

A Hot Spots Community Problem-Oriented Policing Experiment in Hamilton County (OH)

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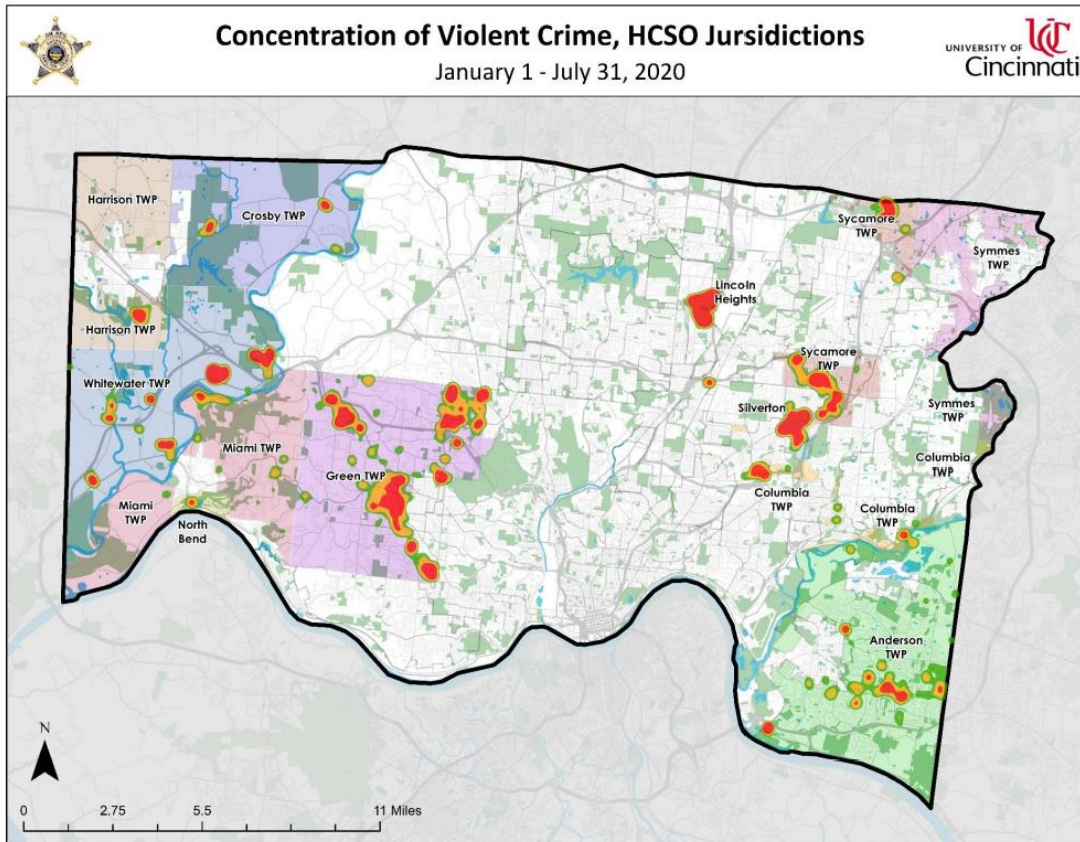
Intelligence-Led Operations Strategy Development

Based on evidence-based policing strategies

Catalyst for organizational reform

Required standing up Intelligence Unit

Ohio OCJS Pilot Grant



Monthly Trend Report

- Tables
- Maps

Command Presentation

- Initial problem solving projects



BUILDING AN INTELLIGENCE-LED OPERATIONS STRATEGY AT THE HAMILTON COUNTY (OH) SHERIFF'S OFFICE

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Captain Tony Orue & Akshata Kumavat, Hamilton County (OH) Sheriff's Office

INTRODUCTION

The Hamilton County Sheriff's Office (HCSO) provides law enforcement, court, and jail services for Hamilton County, Ohio. Located in the Southwest corner of the state and home to the City of Cincinnati, Hamilton County is the 3rd largest county in Ohio with approximately 817,000 residents. The HCSO's Patrol Division provides law enforcement services for 13 unincorporated townships within Hamilton County: Anderson Township, Columbia Township, Green Township, Miami Township, Symmes Township, Crosby Township, Harrison Township, Sycamore Township, Whitewater Township, the Village of North Bend, the Village of Silverton, the village of Arlington Heights, and the Village of Lincoln Heights. These jurisdictions are home to roughly 200,000 residents and span about 207 square miles. In total, roughly 250 Sheriff's Deputies serve in the Patrol Division across 5 patrol districts.

