

Proof of Concept: Child Sex Exploitation (CSE)



Every two minutes, a child is being prepared for sexual exploitation and human trafficking



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OVERVIEW

ENODO Global partnered with DTCare in order to discover innovative ways to conceptualize and combat Child Sex Exploitation (CSE). ENODO analysts initiated a multi-phase project that: (1) created a customized matrix that delivers in-depth insights into various CSE activities, (2) conducted a national case study using social media analysis to illustrate the dynamic, demand-driven nature of CSE and, (3) applied GIS-based network-centric analysis and advanced data analytics to a regional case study to introduce novel techniques that can be used to optimize existing efforts to combat CSE.



“An estimated \$38 Billion is “profited” from the buying, the selling, and the rape of children every year.”

SITUATION

Child Sex Exploitation (CSE) continues to grow at an alarming rate due to technology that increases access to children and enables individuals to target and conduct various CSE activities. Internet sites, private chat rooms, and applications like Backpage, WhatsApp, and Kik create virtual hubs for peer-to-peer networking to solicit, facilitate, and engage in CSE, which explains why internet related CSE activities account for 88% of all child exploitation cases. Moreover, the increasing number of CSE cases, investigation techniques, and prosecutions illustrates how the crisis is growing and different types of exploitation avenues are evolving.

CSE is a broadly defined and continuously evolving enterprise. The multi-faceted composition of this epidemic makes it difficult for government agencies, NGOs, and private sector companies to combat. Moreover, current efforts are based on inadequate information, are typically reactive in nature, and often compartmentalized to combat specific CSE activities. In the U.S., CSE components are categorized by type (e.g., trafficking, prostitution, pornography, and exploitation) and assigned to specific individuals and groups within an organization. The compartmentalization of each activity requires numerous personal and substantial resources to satisfy each organization’s mandate, which typically focus on perpetrator arrests and prosecutions.

“One study estimates as many as 325,000 children in the U.S., Canada, and Mexico are at risk each year for becoming victims of sexual exploitation.”

Meanwhile, the identification of perpetrators in the pre-exploitation phase continues to be the greatest CSE challenge. The latest encryption techniques provide predators a blanket of anonymity—with the majority of CSE cases believed to be undiscovered—perpetrators go undetected and victims unknown. Meanwhile, research and analysis is conducted post exploitation through law enforcement interaction with perpetrators and victims.

An Inspector General Audit of the FBI’s Efforts to Combat Crimes Against Children illustrated how the Behavioral Analysis Unit (BAU-3) focuses their efforts on case studies and assignments to gather strategic intelligence to help agents in their investigations and forecast emerging trends. The majority of FBI agents, however, are still tasked with targeting individuals and enterprises.

KEY FINDINGS

- ▶ There are two distinctly different Child Sex Exploitation (CSE) types
 - Commercial-CSE: Industry related interactions that are transactional in nature for monetary value—*profit*
 - Peer-to-peer-CSE: Behavior related interactions predicated on need—*self-gratification*
- ▶ Methods and resources to combat each CSE type require different strategies and techniques
 - Existing methods are designed to examine the problem through a law enforcement lens (i.e., identify, apprehend, and prosecute)
 - Current organizational structures do not enable resources (e.g., personal, technology, and techniques) to be allocated effectively
 - Typical approaches are compartmentalized and reactionary
- ▶ There is a void of public awareness and no overarching communication campaign to combat either commercial or peer-to-peer CSE
 - The epidemic remains a taboo discussion topic that receives little attention in relation to its enormity and impact
 - Office of Inspector General (OIG) report recommends that FBI field offices work with localities to spread awareness
- ▶ Publicly available information, research, and reports do not accurately capture or portray the impact and implications of CSE
 - Available information is predicated upon convictions and survivor interviews, which is a small portion of actual exploitation
 - There is a lack of available peer-to-peer-CSE data to identify at risk children (i.e., divorce, broken home, history of abuse/exploitation)
 - Only 351 child exploitation cases in 2018 were prosecuted in the US with an estimated 199,000 incidents
 - <1% of all exploitation cases are known

CSE CLASSIFICATIONS

Based on key findings identified through ENODO's proof of concept and examination of the current CSE environment, ENODO analyst recommend law enforcement and private sector organizations recognize that commercial and peer-to-peer-CSE are two distinctly different problems. When viewed through ENODO's classification, effective strategies to combat each CSE type can be created and existing resources (e.g., training, techniques, and procedures) can be allocated more effectively. The remainder of this section delivers a brief description of each CSE type along with recommendations to combat their specific requirements.

Definition: Commercial-CSE

Is an industry, which can be defined as a for-profit criminal enterprise where individuals facilitate sexual encounters with underage children. Demand for commercial-CSE is unrelenting and constantly evolving. It creates a business model based on supply and demand where traffickers can receive upwards of \$100,000.00 a year per victim, which is why they are continually recruiting victims to meet demand and generate more revenue. These individuals, known as traffickers or pimps, conduct the majority of child sexual exploitation in-person, which in most cases ends up on internet websites.

Commercial-CSE activities are also facilitated by gangs and organized crime networks, however, the number of acts committed by these groups is largely unknown because they are conducted with its members at their locations—not outsourced or obtained in the open market.

