CRIME ANALYSIS ASSESSMENT
SUMMARY

National Public Safety PARTNERSHIP

INTRODUCTION

The National Public Safety Partnership (PSP) program provides an innovative framework for the U.S. Department of Justice (DOJ) to enhance its support of state, local, and tribal law enforcement and prosecution authorities as they aggressively investigate and prosecute violent criminals, especially those involved in gun crime, drug trafficking, and gang violence. Through the PSP, DOJ provides effective assistance to American cities of different sizes and diverse needs to support and build their capacity to fight crime. PSP facilitates the development of data-driven, evidence-based strategies tailored to the unique needs of participating cities to address serious violent crime challenges.

Departments and agencies participating in the PSP Operations Sites program complete a series of assessments to identify a baseline understanding of their challenges and areas for growth. The crime analysis assessment helps PSP sites evaluate their capabilities and capacity to analyze and use data to make informed decisions, respond effectively, and prevent crime. The assessment also is an important step in using the various crime analysis training and technical assistance (TTA) opportunities available to PSP sites. To evaluate a site's crime analysis abilities and needs, a subject expert from the BJA's National Training and Technical Assistance Center – Crime Analysis on Demand program or the International Association of Crime Analysts (IACA) conducts an on-site visit. The PSP site teams then use recommendations from these assessments to determine specific types of TTA the site would benefit from, such as peer exchanges, further subject expert assistance, guidance on relevant grants, or examples of policies or procedures from other law enforcement agencies.

Before conducting the assessment site visit, the crime analysis subject expert reviews background information provided by the site on the department's current crime analysis capabilities, practices, and products. During the on-site visit, the subject expert assesses a site's crime analysis capabilities through examining the site's crime mapping and analysis software, records management systems (RMS), geographic information systems (GIS), and other related technologies and capabilities. The subject expert also interviews local personnel, attends weekly shooting review, CompStat, accountability, or violence reduction strategy meetings, and sees how the site uses crime analysis technologies through tours and observations. The subject expert writes a crime analysis assessment report for the site, which identifies analytical gaps and needs. The report also provides recommendations to advance the site's analysis-driven justice initiatives and to identify future TTA opportunities.

As of August 2018, nine of the 19 PSP sites had completed the crime analysis assessment: Birmingham, Alabama; Camden, New Jersey; Compton, California; Jackson, Mississippi; Little Rock, Arkansas; Nashville, Tennessee; New Orleans, Louisiana; Oakland/Richmond, California; and West Memphis, Arkansas. The other 10 sites either chose not to undergo the assessment or will participate at a later date.

The analysis in this report identifies common themes, technical gaps, and recommendations found across completed crime analysis assessment reports across all PSP sites. Our analysis of the common themes involved coding the recommendations to pre-determined categories that aligned with PSP core outputs. We present our findings in both quantitative and qualitative formats. The following

sections review our analytical methods and subsequent findings in detail. This report intends to provide PSP stakeholders with an understanding of the types of recommendations made to PSP sites through crime analysis assessments, common gaps in crime analysis capabilities and practices among PSP sites, and areas for potential program-wide TTA to strengthen PSP site crime analysis capacity.

PSP presents a summary of these findings and recommendations in the PSP Crime Analysis Assessment Summary one-pager. Some common findings and recommendations include:

- Agency leadership needs to have a clear understanding of what crime analyst can provide and have a clear use of the analytical products.
- Focus crime analysis on approaches that examine people, places, patterns, and problems. Consider expanding the work on specific problems—people, locations, and calls—that are using a lot of resources.
- Law enforcement analysts often lack formal, modern training in the field. Provide additional training to analyst to ensure that capabilities are standardized across analysts and that all crime analysis staff are aware of latest best practices, such as those involved in strategic, place-based, and offender-based analysis.
- Collaborate with other local agencies to ensure that GIS practices are well resourced, understood, and supported across the law enforcement analysis infrastructure.

FINDINGS

Using the nine crime analysis assessment reports, the PSP evaluation team coded 325 references to the 10 theme categories and the 67 themes within those categories (see Appendix B). The most common themes across the nine reports were in the categories of Data and Analysis, Personnel, and Interagency Partnerships, and the PSP evaluation team coded 170, 65, and 34 references to these categories, respectively. The next most common themes were in the category of Technology, and the PSP evaluation team coded 31 references in eight reports. Themes in the categories Community Stakeholders, Crime Prevention, and Governance and Policy were the least common, and the PSP evaluation team coded zero references.

Table 1. Most common references at a glance

Theme	Number of References Coded (cumulative)
DATA AND ANALYSIS	170
More Analysis	32
Crime Mapping	26
Processes and Procedures	26
PERSONNEL	65
Cross-unit Collaboration	19
Training Needed	18
Need to Hire and/or Promote	14
Departmental Organization	11
INTERAGENCY PARTNERSHIPS	34
Peer agencies	8
TECHNOLOGY	31
Software and Hardware	12

As shown in Table 1, More Analysis (needed) was the most common individual theme, and the PSP evaluation team coded 32 references in nine reports. Crime Mapping and Processes and Procedures were the second most common individual themes, and the PSP evaluation team coded 26 references each in nine reports. We discuss the most common themes later in this report, where we analyze specific recommendations from subject experts pertaining to each theme.

As shown in Table 2, Geographic Information System (GIS) was the most common topical word/phrase found in the reports.