The HCSO has effectively always operated under the standard model of policing, which includes random patrol in large police beats, rapid response to calls for service, increased patrol and enforcement in response to high crime levels, and generally applied follow-up investigations once a crime is committed.¹ HCSO's primary crime reduction strategy has been "extra patrol" across geographically large areas, and the impact of the response has not been measured yet its effect is likely minimal.²

DEVELOPING AN INTELLIGENCE-LED OPERATIONS STRATEGY

The HCSO has understood its need to adapt to more modern and effective methods. In 2017, the HCSO, based on the initiative of Captain Tony Orue, began planning to implement an agency-wide intelligence-led operations strategy (ILOS). In 2018, a first draft ILOS was written and approved by the Sheriff. The ILOS incorporates aspects of Problem-Oriented Policing, Intelligence-Led Policing, and Evidence-Based Policing among others policing strategies. The key to the ILOS is that the agency is moving toward a data-driven approach to develop holistic solutions to crime and disorder problems, while using evidence-based methods. In 2019, the HCSO began implementing the ILOS agency-wide. This strategy is data-driven, evidence-based, and harnesses data, information, and intelligence throughout the organization.

Building an Intelligence Unit

A key aspect of this strategy included the formation of an Intelligence Unit (IU). On December 10, 2019, Captain Tony Orue, who conceptualized the ILOS, was asked to serve as IU Commander. In early 2020, the HCSO hired a Research Specialist/Intelligence Analyst (RSIA), Akshata Kumavat (who was promoted to IU Manager in October, 2020). The IU Commander and RSIA were tasked with planning and implementing the ILOS with direction and support from the Sheriff and Chief Deputy.

The IU's mission is to formulate strategies for crime prevention to reduce harm, preserve public safety and promote threat assessment; to deliver timely, dependable, and intelligible solutions while evolving

¹ Weisburd, D., & Eck, J. E. (2004). What Can Police Do to Reduce Crime, Disorder and Fear? *The Annals of the American Academy of Political and Social Science*, 593(1), 42-65.

² Kelling, G. L., Pate, T., Dieckman, D., & Brown, C. E. (1974). *The Kansas City Preventive Patrol Experiment: A Summary Report*. Washington, DC: Police Foundation.



NEXT STEPS

While the HCSO has made significant advances towards implementing its ILOS, there remains several important next steps for further advancing the changes.

Understanding Initial Implementation Strengths & Barriers

First, HCSO plans to work with ICS to conduct an initial qualitative assessment of implementation to date. ICS researchers will conduct interviews with HCSO District Commanders and Supervisors to understand their perspective of the changes to date. A focus will be placed on understanding the strengths and weaknesses of the analytical products shared, strategy implementation, and perceived next steps.

Hiring & Training Additional Analysts

Second, HCSO plans to hire 3 analysts in the first quarter of 2021. Those analysts will then be trained to take over the analyses produced by ICS. The goal is to have the analysts hired and conducting the monthly analyses by the end of the second quarter of 2021. In the meantime, there is a need to develop a formal process and training for conducting the monthly analyses for the analysts once they come onboard.