Recommendations:

- Recognize and attack Commercial-CSE as a business or industry
 - Use advanced data-analytics to reduce the dependency on manpower
 - Apply a network-centric approach to create layers that uncover critical nodes
 - Employ social media exploitation to identify high-density areas (i.e. hot spots) that augment nodal analysis through online and social media discussions

“An estimated 50,000 children are trafficked into the US each year and 244,000 – 325,000 American youth are considered at risk for sexual exploitation.”

CSE CLASSIFICATIONS

Definition: Peer-to-peer CSE

Is when an individual sexually exploits a child (e.g., nudity, penetration, or bondage) and shares their acts with other individuals electronically. Perpetrators typically meet in private chatrooms and messaging groups to share pornographic materials; however, their activities occasionally escalate to physical interactions. Identifying perpetrators in the pre-exploitation phase is especially challenging, if not impossible because they discretely share their victim's information—usually a family member or someone with close personal contact—on secure personal electronic devices in the privacy of their own homes. Perpetrators that have been arrested and prosecuted do not have common character traits, social status, professions, or even criminal history and are typically charged with possession of child pornography and not distribution or production, which carries stricter penalties. A perpetrator after conviction admitted the only reason he abused and exploited his own daughter was to use the material to trade and receive additional materials in a peer-to-peer sharing site. What's most disturbing is that in peer-to-peer-CSE, children often don't know they're being abused and speak about the exploitation as if it was something normal in their daily lives.

Recommendations:

- Recognize and treat peer-to-peer-CSE as a behavioral issue or disease
 - Attack the problem at the root cause — pre-exploitation phase
 - Create a proactive communication strategy and community engagement activities that generate social awareness — encourages individuals to be more vigilant
 - ▶ Target perpetrators with customized messages associated with fear, shame, and embarrassment (e.g., arrest, conviction and incarceration, social isolation from friends and family)
 - ▶ Target victims through a "Tell A Friend" campaign that encourages victims to discuss their abuse with friends, family, and trusted individuals and illustrates life for victims after abuse (e.g., depression, addiction, prostitution, suicide)

"Traffickers are preying on young girls across the nation — our daughters, sisters and friends — right in our backyards."

PROOF OF CONCEPT

ENODO's proof of concept focused solely on commercial-CSE over a 90-day period. The project was broken into three (3) different phases in order to conceptualize the problem in a new way and introduce novel approaches that can be used to augment existing practices.

Phase I analysts conducted interviews with subject matter experts and applied quantitative and qualitative research techniques to create a CSE Matrix from various information sources.

Phase II leveraged a customized data collection and analysis platform to conduct a national case study of CSE activities.

Phase III applied network-centric analysis to produce map layers that were used to uncover CSE hot spots.

By employing advanced data analytics and social media exploitation in Phase II and III, analysts were able to optimize information collection and analysis and significantly reduce manpower requirements. A detailed description of each phase of the proof of concept is found in the following sections.




PHASE I: CSE MATRIX

In order to gain a comprehensive understanding of child exploitation in the U.S., analysts began by researching the different definitions and classifications of exploitation. Analysts gathered data on each exploitation type (e.g., labor, trafficking, and organs) from national and international agencies to identify the most prominent forms of child exploitation.

Information on specific CSE activities, within each classification was collected from government agencies, NGO's, and private sector companies. Based on the information, analysts were able to identify sex as the most prominent form of exploitation—94.9% involving sexual acts.

In order to understand the victimology, as well as the predatory nature of the crimes being committed, court transcripts of offenses, interviews with law enforcement officials, as well as survivor stories and traffickers unscripted accounts were synthesized.

External datasets containing CSE-related information (e.g. FBI reports) were integrated into ENODO's data analysis platform and matched with the corresponding CSE activity in the CSE Matrix. The result, analysts were able to create a data base of CSE related information that identified two distinct CSE categories (e.g. commercial and peer-to-peer). Figure 1 provides a screen capture of ENODO's Child Exploitation Matrix.



Child Exploitation Matrix

Exploitation Variables	Quantitative		Gender				Citizenship	Methodology				Site Location				
	Total		Male	Female	Minor	Adult	Other (adult & minor, Male and female, undisclosed)	American Citizen	Coersion/Threat	Violence	Isolation	Substance Addiction	Hotel	Backpage	Facebook	Craigslsit
Globally																
Exploitations	Percent	Amount														
	Minx	24,900,000	20%	7%	10%	75%										
	Labor	64%	\$4,300,000													
	Sex	10%	\$4,000,000													
Monetary		\$150,000,000,000.00														
	Labor	\$51,000,000,000.00														
Sex		\$99,000,000,000.00														
Metadata Child Pornography																
	Produce (Full Determined)			81%	2%			8%								
	Victim (70% Determined)				20%	65%		4.8%								
	Severity of Abuse(2-3)															
Known Country of Origin	85%															
In the United States																
Exploited	8%	\$2,700,000														
	Labor	5.10%		510%	4.7%	3%	91%		60%	57.10%						
	Domestic/Household			5%	80%	8%		8%								
	Travel/Sales Conc.	14%		50%	32%	32%		54%								
	Residential/Food	58%		58%	18%	18%		4%								
	Prostitution/Exploit	56%		41%	74%			38%								
	Aggravated/Enduring	88%		97%	8%			4%								
	Health/Beauty	24%		38%	12%			3%								
	Construction	98%		94%	17%			95%								
	Hospitality	40%		68%	4%			85%								
	Arts and Entertainment	25%		79%	2%			27%								
	Performance/Adult/Childing		Unknown													
	Carnal/sex/Prostitution															
	Sex	94.90%		3%	97%	51.60%	96.20%	32.10%		68%	56.20%	23.20%	36.20%	81.50%		
	Low Estimate		9400													
	High Estimate		2,400,000													
	Exact Number			8%	95%	47%			46%							

resources

Sex offender full

Sex offenders namesaddress only

Sex offender Name only

S ... (+)

