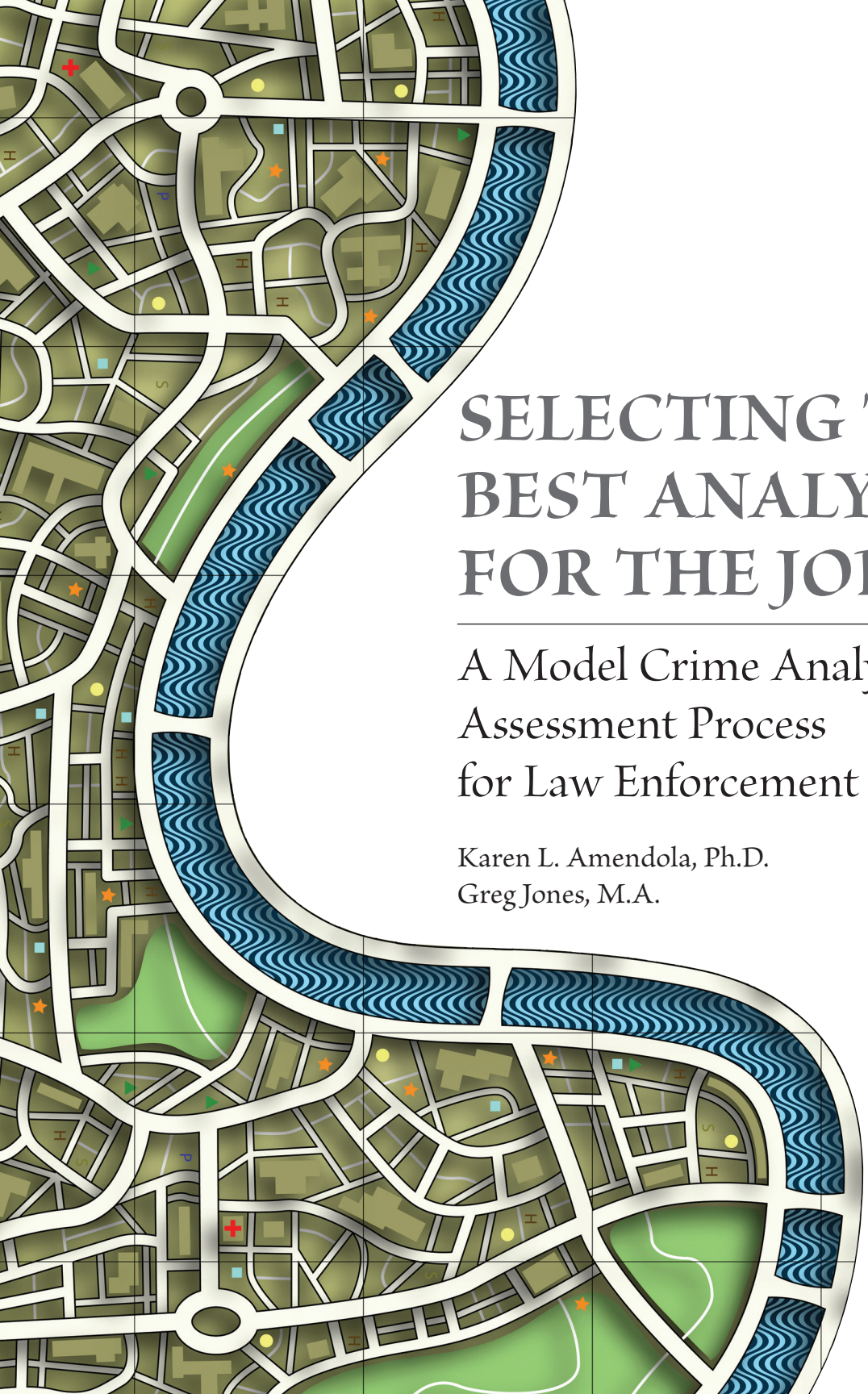

SELECTING THE BEST ANALYST FOR THE JOB

A Model Crime Analyst Assessment Process for Law Enforcement Agencies

Karen L. Amendola, Ph.D.
Greg Jones, M.A.

COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

POLICE FOUNDATION

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The Internet references cited in this publication were valid as of March 2010. Given that URLs and web sites are in constant flux, neither the authors nor the COPS Office can vouch for their current validity.

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A Model Crime Analyst Assessment Process for Law Enforcement Agencies

by
Karen L. Amendola, Ph.D.
and
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Created August 2010
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COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

POLICE
FOUNDATION

The Police Foundation is a national, nonpartisan, nonprofit organization dedicated to supporting innovation and improvement in policing. Established in 1970, the foundation has conducted seminal research in police behavior, policy, and procedure, and works to transfer to local agencies the best information about practices for dealing effectively with a range of important police operational and administrative concerns. Motivating all of the foundation's efforts is the goal of efficient, humane policing that operates within the framework of democratic principles and the highest ideals of the nation.

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The Office of Community Oriented Policing Services (the COPS Office) is the component of the U.S. Department of Justice responsible for advancing the practice of community policing by the nation's state, local, territory, and tribal law enforcement agencies through information and grant resources.

Community policing is a philosophy that promotes organizational strategies which support the systematic use of partnerships and problem-solving techniques, to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime.

Rather than simply responding to crimes once they have been committed, community policing concentrates on preventing crime and eliminating the atmosphere of fear it creates. Earning the trust of the community and making those individuals stakeholders in their own safety enables law enforcement to better understand and address both the needs of the community and the factors that contribute to crime.

The COPS Office awards grants to state, local, territory, and tribal law enforcement agencies to hire and train community policing professionals, acquire and deploy cutting-edge crime-fighting technologies, and develop and test innovative policing strategies. COPS Office funding also provides training and technical assistance to community members and local government leaders and all levels of law enforcement. The COPS Office has produced and compiled a broad range of information resources that can help law enforcement better address specific crime and operational issues, and help community leaders better understand how to work cooperatively with their law enforcement agency to reduce crime.

- Since 1994, the COPS Office has invested more than $12 billion to add community policing officers to the nation's streets, enhance crime fighting technology, support crime prevention initiatives, and provide training and technical assistance to help advance community policing.
- By the end of FY 2008, the COPS Office had funded approximately 117,000 additional officers to more than 13,000 of the nation's 18,000 law enforcement agencies across the country in small and large jurisdictions alike.
- Nearly 500,000 law enforcement personnel, community members, and government leaders have been trained through COPS Office-funded training organizations.
- As of 2009, the COPS Office has distributed more than 2 million topic-specific publications, training curricula, white papers, and resource CDs.

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Letter From the Director of COPS

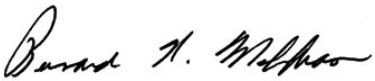
Dear Colleague,

A crucial component of modern policing involves the use of crime mapping and analysis to produce the most effective responses to crime and disorder problems. The rapid growth in computer technology and geographic information systems has made sophisticated crime analysis accessible to more and more law enforcement agencies in recent years; however, technology and software alone does not make for quality analysis. It is also imperative that agencies are able to successfully identify and hire crime analysts who have the knowledge, skills, and abilities necessary to work with the data, interpret the results, and identify problems and solutions. Many times hiring the right person is more difficult than procuring the right software.

Selecting the Best Analyst for the Job: A Model Crime Analyst Assessment Process for Law Enforcement Agencies was developed by the Police Foundation to help agencies with this very struggle—selecting the right person for the job. It is hoped that the discussion in the following pages and sample documents on the CD-ROM will better equip agencies to recruit, identify, and hire the most effective crime analysts.

The only way to develop truly sustainable and effective solutions to crime is by working together and working smarter. I hope that in using this tool, you will learn new ways for your agency to advance toward those goals.

Bernard K. Melekian



Director

Acknowledgments

We thank Dr. Matthew Scheider of the U.S. Department of Justice Office of Community Oriented Policing Services (the COPS Office) for his initiative in promoting this important tool for the law enforcement community. In addition, Deborah Spence, COPS Office grant monitor for this project, was exceptionally helpful in providing input and support to ensure a high-quality product. We also thank the anonymous reviewers whose substantive comments were highly valued and led to revisions that have clarified and strengthened this document.

We are also very appreciative of the editing provided by Mary Malina, communications director for the Police Foundation. We thank Dr. Rachel Boba, former crime mapping director at the Police Foundation, for her early contributions to the Crime Mapping Laboratory and her focus on crime analysis. Finally, we thank Hubert Williams, Police Foundation president, for supporting law enforcement tools that can help police leaders interested in improving their agencies' efficiency and effectiveness.

Foreword

During the last two decades, crime analysis has become an integral part of police operations because it provides assistance to agencies in apprehending offenders, supporting investigations, and disrupting criminal networks. Use of geographic information systems, formal training, and various mapping techniques have enabled crime analysts to synthesize and streamline information into useful products that support many community- and problem-oriented initiatives. It is essential, therefore, that agencies select crime analysts who possess the critical skills and abilities necessary for identifying problems, solutions, and comprehensive strategies to help reduce crime and disorder problems.

Nevertheless, many agencies are still struggling to find a systematic way to identify and evaluate the necessary qualifications of individuals who will excel as modern crime analysts, partly due to the variety of necessary skills and the lack of formalized education for crime analysts. This publication was developed to assist agencies in identifying well-qualified analysts who possess the necessary capabilities to best support the various functions of the crime analysis unit. These functions involve using various crime-reduction and crime-prevention strategies to abate both immediate and chronic crime and disorder problems. As such, while analytical capabilities are essential, a host of other attributes and skills are necessary for addressing those problems.

Many agencies are not using analysts to their fullest capacity because of a lack of knowledge and understanding of how crime analysts' diverse array of skills and abilities can support overall policing operations. This publication provides law enforcement personnel with a complete understanding of the underlying capacities directly associated with the crime analysis profession as it has emerged during the past decade, as well as a better understanding of how to assess these characteristics. We expect that agencies focused on these competencies will support analysts in becoming more efficient at detecting crime patterns and trends. Crime analysts equipped with the right skills will be energized to inform the department and the community about crime problems with timely and current data, effective at developing useful products to enhance police performance, and successful at enhancing the agency's ability to accomplish its goals.

Hubert Williams
President, Police Foundation

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The following Appendixes are available on the CD that accompanies this volume.

A. Agencies and Positions Used in KSAO Analysis
B. Selected Cities Used in KSAO Analysis
C. Resources for Crime Analyst Vacancy Announcements
D. Crime Analyst Assessment Process Components
E. Problem Analysis Exercise Components
F. Training Presentation Scoring Key
G. Structured Panel Interview Components
H. GIS Mapping Exercise Components
I. Overall Candidate Assessment Scoring Key
J. CAAP Mock Testing Schedule

The Need for a Crime Analyst Assessment Process

The rapid growth in applications and usage of crime mapping and analysis have increased job opportunities for new analysts. This has resulted in a lack of agreement about the required qualifications for hiring crime analysts as well as a wide variance in hiring practices. As crime analysis has become an established profession, there is a need for consensus about the specific *knowledge*, *skills*, *abilities*, and *other characteristics (KSAO)* and the extent of formalized training necessary for new analysts. Furthermore, it is important for the field to better define which qualifications and KSAOs are required *before* hiring an analyst and which can be developed *on the job.* This lack of agreement is due in large part to significant variations in the way law enforcement agencies define the role that crime analysts should play. In many cases, individual crime analysts have skills and experience that could be of great benefit to their agency but, because of their limited prescribed roles, agencies fail to capitalize on these strengths by underutilizing these personnel.

