

AN OCCUPATIONAL ANALYSIS OF SELECTED
PLANT EQUIPMENT AREAS IN
SELECTED POST OFFICES
THROUGHOUT THE
UNITED STATES

by

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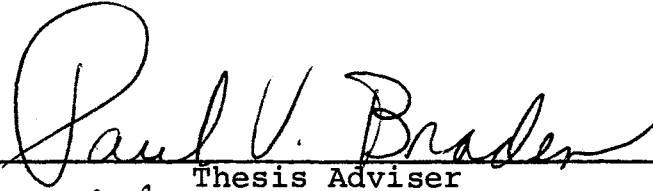
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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
May, 1971

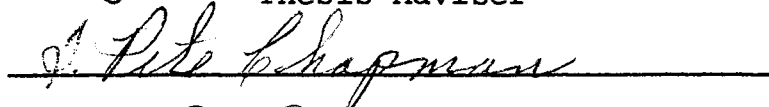
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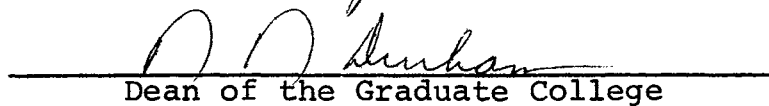
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ACKNOWLEDGMENTS

While it is impossible to mention all those who contributed directly or indirectly to make this study possible, special mention is due committee members Dr. Paul V. Braden, Committee Chairman, and Dr. Donald S. Phillips, for valuable direction and critique.

Special thanks and appreciation are extended to Mr. Dennis Chapman, Mr. Paul Gisvold, Mr. Charles Shoemake, Mr. John Kenney, and especially Alma Dilks of the U.S. Postal Service and the Oklahoma Postal Training Operations, Norman, Oklahoma, for their help and guidance in making this study become a reality.

Some of my personal and professional friends throughout the United States in vocational and technical education are recognized appropriately for their expertise in the selected bibliography section of the study.

Finally, thanks to my lovely wife, Patti, for the vision, encouragement, understanding, and patience that was essential in my undertaking a study of this magnitude. Also, I wish to thank those wonderful little people in my life, Paula Sue, Scott, and Robbi, who will perhaps someday understand why I could not play football, wrestle, or go fishing with them while the manuscript was being prepared.

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CHAPTER I

THE PROBLEM

Introduction

The United States Postal Service has been chartered with the responsibility of processing and delivering the mail throughout the country by the Congress of the United States.

Historically, every time mail has been processed, it has been handled, routed and delivered by human hands. Technological advancements and the ever increasing amount of communications by written word has caused tremendous increases in the volume of mail the Postal Service is required to process. Mail service has been maintained at a satisfactory level primarily because of the dedication to duty of the personnel working in post offices throughout the country.

In 1970, approximately eighty-six billion pieces of mail were placed in mail boxes in the United States. To handle this increased volume of mail that is expected to reach one hundred and ten billion pieces by 1978, it has become necessary to mechanize the system so machines can help assume a greater portion of the manual workload. The

assumption of the workload by mechanized equipment means that manpower utilization for the system must change in certain occupational areas, thereby requiring a complement of highly-skilled technical personnel with a thorough knowledge of electro-mechanical equipments being incorporated into the system to overcome individual "strategic breakdowns" that could stop or impede the flow of mail through the production line, hence causing greater operating problems than existed before the system became mechanized. Mechanization and automation of the entire system will be successful only if intelligent, highly-qualified technical personnel are available to (1) insure that the system suffers a minimum of strategic breakdowns, and (2) when this occurs, technically competent personnel are available to correct the condition immediately to keep the system functioning or operating properly.

Therefore, it becomes the responsibility of management to bring the mechanization process and highly-skilled technicians together in such a way as to promote better mail service to all the citizenry and businesses in the United States.

Statement of the Problem

The problem with which this study is concerned is the need for a valid occupational analysis of plant equipment personnel in the United States in selected post offices to determine (1) the level that present and future technical

training programs should be designed, and (2) the population within the system these programs should serve to provide greater operating efficiency for the Postal Service.

Purpose of the Study

The primary purpose of this study is to provide more meaningful information and data on plant equipment personnel in selected cities throughout the United States. This information will then be provided to Postal Service officials so that (1) decisions regarding present and future mechanization and technical manpower can be made on facts instead of personal opinion, and (2) the Postal Service can offer the proper training programs, of the correct length, at the proper level.

Research Questions

The objectives stated above can best be achieved by an attempt to answer the following research questions based on data collected in selected cities in the United States:

1. What is the educational background of plant equipment personnel employed by the U.S. Postal Service?
2. How does the educational background of plant equipment personnel in the U.S. Postal Service compare by post office?
3. What are the average years of service of plant equipment personnel?