Table 2. Most common selected words at a glance

Word	Number of occurrences
Geographic Information System (GIS)	113

As shown in Table 3, which documents the intersection of coding between two theme categories, the PSP evaluation team coded many of the references to two or more themes or theme categories. The intersection of Data and Analysis and Personnel was the most frequent, with 29 references, and the intersection of Data and Analysis and Technology was the second most frequent, with 18 references. This stands to reason: many recommendations pertaining to crime analysis also involve personnel or technology due to the importance of robust staffing and analytical tools in performing crime analysis. This report will further explore these topics in the following sections, which discuss common themes and recommendations across crime analysis assessment reports.

Table 3. Intersection of themes among all reports

	Community stakeholders	Crime prevention	Data and analysis	Funding	Governance and policy	Interagency partnerships	Investigations	Personnel	Planning	Technology
Community stakeholders	0	0	0	0	0	0	0	0	0	
Crime prevention		0	0	0	0	0	0	0	0	
Data and analysis			3	0	7	1	29	1	18	
Funding				0	0	0	1	0	2	
Governance and policy					0	0	0	0	0	
Interagency partnerships						0	1	0	0	
Investigations							0	0	0	
Personnel								0	7	
Planning									1	
Technology										

MANY RECOMMENDATIONS PERTAINING TO CRIME ANALYSIS ALSO INVOLVE PERSONNEL OR TECHNOLOGY DUE TO THE IMPORTANCE OF ROBUST STAFFING AND ANALYTICAL TOOLS IN PERFORMING CRIME ANALYSIS

TYPES/USES OF ANALYSIS

Across all nine completed crime analysis assessment reports, More Analysis, Crime Mapping, and Processes and Procedures were the most commonly coded references, with 32, 26, and 26 references, respectively. The subject experts frequently suggested different types of analysis for crime analysts to conduct in order to assist officers in targeting and reducing violent crime. They also recommended new approaches to using crime analysis and crime data, including refocusing CompStat and intelligence-driven policing efforts. The following are excerpts from subject experts' recommendations pertaining to use and types of crime analysis. They identify common themes, gaps, and best practices across sites.

BIRMINGHAM ASSESSMENT REPORT: Purchase link analysis software licenses for anyone performing analysis of criminal organizations. Free or low-cost link analysis software is available (e.g., Gephi, RF Flow), although IBM's Analyst Notebook is the industry standard… Expand the scope and content of the "shooting meeting."... *The "shooting meeting" could easily expand to encompass violent crimes as a whole, with a focus on the "4 Ps" as discussed in the crime analysis workshop: repeat and active offenders, hot spots, short-term patterns, and long-term problems, incorporating GIS maps and other analytical products as the analysts receive better equipment and training* … Implement regular threshold analysis. This technique uses automated systems to help flag police beats experiencing sudden spikes in activity. It is a way to quickly suppress emerging patterns and could provide some "quick wins" to the analytical and operational divisions.

NEW ORLEANS ASSESSMENT REPORT: Concurrent with the new analysts, the agency needs a comprehensive set of policies and processes for making use of crime analysis information. Crime analysis works best when it is accompanied by policing models—including hot spot policing, focused deterrence, pattern intervention, and problem-oriented policing—that make regular and targeted use of what crime analysts produce. Like many agencies, the New Orleans Police Department's to proactive policing is somewhat ad-hoc, dependent on officer initiative and available time, and not particularly structured or targeted. *The NOPD should use the opportunity afforded by a rededication to crime analysis to re-dedicate itself to specific proactive models…To this end, during the workshop we focused on the "4p"—people, places, patterns, and problems—meta-model of analysis and operations, stressing the need to focus on all four areas for maximum reductions.* However, getting started in even one of the four areas would bring benefits to the NOPD.

ADDITIONAL ASSESSMENT RECOMMENDATIONS: The following are additional recommendations provided to PSP sites related to types and uses of analysis:

Provide a variety of products to assist with both tactical and problem analysis. Use maps, spreadsheets, and charts to analyze crime patterns and trends but also expand the work on specific problems—people, locations and calls—that are using a lot of resources. Do not restrict yourself to using the output from CrimeView if other tools (such as ArcGIS or Excel)

can provide more or better analysis and output. Consider looking at calls for service by type of call and focusing on the frequent types as well as frequent locations. Also consider developing a bulletin of frequent offenders as well as using Social Network Analysis tools. Crime Analysis can assist with problem solving efforts by helping identify problems, analyzing, researching responses and assessing the strategies.

Arrange for additional ArcGIS training in cartography and hot spot analysis as well as make comprehensive ArcGIS training from basic to advance available for all analysts depending on their current ArcGIS skill levels.

Currently, comparisons are being made only to the previous year, which is somewhat worthless statistically. Comparisons of current time periods should be made against an average of the same month/day range for the past 5–7 years. This tells you how you're doing against what is "expected" or "normal" rather

SUBJECT EXPERTS REPEATEDLY RECOMMENDED THAT ANALYSTS FOCUS ON AN APPROACH USING THE "4 PS"—PEOPLE, PLACES, PATTERNS, AND PROBLEMS— AND SUGGEST SPECIFIC ANALYTICAL TOOLS TO USE IN SUPPORTING CRIME ANALYSIS IN DEPARTMENTS

than just a single previous year…The ***focus of CompStat should be on the ways that crimes group rather than on individual cases. I realize that sometimes discussing a single major case is important, but I don't feel that the presentation nor the discussion focused enough on patterns, hot spots, chronic problems, or repeat offenders—the "4P model"*** … During the Major Crimes CompStat pre-meeting, [one captain] did ask, after a review of cases, "are any of the incidents related"? The answer seemed to be based on the judgment of the individual detectives, however, without analytical input. That question, in my opinion, should lead the discussion and should involve a heavy analytical contribution. This will perhaps be possible with the new analyst split by Major Crimes and Special Investigations.