RMS Implementation

Third, HCSO will be implementing RMS in three stages. The first stage is intended to have all patrol officers begin creating incident reports and traffic crash reports thus contributing to the system's master indices. The second stage will be the integration of the property room database where historic data, the only piece of historical integration, will be uploaded into RMS. This integration will also affect the master indices. Thirdly, the most crucial one is the CAD integration. Without this integration, two features of the system will not be ready for use just yet. One is the auto-population of call details and incident information on the reports for officers, and second is the ability to use calls for service data for generating spatial or temporal analysis. One of the best features of the product allows officers to set a date range, select type of offense and region for viewing the hot spots. But, this will not be available until the next quarter, as HCSO is still in the planning phases, it will take substantial amount of time until the deliverable will be ready to use and continue its maintenance thereafter. This is why interrupting the analyses provided by UC ICS will adversely affect the progress made thus far and break the process of organizational change that is taking place.

Continuing to Implement Evidence-Based Strategies

Fourth, the HCSO will continue to advance intelligence-led, evidence-based strategies. In the 2020 federal grant cycle, HCSO was awarded two federal grants from the Bureau of Justice Assistance. The grants will provide funding to support the implementation of two separate evidence-based programs. First, in Lincoln Heights a comprehensive community-based problem-solving approach will be developed and implemented. Second, across all HCSO districts, a strategy addressing repeat CFS locations using comprehensive problem solving will be developed and implemented. These projects were developed in partnership with the ICS who will provide technical assistance and scientific evaluation of the initiatives.

FOR MORE INFORMATION

For more information about the University of Cincinnati's Institute of Crime Science please email Dr. Cory Haberman via cory.haberman@uc.edu or visit <https://cech.uc.edu/about/centers/ics.html>.

Hamilton County, Ohio



- Site LE Agency : Hamilton County Sheriff's Office
- Site Researcher : Drs. Cory Haberman
- University of Cincinnati's Institute of Crime Science (ICS)
- Site Focus : Crime hot spots
- SPI Strategy : Supporting innovation
- Site Cohort : 2020
- Site Profile : Includes urban, suburban, and rural communities with a population of 191,365.

• HCSO's 2019 reported UCR crime statistics include 4 homicides (33.3% increase from 2018), 75 rapes (17.19% increase from 2018), 352 assaults (6.88% increase from 2018), 179 domestic violence cases, 22 robberies, 212 burglary, 1,642 larceny-thefts, and 153 auto-thefts.

Hamilton County Sheriff's Office SPI

- Evidence-based, hot spots strategy
 1. Presence
 2. Enforcement
 3. Offender-Focused Policing
 4. Problem Solving

HCSO Jurisdictions

Jurisdiction	Patrol District	Population	Sq. miles	Median HH Income ^a	% Non-White ^a
Anderson Township	5	44,081	31.2	97,537	10.2
Columbia Township	4	4,507	2.7	76,153	39.5
Crosby Township	1	2,822	20.2	77,278	5.4
Harrison Township	1	15,863	17.8	64,625	6.3
Miami Township	1	16,079	23.8	85,840	3.8
Sycamore Township	3	19,471	6.7	72,448	20.8
Symmes Township	3	14,913	8.6	100,438	24.7
Village of Cleves	1	3,359	1.61	77,072	7.1
Village of Lincoln Heights	1	3,354	0.76	26,928	99.1
Village of North Bend	1	809	1.15	83,987^b	1.4^b
Village of Silverton	4	4,760	1.12	45,436	56.2
Whitewater Township	1	5,503	26.3	64,008	8.4
HCSO Totals	---	135,521	142	---	---
City of Cincinnati	---	302,687	79.5	---	---

Notes: ^a Indicates data collected from ZoomProspector.com; ^b Indicates data collected from city-data.com. ~~Strikethrough text~~ indicates jurisdiction not included in experiment.

