

Beyond Shadows: Illuminating Criminal Networks through Social Network Analysis

July 23rd, 2024



Prepared by:
A. Bush, CAID Analyst

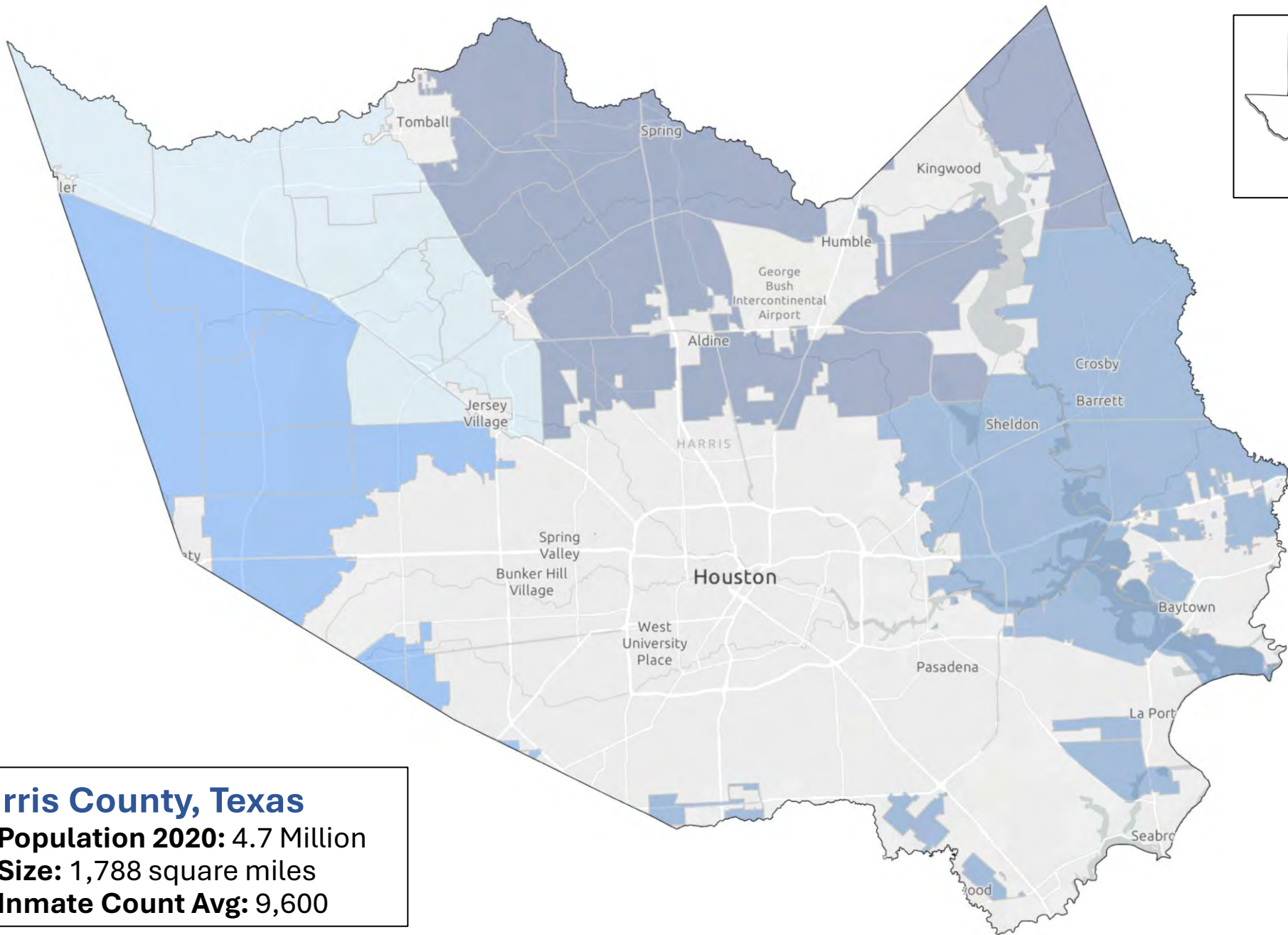
Presenter Biography



Anthony Bush serves as a Criminal Intelligence Analyst within the Harris County Sheriff's Office (HCSO) Criminal Intelligence Analyst Division (CAID) with a tenure of four years. Concurrently, he holds the rank of Technical Sergeant (E6) in the Air Force Reserves, functioning as a Geospatial Intelligence Analyst in Fort Worth, TX supporting the Pacific Fleet.

Anthony specializes in data-driven approaches to tactical and strategic crime analysis. Generating concise easy to read reports.

HCSO Jurisdiction



HCSO Agency Summary

Agency Summary

- HCSO is the nation's third-largest Sheriff's Office and staffs about 5,100 employees. With multiple correctional facilities across the county.
- It serves as the equivalent of the county police for over one million people residing in the unincorporated areas of Harris County with jurisdictional overlaps with multiple agencies.
- HCSO's CAID group is called upon to analyze and make insights on tens of millions of data points from various sources and answer outside agency requests.

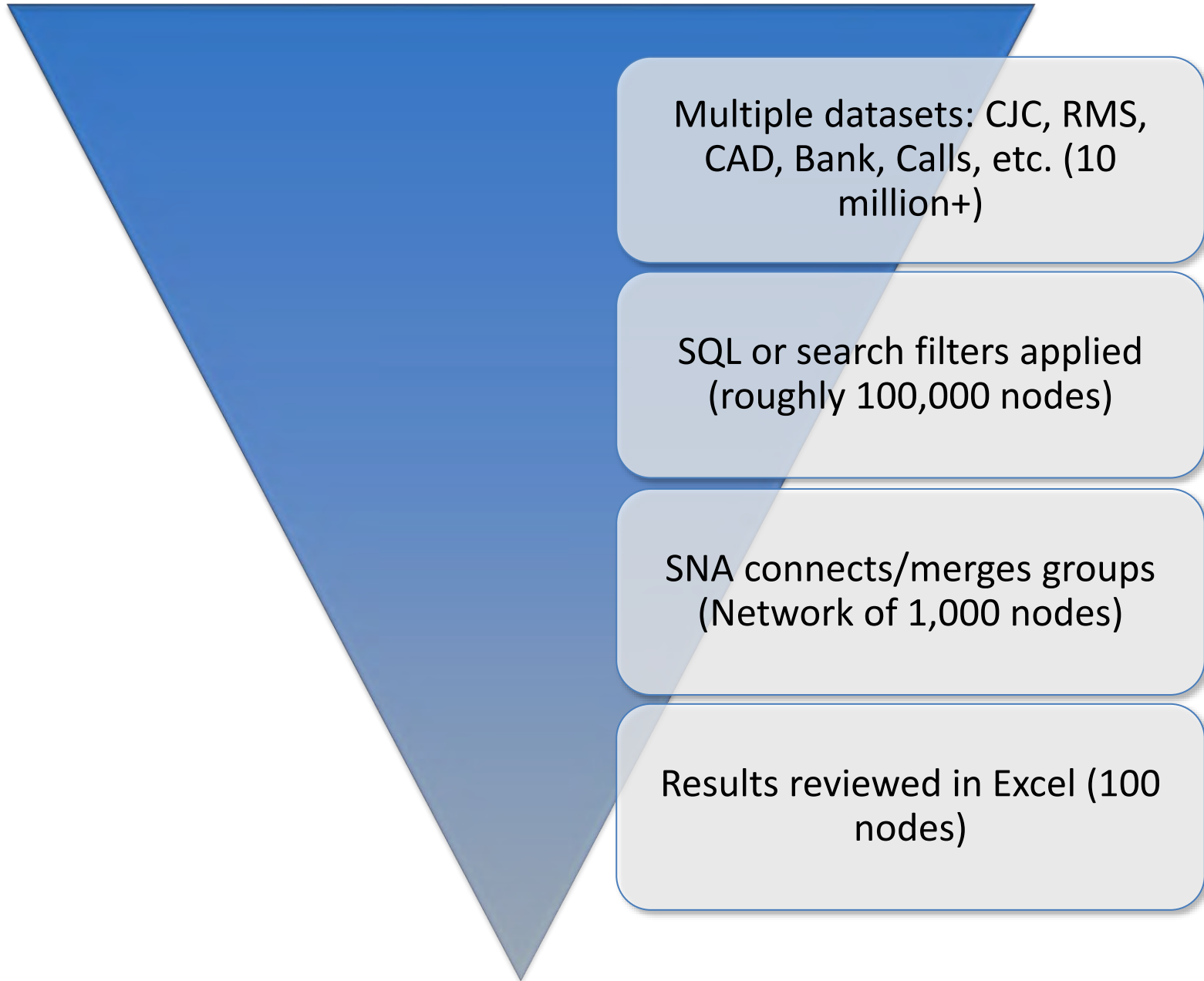


Big Data

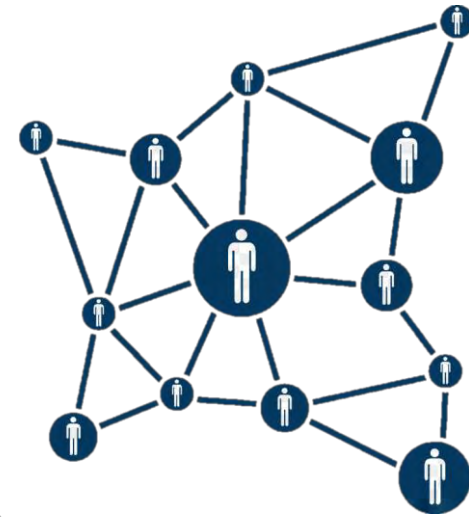
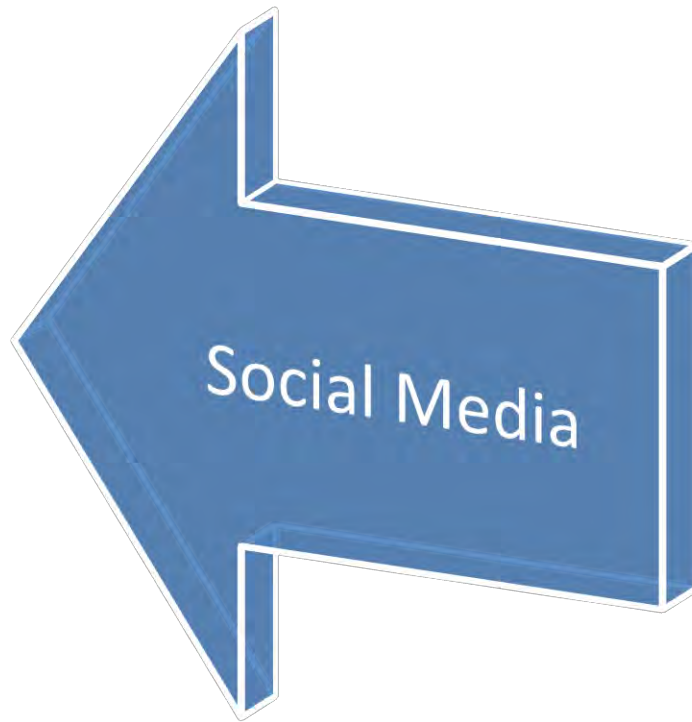


MO' DATA MO' PROBLEMS
- BIGGIE

Concentrate Data



Social Network Analysis is Not Social Media



What is Social Network Analysis?