Across crime analysis assessment reports, the subject experts identified the need for departments to expand their current use of crime analysis in order to respond to and prevent incidences of violent crime. The subject experts repeatedly recommended that analysts focus on an approach using the "4 Ps"—people, places, patterns, and problems—and suggested specific analytical tools to use in supporting crime analysis in departments. Officers and police leaders benefit from the availability of accurate, timely analysis to identify and target crime patterns. The subject experts' assessments identified the fact that PSP agencies cannot reap these benefits without expanding current analysis, informing strategies with crime data, and remaining accountable to ongoing crime issues and trends.

ANALYTICAL PERSONNEL

The PSP evaluation team identified issues and recommendations related to the category Personnel across crime analysis assessment reports. They found 18 references to Training Needed in nine assessments, 14 references to Need to Hire and/or Promote in nine assessments, and 11 references

to Departmental Organization in eight assessments. The subject experts commonly cited the need to have trained, dedicated analysts who can perform in-depth and responsive analysis based on departmental needs. They recommended prioritization of training and analysis software and building relationships between department units and analysts. The following are excerpts from subject experts' recommendations pertaining to crime analysis personnel. They identify common themes, gaps, and best practices across sites.

BIRMINGHAM ASSESSMENT REPORT: *Reorganize the existing crime analyst and Intelligence Unit into a combined Crime and Intelligence Analysis Unit, with the currently separate crime analyst brought into the same structure and chain of command with the existing intelligence analysts.* Literature and best practice have repeatedly shown that there is little benefit to keeping these functions separated at a municipal level, especially since all analysts are basing their work on the same dataset, and keeping the functions separated entails a significant duplication of effort in reviewing reports, managing data, and calculating statistics.

COMPTON ASSESSMENT REPORT: *Analysts should establish and maintain rapport by attending patrol line-ups and investigative meetings, going on ride-alongs and informal interaction on a regular (1-2x per month or as needed) basis. In this regard, they can listen to deputy needs, share information and successes, and take advantage of the deputies that are already crime analysis-knowledgeable to be "champions"*… Delineate primary duties between analysts. There are several ways (with advantages and disadvantages to all) that the 2 analysts can split up their duties. One way shown to be effective in a city of Compton's size is to have 1 analyst primarily supporting Patrol and 1 for Investigations (and both helping each other out and sharing information). In this regard, the analysts can get to know the deputies working in the area, the issues of highest concern and the most effective products.

NEW ORLEANS ASSESSMENT REPORT: The agency needs to prioritize minimum standards of training for everyone assigned to an analytical role. *Mr. Horwitz [NOPD Director of Analytics], the new analysts, and the district officers performing analysis tasks should attend training on tactical, strategic, and intelligence analysis methods in particular*—or have such training brought to the NOPD. There is little awareness among NOPD personnel of global practices and standards associated with crime analysis.

ADDITIONAL ASSESSMENT RECOMMENDATIONS: The following are additional recommendations provided to PSP sites related to analytical personnel:

[The department] should consider evaluating current records management personnel against entry level crime analyst knowledge, skills, and abilities to determine if there are existing personnel qualified to work in the Crime Analysis Unit.

Assign detective as law enforcement analyst…*Develop understanding of analytical roles and responsibilities…Identify and/or attend initial training for law enforcement analyst*…Identify and/or attend training for executive staff on crime analysis and developing police responses to crime.

In general, the analysts lack formal, modern training in the field. I don't think any of them need a "fundamentals" class, *but I do recommend that the district analysts take an IACA "Tactical Crime Analysis" class the next time one is offered that meets their availability and budget (http://iaca.net/training.asp).* This class focuses in particular in pattern identification and analysis.

Supplement crime analysis with volunteers and interns. Interns and volunteers can be an excellent source of inexpensive/free assistance. [The department] has used interns in the department previously, but not for crime analysis. [The department] could look to nearby colleges and universities in criminal justice, urban planning, and/or geography programs for creating a structured intern program.

Market crime analysis to all department personnel, including Patrol, Detectives, Specialized Units, and Command staff…. Analysts should establish and maintain rapport by attending line-ups and investigative meetings, going on ride-alongs and informal interaction on a regular (1-2x per month or as needed) basis. In this regard, Analysts can listen to officer needs, share information and successes, and take advantage of the officers that are already crime analysis-knowledgeable to be "champions" for crime analysis. Officers should also spend time with Crime Analysis working on a problem or project and learning about the various data, products and services that can be provided.

The subject experts identified a need for PSP sites to better inform members of their department regarding the crime analysis capabilities internally available. This includes building relationships between analysts and officers, and ensuring that officers can access and use crime analysis findings. The subject experts point out a need to share crime analysis and crime reduction strategies across the department, with 19 references to Cross-unit Collaboration in seven assessment reports. Additionally, the subject experts identified a need for department analysts to have additional training to ensure that capabilities are standardized across analysts and that all crime analysis staff are aware of latest best practices, such as those involved in strategic and offender-based analysis. Building the relationships and enhancing the capabilities of all personnel will allow PSP sites to conduct crime analysis that is comprehensive, modern, and directly actionable by the department.

BUILDING THE RELATIONSHIPS AND ENHANCING THE CAPABILITIES OF ALL PERSONNEL WILL ALLOW PSP SITES TO CONDUCT CRIME ANALYSIS THAT IS COMPREHENSIVE, MODERN, AND DIRECTLY ACTIONABLE BY THE DEPARTMENT.