4. What are the PS levels for plant equipment personnel in the U.S. Postal Service in selected job titles?
5. What are the major tasks performed by plant equipment personnel?
6. What formal training has plant equipment personnel received and how long has it been since this training was conducted?

Need for the Study

The United States Postal Service has been given the responsibility to find new and better ways of utilizing its personnel and mechanized equipment in order to become a more efficient and economical organization.

No doubt, the biggest problem encountered by the Postal Service has been the lack of ability to provide management for results, which indicates that many modern management practices and policies have not been implemented and many of those that have been implemented have not been properly controlled and measured against certain developed standards or criteria with necessary follow-up to eliminate problem areas.

Due to past hiring, promotion, and working practices, it has become increasingly difficult over the years to manage the Postal Service comprised of approximately three-quarters of a million people working in the system.

The President's Commission on Postal Organization (1, p. 110) summed up training in the Postal Service prior to 1968 very aptly when they stated:

The employee training program constitutes one of the greatest deficiencies in postal management. Millions have been spent on training programs at all levels, but poor administration, a general lack of expertise within the Department and a decentralized approach to training have created overall inadequacy.

Several very important decisions affecting large numbers of individual employees have been made because of factors other than those relating to the job being performed by the employee. The lack of scientifically accurate information in the past has lead to less than desirable decisions being made at all levels and, no doubt, by all employees within the Postal Service.

The primary goal of this report is to increase the amount of scientifically accurate information that will be available to management on technical maintenance personnel working in the plant equipment area so that the employee's needs, limitations, and present abilities can be determined and taken into consideration in helping him individually to upgrade his skills and knowledge to perform his assigned tasks more economically and efficiently.

This study contains potential information, as developed in Chapter II, to help management decisions be made, based on accurate information rather than on personal opinion without the necessary factual back-up information on which to base sound management decisions, so vital to today's economy.

Limitations of the Study

1. All significant data has been limited to plant equipment personnel with the U.S. Postal Service, located in the following cities:

Dallas, TX	Washington, DC	Minneapolis, MN
New Orleans, LA	Atlanta, GA	Cincinnati, OH
Houston, TX	Pittsburgh, PA	Denver, CO
Detroit, MI	San Francisco, CA	Oakland, CA
Chicago, IL	New York City, NY	Los Angeles, CA

2. Plant equipment personnel in these cities were interviewed individually and the results of these interviews documented, keypunched, and verified, after which the information was placed in a computer data bank on January 30, 1971.

Definition of Terms

OPTO. Oklahoma Postal Training Operations.

NMTC. National Maintenance Training Center of the U.S. Postal Service.

National. Includes all 15 regions and all post offices.

Region. One of the 15 regions in which postal service is divided for operating purposes.

Local. Pertaining to only one post office in a particular region.

GIPSY. General Information Processing System is the computer system that stores the data included in the study.

Task Analysis. The information that provides a breakdown of the percentages of time, by tasks, in each occupational area.

MPE-E. The occupational group that is known as Mail Processing Equipment-Electronic Technicians in the U.S. Postal Service.

Auto. Makes reference to the Automotive or Vehicles occupational areas for the purpose of this study.

P.E. Refers to the Plant Equipment personnel responsible for maintaining/troubleshooting all equipment(s) in a post office, except mail processing equipment, and includes the maintenance control personnel.

M.C. The technical Maintenance Control personnel that plan and schedule all work to be performed by the MPE-E and PE work force.

SRF. Single record file that contains all the input information on a single individual working for the U.S. Postal Service.

P.S. Abbreviation for the United States Postal Service.

Label. Identifies the subject area being considered.

N. Identifies the number of individuals surveyed or being considered for statistical purposes.

Sum. The total of the number (N) times the units of time under consideration.

Average. Identifies the total number of units divided by the number (N) for statistical purposes.

Maximum. The highest appropriate unit under consideration for each individual within a given subject area.

Minimum. The lowest appropriate unit under consideration for each individual within a given subject area.

All Occupational Areas. Refers to the technical maintenance family of the U.S. Postal Service for the purpose of this study and includes the broad occupational areas encompassing automotive, postal, and plant equipment technical maintenance personnel.

CHAPTER II

THE DEVELOPMENT OF RESEARCH QUESTIONS

History

In the early days of America, the United States Postal Service was organized out of the necessity for the Colonies to communicate with each other and the rest of the world, particularly England and France. Benjamin Franklin was appointed by the Continental Congress as the first Postmaster General and served in that capacity from July 26, 1775, until he was appointed Commissioner to France before the end of 1776 (2, p. 64).

Benjamin Franklin then named his son-in-law, Richard Bache, as Secretary and Comptroller of the organization, thus beginning the vast patronage system that has existed in the system until the present time. Bache then succeeded Franklin as Postmaster General and served from November 7, 1776, until January 28, 1782.