Hot Spot Deployment Area Criteria:

1. Micro as possible (address, street block, small cluster)
 - No Interstates/highway hot spots
2. At least 10 crime-related CFS in 2020
3. Consistent with the district commander's intelligence & deemed worthy of additional resources

Identifying Deployment Areas



Identifying Deployment Areas

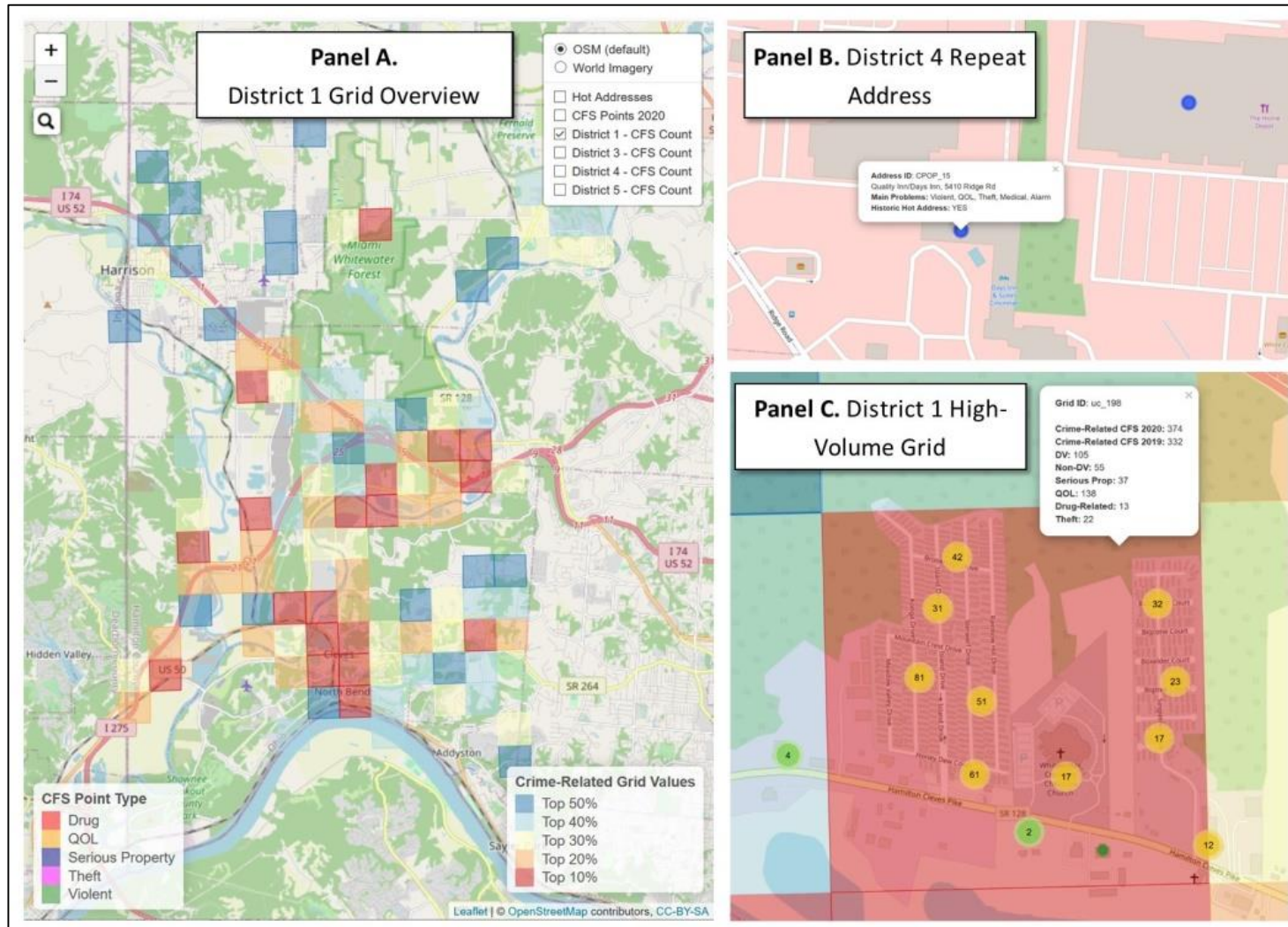
- Prioritized:
 - Repeat addresses
 - Top 10% of grid cells (not including repeat addresses)