GEOGRAPHIC INFORMATION SYSTEMS

GIS (geographic information system) software was the most commonly referenced specific crime analysis tool, appearing 113 times in six assessment reports. According to the subject experts, PSP sites need to better utilize existing GIS software and personnel, as well as explore the addition of GIS resources. The subject experts also recommended that sites invest in GIS-related training for crime analysts. GIS training and modernization of current tools and procedures were common recommendations across the crime analysis assessment reports. The following are excerpts from subject experts' recommendations pertaining to GIS. They identify common themes, gaps, and best practices across sites.

BIRMINGHAM ASSESSMENT REPORT: *Work with the city's GIS department to obtain GIS licenses for each of the analysts. Ensure that the requisition is not blocked by the budget or technology divisions*....Using PSP or other resources, contract with IACA for a tactical crime analysis course for the region as soon as possible and a crime mapping course as soon as the analysts have GIS systems.

COMPTON ASSESSMENT REPORT: *Analysts should be trained on analysis-related data, tools, techniques, and applied crime theory concepts. These tools include but are not limited to: GIS, MS Access and Excel, SNA, and telephone toll analysis. County GIS may be able to provide guidance and possible training on GIS-related tools and techniques.* Outside training should be encouraged and supported with the appropriate budget allocated. This training should include topic-specific (i.e. analyzing violent crime), conferences, publication purchases, and hands-on. In addition, on-the-job and continuous "stay-up-to-date" training is extremely important.

ADDITIONAL ASSESSMENT RECOMMENDATIONS: The following are additional recommendations provided to PSP sites related to geographic information systems::

[The department] should consider offering crime analysis training to city GIS personnel to enhance their support of spatial analysis for routine crime evaluation meetings and other mapping requests.

Provide consistent and regular training for crime analysts and CAP Officers (assuming the CAP Officer position continues). *Analysts and CAP Officers should be trained on analysis-related data, tools, and techniques. Civilian crime analysts should be trained on problem solving and applied crime theory concepts. [City] GIS can provide guidance and possible training on GIS-related tools and techniques.* Outside training should be encouraged and supported with the appropriate budget allocated. This training should include topic-specific, conferences, publication purchases, and hands-on. In addition, on-the-job and continuous "stay-up-to-date" training is extremely important.

Hire a full-time GIS professional to work inside the analysis unit under the supervision of the Director to focus on GIS technical support and development of GIS data resources as well as training of staff analysts....Completely reorganize the existing GIS data structure being used by the

analysis team and develop procedures for updating this data on a regular basis. This would include converting existing files from the older ESRI shapefile format into the new ESRI geodatabase format. A complete description of the GIS data is needed as well as metadata on each dataset and a plan for constant updating of this information...Acquire additional GIS data and criminal justice information that is useful to the analysis team from local, state, and Federal sources.

Analysts should be trained on analysis-related data, tools, techniques, and applied crime theory concepts. Some GIS concepts specifically requested were geocoding, adding layers, digitizing and creating fishnets. City GIS can provide guidance and possible training on GIS-related tools and techniques. Outside training should be encouraged and supported with the appropriate budget allocated. This training should include topic-specific, conferences, publication purchases, and hands-on. In addition, on the-job and continuous "stay-up-to-date" training is extremely important.

The subject experts' recommendations about GIS were similar to a combination of their recommendations about types and uses of crime analysis and analytical personnel. Across crime analysis assessment reports, the subject experts discussed the importance of retaining trained, dedicated GIS personnel. In three assessment reports, the subject experts encouraged outside training for GIS personnel, particularly from the International Association of Crime Analysts (IACA) and the Center for Problem-Oriented Policing (POP Center). Outside training is particularly important for crime analysis personnel, as it enables them to remain aware of analytical approaches in other departments and best practices in the field. The subject experts also recommended collaborating with other local agencies to ensure that GIS practices are well resourced, understood, and supported across the PSP site's analysis infrastructure.

CONCLUSION

The PSP evaluation team conducted an analysis of all available crime analysis assessments as of August 2018. This analysis uncovered the three most prevalent themes across all crime analysis assessment reports. First, subject experts frequently identified the need for crime analysis to include new analytical techniques and intelligence-driven policing strategies. Second, subject experts identified the need to increase investment in crime analysis personnel, including hiring, training, and relationship building within the department. Third, subject experts specifically noted the need to increase GIS-related analysis through outside training and collaboration.

These findings will better inform the execution of crime analysis assessments, the provision of TTA to PSP sites, and the work of the Crime Analysis Community of Practice. With these findings, the PSP TTA providers can proactively develop resources to help PSP sites implement new types of analysis and invest in agency crime analysis personnel and specified software. These findings will also inform the work of the Crime Analysis Community of Practice within PSP by providing new areas for exploration in resource development, training, and community of practice meetings. This community of practice will bring together crime analysis personnel from PSP sites to network and engage in peer learning through periodic workshops, conferences, and training opportunities. The findings in this report suggest potential topics for training and workshops, as well as facilitated discussions on common challenges in PSP sites. These findings also identify potential priorities for program-wide PSP strategy development moving forward.

