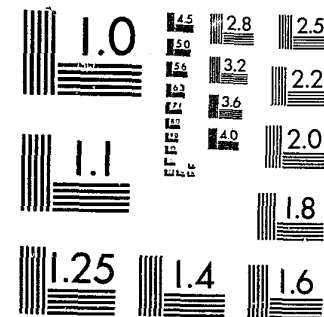


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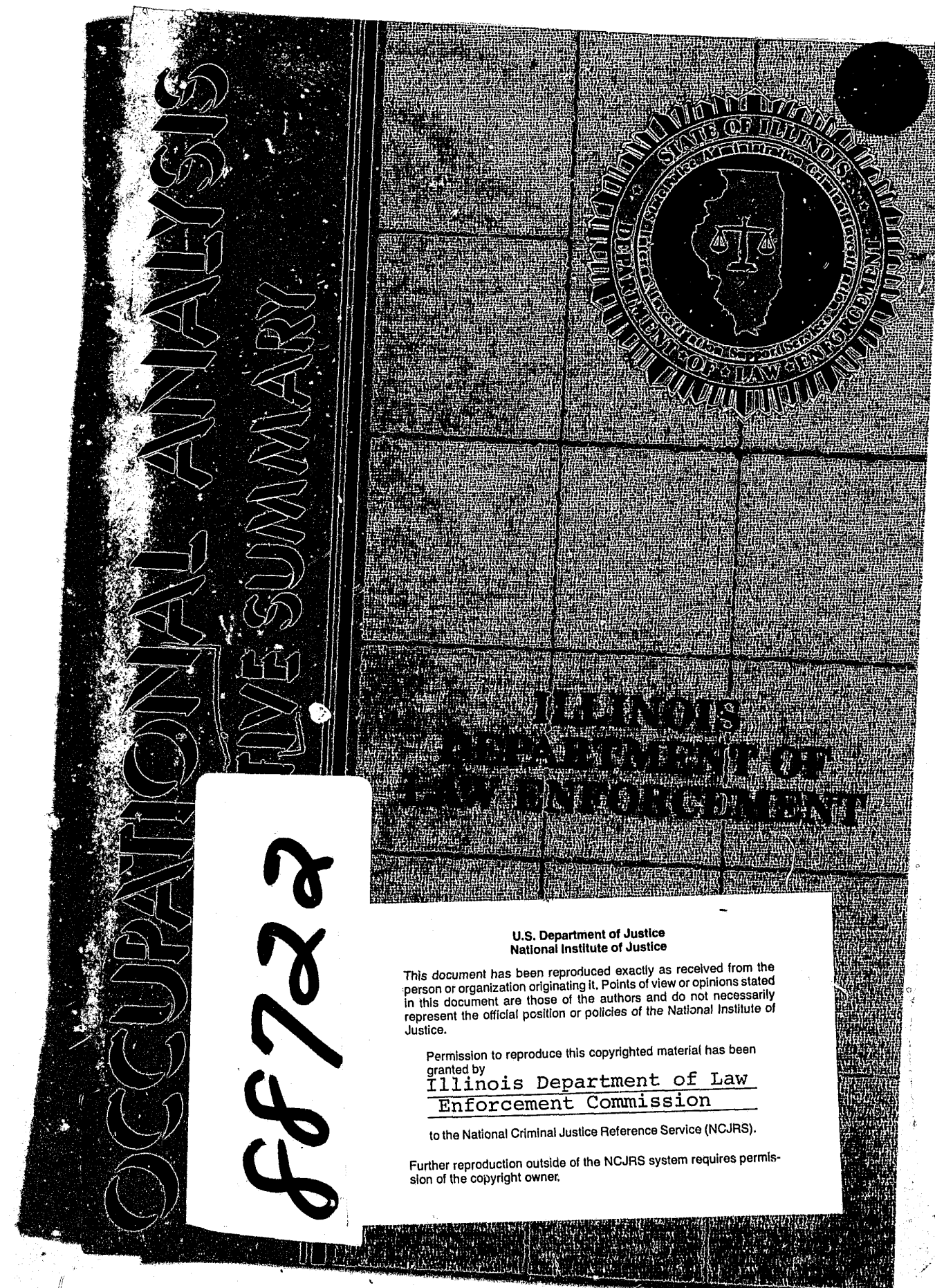
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National Institute of Justice
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Washington, D. C. 20531

10/11/83





**Illinois
Department of Law Enforcement
OCCUPATIONAL ANALYSIS
EXECUTIVE SUMMARY**

**Prepared by
Barbara Patterson
Bureau of Personnel
Division of Administration
Illinois Department of Law Enforcement
Room 200, Armory Building
Springfield, Illinois 62706**

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Executive Summary Occupational Analysis

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Sergeant Arthur Athmer
Special Agent Lonnie Inlow
Special Agent Harold Hendrickson
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LEVEL I - VOLUME I

Occupational Analysis Illinois Department of Law Enforcement

Level I — Volume I

A sample of Troopers, Special Agents I, and supervisory officers (Corporals, Sergeants, Special Agents II, and Special Agents III) was selected to respond to six (6) job analysis questionnaires. The questionnaires were designed to elicit input about the nature of the work performed and the qualifications needed by the worker, i.e., the Trooper or Special Agent I.

The "Physical Elements Inventory for Sworn Officers" (Importance Rating) and the "Physical Elements Inventory for Sworn Officers" (Frequency Rating) asked the sample of Illinois Department of Law Enforcement Officers to rate the importance and frequency of performance of 136 physical elements to their jobs. The responses for importance were analyzed by a statistical technique called factor analysis. Factor analysis groups like elements into categories called factors which were then subjected to additional statistical analyses to determine the reliability of the elements and the differences, if any, between the Trooper and Special Agent.

The nineteen physical elements factors for importance had alpha coefficients of 0.64 or greater and for frequency of 0.59 or greater. The majority of the factors for both importance and frequency had coefficients of 0.80 or greater which indicates that the two inventories were reliable measurements.

The "student's t-test" was used to determine the differences that might exist between the Division of State Police and the Division of Criminal Investigation in the officers' perceptions of the importance and frequency of performance of the physical elements. State Police perceived sixteen of the factors to be more important to their job, although only the elements in three factors were found to be performed more frequently by the Trooper than by the Agent. The Agents found two factors to be more important to their job and the elements in five factors to be performed more frequently than by the Trooper.

Table I shows the results of the differences between the two Divisions for importance and frequency.

TABLE I
LEVEL I
PHYSICAL ELEMENTS — IMPORTANCE AND FREQUENCY
DIFFERENCES BETWEEN DIVISION OF STATE POLICE (DSP)
AND DIVISION OF CRIMINAL INVESTIGATION (DCI)

Importance**	Frequency**	FACTORS	
—	DCI	1	Physical Activities Involving Lower Torso Strength in Buildings or Structures
DSP	—	2	Power and Agility in Jumping and Leaping Involving Distances of Four Feet or Less
DSP	—	3	Endurance
DSP	DCI	4	Maintain Balance While Working on Heights or While Running, Jumping, or Climbing
DSP	—	5	Restraint or Control of Subject Utilizing Upper Torso Strength
DSP	—	6	Coordination and Speed (Agility) While Using Weapon
DSP	—	7	Rapid Application of Upper and Lower Torso Strength in Control of a Suspect
DSP	—	8	Agility and Endurance in Physical Activities Such as Running, Dodging, and Weaving
DSP	—	9	Flexibility and Agility in Defending Oneself While Under Attack
DSP	DSP	10	Perform Physical Activities in a Noxious, Contaminated, or Difficult Environment
DSP	DSP	11	Upper and Lower Torso Strength in Lifting, Carrying, or Dragging a Person
DSP	DSP	12	Vehicle Related Physical Activities
DSP	—	13	Maintaining Balance and Control
DSP	DCI	14	Power in Jumping and Climbing Involving Distances Between Three to Eight Feet
DSP	—	15	Eye-Hand Coordination and Grip Strength While Performing Other Physical Activities
DSP	—	16	Performing Physical Activities While Under Stress, Pain, or Injury
DSP	—	17	Handling a Weapon or Individual Utilizing Endurance and Strength
DCI	DCI	18	Work for Extended Periods of Time
DCI	DCI	19	Speaking and Remaining Immobile

**Listed Division indicates Higher Importance or Frequency for that Division

The "Task Inventory for Sworn Officers — Level I" (Importance Rating) and the "Task Inventory for Sworn Officers — Level I" (Frequency Rating) asked the respondents to rate the importance and frequency of performance of 131 tasks as applied to the jobs of Trooper and Special Agent I. Using factor analysis, twenty (20) factors were derived from the 131 tasks. Statistical analysis showed that the majority of the factors had alpha coefficients of 0.70 or greater indicating that the two inventories were good measurements of the jobs.

The results of the "student's t-test" procedure showed that eleven factors were perceived to be more important and more frequently performed by Troopers and five factors were perceived to be more important and more frequently performed by Agents. Table II shows the differences by importance and frequency for the two Divisions.

Tasks included in the factors found to be more important and more frequently performed for the Trooper are issuing citations and warnings, handling emergency situations, equipment maintenance, crowd control, and control of arrestees.

Tasks included in the factors found to be more important and more frequently performed for the Agent are interviewing and interrogation techniques, identification, collection, and securing of evidence, and searches of buildings, vehicles, and persons.

TABLE II
LEVEL I
TASK — IMPORTANCE AND FREQUENCY
DIFFERENCES BETWEEN DIVISION OF STATE POLICE (DSP)
AND DIVISION OF CRIMINAL INVESTIGATION (DCI)

Importance**	Frequency**	FACTORS	
DSP	DSP	1	Traffic Inspection, Use of Enforcement Aids and Traffic Enforcement Action
DSP	DSP	2	Providing Safety and Order in Unusual Situations
DSP	DSP	3	Appraising and Handling Disturbances and Other Service Situations
DCI	DCI	4	Specialized Investigative Procedures and Techniques
DCI	DCI	5	Protection, Collection and Analysis of Investigative Information
DCI	DCI	6	Gathering Information from People and Physical Settings and Participating in Team Arrests
DSP	DSP	7	Reliability of Personal and Equipment Performance
DSP	DSP	8	Perform Routine Relay, Escort and Ceremonial Duties
DSP	DSP	9	Search and Backup Tasks Related to Officer Safety and the Handling of a Resisting Individual
DSP	DSP	10	Operation of Vehicles at High Speeds or Under Varying Conditions, Use of Firearms and Testimony
DSP	DSP	11	Control of Persons or Crowds and Operation of Radio and Computer Equipment
DSP	DSP	12	Traffic Patrol, Service and Regulatory Duties
DCI	DCI	13	Judgement, Decision Making and Collection of Information
DCI	DCI	14	Handling Information, Property and Evidence
—	—	15	Public Information, Service and Experimentation and Evaluation
DSP	DSP	16	Public Relations and Family Services
—	—	17	Booking
—	—	18	Recruiting, Training, Providing Assistance and Consultation
—	DCI	19	Supervisory, Administrative and Regulatory Duties
DSP	DSP	20	Control or Restrain Arrestee or Violator

**Listed Division indicates Higher Importance or Frequency for that Division

The *Job Functions Inventory for Police Officers* (Industrial Relations Center, The University of Chicago) asked the respondents to rate the importance of 128 functions to their jobs. Category 3, "Traffic Patrol", and Category 4, "Police Procedures", were found to be statistically significant in importance for the Trooper. Items included in these categories are patrol of highways and assigned routes to help drivers, ensuring speed limit compliance, issuing tickets or warnings for traffic violations, securing accident scenes, locating and recovering stolen/abandoned cars, and administering the breath test. Category 5, "Security and Surveillance", and Category 7, "Special Assignments", were found to be statistically significant in importance for the Agent. Included in these categories are reviewing records on suspects, searching for stolen goods, responding to burglar alarms, dealing with informants, making background investigations on applicants, using photographic equipment, and taking fingerprints from objects or surfaces. There were no significant differences in the importance of the other four categories (Patrol Activities, Interpersonal Relations, Emergency Services, and Self Development and Specialized Knowledge) between the Trooper and the Agent.

