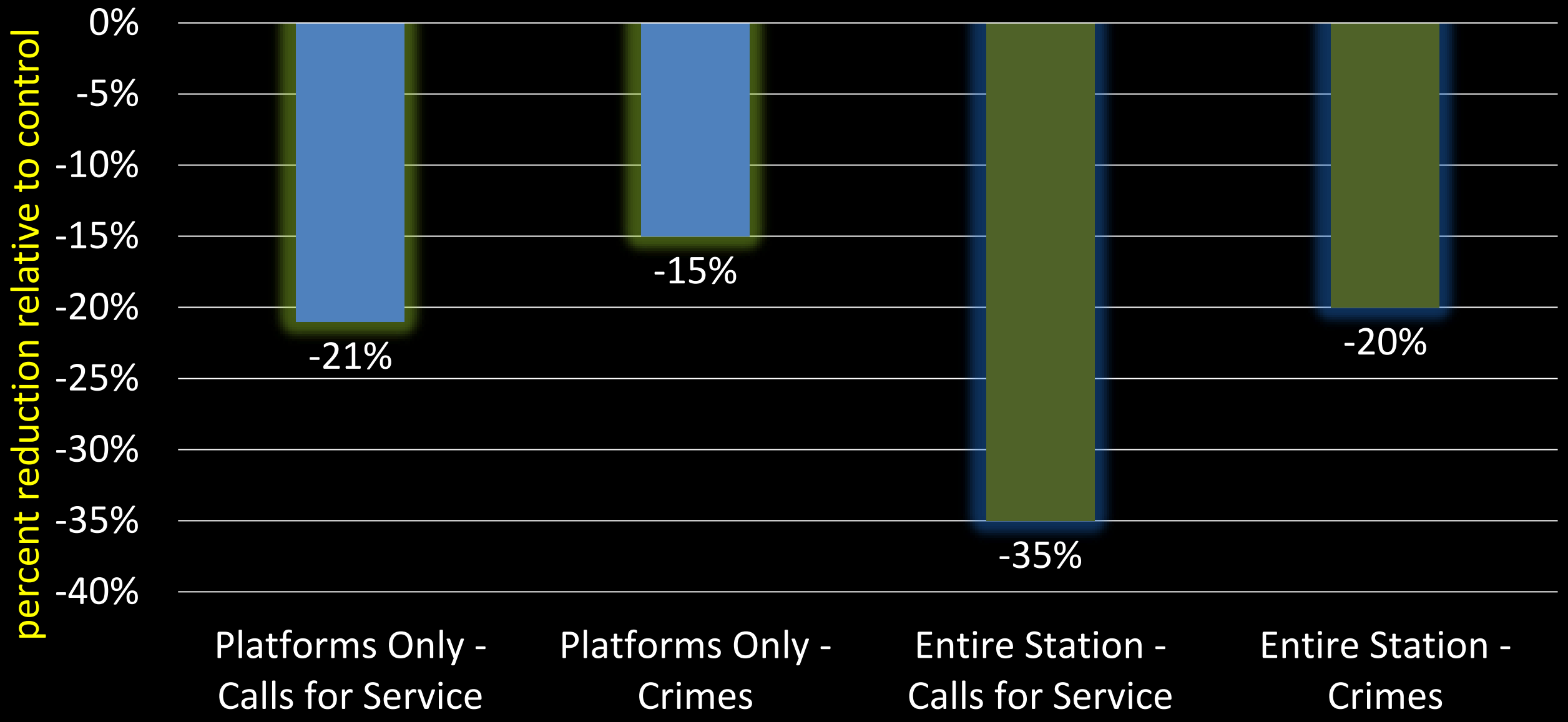
eastbound	15:15-15:30
westbound	17:19-17:34
eastbound	19:41-19:56
westbound	21:45-22:00