Definition

- Social network analysis (SNA) is the process of investigating social structures through the use of networks and graph theory.
- It characterizes networked structures in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them.

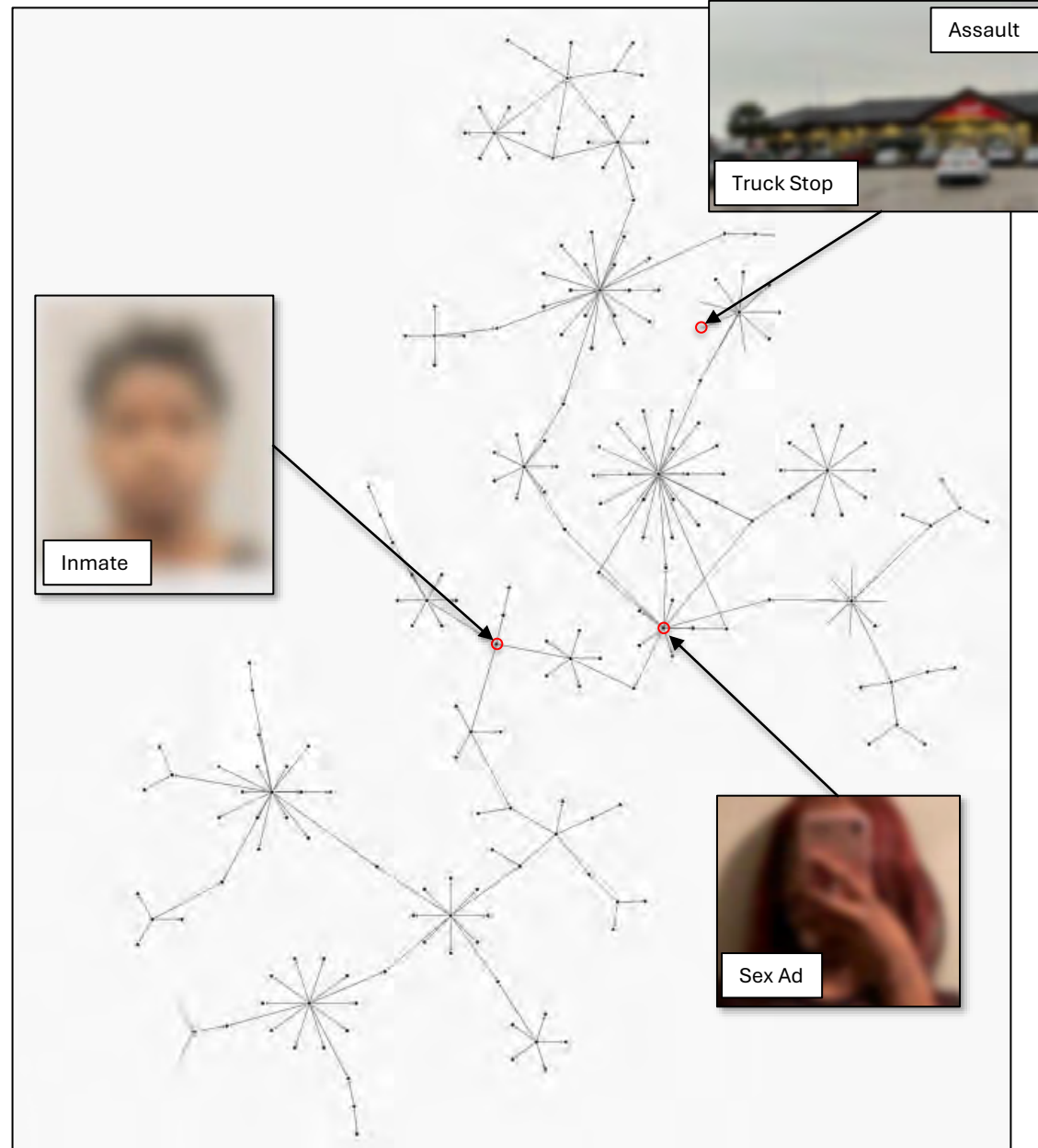
244.6K adult service ads



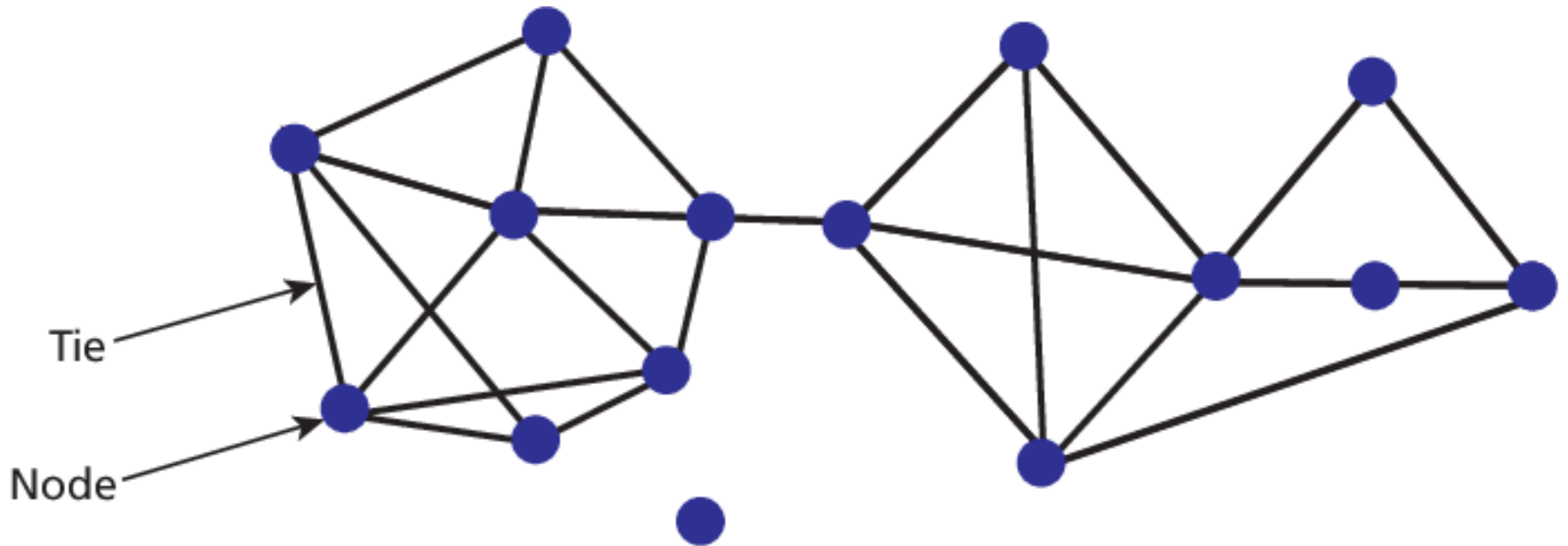
13,336 phone numbers



117 inmates, 22 criminal incidents, several addresses, and 33 phone numbers



What is Social Network Analysis?



Nodes & Ties

Nodes and ties can be anything to include person, place, MO, gang, phone number, deposit, car, or anything and everything under the sun.

Commonly Used Datasets



Human
Trafficking
Ads

Crime
Incidents

Correctional
Data

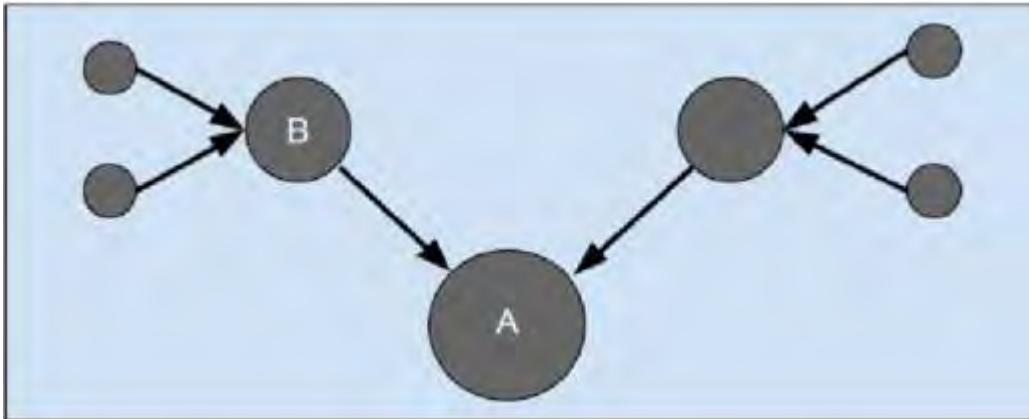
Gang Data

Money
Transfers

Crime
Network

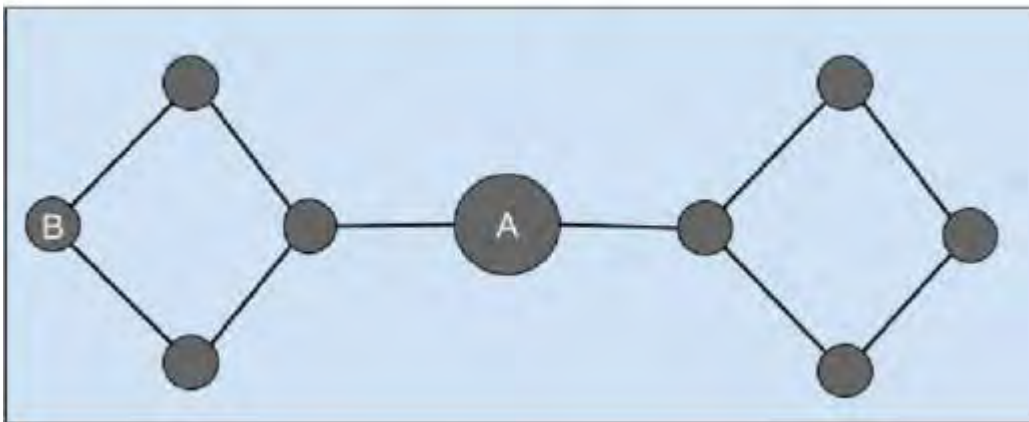


Eigenvector Centrality vs Betweenness Centrality



Eigenvector

This metric would highlight Node A as the most influential due to its connection to other influential nodes. Think of this as a General/Sheriff linked to Majors who carry out their orders.