See Attachment A for definitions of the *Job Functions Inventory for Police Officer* categories.

The *Skills and Attributes Inventory* (Melany E. Baehr and Industrial Relations Center, The University of Chicago) asked respondents to rate the importance of 96 skills and attributes to the performance of their jobs. Dimension 1, "General Functioning Intelligence", and Dimension 6, "Graphic Clerical Skills", were found to be statistically significant in importance for Agents. Items included in these dimensions are the ability to think clearly and logically, the ability to apply general principles to find practical ways of dealing with unusual problems, knowledge of where to get information, an ability to write effective reports, and the ability to understand written communications.

Dimensions 2, "Visual Acuity", 3, "Visual and Coordination Skills", 4, "Physical Coordination", 10, "Organization Identification", and 12, "Efficiency Under Stress", were found to be statistically significant in importance for the Trooper. Items in these dimensions are the ability to clearly distinguish details of near and distant objects, to see at night, to see peripherally, to discriminate colors, to coordinate eye, hand, and foot movements, and to use physical

Continued on p. 7

TABLE III
SIGNIFICANT PAQ DIMENSIONS
LEVEL I

AGENTS	TROOPERS	BOTH
13. Perform Controlled Manual and/or Related Activities	11. Controlling Machines and/or Processes	5. Being Aware of Environmental Conditions
17. Communicating Judgments and/or Related Information	22. Being in Stressful and/or Unpleasant Environment	8. Processing Information
24. Being in Hazardous Job Situations		12. Performing Skilled and/or Technical Activities
31. Working Under Demanding Circumstances		16. General Physical Coordination
		18. Engaging in General Personal Contact
		23. Engaging in Personally Demanding Situations
		32. Being Alert to Changing Conditions

From p. 5

energy for sustained periods of time. Other items included are the ability to feel pride in the job, to be part of a team, to withstand pressure, and to restore order in unstable situations.

There were no statistically significant differences in levels of importance between the Trooper and Agent for Dimension 5, "Mechanical Skills", Dimension 7, "Graphic Clerical Skills", Dimension 8, "Leadership Ability", Dimension 9, "Tolerance in Interpersonal Relations", Dimension 11, "Conscientiousness and Reliability", and Dimension 13, "Solitary Work".

See Attachment B for definitions of the dimensions of the *Skills and Attributes Inventory*.

The *Position Analysis Questionnaire* (Mecham, McCormick, Jeanneret) was administered to selected Troopers and Agents by trained job analysts. Table III shows those dimensions found to be significant for Agents, Troopers, and both Agents and Troopers. Attachment C shows the complete definitions of the dimensions derived from the *Position Analysis Questionnaire*.

LEVEL I - VOLUME II

Level I — Volume II

Volume II of the Level I report describes the relationship of dimensions of work to the dimensions of worker qualifications. The worker requirements derived from the Functional Job Analysis are also described (Sidney A. Fine, et al, The Upjohn Institute for Employment Research). A task force composed of one Trooper, one Sergeant, and two Special Agents III met to determine the most important worker requirements necessary to accomplish the work itself for Level I. The dimensions from the *Job Functions for Police Officers* (Attachment A) and the factors derived from the "Task Inventory for Sworn Officers - Level I" were used to describe the nature of the work. The dimensions from the *Position Analysis Questionnaire* (Attachment C) and *Skills and Attributes Inventory* (Attachment B) and the factors derived from the "Physical Elements Inventory for Sworn Officers" were used to describe worker qualifications.

The results of the work done by the task force showed that problem solving ability, comprehension of written and verbal instructions, decision-making ability, and communications are important to both the Agent's and Trooper's jobs. The ability to withstand monotony, knowledge of the Department, and the need to update job knowledge are also required.

In addition, general physical fitness, with emphasis on upper torso strength, endurance, eye-hand coordination, and agility, is necessary. Visual acuity and sensory perception skills are other physical qualifications for the entry level positions.

Worker requirements from the Functional Job Analysis scales demonstrated that an entry level officer must be able to compute and/or compile information, coach, persuade and/or divert individuals and develop ways to complete assigned work. The Agent and Trooper must also be able to interpret a variety of instructions furnished in written, oral or diagrammatic form, use basic math (add, subtract, multiply, and divide whole numbers), read and comprehend material at the news reporting level, and fill in various types of report forms.

2 LEVEL II - VOLUME I

Level II — Volume I

A sample of Corporals, Special Agents II, and supervisory officers (Sergeants, Special Agents III, Lieutenants, and Special Agents IV) was selected to respond to six (6) job analysis questionnaires. The questionnaires were designed to elicit input about the nature of the work performed and the qualifications needed by the worker, i.e., the Corporal or Special Agent II.

The "Physical Elements Inventory for Sworn Officers" (Importance Rating) and the "Physical Elements Inventory for Sworn Officers" (Frequency Rating) asked the sample of Department of Law Enforcement Officers to rate the importance and frequency of performance of 136 physical elements to their jobs.

The factor analysis solution (19 factors) used at Level I was also used for Levels II and III so that the ranks could be more easily compared. Factor analysis groups like elements into categories called factors. These factors were then subjected to additional statistical analyses to determine the reliability of the elements and the differences, if any, between the Corporal and the Special Agent. The nineteen factors had alpha coefficients of 0.64 or greater for importance and 0.48 or greater for frequency. The majority of the factors for both importance and frequency had coefficients of 0.82 or greater indicating the reliability of the two inventories.

The "student's t-test" was used to determine any differences that might exist between the Division of State Police and the Division of Criminal Investigation in the perceptions of the importance and frequency of performance of the physical elements. State Police perceived four of the factors to be more important to their jobs, although only three of the four factors were found to be more significant in frequency of performance by Corporals than by Agents. Criminal Investigation officers found two factors to be significantly more important and more frequently performed by Agents than by Corporals.

Table IV shows the differences between Divisions for the importance and frequency of physical elements factors.

TABLE IV
LEVEL II
PHYSICAL ELEMENTS — IMPORTANCE AND FREQUENCY
DIFFERENCES BETWEEN DIVISION OF STATE POLICE (DSP)
AND DIVISION OF CRIMINAL INVESTIGATION (DCI)

Importance**	Frequency**	FACTORS	
—	DCI	1	Physical Activities Involving Lower Torso Strength in Buildings and Structures
—	—	2	Power and Agility in Jumping and Leaping Involving Distances of Four Feet or Less
—	—	3	Endurance
—	—	4	Maintain Balance While Working on Heights or While Running, Jumping or Climbing
—	—	5	Restraint or Control of Subject Utilizing Upper Torso Strength
—	—	6	Coordination and Speed (Agility) While Using Weapon
—	—	7	Rapid Application of Upper and Lower Torso Strength in Control of a Suspect
—	—	8	Agility and Endurance in Physical Activities Such as Running, Dodging, and Weaving
DSP	—	9	Flexibility and Agility in Defending Oneself While Under Attack
DSP	DSP	10	Perform Physical Activities in a Noxious, Contaminated, or Difficult Environment
DSP	DSP	11	Upper and Lower Torso Strength in Lifting, Carrying, or Dragging a Person
DSP	DSP	12	Vehicle Related Physical Activities
—	—	13	Maintaining Balance and Control
—	—	14	Power in Jumping and Climbing Involving Distances Between Three to Eight Feet
—	—	15	Eye-Hand Coordination and Grip Strength While Performing Other Physical Activities
—	—	16	Performing Physical Activities While Under Stress, Pain, or Injury
—	—	17	Handling a Weapon or Individual Utilizing Endurance and Strength
DCI	DCI	18	Work for Extended Periods of Time
DCI	DCI	19	Speaking and Remaining Immobile

**Listed Division indicates Higher Importance or Frequency for that Division

The "Task Inventory for Sworn Officers - Level II" (Importance Rating) and the "Task Inventory for Sworn Officers - Level II" (Frequency Rating) asked the respondents to rate the importance and frequency of performance of 170 tasks for the jobs of Corporal and Special Agent II. Using factor analysis, ten (10) factors were derived from 170 tasks. Statistical analysis showed that all the factors had alpha coefficients of 0.51 for importance and frequency, with the majority having alpha coefficients of 0.77 or greater. The coefficients indicate that the inventories were reliable measurements of the work performed by Level II officers.

The "student's t-test" procedure was used to determine if there were differences in the Agent's and Corporal's perceptions of the importance and frequency of performance of the task factors. Table V shows the results of the "student's t-test" procedure for Level II officers.

Tasks included in the factors found to be more important and more frequently performed for Corporals are vehicle operation, reporting road conditions and traffic flow, providing information to motorists, using speed detection equipment, issuing citations, assisting at disasters, handling riot situations, counselling subordinates, and reviewing reports.

Tasks included in the factors found to be significantly more important and more frequently performed for Agents are vehicle and building searches, documenting elements of a crime, handling and storing evidence, developing information to locate a fugitive, controlling an undercover operation, documenting O.A.F. transactions, and identifying M.O.'s.

TABLE V
LEVEL II
LEVELS OF STATISTICAL SIGNIFICANCE OF
DIFFERENCE BETWEEN DIVISIONS
TASKS FACTORS BY IMPORTANCE

FACTOR	Importance	Frequency
1. Police Procedures	SA+	SA+
2. Regulatory, Service, Education	Corp+	Corp+
3. Departmental Representation	No Difference	Corp+
4. Criminal Investigation	SA+	SA+
5. Traffic Patrol, Service, and Enforcement	Corp+	Corp+
6. Emergency and Specialized Services	Corp+	Corp+
7. Examination, Analysis, Training	SA+	SA+
8. Information Collection, Evaluation, and Dissemination	No Difference	No Difference
9. Decision-Making Activities	Corp+	Corp+
10. Management and Supervisory Responsibilities	No Difference	No Difference

The *Work Elements Inventory*, (Human Resource Center, The University of Chicago), a standardized and objective measure of the basic dimensions of the jobs, asked the respondents to rate the importance of 140 items to their jobs. Statistical analysis found five dimensions to be statistically significant in importance for the Corporal's job. Items included in these dimensions are encouraging group cooperation, handling day-to-day problems, identifying safety hazards, and performance evaluations.