The failure to thoroughly define qualifications and KSAOs has likely been complicated by the debate over whether the position of crime analyst is better served by an individual who is a civilian or by one who is a sworn police officer. In a crime analyst survey conducted by the Police Foundation's Crime Mapping and Problem Analysis Laboratory (CMPAL) (Ryan, 2004), 78 percent of total respondents were civilians and just 22 percent were sworn personnel. Many argue that sworn analysts "usually take to the job detailed knowledge of the jurisdiction and its criminals. They understand how the police department works, and they may also have more immediate credibility with the other officers in the agency" (Bruce, 2004, p. 33). Some also believe that officers are more apt to share critical or sensitive information with a sworn analyst who is considered "one of them." Nevertheless, there is an "undisputed trend toward civilianizing crime analysis units…[because many sworn personnel] lacked research skills and the computer skills necessary…. [However] many larger departments today use a combination of civilian and sworn analysts, combining the strengths of both to create the ideal unit" (Osborne and Wernicke, 2003, p. 4). Again, these points emphasize the need for better delineating the necessary and optimal qualifications and background for hiring and promoting crime analysts.

Recent efforts by several organizations have resulted in the development of basic standards for law enforcement analysts to ensure that analysts have the necessary knowledge and skill sets to become successful and advance in the field regardless of status. It is important to note that law enforcement makes a distinction between intelligence analysts and crime analysts; however, a recent publication by the Police Foundation seeks to minimize this distinction for a number of reasons (Ratcliffe, 2007), not the least of which is that integrated analysis creates a more holistic, big-picture view of criminal events, criminal environments, and criminals, as well as provides for a more fluid response to crime. While the International Association of Law Enforcement Intelligence Analysts, Inc. (IALEIA) established analytic standards essential for development of a knowledgeable and well-trained intelligence analyst, including education, training, analytic attributes, and certification (IALEIA, 2004), no such standards exist for crime analysts, nor has a comprehensive hiring process been established.

Nevertheless, some initial work has laid the groundwork for more specific standards. For example, the Crime Mapping and Analysis Program (CMAP) developed a *Crime Analysis Developer Kit* (Bair, personal communications, April 22, 2010) that outlined the major tasks, duties, and responsibilities for Level I and Level II crime analysts. With respect to hiring crime analysts, CMAP has developed a series of interview questions for Level I and Level II interviewees, and written briefly about the importance of recruiting and developing a clear job description. In addition, the International Association of Crime Analysts (IACA) has developed a comprehensive examination based on various skill sets and specific criteria that allow applicants to become Certified Law Enforcement Analysts (see www.iaca.net/Certification.asp). Some skills sets assessed in the exam include spatial analysis, reading comprehension, critical thinking, applied research methods, and knowledge of criminal behavior. While this examination tool is great for certifying incumbent analysts, a standardized method for selecting analysts does not exist, perhaps, in part, because of the lack of consensus on the requisite qualifications and KSAOs.

Through various discussion channels, including in-house forums, focus groups, visits with crime analysis units, and participation at annual crime mapping conferences, the CMPAL has recognized the importance of creating hiring standards and a systematic and comprehensive hiring process for selecting highly capable crime analysts. These issues apply not just to entry-level crime analysts but also to midlevel analysts and crime analysis supervisors. It is their job to maximize the capacity of the crime analysis unit and to ensure that various divisions (e.g., patrol, investigations) or personnel are receiving accurate and useful products and information to assist with investigations and a more comprehensive understanding of crime and disorder problems.

The remainder of this report focuses on the job of a crime analyst and on a model procedure for selecting the best possible crime analyst. More specifically, in this report we will:

1. Emphasize the importance of conducting a thorough job analysis at the local level;
2. Propose a comprehensive set of qualifications and KSAOs derived from the field;
3. Highlight the importance of selecting a highly capable crime analyst;
4. Present a model selection process for evaluating potential candidates based on a modified assessment center process; and
5. Address specific issues surrounding the selection of a crime analyst.

Purpose

This document will provide a model for agencies to utilize in selecting highly capable crime analysts or supervisors that will enhance an agency's ability to identify emerging crime patterns and trends; provide tactical, strategic, operational, or administrative support; and assist with the development of comprehensive crime-reduction and crime-prevention strategies. It will also provide law enforcement agencies with an understanding of the KSAOs that pertain to the position of crime analyst or crime analysis supervisor, and the types of background and training that are most likely to have allowed for the development of these competencies and characteristics.

Background

In 2003, the Police Foundation had to hire a new director of its CMPAL. Because the position supports the crime analysis field and academic community in identifying model programs, tools, and techniques in the field of mapping and analysis, it was important to identify the range of KSAOs necessary for fulfilling this need.

Using assessment center methodology, the Police Foundation attempted to connect requisite KSAOs to the functions and duties of the position of crime mapping and problem analysis director. The Police Foundation's CMPAL was then supported by the Office of Community Oriented Policing Services (the COPS Office) of the U.S. Department of Justice. A representative of the COPS Office, who had extensive knowledge and experience in crime and problem analysis, observed the process as it was being carried out and recommended adapting it for hiring crime analysis personnel. The process, therefore, used for hiring a crime mapping and problem analysis director was modified to support agencies looking to hire crime analysts or crime analyst supervisors.

Assessment Center Methodology

Definition of an Assessment Center

An assessment center is a method for assessing job candidates using several job-specific exercises that tap the most critical KSAOs for a position, and allows multiple evaluators to see the candidate's ability to apply these capacities in a practical manner. The term "center"' does not refer to a specific, centralized location. According to Landy and Conte (2004), an assessment center is "a collection of procedures for evaluation" of individuals performed by multiple assessors. Developed by the Office of Strategic Services for selecting intelligence agents in World War II (OSS Assessment Staff, 1948) and applied in industry at AT&T in 1956 as part of a research study (Bray and Grant, 1966), assessment centers typically were used to assess managerial candidates. There has been a growing trend, however, toward using them for career development, training, and selection of entry-level positions in certain fields (see, e.g., Fitzgerald and Quaintance, 1982).

Uses of Assessment Centers

According to Howard (1997), assessment centers have become increasingly popular across a wide variety of occupations and functions in a wide variety of organizations. As of 1981, 44 percent of 156 federal, state, and local governments used the assessment center (Fitzgerald and Quaintance, 1982), including for public safety and policing. In fact, "The assessment center process is one of the most widely used selection processes. It is particularly important in the public sector" (Lowry, 1997, p. 1). A previous survey by Lowry (1996) found that 62 percent of cities of 50,000 or more population use the process for fire and police (especially for promotional decisions). It is important to note that it may be even more widely used today, given that this survey was conducted almost 15 years ago.

Validity of Assessment Centers

During the past 30 years, evidence has mounted about the validity of assessment centers, and "there is no question that the assessment center has solid criterion-related validity; it works" (Howard, 1997, p. 16). Assessment centers have shown to be strongly correlated with performance and/or ratings of performance. A meta-analysis conducted by Gaugler, Rosenthal, Thornton, and Bentson (1987) revealed a corrected mean validity coefficient of .37. The validity was even higher (r = .53) when predicting performance ratings.

In policing, Lowry (1994) found that using assessment centers along with personnel records effectively predicted the management potential of entry-level police officers. While Pynes and Bernardin (1989) found that cognitive tests were better predictors of police training academy performance than assessment centers, their results show that assessment centers did a better job than cognitive tests in predicting on-the-job performance (r = .20 vs. r = .17, n=275). Most recently, Dayan, Kasten, and Fox (2002) examined the use of a police assessment center as a means for selecting entry-level candidates. In their study, they collected data on 585 participants and found that, for most outcomes, assessment centers "added a unique and substantial validity over and above cognitive ability," thereby supporting the hypothesis that assessment centers are valid for entry-level police selection. Additionally, assessment centers "…are more readily accepted by candidates…than the results of equally valid objective tests" (American Psychological Association, 2004).

Federal Guidelines for Assessment Center Operations

Since 1975, the International Task Force on Assessment Center Guidelines has developed federal guidelines on assessment center operations. The most recent, titled *Guidelines and Ethical Considerations for Assessment Center Operations* (2009) (hereafter referred to as "the Guidelines"), were endorsed by the 34th International Congress on Assessment Center Methods held in Washington, D.C., in 2008. The criteria required for a process to be called an assessment center are quite extensive. According to the Guidelines (2009), nine criteria must be met before a process can be called an assessment center (listed on page 7).

The Guidelines (2009, p. 245) stipulate that, "There is a difference between an assessment center and assessment center methodology. Various features of the assessment center methodology are used in procedures that do not meet all of the guidelines set forth herein…[and such procedures]…should not be represented as assessment centers…or imply that they are assessment centers by using the term 'assessment center' as part of the title." Nevertheless, modified procedures based on assessment center methodology are frequently used, such as work-sample tests in which an organization measures exercise-specific performance without the need to measure dimensions of performance (Lowry, 1997).

The following are the essential elements (abbreviated) for a process to be considered an assessment center as defined by the Guidelines (2009):

1. A job analysis of relevant behaviors must be conducted to determine the dimensions or competencies important to job success. The type and extent of job analysis may vary.
2. Displayed behaviors must be classified into categories such as behavioral dimensions, attributes, characteristics, aptitudes, qualities, skills, abilities, competencies, or knowledge.
3. Assessment techniques must allow evaluation of the dimensions or KSAOs identified in the job analysis and developers should establish a link from behaviors to competencies to assessment techniques, and document those linkages.
4. Multiple assessment techniques must be used (e.g., tests, simulations, interviews, and questionnaires), all of which will be pretested for reliability and objectivity.
5. The process must include a sufficient number of simulations (e.g., group exercises, presentations, fact-finding exercises) to allow for observation of the competencies/dimensions.
6. Multiple assessors (other than a current supervisor) should be used to observe and evaluate candidates.
7. Assessors must receive thorough training that meets additional requirements (also provided in the formal Guidelines) before participating in an assessment center.
8. There must be a systematic way to record behavior (e.g., notes, checklists, or observation scales) at the time of observation.
9. There must be a process of integration of behaviors (e.g., dimensions aggregated across exercises, exercise-specific scores, or across-exercise scores) into an overall assessment rating, which will be based on pooled information from assessors or a statistical integration process.

Crime Analyst Assessment Process Methodology

While based on assessment center methodology, the Crime Analyst Assessment Process (CAAP) that we have outlined here does not constitute an assessment center. Even so, organizations can modify the process so that it incorporates all essential elements in compliance with the Guidelines (2009) or simply use this work-sample process.