◀

Figure 1. Child Exploitation Matrix Screen Capture

PHASE II: NATIONAL CASE STUDY: UNITED STATES

The business nature of commercial-CSE creates a dynamic, constantly evolving environment where suppliers (i.e., traffickers and pimps) move products (i.e. children) based upon demand.

ENODO's Chief Data Scientist designed and built a customized data analytics platform to collect and analyze CSE related discussions, near real-time over a 90-day period. Discussions were monitored and tracked using a geo-fencing capability within a GIS analytical engine. This technique allowed analysts to pinpoint specific locations in the U.S. that constituted varying densities of CSE related activities.

The 24/7 platform runtime allowed the team to track the evolution of CSE related social media discussions across the U.S., revealed “hotspot” or clusters of high CSE-related activities, and identify their relationship with various events.

During the 90-day pilot project, the area surrounding Miami emerged as the most active region for CSE-related discussions, which happened to correspond with the Super Bowl that occurred between January 25th and February 1st, 2020. Figure 2 provides a visual illustration of high density areas across the U.S. where CSE discussion were most prevalent.

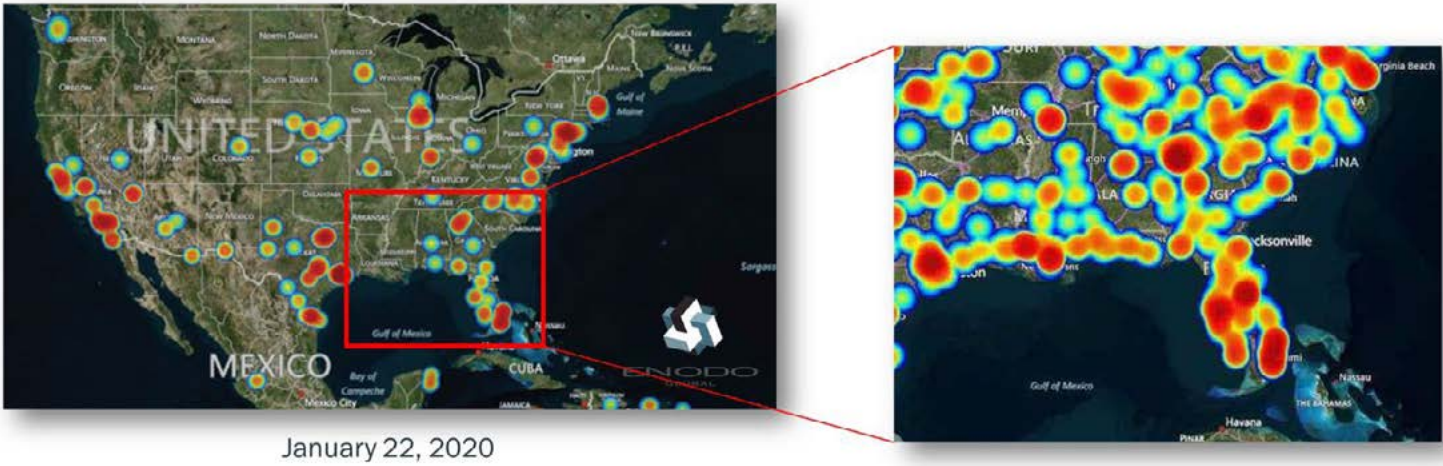



Figure 2. Screen capture of CSE social media discussion

PHASE III: REGIONAL CASE STUDY: WASHINGTON D.C.

Based on Phase I and II findings, ENODO combined network-centric analysis, social media exploitation, and customized GIS and Python programming tools to a regional case study designed to create analytical layers that pinpoint critical nodes, which are used to facilitate commercial-CSE.

Washington D.C. was chosen due to the fact that it has the highest child exploitation rate per capita in the U.S. (Source: Washington Post) and its proximity to ENODO Global headquarters, which aided information collection and analysis. Quantitative analysis was enhanced by incorporating network-centric analysis to identify different analytical layers that support commercial-CSE.

Individual GIS layers were overlaid on each other and combined with social media exploitation to reveal geographic distribution, identify commonalities, and detect patterns that can be used to interdict critical nodes and target facilitators. The remainder of this section provides a brief description and visual illustrations of each layer created to support the case study.