Betweenness

This metric highlights Node A because information from that node will reach many or users in a shorter path.

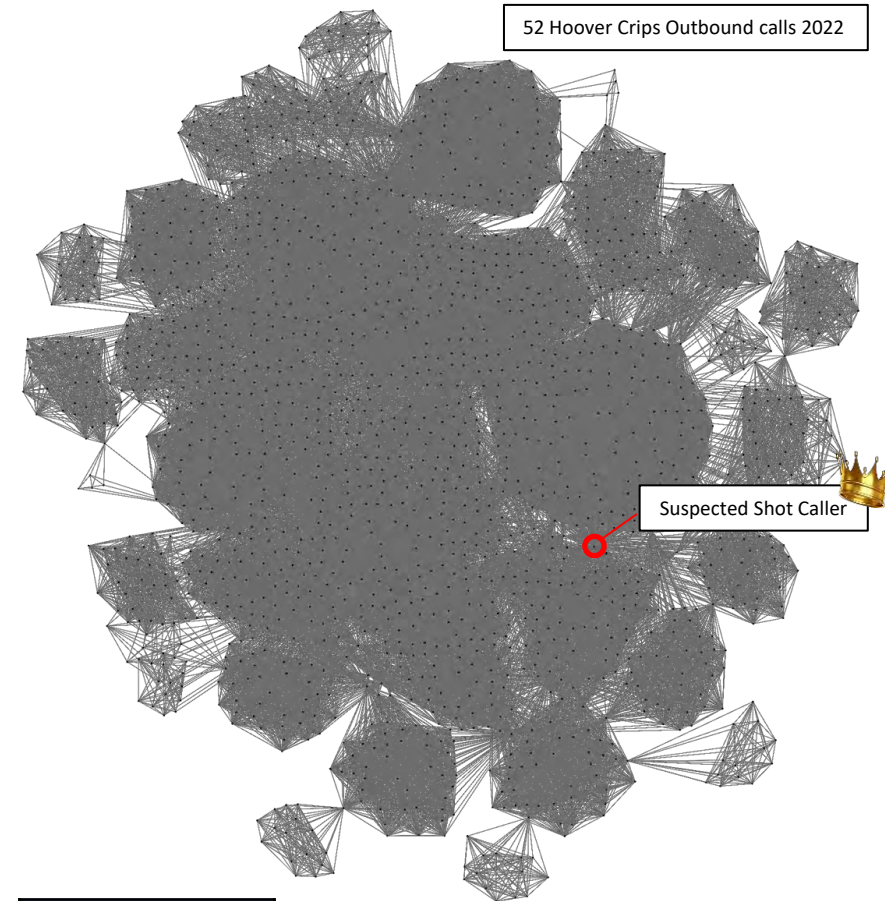
Sample of Ideal Results for an Analysis

SNA Intelligence Generated

Outbound jail calls of 52 Hoover Crips, the most violent gang, (by murder count) in HCSO jurisdiction was analyzed over a one-year period (600K nodes). The second highest Eigenvector Centrality score along with several other nodes belonged to phone numbers of documented members of the Crips. The most connected phone number was contacted by over 12 different gang members in 2022.

Key Takeaway

Overall SNA principals applied to documented gang members calls uncovers key players in gangs. Moreover, the calls can be listened to in order to provide context to the node.



Number of Gangs of Members Contacting 111-111-1114 in 2022:

1. 52 HOOVER GANGSTER CRIPS x 7 members
2. BLACK DISCIPLES x 1 member
3. MANDINGO WARRIOR x 1 member
4. YOUNG MOB GORILLAS x 1 member
5. INSANE CRIPS/INSANE GANGSTER CRIPS x 1 member
6. HUNCHO GANG CRIPS x 1 member

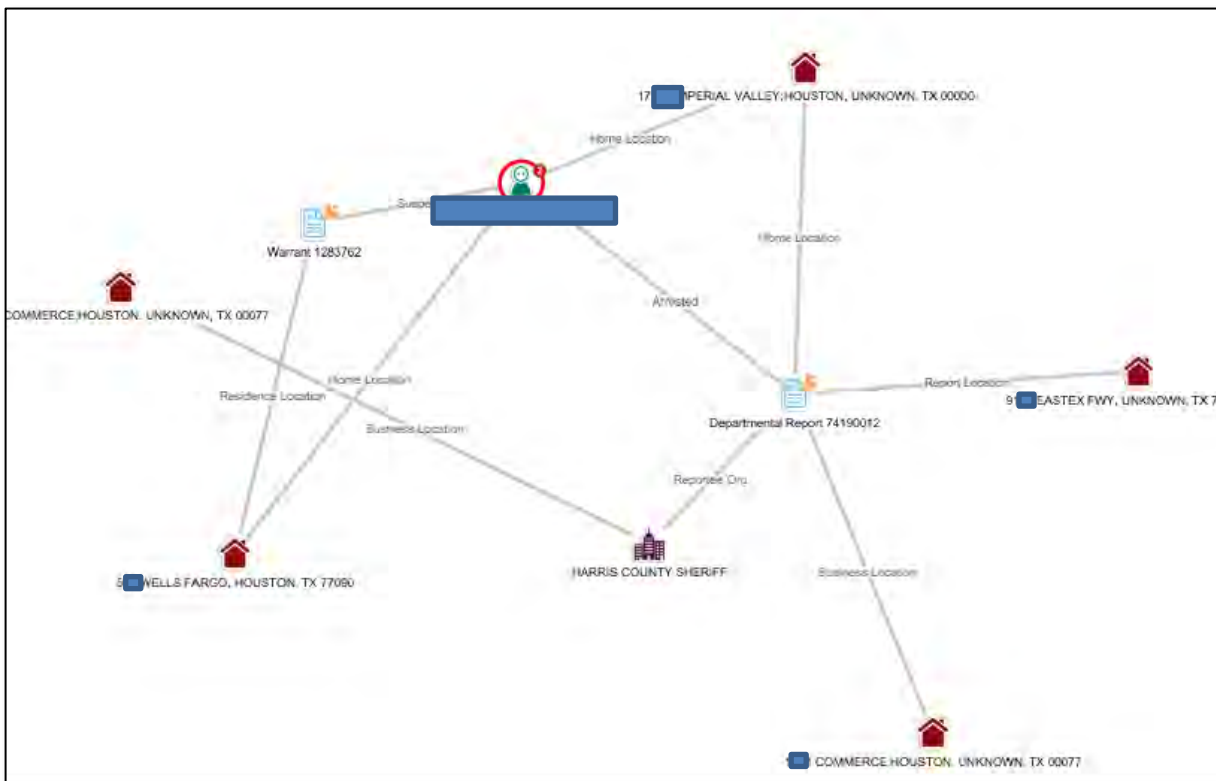
Eigenvector ≥ 0.934	
Node Label	Score
111111111	1
111111112	0.99144
111111113	0.99144
111111114	0.99144
111111115	0.99144
111111116	0.94063
111111111	0.93919
111111112	0.93643
111111113	0.934



Integrated SNA Software Limits

Built in SNA Tool Shortfalls

- RMS systems, local District Attorney defendant charts, and correctional data systems offer built in SNA tools.
- The problem with this is lack of integration to other datasets. You see two nodes are linked but they are all weighted the same. You cannot group them up by crime-type, region, or gang.



Struggles of Social Network Analysis

Starting Out

- Overall, as time progresses, the analyst gets better, and thus more successful outcomes become more common.
- At the start it can be frustrating and difficult. Also sometimes the analysis goes nowhere



SNA Walkthrough

Access to Data

The first step to analysis is obtaining data in a CSV/Excel format. This can be from an ODBC connection with your agency data using Microsoft SQL Server, SSRS Reports, Subpoena, and exports from front facing websites.

Data Literacy

Once you have the data you need to know how to interpret it, what data is even documented, and what is the primary key that can link it to other data sets.



Notable Dataset Elements



Geographical Location

- District
- Beat
- Address



Offense Type

- Violent Crime
- Glock Switches
- Catalytic Converters
- Human Trafficking
- Juggings
- Fentanyl



Gang Affiliation

- Bloods
- Crips
- Tango Blast
- Aryan Brotherhood

Acquiring Dataset (Human Trafficking Ads)

1



2

Dashboard

https://spotlight.thorn.org

SPOTLIGHT

DASHBOARD SEARCH

★ Recent Searches

773 TEXT SEARCHES 74 IMAGE SEARCHES 231 BULK SEARCHES

Today at 9:21 PM
Houston, TX

Last Monday at 1:10 PM
date range: 07-16-2023 - 07-17 Houston, TX

3

search

Save this search

2,747,951 ADS from 551,081 PROFILES found in your default location

23yo Prostate Maintenance

Message Parlor + Tag ad

post ids 3140566

first posted 8:20pm Jul 12, 2023 CDT

last posted 8:21pm Jul 22, 2023 CDT

phones

emails

location Houston, TX

url adultsearch.com/...

Profile #112589994836
Seen in 3 locations
27 ads

Verified Verified Verified

Verified Verified Verified Verified

Verified

♥♥♥ Open 7 Days a week, 24H ♥♥♥ Are you looking for a professional and erotic massage place? Do you need to relieve your stress and physical pain? Beautiful girls waiting for you! At the moment, this is your first choice. we have professional masseuses. After a long day's hard work, I think this impeccable massage is the best choice for you. You will be impressed and come back here from time to time. clean and comfortable room. ♥♥♥ Essential oil massage ♥♥♥ Hot stone ♥♥♥ Tuina ♥♥♥ Vigorous shiatsu ♥♥♥ Thai massage ♥♥♥ Special massage ♥♥♥ I will serve you with the best attitude! Come and experience it by yourself! prostate massage.