The statistical analysis results showed five dimensions to be significant in importance for the Agents; items included in these dimensions are maintaining accurate records, understanding work activities of other departments, making decisions with incomplete information, and staying informed on community problems. Table VI shows the results of the analysis of variance for Level II. See attachment D for complete definitions of the *Work Elements Inventory* dimensions.

TABLE VI
WEI ANALYSIS OF VARIANCE
LEVEL II

FACTOR	Importance
Setting Organizational Objectives	†
Financial Planning and Review	SA+‡
Improving Work Procedures and Practices	†
Interdepartmental Coordination	SA+
Developing and Implementing Technical Ideas	SA+‡
Judgment and Decision-Making	SA+
Developing Group Cooperation and Teamwork	C+
Coping with Difficulties and Emergencies	C+
Promoting Safety Attitudes and Practices	C+
Communications	†
Developing Employee Potential	C+
Supervisory Practices	C+
Self-Development and Improvement	†
Personnel Practices	†
Promoting Community-Organization Relations	SA+
Handling Outside Contacts	†

† No difference

‡ Rated below average in importance

The *Skills and Attributes Inventory* (Melany E. Baehr and Industrial Relations Center, The University of Chicago) asked respondents to rate the importance of 96 skills and attributes to the performance of their jobs. Dimension 1, "General Function Intelligence", Dimension 6, "Graphic Clerical Skills", and Dimension 7, "General Clerical Skills", were found to be statistically significant in importance for the Agents. Items in these dimensions include the ability to think logically and clearly, to remember and use small details, to write clear and effective letters, descriptions, or instructions, and the ability to grasp quickly what people mean when they give verbal or written information.

Dimension 2, "Visual Acuity", Dimension 10, "Organization Identification", and Dimension 12, "Conscientiousness and Reliability", were found to be significant in importance for the Corporal. Items in these dimensions include the ability to clearly distinguish details of distant and nearby objects, the ability to follow and enforce rules, procedures, and regulations, to be proud of the job, and to work fast and accurately in situations where there is time pressure or emotional strain.

Table VII shows the results of the analysis of variance for Level II. Complete definitions of the *Skills and Attributes Inventory* dimensions are found in Attachment B.

TABLE VII
SAI ANALYSIS OF VARIANCE FOR
LEVEL II

FACTOR	
General Functioning Intelligence	SAII+
Visual Acuity	Corp+
Visual and Coordination Skills	†
Physical Coordination Skills	†
Mechanical Skills	†
Graphic Clerical Skills	SAII+
General Clerical Skills	SAII+
Leadership Ability	†
Tolerance in Interpersonal Relations	†
Organization Identification	Corp+
Conscientiousness and Reliability	†
Efficiency Under Stress	Corp+
Solitary Work	†

† No difference

The *Position Analysis Questionnaire* (Mecham, McCormick, Jeanneret) was administered to selected Corporals and Agents by trained job analysts. Table VIII shows the items from the PAQ found to have the highest percentile scores for Agents and Corporals; Table IX shows the PAQ dimensions that were found to be significant for Agents, Corporals, and both Agents and Corporals. Complete definitions of the PAQ dimensions are found in Attachment C.

TABLE VIII
PAQ ITEMS WITH HIGHEST PERCENTILE SCORES BY
SPECIAL AGENT II AND CORPORAL

SPECIAL AGENT II

Item #	Name	Rating	%tile
151	Personal Sacrifice	4.7	99
123	The Public	4.7	99
71	Powered Highway/Rail Vehicles	5.0	99
54	Precision Tools/Instruments	4.7	99
103	Interviewing	4.3	99
59	Technical and Related Devices	3.7	98
160	Licensing/Certification Required	1.0	98
53	Handling Devices/Tools	2.7	97
57	Applicators	3.0	96
23	Color Perception	4.3	95
107	Writing	4.3	94
10	Features of Nature	2.7	94
116	Professional Personnel	4.0	94
152	Interpersonal Conflict Situations	3.3	94
132	Coordinates Activities	3.0	93
150	Strained Personal Contacts	3.3	92
184	Responsibility for Material Assets	5.0	92
98	Hand-Ear Coordination	2.7	91
96	Eye-Hand/Foot Coordination	4.0	91
12	Behavior	4.0	90
101	Persuading	3.7	90
100	Negotiating	3.3	89
114	Middle Management/Staff Pers.	4.0	89
41	Compiling	4.3	89
178	Vigilance: Continually Change	3.7	88
36	Decision Making	4.0	87

CORPORAL

Item #	Name	Rating	%tile
29	Estimating Speed of Moving Objects	4.3	99
151	Personal Sacrifice	4.7	99
123	The Public	5.0	99
54	Precision Tools/Instruments	5.0	99
53	Handling Devices/Tools	3.7	99
182	Travel	3.3	99
150	Strained Personal Contacts	4.3	99
160	Licensing/Certification Required	1.0	99
128	Supervise Nonsupervisory Personnel	3.3	98
11	Man-Made Features of Environment	3.7	98
71	Powered Highway/Rail Vehicles	4.0	97
22	Depth Perception	4.3	97
111	Serving/Catering	2.3	96
178	Vigilance: Continually Change	4.7	96
85	Highly Skilled Body Coordination	3.0	95
23	Color Perception	4.3	95
98	Hand-Ear Coordination	3.0	95
96	Eye-Hand/Foot Coordination	4.3	95
107	Writing	4.0	94
64	Variable Setting Controls	3.3	93
184	Responsibility for Material Assets	5.0	92
147	Permanent Total Disability/Death	2.3	92
109	Code Communications	2.3	91
146	Permanent Partial Impairment	2.3	91
187	Criticality of Position	4.7	91
152	Interpersonal Conflict Situations	3.0	91

TABLE IX
SIGNIFICANT PAQ DIMENSIONS
LEVEL II

AGENTS	CORPORALS	BOTH
17. Communicating Judgments 26. Working in Businesslike Situations 27. Specific vs. Optional Apparel 33. Having Decision/Communication Responsibilities	24. Hazardous Job Situations 40. Being Aware of Work Environment	5. Being Aware of Environment 12. Performing Skilled/Technical Activities 13. Performing Controlled Manual Activities 16. General Physical Coordination 23. Personally Demanding Situations 32. Being Alert to Changing Conditions

LEVEL II—VOLUME II

Level II—Volume II

Volume II of the Level II report describes the relationship of dimensions of work to dimensions of worker qualifications. Also described in this report are worker requirements derived from Functional Job Analysis (Sidney A. Fine, et al, The Upjohn Institute for Employment Research). A task force composed of two Corporals and two Special Agents II met to determine the most important worker requirements necessary to accomplish the work itself for Level II. The dimensions from the *Work Elements Inventory* (Attachment D) and the factors derived from the "Task Inventory for Sworn Officers—Level II" were used to describe the nature of the work. The dimensions from the *Position Analysis Questionnaire* (Attachment C) and *Skills and Attributes Inventory* (Attachment B) and the factors from the "Physical Elements Inventory for Sworn Officers" were used to describe worker qualifications.

The results of the work performed by the task force showed that problem solving ability, report writing, interpersonal skills, memory skills, and supervisory skills were important for the Level II positions. Being alert to changing conditions and performing routine and repetitive activities were also found to be necessary for a Level II Officer.

General physical fitness ability, with emphasis on handling objects, agility, and lower torso strength, was determined to be required for the Special Agent II and Corporal. Color discrimination, eye-hand and foot coordination, and sensory perception skills are other physical qualifications for these jobs.

Worker requirements derived from Functional Job Analysis showed that a Level II Officer must be able to compute and/or compile information, coach, persuade and/or divert individuals, and work out, under guidelines, ways to complete his job. The Level II Officer must also have knowledge of interrelated procedures, a basic ability to work with math, and the ability to understand technical manuals.

3 LEVEL III—VOLUME I

Level III—Volume I

A sample of Sergeants, Special Agents III, and supervisory officers (Lieutenants, Captains, Special Agents IV, and Special Agents V) was selected to respond to six (6) job analysis questionnaires. The questionnaires were designed to elicit input about the nature of the work performed and the qualifications needed by the worker, i.e., the Sergeant or Special Agent III.

The "Physical Elements Inventory for Sworn Officers" (Importance Rating) and the "Physical Elements Inventory for Sworn Officers" (Frequency Rating) asked the sample of DLE Officers to rate the importance and frequency of performance of 136 physical elements to their jobs. To be able to compare ranks, the factor analysis solution (19 factors) derived at Level I was used for analysis. Factor analysis groups similar elements into categories called factors which were then subjected to additional statistical analyses to determine reliability and variances.

The nineteen physical elements factors for importance had alpha coefficients of 0.70 or greater and for frequency of 0.60 or greater. The majority of factors ($n=17$ for importance, 14 for frequency) had coefficients of 0.80 or greater which indicates that the two inventories were reliable measurements.

The "student's t-test" was used to determine if there were significant differences between the Division of State Police and the Division of Criminal Investigation in their perceptions of the importance and frequency of performance of the physical elements. State Police perceived three factors to be significantly different in levels of importance and frequency of performance. Agents perceived two factors to be significantly different in levels of importance and frequency of performance. Physical elements included in the three factors found to be of significant difference for the State Police are performing physical activities in a contaminated atmosphere, performing mouth to mouth resuscitation, pulling a victim from a motor vehicle, and directing traffic. Physical elements in the two factors found to be of significant difference for the Special Agents include performing duties for extended times (15-24 hours) and performing physical activities quietly.

TABLE X
LEVEL III
LEVELS OF STATISTICAL SIGNIFICANCE
OF DIFFERENCE BETWEEN DIVISIONS
PHYSICAL ELEMENTS FACTORS BY
IMPORTANCE AND FREQUENCY

Factors	Importance	Frequency
1. Lower Torso Strength in Buildings	No Difference	†DSP
2. Power & Agility in Jumping	No Difference	No Difference
3. Endurance	No Difference	No Difference
4. Maintain Balance While Climbing	No Difference	No Difference
5. Restrain/Control of Subject	No Difference	No Difference
6. Coordination While Using Weapon	No Difference	No Difference
7. Rapid Application of Upper & Lower Torso	No Difference	No Difference
8. Running, Dodging, Weaving	No Difference	No Difference
9. Defending Oneself While Under Attack	No Difference	No Difference
10. Performing in Contaminated Environment	‡DSP	‡DSP
11. Lifting, Carrying, Dragging	‡DSP	‡DSP
12. Vehicle Related Activities	‡DSP	‡DSP
13. Maintain Balance & Control	No Difference	No Difference
14. Power Involving 3-8 Ft. Distances	No Difference	No Difference
15. Eye Hand Coordination/ Grip Strength	No Difference	No Difference
16. Performing Under Stress	No Difference	No Difference
17. Handling Weapon or Individual	No Difference	No Difference
18. Work for Extended Times	‡DCI	‡DCI
19. Speaking/Remaining Immobile	†DCI	†DCI

† Significant at .05 level

‡ Significant at .001 level

Table X shows the results of the "student's t-test procedure for the physical elements factors for Level III officers.