Name: Adams, Kerwin Jerome
Home/Residence Address: 5200 Block of F Street, SE Washington, DC 20019
Work Address: 1300 Block of 5th Street, NE Washington, DC 20002
Date of Birth: 09/16/1978 **Age:** 41
Height: 5 ft.11 in. **Weight:** 196
Eyes: Brown **Hair:** Black
Identifying Marks: letters "LDP" right hand by thumb "RIP" with tombstone upper right arm

Offense of Conviction: First degree sexual abuse ([List of Crimes](#))
Date of Conviction: 06/07/2019 **Case No.:** 1996 FEL 009301
Place of Conviction: District Of Columbia **Class of Offense:** A

Date of Registration: 06/11/2019 **Date of Last Verification:** 03/09/2020
Wanted? No

There are 1173 registered sex offenders in the community in the District of Columbia.

Sex Offender Database

The Sex Offender Database is a program coordinated by the Department of Justice designed to create and maintain a sex offender registry that can interface with local municipalities. The registry requires all sex offenders convicted of Class A and Class B* crimes to provide their home, work and school (if applicable) address to the database. *Class B crimes are sexual crimes related to a minor.

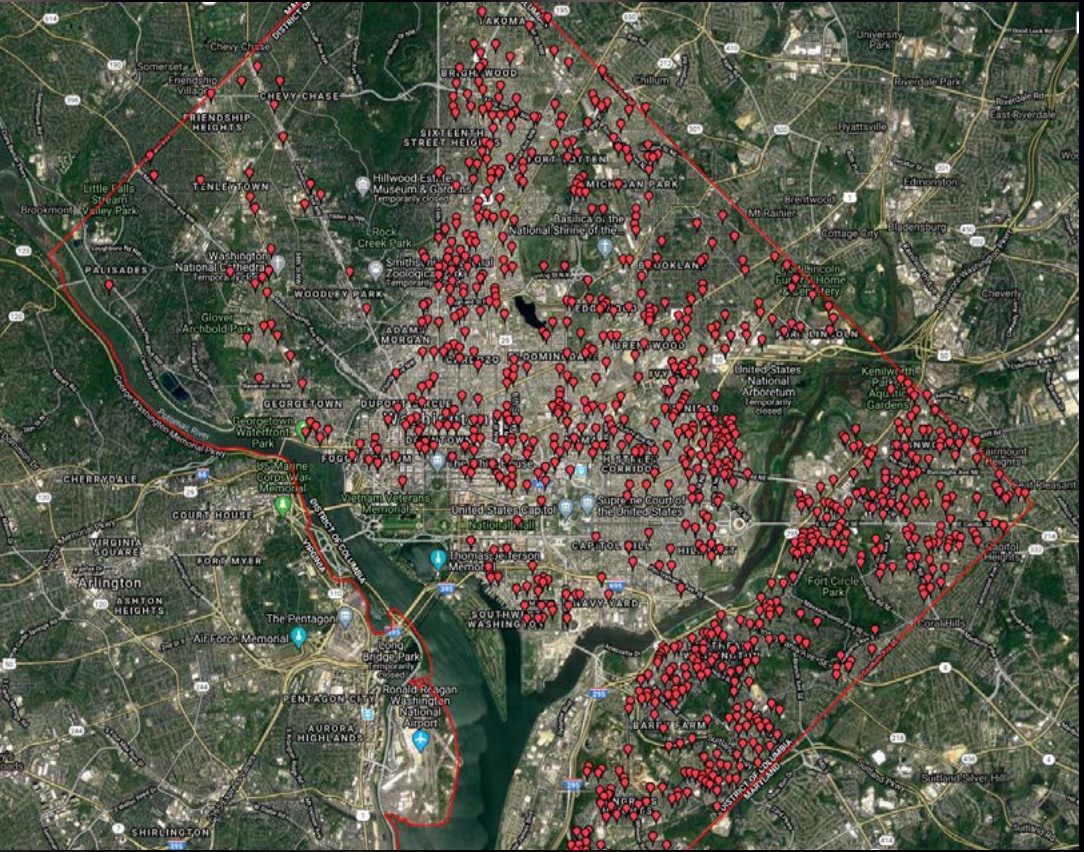


Figure 3. Screen capture of known sex offenders

Erotic Massage Parlors

Erotic massage parlors are sometimes used to facilitate the trafficking and exploitation of women and children. RubMaps.ch is a website that delivers an online guide to subscribers. It provides locations of businesses that offer illicit massages, detailed reviews of different services, and allows clients to choose based on features that include (e.g., age, breast size, and ass rating).

There are 32 registered locations in Washington, D.C. that advertise on RubMaps, with an estimated 9,000 illicit massage parlors in the U.S., which generate approximately \$2.5 billion in revenue annually.