The Postal Service has an eventful and colorful background and history from its inception to the present time. Organizationally, the U.S. Postal Service is second in size (approximately 750,000 employees) to all organizations operating under the jurisdiction of the Federal Government. The Department of Defense is the largest government agency,

employing approximately 1,200,000 civilian personnel as of June 30, 1970 (3, p. 155).

Development of the Technical Manpower Information System

The Technical Manpower Information System was developed as a result of a longstanding need that exists within the system relative to identification of present and future technical manpower resources as the Postal Service attempts to mechanize its physical plant facilities by selecting, training and developing a highly skilled group of competent technicians to properly trouble-shoot and maintain the complex equipments that are being introduced into the system.

Technological advancements and the increasing amount of communications by written word have caused tremendous increases in the volume of mail the Postal Service is required to process and deliver. To properly organize and deliver this increased volume of mail, it has become necessary to mechanize the system so that machines can help assume a greater portion of the manual workload (4, p. 1).

The primary problem is how to identify and train the existing U.S. Postal Service personnel that are presently working in the electro-mechanical area with the necessary previous experience to become proficient in one of the electro-mechanical fields that now exist or will exist in the future within the system. A secondary purpose, not included in this study, is to identify the sources of skilled manpower outside the system and determine how to properly

place them in the system, if research shows a deficiency of a particular occupational group qualified to work at the skills level required by the system.

Oklahoma State University recently developed the Occupational Training Information System (OTIS) that provides valuable data to aid industry and educational institutions in solving and meeting the state's skilled manpower needs for the future (5, p. 2).

To intelligently approach the above stated problem, it becomes necessary to have and maintain a current inventory or data bank on the personnel working in this area, and desirable to have in-depth information of this nature on every individual working in the system. Naturally, the problem becomes compounded because of the inequities that exist in the system caused by growth, improper or lack of coordination and standardization, as well as other preventable and unpreventable causes connected with a dynamic changing organization.

Many factors must be considered if valid decisions are to be made in the area of personnel and mechanization. This requires that all aspects of the individual's job be considered and adequate training programs be provided in order to insure that decisions affecting the new system will be based on sound judgement by Postal Service management. The lack of statistical data and documented knowledge related to technical maintenance personnel has contributed significantly to the need and purpose of the study. The Technical Maintenance

Manpower project was designed to provide an inventory of personnel potential and an analysis of skill and job requirements to assist in implementing plans for career progression patterns and training needs to meet the current and future technical needs of the U.S. Postal Service.

The study is an expansion of a study started in 1967 in the technical maintenance area of the Postal Service and has been conducted in-house by the Postal Service because of (1) the shorter period of time in which the study can be accomplished compared to outside contract proposals, (2) because of the effected saving of funds, and (3) professional development of the OPTO technical staff by such an endeavor. The scope of the Technical Maintenance Manpower project is to provide the following specific results:

- a. Inventory - Provide a current inventory of skills potential in the technical maintenance family of the Postal Service and techniques for keeping that inventory current.
- b. Job Review - Review existing job descriptions as to adequacy for the job being done and the job needed to be done. To provide recommended new job descriptions as required and to provide staffing (organizations with recommended manning) guidance to match current and foreseeable needs reflecting current and potentially available talents. Provide qualification standards for those jobs identified as required in the study.

- c. Testing - Provide tests required for entry from the bottom, entry at upper levels, performance promotion tests or criteria and promotional tests including the supervisory level.
- d. Career Programs - Identify career development programs for all three technical areas in the technical maintenance family with cross usage between technical areas as management development in the supervisory levels.
- e. Training Programs - Identify training needs for career development as well as expanding talents of existent employees.
- f. Personnel Needs - Identify needs for growth of the maintenance family and possible sources for filling these needs.
- g. Environmental/Procedural Factors - Even though not required, note areas of physical plant improvement and maintenance practices which appear to need review to produce improved manpower usage.

Occupation Analysis

The most widely used book for all sources of occupational information is the Occupational Outlook Handbook published biennially by the U.S. Bureau of Labor Statistics. It describes more than five-hundred occupations. The descriptions include the nature of the work, training, advancement, employment outlook, earnings, working conditions and where to go for more information (6, p. 1).

One of the better ways an in-depth determination can be made of the abilities, skills and training needs of a particular population group is to run an occupational analysis of those individuals within an occupational group and analyze them to see if they are doing the same or similar type work and performing tasks at the same level of competence.

People differ in both the nature and the level of their abilities. Occupations are different in the abilities required for their acceptable performance (7, p. 3).

The occupational analysis should provide a valuable and keen insight into the problem of scientifically designing technical training programs for personnel working in these occupational areas and also help in developing realistic career development ladders paralleled by training programs that will be highly relative to each individual's career with the United States Postal Service. The occupational analysis summary information has been compiled by city for the occupational area being considered.