Phone Location

Acquiring Dataset (Phone Communication)

1



2



3

	A	B	C	D	E	F	G	
1	Site	PortLoc	Ctry	Wireless	Dialed#	Dest	Zon	start Time
2	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
3	JA14 701	17B1-1	1	Y	979		Interlata/In	01/01/2023
4	JA14 701	17B1-1	1	Y	979		Interlata/In	01/01/2023
5	JA14 701	17B1-1	1	Y	979		Interlata/In	01/01/2023
6	JA14 701	17B1-1	1	Y	979		Interlata/In	01/01/2023
7	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
8	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
9	JA14 701	12D3-2	1	Y	832		Local	01/01/2023
10	JA14 701	12D3-2	1	Y	832		Local	01/01/2023
11	JA14 701	12D3-2	1	Y	832		Local	01/01/2023
12	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
13	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
14	Harris Cou	Pod 3-HH	1	Y	346		Local	01/01/2023
15	JA14 701	17B1-1	1	Y	979		Interlata/In	01/02/2023
16	JA14 701	17B1-1	1	Y	979		Interlata/In	01/02/2023
17	JA14 701	17B1-1	1	Y	979		Interlata/In	01/02/2023
18	JA14 701	12D3-2	1	Y	832		Local	01/02/2023
19	Harris Cou	Pod 3-HH	1	Y	346		Local	01/02/2023
20	Harris Cou	Pod 3-HH	1	Y	346		Local	01/02/2023
21	JA14 701	12D3-1	1	Y	832		Local	01/02/2023
22	JA14 701	12D3-1	1	Y	832		Local	01/02/2023
23	Harris Cou	Pod 3-HH	1	Y	346		Local	01/02/2023
24	JA14 701	12D3-1	1	Y	832		Local	01/02/2023
25	Harris Cou	Pod 3-HH	1	Y	346		Local	01/02/2023



Open ESRI Arc Pro Map

ArcGIS® Pro

New Project

Home
Learning Resources
Settings

Map Catalog Global Scene Local Scene Start without a template

Recent Projects ↕

Open another project

MyProject36
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject36\MyProject36.aprx 5/15/2023 1:57 PM

MyProject35
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject35\MyProject35.aprx 5/15/2023 1:09 PM

Create a New Project

Name: MyProject37

Location: C:\Users\Anthony.Bush\Documents\ArcGIS\Projects

Create a new folder for this project

OK Cancel

Arc Pro Template
J:\Crime Analysis Division\Analysts\Anthony\Templates\Arc Pro Template.aprx 5/14/2023 8:44 AM

SNA
J:\Crime Analysis Division\Analysts\Anthony\2023\MAY\Fentanyl Project\SNA.aprx 5/14/2023 8:32 AM

MyProject37
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject37\MyProject37.aprx 5/4/2023 9:55 AM

MyProject33
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject33\MyProject33.aprx 5/12/2023 12:39 PM

MyProject32
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject32\MyProject32.aprx 5/2/2023 12:52 PM

MyProject31
C:\Users\Anthony.Bush\Documents\ArcGIS\Projects\MyProject31\MyProject31.aprx 5/1/2023 1:02 PM

Step 1: Open a new project



Add Data to Project

The screenshot shows the ArcGIS Desktop interface. The 'Imagery' group in the ribbon is highlighted with a blue arrow pointing to the 'Add Data' button. The 'Add Data' dialog box is open, showing a file explorer view. The 'Data\$' and 'SQL\$' files are selected in the file list. The 'OK' button is highlighted with a blue arrow. The 'Contents' pane on the left shows the 'Map' layer selected. The 'Properties' pane on the right shows the 'File' and 'Image Size' properties.

Step 2: Import Data



Add Link Chart to Project

The screenshot displays the ArcGIS Desktop software interface. The title bar shows 'MyProject63' and 'Anthony - Harris County Online Repository'. The ribbon is set to 'Crime Analysis'. A blue arrow points to the 'New Link Chart' button in the 'Information Products' group. The main map area shows a geographic view of Spring, Texas, with various roads and landmarks like George Bush Intercontinental Airport. A 'Contents' pane on the left shows 'Map' and 'Link Chart' tabs. A white box at the bottom left contains the text 'Step 3: Select New Link Chart'.

MyProject63 Command Search (Alt+Q) Anthony - Harris County Online Repository AB

Project Map Insert Analysis View Edit Imagery Share **Crime Analysis** Help Feature Layer Label Data

Add Data Add Graphics Layer Import Incidents Enhance Attributes Explore Select Select By Attributes Select By Location Select Layer By Date and Time Summary Statistics Pairwise Buffer Create Chart **New Link Chart** New Report New Layout

Data Management Selection Analysis Tools Information Products

Contents Map X Link Chart

920 Rd Tomball Spring Porter

Grand-pkwy E Willow Flats FM 2920 Rd

Grand Rd Cypress Jersey Village Aldine Forest Acres

Stuebner Airline Rd Louetta Rd FM 1960 Rd W Humble Riverside Oil Field Atasc

George Bush Intercontinental Airport

95.7465366°W 29.8686382°N Selected Features: 22

Step 3: Select New Link Chart

Add Nodes to Chart

The screenshot displays the ArcGIS Pro interface with the 'Link Chart' ribbon active. A blue arrow points to the 'Entity Type' button in the 'Project' group. Another blue arrow points to the 'Add new entity type from layer' dialog box. The dialog box contains the following fields and options:

- Choose layer ***: A dropdown menu showing 'Jail Calls to sex Ads\$'.
- Choose field(s) for entities ***: Two dropdown menus, the first showing 'Dialed_' and the second showing '<None>'.
- Enter name for entity type ***: A text input field containing 'Sex Ad'.
- Visually collapse duplicate entities**
- Non-spatial entities**
- OK** and **Cancel** buttons.

In the bottom right corner of the main window, there is a button labeled 'Add first entity type' with a small icon.

Step 4: Generate nodes

Add Links to Chart

The screenshot shows the ArcGIS interface with the 'Link Chart' tool active. A dialog box titled 'Add new relationship type between entities' is open, allowing the user to define a new relationship. The dialog contains the following fields:

- Choose source entities *: Sex Ad
- Choose target entities *: inmate
- Enter name for relationship type *: Called
- Enter default label: (empty)
- Key Fields:
 - Choose key type: Entities
 - Source entity key field *: Dialed_
 - Target entity key field *: Dialed_

Buttons for 'OK' and 'Cancel' are at the bottom of the dialog. The background shows a map with a grid of dots and various toolbars. A blue arrow points to the 'Add Link' button in the top toolbar, and another blue arrow points to the dialog box.

Step 5: Generate Ties

Nodes: 1440. Links: 0

Change Chart Layout

The screenshot displays a software interface for network analysis. The top toolbar includes tabs for Project, Map, Insert, Analysis, View, Edit, Imagery, and Share. The 'Analysis' tab is active, showing a 'Crime Analysis' section with a 'Change Layout' button highlighted by a blue arrow. Other buttons in this section include 'Lock', 'Pause', and 'Layout'. To the right, the 'Link Chart' section contains options like 'Minimum', 'Filter Links', 'Highlight Off', 'Display Links On Map', 'Link Analysis', and 'Export Link Chart'. The main workspace shows a dense network graph with many nodes and edges. A 'Contents' pane on the left shows 'Map', 'Link Chart', and 'Link Chart 1'. A status bar at the bottom left indicates 'Nodes: 1440 Links: 1090'.

Step 6: Change Layout

Nodes: 1440 Links: 1090



Find Significant Nodes for Analysis

The screenshot displays the ArcGIS software interface with the 'Link Chart' tool active. A blue arrow points to the 'Link Analysis' button in the 'Tools' section of the ribbon. The main workspace shows a network graph visualization with nodes and links. On the left, the 'Analysis' pane is open, showing the 'Centrality' tool set to 'Betweenness Centrality' and 'All Directions'. Below the tool settings is a 'Result' table with the following data:

Node Label	Score
1	0.74929
	0.73473
	0.70907
	0.66028
	0.64572
	0.63295
	0.63239
	0.59148
	0.57778
	0.57418
	0.56203
	0.51449
	0.32627
	0.28997
	0.28563
	0.27516
	0.27158
	0.213
	0.19836
	0.19315
	0.1753
	0.1665
	0.13048
	0.07918

Step 7: Generate node scores



Search Calls to Key Nodes

Targeting Inmate Nodes

Statistically significant inmate nodes or phone numbers, that talk about Human Trafficking, can be keyword searched for actionable intelligence. Additionally, inmates that speak with linked phone numbers about Human Trafficking can be considered as possible informants in the Human Trafficking scene in Houston. See below example for an inmate talking a woman linked to Human Trafficking about selling suspected narcotics.

The image displays a social media profile and a text message conversation. The profile information includes:

- post ids: 69152211
- first posted: 3:23pm Jan 26, 2024 CST
- last posted: 8:31pm Feb 15, 2024 CST
- phones: [redacted]
- emails: -
- location: Houston, TX
- url: megapersonals.e... [copy](#)

The text message conversation shows a message with a redaction box labeled "Narcotics Code". Below the redaction box, the text reads: "you the person in charge of the...".

Bonus Links

YO DAWG, I HEARD YOU LIKE LINKS

**SO I PUT MORE LINKS SO
YOU CAN LINK WHILE YOU LINK**



So Much Data!!



MISC CJC Data Gathered



RMS Criminal Incidents

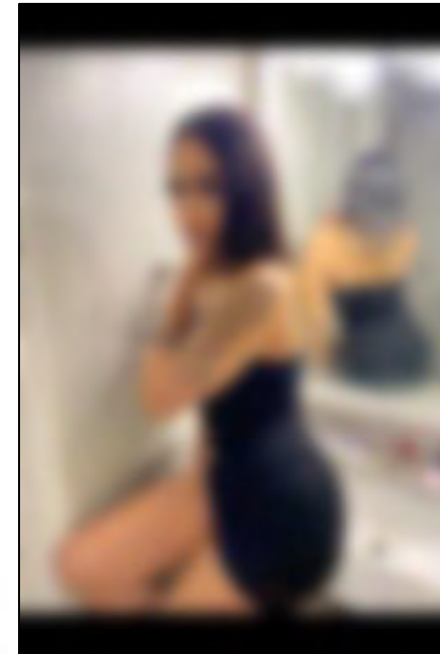
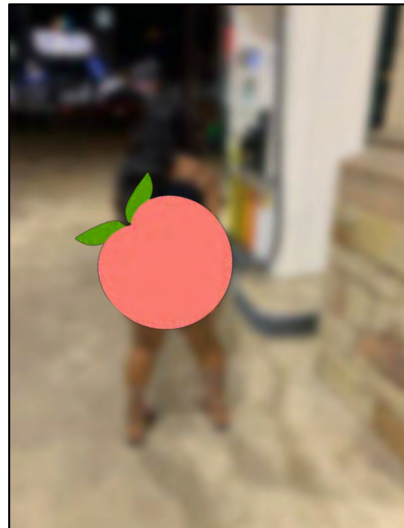
RMS Incidents Added for Analysis

The screenshot displays a software interface for network analysis. The top menu bar includes Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Crime Analysis, Help, Standalone Table, and Link Chart. The 'Link Chart' tab is active, showing a network graph with nodes and edges. A blue arrow points to the 'Link Analysis' button in the 'Tools' section of the 'Link Chart' tab. Below the graph, there is an 'Analysis' window with a 'Result' table.