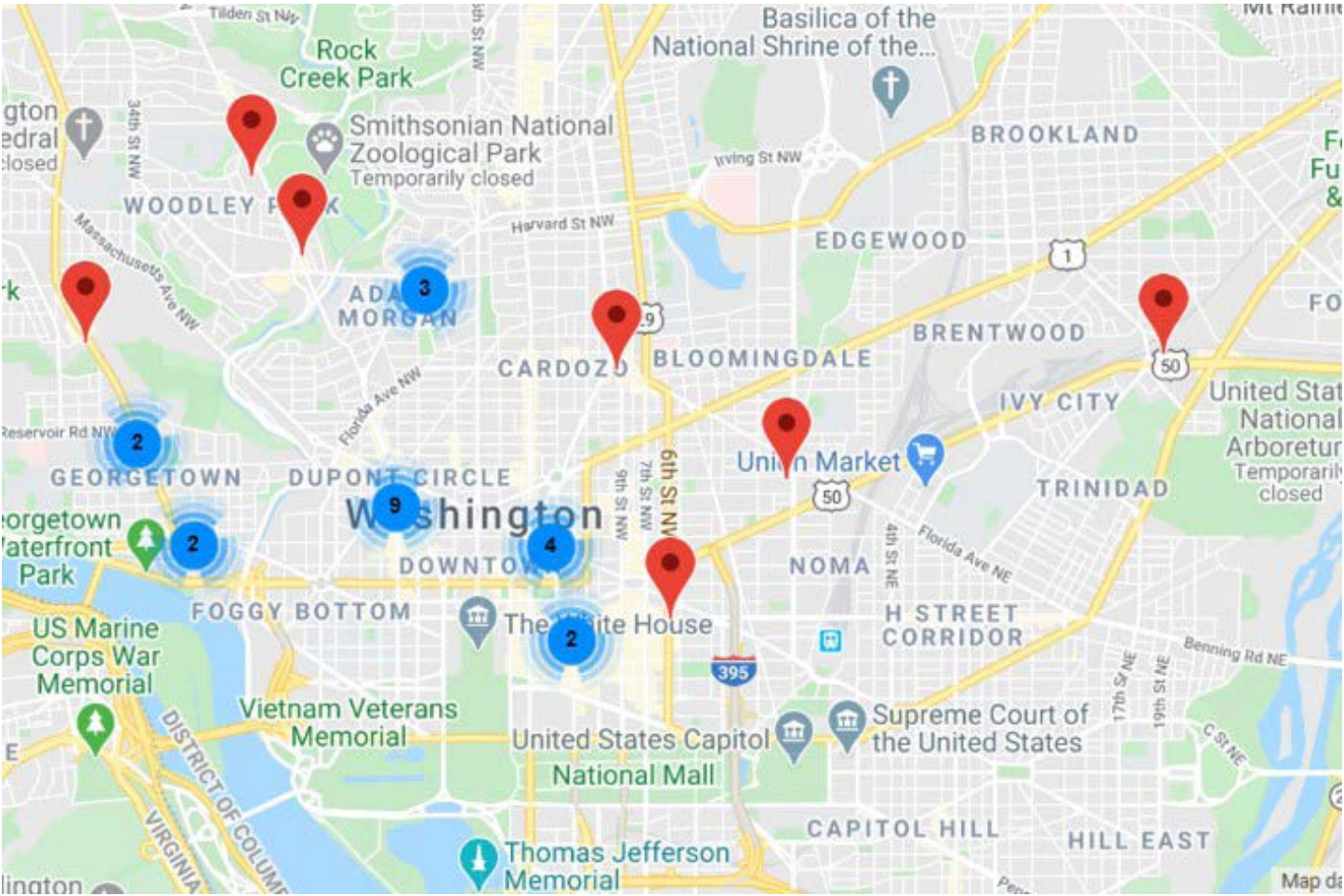


Figure 4. Screen capture of RubMap locations



Transportation Hubs

D.C.’s vast public transport network operates as a regional hub for commercial-CSE. It enables traffickers to transport victims into and throughout the city using various modes of transportation (e.g., bus, train, taxi, and metro). The various transportation nodes offer rapid transit from one location to another at a high frequency, which enables persons to enter, leave, and quickly move about D.C. using different types of transportation at all times.

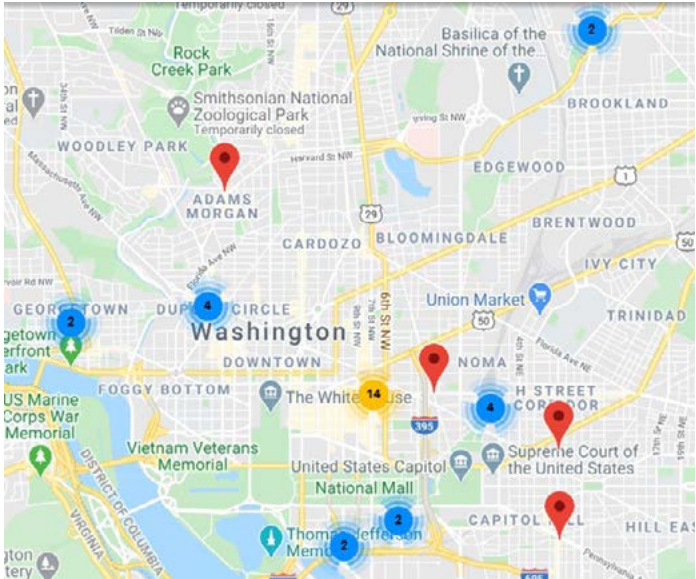


Figure 5. Screen capture of Transportation hubs

Hotels

82% of all commercial-CSE occurs in hotels. Commercial-CSE cases are often perpetrated as “in-call” transactions, where the exploitation occurs at a predetermined location decided by the facilitator. Traffickers and pimps use hotels as staging points for exploitation, often keeping their victims isolated in rooms for days or weeks at a time.

This map layer was created from a 2018 list of hotels that were reported in exploitation cases, however, it also includes hotels that are “known” or “suspected” of facilitating CSE activities.