Technical Training

Technical training in the Postal Service is very closely related to the technical training needed by the modern day industrial community throughout the United States. Generally speaking, the problems are the same, except for the special equipments found in the Postal Service that are not employed by industry. However, many of the similar techniques are being applied to processing and handling the mail that are

applied to mechanized production lines in mass producing products for the consumer market.

There is no single pattern of institutional responsibility for occupational education beyond the high school in the various states. Programs of every kind and quality are offered by a variety of educational institutions, including comprehensive high schools, area vocational schools, technical institutes, special state schools, two-year colleges, four-year colleges, and universities (8, p. 72).

In order to organize, develop and conduct meaningful technical training programs, it is necessary to (1) know the size and occupational composition of the population being served, (2) have a knowledge of the average educational background for each occupational group, (3) be knowledgeable of the average age of the group, and (4) have the facts of the time elapsed since the individual last had training in his occupational area and the level of his last training.

With these facts, meaningful training programs can be implemented with the assurance the training programs will be relevant and meaningful to career development and progression for the individual employee.

Lowell A. Burkett, executive of the American Vocational Association, summed up the majority of academic educators' viewpoint on vocational-technical education in America when he stated:

Inasmuch as public educators have not been totally active in supporting the vocational program, other forces of our society have necessarily moved in to fill the void (9, p. 301).

The need for vocational-technical education in industry and Government was stated by Collins as follows:

The doctrine of universal education below the college level is now an accepted, and generally accomplished, part of the American way of life. The realities of life now demand of us that every American be educated to the fullest if democracy is to survive in the world, just as the realities of Jefferson's time impelled him to advocate the necessity of fostering a public school system if democracy was to survive on this continent. No American should be denied--whatever the reasons--the opportunity to achieve whatever kind of education beyond the high school that will allow for the maximum development of his abilities (10, p. 6).

Research Questions

The objectives stated on the preceding page can best be achieved by responding to the following research questions based on data collected in selected cities in the United States.

1. What is the educational background of plant equipment personnel employed by the U.S. Postal Service?
2. How does the educational background of plant equipment personnel in the U.S. Postal Service compare by post office?
3. What are the average years of service of plant equipment personnel?
4. What are the PS levels for plant equipment personnel in the U.S. Postal Service in selected job titles?
5. What are the major tasks performed by plant equipment personnel?

6. What formal training has plant equipment personnel received and how long has it been since this training was conducted?

CHAPTER III

METHODOLOGY

Population

The nationwide population of the technical maintenance personnel work force in the U.S. Postal Service is approximately sixteen thousand. The total work force is broken down into three major occupational areas and is as follows:

Plant Equipment	Automotive	Postal Equipment
7,055	5,650	3,495

The population is made up of individuals in all occupational areas, ranging from PS Level 4 through PS Level 18, including job titles of Engineman, Operating Engineers, Maintenance Control Clerks, Supervisors, Mail Processing Equipment Mechanics and Regional Managers of Plant Maintenance.

The population is located nationwide and the number in each occupational area locally depends primarily on (1) the physical size of the individual post office, (2) the extent of mechanization in each post office, and (3) the volume of mail processed through the facility.

The population under consideration in this particular study is the plant equipment personnel located in the 15

cities (see Figure 1.) stated previously in Chapter I. The plant equipment and maintenance control personnel are all considered to be in the plant equipment occupational area, but are treated separately due to the wide differences in the actual work being performed by personnel in each area.

Statistical information has been provided in all occupational areas where it appears advantageous and is used only as a comparison by which to measure the statistical data on plant equipment personnel./

Instrumentation

A special projects office (see Appendix A.) was set up on June 12, 1970, and an official letter assigning project responsibility was transmitted (see Appendix B.) on the same day.

To obtain the necessary information about the employees and their jobs, instruments were prepared and administered during the summer of 1970.

The number one instrument was designed to be administered to all technical maintenance personnel working for the U.S. Postal Service, and includes vital statistical information such as name, social security number, date of birth, home address, years of service, formal education, formal training in the various occupational areas and job experience during the last ten years. (See Appendix C.)

There were four instrument number two's developed, one of which would be administered to each individual interviewed,