Node Label	Score
1	0.74929
	0.73473
	0.70907
	0.66028
	0.64572
	0.63295
	0.63239
	0.59148
	0.57778
	0.57418
	0.56203
	0.51449
	0.32627
	0.28997
	0.28563
	0.27516
	0.27158
	0.213
	0.19836
	0.19315
	0.1753
	0.11753

Step 8: Add RMS/CJC Data and rerun analysis

Key Nodes



2

1

3

Subject #2: Young Adult
Background: Inmate is charged with Murder of a female whom he was in an intermittent relationship with for several months.

Subject #1: Sex Ad Phone #
Background: Over the past three years the phone number linked to the ad has been called by 18 different inmates.

Subject #3: Sex Ad Phone #
Background: In 2024 alone seven different inmates have contacted the phone number linked to several sex ads.

Understanding the Problem

HERB + L INCENSE
EMPIRE

HOME SHOP ▾ SHIPPING ABOUT CONTACT US ▾ FAQs TRACK YOUR ORDER CUSTOMER REVIEW

HOME / SHOP

Showing 1–12 of 138 results

Default so

BROWSE

Dank vapes and exotic carts

DMT Vape Pen

Herbal Ecstasy

Herbal Incense

K2 For sale

K2 Spray

Liquid K2

Liquid K2 On Paper

RUNTZ BRAND

Uncategorized



K2 FOR SALE
1 Gallon Liquid K2
\$8,000.00



K2 FOR SALE
100 MI Clear Liquid K2 EXTRA
POTENT
\$300.00



HERBAL INCENSE
100% Natural Exotic
Therapy
\$60.00



Step 1: Narcotics can be obtained online or the streets by outside parties

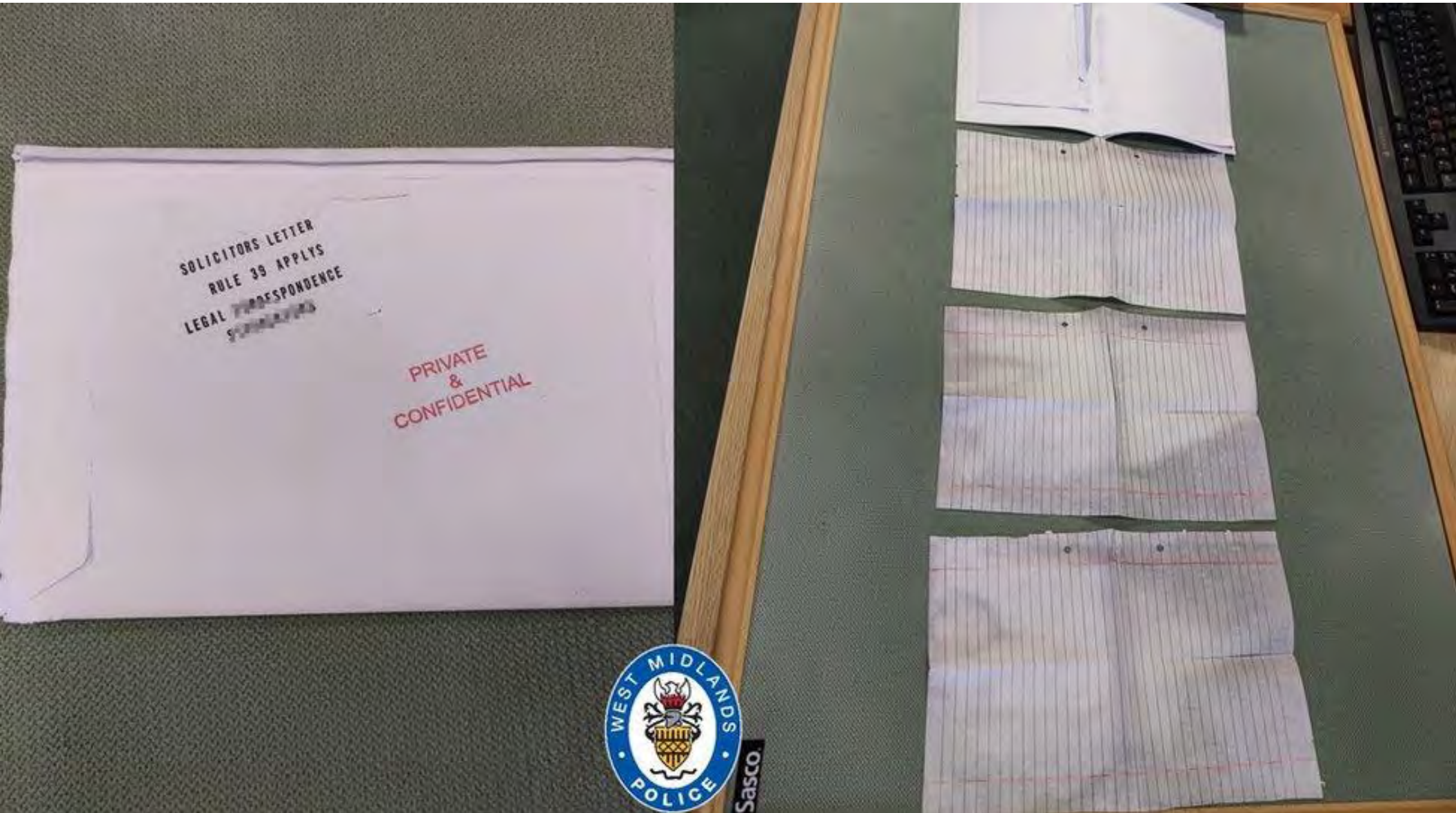


Understanding the Problem



Step 2: Ne'er-do-well soak paper in narcotics and mark it as confidential mail for an inmate.

Understanding the Problem



Step 3: Sheets are then smuggled into jail via the mail or third party.

Understanding the Problem



Step 4: Due to poor quality control inmates' overdose on potent drugs.

Follow the Money

Drug Transactions

- Domino size sheets of laced paper can sell for an average of \$50. They pay the supplier using money transfer apps like Cash App
- Inmates smoke the paper to obtain a high. Sometimes the paper is laced with fentanyl.
- Using keyword searches on transcribed calls or searching phone numbers of callers, Cash App accounts are rapidly identified.
- Cash App/Zelle transactions of drug traffickers are subpoenaed by investigators and the data is exploited by Crime Analysts.



Examine the Data

AutoSave Off | Copy of Cash App Master Data... | Saved to this PC | Search

File Home Insert Page Layout Formulas Data Review View Automate Help Power Pivot

Clipboard: Paste, Cut, Copy, Format Painter | Font: Aptos Narrow, 11, Bold, Italic, Underline, Color, Background Color | Alignment: Wrap Text, Merge & Center | Number: General, Currency, Percentage, Decimals | Styles: Normal, Bad, Good, Neutral, Calculation, Check Cell

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Date	Status	Total	Subject	Sender	Sndr. Source	Action	Recipient	Rcpt. Source	Client	Client IP Address		
2	23:41:36 UTC	PAID_OUT	USD 20.00			4744870029806915	Paying		CASH_BALANCE	APP			
3	19:38:56 UTC	PAID_OUT	USD 50.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
4	18:50:18 UTC	PAID_OUT	USD 80.00			5108050238808021	Paying		CASH_BALANCE	APP			
5	17:41:36 UTC	PAID_OUT	USD 100.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
6	13:08:10 UTC	PAID_OUT	USD 100.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
7	02:04:56 UTC	PAID_OUT	USD 25.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
8	00:53:35 UTC	PAID_OUT	USD 1.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
9	00:24:49 UTC	PAID_OUT	USD 15.00			CASH_BALANCE	Paying		CASH_BALANCE	APP			
10	23:47:40 UTC	PAID_OUT	USD 40.00			4744722119793562	Paying		CASH_BALANCE	APP			

Step 1: Look at the data to see what you can link because it may differ in returns

Master Data | Duplicates Removed | PivotTable | (+)

Generate Nodes Warrant Returns

MyProject62 Command Search (Alt+Q)

Project Map Insert Analysis View Edit Imagery Share Crime Analysis Help Graphics Layer **Link Chart**

Entity Type Relationship Type Add Link Add

Explore Navigate

Select Select By Clear Select Connected Selection

Lock Change Layout Pause Layout

Minimum Filter Links

Highlight Off Display Links On Map Link Analysis Tools

Export Link Chart Export

Contents Map Link Chart

Nodes: 364 Links: 0

Step 2: Map Senders and Receivers on Cash App returns



Link Nodes Warrant Returns

MyProject62 Command Search (Alt+Q)

Project Map Insert Analysis View Edit Imagery Share Crime Analysis Help **Link Chart**

Entity Type Relationship Type Add Link Add f

Explore Navigate

Select Select By Clear Select Connected

Lock Change Layout Pause

Minimum 0 Filter Links

Highlight Off Display Links On Map Link Analysis Export Link Chart

Tools Export

Map Link Chart

Contents

Step 3: Link the on the Senders Column, selecting it for the tie



Analyze Nodes Warrant Returns

The screenshot displays a network analysis software interface. The top menu bar includes Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Crime Analysis, and Help. The 'Link Chart' tab is active, showing a toolbar with options like Add Link, Explore, Select, Attributes, Lock, Change Layout, Pause, Minimum, Highlight Off, Display Links On Map, Link Analysis, and Export Link Chart. The main workspace shows a network graph with several star-like clusters of nodes connected by lines. On the left, an 'Analysis' panel is open, showing 'Centrality' set to 'Betweenness Centrality' and 'All Directions'. Below this, a 'Result' table lists node labels and their scores.