The CAAP was derived through a systematic and analytical process focused on the tasks and underlying KSAOs of well-equipped crime analysts, as well as work-related exercises that simulate typical or representative functions of the job. The model assessment process enables designated staff or selection committees to serve as assessors, once trained by a qualified person well-versed in assessment center methodology. In the case of the CMPAL director position, the qualified trainer at the Police Foundation is the first author of this report. She is an industrial/organizational psychologist who specializes in assessment center methodology, had developed and conducted assessment centers for a variety of local and federal public safety agencies, and had developed and conducted training in those processes for assessors.

This report outlines the process of developing the model, and provides an explanation of the selection process for agencies looking to expand their crime analysis capacity.

About the Model Crime Analyst Assessment Process

The CAAP is a specific model developed for law enforcement agencies to identify and select highly qualified crime analysts or crime analyst supervisors. Agencies wishing to use this model are encouraged to consider the unique needs of their organizations and adapt the process and its components accordingly. This process has not been scientifically validated so we highly recommend that agencies using this model, or using the specific exercises and scoring keys, connect their job specifications and KSAOs to the measures used. We also highly recommend that agencies include their personnel or human resources department in developing, validating, and implementing any selection process.

The CAAP is a model and approach for developing an appropriate internal selection process. This report presents a step-by-step description of the process used by the Police Foundation and how it may be implemented. Before implementing the model process, though, it is critical that an agency has an up-to-date job analysis (conducted within the past few years) or conducts a new one.

Conducting the Job Analysis

Most human resource functions and decisions (recruitment, selection, job classification, training, promotional decisions, and compensation) require a thorough understanding of the job in question, most typically derived through a formal job analysis. Job analysis is a systematic approach for defining the essential job tasks and functions, and the requisite KSAOs or dimensions of performance. It has been well-established that job analysis increases the validity of human resource decisions (Wiesner and Cronshaw, 1988). A thorough understanding of the KSAOs required to perform a job is essential to any selection process (Kluender, 1987).

Predominant in the literature, however, is significant debate about whether assessment centers are measuring exercises or dimensions, that is, whether overall performance in assessment centers is based on situationally specific performance or cross-situational performance on dimensions (see, e.g., Meriac, Hoffman, Woehr, and Fleisher, 2008; Bowler and Woehr, 2006; Jackson, Stillman, and Atkins, 2005; Lance, Lambert, Gewin, Lievens, and Conway, 2004; Neidig and Neidig, 1984; and Sackett and Dreher, 1982). Through this debate, many have concluded that a focus on exercises rather than on dimensions is superior, in that it results in greater validity. They argue that there is little consistency between dimensions across various exercises and, in fact, exercise-specific performance is what is actually being measured in assessment centers. Others have suggested that, with better definition and measurement of dimensions, they are at least equally as valid as overall exercise performance.

Two basic approaches are outlined here for conducting job analysis, one focused on the dimension-specific approach, and the other based on task-specific (exercise) performance. According to More (1987), the primary objective of a job analysis is to identify, define, and weight behavioral dimensions that are essential to the successful performance of the job. The KSAOs may include broad knowledge (e.g., knowledge of basic geography), technical skills (e.g., skill in working with geographic information systems), physical and/or cognitive abilities (e.g., ability to stand for long periods, ability to solve problems), and other characteristics (e.g., personality traits, motivation).

Lowry (1997), however, suggests an alternative job analysis method for task-specific assessment centers. He defines task-specific centers as those in which the focus is on performance in work-sample exercises rather than on a demonstration of underlying KSAOs (job dimensions). In the case of a task-specific assessment center, the job analysis does not require the identification of underlying KSAOs. In either case, a job analysis typically results in a job description and may also include a list of performance standards. While it is important to note that according to the Guidelines (2009), Lowry's conception of a task-specific (or work-sample-based) assessment center does not qualify as an assessment center, it appears to represent many adapted procedures used today because of the inability of organizations to comply with the extensive and sometimes costly requirements outlined in the Guidelines (2009).

To develop a broad-based model CAAP, we conducted a job analysis procedure based on the former, more traditional method, although the process we used was modified and abbreviated because there was no one particular crime analyst job being targeted. Agencies, however, should rely on their own recent job analysis and recognize that the job description and associated KSAOs listed herein are likely more broad and comprehensive than their own, given that they were developed using more than 50 agencies' job descriptions.

Several steps were involved in the development of the crime analyst job analysis. First, we identified a small group of subject matter experts who had knowledge of and experience in specific areas, including management and supervision in law enforcement agencies, assessment centers and training, law enforcement, and crime mapping and analysis, to assist in the process and development of the exercises. Next, to create a complete list of job duties, responsibilities, and functions for the position of crime analyst, we researched and reviewed more than 50 crime analyst vacancy announcements available at the time.[1] By using a variety of job postings, we could most broadly and comprehensively define the job and requisite KSAOs, knowing that no one agency would require all of the listed duties, responsibilities, and KSAOs.

[1] We assumed that the jurisdictions had conducted thorough job analyses for these positions, although that may not have been the case because many organizations use materials developed for other agencies, or may draft job descriptions and recruitment ads on an ad hoc basis. Nevertheless, given the large number of vacancy announcements, we felt confident that our list of job tasks, duties, responsibilities, and functions was representative and comprehensive.

Based on these descriptions, along with further discussion and collaboration among the subject matter experts, we identified numerous tasks and responsibilities associated with the position of crime analyst often cited in these job announcements. We grouped similar tasks into major job functions and created final task descriptions. Next, we grouped families of tasks and gave them a label as a functional area or dimension. A basic job description should include functional areas or dimensions appearing most essential to the job of a crime analyst. For this process, we identified the following functional areas:

1. Working with technology;
2. Performing and interpreting analysis;
3. Conducting research;
4. Communicating and writing; and
5. Planning and organizing.

For each category, we identified the primary skills and responsibilities most prevalent throughout the numerous vacancies analyzed. It is important to use an existing job analysis (if current) as the basis for any selection tool you develop or as a guide for modifying this assessment model.

For the five functional areas, we linked the associated tasks and responsibilities that were provided by various agencies in their job vacancy announcements. These areas and the associated tasks are provided below. We recognize that most agencies will not require all of the listed tasks and responsibilities for their crime analysts, and therefore this list should be tailored to each agency. We developed this list from a comprehensive set of tasks described in the job announcements we reviewed.

Functional Area-Associated Tasks

Area 1: Working with technology.

- Create, design, maintain, and secure databases.
- Work with geographic information system (GIS) software tools.
- Generate statistical summary reports on a daily, weekly, monthly, quarterly, and annual basis.
- Produce analytical maps.
- Map data using various software programs (e.g., ArcView, MapInfo, CrimeView).
- Query and manage large databases using tools such as Oracle, MS Access, and/or ATAC.
- Use electronic spreadsheets, desktop publishing, and statistical software (e.g., SAS, SPSS) to manipulate, analyze, and/or present data.
- Perform requested programming using a variety of programming tools (e.g., SQL, Visual Basic, HTML, Avenue, Java).
- Use reporting tools (e.g., Crystal Reports).
- Implement new technology to enhance crime analysis capabilities.
- Enter, update, and retrieve data using departmental computerized databases.
- Maintain crime analysis web page.
- Update geographic files in computer-aided-dispatch (CAD) system.
- Use advanced statistical information and modeling with a variety of police data.

Area 2: Performing and interpreting analysis.

- Conduct statistical and mathematical analysis.
- Collect, synthesize, analyze, and evaluate intelligence and crime data using departmental computerized databases (LAN-based, WAN-based, and mainframe).
- Create analytical programs and tools for managing data.
- Provide tactical/strategic support for criminal cases.
- Rapidly assimilate information.
- Analyze crime reports and statistics to describe existing and evolving crime trends; identify significant crime events, series, and patterns.
- Forecast crime trends.
- Consolidate and integrate statistical information.
- Perform administrative-, strategic-, and tactical-level crime analysis.
- Extract and analyze various crime and intelligence data organized in a logical form to identify offenders and to project crime trends, series, and patterns utilizing manual and automated systems.
- Prepare statistical narrative reports to analyze, forecast, and describe crime trends.
- Review data from various reports and geographically link specific criminal intelligence information relating to association of individuals and establishments by developing charts and graphs.
- Solve technical and administrative problems.

Area 3: Conducting research.

- Write research reports that include detailed methods, conclusions, and recommendations of studies for potential publication in professional journals.
- Conduct studies (e.g., resource allocation) to analyze administrative or operational problems, programs, or policies.
- Determine and design appropriate research methodologies and statistical analysis techniques using relevant data to apply to problems affecting the department.
- Conduct program evaluation.

- Develop and administer survey questionnaires to employees and general public.
- Stay abreast of current research literature and make recommendations for improvement in crime analysis practices.
- Review reports provided by police officers and investigators; code and classify incidents.
- Examine existing laws, codes, statutes, and regulations to determine those most advantageous for enforcing and addressing crime trends and problem areas.
- Assist in writing grant applications and grant activity reports.

Area 4: Communicating and writing.

- Prepare materials and deliver written or oral presentations of current crime trends and patterns for command staff meetings.
- Create crime bulletins and reports (e.g., burglary, robbery, auto theft).
- Disseminate crime information to increase effectiveness of patrol deployment, crime prevention, investigative leads, and apprehension of suspects.
- Prepare and present training to employees and other relevant parties.
- Function in a team environment and interact daily with both internal and external customers.
- Respond to requests for data and analysis from command staff and others.
- Maintain appropriate confidentiality of materials read and produced.
- Maintain frequent contact with employees and other agents.
- Maintain confidential records and files.
- Serve as liaison to outside agencies on behalf of agency.
- Convey detailed information to the media, city council, and city departments.
- Attend patrol briefings and department meetings (e.g., Compstat).
- Participate on assigned committees.
- Market crime analysis/services to department personnel.
- Provide court testimony on agency techniques and methods.

Area 5: Planning and organizing.

- Assist in strategic and technical planning.
- Participate in department planning processes to identify and address law enforcement needs.
- Manage projects, including prioritizing tasks, meeting deadlines, and monitoring performance.
- Maintain quality control of Uniform Crime Reports, National Incident-Based Reporting System, records management system, and/or CAD data.
- File reports with state and federal agencies.

Typically, the foregoing list of functional areas and associated tasks is circulated to job incumbents as part of the job analysis. They are instructed to rate the importance and frequency of each task and to verify that each is indeed reflective of the job. For the purposes of our process, this was not done because the role of a crime analyst may vary within regions or across agency sizes and because of the budgetary constraints of this project.

Establishing Knowledge, Skills, Abilities, and Other Characteristics

Next, subject matter experts, job incumbents, and/or selection committees identify the KSAOs necessary to perform each task. In our process, we generated the following model crime analyst KSAOs that seemed to best link to the functional areas or dimensions as well as the typical job tasks. Nevertheless, each agency should prioritize which KSAOs are most important and those that are desired but not necessary for performing the essential functions of the job locally, based on its own job analysis.