- District 1**
- UCID 198
 - Whitewater, Rank 1
 - Prob Type: Mix
 - Crime-Related N = 374 (2020), 332 (2019)
 - DV = 105
 - Burglary = 22
 - Assault = 15
 - Auto Crime = 15
 - Drug = 13
 - Disorder = 24
 - Specs
 - Mobile Home Park
 - Near border of Miami River
 - Hot Addresses
 - NONE
 - UCID 274
 - Cleves, Rank 1
 - Prob Type: Mix
 - Crime-Related N = 235 (2020), 227 (2019)
 - DV = 37
 - Burglary = 14
 - Assault = 10
 - Disorder = 19
 - Suspicious = 45
 - Shots = 8
 - Specs
 - Gulf Community Park
 - Proximal to other Top 10% Grid (in Cleves and North Bend)
 - Each houses a "hot address"
 - Hot Addresses (neither historic problems)
 - Section 8 Housing
 - Residential / Industrial address
 - UCID 313
 - Cleves, Rank 2
 - Prob Type: QOL + Violent + Property
 - Crime-Related N = 168 (2020), 192 (2019)
 - DV = 33
 - Burglary = 10
 - Disorder = 20
 - Suspicious = 32
 - Specs
 - Proximal to #2
 - Hot Address

- UCID 213
 - Whitewater, Rank 2
 - Prob Type: QOL
 - N = 164 (2020), 121 (2019)
 - DV = 26
 - Theft = 19
 - Suspicious = 45
 - Other QOL = 34
 - Specs
 - Includes commercial "downtown" area
 - West of Miami River
 - Nearby 2 other Top 10% Grids (uc 212 and 201)
 - Hot addresses
 - Unnamed Apartment and/or store front (7060 Hamilton Cleves)
- UCID 165
 - Whitewater, Rank 3
 - Prob Type: DV + QOL
 - N = 163 (2020), 158 (2019)
 - DV = 25
 - Theft = 13
 - Drug = 9
 - Suspicious = 38
 - Specs
 - Industrial Area mixed with Hooven residential area
 - Hot Addresses
 - Kroger (current CPOP Target)
- UCID 212
 - Whitewater, Rank 4
 - N = 140 (2020), 95 (2019)
 - DV = 49
 - Auto = 6
 - Theft = 15
 - Disorder = 29
 - Specs
 - Adjacent to Miami Golf Course
 - Concentrating at Apartment complex (low income? Section 8?)
 - Hot Addresses
 - NONE
- UC 11
 - Harrison, Rank 1
 - Prob Type: Mix
 - N = 140 (2020), 189 (2019)
 - DV = 34

- UC 1420
 - Cleves, Rank 3
 - Prob Type: QOL + DV
 - N = 134 (2020), 124 (2019)
 - DV = 36
 - Suspicious = 21
 - Disorder = 11
 - Other QOL = 31
 - Specs
 - Nearby other Hot Grids in Cleves / North Bend
 - Most near or along N Miami Ave
 - Hot Addresses
 - Apartment (Violent, historic)
 - Also include **Miami Motel** (not hot address though)
- UC 201
 - Whitewater, Rank 5
 - Prob Type: QOL
 - N = 131 (2020), 185 (2019)
 - Drug = 11 (14 in 2019)
 - Suspicious = 81
 - Other QOL = 20
 - Specs
 - Bordering another Top 10% grids
 - Largely includes an exit / ramp
 - Hot Addresses
 - BP Gas Station
 - Exit 7
- UC 185
 - Whitewater, Rank 6
 - Prob: Mix
 - N = 120 (2020), 103 (2019)
 - DV = 19
 - Burglary = 8
 - Disorder = 11
 - Specs
 - Edge of Harrison
 - Mobile Home Park
 - No nearby hot grids
 - Hot Addresses
 - Rolling Acres MHP
 - Nearby Hot MHP (not in hot grid)

Identifying Deployment Areas



Identifying Deployment Areas

- 56 repeat addresses & 16 grid cells reviewed
 - 35 repeat addresses & 3 grids **eliminated**
 - 7 seven repeat addresses **added**