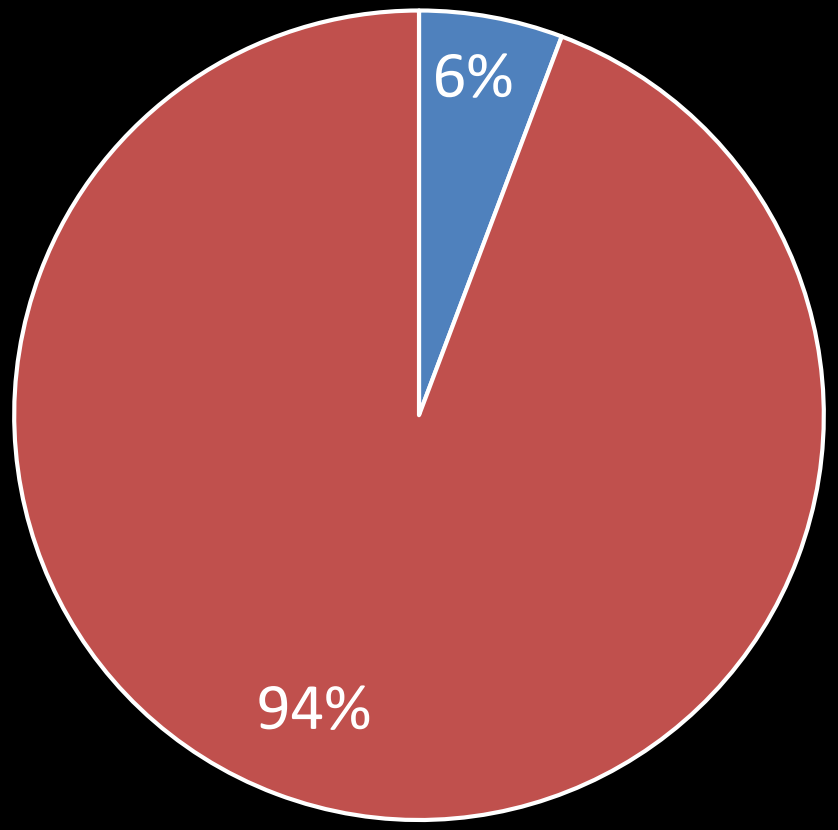
eastbound	15:15-15:30
westbound	17:19-17:34
eastbound	19:41-19:56
westbound	21:45-22:00


NIKETOWN
TOPSHOP
TOPSHOP
TOPMAN

Op Beck Results - Calls for Service + Crimes – Diffusion of Benefits, not displacement



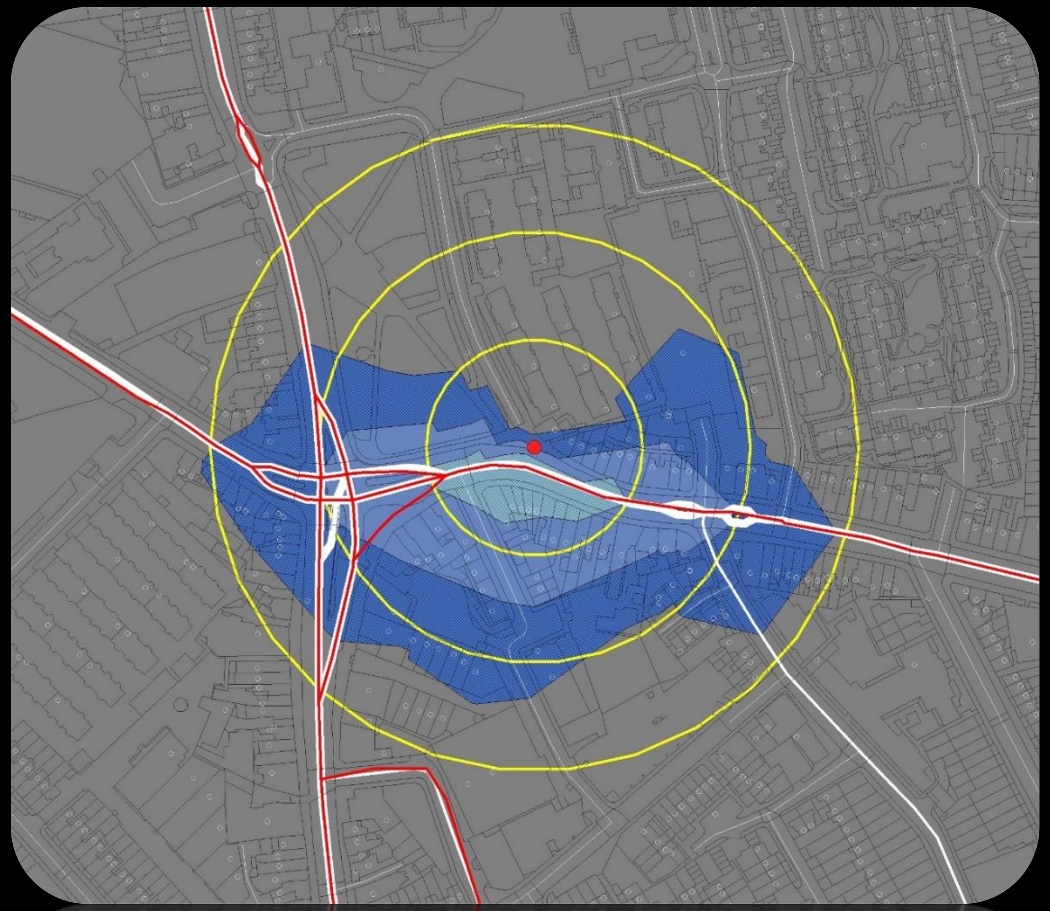
Treatment vs. Control Post Random Assignment: Crimes Prevented during hotspot patrols and all other times X places



- Platforms during patrols 7-hour, 4-day patrols only (N Crimes Prevented = 42)
- All other times and places with no patrols (N Crimes Prevented = 690)