Node Label	Score
1	0.49681
	0.45573
	0.43167
	0.41856
	0.28102
	0.26807
	0.02924
	0.01224
	0.00554
	0.0001

Step 4: Map Senders and Receivers on Cash App returns

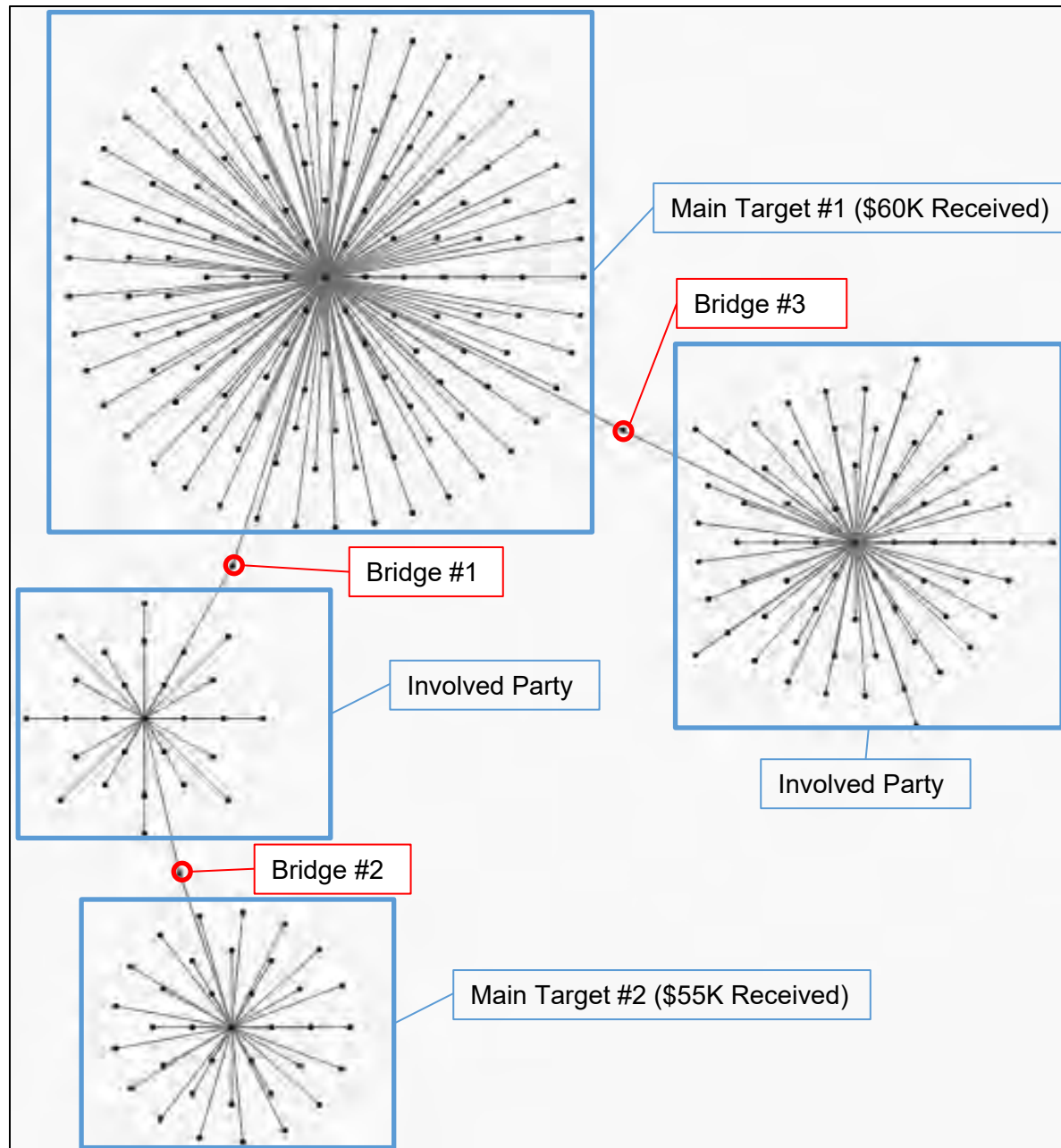
Nodes: 364 Links: 359



Translate the Data

Drug Cash App Targets

- Cash app bridges were discovered from two primary target accounts.
- These bridge accounts can be subpoenaed and expand the network.
- Ideally the information gathered will aid investigators in disrupting the network of drug traffickers in the jail and save lives.



Determining Gang Leadership

Gang Leadership

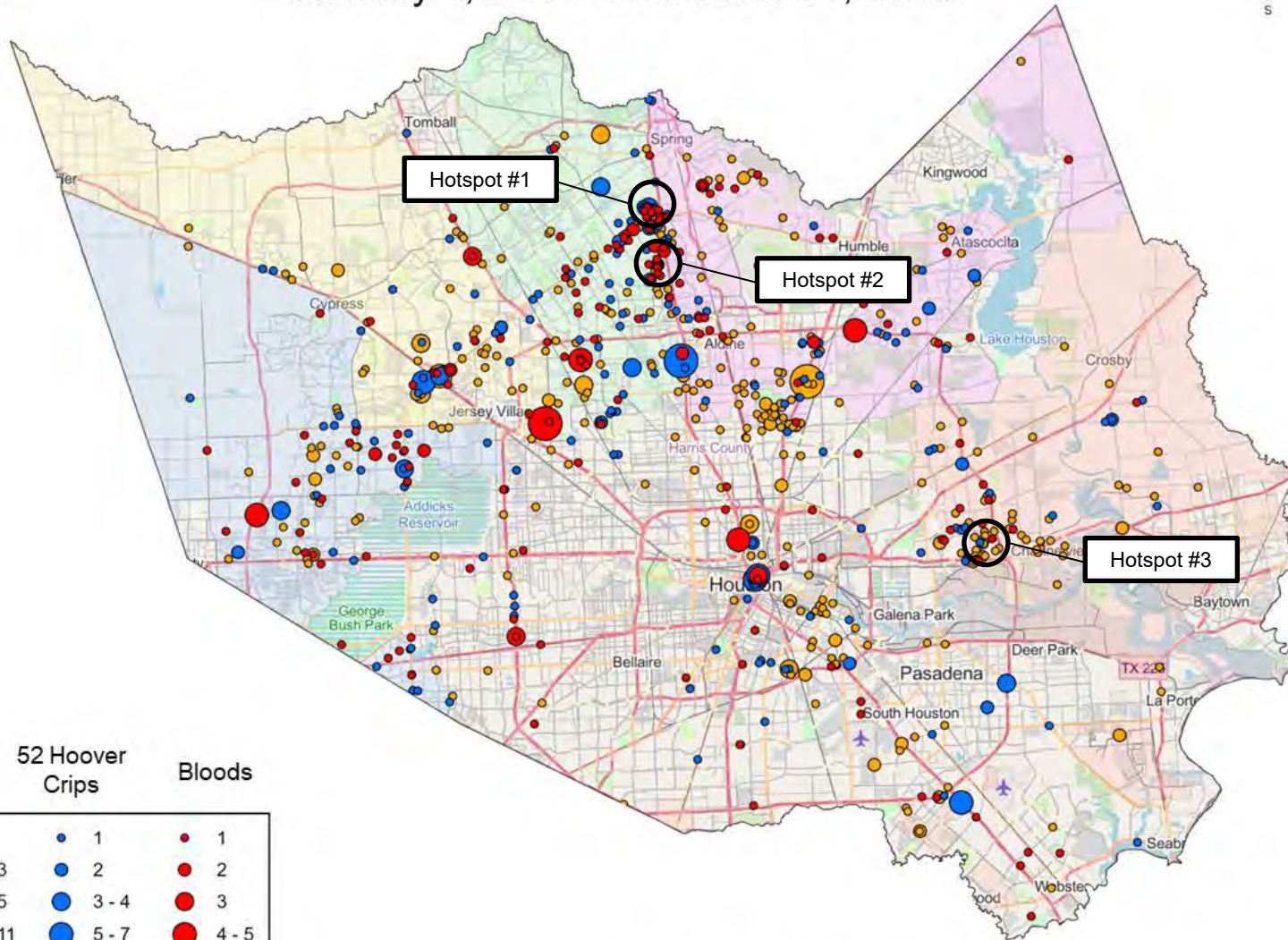
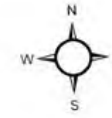
In this final example shows how SNA can uncover gang leadership structure by merging gang membership with Jailhouse call logs.



Consult Geographical Data



Houston/Tango Blast, 52 Hoover Crips, & Bloods
January 1, 2022 - December 31, 2022



Tango Blast	52 Hoover Crips	Bloods
1	1	1
2-3	2	2
4-5	3-4	3
6-11	5-7	4-5
12-26	8-17	6-7

Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

Gang Analysis

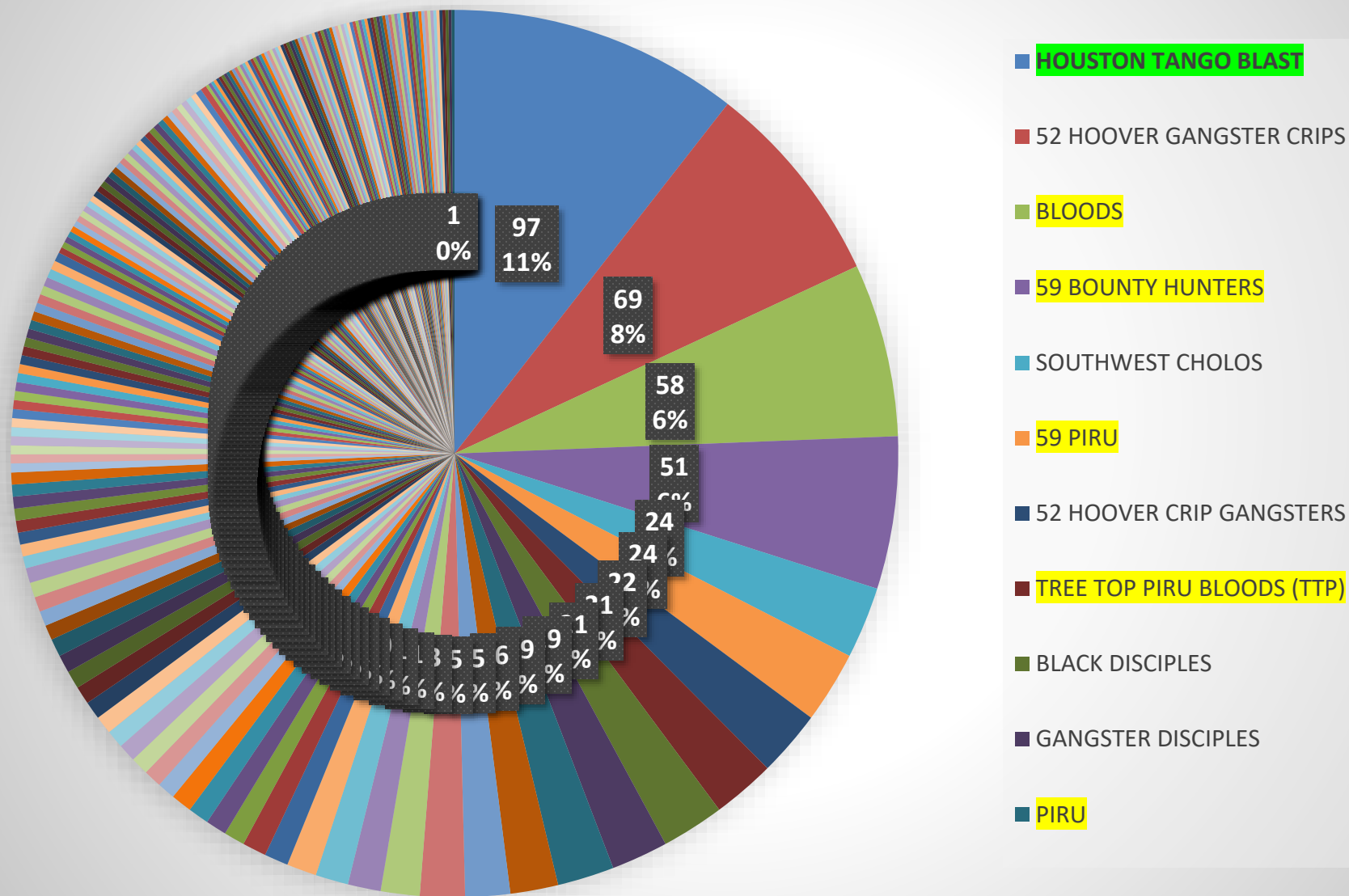
The top three gangs by volume were mapped and aggregated on combined X and Y values to show intensity of activity.