Deployment Area Types by District

District	Apartment	Bar	Big Box Store	Everyday Store	Hotel	Mobile Home Park	Shopping Plaza	Total
1	3	2	0	2	0	9	1	17
3	0	0	0	1	1	1	3	6
4	5	0	3	3	1	0	0	12
5	1	0	2	3	0	0	0	6
Total	9	2	5	9	2	10	4	41

Sample Size Considerations

	Treatment Capacity	Remaining Hot Spots
District 1	6	11
District 3	2	4
District 4	3	9
District 5	2	4
Total	13	28

	Matched Pairs		Completely Randomized	
	Scenario 1 ^a	Scenario 2 ^a	Scenario 3 ^b	Scenario 4 ^b
Minimum Detectable Effect Size	0.73	0.61	0.85	0.72
Power ($1 - \beta$)	0.80	0.80	0.80	0.80
p-value (α)	0.05	0.10	0.05	0.10
Treatment group size ^c	13	13	13	13
Control group size	13	13	28	28

Notes: ^aTest statistic is a matched-pairs t-test. ^bTest statistic is an independent samples t-test. ^cSample size for matched pairs design would be the total number of matched pairs.

41 Hot Spots Reduced to 13 Matched Pairs:

- Same district
- Same place type (e.g. gas station; mobile home park)
- Most similar CFS counts

Coin Flip Randomization by Pair



Randomized Hot Spot Counts by District & Facility Type

	Apartment Building	Big Box Store	Everyday Store	Mobile Home Park	Shopping Plaza	Grand Total
District 1	3	0	2	7	0	12
District 3	0	0	0	1	3	4
District 4	2	2	2	0	0	6
District 5	0	2	2	0	0	4
Total	5	4	6	8	3	26

Our First Finding in Some Ways...

Urban Hot Spots



Rural Hot Spots



Hamilton County Sheriff's Office SPI

- Evidence-based, hot spots strategy
 - ▶ 1. Presence (implemented 07/08/2021)
 - 2. Enforcement
 - 3. Offender-Focused Policing
 - 4. Problem Solving

Tracking Presence Via Call Records

Home :: Agency Records > Call Records > Call Entry

Call Details | Other Details

Call Record Administrative

Call Number	HC-21-001526	Received Date/Time	07/16/2021 08:05
Nature of Call	SPI - Montgomery Plaza Apartments	Body Camera Indicator	Select an Option

[Create Incident](#) [Create Field Interview](#) [Create Crash Report](#) [Link Report](#)

Call Location

Organization Name	Montgomery Plaza Apartments	Street Address	7421 Montgomery Rd
Apt #/Street Address 2		City	Cincinnati
State	OH	Zip	45236
Latitude/Longitude	39.194962 Lat -84.396716 Long	Geocode	21-Village of Silverton