What explains the lack of displacement? offenders' choices

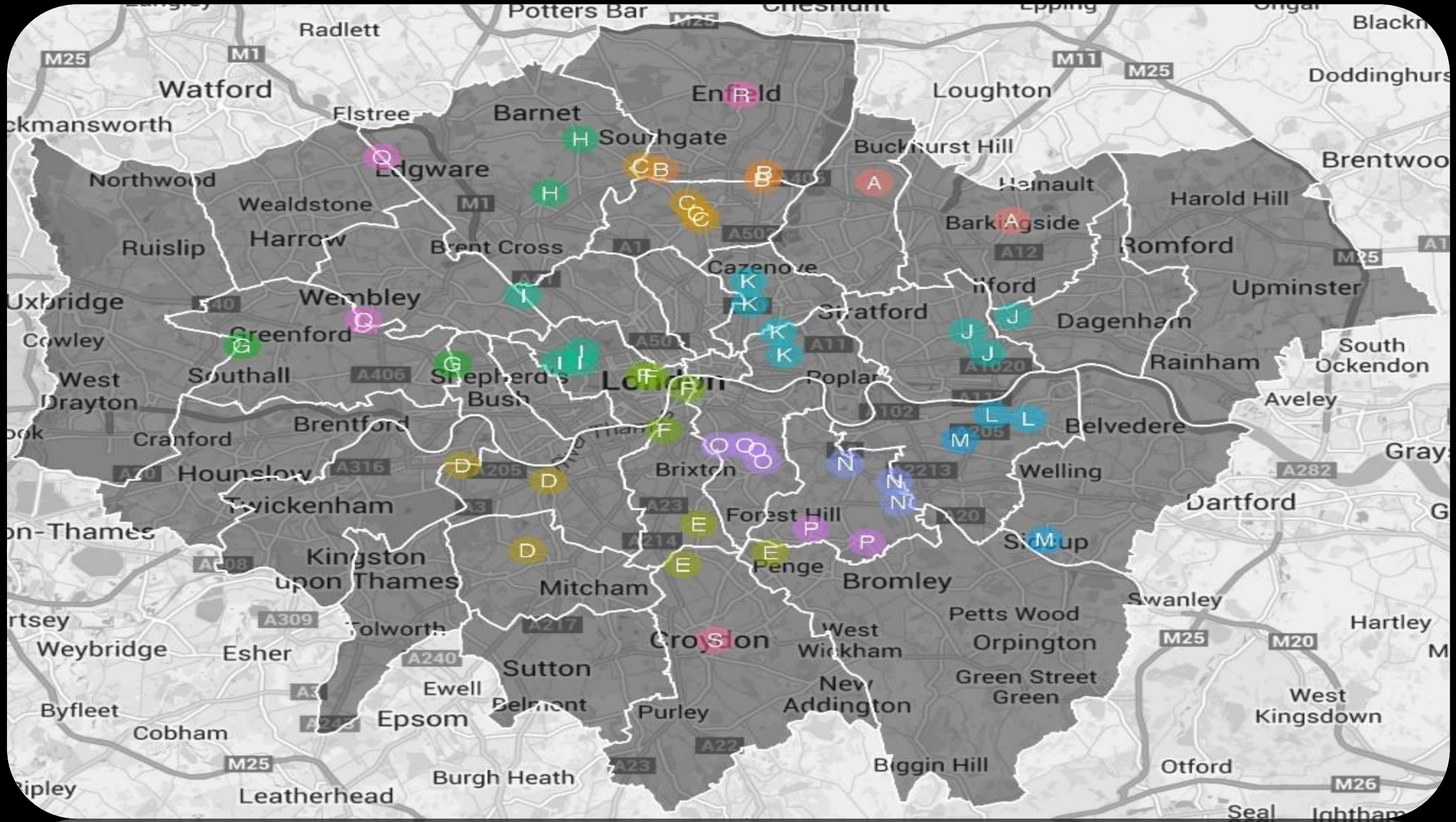
"am I in the hotspot or not?"