It is again important to note that the KSAOs listed below were derived from a comprehensive list of job duties derived from the 56 job announcements we reviewed and, therefore, consist of many that may or may not be relevant to each agency or job (see Appendixes A and B for more information about the agencies used in the KSAO analysis). For example, where one agency may require knowledge of mapping techniques in advance of starting the job, others may find that this is a knowledge area that can be learned on the job, although it is required for conducting mapping.

Additionally, the lists of tools in the skills section (below) represent the broad array of tools and techniques required by different agencies based on their specific programs and applications.

Knowledge

- Knowledge of relational databases
- Knowledge of various GIS software tools
- Knowledge of criminological theory and practice
- Knowledge of mapping techniques
- Knowledge of technical and scientific writing
- Knowledge of research design and methods
- Knowledge of grant writing
- Knowledge of adult learning and training methods

Skills

- Skill in using various software tools (e.g., MapInfo or ArcView)
- Skill in using MS Access and/or Excel
- Database management skills
- Desktop publishing software skills
- Skills in statistics and modeling software (e.g., SPSS, SAS, or ArcGIS)
- Computer programming skills (e.g., SQL, Visual Basic, HTML, Avenue, Java)
- Skills in using reporting software (e.g., Crystal Reports)
- Basic data-entry skills
- Skill in using network/link analysis software (e.g., i2 Analyst's Notebook)
- Research and presentation skills
- Time management skills

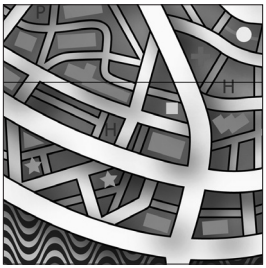
Abilities

- Analytical ability
- Ability to integrate information
- Problem-solving ability
- Ability to write clearly, succinctly, and comprehensively
- Ability to interpret complex information
- Ability to communicate effectively in writing and orally
- Ability to work well with others
- Ability to organize and plan

Other Characteristics

- Discretion and good judgment
- Customer service orientation
- Professionalism
- Conscientiousness
- Interest in law enforcement
- Training and/or experience in crime analysis

The Model Crime Analyst Assessment Process



As previously mentioned, an agency can adapt the CAAP and, if it meets the official guidelines, it can be classified as an assessment center. Because assessment centers and adapted procedures usually consist of several job-relevant scenarios and exercises that mimic real-world job performance, candidates and assessors find them highly germane. Similarly, work-sample tests measure skills under simulated work conditions, which increase their fidelity. The CAAP includes a number of work-sample tests and other exercises (e.g., interview process) in combination, all based on assessment-center methodology.

The overall CAAP consists of preliminary assessment components (résumé and writing sample/analysis product, if used), as well as work-sample components (exercises). Each component described in the CAAP includes an explanation of its purpose as well as a scoring guide to allow agencies to rate each applicant. These components are to serve as exercise-development guides to allow agencies to use or adapt the components most relevant to the analysts' responsibilities in their agencies. Before proceeding with the actual process, we recommend that an agency identify and prioritize the functions and analyses that they expect their analysts to perform. The agency should also create a vision or mission statement for their crime analysis unit. Together, these ideas can help direct the hiring process toward applicants who will be a good fit for the agency and the crime analysis unit. The overall assessment process is delineated below.

Steps in the Assessment Process

1. Posting the vacancy announcement requesting résumé and writing sample/analysis product.[2]
2. Evaluating/scoring preliminary assessment components.
   a. Résumé.
   b. Writing sample and/or analysis product.
   c. Select qualified candidates to advance to work-sample components.
3. Selecting and communicating with finalists.
   a. Send letter with training exercise CD/DVD in preparation for training presentation exercise.
   b. Schedule participants for work-sample exercises.

[2] Agencies should establish guidelines for the type and length of the writing sample or the type of sample analysis product (e.g., tactical map, density map) and required standard map elements.

4. Administering work-sample components (exercises).
   a. Problem analysis.
   b. Training presentation.[3]
   c. Panel interview.
   d. GIS mapping.

[3] The two PowerPoint presentations that constitute the CAAP training presentation come from the Advanced Problem Analysis, Crime Analysis, and Crime Mapping Training Curriculum, and can be found at www.policefoundation.org/trainingslides/. To order the training in its entirety, go to www.policefoundation.org/docs/library.html#pubs.

1. Posting the Job Vacancy Announcement.

After developing the vacancy announcement, an important next step is to identify appropriate sources through which to post it to maximize the applicant pool. One important first step would be to consider obtaining a referral list of potential applicants from both the current and previous crime analysis supervisors who, through professional experience, are likely to know individuals having abilities and skills needed by the police department. If the department is just beginning a crime analysis unit, referrals might be generated by speaking with analysis supervisors at other agencies.

Another source to consider for job posting is a law enforcement electronic mailing list, several of which are analyst-specific. Two well-known mailing lists for information sharing among crime and intelligence analysts, as well as among policing and criminal justice practitioners, are *CrimeMap* (www.ojp.usdoj.gov/nij/maps), supported by the National Institute of Justice, and *Law Enforcement Analyst*[4] (www.leanalyst.info), supported by Intelligence Technologies International.

[4] Currently this mail list is operating through Google Groups. For more information contact the list manager, Sal Perri at sal.perri@sbcglobal.net.

In addition, several associations specific to law enforcement analysts can serve as posting sources (see Table 1). Currently, there are more than 20 crime analysis associations (see Appendix C). The largest is the 1,500-member International Association of Crime Analysts (IACA) whose web site has a link for job openings specifically geared toward crime analysis. It receives approximately 160,000 hits per month and more than 8,700 visits per month.[5] Although regional associations are smaller, disseminating the vacancy announcement to them could expand the candidate pool. Other posting sources include the International Association of Law Enforcement Planners (IALEP), IALEIA, and Law Enforcement Intelligence Unit (see Appendix C for additional information).

[5] A web site hit is defined as any file or image that is requested when an individual clicks on a page within the site. Thus, one individual could account for one hundred hits. A visit count occurs when an individual actually links to a site for a specific purpose. This site visit can then be tracked and counted by an IP address that is unique to each computer.

Table 1. Organizations offering free and fee-based job posting services.

Organization	Web Site	Free/Fee-based
Discover Policing	www.discoverpolicing.org	Free
Police Executive Research Forum	www.policeforum.org	Free
Law Enforcement Jobs	www.lawenforcementjobs.com	Fee-based

Regional Community Policing Institutes (RCPI), originally funded by the COPS Office, have web sites and/or newsletters in which announcements can be posted. Many RCPIs offer a variety of trainings, including counterterrorism, campus crime prevention, ethics and integrity, human trafficking, domestic violence, and problem solving. In addition, some offer crime mapping and crime analysis training, such as the Tri-State RCPI (Cincinnati, Ohio).

Your agency may be familiar with other available law enforcement and criminal justice-related sources; however, the sources discussed here can assist in maximizing the candidate pool for the position of crime analyst or crime analysis supervisor.

2. Evaluating/Scoring Preliminary Assessment Components (see Appendix D).

A. Résumé.

A.1 Evaluation.

As with any application process, a résumé is one of the basic professional documents that should be provided by all candidates who want to be considered for the position. The résumé provides the employer with an overview of the candidate's educational history, applicable professional experience, professional training, memberships, awards, presentations, software knowledge, technical skills, etc. It also provides a list of references (usually at the employer's request) from those who can verify these credentials and provide details about job history, program knowledge, work relations, and work attitudes.

The following are some important points to consider regarding the résumé:

- *Education*. The candidate should possess some type of degree, including a minimum of a bachelor's degree in criminal justice, social sciences, computer sciences, public administration, urban affairs, or related fields (e.g., geographic information systems, geography). In some cases, training and certification in crime analysis or other related fields, along with professional experience, may substitute for a degree.
- *Professional Experience*. In most cases, the candidate's education will substitute for professional experience. Others may have relevant work experience, such as a computer programmer, financial analyst, or a GIS analyst. For agencies looking for more experienced analysts or supervisors, they should consider those applicants with at least 4 to 5 years of experience in the field and a general understanding of the various types of crime analysis, including tactical, strategic, and operational. Also included under this category is *professional membership*. A candidate's affiliation with a professional membership organization indicates that the candidate has a vested interest in the field and is proactive about staying abreast of current issues that affect the profession.
- *Law Enforcement Experience*. The candidate should indicate his or her level or years of experience in law enforcement, if any, and the responsibilities and duties of the position(s) that he or she worked. It is beneficial for candidates to have some exposure to the law enforcement culture and an understanding about police department operations, including chain of command, administrative functions, and briefings.
- *Analyst Experience*. The candidate should indicate his or her years of analyst experience in law enforcement and other fields and the responsibilities associated with each position. It is important to recognize the type of analysis experience the candidate may have (i.e., tactical, administrative, operational, strategic) along with different functions and duties he or she performed in these roles.
- *Research Experience*. The candidate should indicate his or her level or years of research experience in criminal justice and other fields, as well as the type of research in which he or she participated. This type of experience is beneficial to an analyst's ability to analyze crime and disorder issues encountered on the job.

- *Job Commitment*. The candidate's résumé should indicate steady job experience. As with any new hire, you want to be sure that he or she does not bounce from job to job. Rather, the potential new hire should be somebody who will be dependable, responsible, and committed to working for your agency for several years.
- *Problem-Solving Orientation*. This may not be directly reflected on the résumé but it may be inferred to ascertain if the candidate has experience responding to and solving problems in a workplace environment.
- *Résumé Presentation Quality*. This category reflects the organization, clarity, and appropriate components such as: education, work experience, computer skills, professional associations, and presentations.
- *Software/Database Knowledge*. The candidate should have some familiarity with software products and database management programs that are relevant to the crime analyst position. Below is a list of some typical software and database programs, but this list is not exhaustive. The list serves as a guide for agencies to use for evaluating a candidate's résumé.
  - Geographical information system and mapping software (e.g., MapInfo, ArcGIS, CrimeView, CrimeMap)
  - Statistical programs (e.g., SPSS, CrimeStat)
  - Relational database programs (e.g., Excel, Access)
  - MS Word or a similar program for writing technical reports, documents, letters
  - MS PowerPoint
  - Crystal Reports
  - GeoDa
  - Geo-profiling software
  - Link software (e.g., i2 Analyst's Notebook, Crimelink)
  - Data mining software (e.g., IxReveal, CADMine)
  - Tactical data/management software (e.g., ATAC)

- *Other Skills or Experience.* This category includes other skill sets or experience that are not covered in any of the previous categories. Two examples would be technical or programming skills. Technical and programming skills provide analysts with the ability to troubleshoot data issues, create various scripts to synthesize and automate data, enhance analytic products, and improve information-sharing capabilities. The following are a few examples of technical skills:
  - Troubleshooting how an image can be inserted into a document and the difference between various image formats, such as .jpg, .gif, or .bmp.
  - Downloading patches to upgrade your software program/operating system or working with technical support to get a specific feature to work.
  - Manipulating data components in Excel or Access (e.g., separating a date/time field into two fields; joining two data fields).
  - Some examples of common programming skills and languages with which analysts may be familiar:
    - Visual Basic
    - SQL
    - C++
    - Avenue
    - Java
    - HTML
    - Oracle
    - KML
    - XML
    - .NET
- *Management or Supervisory Skills/Experience.* This category applies only to candidates applying for a supervisor position and indicates how many years that the candidate has been in a management role and level of experience.