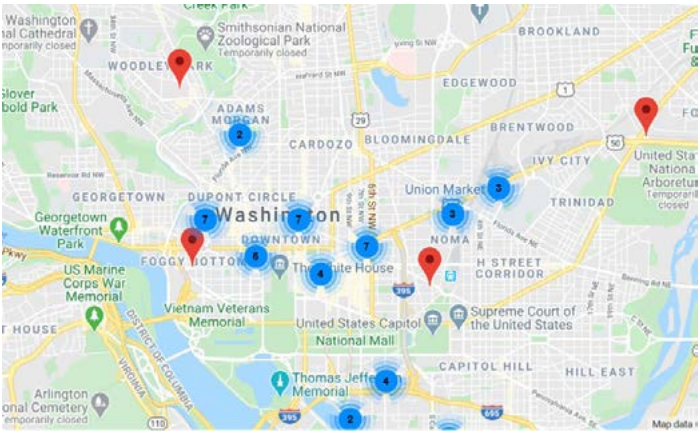


Figure 6. Screen capture of hotels



Target Victim Locations

The demand driven nature of commercial-CSE requires traffickers to constantly recruit new victims—target children for sex work. Traffickers engage in a process called “grooming” in which a child becomes reliant and feels indebted to their facilitator—willingly engage in sex to please the person and help them make more money.

Children most susceptible to this type of exploitation are often runaways who are estranged from their families or dependent on drugs and alcohol, which makes orphanages, shelters, and rehabilitation centers excellent recruitment centers for pimps to identify potential victims.

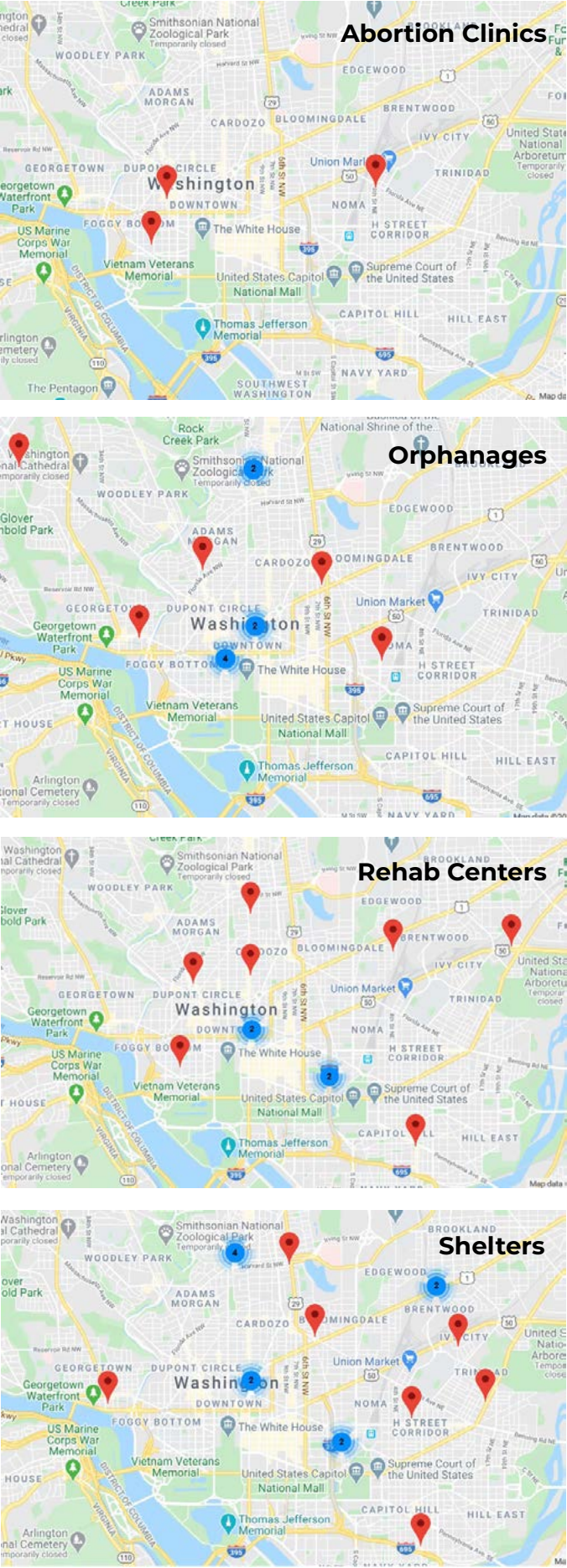


Figure 7. Screen captures of target victim locations

Low-Income Public Housing

Traffickers seek out vulnerable children in low-income neighborhoods. They enter relationships with victims by promising a better life (e.g. money, clothes, and parties). The end result, however, is psychological and/or physical abuse, isolation, and manipulation, with the child becoming a sex worker.