The London Bus Experiment

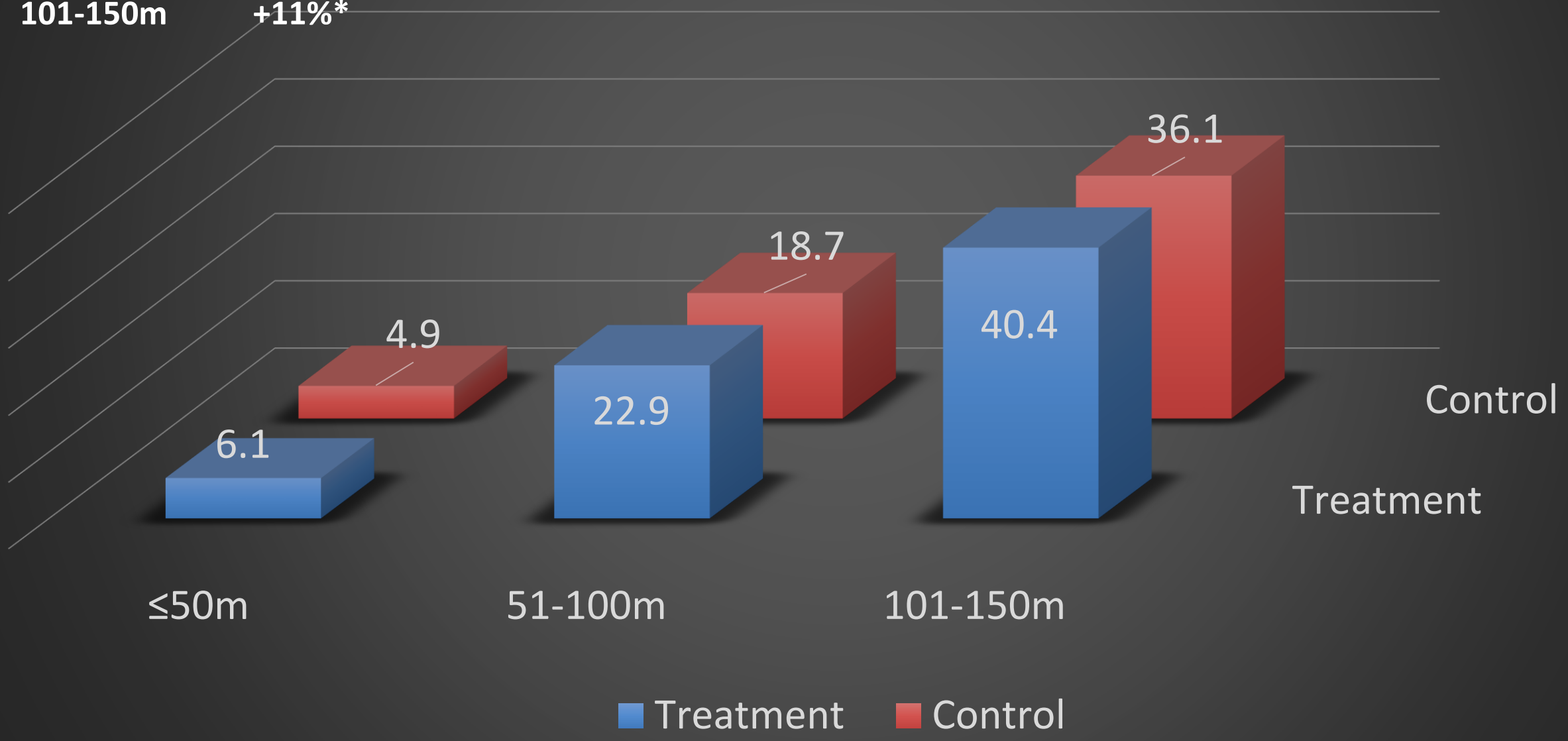
- 102 hotspots (bus stops)
- 6 months
- 3 concentric buffer zones
- First RCT with MPS
- GPS Trackers

Ariel, B., and Partridge, H. (2018). "Predictable Policing: Measuring the Crime Control Benefits of Hotspots Policing at Bus Stops"


Potters Bar
Radlett
Watford
Elstree
Barnet
Enfield
Loughton
Southgate
Buckhurst Hill
Edgware
Northwood
Wealdstone
Harrow
Ruislip
Brent Cross
Cazenove
Hainault
Harold Hill
Barkingside
Romford
Ilford
Upminster
Uxbridge
Wembley
Stratford
Dagenham
Cowley
Greenford
Southall
Shepherd's Bush
London
Poplar
Rainham
South Ockendon
West Drayton
Brentford
Aveley
Cranford
Belvedere
Hounslow
Brixton
Welling
Twickenham
Forest Hill
Dartford
Kingston upon Thames
Penge
Bromley
Mitcham
Swanley
Petts Wood
Hartley
Weybridge
Esher
Tolworth
Croydon
West Wickham
Orpington
Sutton
Ewell
Green Street Green
Epsom
Purley
New Addington
West Kingsdown
Byfleet
Cobham
Biggin Hill
Otford
Burgh Heath
Leatherhead
Seal

Mean N of Crimes per Bus stop
(3 Buffer Zones)