APPENDIX A: APPROACH AND METHODOLOGY

The PSP evaluation team initially reviewed PSP technology and crime analysis assessment reports to identify common themes, such as "Records Management," "Data Sharing," and "Peer Agencies" (see Appendix A for a full list with definitions). We also included themes that did not occur in the assessment reports but that, through our background knowledge of PSP processes and TTA, we deemed relevant to PSP. This process resulted in 67 individual themes that we felt most accurately and comprehensively correspond to assessment recommendations. We then organized these themes into 10 categories:

COMMUNITY STAKEHOLDERS   **CRIME PREVENTION**   **DATA AND ANALYSIS**   **FUNDING**   **GOVERNANCE AND POLICY**

INTERAGENCY PARTNERSHIP   **INVESTIGATIONS**   **PERSONNEL**   **PLANNING**   **TECHNOLOGY**

The PSP evaluation team used the qualitative analysis software NVivo to code the recommendations from the crime analysis assessment reports against the 77 themes (including both the individual themes and overarching theme categories) at the sentence level or higher, and we coded recommendations to multiple themes when appropriate. The PSP evaluation team uses the same themes for each topical assessment type; therefore, they did not use all the themes in this crime analysis assessment analysis.

Figure 1. Recommendation coding process

01	02	03	04
Review of PSP assesment reports	**Identification of themes**	**Organization of themes into 10 categories**	**Coding/assignment of each recommendation to theme(s)**

Each appearance of a coded sentence or group of sentences in the crime analysis assessment reports created a "reference," and we identified the most common of the 77 themes—i.e., those that had the greatest number of references. The PSP evaluation team also conducted a query for the most common words of three or more letters (such as "training") across all assessment reports in order to identify common discussions of specific technologies or violent crime reduction approaches. The PSP evaluation team identified the most common words by the number of times they occurred across the assessment reports of the same type.

Theme	Definition	Example sentence coded
Community stakeholders	Interacting with community members and groups	None
New partnerships	Creating partnerships which did not previously exist with community members or organizations	None
Outreach	Engaging with the community to share information and promote relationships	None
Procedural justice	Maintaining internal and external procedural justice	None
Strengthen partnerships	Improving and strengthening relationships between the police agency and their community	None
Trust	Increasing citizen and community trust in the police agency	None
Crime prevention	Proactively reducing the incidence of crimes	None
Drug crime prevention	Proactively reducing the incidence of crimes related to drugs and the drug market	None
Gang crime prevention	Proactively reducing the incidence of gang-related crimes	None
Gun violence prevention	Proactively reducing the incidence of gun-related crimes	None
Treatment and social services	Working with local social service providers to deliver assistance to community members	None
Youth	Working to address youth-related community issues	None
Data and analysis	Collecting and using metrics and information	Outside training should be encouraged and supported with the appropriate budget allocated. This training should include topic-specific (i.e. analyzing violent crime), conferences, publication purchases, and hands-on. In addition, on-the-job and continuous "stay-up-to-date" training is extremely important. An excellent resource for a variety of training options (from publications to webinars on in-person) is the IACA (www.iaca.net). Another free and excellent crime analysis resource is through the POP Center, via http://www.popcenter.org/learning/60steps/ and other relevant guidebooks.
CompStat	Recommendations related to the CompStat process and/or data and accountability	CompStat does not have to be all about the Part 1 crimes. I realize that [the city] has a higher than average occurrence of Part 1 crimes and is eager to bring those down, but sometimes there are easy solutions to developing patterns or hot spots of (for instance) vandalism and fraud, as well non-crime calls for service like noise and suspicious activity. I recommend that the crime analysis unit develop a threshold-based process for identifying spikes in all types of activity and bringing up such issues at CompStat meetings.
Crime mapping	Documenting and analyzing the geographical representation of crimes	Using PSP or other resources, contract with IACA for a tactical crime analysis course for the region as soon as possible and a crime mapping course as soon as the analysts have GIS systems.

APPENDIX B: THEME DEFINITIONS

Theme	Definition	Example sentence coded
Data dissemination	Methods to ensure data is sent to or consistently available to officers or agency partners	Produce a list of crime analysis data and products. A list of accessible data and examples of crime analysis-related products should be developed and distributed. This list might include data name and fields (such as crime incidents and all the related information or parolees and that information, etc.). This list, with examples of common products and capabilities of Crime Analysis should be distributed (via email and/or the intranet) so all personnel can be aware of what is available.
Data sharing	Agreements or methods to view or transfer data between organizations	Acquire additional GIS data and criminal justice information that is useful to the analysis team from local, state, and Federal sources.
Interoperability	The ability to access data between organizations or pieces of equipment	Include the Crime Analysis Unit's input when making information technology purchases/implementations. The Crime Analysis Unit should be given input with respect to purchasing and implementing a new CAD/RMS, query/database tools, and any "system" that may collect useful data. Any systems that include data that may be used for analysis or evaluation need to have the ability to export the data in a usable format (not just printing PDFs or standardized reports). This data can then be imported into ArcGIS, Access, Excel, and other analytic tools.
More analysis	The addition of specific forms of analysis to existing practices	Implement regular threshold analysis. This technique uses automated systems to help flag police beats experiencing sudden spikes in activity. It is a way to quickly suppress emerging patterns and could provide some "quick wins" to the analytical and operational divisions. It could also add some value to the daily "Chief's Letter," which is otherwise just a summary of notable incidents. Further information and samples can be provided on request.
New metrics	Additional information or data to collect which is not currently being collected or documented	Currently, comparisons are being made only to the previous year, which is somewhat worthless statistically. Comparisons of current time periods should be made against an average of the same month/day range for the past 5–7 years. This tells you how you're doing against what is "expected" or "normal" rather than just a single previous year.
Offender-based strategy	Analysis strategies which focus on the individual or individuals committing a disproportionate number of offenses	To this end, during the workshop we focused on the "4p"—people, places, patterns, and problems—meta model of analysis and operations, stressing the need to focus on all four areas for maximum reductions. However, getting started in even one of the four areas would bring benefits to the NOPD.
Processes and procedures	Analysis practices in a department	Using PSP, BJA NTTAC, or other resources, commission a week of direct technical assistance from an experienced crime analyst to help the unit develop a comprehensive data management structure, integrate GIS, and implement processes for activities like regular hot spot analysis and threshold analysis.
Program evaluation and research	Assessing a departmental program	Utilize Crime Analysis for assessments of crime reduction efforts. Crime Analysis should assist with creation and evaluation of [the department's] crime reduction strategies. Learning what works and analyzing the local circumstances in [the city] before spending limited resources on programs and strategies is very important. The evaluation could be as simple as pre- and post-statistics or more complex methods such as displacement and diffusion of benefits. For large-scale projects, Crime Analysis may want to discuss options with a research partner.
Report automation	Creating reports automatically using software rather than analytical personnel	Automate through effective scripting much of the weekly comp stat analysis process. By automating this process it will free up significant analyst resources to permit them to focus on analysis versus data processing.
Social network analysis	Analysis strategies which map or explore connections between offenders	Provide a variety of products to assist with both tactical and problem analysis. Use maps, spreadsheets, and charts to analyze crime patterns and trends but also expand the work on specific problems – people, locations and calls – that are using a lot of resources. For instance, instead of solely doing Parolee maps by count, consider putting Parolees and Probationers overlaying crime. Consider looking at calls for service by type of call and focusing on the frequent types as well as frequent locations. Also consider developing a bulletin of frequent offenders as well as using Social Network Analysis tools. Doing thorough analysis often includes collecting additional data beyond the traditional sources.