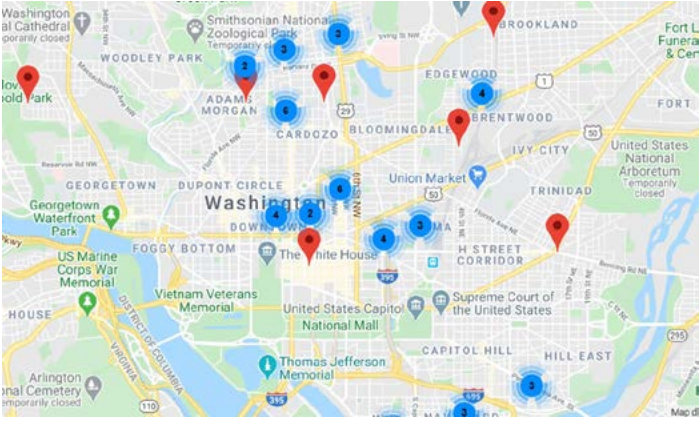


Figure 8. Screen capture of low-income public housing locations

Social Media Exploitation

The Internet provides complete anonymity that allows predators and perpetrators of commercial-CSE to communicate, solicit, and engage in illegal activities. ENODO’s customized social listening platform analyzed twenty-one (21) different online platforms, which included blogs, chat rooms, and message boards to detect and monitor online discussions that contained CSE-related references. Data collection was geo-fenced within Washington, D.C. and machine learning was applied to detect online behaviors of predators through their communications.

The density map (Figure 9) shows a clustering of activity in predominately poor areas in the Southeast and Northeast regions of Washington, D.C.

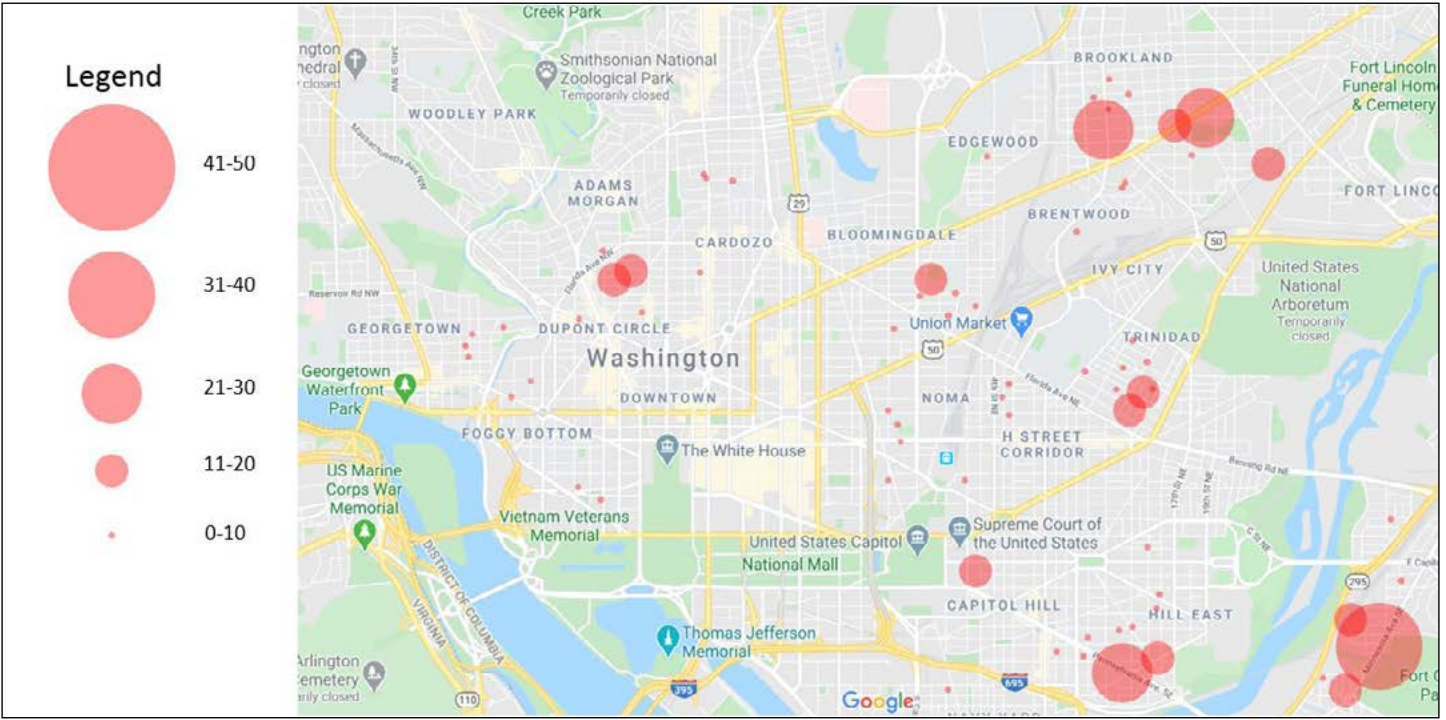


Figure 9. Screen capture showing density of CSE-related social media posts

MULTI-LAYERED ANALYSIS

Each GIS analytical map layer provides a snapshot of the various locations (e.g., hotels, RubMap locations, shelters etc.) that are used to facilitate and enable commercial-CSE related activities.

When combined with social media exploitation and overlaid on each other, the multi-layered analysis reveals insights that develop a deeper understanding of the inter-relationship between these locations and illicit activity. For example, two layers – shelters and hotels – were combined with the social media layer to reveal a composite layer (Figure 10)

The example illustrates that shelters and hotels are “hotspots” that constitute key locations with a higher degree of activities and discussions related to CSE. This supports several recent reports that have linked illicit sexual exploitation activities in hotels (Source: FreedomUnited).