Most of the examples of software, databases, and programming languages were generated from our review of existing job vacancy announcements (greater than 50). Some of the software programs and technical skills may be more specific in nature and in their overall utility; however, they provide additional insight into the applicant's capabilities.

It is common practice for agencies to receive applicants, especially beginning analysts, who are not familiar with numerous software programs or do not possess the technical skills aforementioned. Most likely, they will have basic computer knowledge and familiarity with Microsoft Office (Excel, Word, Access, and PowerPoint). However, taking into consideration their other assets, the selection

committee can determine if the applicant will be able to adapt and learn other programs that the agency uses. Some agencies (typically larger agencies) use the cross-training approach as a common practice in which analysts trade places with their fellow analysts and become familiar with other programs and/or applications being utilized in the crime analysis unit. For example, an analyst may specialize in burglary and auto thefts while another specializes in sexual assaults. The former probably deals with department of motor vehicles databases, while sexual assaults may involve working with the local records management system database. This type of approach helps improve the overall capacity of the unit and allows analysts to enhance both their analytical and technical capabilities.

A.2 Scoring guidelines for the résumé (see Appendix D.1).

Reviewing and scoring for the résumé evaluation segment of the assessment process focuses on 10 areas:

1. Education
2. Years of professional experience
3. Law enforcement experience
4. Analyst experience
5. Research experience
6. Demonstrated job commitment
7. Problem-solving orientation
8. Résumé presentation quality
9. Software/database skills
10. Other skills or experience

An eleventh category—management and/or supervisory skills/experience—applies only to candidates being selected at the supervisor level and requires an adapted scoring key.

Evaluators may award a candidate from one to five points in each area. Once points are summed, the total is multiplied by three to standardize the score. The maximum score a candidate may attain is 150 points. Evaluators may supplement their point awards with comments, which should be considered when a choice among candidates is deadlocked.

B. Writing Sample and/or Analysis Product.

B.1 Evaluation.

The purpose of the writing sample or analysis product is to obtain a general sense of the applicant's ability to synthesize and convey information or ideas in a clear, logical manner. For the purposes of the CAAP, we use a map as a sample of an analysis product; however, other types of analysis products may be considered.

Each candidate should submit a writing or analysis product sample in advance that will be scored based on four categories: clarity and organization, quality of research or analysis product, presentation style, and overall impression.

Under the first category, clarity and organization, the candidate is evaluated on the organization of ideas and/or research, clarity, and the extent to which the writing is easy to understand. For a mapping (analysis) product, the candidate is evaluated on how clear the map is, how well the information on the map is organized, and how easy it is to understand.

Regarding the second category, quality of research or analysis product, the candidate is judged on the product's professionalism, content, and meaningfulness. For a research product, professionalism refers to compliance with professional standards; the accuracy and strength of the content is the standard by which the content is judged; and the overall meaning or message conveyed represents the level of meaning. For the analysis product, an applicant may provide a current sample map, crime bulletin, or other product that he or she has created on the job. If evaluating such a product, the professionalism score should represent the neatness of the product; for example, would an organization present this to its community? The extent to which the map contains appropriate and accurate content should define the score for content. Finally meaningfulness should be scored according to how easily a reader can interpret the intent; for example, if it is a map of drug calls for service in a particular division, can the reader determine that this is the intent of the map?

In the third category, the candidate is evaluated on presentation style for basic grammar, spelling, and writing quality. For an analysis product, the candidate is evaluated on how well the information on the map and/or data are presented in the layout, legend, title, and other information, as well as on grammar and spelling.

In the fourth category, overall impression, the writing sample is rated from poor to excellent, taking into account all previous categories and other information not captured in the previous rating scales. A poor sample would reflect little or no organization, no clarity, lack of meaning, sparse use of references, inattention to grammar and/or spelling, weak content, and an overall negative impression. An excellent rating would reflect a clear flow of ideas, proper organization of content, meaningfulness, strong content, use of research references (including peer-reviewed journal articles), no spelling and grammatical mistakes, and a very positive impression of the writing sample to the extent that readers felt they learned something new. In a mapping product, a poor sample would reflect poor use of mapping space, incomplete legend or none at all, and numerous incident types that make the map too busy for the reader to understand what the map is trying to show. An excellent rating would reflect all the necessary map elements, including a scale, north arrow, legend, and title; a clean layout and data presentation; and a product that ultimately tells a story to the reader about some particular issue or problem.

B.2 Scoring guidelines for writing sample or analysis product (see Appendix D.2).

The writing or analysis product sample evaluation consists of the following categories: clarity and organization, research/analysis product quality, presentation/writing style, and overall impression.

Each category has a sliding point scale from one to five. Once the final point total is tallied, it is multiplied by five to standardize the score. The writing sample is worth a maximum of 100 points (see Appendix D.2). Additional space is allotted for evaluator comments, which should be considered if there is a deadlock in choosing between two potential candidates.

3. Selecting and Communicating with Finalists.

After suitable candidates are selected and scheduled for assessment, each should be assigned a number. This helps ensure confidentiality for candidates during the assessment process and may reduce bias in scoring exercises, especially for the writing sample and mapping exercise, where the candidate is not present during scoring. An information packet should be prepared for each candidate outlining the assessment process and indicating interview and testing schedule (see Appendixes D.3.a and b).

The four scheduled work-sample components (exercises), designed to last about 3.5 hours, can be administered in the order as seen in Appendix D.3.b, but the sequence may vary according to agency preference. If different candidates are assigned to complete exercises in varying order, it is important to examine the potential for exposure to one exercise that would influence performance on another in advance. If it is believed that no such influences would be significant, randomly ordering schedules is an appropriate approach. Candidates should be allowed brief breaks between each exercise to gather their thoughts and materials before continuing on to the next session. The panel interview should be conducted in closed quarters to provide privacy to the candidate and panel committee. The crime mapping exercise needs to be completed on a computer with the appropriate software and related exercises. The writing sample, as a prescreening criterion, is submitted by the candidate in advance of the work-sample components, either electronically or in paper form.

4. Administering Work-Sample Components.

As previously described, the job description (functional task areas and task list) and associated KSAOs for the crime analyst position serve as the basis for developing the assessment components process geared toward the unique nature of the job. Important in developing an assessment process is using a range of activities designed to reflect the most critical KSAOs associated with typical analyst duties. The six CAAP components (résumé evaluation, writing sample evaluation, problem analysis exercise, training presentation, panel interview, and mapping software exercise) tap into those KSAOs and drive the overall assessment process. While these components are designed to tap various KSAOs, they are also very representative of the types of broader activities in which crime analysts engage.

Justification for Selecting Assessment Components

1. Problem Analysis.

Because a crime analyst's position involves being able to assess crime problems, we thought it important to provide a work-sample test that outlines a problem. This exercise requires candidates to assess the problem to identify the relevant information and key points that pertain to understanding the problem from a temporal, spatial, and victimization perspective. Furthermore, it requires the candidate to provide potential solutions using the analysis and information provided and to draw from their own experiences and knowledge base. One of the primary responsibilities of an analyst is to be able to identify patterns that cause or relate to these problems and synthesize them in a manner that they can be communicated throughout the department in crime reports, bulletins, and other products.

2. Training Presentation.

One of the most important things an analyst can provide is a concise verbal summary of key issues identified in his or her research and analysis. It is often difficult to summarize large amounts of data and information in a way that is meaningful and convincing to police officials. Yet this is what analysts often have to do to make their case for a particular approach, or demonstrate an understanding of the complexities of a problem. It is for this reason that we felt we should incorporate a work-sample exercise that requires the applicant to read and analyze a substantial amount of information and present it to an audience in which each member may have a different level of understanding.

3. Structured Panel Interview.

Structured interviews provide an opportunity for a candidate to demonstrate his/her knowledge, analytical ability, speaking skills, judgment, and other characteristics not easily tapped in other types of exercises. Through a variety of question types, interviewers can elicit information and observe composure and other skills. Personal interviews are used in screening in 96 percent of all police agencies (Hickman & Reaves, 2000).

There is extensive research that indicates structured panel interviews are superior to unstructured ones in that they offer much higher reliability and validity coefficients. For example, in a meta-analysis on the reliability of structured panel interviews, researchers examined the reliability of structured panel interviews versus those based on unstructured ones (Conway, Jako, and Goodman, 1995). This was in response to Hakel's (1989) call for such a review given the well-established premise that reliability provides an estimate of the upper limit on validity. They concluded that structured interviews are very reliable (inter-rater reliability = .70, n=111 studies). Another meta-analysis by Wiesner and Cronshaw (1988) revealed a validity coefficient for structured interviews of .63, whereas unstructured interviews yielded a validity coefficient of just .20. In addition, McDaniel, Whetzel, Schmidt, and Maurer (1994) based their meta-analysis on specific criterion types, specifically job performance, training performance, and tenure. They found that the validities of structured interviews yielded higher validities than unstructured ones (.44 versus .33) when considering job performance.

4. GIS Mapping Exercise.

In a survey of 125 law enforcement agencies with 100 or more sworn officers, 62 percent of respondents claimed to have adopted computerized crime mapping (GIS) (Weisburd and Lum, 2005). In addition, they argue that the widespread adoption of the use of GIS was a result of the challenges many police agencies faced regarding their effectiveness and the relatively modest impact they seemed to be having on crime. Since the rapid diffusion of the use of GIS in policing during the last decade, much of the analysis work that crime analysts now perform requires the knowledge, support, and use of a GIS program. As such, we included a mapping component in the process, although some agencies may deem this as something a new crime analyst can learn on the job or through formal training once hired. Certainly a crime analyst would need to have this capacity before being promoted to a supervisory position. The mapping exercise presents an opportunity for a candidate to demonstrate his or her skills in using GIS software by developing several mapping products that require a series of actions or steps that are similar to those performed routinely by a crime analyst when working with data sets.

Work-Sample Components

1. Problem Analysis Exercise (90 minutes) (see Appendix E).

The purposes of the sample problem analysis exercise are threefold:

i. To understand the candidate's ability to synthesize information in a logical manner

ii. To understand the candidate's level of knowledge about various subject matters, including crime analysis, problem analysis, problem solving, and crime mapping

iii. To understand candidates' creative thinking ability and how they formulate ideas related to crime mapping and crime analysis

In this exercise (see Appendix E.1), the candidate is asked to read a sample problem taken from the *Advanced Problem Analysis, Crime Analysis, and Crime Mapping Training* curriculum, developed by the Police Foundation in cooperation with the COPS Office. The case involves a burglary problem in a fictitious city along with additional information, such as frequency, changes over time, geographical trends, victimization, and modus operandi. The candidate is asked to develop a written analysis of the problem, including the following:

- A summary of the problem
- A summary of the relevant data
- An outline of potential solutions, based on existing information, and possible shortcomings, if any
- Any additional information needed to further understand the problem and generate better responses

The exercise is held in a room monitored by a proctor (staff member), who is available to answer questions.