The "Task Inventory for Sworn Officers-Level III" (Importance Rating) and the "Task Inventory for Sworn Officers-Level III" (Frequency Rating) asked the respondents to rate the importance and frequency of performance of 180 tasks as applied to the jobs of Sergeant and Special Agent III. Using data processing capabilities within the Department of Law Enforcement, thirteen clusters were derived from the task statements. The clusters were composed of statements that were correlated to each other. The "clusters" or "categories" were then subjected to further statistical analyses for reliability and variance.

The reliability coefficients for the majority of task categories were 0.71 or greater for the importance and frequency of performance measurements. The coefficients indicate that the Task Inventories were reliable measurements of the work performed by Level III officers.

The "student's t-test" was used to determine if there were significant differences between the Sergeants and Special Agents in their perception of the importance and frequency of performance of the task categories. As shown in Table XI, Division of State Police Sergeants found six categories to be significantly more important and nine categories to be significantly different in frequency of performance. Tasks included in these categories are direction of personnel in emergency and unusual situations, ordering supplies, maintaining equipment, traffic patrol and enforcement activities, and supervisory responsibilities.

Division of Criminal Investigation Special Agents III found two categories to be significantly different in importance and frequency of performance. These categories are related to criminal investigations, i.e., use of confidential sources, surveillance, interviewing, and interrogation, and review, evaluation, and supervision of investigative cases.

TABLE XI
LEVEL III
LEVELS OF STATISTICAL
SIGNIFICANT DIFFERENCE BETWEEN
DIVISIONS
TASKS CATEGORIES BY IMPORTANCE
AND FREQUENCY

Category	Importance	Frequency
1. Supervision of Non-Routine Situations	‡DSP	‡DSP
2. Information Exchange, Analysis, & Decision Making	*	†DSP
3. Routine Office Administration	‡DSP	‡DSP
4. Training & Resource Maintenance	*	‡DSP
5. Information Collection, Evaluation, & Use	*	*
6. Education, Training, & Assistance of Officers & the Public	*	†DSP
7. Handling Emergency & Specialized Situations	‡DSP	‡DSP
8. Patrol/Traffic & Vehicle Operations Activities	‡DSP	‡DSP
9. Criminal Investigation Supervision	‡DCI	‡DCI
10. Operational Activities	‡DSP	‡DSP
11. Criminal Investigations	‡DCI	‡DCI
12. Direction & Supervision of Subordinates	‡DSP	‡DSP
13. Enforcement/Apprehension Activities	*	*

* No Difference
† Significant at .05 level
‡ Significant at .001 level

The *Work Elements Inventory* (Industrial Relations Center, The University of Chicago) asked the respondents to rate the importance of 140 items to their jobs. Statistical analysis of the responses showed Dimension 8, "Coping with Emergencies", and Dimension 12, "Supervisory Practices", to be the most important job dimensions for the Sergeant's job. Items included in these dimensions are working under pressure, effectively handling day-to-day crises, clarifying subordinate job responsibilities, and ensuring that subordinates maintain established standards of performance.

Dimension 7, "Developing Group Cooperation and Teamwork", was found to be the most important job dimension for the job of the Special Agent III. Items in this dimension include building work group relations and recognizing problems and conflicts in the work group.

Analysis of variance procedures identified three dimensions as significantly different in importance for the Sergeant and two dimensions of significant difference in importance for the Special Agent III. Table XII shows the results of the analysis of variance for Level III officers. See Attachment D for definitions of the *Work Elements Inventory* dimensions.

TABLE XII
WEI SIGNIFICANCE OF DIFFERENCE
LEVEL III

Dimension	Importance
Setting Organization Objectives.....	†
Financial Planning and Review.....	†
Improving Work Procedures and Practices.....	SGT+
Interdepartmental Coordination.....	†
Developing and Implementing Technical Ideas.....	SA+‡
Judgment and Decision-Making.....	†
Developing Group Cooperation and Teamwork.....	SA+
Coping with Difficulties and Emergencies.....	†
Promoting Safety Attitudes and Practices.....	SGT+
Communications.....	†
Developing Employee Potential.....	†
Supervisory Practices.....	†
Self Development and Improvement.....	†
Personnel Practices.....	SGT+
Promoting Community-Organization Relations.....	†
Handling Outside Contacts.....	†

† No difference

‡ Rated below average in importance

The *Skills and Attributes Inventory* (Industrial Relations Center, The University of Chicago) asked the respondents to rate the importance of 96 skills and attributes to their jobs. Dimension 1, "General Functioning Intelligence", and Dimension 12, "Efficiency Under Stress", were found to be the most important dimensions for both the Sergeant and Special Agent III. Skills and attributes included in these dimensions are problem solving ability, knowing where to get information, handling unexpected changes on the job, and adjusting to changing shifts, night work, or week end work.

Analysis of variance procedures identified two dimensions as of significant difference in importance for the Sergeant and one dimension of significant difference in importance for the Special Agent. Table XIII shows the results of the analysis of variance and definitions of the dimensions are found in Attachment B.

TABLE XIII
SKILLS AND ATTRIBUTES INVENTORY
STATISTICAL SIGNIFICANCE OF
DIFFERENCE FOR IMPORTANCE
LEVEL III

Factor	Importance
1. General Functioning Intelligence.....	†
2. Visual Acuity.....	†
3. Visual and Coordination Skills.....	†
4. Physical Coordination.....	†
5. Mechanical Skills.....	SGT+‡
6. Graphic Clerical Skills.....	SA+
7. General Clerical Skills.....	†
8. Leadership Ability.....	†
9. Tolerance in Interpersonal Relations.....	†
10. Organization Identification.....	SGT+
11. Conscientiousness and Reliability.....	†
12. Efficiency Under Stress.....	†
13. Solitary Work.....	†

† No difference

‡ Rated below average in importance

The *Position Analysis Questionnaire* (Mecham, McCormick, Jeanneret) was administered to selected Sergeants and Special Agents III by trained job analysts. Table XIV shows those items from the PAQ found to have the highest percentile scores for Agents and Sergeants; Table XV shows the PAQ dimensions that were found to significant for Agents, Sergeants and both Sergeants and Agents. Definitions of the PAQ dimensions are found in Attachment C.

**TABLE XIV
LEVEL III
PAQ ITEMS WITH HIGHEST PERCENTILE SCORES BY
SPECIAL AGENT III AND SERGEANT**

SPECIAL AGENT III

Item #	Name	Rating	%tile
54	Precision Tools/Instructions	3.3	99
151	Personal Sacrifice	4.0	99
123	The Public	4.0	98
53	Handling Tools/Devices	2.7	97
103	Interviewing	3.7	97
12	Behavior	4.7	97
71	Powered Highway/Rail Vehicles	3.7	96
26	Body Movement Sensing	2.0	95
59	Technical & Related Devices	3.0	95
107	Writing	4.0	95
152	Interpersonal Conflict Situations	3.3	94
106	Public Speaking	2.3	93
150	Strained Personal Contacts	3.3	93
98	Hand-Ear Coordination	2.7	92
101	Persuading	3.7	92
39	Combining Information	4.0	91
100	Negotiating	3.3	91
21	Far Visual Differentiation	4.0	90
23	Color Perception	3.7	90
160	Licensing/Certification Required	0.7	89
184	Responsibility for Material	4.7	89
36	Decision Making	4.0	88
37	Reasoning in Problem Solving	4.0	88
185	General Responsibility	4.3	88
47	Job-Related Experience	4.0	88
40	Analyzing Information or Data	4.0	87

CORPORAL

Item #	Name	Rating	%tile
123	The Public	4.7	99
54	Precision Tools/Instruments	4.0	99
71	Powered Highway/Rail Vehicles	4.7	99
128	Supervise Nonsupervisory Personnel	4.3	99
29	Estimate Speed of Moving Objects	3.7	99
131	Supervises Nonemployees	2.7	99
148	Civic Obligations	3.3	98
130	Tot. # Personnel For Whom Respon.	2.0	98
22	Depth Perception	4.7	98
103	Interviewing	4.0	98
151	Personal Sacrifice	4.0	97
160	Licensing/Certification Required	1.0	97
132	Coordinates Activities	3.7	97
23	Color Perception	4.7	97
47	Job-Related Experience	5.0	97
133	Staff Functions	3.3	97
152	Interpersonal Conflict Situations	3.7	97
53	Handling Devices/Tools	2.7	96
21	Far Visual Differentiation	4.7	96
129	Direction of Supervisory Personnel	1.7	95
107	Writing	4.3	95
98	Hand-Ear Coordination	3.0	95
101	Persuading	4.0	95
24	Sound Pattern Recognition	3.3	94
178	Vigilance: Continual Change	4.3	93
86	Balancing	3.3	92

TABLE XV
SIGNIFICANT PAQ DIMENSIONS
LEVEL III

AGENTS	SERGEANTS	BOTH
7. Making Decisions 12. Perform Skilled/Technical Activities 26. Working in Businesslike Situations 27. Specific vs. Optional Apparel 45. Non-Typical Schedule/Optional Apparel	19. Supervision/Coordination Activities 32. Being Alert to Changing Conditions	5. Being Aware of Environment 16. General Physical Coordination 17. Communicating Judgments 23. Personally Demanding Situations 33. Having Decision/Communication Responsibilities

LEVEL III — VOLUME II

Level III — Volume II

Volume II of the Level III report describes the relationship of dimensions of work to dimensions of worker qualifications. Also discussed in this report are worker requirements derived from Functional Job Analysis (Sidney A. Fine, et al, The Upjohn Institute for Employment Research). A task force composed of two Special Agents III and two Sergeants met to determine the most important worker requirements necessary to accomplish the work performed by Level III officers. The dimensions from the *Work Elements Inventory* (Attachment D) and the categories derived from the "Task Inventory for Sworn Officers—Level III" were used to describe the nature of the work. The dimensions from the *Position Analysis Questionnaire* (Attachment C) and *Skills and Attributes Inventory* (Attachment B) and the factors from the "Physical Elements Inventory for Sworn Officers" were used to describe worker qualifications.

The results of the work performed by the task force showed that effective problem solving skills, the ability to direct the work of others, interpersonal skills, the ability to enforce and adhere to rules and procedures, and knowledge of a jurisdiction were required for performance of a Level III job. Supportive of these skills and abilities are the requirements for effective communications skills, the ability to work under job demanding situations, and environmental awareness.

The ability to work for extended periods of time (15-24 hours), performing physical activities under stressful situation, lifting or dragging victims from vehicles, and coordination and agility while using a weapon were found to be the most important physical requirements for the Level III officer. Secondly, general physical coordination, color discrimination, and sensory perception skills are needed for effective job performance.

Worker requirements from Functional Job Analysis showed that a Level III officer must be able to evaluate information in relation to a particular discipline to determine consequences and consider alternatives. The Level III officer must be able to coach, persuade and divert individuals in their activities and must work out ways to complete a job assignment. The Level III officer must be able to apply principles to everyday problems and interpret written, verbal, or diagrammatic instructions.

Basic math skills and a level of language skills to ensure the ability to complete forms, comprehend written material at the news reporting level, and understand technical manuals related to the job are also necessary skills.

4 LEVEL IV — VOLUME I

Level IV — Volume I

All District/Zone Lieutenants and Special Agents IV and a sample of supervisory officers (Captains, Majors, Special Agents V, and Special Agents VI) were selected to respond to four (4) job analysis questionnaires. The questionnaires were used to elicit information from the respondents about the work performed by the Level IV officer, i.e., Lieutenant and Special Agent IV.