APPENDIX B: THEME DEFINITIONS

Theme	Definition	Example sentence coded
Funding	Gathering and using financial resources	Identify and utilize grants and other funding resources for Crime Analysis. There are a wide variety of local, state and federal grants that may be available to supplement Crime Analysis. Review grant opportunities on a continual basis that may offer crime analysis overtime, temporary personnel, tools and/or research partner assistance.
Cost benefit analysis	Measuring the costs and benefits of a proposed technology to an agency	Evaluate the use of current and future analysis tools and products. Currently, LASD Compton has two different (and similar) crime mapping GUIs. These should be re-evaluated for their current use as well as future utility. If the deputies are not using them and the Analysts do not need them, that expense can be saved. Consider other available technology/tools, especially those that are free or reasonably priced, that could be implemented.
Diverse funding sources	Soliciting funding from a variety of sources	Identify and utilize grants and other funding resources for crime analysis. There are a wide variety of local, state, and federal grants that may be available to supplement crime analysis. Currently, [the department] participates in PSP and has received some training opportunities. Consider using PSP to receive additional technical assistance relevant to analytic support. Review grant opportunities on a continual basis that may offer crime analysis overtime, temporary personnel, tools, and/or research partner assistance.
Federal funding and grants	Seeking funding and grants from federal organizations	Identify and utilize grants and other funding resources for Crime Analysis. There are a wide variety of local, state and federal grants that may be available to supplement Crime Analysis. Review grant opportunities on a continual basis that may offer crime analysis overtime, temporary personnel, tools and/or research partner assistance.
Grant writing process and staff	An agency's grant writing procedures and the staff involved in writing and managing grants	Someone from the executive level, ideally the chief or deputy chief, should conduct an evaluation of the budgeting and technology acquisition processes of the agency and deal with individual unit concerns that their procurements are being unfairly blocked by inexplicable, behind-the scenes processes. This issue is much bigger than crime analysis specifically.
Local funding	Soliciting funding from local sources	Identify and utilize grants and other funding resources for Crime Analysis. There are a wide variety of local, state and federal grants that may be available to supplement Crime Analysis. Review grant opportunities on a continual basis that may offer crime analysis overtime, temporary personnel, tools and/or research partner assistance.
More funding	Pursuing and using additional funding beyond an agency's current level	Outside training should be encouraged and supported with the appropriate budget allocated. This training should include topic-specific (i.e. analyzing violent crime), conferences, publication purchases, and hands-on. In addition, on-the-job and continuous "stay-up-to-date" training is extremely important. An excellent resource for a variety of training options (from publications to webinars on in-person) is the IACA (www.iaca.net). Another free and excellent crime analysis resource is through the POP Center, via http://www.popcenter.org/learning/60steps/ and other relevant guidebooks.
Private and foundation funding	Soliciting funding from private sources, including foundations	[The department] should evaluate available private and public funding streams (e.g., grants, police foundation) to support long-term technology budgets.
State funding	Soliciting funding from state sources	Identify and utilize grants and other funding resources for Crime Analysis. There are a wide variety of local, state and federal grants that may be available to supplement Crime Analysis. Review grant opportunities on a continual basis that may offer crime analysis overtime, temporary personnel, tools and/or research partner assistance.
Governance and policy	Agency management, standards, and procedures	None
Discipline	Disciplinary actions in the department	None
Leadership	The training, structure, and role of leadership	None
Morale	Officer morale and departmental cohesion	None