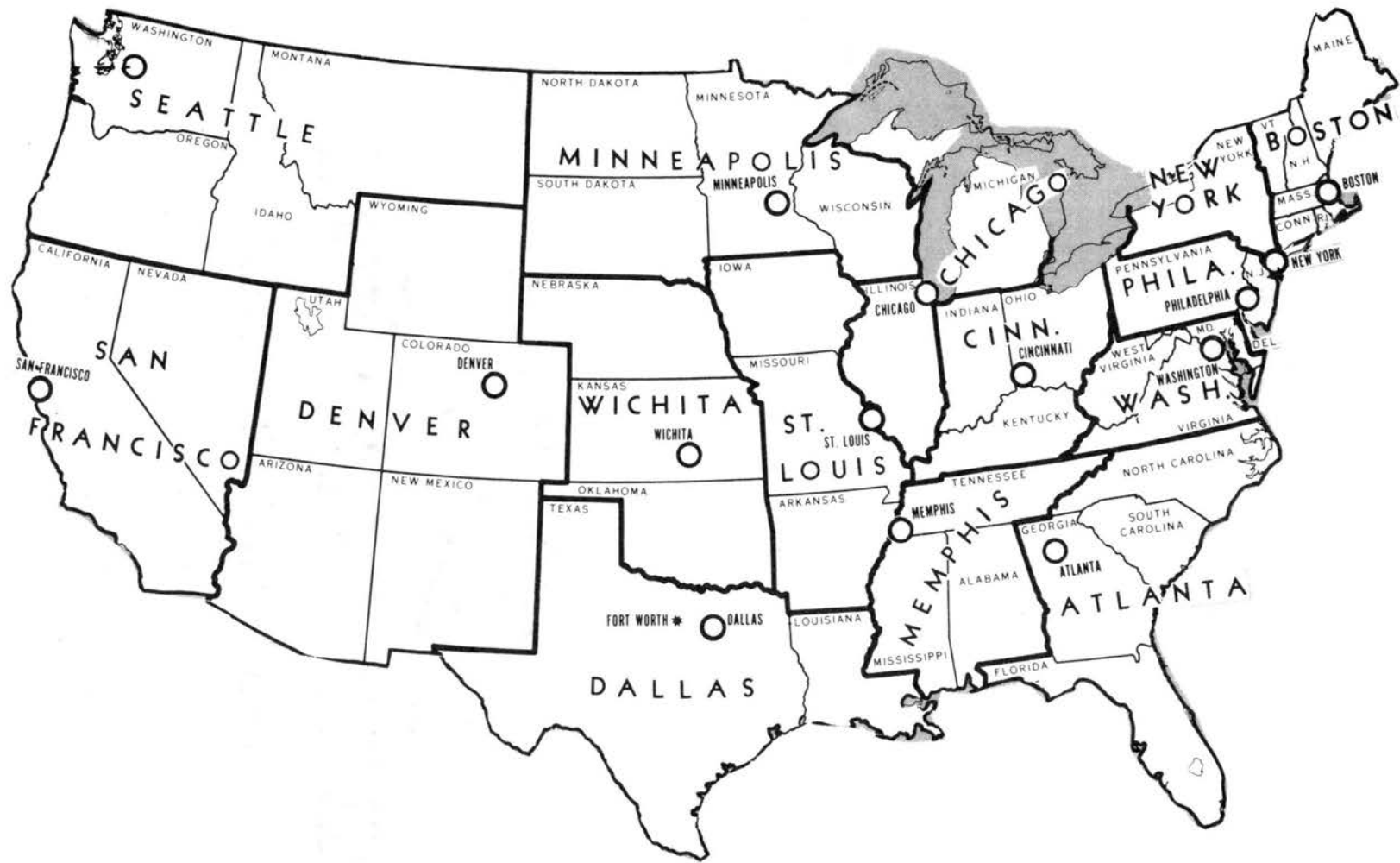


Figure 1. Location of Facilities Surveyed

depending on the occupational area in which they were presently employed.

The number two instruments contain information on task analysis based on the percent of time spent in each major activity in a broad occupational area. The occupational areas represented were Automotive, Mail Processing Equipment, Plant Equipment (see Appendix D.), and Maintenance Control. (See Appendix E.)

Additional questions were asked on each of the major tasks to determine the actual level of work performed by each individual, proceeding from the simple to the more complex activities in each task.

The number two instruments were administered to approximately twenty-five percent of the sixteen thousand technical maintenance employees by personal interview, and this information is to be used to provide and predict group and occupational trends as well as identification of career ladders, determination of the validity of job descriptions and other task analysis information.

Visitation Schedule

The post office facilities that were visited were selected because of (1) the geographical location of the facility, (2) the size of the facility, and (3) the numbers of technical personnel working in the various offices.

Plans were made to interview personnel at Dallas, Texas, New Orleans, Louisiana, and Houston, Texas, as a pilot run

to (1) check the time it would take to interview each individual and (2) to check the applicability and reliability of the number one and number two instruments in all occupational areas.

The visitation schedule was drawn up (see Appendix F.) for all 15 sites that were visited. Time was allocated for the technical consultants to return to OPTO after each city was visited and present oral and written summary reports to the U.S. Postal officials responsible for conducting the survey. (See Appendix G.)

The results of Table I show the number of personnel that were interviewed in the plant equipment area in each of the 15 cities surveyed. The reason that no respondents are indicated for the New Orleans facility is due to the fact that Postal Service personnel did not have the responsibility of maintaining the plant equipment at the time the interviews were being conducted.

Information on Table I shows the total number of respondents for all occupational areas and the number of respondents interviewed that are currently employed in the maintenance control area.