Buffers	percent change
≤50m	+25%**
51-100m	+23%*
101-150m	+11%*



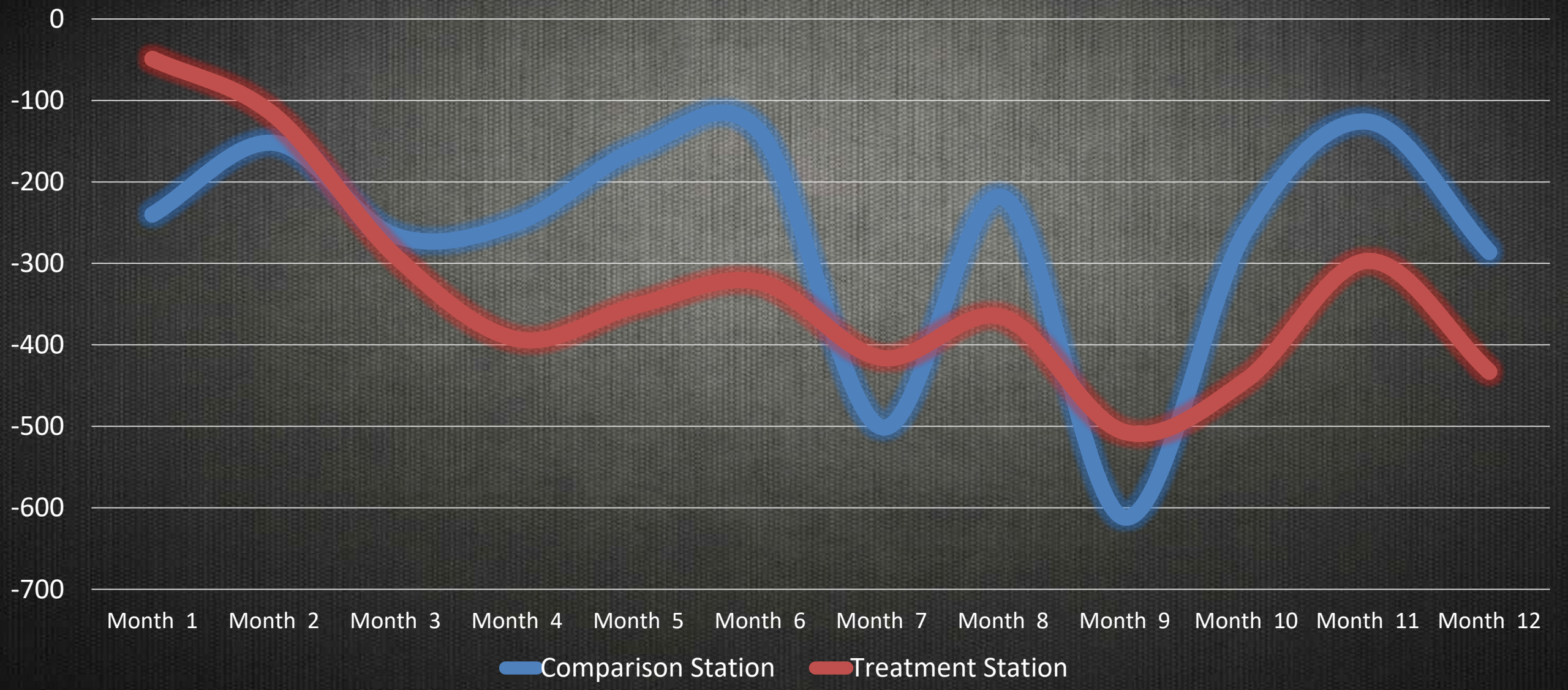
Next step for BTP…

Operation Trafalgar
“we can’t ignore the evidence”

ACC (ret.) Mark Newton

Operation Trafalgar

19.5% crime reduction relative to control (Treatment stations = 198)