APPENDIX B: THEME DEFINITIONS

Theme	Definition	Example sentence coded
SOPs	Standard operating procedures, or established departmental procedures	None
Use of force	Use of force policies, procedures, or practices.	None
Wellness	Officer safety and physical and mental health	None
Interagency partnerships	Creating, strengthening, and sustaining relationships with other agencies	Consider a site visit to agencies of similar size and composition with longer-standing crime analysis functions.
Criminal justice system	Developing partnerships among organizations across the justice system	The [department] should budget for at least two of its analysts to attend either the International Association of Crime Analysts conference or the Tennessee Association of Law Enforcement Analyst conference (the closest full regional conference) each year.
Federal partnerships	Developing or strengthening partnerships with regional federal partners	There was talk about supplementing analytical positions with "loaned" analysts from state and federal agencies like the state police and FBI. In my experience, analysts for such agencies generally lack the knowledge, skills, and background to perform the types of analysis needed by a municipal agency. Though their assistance might help for special purposes (in the intelligence area specifically), I would caution against pinning too many hopes on them for generic crime analysis.
Local partnerships	Developing or strengthening partnerships with local partners	Increase the types of data used regularly and supplement analysis with data beyond the traditional internal ones. Some of the data sets should be used on a regular basis for analysis while additional data should be explored depending on the particular problem or project that is being worked. Review what types of data are available and consider analysis across divisions, such as Code Enforcement with Crime/Calls.... The recommended data sets may or may not already exist in other governmental or private organizations (i.e. city or state licensing) and may or may not be available in a spatial format.
New partnerships	Creating partnerships that did not previously exist	Expand partnerships with academic institutions/researchers. [The department] has partnered on projects previously and is aware that academics/researchers can bring scientific expertise, national experience, and the potential for grants that require research partners. [The department] expressed that previous efforts to work with a local university have not resulted in meaningful results. [The department] should not abandon efforts to work with universities and researchers. [The department] should carefully consider local researchers who will actively partner with crime analysts in meaningful and mutually beneficial ways, rather than just use Nashville data for the researchers' own purposes. [The department] should also keep in mind non-locals who may have expertise in specific problem areas and a proven track record in producing practical research for the direct benefit of the agency.
Peer agencies	Learning from other law enforcement (peer) agencies	Participate in relevant associations and groups. [The] Analysts should consider membership in other relevant associations, listservs and mailings. These might include, but are not limited to: IACA, leanalyst, crimemap, Police Foundation, Center for Evidence Based Crime Policy, JUSTNETNews (NLECTC Law Enforcement & Corrections Technology News Summary), and JUSTINFO (NCJRS Newsletter). Lastly, the Center for Problem Oriented Policing (http://www.popcenter.org/) has a wide variety of resources relating to crime analysis and problem solving.
State partnerships	Developing or strengthening partnerships with state partner organizations	Increase the types of data used regularly and supplement analysis with data beyond the traditional internal ones. Some of the data sets should be used on a regular basis for analysis while additional data should be explored depending on the particular problem or project that is being worked. Review what types of data are available and consider analysis across divisions, such as Code Enforcement with Crime/Calls.... The recommended data sets may or may not already exist in other governmental or private organizations (i.e. city or state licensing) and may or may not be available in a spatial format.
Strengthen partnerships	Further developing existing partnerships	None

Theme	Definition	Example sentence coded
Investigations	Conducting and managing investigations, including crime-specific approaches to investigations	Refine practices and procedures for investigations
Case management	Managing the investigations process and associated materials	Finalize implementation of case management
Cold cases	Old and challenging cases	None
Evidence	Evidence practices in investigations	None
Gangs	Gang-related crimes and activities	None
Homicide	Investigations of homicides	None
Procedures and policies	Investigation practices and standards	Refine practices and procedures for investigations
Social media	Using social media in investigations	None
Witnesses	Managing witnesses in investigations	None
Personnel	Staffing management and officer professional development	If hiring the four analysts is unfeasible or will take a long time, explore ways to provide more services from the central unit to the precincts, perhaps by having analysts rotate through all the precincts one day a week. Patrol, crime prevention, and task force officers are eager for crime analysis to fuel their work.
Cross-unit collaboration	Collaboration among groups in a department	Work with Command Staff, Patrol, and Investigations to identify products that they would find useful….and create an automated means for them to receive this info. Work with your internal IT and/or County GIS to create these automated processes.
Departmental organization	Department units, hierarchy, and organizational relationships	In my opinion, the crime analysis unit is located too far down the organizational ladder, under a lieutenant in charge of Technology and Equipment and, by most accounts, not particularly versed in crime analysis. I would recommend moving it up at least one notch, to report directly to the Support Division captain, or more ideally two, to report directly to the Executive Bureau assistant chief.
Need to hire and/ or promote	The need to create and fill a specific position or unit	Hire a full-time GIS professional to work inside the analysis unit under the supervision of the Director to focus on GIS technical support and development of GIS data resources as well as training of staff analysts. If the [department] is able to do this then this person can address most of the other recommendations internally without the use of outside consultants.
Schedules and shifts	Departmental scheduling and shift practices	There is no particular reason other than tradition to chain analysts to fixed schedules every day. Allowing flexible schedules would increase the availability of each analyst to different shifts and officers, maximizing interaction, building rapport, and increasing the analyst's own job satisfaction.
Training needed	Training for department personnel	Arrange for additional ArcGIS training in cartography and hot spot analysis as well as make comprehensive ArcGIS training from basic to advance available for all analysts depending on their current ArcGIS skill levels.
Planning	Developing and institutionalizing agency changes	[The department] should consider developing a strategic technology plan that supports life-cycle procurement, maintenance, and licensing for hardware and software to support data-driven policing responses. This includes laptops and Wi-Fi technology in vehicles.
Strategic planning	Creating a plan of direction and action for the department	[The department] should consider developing a strategic technology plan that supports life-cycle procurement, maintenance, and licensing for hardware and software to support data-driven policing responses. This includes laptops and Wi-Fi technology in vehicles.
Sustainability	Institutionalizing technology and procedural changes	None
Technology	Agency use of technology, including new equipment and procedural changes	Acquire additional software licenses of ArcGIS software and the Spatial Analyst Extension and develop a plan to upgrade computer hardware resources as funding becomes available.