Spatial visualization allows for another method of showing the impact of a gang in an area.



Consult Inmate Population

Gang Members in Jail May 2024



HCSO Violent Crime Visualized

1



2



3

B (HCSO\Anthony.Bush (123)) - Microsoft SQL Server Management Studio

release

OMS Current Gang...nthonny.Bush (123)

```
/****** Script for SelectTopNRows command from SSMS *****/  
SELECT TOP (10000) [ID]  
  , [SYSID]  
  , [BOOKINGNUM]  
  , [SPN]  
  , [FIRSTNAM]  
  , [LASTNAME]  
  , [DOB]  
  , [GENDER]  
  , [GANG]  
  , [CODE]  
  , [HOUSING_LOCATION]  
  , [FACILITY]  
  , [SECTION]  
  , [BLOCK]  
  , [CELL]  
FROM [EvoOMS].[dbo].[RPT_GANG_AFFILIATION]  
where GANG is not null
```

80 %

Results Messages

	ID	SYSID	BOOKINGNUM	SPN	FIRSTNAM	LASTNAME
1	21119480677030	21094825645229				
2	21119607130913	21094825356586				
3	21183043596065	21043818971946				

HCSO Violent Crime Visualized

1



2



3

	A	B	C	D	E	F	G
1	Site	PortLoc	Ctry	Wireless	Dialed#	Net	Zone
2	Harris Cou	Pod 3-HH	1	Y		1	Local
3	JA14 701 I	7B1-1	1	Y		9	Interlata/In
4	JA14 701 I	7B1-1	1	Y		9	Interlata/In
5	JA14 701 I	7B1-1	1	Y		9	Interlata/In
6	JA14 701 I	7B1-1	1	Y		9	Interlata/In
7	Harris Cou	Pod 3-HH	1	Y		1	Local
8	Harris Cou	Pod 3-HH	1	Y		1	Local
9	JA14 701 I	2D3-2	1	Y		5	Local
10	JA14 701 I	2D3-2	1	Y		5	Local
11	JA14 701 I	2D3-2	1	Y		5	Local
12	Harris Cou	Pod 3-HH	1	Y		1	Local
13	Harris Cou	Pod 3-HH	1	Y		1	Local
14	Harris Cou	Pod 3-HH	1	Y		1	Local
15	JA14 701 I	7B1-1	1	Y		9	Interlata/In
16	JA14 701 I	7B1-1	1	Y		9	Interlata/In
17	JA14 701 I	7B1-1	1	Y		9	Interlata/In
18	JA14 701 I	2D3-2	1	Y		5	Local
19	Harris Cou	Pod 3-HH	1	Y		1	Local
20	Harris Cou	Pod 3-HH	1	Y		1	Local
21	JA14 701 I	2D3-1	1	Y		5	Local
22	JA14 701 I	2D3-1	1	Y		5	Local
23	Harris Cou	Pod 3-HH	1	Y		1	Local
24	JA14 701 I	2D3-1	1	Y		5	Local
25	Harris Cou	Pod 3-HH	1	Y		1	Local



Generate Nodes Jail Calls

The screenshot displays the ArcGIS Pro software interface with the 'Link Chart' tool active. The main workspace is filled with a grid of small black dots, representing nodes. The interface includes a top menu bar with options like Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Crime Analysis, and Help. Below the menu is a toolbar with various icons for adding links, exploring, selecting, and exporting. The bottom status bar shows a zoom level of 57.87%, 0 selected items, and the current date and time: 5/14/2024 12:25:26 PM.

Step 1: Map the dialed phone numbers



Generate Connections

The screenshot displays the ArcGIS Pro interface with the Link Chart tool active. The ribbon includes tabs for Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Crime Analysis, and Help. The Link Chart ribbon contains sections for Add Link (Entity Type, Relationship Type, Add), Navigate (Explore), Selection (Select, Select By, Select Connected), Layout (Lock, Change Layout, Pause), Filter Links (Minimum), Tools (Highlight Off, Display Links On Map, Link Analysis), and Export (Export Link Chart). The main workspace shows a network graph with 360 nodes and 4608 links. The graph consists of several clusters of nodes connected by lines, with a large, dense cluster on the left and a smaller, more linear cluster on the right. The status bar at the bottom indicates 5.41% zoom, 8 selected items, and the current time as 5/14/2024 12:28:32 PM.

Step 2: Link the called numbers based on inmate account number

Nodes: 360 Links: 4608



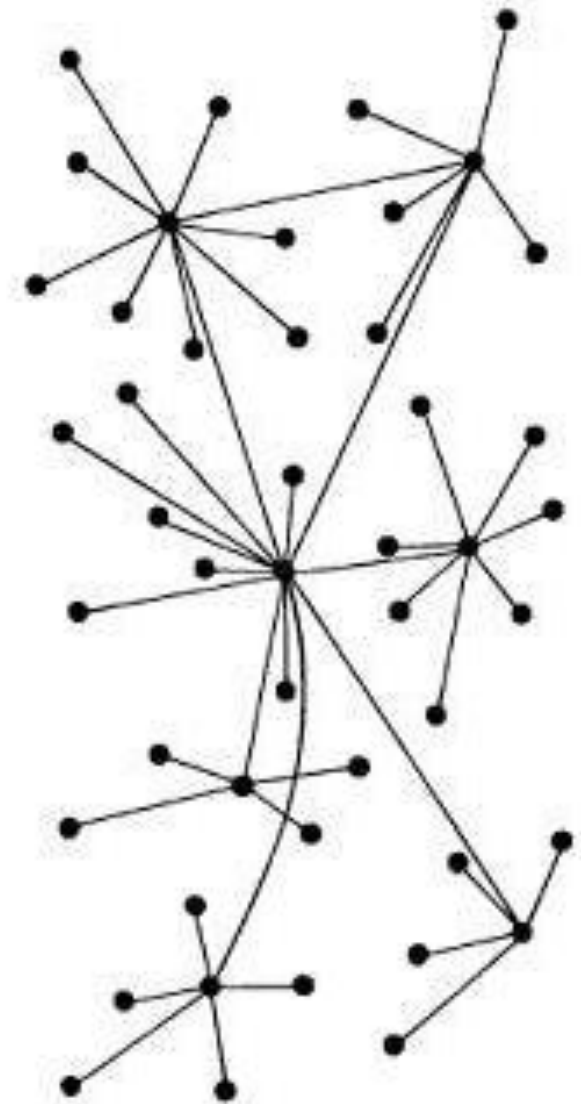
Most Contacted Nodes

Network Summary

Comparing the last six months of jail calls of the roughly 120 nodes shows three numbers that are called by three or more documented Tango Blast / Houston set gang members.

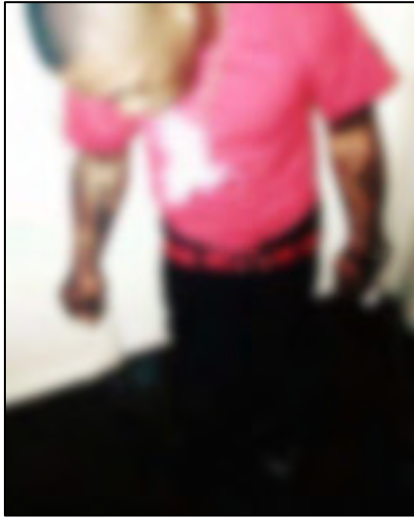


Tango Blast Subsets		
Documented in TX Gang	Phone Numbers	Accounts
N/A	68222734	3
Tango Blast / Houston	71872997	3
59 Bounty Hunters	71822048	3



DECENTRALIZED
(B)

Top Scoring Nodes



2

1

3

Subject #2: ██████████

Background: 29 YOA Blood gang member with an open warrant for violation of a protective order. Family violence history.