Maintenance control personnel were not interviewed in New Orleans because a determination had not been made, at that time, to include them in the survey. The same applies to maintenance control personnel in Dallas, Texas.

TABLE I
SUMMARY OF INTERVIEWS WITH PLANT EQUIPMENT AND
MAINTENANCE CONTROL PERSONNEL BY CITY

City and State	No. of PE Respondents	No. of MC Respondents	No. of Total Respondents (All Areas)
Houston, TX	27	12	149
New Orleans, LA	0	0	78
Dallas, TX	7	1	84
Washington, DC	59	12	190
Atlanta, GA	28	4	111
Pittsburgh, PA	36	14	158
Cincinnati, OH	42	16	161
Minneapolis, MN	23	7	114
Denver, CO	12	11	90
San Francisco, CA	42	18	169
Los Angeles, CA	48	12	204
Detroit, MI	37	28	219
Chicago, IL	132	36	584
New York City, NY	137	28	446
Oakland, CA	21	21	130

Technical Consultants

The services of 15 expert consultants were secured to conduct the interviews in the 15 facilities that were visited. Applicants submitted Civil Service 171 Forms and were screened to determine if they met the qualifications set forth in the job descriptions. (See Appendix H.)

The technical consultants that were selected had the following qualifications: (1) they were vocational-technical educators, (2) each had experience, both theoretical and practical in the occupational areas they were interviewing Postal Service personnel, and (3) all had previous counseling experience.

Three teams were formed out of the fifteen technical consultants so that three post offices could be visited at a time, thereby allowing all personal interviews to be completed by August 23, 1970. Each team was assigned a team leader and a U.S. Postal Service official team coordinator.

General Information Processing System

Because of the amount of data gathered on each individual, it became necessary to set up a manpower management information system so that the information received could be put to practical use.

The General Information Processing System (GIPSY) was selected for this purpose because it could be used as an executive management planning information system.

Briefly, the GIPSY System is a user-oriented retrieval system where the user can extract any or all of the information in the data bank from the computer, on written command, from a remotely operated computer terminal system.

CHAPTER IV

ANALYSIS OF DATA

Introduction

In analyzing the data in this chapter an attempt has been made to structure the statistical information around the research questions that have been asked in Chapter I. For this reason, similar data has been placed together in an orderly form to expedite additional research of information contained in the tables or figures that may be of interest. The arrangement of the data also adds a degree of simplicity to the study that should not be underestimated or could not otherwise be accomplished.

The formal training and the task analysis portion of the study relates to all fifteen cities listed previously. Because of the importance of certain types of statistical information, it is shown by city for each occupational area in order to point out differences that exist between cities.

All findings are a result of the information gathered and documented on instrument number one (see Appendix C.) and the instrument number two's as a result of personal interviews with plant equipment (see Appendix D.) and maintenance control (see Appendix E.) personnel in selected cities throughout the United States.

Findings

The average PS level of technical maintenance personnel in all cities surveyed is shown in Figure 2. A comparison is made between the plant equipment, maintenance control and all occupational areas combined.