APPENDIX B: THEME DEFINITIONS

Theme	Definition	Example sentence coded
Insufficient equipment	The need for additional equipment or replacement or repair of existing equipment	Evaluate the use of current and future analysis tools and products. Currently, LASD Compton has two different (and similar) crime mapping GUIs. These should be re-evaluated for their current use as well as future utility. If the deputies are not using them and the Analysts do not need them, that expense can be saved. Consider other available technology/tools, especially those that are free or reasonably priced, that could be implemented.
Interoperability	The ability to access or use technology systems between organizations or pieces of equipment	Include the Crime Analysis Unit's input when making information technology purchases/implementations. The Crime Analysis Unit should be given input with respect to purchasing and implementing a new CAD/RMS, query/database tools, and any "system" that may collect useful data. Any systems that include data that may be used for analysis or evaluation need to have the ability to export the data in a usable format (not just printing PDFs or standardized reports). This data can then be imported into ArcGIS, Access, Excel, and other analytic tools.
IT support needed	Services or technology changes needed by the agency from the responsible IT organization	In any agency, crime analysts tend to be power users of their computing platforms. It is important for them to have the latest technology available, which includes installing updates as they come out and often installing software made available to the profession through the U.S. government or professional associations. To have to wait for the IT staff to approve and visit to install every update or new piece of software simply slows or halts the dynamic and ever changing work of the analyst. Subject to policies and standards that they agree to, analysts should have privileges to install, update, and remove software on their workstations.
Privacy	Maintaining individual privacy as new technology and systems are introduced	None
Records management	RMS (records management systems) and the agency's ability to collect and store information	The agency switched from a commercial RMS to a home-grown RMS in 2014. While data was theoretically converted from the old system to the new, spot checks of certain crimes revealed missing data from the pre-conversion period. This makes a number of statistical procedures functionally impossible if the analysts cannot trust the completeness of the past data. I recommend a comprehensive review, with the city IT department, of the pre-conversion data, identification of which records were not converted, and any steps necessary to patch the database with the missing data.
Software and hardware	Necessary software or hardware technology needed by the agency	Purchase link analysis software licenses for anyone performing analysis of criminal organizations. Free or low-cost link analysis software is available (e.g., Gephi, RF Flow), although IBM's Analyst Notebook is the industry standard.
Technology suggestion	Specific new technology or technology change recommended to be implemented	[The department crime analyst] mentioned that it would be beneficial if analysts had access to police radios during their workdays so they could be aware of major events as they occurred. I know many analysts who do this, and it does help them respond more rapidly to emerging patterns and to requests related to major events. I strongly recommend it.
Training needed	Technology training needed or recommended	None
User interface	The specific dashboard or form of presentation through which end-users (usually officers) engage with a software	None

APPENDIX C: THEMES CODED BY EVALUATION TEAM

Theme	Number of Assessment Reports Coded In	Number of References Coded
DATA AND ANALYSIS	9	170
More analysis	9	32
Crime mapping	9	26
Processes and procedures	9	26
Data dissemination	7	13
Offender-based strategy	7	13
New metrics	6	12
CompStat	5	10
Data sharing	5	10
Report automation	6	10
Interoperability	3	7
Social network analysis	3	5
Program evaluation and research	4	4
PERSONNEL	9	65
Cross-unit collaboration	7	19
Training needed	9	18
Need to hire and/or promote	9	14
Departmental organization	8	11
Schedules and shifts	2	3
INTERAGENCY PARTNERSHIPS	9	34
Peer agencies	5	8
Criminal justice system	6	7
Local partnerships	4	7
New partnerships	4	6
Federal partnerships	3	3
State partnerships	3	3
Strengthen partnerships	0	0
TECHNOLOGY	8	31
Software and hardware	8	12
Records management	4	6
IT support needed	4	5
Technology suggestion	5	5
Interoperability	2	2
Insufficient equipment	1	1
Privacy	0	0
Training needed	0	0
User interface	0	0
FUNDING	6	22
Diverse funding sources	4	4
Local funding	4	4
More funding	3	4
Federal funding and grants	3	3
State funding	3	3
Cost benefit analysis	2	2
Grant writing process and staff	1	1

Private and foundation funding	1	1
INVESTIGATIONS	1	2
Case management	1	1
Procedures and policies	1	1
Evidence	0	0
Social media	0	0
Witnesses	0	0
Gangs	0	0
Homicide	0	0
Cold cases	0	0
PLANNING	1	1
Strategic planning	1	1
Sustainability	0	0
COMMUNITY STAKEHOLDERS	0	0
New partnerships	0	0
Outreach	0	0
Procedural justice	0	0
Strengthen partnerships	0	0
Trust	0	0
CRIME PREVENTION	0	0
Drug crime prevention	0	0
Gang crime prevention	0	0
Gun violence prevention	0	0
Treatment and social services	0	0
Youth	0	0
GOVERNANCE AND POLICY	0	0
Discipline	0	0
Leadership	0	0
Morale	0	0
SOPs	0	0
Use of force	0	0
Wellness	0	0

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