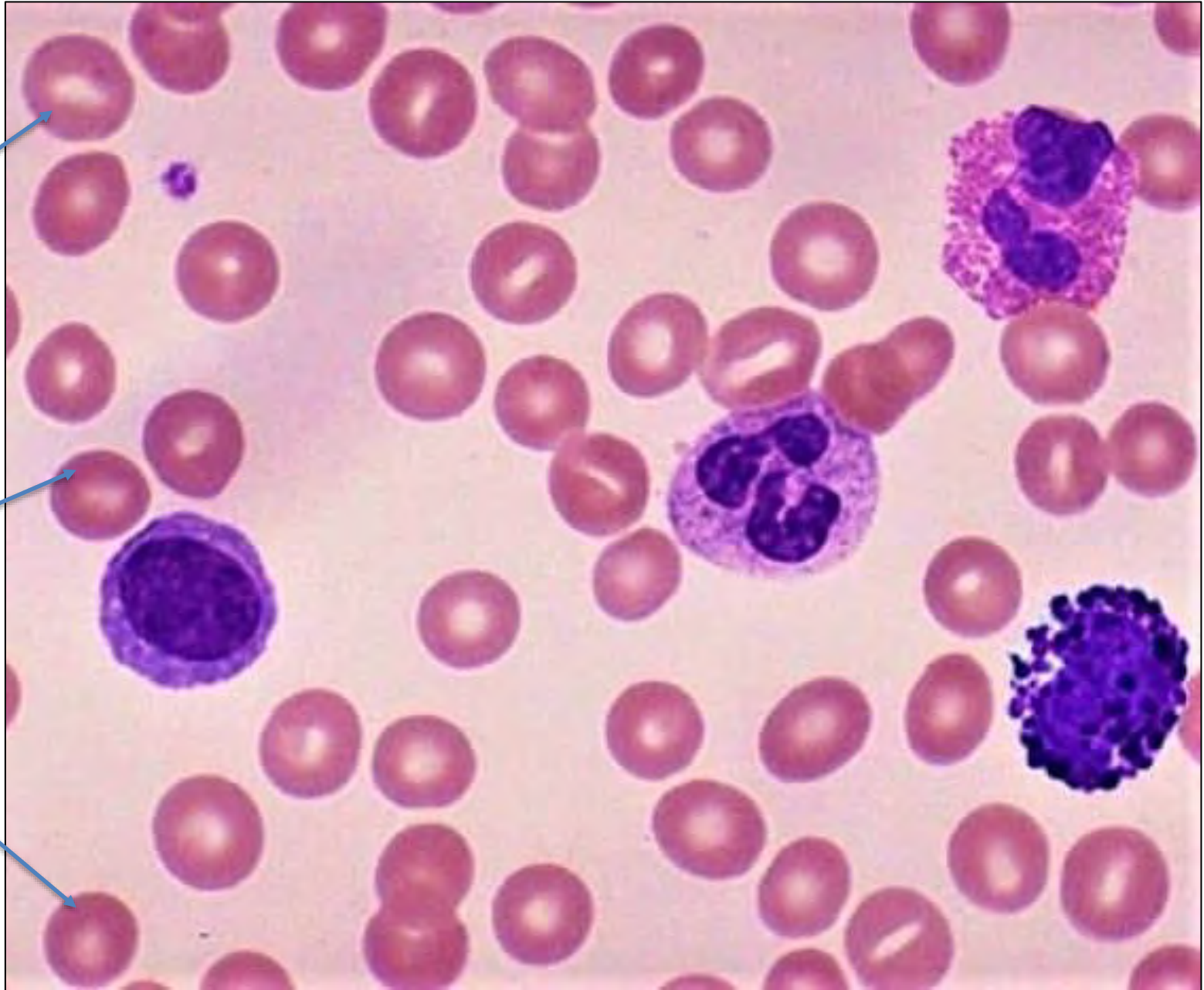
Subject #1: ██████████

Background: Young female who may be a friend of an inmate in jail for Capital Murder.

Subject #3: ██████████

Background: 48 YOA Hustone/Tango Blast gang member who recently assaulted someone with a glass bottle.

Bonus Gang



Generate Nodes Jail Calls

The screenshot displays the ArcGIS Crime Analysis software interface. The top ribbon includes tabs for Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Crime Analysis, Help, Standalone Table, and Link Chart. The Link Chart ribbon is active, showing options for Entity Type, Relationship Type, Add Link, Explore, Selection (Attributes, Clear, Select Connected), Layout (Lock, Change Layout, Pause), Filter Links (Minimum), and Tools (Highlight Off, Display Links On Map, Link Analysis). Below the ribbon, a tab bar shows 'Map', 'Link Chart', 'Link Chart 1', 'Link Chart 2', and 'Link Chart 3'. The main workspace contains a grid of small black dots representing nodes. A text box at the bottom left of the workspace contains the text: **Step 1: Map the dialed phone numbers**.

Generate Connections

MyProject63 Command Search (Alt+Q) Anthony - Harris County

Project Map Insert Analysis View Edit Imagery Share Crime Analysis Help Standalone Table Link Chart

Add Link Entity Type Relationship Type Called Add Add Link Explore Navigate Select Select By Clear Select Connected Lock Change Layout Pause Minimum 0 Highlight Off Display Links On Map Link Analysis Export Link Chart

Map Link Chart Link Chart 1 Link Chart 2 Link Chart 3 X Symbology

Step 2: Link the called numbers based on inmate account number

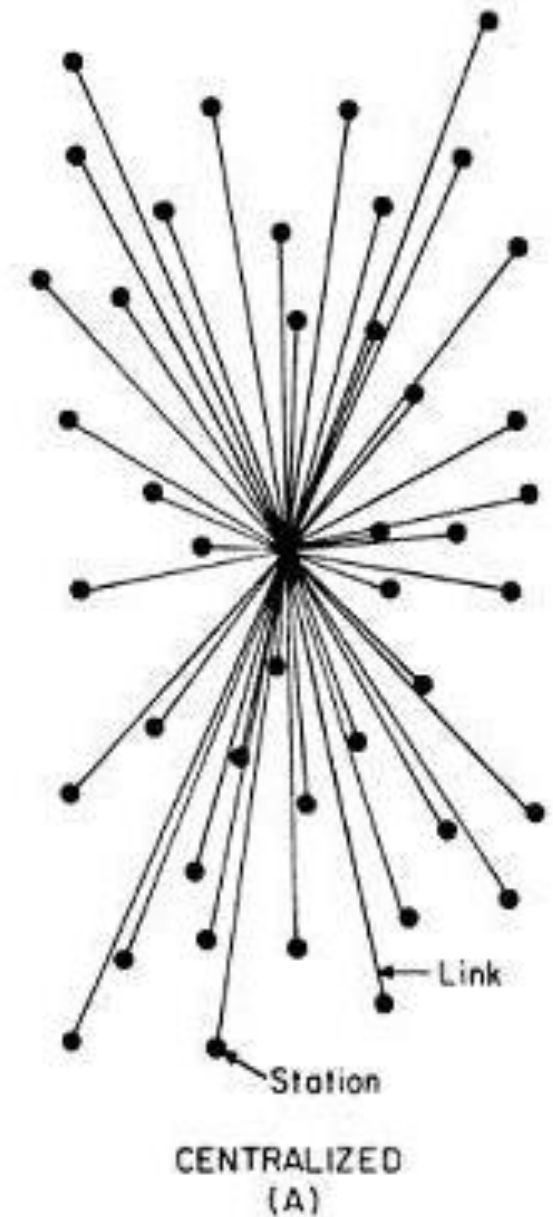
Nodes: 2113 Links: 67896 5.00% Selected items: 0 Current as of: 5/15/2024 2:48:28 PM Catalog Symbo...



Most Contacted Nodes

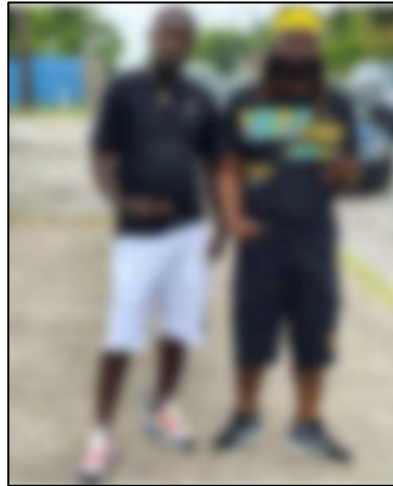
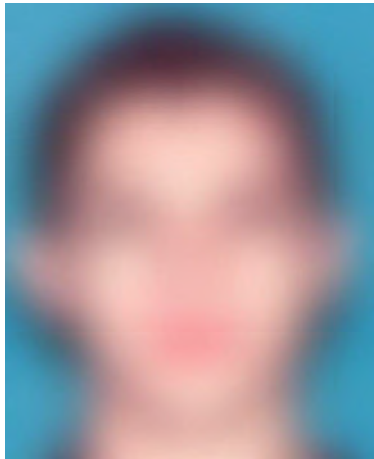
Network Summary

Comparing the last six months of jail calls of the roughly 156 nodes shows nine numbers that are called by three or more documented blood set gang members.



Blood Subsets		
Gang	Phone Numbers	Accounts
59 Bounty Hunters	710000100	11
Tree Top Piru Bloods (TTP)	626101000	4
N/A	949400000	4
Multi-Gang (Bloods)	626011004	3
N/A	626010000	3
Multi-Gang (Hispanic)	626011005	3
Southwest Cholos	710001000	3
Multi-Gang (Hispanic)	710000000	3
N/A	949100010	3

Top Scoring Nodes



2

1

3

Subject #2: 7152211910

Background: 39 YOA
Southwest Cholos male linked
to capital murder case from
2004. May have been deported
after serving his time.

Subject #1: 8222011934

Background: 41 YOA linked to
multiple gang members
predominantly Blood set.
Committed recent property
crimes.

Subject #3: 84574942

Background: Not linked to a
gang member but is a female
who talks with a documented
member.

Takeaways

Key Takeaways

The key takeaway is that by using SNA you can find structures and significant people in large datasets.

Best Application

The best application I have discovered of this software is combing local jail calls with other datasets. Applying centrality metrics to at least a year of communication uncovers possible leaders in a gang. The top scoring phone numbers/ inmates have been linked to founders of gangs, second in command, and major narcotic traffickers.

Collaboration

Due to the ubiquity of phone numbers results, often the results loop in Federal partners already investigating some highlighted numbers, but they don't know of the inmates talking to them or other phone numbers linked.



Takeaways

Targeting

By using SNA, Law Enforcement can leverage this untapped data at no additional cost to the agency. This narrowing and filtering of data allows force multiplication. By utilizing targeting-based data to strike only critical elements in organized crime or crime types, command staff can maximize the impact of the limited resources in staffing they have.



1 x B-1 Lancer

=



200 x B-25-Bombers

Anthony Bush

Agency: Harris County Sheriff's Office

Title: Crime Analyst

Email: Anthony.Bush@sheriff.hctx.net

Office: 832-927-1050



DISCLAIMER

This information is for operational/informational use only and does not represent the official crime event data captured by the Harris County Sheriff's Office. **This information is intended for law enforcement use only and is not intended to be released to the public as the official crime statistics of the Harris County Sheriff's Office.**

The Crime Data represents basic/general data of incidents based on the highest offense listed in a particular report and does not reflect the FBI's NIBRS coding system in that lesser included offenses may not be included. As data is submitted, routine data validation are applied to ensure completeness, however, the responsive data contained within this report may have been retrieved from the system prior to being subject to or completing those validation routines, and as such, may contain inaccuracies, be incomplete or not reflect every incident that may have occurred with the specified jurisdiction for the requested timeframe. The data may or may not have been screened through the Harris County Sheriff's Office records department and therefore may reflect:

- Information not yet verified by further investigation and may include mechanical or human error.
- Preliminary crime classifications that may be changed at a later date based upon further investigation.