Caller/Involved Parties Information

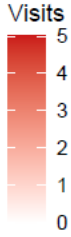
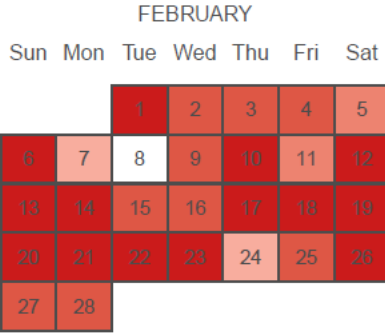
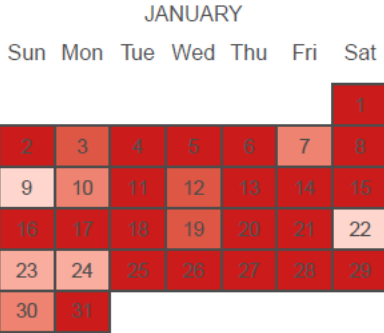
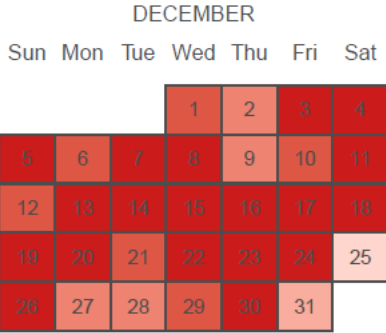
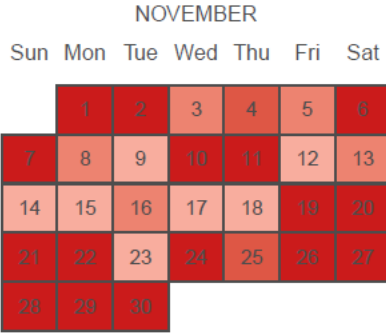
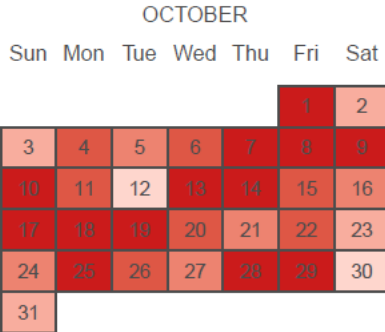
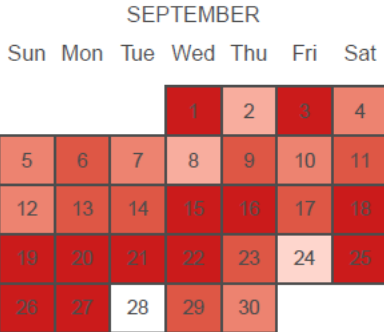
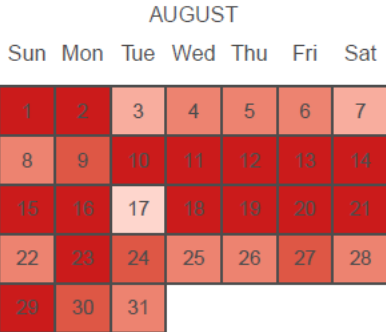
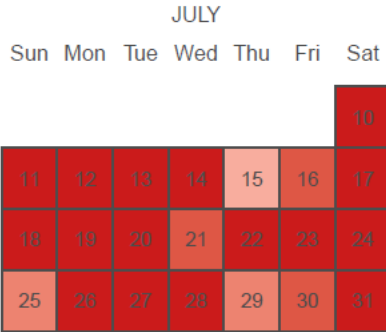
Click on the New button to add Caller. [New](#)

Call Narrative

Alot of vehicle traffic is entering and exiting the complex through Home st. No foot traffic at this time.

Call Disposition

Home Depot – 3400 Highland



Westbrook Village

JULY

Sun	Mon	Tue	Wed	Thu	Fri	Sat
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER

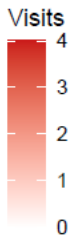
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JANUARY

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

FEBRUARY

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					



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Call Disposition

Hamilton County Sheriff's Office SPI

- Evidence-based, hot spots strategy
 1. Presence (implemented 07/08/2021)
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 - ▶ 4. Problem Solving

Supervisor Training Plan

- ✓ 1. What Works in Policing
 - HSP, POP, Focused deterrence, & offender-focused
- ✓ 2. Introduction to POP
 - High-level overview
- ✓ 3. Overview of this Program
 - What will be asked of the supervisors
- ✓ 4. Scanning
 - CHEERS, Crime specific, Crime scripts, defining problems
- ✓ 5. Analysis
 - Routine activities, rational choice, crime Δ , & VOLTAGE
- ✓ 6. Response
 - CPTED, Design against crime, & Situational crime prevention

Current Next Steps

Implement problem solving tactics

Implement offender-focused investigations

Complete impact evaluation

Lessons Learned So Far...

- Rural hot spots of a slightly different nature
 - Commercial locations, mobile home parks, etc.
 - Implications for effectiveness of HSP tactics?
- Challenges with implementation in large, rural jurisdiction
 - Variety of CFS types at hot spots
 - Previously lacked electronic incident data
 - Limited resources over large area
 - CFS can be miles away from hot spots for directed patrol
 - Training for only front-line supervisors
 - Who must train their own officers

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