2. Training Presentation Exercise (40 minutes).

The purposes of the presentation exercise are the following:

i. To assess the candidate's ability to organize and synthesize information
ii. To assess the candidate's knowledge of GIS, crime mapping, and crime analysis principles and techniques
iii. To get a sense of the candidate's communication and presentation style
iv. To assess the candidate's ability to explain to a general audience how crime analysis, mapping, and GIS support problem solving (e.g., training capability)

In this exercise, the candidate is sent a letter and a CD several days before the interview date (see Appendix D.3), with actual training slides from the *Advanced Problem Analysis, Crime Analysis, and Crime Mapping Training Curriculum* (www.policefoundation.org/trainingslides/). This curriculum consists of more than 600 PowerPoint slides, including detailed notes, comprehensive exercises, and hundreds of examples drawn from academic and practical literature, the trainers' professional experience, and a pilot training course. Only two sections are included on the CD: 1. Introduction to Crime Analysis, Problem Solving, and Problem Analysis; and 2. Descriptive Spatial Analysis. The idea is to provide the candidate with enough material to present a 30-minute training session to an introductory-level audience having little, if any, knowledge about crime analysis, mapping, and problem solving.

Candidates are free to manipulate, re-create, and delete any of the slides for their presentation. This process reveals the candidate's ability to synthesize and organize information in a concise manner and to deliver this information in a training-simulated format. The agency is responsible for providing set-up equipment, including a projector, projection screen, and laptop. As indicated previously, each candidate should be allowed approximately 10 minutes for preparation and 30 minutes to conduct the "introductory training." The number of points possible in this section is 200.

The following 10 categories are used to rate the candidates during their training presentation: knowledge, enthusiasm for the topic, composure and body language, teaching ability, ability to appropriately respond to questions, interpersonal communication, selection of content for audience, timing, ability to connect to the audience, and other skills or experience. Further explanation of these categories can be found in the assessment-scoring-criteria section of this report.

Below is a list of questions to consider when assessing candidates. Did the candidate:

1. provide handouts so that the audience can follow the presentation? Handouts indicate the candidate has made some effort to include the audience in the presentation and provide a sense of preparation.
2. introduce himself or herself and provide an overview of the presentation?
3. show enthusiasm about the topic?
4. use a lot of "ums"?
5. seem nervous? Confident?
6. make good eye contact with the audience throughout the presentation?
7. read directly off the slides? The slides should be used strictly as reference or bullet points about the information the candidate is trying to convey to the audience and not be read word for word.
8. make changes to the slides or add any new ones?
9. use humor or some other approach for warming up to the audience?
10. fumble through any of the slides and have difficulty explaining the information on the slides?
11. make smooth transitions from slide to slide?
12. organize the presentation according to the time allotted? If so, it shows that he or she has practiced the presentation and timing, has experience presenting, or both.
13. finish with a slide that included his or her contact information?
14. invite questions?
15. respond appropriately and accurately to questions?

3. Structured Panel Interview (30 minutes).

The purposes of the interview are the following:

i. To learn about the candidate's past work experiences

ii. To learn more about the candidate's interests and ideas as they relate to crime mapping and problem analysis as supporting tools and approaches in law enforcement

iii. To understand how the candidate would respond in various hypothetical work-related situations

iv. To learn about personal characteristics of the candidate

The interview includes nine structured questions asked by different staff members. The level of staff appointed to the panel may vary by agency but should include several, if not all, management-level personnel familiar with the hiring process in general and the responsibilities associated with the analyst or supervisor position. The questions are designed to elicit the candidate's experience, views, and philosophy regarding policing and the role of crime mapping, as well as his or her ability to comfortably respond to questions. In addition, these questions are designed to gather additional insight on ways to expand current technical, training, and professional services provided by the crime analysis unit.

4. GIS Mapping Exercise (40 minutes).

The purposes of the mapping exercise are the following:

i. To obtain a general assessment of the candidate's GIS and mapping abilities

ii. To assess the candidate's ability to conduct mapping-related tasks

iii. To examine the candidate's capacity to create mapping-related products

An integral part of being a crime analyst is having substantial knowledge of how to utilize crime mapping software programs. Many different desktop crime mapping and GIS software programs are available, all with varying capabilities and functions. However, MapInfo and ESRI's ArcView are considered two of the most widely used mapping products in the field. The CMPAL staff used ArcGIS 9.x to develop the crime mapping exercise for the assessment process. Future models might offer a more balanced mapping option for candidates who are versed in other mapping or GIS programs such as MapInfo or CrimeView. Although much of the functionality between the programs is similar, the menu options and location of functions are not. Ultimately, this decision will be based on the selection committee and the program being used by the agency's crime analysis unit. If mapping skill is designated by your agency as something that can be learned and developed on the job, an exercise in interpreting a map or some such similar activity can substitute for this exercise.

In this exercise, candidates are asked to perform a series of functions to assess the following mapping and GIS abilities:

- Ability to work with geographic data
- Ability to utilize various functions in a GIS environment
- Ability to create a map using standard map elements (e.g, north arrow, scale, label, legend)
- Ability to generate graphs and/or charts relating to specific data of interest
- Ability to organize and synthesize information in a clear and logical manner related to a specific request

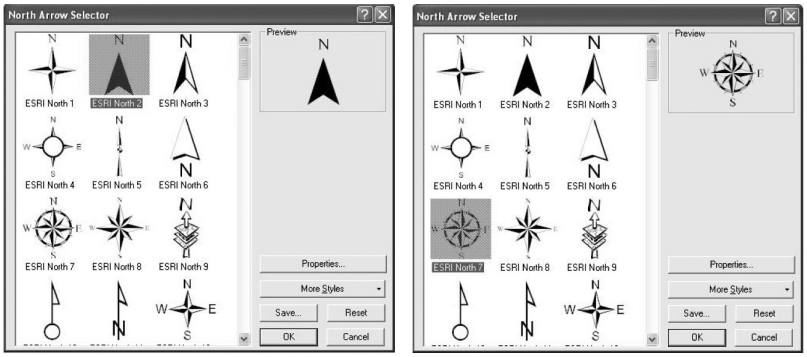
Before beginning the mapping exercise, each candidate is instructed to save his or her work in an assigned folder having his or her candidate number. They are also provided start-up directions and shown how to access the files needed to conduct the exercise. Developed by CMPAL staff, the mapping exercise consists of three parts:

Part 1: The candidate must create a layer that shows only the counties in the state of Kentucky with an African-American population greater than 5,000. Next, the candidate is instructed to rename certain layers, change the colors of specific layers, label specific counties, and finally construct a map with all of these changes. The candidate is encouraged to use additional features and to use his or her own creativity to enhance the layout of the map.

Part 2: The candidate must create a bar chart showing the changes in population from 1990 to 1999 for only the counties that are identified from the query used in Part 1.

Part 3: The candidate must create a graduated color map based on the 1999 population figures of Hispanics in Kentucky using a natural breaks classification. The candidate may use any additional features to enhance the map.

Figure 1. Examples of optional elements used in map creation.



The purpose of this exercise is to evaluate an individual's basic GIS skills. A sample of the mapping exercise is provided in Appendix H.1. Instructions on how to perform the exercises are provided in Appendix H.2. The exercises used in this assessment process were created so even the most novice applicant with minimal crime analysis experience could at least attempt to perform the required tasks. Although these exercises are rather simplistic, they can be tailored to the type of crime mapping proficiency an agency desires in an analyst. Once these exercises are modified and approved, it is important to test them on other analysts to ensure that the instructions are clear and that the program runs smoothly.

More experienced analysts tend to develop their own mapping style. Thus, the option of adding supplemental elements and using creativity are included to allow evaluators to gain a sense of the candidate's overall style. For example, one analyst may use the triangular north arrow symbol on a map to represent the compass, while another may use the circular north arrow (see Figure 1).

One analyst may like to use background colors, while another may like to keep a clear white background and use shading around various elements (e.g., legend) instead. Over time, some analysts develop special settings or templates in their GIS program so the formatting is already in place when they make certain products.

For agencies interested in better assessing the analytical abilities of an applicant, we recommend developing a more comprehensive exercise. Such an exercise might involve working with sample crime data in a GIS environment where the analyst has

to identify an emerging crime pattern or trend including modus operandi, day of week, and time of day offender(s) are committing burglaries of businesses in a particular area. From this, the exercise would instruct the candidate to use that information to create an actual crime bulletin (using a template provided) relating to the activity and patterns that have been identified from his or her own data analysis. This type of exercise would be most applicable for a job opening directed toward a midlevel crime analyst or crime analyst supervisor. Agencies can simply utilize data from their own crime analysis unit to recreate and support the development of this type of exercise.

5. Training Assessors.

In formal assessment centers, assessors must receive training that meets additional standards outlined in the Guidelines (2009). While the CAAP does not require conformance to the Guidelines, we still highly recommend that raters receive training that at a minimum consists of the following:

- A presentation of the exercises, the expected behaviors/responses, as well as the range of responses that could be displayed by candidates
- An explanation of the source(s) of the exercises
- An explanation of the rating system
- Practice exercises for assessors to evaluate candidates (e.g., other employees) using the rating instruments
- A discussion of the common rating errors (i.e., central tendency, halo, leniency, severity). A description of these is provided in Table 2 on page 38
- An explanation of the definitions of reliability and validity

In rating individuals on various criteria, a number of biases often influence the final ratings. One way to minimize rating biases in any rating (i.e., performance evaluations, hiring, and promotional procedures) is to establish behavioral or response indicators for each criteria being judged. For the purposes of the CAAP, we used behaviorally anchored rating scales or an adapted checklist (see problem analysis exercise scoring on page 39). Checklist rating systems require one to observe the behavior (or in this case, check off items that were provided in the candidates' written responses). The advantage of anchored rating scales or checklists is that they limit the flexibility of raters in subjectively assigning scores because each score value has associated behaviors/demonstrated abilities or the checklist represents what was done or said.

Table 2. Common Rating Errors.