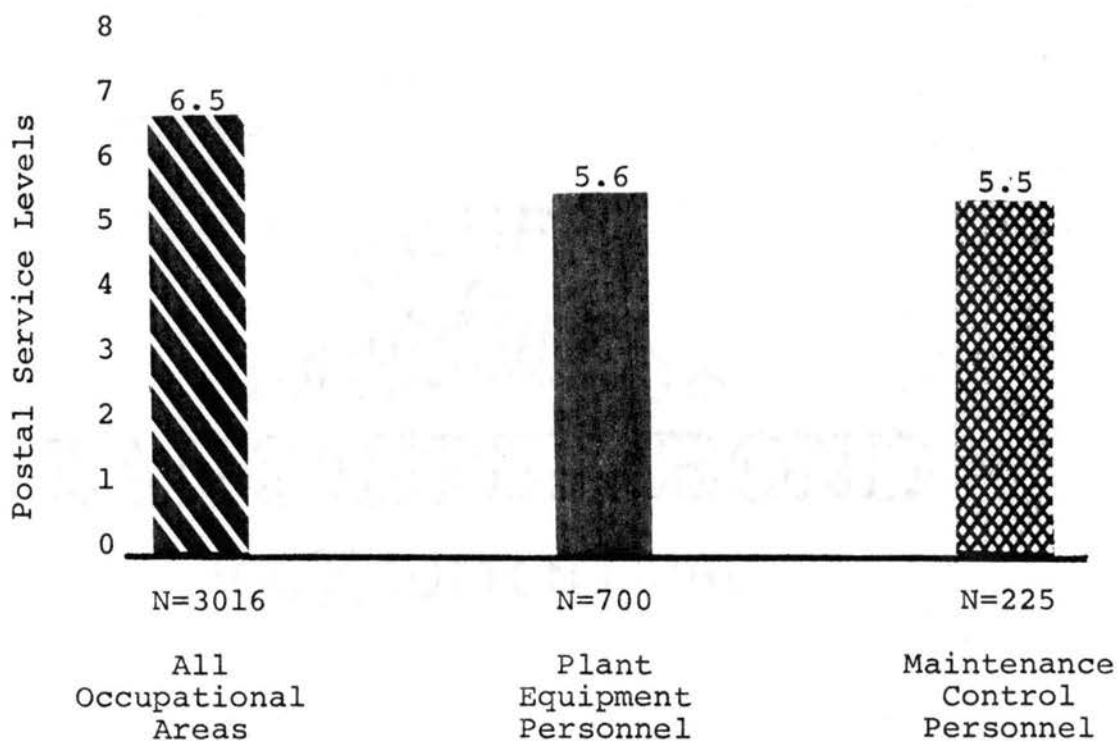


Figure 2. Summary of PS Levels of Technical Maintenance Personnel in Selected Cities Throughout the United States

The above information indicates that plant equipment and maintenance personnel's PS level is about 5.5 PS level compared to 6.5 PS level (see Figure 2.) for all technical maintenance personnel, or approximately one level lower on the average.

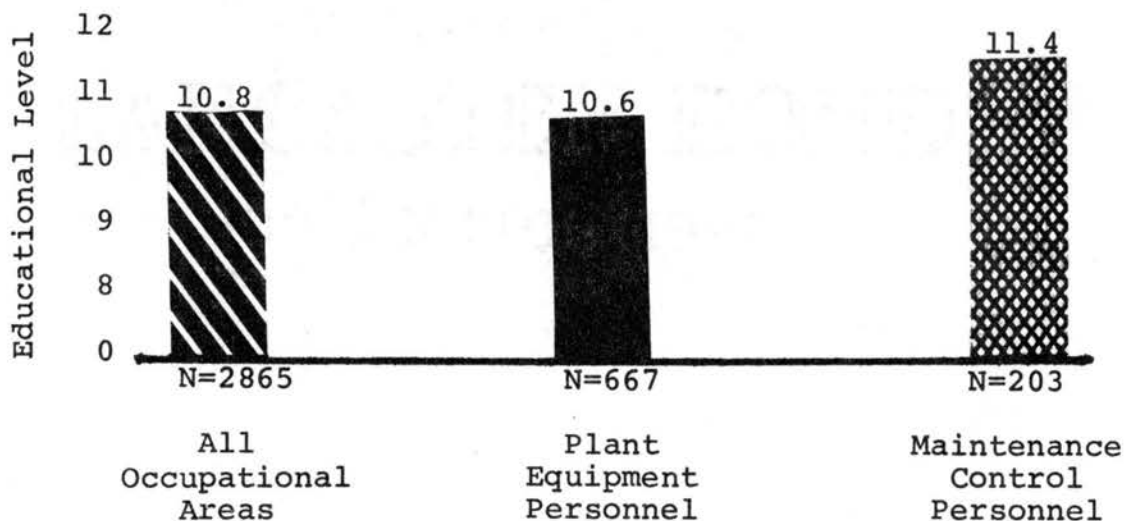


Figure 3. Summary of Educational Level of Technical Maintenance Personnel in Selected Cities Throughout the United States

Summary information on educational level indicates that plant equipment personnel (see Figure 3.) are below (10.6 years) all occupational areas (10.8 years) and the maintenance control personnel are above (11.4 years) the average level of all technical maintenance personnel.

Additional statistical information on education, years of service, and PS level for each facility surveyed is shown along with summary information on all facilities in Tables II through XVI.