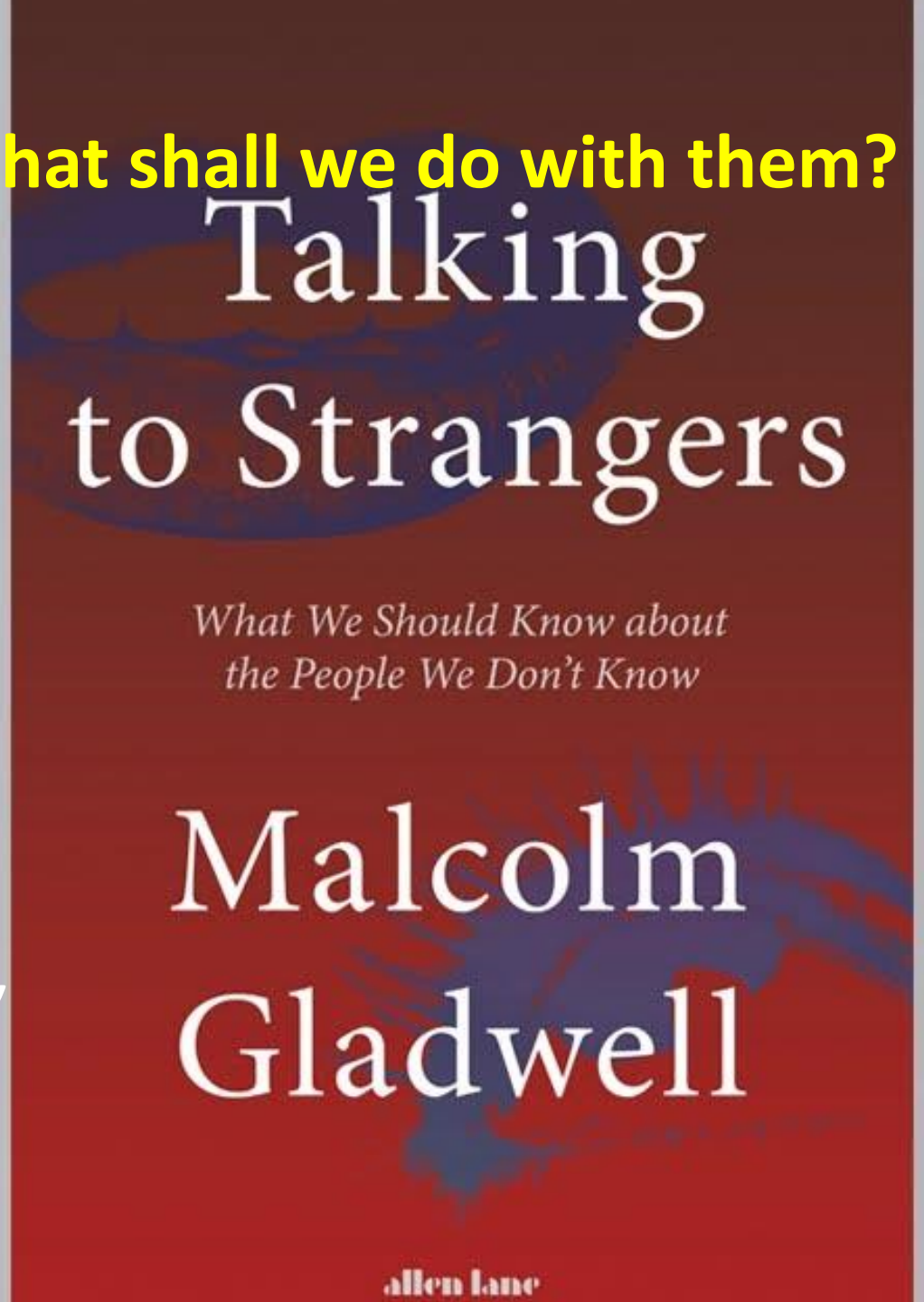


20,000 new cops on the streets…
what shall we do with them?

20,000 new cops on the streets…what shall we do with them?

"O. W. Wilson came up with the idea of 'preventative patrol.' Wilson believed that having police in constant, unpredictable motion throughout ta city's streets would deter crime. any would-be criminal would always have to wonder if a police car was just around the corner."

"Lee Brown, Chief of the New York City Police Department said: 'This country's social problems are well beyond the ability of the police to deal with them on their own'."



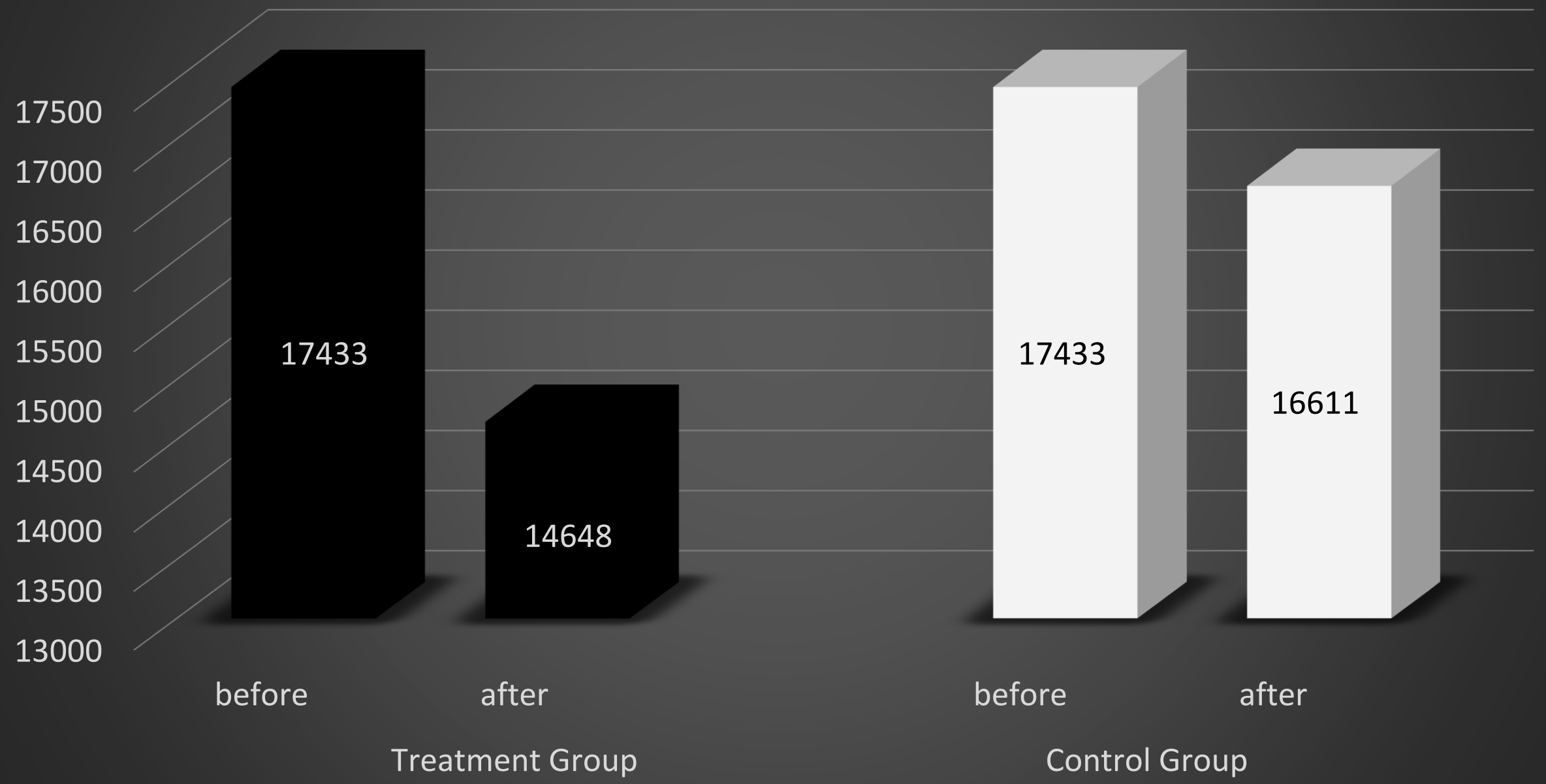
Focus on hotspots, not random patrols!