Type of error	Description
Halo Effect	Rater allows performance on one dimension or exercise to influence all others. Use of the term Halo comes from the sense that a person is all good or, alternatively, all bad.
Leniency, Severity, Central Tendency	A tendency for a rater to use just one portion of the rating scale across all candidates by being overly harsh, overly lenient, or unwilling to assign high or low scores in spite of the rating anchors.
Recency/Primacy	A tendency for a rater to give greater weight to the first impression or just the most recent impression (e.g., the last very good behavior displayed), while ignoring other behaviors/responses.
Comparison/ Contrast	A tendency for a rater to compare individuals being rated instead of rating them on the scoring criteria provided. It often occurs when one feels that a previous candidate who performed better was less likeable than the current one, so the current candidate score is inflated.
Personal Bias	The unfortunate extension of a rater's personal opinions about members of various groups (e.g., stereotypes) to influence his or her rating rather than focusing on the scoring dimensions.
Similarity Bias	The tendency of a rater to give more favorable ratings to those who seem similar to himself or herself in various characteristics.

6. Assessment Scoring Criteria for Work-Sample Components.

The scoring system was developed according to the specific categories outlined in each exercise. Some categories or elements are given more weight than others based on the collaborative input of the assessment team used during the initial administration of this assessment instrument and later revisions by the authors. For example, in the GIS mapping exercise, Part I and Part III are given more weight than Part II because Part I requires more attention to detail and Part III allows for personal creativity by the candidate. Both of these areas were deemed by the assessment team to be of greater value than Part II, which mainly consists of creating a bar chart. In the structured interview, the "appropriateness" category is given more weight because it is assessed for every question. For the problem analysis exercise, Part C is given more weight because it requires the most detailed response out of all the sections and provides the most insight regarding how well the respondent can synthesize data and information in a concise and meaningful way.

A. Problem Analysis Exercise.

To properly score candidates' responses, a template is provided that identifies all major points that should be mentioned from each section of the problem analysis exercise sample. A model candidate summary is also provided that shows what a complete and well written response should look like. Second, an evaluator guide is provided that outlines the discussion points to consider when evaluating each section of the problem analysis exercise (see Appendix E.2). Third, a scoring sheet, which is divided into four sections, is provided for the evaluator to finalize the participant's score (see Appendix E.3). Each of the four parts to the sample problem exercise is assigned a percentage and point score based on the extent or weight of information expected in the response. For example, in Part A, the summary of the problem is worth 15 percent or 30 points; in Part B, the summary of relevant data is worth 30 percent or 60 points; in Part C, outline of potential solutions is worth 35 percent or 70 points; and in Part D, additional information is worth 20 percent or 40 points. Thus, the total possible percentage score is 100 percent and the total possible points for this exercise is 200. The relevant data summary and potential solution sections are more heavily weighted and given a higher point value than other sections because they require the candidate to use critical thinking skills and creativity.

Each part is broken up further into points based on specific elements that should be discussed in the candidate's response. In Part A, for example, five major points should be highlighted in the response: 1. Mention of the problem is worth 10 points; 2. Mention of temporal analysis is worth five points; 3. Mention of spatial analysis is worth five points; 4. Mention of repeat victimization is worth five points; and 5. Mention of modus operandi is worth five points, for a total of 30 points for the summary section. Part B, relevant data, has a similar structure with different point allocations. Parts C and D list leading questions to help guide the evaluator in assessing the responses and allocating points. The greatest percentage is allocated to Part C because of the amount of detail required in the response. In this section, the candidate is expected to synthesize the relevant data discussed in Part B and apply them to the solution, outline or describe a systematic process in the solution to deal with the problem, and articulate any potential problems caused by a possible lack of information.

B. Training Presentation Exercise.

The training presentation is rated on 10 categories as described earlier. Each category is worth five points (see Appendix F). Once points for all sections are totaled, that number is multiplied by four to standardize the score, which is based on a total of 200.

The knowledge category pertains to the extent to which the candidate understands the topic. Did the candidate simplify geographic- and mapping-related terms for the lay audience and touch on all information highlighted in each slide or was some information omitted?

The second category is about enthusiasm—whether the audience perceives the candidate's passion and energy for crime analysis and mapping. This is important for several reasons. Crime analysis, mapping, and GIS are dynamic tools within the law enforcement community. Many leaders and practitioners are still unaware of the full potential and variety of advantages those tools offer in providing a more comprehensive understanding of crime and improving the use of current police resources. The candidate's enthusiasm can serve as a mechanism to enlighten and engage other officers, decision-makers, and practitioners about the capability and functionality of these tools.

Composure and body language, category three, indicate whether the candidate is comfortable talking in front of an audience. This is extremely important, especially for a crime analysis supervisor, who has to discuss critical issues with command staff at briefings or Compstat meetings, train other analysts in a lab setting, or explain local crime issues and analyses with local community groups in a meaningful way.

Category four, teaching ability, relates to how well the candidate can convey information and key points so the audience feels that it learned new concepts and ideas or clarified previous misconceptions.

As an analyst or crime analysis supervisor, the new hire will be asked a number of questions every day by a variety of individuals (i.e., command staff, community members, analysts). The ability to respond to these questions, category five, is important because others are relying on the analyst to move their cases, investigations, and strategies forward.

The sixth category, interpersonal communication, is about how well the presenter interacts with the audience. Did the candidate make eye contact and respond in an easygoing manner? This is important because, when working with large amounts of information and coordinating with other agencies, analysts must effectively communicate with other law enforcement personnel, both internally and externally.

Content selection, category seven, concerns whether the candidate chose slides and material helpful in training the audience. Did candidates go overboard and try to teach complex concepts to an introductory audience or keep within the scope of what was instructed?

The eighth category, timing, pertains to how well the candidate adapts the discussion to a certain time frame. In command staff meetings, usually a time limit is placed on designated speakers. Thus, paying attention to time and limiting information accordingly is critical.

Category nine, the ability to connect, refers to how well the audience feels it understands what the candidate is talking about. Did the candidate's enthusiasm, selection of content, teaching ability, interpersonal skills, composure and body language, and teaching style keep the audience engaged?

The final category, other skills or experience, refers to any other skills demonstrated (e.g., creativity).

C. Structured Panel Interview.

Interviewers are provided with a notes page where they can record the candidate's answers and provide a score for each rating dimension (see Appendix G.1). Interviewers transfer these scores to the scoring key. The structured interview, worth 200 points (see Appendix G.2), is rated on the following categories:

- Appropriateness of answer content
- Relevance of experience
- Interpersonal style
- Honesty

The first category relates to organizational issues and concerns as well as position requirements and responsibilities. This category is worth more than any other (90 points) because responses provide greater insight about candidates, including an understanding of their role as crime analysts, ideas about enhancing services, and related experience in the field.

Responses related to the second category help determine whether the candidate has relevant experience useful to performing primary duties of the position. This will help the panel gauge how much training and resources may be needed to bring the candidate up to a KSAO level similar to that of other analysts in the unit. This section is worth 45 points.

The third category relates to how well the candidate discusses problems and issues with staff members with whom the candidate may be working in the future. Additionally, it is intended to rate how open and cooperative the candidate would be in the normal working environment of a police department. This section is worth 45 points.

In the fourth category, reviewers determine whether the candidate provides genuine responses or simply tries to impress interviewers. This is particularly important because at some point the candidate may work on a project involving sensitive or classified information. Although this situation is not typical for a crime analyst, it is possible, especially if the candidate already has a security clearance. This section is worth 20 points.

D. GIS Mapping Exercise.

Each of the three parts of the crime mapping exercise has a specific objective and a final product. Final products that participants are instructed to produce are the following:

- A map of Kentucky counties with African-American populations greater than 5,000
- A bar graph of population changes from 1990 to 1999 of counties identified in Part 1
- A map showing the distribution of Hispanic population by county in Kentucky

Part 1 requires the candidate to develop a map that shows all counties in Kentucky where the African-American population is greater than 5,000. This part is worth 70 points based on the specific details expected of a standard map, such as a legend, title, scale, compass, proper labeling, clarity of design, neatness. Each element has been assigned a specific point value based on the evaluation and mapping experience of the authors; however, the point structure may be changed at an agency's discretion. In this section, we assigned 10 points to the labeling of counties meeting population criteria as well as the legend, title, and scale. A point value of 7.5 was assigned to the required color changes that the candidate is instructed to make in the exercise. The additional elements, including the compass, personal touches, and overall clarity, were given a point value of five each.

Part 2 of this exercise requires the candidate to construct and print out a bar graph that shows the population changes from 1990 to 1999 *only* for the counties identified in Part 1. The bar graph should include a title, legend, and properly labeled X and Y axes. Each of the six elements listed in this section was assigned a point value of five for a total possible of 30 points.

Part 3 of this exercise is worth 50 points and requires the candidate to create a map showing the distribution of the Hispanic population across Kentucky by county. The title, scale, and the correct natural breaks classification were considered to be the most important elements for this exercise and therefore each was allocated 10 points. The other elements, including map clarity, legend, compass, and personal additions, were given a point value of five each. As you can see, the point value for the scale was given a lower value in this section (five points) compared with Part 1 (10 points). In this instance, greater point allocation was put toward the legend because it provides corresponding population information about the distribution of the Hispanic population in Kentucky, while the scale simply provides an understanding of the distance associated with the map's creation.

The total possible points for this exercise is 150 (see Appendix G).

7. Overall Candidate Assessment.

Justification for Using the "Exercise" Scoring Method.

The approach to scoring work-sample procedures and assessment centers can be quite different given the current Guidelines (2009) on the criteria for assessment centers. Indeed the Guidelines state clearly that for a process to be called an assessment center, rating techniques must allow evaluation of the dimensions or KSAOs, rather than just exercises. Nevertheless, the issue of whether an assessment center is actually measuring performance on behavioral dimensions instead of performance within an exercise (as described previously) has been the subject of much professional debate. For the CAAP, we relied on exercise scoring, rather than scoring of specific behavioral dimensions and characteristics as is done in assessment centers because there are some clear practical advantages, as shown in Table 3.

In the CAAP, evaluators' individual scores on the exercises are averaged with those of other evaluators on the same exercises. It is important to note that in traditional assessment centers, teams of evaluators follow candidates through each exercise and provide overall scores on behavioral dimensions across exercises through a consensus process that was previously required by the Guidelines (2009). However, researchers have shown no difference in mechanical (mathematically averaged) versus consensus-derived ratings (Pynes and Bernardin, 1992), and consensus processes have been shown to be more costly and time-consuming. Based on these facts and the resulting changes in the Guidelines, many assessment procedures today rely on different teams of evaluators who are assigned to specific exercises rather than all exercises. There are some advantages and disadvantages to both types of rating systems (see Table 3). The CAAP results in a final score, which consists of averaged ratings on each exercise that had previously been weighted based on importance to the overall process, and are then added together for a total score on a master scoring key.

Data Integration Across Exercises.

Prior to the administration of the exercises, the committee assigned weights to each assessment component, based on the needs of the position and the extent to which each exercise tapped the various dimensions of interest. In scoring an assessment center, the typical approach is to weight the dimensions, which are then pooled across all exercises in which they are assessed.

Table 3. Pros and Cons of Rating Systems Used in the CAAP Versus Traditional Assessment Centers.