The "Task Inventory for Sworn Officers—Level IV" (Importance Rating) and the "Task Inventory for Sworn Officers—Level IV" (Frequency Rating) were composed of 116 task statements. Using the responses received for the importance rating of the Task Inventory, the tasks were correlated with each other through the application of *Pearson's r* statistical measurement. From the correlations, eleven (11) clusters or categories of statements were analytically defined. The categories were then subjected to further statistical analyses for reliability and variance between Divisions.

The task categories were found to be reliable measurements of Level IV jobs with alpha coefficients of 0.735 or greater for the importance ratings of all eleven categories and coefficients of 0.733 or greater for the frequency ratings of ten categories.

The "student's t-test" was used to determine if there were significant differences between Division of Criminal Investigation officers (Special Agents IV) and Division of State Police officers (Lieutenants) in their perceptions of the importance and frequency of performance of the task categories. As illustrated in Table XVI, two categories were found to be significantly higher in importance and frequency of performance for the Special Agents IV. Tasks included in these categories are organizing, directing, and participating in team arrests, organizing and controlling undercover operations, researching legal materials, and interrogating suspects.

Table XVI also shows that four categories were found to be significantly more important and five categories were found to be of significant difference in levels of frequency of performance for the Lieutenants. Tasks included in these categories are related to the work commonly associated with uniformed police, that is, accident scene activities, issuing citations or warnings, and emergency response activities. Also included in these categories are task related to the supervision and administration of operational activities.

TABLE XVI
LEVEL IV
LEVELS OF STATISTICAL SIGNIFICANCE
OF DIFFERENCE BY DIVISION
TASKS — IMPORTANCE AND FREQUENCY

Category	Importance	Frequency
1. Education/Information	No Difference	No Difference
2. Organization and Office Administration	No Difference	*DSP
3. Criminal Investigation Activities	†DCI	*DCI
4. Supervision of Criminal Investigations	*DCI	*DCI
5. Emergency and Enforcement Activities	‡DSP	‡DSP
6. Routine Procedures and Activities	*DSP	*DSP
7. Communications and Impact	No Difference	No Difference
8. Administrative Activities	*DSP	*DSP
9. Supervision of Operational Activities	*DSP	*DSP
10. Management Analysis and Direction	No Difference	No Difference
11. Analysis, Evaluation and Decision-Making	No Difference	No Difference

- † Significant at .05 level
‡ Significant at .01 level
* Significant at .001 level

The *Work Elements Inventory* (Industrial Relations Center, The University of Chicago) asked respondents to rate the importance of 140 items to the Lieutenant's or Special Agent's job. The Lieutenants and Special Agents IV rated Dimension 3, "Improving Work Procedures and Practices", and Dimension 12, "Supervisory Practices", as most important for their jobs. Items in these dimensions include recommending policy changes, interpreting rules and regulations to others, enforcing regulations, and clarifying job responsibilities to a subordinate.

Dimension 7, "Developing Group Cooperation and Teamwork", was also found to be particularly important for the Special Agent IV. Encouraging group idea exchange and effectively solving conflicts in the work group are part of this dimension.

Analysis of variance procedures identified three dimensions as significantly more important for the Special Agent IV. These dimensions are "Interdepartmental Coordination", "Developing Group Cooperation and Teamwork", and "Communications". Table XVII shows the results of the analysis of variance procedures. Definitions of the *Work Elements Inventory* dimensions are found in Attachment D.

TABLE XVIII
WEI SIGNIFICANCE OF DIFFERENCE IN
IMPORTANCE BETWEEN LIEUTENANTS
AND SPECIAL AGENTS

Dimension	Difference
Setting Organization Objectives	No Difference
Financial Planning and Review	No Difference
Improving Work Procedures and Practices	No Difference
Interdepartmental Coordination	DCI†
Developing Technical Ideas	No Difference
Judgment and Decision-Making	No Difference
Developing Group Cooperation and Teamwork	DCI‡
Coping with Difficulties	No Difference
Promoting Safety Attitudes and Practices	No Difference
Communications	DCI†
Developing Employee Potential	No Difference
Supervisory Practices	No Difference
Self-Development and Improvement	No Difference
Personnel Practices	No Difference
Promoting Community-Organization Relations	No Difference
Handling Outside Contacts	No Difference

† Significant at .05 level
‡ Significant at .001 level

The *Skills and Attributes Inventory* (Industrial Relations Center, The University of Chicago) asked the respondents to rate the importance of 96 knowledges, skills, and abilities for the Lieutenant or Special Agent IV position. Dimension 1, "General Functioning Intelligence", and Dimension 8, "Leadership Ability", were rated as the most important dimensions for Level IV jobs. Problem solving ability, knowing where to get information, and the ability to direct the work of others are items contained in these dimensions.

Analysis of variance procedures were used to determine if there were significant differences between Lieutenants and Agents in their perceptions of the importance of the *Skills and Attributes Inventory* dimensions to their jobs. The results identified Dimension 5, "Mechanical Skills", as significantly different in importance for the Lieutenants; however, this dimension was rated below average in importance by both Lieutenants and Agents. Items found in this dimension include the ability to work with different kinds of tools and the ability to understand how machines and equipment work. Table XVIII shows the results of the analysis of variance procedures; definitions of the *Skills and Attributes Inventory* dimensions are found in Attachment B.

TABLE XVIII
SAI SIGNIFICANCE OF DIFFERENCE
IN IMPORTANCE BETWEEN
LIEUTENANTS AND SPECIAL AGENTS

Dimension	Importance
1. General Functioning Intelligence.....	No Difference
2. Visual Acuity.....	No Difference
3. Visual and Coordination Skills.....	No Difference
4. Physical Coordination.....	No Difference
5. Mechanical Skills.....	†‡DSP
6. Graphic Clerical Skills.....	No Difference
7. General Clerical Skills.....	No Difference
8. Leadership Ability.....	No Difference
9. Tolerance in Interpersonal Relations.....	No Difference
10. Organization Identification.....	No Difference
11. Conscientiousness and Reliability.....	No Difference
12. Efficiency Under Stress.....	No Difference
13. Solitary Work.....	No Difference

† Rated below average in importance

‡ Significant at .05 level

The *Position Analysis Questionnaire* (PAQ) (Mecham, McCormick, and Jeanneret) was administered to selected Lieutenants and Special Agents IV. Table XIX shows the dimensions from the PAQ that were identified as particularly important for the Special Agent IV, Lieutenant, and both the Lieutenant and Special Agent IV. Table XX shows the PAQ items with the highest percentile scores for the Lieutenant and Special Agent IV. The definitions of the PAQ dimensions are found in Attachment C.

TABLE XIX
LEVEL IV
PAQ DIMENSIONS OF IMPORTANCE
LIEUTENANT AND SPECIAL AGENT IV

LIEUTENANT	SPECIAL AGENT IV	BOTH
1. Interpret What is Sensed	6. Using Various Senses	7. Making Decisions
2. Using Various Sources of Information		17. Communicating Judgments
5. Being Aware of Environment		19. Supervision/Coordination Activities
8. Processing Information		23. Personally Demanding Situations
11. Controlling Machines/Processes		32. Being Alert to Changing Conditions
12. Perform Skilled/Technical Activities		33. Having Decision/Communication Responsibility
16. General Physical Coordination		
20. Exchanging Job-Related Information		
24. Hazardous Job Situations		
30. Job Demanding Circumstances		
34. Operating Machines/Equipment		
40. Being Aware of Work Environment		

TABLE XX
PAQ ITEMS WITH HIGHEST PERCENTILE SCORES BY
SPECIAL AGENT IV AND LIEUTENANT

SPECIAL AGENT IV

Item #	Name	Rating	%tile
26	Body Movement Sensing	2.7	99
160	Licensing/Certification Required	1.0	99
126	Special Interest Groups	3.0	97
151	Personal Sacrifice	4.0	97
152	Interpersonal Conflict Situations	4.0	97
103	Interviewing	4.0	97
150	Strained Personal Contacts	4.0	97
100	Negotiating	4.3	97
54	Precision Tools/Instruments	2.7	96
129	Direction of Supervisory Personnel	1.7	96
113	Executives/Officials	4.0	95
137	Low Temperature	1.3	95
130	Tot. # Personnel for Whom Respon.	1.7	95
99	Advising	4.7	94
149	Frustrating Situations	4.3	94
101	Persuading	4.3	94
47	Job-Related Experience	4.7	94
186	Job Structure	4.3	94
121	Buyers	2.3	94
107	Writing	4.3	94
128	Supervise Nonsupervisory Personnel	2.7	94
38	Amount of Planning/Scheduling	4.7	93
134	Supervision Received	3.7	93
116	Professional Personnel	4.0	93
29	Estimate Speed of Moving Objects	3.0	93
12	Behavior	4.3	93

LIEUTENANT

Item #	Name	Rating	%tile
98	Hand-Ear Coordination	4.0	99
69	Foot-Operated Control Continuous	4.3	99
103	Interviewing	5.0	99
130	Tot. # Personnel for Whom Respon.	3.0	99
123	The Public	4.7	99
29	Estimate Speed of Moving Objects	5.0	99
113	Executives/Officials	5.0	99
26	Body Movement Sensing	3.3	99
151	Personal Sacrifice	5.0	99
129	Direction of Supervisory Personnel	4.3	99
148	Civic Obligations	4.0	99
100	Negotiating	5.0	99
108	Signaling	4.0	99
144	First-Aid Cases	4.7	99
71	Powered Highway/Rail Vehicles	5.0	99
54	Precision Tools/Instruments	3.7	99
152	Interpersonal Conflict Situations	4.7	99
126	Special Interest Groups	4.7	99
133	Staff Functions	5.0	99
68	Hand-Operated Control Continuous	4.3	99
36	Decision-Making	5.0	98
31	Judging Condition, Quality	4.7	98
107	Writing	5.0	98
105	Nonroutine Information Exchange	5.0	98
64	Variable Setting Controls	4.3	98
37	Reasoning in Problem Solving	5.0	98

LEVEL IV — VOLUME II

Level IV — Volume II

Volume II of the Level IV report describes the relationship of dimensions of work to dimensions of worker qualifications. Also discussed in this report are worker requirements derived from Functional Job Analysis (Sidney A. Fine, et al, The Upjohn Institute for Employment Research). A task force composed of two Special Agents IV and two Lieutenants met to determine the most important worker requirements necessary to accomplish the work performed by Level IV officers. The dimensions from the *Work Elements Inventory* (Attachment D) and the categories derived from the "Task Inventory for Sworn Officers — Level IV" were used to describe the nature of the work. The dimensions from the *Position Analysis Questionnaire* (Attachment C) and *Skills and Attributes Inventory* (Attachment B) were used to describe worker qualifications.

The results of the work performed by the task force showed that effective problem solving skills, the ability to direct others, and the ability to determine consequences and consider alternatives. The skills of instructing, and enforcing and adhering to rules and regulations were required for performance of a Level IV job. Supportive of these skills and abilities are the requirements for effective communications skills, the ability to work under job demanding situations, environmental awareness, and judgment and decision-making abilities.