ENODO's multi-layered analysis illustrates the relationship between high density areas where CSE related discussions occur and “hotspots” in Southeast and Northwest D.C. Additional analysis can be used to pinpoint specific locations and individuals that support CSE activities.

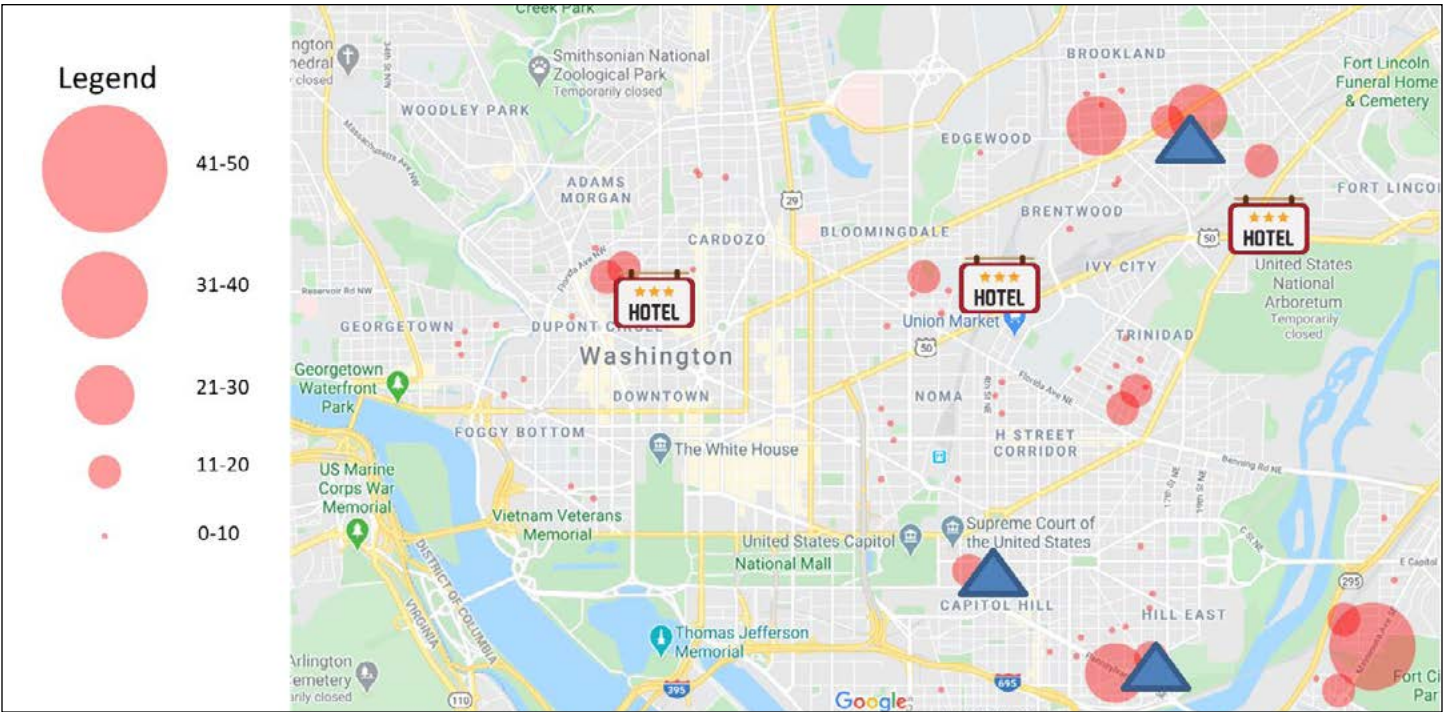


Figure 10. Screen capture of social media layer combined with shelters (triangles) and hotels

CONCLUSION

There is no single solution for Child Sex Exploitation (CSE). Commercial and peer-to-peer CSE are continuously evolving, highly complex problems that require tailored innovative solutions. Existing approaches cannot keep pace with this growing crisis nor will they yield measurable results. Government agencies, private sector companies, and NGOs need an overarching strategy along with the proper tools and resources to be effective. CSE requires a whole-of-society approach powered by a community of CSE enablers that leverages the latest technologies to mobilize individuals, identify potential perpetrators, and interdict various CSE activities.

ENODO's data-driven, proof of concept provides a real-world demonstration how advanced data analytics, machine learning, and social media exploitation create actionable information that can be used to identify and potentially interdict critical nodes in the CSE supply chain. It delivers a repeatable scalable process that can be used to augment existing efforts, allocate resources more effectively, and reduce the need for additional manpower. Most importantly, it provides real-time awareness of illicit activities that can be used by law enforcement officials to identify and prosecute CSE cases.

ENODO Global and DTCare welcome the opportunity to partner with individuals and organizations committed to stopping this silent pandemic by delivering critical capabilities required to help protect children from commercial and peer-to-peer CSE.





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The logo for DTCare features the letters "DTC" in a large, bold, black sans-serif font, followed by the word "are" in a smaller, black sans-serif font. The letter "C" in "DTC" is stylized with a red circular arrow around it, indicating a cycle or process.