Crime Analyst Assessment Process (CAAP)	Assessment Centers (as traditionally implemented)
Teams of raters are assigned to score individual exercises across *all* candidates.	Multiple raters evaluate candidates across all exercises.
Evaluators make independent ratings for each exercise.	Evaluators make independent ratings of dimensions across exercises to get total scores for each dimension.
Scores are later mechanically combined/averaged with other rater(s) for each exercise.	Scores are derived through consensus discussions among the team members.
Some exercises are scored based on the behaviors without linking those behaviors to specific competencies.	All techniques must allow for dimension scoring.
Pros: Evaluating single exercises limits rating errors;* rating all candidates increases consistency in rater judgments across candidates; combining scores without requiring consensus reduces pressure to accept another's scoring rationale.	**Pros:** Evaluating dimensions allows for assessing KSAOs across a variety of contexts.
Cons: Scoring each exercise independently limits evaluation to contextually specific scores (i.e., exercise scores) rather than scoring of performance dimensions.	**Cons:** Evaluating dimensions across exercises can lead to a variety of rating biases;* different teams of raters measure different candidates, thereby reducing consistency of rating teams; consensus scoring puts undue pressure on raters to conform and may be cost prohibitive in many settings.

*Halo; Leniency/severity/central tendency; Primacy/recency; Comparison/contrast

The overall candidate score is a composite of the preliminary assessment components (résumé and writing sample/analysis product) and the work-sample components (exercises), including the problem analysis exercise, training presentation, panel interview, and GIS mapping exercise. It consists of the criteria for assigning appropriate scores to those components and overall candidate assessment (data integration)[6] through development of a master scoring key and mechanical combination (averaging) of evaluators' ratings.

[6]According to the International Task Force on Assessment Center Guidelines (2009), the process of obtaining an overall assessment is called data integration, in which information from assessors is combined through a "pooling" of information or through a statistical integration process, leading to a consensus or joint decision.

For our purposes (an assessment *process*), the master scoring key shows how each component of the CAAP contributes to the overall evaluation and the total candidate score (see Appendix I). For example, the problem analysis, training presentation, and interview panel are each worth 20 percent; the mapping exercise and résumé are each worth 15 percent; and the writing sample 10 percent. The third column shows points associated with each component.

Throughout this report, we document ways in which the CAAP differs from traditional assessment centers, even though it is based on the assessment center methodology which has proven valid across a variety of settings. In Table 4, we list the required characteristics established in the Guidelines (2009) and identify those for which the CAAP as described herein meets the criteria. Nevertheless, the CAAP is like many adapted procedures based on assessment center methodology, such as task-specific assessment centers or work-sample tests that are typically being used across professions today. To date, we have not identified any published procedure or tool such as the CAAP being used to hire crime analysts. This model provides a detailed process that can be adapted to each agency's individual needs, so that it best represents the tasks that the agency expects the crime analyst to perform.

The process described above may be modified depending on a number of factors, such as an agency's immediate personnel needs, hiring time frame, and the availability of designated staff members to participate. Furthermore, the process presented in this report is not set in stone but is based on a collective examination of the assessment components as a whole. Some candidates may respond better to the CAAP using a different order; therefore, the decision to change the order is at the discretion of the agency.

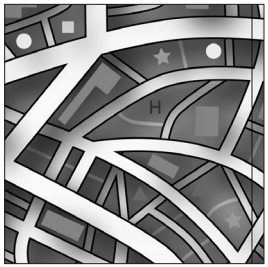
Another advantage of this assessment process is that it can be modified to assess candidates in other positions, as well. Each CAAP component would need to be supplemented or updated accordingly, depending on the posted job announcement, but the process would provide a similar platform to assist an agency or organization in identifying the most qualified candidate from the applicant pool.

Table 4. Crime Analyst Assessment Process and the 2009 Guidelines.

Required by 2009 Guidelines	CAAP Meets Requirement
The assessment center must be based on a completed job analysis.	√*
All displayed behaviors must be classified into categories or dimensions such as KSAOs.	No
Assessment techniques must allow evaluation of the "dimensions" or KSAOs.	Only within some exercises
Developers of assessment centers must create a linkage table.	No
Multiple assessment techniques must be used (e.g., simulations, interviews, questionnaires).	√
The process must include a sufficient number of job simulations (e.g., group exercises, presentations, fact-finding exercises) designed to elicit behaviors associated with the job dimensions.	√
Multiple assessors should be used to evaluate candidates.	√
Assessors must receive training that meets additional guidelines (also provided in the formal Guidelines).	Recommended
There must be a systematic way to record behavior (e.g., notes, checklists, or rating sheets) at the time of observation.	√
Integration of behaviors must include pooled assessor ratings or be statistically combined into an overall assessment rating.	√

*The CAAP was developed using an abbreviated procedure, but we recommend that all agencies conduct a job analysis in advance of implementing this tool or any modification thereof.

Conclusion



Although the International Association of Crime Analysts has developed certification standards for crime analysts, and various articles, books, and commentary have been written about mapping and crime analysis, there is still little consensus with regard to the criteria to consider when hiring an analyst. What qualifications, knowledge, skills, abilities, experience, and other characteristics are important when hiring a crime analyst? Based on systematic research and established methodology, the CAAP is a model that can help agencies identify highly capable crime analysts or supervisors to enhance their analytical and problem-solving capabilities. It provides a step-by-step process that agencies can use or tailor to meet their specific needs. Some agencies may require a greater degree of KSAOs, training, education, and experience from their new analysts, while others may require less.

Nonetheless, this model provides a comprehensive list of the KSAOs that were identified through a systematic review of vacancy announcements from a variety of law enforcement agencies. This list provides a twofold purpose: first, to inform agencies about the background, training, and skill sets that have been identified as essential to the crime analyst profession, and, second, to encourage current and future analysts to continue developing their KSAOs, which will ultimately raise the bar for the profession as a whole. In establishing a profession, standards often become more refined with time, and the characteristics essential for crime analysts today may not have been relevant 15 years ago. As in any field, the standards for hiring often become more challenging as experience levels, training, and KSAOs of candidates, as well as the pool of qualified individuals, increase.

Finally, it is important to note that the crime analyst position has become more professionalized during the past decade, given the vast array of techniques and tools available to analysts, and their increasing knowledge, skills, and abilities. As such, agencies must strive to properly maximize the skills of their analysts in supporting the overall agency mission. Whereas many agencies use analysts for simple functions, such as creating incident maps and crime bulletins, many analysts can provide much more in terms of analyses and information sharing to support and enhance crime prevention, intervention, and reduction strategies. Agencies should not only properly recruit and train their crime analysts and supervisors, but also make the most of their skills and abilities for effective and efficient agency operations.

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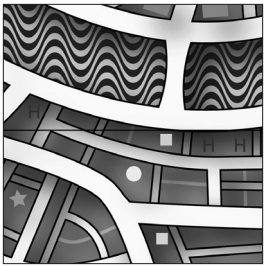

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Recommended Reading

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La Vigne, N. *Mapping for Community-Based Prisoner Reentry Efforts: A Guide for Community-Based Prisoner Reentry Efforts*. Washington, D.C.: Police Foundation, 2007. www.policefoundation.org/pdf/mappingreentryguidebook.pdf

Training and Tools

The **Police Foundation Crime Mapping & Problem Analysis Laboratory (CMPAL)** offers practical assistance and information to law enforcement agencies through an array of online resources, including the following, at www.policefoundation.org/docs/library.html#pubs:

- Introductory Guide to Crime Analysis and Mapping
- User's Guide to Mapping Software for Police Agencies
- Manual of Crime Analysis Map Production
- Crime Analysis and Mapping Product Templates
- Guidelines to Implement and Evaluate Crime Analysis and Mapping in Law Enforcement
- Crime Analysis and Crime Mapping Information Clearinghouse
- Advanced Problem Analysis, Crime Analysis, and Crime Mapping Training Curriculum
- Crime Mapping News

The **International Association of Crime Analysts** at www.iaca.net/IACATraining.asp. In November 2010, IACA will launch a Crime Analysis Unit Development Center, which is intended to provide knowledge and resources to help departments design and develop a crime analysis unit. http://www.iaca.net/DevCenter.asp

The National Law Enforcement & Corrections Technology Center's Crime Mapping & Analysis Program provides technical assistance and introductory and advanced training to U.S.-based local and state law enforcement agencies in the areas of crime and intelligence analysis and geographic information systems (GIS). www.justnet.org/Pages/cmap.aspx

NLECTC – National
2277 Research Boulevard, M/S 8J
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The **Office of Community Oriented Policing Services (the COPS Office)** www.cops.usdoj.gov/

Center for Problem-Oriented Policing at www.popcenter.org

National Institute of Justice Mapping and Analysis for Public Safety (MAPS) Program at www.ojp.usdoj.gov/nij/maps/about.htm

About the Authors

Karen L. Amendola has almost 20 years of experience in law enforcement testing, training, research, technology, and assessment. Dr. Amendola serves as the chief operating officer of the Police Foundation's Division of Research, Evaluation, and Professional Services. Dr. Amendola earned both her M.A. and Ph.D. degrees in industrial and organizational psychology at George Mason University. She also holds an M.A. degree in human resources management from Webster University. Dr. Amendola has conducted research and technical assistance projects in the areas of ethics, recruitment, shift practices, biased policing, police technology, operational management, and leadership. She served for more than five years on the Scientific Review Committee of the Defense Academy for Credibility Assessment (formerly the Department of Defense's Polygraph Institute). She is a member of the Academy of Criminal Justice Sciences, American Psychological Association, American Society of Criminology, and the Society for Industrial and Organizational Psychology. Currently, she is the vice chairman of the board of the National Partnership for Careers in Law, Public Safety, Corrections, and Security and a member of the Research Advisory Board of the Innocence Project.

Greg Jones serves as a research and crime mapping coordinator at the Police Foundation, specializing in training and support on the use of geographic information systems (GIS), crime mapping and crime analysis, and problem analysis in policing. He has almost a decade of professional experience, serves as a project director, and has conducted research and evaluations focused on mapping training and technology, prisoner reentry, gang strategies, intelligence analysis, shift-work practices, homeland security, victims of domestic abuse, crime prevention, and geospatial technology. Mr. Jones holds a B.A. in sociology from the University of Kentucky and an M.A. in criminology and criminal justice from the University of Maryland at College Park. He has been a member of the International Association of Crime Analysts since 2002.

THE RAPID GROWTH IN APPLICATIONS AND USAGE OF crime mapping and analysis in law enforcement agencies in recent years has increased job opportunities for new analysts. As crime analysis has become an established profession, there is a need for consensus about the specific knowledge, skills, abilities, and other characteristics and the extent of formalized training necessary for new analysts. Through various discussion channels, including in-house forums, focus groups, visits with crime analysis units, and participation at annual crime mapping conferences, the Police Foundation's Crime Mapping and Problem Analysis Laboratory recognized the importance of creating hiring standards and a systematic and comprehensive hiring process for selecting highly capable crime analysts. This publication and accompanying CD-ROM focus on defining the job of a crime analyst and on a model procedure for selecting the best possible crime analyst for your agency.

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