The task force identified many physical elements, such as running, climbing, lifting and carrying persons, pushing vehicles, performing duties up to 15 hours, and maintaining night vision, as elements that they had performed within the past year as part of their jobs. General physical fitness was identified through the other job analysis instruments as a requirement for the Level IV job.

Worker requirements derived from Functional Job Analysis showed that a Level IV officer must be able to evaluate information in relation to a particular discipline to determine consequences and consider alternatives. The Level IV officer must be able to coach, persuade, and divert individuals in their activities and must work out ways to complete a job assignment. The Level IV officer must be able to apply principles to everyday problems and interpret written, verbal, or diagrammatic instructions.

Basic math skills and a level of language skills to ensure the ability to complete forms, comprehend written material at the news reporting level, and understanding technical manuals related to the job are also necessary skills.

5 LEVEL V — VOLUME I

Level V — Volume I

All District/Zone Captains and Special Agents V and a sample of supervisory officers (Majors and Special Agents VI) were selected to respond to four (4) job analysis questionnaires. The questionnaires were used to elicit information from the respondents about the work performed by the Level V officer, i.e., Captain and Special Agent V.

The "Task Inventory for Sworn Officers — Level V" (Importance Rating) and the "Task Inventory for Sworn Officers — Level V" (Frequency Rating) were composed of 102 task statements. Using the responses received for the importance rating of the Task Inventory, the tasks were correlated with each other through the applications of *Pearson's r* statistical measurement. From the correlations, eight (8) clusters or categories of statements were analytically defined. The categories were then subjected to further statistical analyses for reliability and variance between Divisions.

The task categories were found to be reliable measurements of Level V jobs with alpha coefficients of 0.70 or greater for the importance ratings of all eight categories and coefficients of 0.59 or greater for the frequency ratings of seven categories.

The "student's t-test" was used to determine if there were significant differences between Division of Criminal Investigation officers (Special Agents V) and Division of State Police officers (Captains) in their perceptions of the importance and frequency of performance of the task categories. As illustrated in Table XXI, one category was found to be significantly higher in importance and frequency of performance for the Special Agents V. Tasks included in this category are organizing and directing team arrests, organizing and controlling undercover operations, assigning personnel to cases, and reviewing reports.

Table XXI also shows that one category was found to be significantly more important for the Captains. Tasks included in this category are related to the work commonly associated with uniformed police in emergency situations such as riots, searches, and evacuations.

TABLE XXI
LEVEL V
LEVELS OF STATISTICAL SIGNIFICANCE
OF DIFFERENCE BY DIVISION
TASK CLUSTERS BY IMPORTANCE
AND FREQUENCY

Clusters	Importance	Frequency
1. Education, Information and Liaison	No Difference	No Difference
2. Setting Objectives/Financial Planning	No Difference	No Difference
3. Information Analysis, Exchange and Decision Making	No Difference	No Difference
4. Organization Administration and Administrative Activities	No Difference	No Difference
5. Supervision and Control of Investigations	DCI †	DCI †
6. Direct Supervision of Personnel	No Difference	No Difference
7. Supervision of Emergency Situations	DSP †	No Difference
8. Enforcement and Prosecution Activities	No Difference	No Difference

† Significant at .001 level

The *Work Elements Inventory* (Industrial Relations Center, The University of Chicago) asked respondents to rate the importance of 140 items to the Captain's or Special Agent's job. Dimension 3, "Improving Work Procedures and Practices", Dimension 10, "Communications", and Dimension 6, "Judgment and Decision-Making", were rated as most important to the Captain's job. Items included in these dimensions are analyzing, evaluating, and interpreting policies, acting upon decisions concerning resource and manpower allocation, and monitoring and improving internal and external lines of communication.

Dimension 12, "Supervisory Practices", Dimension 7, "Developing Group Cooperation and Teamwork", and Dimension 3, "Improving Work Procedures and Practices", were rated as most important for the Special Agent's job. Building morale and group relations, clarifying subordinate's job functions, and ensuring that new procedures are installed smoothly are part of these dimensions.

Analysis of variance procedures showed that there were no significant differences between Captains and Agents in their perceptions of the importance of the dimensions of the *Work Elements Inventory* to the performance of their jobs. Table XXII shows the results of the analysis of variance procedures. Definitions of the *Work Elements Inventory* dimensions are found in Attachment D.

TABLE XXII
WEI ANALYSIS OF VARIANCE
LEVEL V

Dimension	Importance
1. Setting Organizational Objectives.....	No Difference
2. Financial Planning and Review.....	No Difference
3. Improving Work Procedures and Practices.....	No Difference
4. Interdepartmental Coordination.....	No Difference
5. Developing and Implementing Technical Ideas.....	No Difference
6. Judgment and Decision-Making.....	No Difference
7. Developing Group Cooperation & Teamwork.....	No Difference
8. Coping With Difficulties & Emergencies.....	No Difference
9. Promoting Safety Attitudes & Practices.....	No Difference
10. Communications.....	No Difference
11. Developing Employee Potential.....	No Difference
12. Supervisory Practices.....	No Difference
13. Self-Development & Improvement.....	No Difference
14. Personnel Practices.....	No Difference
15. Promoting Community-Organization Relations.....	No Difference
16. Handling Outside Contacts.....	No Difference

The *Skills and Attributes Inventory* (Industrial Relations Center, The University of Chicago) asked the respondents to rate the importance of 96 knowledges, skills and abilities for the Captain or Special Agent V position. Dimension 1, "General Functioning Intelligence", and Dimension 8, "Leadership Ability", were rated as the most important dimensions for Level V jobs. Problem solving ability, knowing where to get information, and the ability to direct the work of others are items contained in these dimensions.

Analysis of variance procedures were used to determine if there were significant differences between Captains and Agents in their perceptions of the importance of the *Skills and Attributes Inventory* dimensions to their jobs. The results identified Dimension 5, "Mechanical Skills", and Dimension 9, "Tolerance in Interpersonal Relations", as significantly different in importance for the Captains; however, these dimensions were rated below average in importance by both Captains and Agents. Items found in these dimensions include the ability to work with different kinds of tools, the ability to understand how machines and equipment work, the ability to understand another's point of view, and the ability to accept criticism from supervisors. Table XXIII shows the results of the analysis of variance procedures; definitions of the *Skills and Attributes Inventory* are found in Attachment B.

TABLE XXIII
SAI ANALYSIS OF VARIANCE
LEVEL V

Dimension	Importance
1. General Functioning Intelligence.....	No Difference
2. Visual Acuity.....	No Difference
3. Visual and Coordination Skills.....	No Difference
4. Physical Coordination.....	No Difference
5. Mechanical Skills.....	DSP†‡
6. Graphic Clerical Skills.....	No Difference
7. General Clerical Skills.....	No Difference
8. Leadership Ability.....	No Difference
9. Tolerance in Interpersonal Relations.....	DSP†*
10. Organization Identification.....	No Difference
11. Conscientiousness and Reliability.....	No Difference
12. Efficiency Under Stress.....	No Difference
13. Solitary Work.....	No Difference

† Rated below average in importance

‡ Significant at .05 level

* Significant at .001 level

The *Position Analysis Questionnaire* (PAQ) (Mecham, McCormick, and Jeanneret) was administered to selected Captains and Special Agents V. Table XXIV shows the dimensions from the PAQ that were identified as particularly important for both the Captain and Special Agent V. Table XXV shows the PAQ items with the highest percentile scores for the Captain and Special Agent V. The definitions of the PAQ dimensions are found in Attachment C.

TABLE XXIV
LEVEL V
PAQ DIMENSIONS OF IMPORTANCE
BOTH CAPTAIN AND SPECIAL AGENT V

- 2. Using Various Sources of Information
- 7. Making Decisions
- 17. Communicating Judgments
- 19. Supervision/Coordination Activities
- 23. Personally Demanding Situations
- 26. Working in Businesslike Situation
- 32. Being Alert to Changing Conditions
- 33. Having Decision/Communication Responsibilities

TABLE XX
LEVEL V
PAQ ITEMS WITH HIGHEST PERCENTILE SCORES BY
SPECIAL AGENT V AND CAPTAIN

SPECIAL AGENT V

CAPTAIN

Item #	Name	Rating	%tile	Item #	Name	Rating	%tile
129	Direction of Supervisory Personnel	2.3	99	129	Direction of Supervisory Personnel	3.3	99
130	Total # for Whom Responsible	2.7	99	151	Personal Sacrifices	5.0	99
133	Staff Functions	4.3	99	148	Civic Obligations	4.0	99
113	Executives/Officials	4.7	99	133	Staff Functions	4.0	99
160	Licensing/Certification	1.0	98	123	The Public	4.7	99
106	Public Speaking	3.0	97	106	Public Speaking	3.3	99
103	Interviewing	4.0	97	130	Total # for Whom Responsible	3.0	99
47	Job Related Experience	5.0	97	100	Negotiating	4.7	99
12	Behavior	5.0	96	37	Reasoning in Problem Solving	5.0	98
116	Professional Personnel	4.3	96	150	Strained Personal Contacts	4.3	98
185	General Responsibility	5.0	95	183	Responsibility for Safety of Others	4.7	98
123	The Public	3.7	95	126	Special Interest Groups	3.3	98
105	Non-Routine Information Exchange	4.3	95	149	Frustrating Situations	4.7	98
48	Training	5.0	95	113	Executives/Officials	4.3	97
154	Personal Sacrifice	3.7	95	152	Interpersonal Conflict Situations	4.0	97
46	Education	4.0	95	160	Licensing/Certification	1.0	97
99	Advising	4.7	95	73	Powered Water Vehicles	0.7	97
71	Powered Highway/Rail Vehicles	3.7	94	114	Middle Management/Staff Personnel	5.0	96
126	Special Interest Groups	2.7	94	125	Clients/Patients/Counselees	3.0	96
38	Amount of Planning/Scheduling	4.7	94	47	Job Related Experience	5.0	96
134	Supervision Received	3.7	93	71	Powered Highway/Rail Vehicles	4.0	96
152	Interpersonal Conflict Situations	3.3	93	38	Amount of Planning/Scheduling	5.0	96
132	Coordinates Activities	3.0	92	36	Decision-Making	4.7	96
101	Persuading	4.0	92	39	Combining Information	4.7	96
107	Writing	4.0	92	178	Vigilance: Continual Change Events	4.7	95
184	Responsibility for Material Assets	5.0	92	177	Vigilance: Infrequent Events	4.3	95

LEVEL V - VOLUME II

Level V — Volume II

Volume II of the Level V report describes the relationship of dimensions of work to dimensions of worker qualifications. Also discussed in this report are worker requirements derived from Functional Job Analysis (Sidney A. Fine, et al, The Upjohn Institute for Employment Research). A task force composed of two Special Agents V and two Captains met to determine the most important worker requirements necessary to accomplish the work performance by Level V officers. The dimensions from the *Work Elements Inventory* (Attachment D) and the categories derived from the "Task Inventory for Sworn Officers—Level V" were used to describe the nature of the work. The dimensions from the Position Analysis Questionnaire (Attachment C) and *Skills and Attributes Inventory* (Attachment B) were used to describe worker qualifications.