1. A national approach, not local

2. The evidence on the effectiveness of hotspots policing is overwhelming

3. But who should be visible in the hotspots?

Israel's National RCT - Before-After Differences in hotspots
1,963 Fewer Problems; 12% Reduction



Focus on hotspots, not random patrols!

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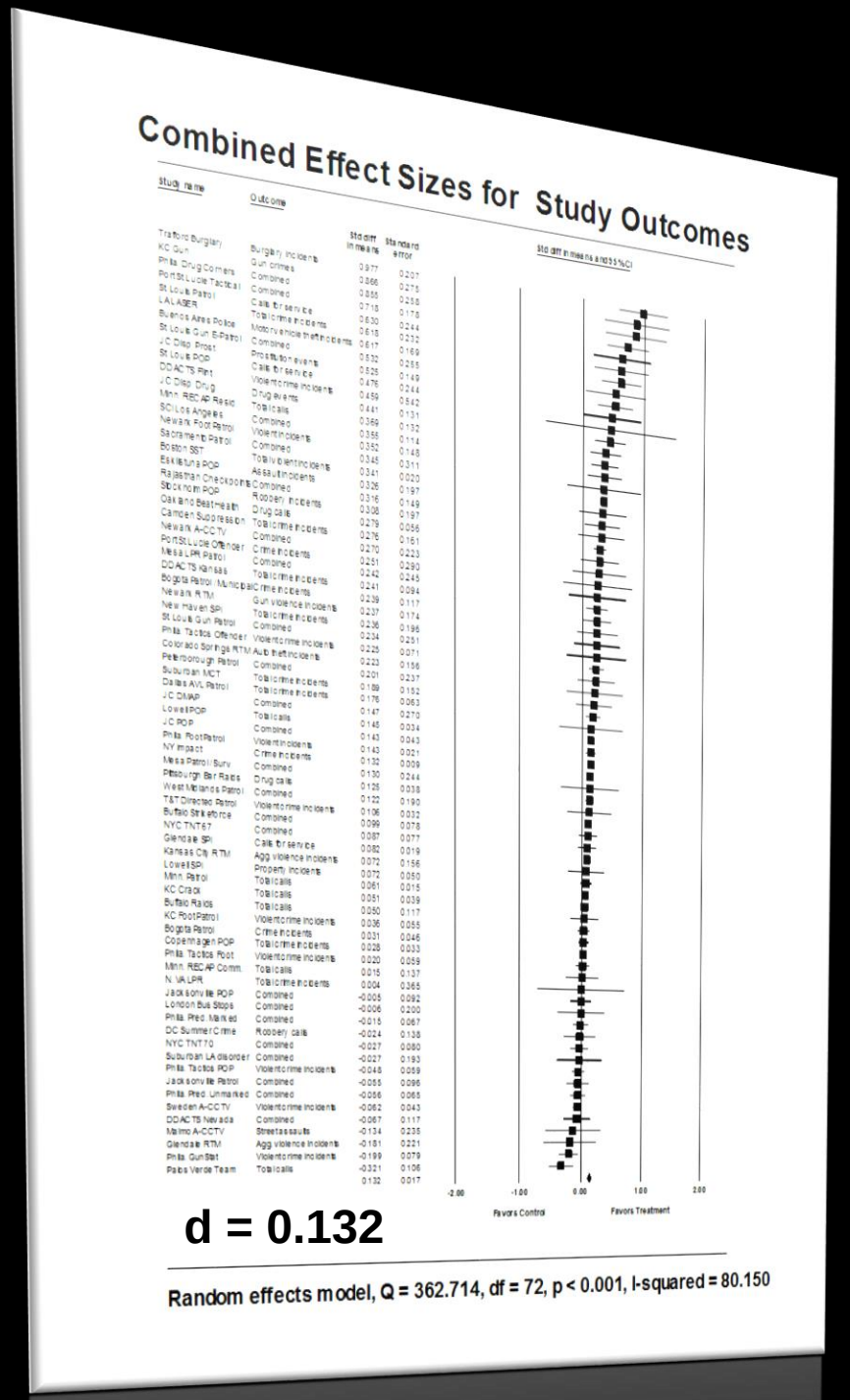
How much more evidence do you need?