The results of the work performed by the task force showed that effective problem solving skills, the ability to direct the work of others, interpersonal skills, the ability to enforce and adhere to rules and procedures, report writing, understanding written and verbal instructions and the ability to remember names and faces were required for the performance of a Level V job. Supportive of these skills and abilities are the requirements for effective communications skills, the ability to work under job demanding situations, and environmental awareness.

The task force identified many physical elements, including the ability to work for extended periods of time (15-24 hours), performing physical activities under stressful situations, running, climbing, and exiting a patrol vehicle, as elements that they had performed as part of their jobs during the past year. General physical coordination was identified through the job analysis instruments as a requirement for the Level V job.

Worker requirements derived from Functional Job Analysis showed that a Level V officer must be able to evaluate information in relation to a particular discipline to determine consequences and consider alternatives. The Level V officer must be able to coach, persuade and divert individuals in their activities and must work out ways to complete a job assignment. The Level V officer must be able to apply principles to everyday problems and interpret written, verbal, or diagrammatic instructions.

Math skills using fractions, decimals, and percentages and a level of language skills to ensure the ability to write routine business correspondence, prepare and deliver lectures, and understand technical manuals related to the job are also necessary skills for the Level V positions.

BIBLIOGRAPHY

Bibliography

Baehr, Melany E. and Industrial Relations Center, *Skills and Attributes Inventory (Importance Rating)*, Chicago, Illinois: The University of Chicago, n.d.

Baehr, Melany E., Lonergan, Wallace G., and Hunt, Bruce A., *Work Elements Inventory (Importance Rating)*, Chicago, Illinois: The University of Chicago, Industrial Relations Center, 1978.

Fine, Sidney A. and Wiley, Wretha W., *An Introduction to Functional Job Analysis, A Scaling of Selected Tasks from the Social Welfare Field*, (Methods for Manpower Analysis, No. 4), Kalamazoo, Michigan: The Upjohn Institute for Employment Research, September 1971.

Industrial Relations Center, *Job Functions Inventory for Police Officers*, Chicago, Illinois: The University of Chicago, n.d.

McCormick, Ernest J., Jeanneret, P. R., and Mecham, Robert C., *Position Analysis Questionnaire*, West Lafayette, Indiana: Purdue University, 1969.

ATTACHMENT A

Job Functions Inventory For Police Officers Categories

1. PATROL ACTIVITIES

Defined by a variety of activities in day-to-day patrol work, such as maintaining order at a scene of police activity (crime, accident or disaster), handling hostile or actively aggressive individuals or crowds, conducting searches and investigations, questioning witnesses and suspects, following through on arrests, writing reports, engaging in pursuit driving, dealing with victims, serving warrants, being alert for unusual situations and providing effective court testimony.

2. INTERPERSONAL RELATIONS

Involves positive and constructive relationships with individuals and groups, and includes activities such as referring individuals to needed (non-police) sources of services, maintaining good relationships with people in assigned area, helping strangers, working comfortably where other races or ethnic groups are in the majority, and establishing constructive relationships with street gangs. Also included having knowledge of social and economic characteristics and patterns of activity in assigned area, foot patrol, patrolling public housing, knowing nonlethal methods of control, keeping up on street gang activities and responding to calls for assistance from the public.

3. TRAFFIC PATROL

Includes patrol of highways and assigned routes to help drivers in distress, insure compliance with speed limits, issue warnings or tickets for traffic violations, handle individuals "under the influence," direct traffic, secure accident scenes, conduct motor vehicle inspections, ad-

vise accident witnesses, recover stolen or abandoned cars and maintain departmental standards for personal and uniform appearance on duty.

4. POLICE PROCEDURES

Defined by activities such as assisting accident witnesses with report forms, working a one-person patrol assignment for long periods of time, truck-weighing, highway patrol performing escort service, issuing traffic citations, locating and recovering stolen or abandoned cars, and administering breath test.

5. SECURITY AND SURVEILLANCE

Involves the following of detailed routines for checking security of buildings and open spaces in assigned area, maintaining surveillance on individuals or buildings and locations, investigating false alarms or reports, reviewing records on suspects, conducting searches for stolen goods, patrolling public housing and parks or beaches, responding to burglar alarms and dealing with informants.

6. EMERGENCY SERVICES

Includes activities related to a wide range of emergency situations such as assisting in rescue procedures in boating accidents, plane crashes or storms, assisting in flood control, dealing with potential or attempted suicides, searching for missing persons, responding to bomb threats, participating in manhunts, working with the armed forces in martial law situations, transporting ill or injured persons, knowing procedures to be followed in kidnapping cases, assisting lost children, responding to burglar alarms, manning roadblocks and taking part in forest or brush fire control.

7. SPECIAL ASSIGNMENTS

This factor is defined by a variety of somewhat special-

ized work activities, including lecturing outside the department on police-community relations and traffic or personal safety practices, making background investigations on applicants to the department, using photographic equipment, taking fingerprints from objects or surfaces, carrying out routine laboratory tests, serving as "Officer Friendly" in school visit programs and investigating causes of non-traffic accidents.

8. SELF-DEVELOPMENT AND SPECIALIZED KNOWLEDGE

Involves knowing what kinds of assistance are available from other law enforcement organizations, making suggestions for departmental improvements, attending special training, being familiar with the operation of specialized equipment, maintaining unarmed self-defense skills, keeping updated on changes in relevant codes and regulations, maintaining cooperative relationships with other divisions or functions in the department and with other law enforcement organizations.

ATTACHMENT B

Definitions of Skills and Attributes Dimensions

1. GENERAL FUNCTIONING INTELLIGENCE

The ability to think clearly and logically and to concentrate and to work effectively despite distractions. A facility for knowing where to get information and for sorting out the relevant facts. An ability to apply general principles to find practical ways of dealing with unusual problems and situations.

2. VISUAL ACUITY

The ability to clearly distinguish details of distant and nearby objects, to see at night, and to see peripherally (i.e., being aware of things or motion to the side when looking straight ahead).

3. VISUAL AND COORDINATION SKILLS

The ability to coordinate eye, hand, and foot movements in performing a task, combined with good near vision and color discrimination.

4. PHYSICAL COORDINATION

The ability to use physical energy for sustained periods of time without tiring when performing tasks involving coordination skills.

5. MECHANICAL SKILLS

A liking for, and the ability to work with, different kinds of tools with the knowledge of what each should be used for. The ability to read blueprints, estimate the size of replacement parts correctly, and to understand how machines and equipment work.

CONTINUED

1 OF 2

6. GRAPHIC CLERICAL SKILLS

Ability in the clerical skills of effective report writing, understanding written communications, and attention to detail, combined with the ability to understand and to draw diagrams, maps, or blueprints.

7. GENERAL CLERICAL SKILLS

The ability to follow rules and procedures and to work efficiently and accurately in performing routine tasks involving lists of names or numbers and the ability to grasp quickly either written or spoken instructions.

8. LEADERSHIP ABILITY

The ability to take charge, to direct the work of others, and to persuade them to do the work in the way in which it should be done. The ability, also, to train others and to address a group of employees or a large audience.

9. TOLERANCE IN INTERPERSONAL RELATIONS

The ability to remain pleasant while handling children, older people or difficult interpersonal situations politely and effectively. The ability, also, to understand the other person's point of view, to be part of a team, to accept criticism from supervisors, and to work to improve performance.

10. ORGANIZATION IDENTIFICATION

The ability to feel pride in the job, to be part of a team, and to enforce and personally adhere to set rules and procedures, such as those applying to safety practices and grooming.

11. CONSCIENTIOUSNESS AND RELIABILITY

The ability to withstand the monotony of repetition, to be punctual, conform to set schedules, and to be able to concentrate despite distractions. The ability, also, to

answer questions about an area or jurisdiction knowledgeably and to remember names and faces.

12. EFFICIENCY UNDER STRESS

The ability to withstand pressure, to deal with emergency situations according to regulations, which may include taking responsibility for the lives of others, to use physical force if necessary to deal with hostility or violence, and to restore order in unstable or uncertain situations.

13. SOLITARY WORK

The ability to live away from home or family if necessary to work alone or in lonely situations, to accept the possibility of personal injury on the job, and to adjust to unexpected changes in schedules or the job.

ATTACHMENT C

Definitions of Position Analysis Questionnaire Dimensions

INFORMATION INPUT DIMENSIONS (1-6)

1. **Interpreting what is sensed** — This dimension deals with situations in which the worker typically interprets the information that is received by the various sensory mechanisms, such as hearing, vision, touch, etc.
2. **Using various sources of information** — This dimension represents circumstances in which individuals use, or depend upon, sources of information in their work, such as written materials, quantitative materials, verbal information from other people, etc.
3. **Watching devices/materials for information** — The emphasis in this dimension is on observing, or being alert to, devices, materials, processes, and other features of, or events in, the environment as part of the individual's work activities.
4. **Evaluating/judging what is sensed** — The emphasis of this dimension is in terms of judging, estimating, or otherwise making evaluative judgments about the information input to the individual, most typically visual input, including the evaluation of the individuals' own work and/or that of others. Such evaluation can cover a variety of "inputs", including materials, processes, events, human behavior, etc.
5. **Being aware of environmental conditions** — The dominant aspect of this dimension is that of continually being aware of various aspects of the individual's work environment, especially various types of events or circumstances. Such awareness might relate to the man-made features of the environment, or to the natural environment.

6. **Using various senses** — The dimension is characterized primarily by the need to use one or a combination of the senses as sources of job-related information. In particular it emphasizes the need for sensory acuity and perception on the part of the individual.

MENTAL PROCESSING DIMENSIONS (7-8)

7. **Making decisions** — This dimension is characterized by the extent to which various mental processes are required in the performance of the job, typically reflected by some type of decision making, or problem solving, or the application of experience or training.
8. **Processing information** — This dimension is characterized by job activities involving any of the various forms of "processing" or "using" information, perhaps most typically applying relatively standardized procedures or guidelines, although some aspects of decision making usually are involved. The processing of information, as represented by this dimension, would be involved in many different types of jobs, including typical office activities.

WORK OUTPUT DIMENSIONS (9-16)

9. **Using machines/tools/equipment** — This dimension is dominated by activities involving the use of any of various types of machines, tools, equipment, devices, etc., many of which require the use of control mechanisms.
10. **Performing activities requiring general body movements** — This dimension relates to the degree to which workers perform activities requiring general body movements. The movements primarily include those activities in which the entire body is involved, such as climbing, balancing, standing, and walking, but also, to a lesser degree, those activities emphasizing the use of major parts of the body (i.e., arms, legs, etc.)

11. **Controlling machines/processes** — This dimension primarily involves activities relating to the control of machines, processes and related operations. The control frequently is executed by the use of various control mechanisms, or by direct physical control of some mechanism or device.

12. **Performing skilled/technical activities** — This dimension is characterized primarily by job activities of a skilled or technical nature, some of which may involve the use of control mechanisms, devices, and related equipment.

13. **Performing controlled manual/related activities** — This dimension is dominated by the execution of controlled manual activities of various types. The activities may involve the use of tools, equipment, or other devices, or direct use of the hands as in assembling or adjusting tasks.