Focus on the hot spots, the rest will follow…

- If diffusion of benefits takes place, then focusing on micro location will spread around
- The key is to find the epicentre, and focus on it
- Problem oriented policing can help (though hard and expensive), but saturated and visible enforcement is also effective

Focus on hotspots, not random patrols!

1. A national approach, not local

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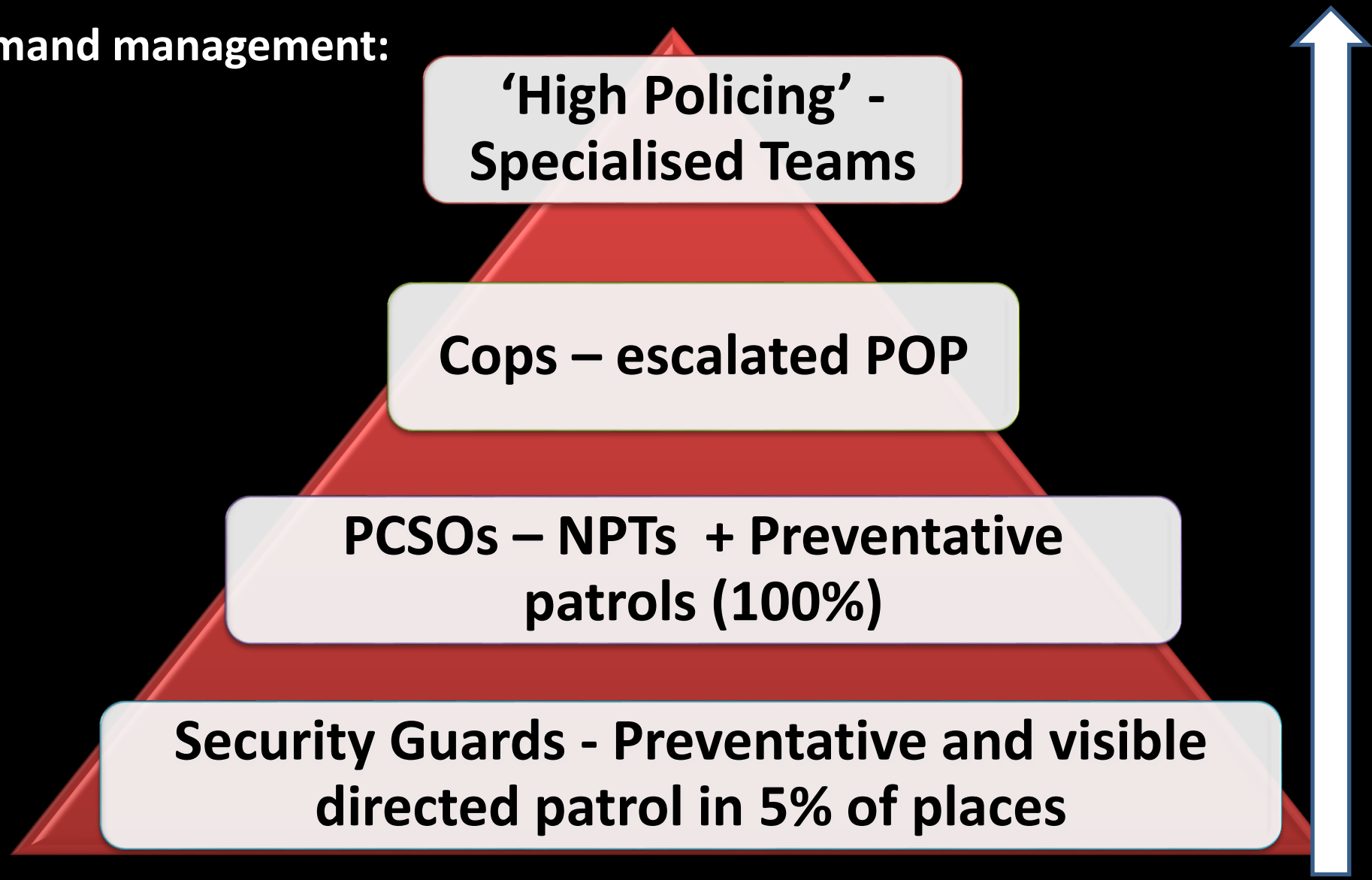
3. But who should be visible in the hotspots?

Diversification of Social Control

A tiered-approach to demand management:



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