14. **Using miscellaneous equipment/devices** — This dimension embraces the use of any of a variety of different types of equipment, devices, and facilities, including those involved in the operation of various types of vehicles. The activities embraced by this dimension frequently involve general body activities and manual functions.

15. **Performing handling/related manual activities** — This dimension is characterized primarily by job activities which involve the handling or movement of materials with the hands and arms, or which involve the manipulation of things with the hands. It includes handling, positioning, and moving functions in which the hands and arms are dominant.

16. **General physical coordination** — The primary activities involved in this dimension are those in which the body and body members are used in some coordinated fashion. This may involve the use of various types of mechanical devices, or the execution of coordination activities in the absence of physical equipment or

machines or tools.

DIMENSIONS INVOLVING RELATIONSHIPS WITH OTHERS (17-21)

17. **Communicating judgments/related information**—This dimension is related to various types of communicating activities including particularly the communication of judgments, opinions, decisions and information of a non-routine nature, etc. The communications activities include writing, advising, negotiating and persuading, and the interpersonal relationships involved in generally responsible, often higher level job functions.
18. **Engaging in general personal contacts** — This dimension is characterized by various types of personal communications, the nature of the communications being quite varied in terms of content. Hence, the dimension represents something of a general communication type activity.
19. **Performing supervisory/coordination/related activities** — This dimension represents a variety of communication activities such as those involved in supervisory, coordination, and related functions. In some instances it may involve the instruction or advising of others.
20. **Exchanging job-related information** — This dimension involves activities or contacts with personnel, both within and outside the organization, in which the exchange of job-related information tends to be dominant.
21. **Public/related personal contacts** — This dimension involves personal contacts with the public or other persons typically outside the organization, such as in selling, dealing with special interest groups, clients, customers, patients, counselees, etc. Although this dimension is concerned primarily with personal contacts with individuals outside the organization, it also may involve communications with some individuals within the organization.

JOB CONTEXT DIMENSIONS (22-24)

22. **Being in a stressful/unpleasant environment** — This dimension is characterized by circumstances in which the individual is subjected to potentially stressful or unpleasant situations, some of which may involve hazardous or otherwise undesirable conditions.
23. **Engaging in personally demanding situations** — This dimension is dominated by circumstances in which demands are made upon an individual of an emotional nature or which may involve some subordination of personal desires to organizational or client needs, and in some instances may involve personal conflict, emotional frustration, or personal sacrifice.
24. **Being in hazardous job situations** — This dimension is characterized by conditions which are potentially hazardous to the individual; involved is the possibility of disability or death. The conditions may be indoors or outdoors.

DIMENSIONS DEALING WITH "OTHER" JOB CHARACTERISTICS (25-32)

25. **Working non-typical vs. day schedule** — This dimension tends to be "bi-polar" in nature. One end of the dimension is characterized by work situations involving conventional day work schedules with regular hours, as contrasted with the other end of the dimension which is characterized by work schedules of an irregular nature or a variable shift nature, or that involve non-typical schedules.
26. **Working in businesslike situations** — This dimension is characterized by job circumstances that may be thought of as being "businesslike" environments, such as offices, stores, and so forth. Individuals in such situations usually are on a salary basis as contrasted with being on an hourly wage basis.

27. **Wearing specified vs. optional apparel**—This dimension is characterized by jobs or work situations in which some type of apparel is either specified or "expected" as a matter of custom on the part of the employer and/or employees, as contrasted to jobs in work situations in which individuals usually may wear virtually any kind of apparel.
28. **Being paid on a salary vs. variable basis** — This dimension tends to be characterized by differences in the basis of compensation, on the one hand, being paid on a straight salary basis as contrasted with such compensation bases as commissions, tips, incentive pay, supplementary compensation, and hourly wages. It must be recognized that this is not a clear cut distinction, since the same type of job under various circumstances can be paid on different bases, and some jobs have a compensation system that provides for both variable and salary remuneration.
29. **Working on an irregular vs. regular schedule** — This dimension tends to differentiate between and among jobs and job situations in which there is a tendency for some "irregularity" in the work load, such as seasonal fluctuations, variations in hours work because of production quotas, work demands, etc. as contrasted with those job situations which by their nature tend to be regular in terms of employment and work load.
30. **Working under job-demanding circumstances** — This dimension is characterized by circumstances in which there is typically some "demand" on the individual created by the job, such as the need to update job knowledge, the need to give attention to detail, the need for precision, the need to work under distractions or under time pressures, etc.
31. **Performing unstructured vs. structured work** — This dimension reflects the degree to which the job activities are predetermined for the worker rather than being at the discretion of the person performing the job. High scores on this dimension indicate considerable structure

in which the incumbents have relatively little discretion in performing their work, while low scores reflect relatively low job structure with the incumbents having considerable latitude in performing their jobs.

OVERALL DIMENSIONS (33-45)

33. **Having decision, communicating, and general responsibilities** — This dimension is the most inclusive of all the dimensions, having significant correlations with many of the job elements in the PAQ. The dimension reflects activities involving considerable amounts of responsibility for decision making, communicating, and general responsibility.
34. **Operating machines/equipment** — This dimension characterizes activities in which individuals are responsible for the operation of machines, equipment, tools, and other types of mechanical and related devices.
35. **Performing clerical/related activities** — This dominant feature of this dimension is involvement in the performance of typical clerical, office, and related types of activities.
36. **Performing technical/related activities** — This dimension covers a variety of activities that, in general, can be characterized as involvement in the use of various types of technical and related devices, or performing technical types of work without such devices.
37. **Performing service/related activities** — The common theme of the job activities covered by this dimension is that associated with performing some type of service generally for others, although such services typically also are accompanied by various types of sensory and manual activities.
38. **Other work schedules vs. working regular day schedules** — The primary distinction represented by this dimension is that of working non-typical day schedules (such

as shift work), and irregular kinds of work schedules as opposed to a typical day schedule.

39. **Performing routine/repetitive activities** — This dimension is characterized by the performance of routine, repetitive work activities, in some instances at predetermined work paces.
40. **Being aware of work environment** — This dimension typically involves continual awareness of, or sensitiveness to, the environment within which the individual is involved, such awareness being based on the use of various senses, such as vision, hearing, etc. In addition, the dimension typically involves making some kind of response to changing environmental conditions, such as the use of various kinds of control mechanisms, the operation of vehicles, etc.
41. **Engaging in physical activities** — The dominant feature of this dimension is involvement in general body or physical activities such as walking, stooping, standing, handling, etc. Implicit in such involvement in some instances is the possibility of physical hazards and associated physical impairment.
42. **Supervising/directing/estimating** — This dimension involves several often related coordinating, directing, and estimating functions, frequently but not always associated with supervisory or management positions. This dimension has for example, a somewhat different and more diffuse nature than dimension 19 which deals more specifically with the supervision and direction of others.
43. **Public/customer contacts** — This dimension is characterized dominantly by the need for personal contacts with the public, customers, or other individuals such as clients, patients, etc.
44. **Working in an unpleasant/hazardous/demanding environment** — This dimension is characterized by a spec-

trum of job environments that usually would be considered as unpleasant, potentially hazardous or personally demanding.

45. **Non-typical work schedule/optional apparel** — This dimension is not as clearly delineated as some of the others in that it is dominated by an admixture of job elements dealing with non-typical work schedules (such as irregular work and night schedules) and dealing with apparel (optimal and informal apparel). The "opposite" end of the dimension is characterized by more regular work schedules. Aside from being a rather unclear dimension it also is very unimportant since it accounts for only 1% of the total variance.

ATTACHMENT D

Definitions of Work Element Dimensions

1. SETTING ORGANIZATION OBJECTIVES

Formulating the overall mission and goals of the organization; setting short- and long-range objectives which are significant, measurable, and incorporate future predictions; evaluating alternative structures for future organization operations.

2. FINANCIAL PLANNING AND REVIEW

Making economic decisions and managing capital assets; establishing a budget and independent controls to assure that the budget is met; maintaining accurate financial records using up-to-date procedures.

3. IMPROVING WORK PROCEDURES AND PRACTICES

Analyzing, interpreting, and evaluating operating policies; initiating and formulating improved procedures and policies within the organizational structure; insuring that new procedures are installed smoothly.

4. INTERDEPARTMENTAL COORDINATION

Understanding and coordinating the problems and work activities of different departments within an organization; using informal communication lines as well as work committees across the organization.

5. DEVELOPING AND IMPLEMENTING TECHNICAL IDEAS

Originating technical ideas and designs; translating technical ideas into feasible solutions to organizational needs; leading technical projects and writing ap-

propriate reports; helping the organization adjust to and evaluate technical changes.

6. JUDGMENT AND DECISION-MAKING

Analyzing incomplete information to make decisions; being flexible in non-routine decisions; acting upon decisions concerning resource and manpower allocation; accepting responsibility for the consequences of both one's own and one's subordinates' decisions.

7. DEVELOPING GROUP COOPERATION AND TEAMWORK

Encouraging and building work group relations which will lead to better idea exchanges, improved decision-making, more open communication, higher morale, and a sense of purpose; recognizing destructive problems and conflicts within the work group.

8. COPING WITH DIFFICULTIES AND EMERGENCIES

Working efficiently under pressure; effectively handling unexpected problems, day-to-day crises, and emergency situations; quickly analyzing operation breakdowns and setting priorities for actions.

9. PROMOTING SAFETY ATTITUDES AND PRACTICES

Taking responsibility for the identification and elimination of job safety and health hazards; promoting and communicating safety practices and regulations to employees, investigating possible job-related accidents and illnesses.

10. COMMUNICATIONS

Monitoring and improving both external communication channels and internal upward and downward lines;

developing, testing, and seeking feedback on one's own communication skills; conducting effective meetings.

11. DEVELOPING EMPLOYEE POTENTIAL

Evaluating employees' present performance and potential in order to create opportunities for better utilization of their abilities; examining and responding to employee dissatisfactions; assisting others in overall career development.

12. SUPERVISORY PRACTICES

Clarifying subordinates' job functions and responsibilities; motivating employees while maintaining discipline and control; seeing that subordinates maintain established standards of performance and accepting personal responsibility for those who do not.

13. SELF-DEVELOPMENT AND IMPROVEMENT

Formulating self-improvement goals; using feedback from others to help assess one's own strengths and weaknesses; improving one's own skills by participating in developmental programs and by assuming new positions; coordinating personal career goals with organization needs.

14. PERSONNEL PRACTICES

Ensuring that the organization adheres to federal equal opportunity and affirmative action requirements in its employee selection procedures; developing and implementing special recruiting and training programs for minority applicants.

15. PROMOTING COMMUNITY-ORGANIZATION RELATIONS

Staying informed on community social, economic, and political problems and their relevance and impact upon

the organization; accepting responsibility for the on-going relationship between the organization and the community; actively seeking information from and disseminating information to the community about the organization.

16. HANDLING OUTSIDE CONTACTS

Promoting the organization and its products to outside contacts and clients; handling and entertaining long-term clients, suppliers, and visitors so as to properly convey the organization's relationships with them; expediting customers' special requests and handling their complaints about the organization.

END