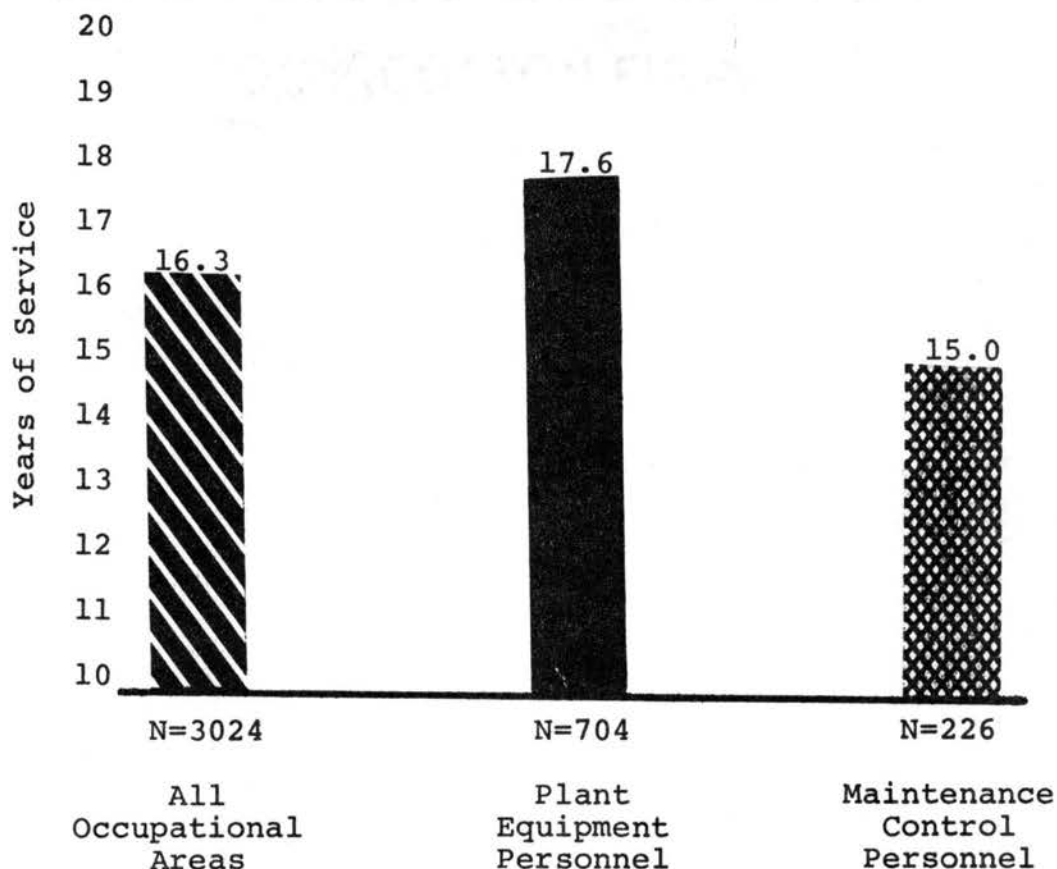


Figure 4. Summary of Years of Service of Technical Maintenance Personnel in Selected Cities Throughout the United States

The above figure shows that 16.3 years of service is the average figure for all occupational areas surveyed. The plant equipment personnel have 17.6 average years of service and maintenance control personnel have an average of 15.0 years of service.

Due to the fact that New York City has the nation's largest mail handling facilities, the data for that city was used as a comparison to the summary information of all facilities surveyed.

TABLE II

SUMMARY OF STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL
AT ALL FACILITIES SURVEYED

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	616	6,554	10.64	12	7
COLLEGE	88	180	2.04	5	1
YEARS OF SERVICE	648	11,379	17.56	39	0
PS LEVEL	644	3,652	5.67	11	3

SUMMARY OF STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL
AT ALL FACILITIES SURVEYED

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	190	2,174	11.44	12	8
COLLEGE	73	155	2.12	7	1
YEARS OF SERVICE	211	3,163	14.99	37	1
PS LEVEL	210	1,147	5.46	12	4

TABLE III

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
NEW YORK CITY, NY

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	125	1,261	10.09	12	7
COLLEGE	6	11	1.83	3	1
YEARS OF SERVICE	135	2,623	19.43	33	2
PS LEVEL	137	769	5.61	9	3

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
NEW YORK CITY, NY

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	27	298	11.04	12	8
COLLEGE	1	2	2	2	2
YEARS OF SERVICE	28	539	19.25	37	3
PS LEVEL	28	154	5.5	10	4

TABLE IV

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
CHICAGO, IL

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	129	1,406	10.90	12	7
COLLEGE	26	49	1.88	5	1
YEARS OF SERVICE	132	2,222	16.83	38	2
PS LEVEL	131	737	5.63	11	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
CHICAGO, IL

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	25	280	11.2	12	8
COLLEGE	15	30	2	7	1
YEARS OF SERVICE	36	537	14.92	31	2
PS LEVEL	36	192	5.33	12	4

TABLE V

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
LOS ANGELES, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	46	507	11.02	12	8
COLLEGE	9	20	2.22	5	1
YEARS OF SERVICE	48	847	17.65	34	2
PS LEVEL	45	258	5.73	9	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
LOS ANGELES, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	12	143	11.92	12	11
COLLEGE	6	12	2	3	1
YEARS OF SERVICE	12	138	11.5	25	4
PS LEVEL	12	61	5.08	7	4

TABLE VI

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
MINNEAPOLIS, MN

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	23	230	10	12	8
COLLEGE	2	5	2.5	4	1
YEARS OF SERVICE	23	415	18.04	30	8
PS LEVEL	22	128	5.82	11	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
MINNEAPOLIS, MN

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	6	71	11.83	12	11
COLLEGE	3	6	2	4	1
YEARS OF SERVICE	7	119	17	29	9
PS LEVEL	6	33	5.5	8	5

TABLE VII

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
DETROIT, MI

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	34	361	10.62	12	8
COLLEGE	2	5	2.5	3	2
YEARS OF SERVICE	36	543	15.08	29	2
PS LEVEL	36	198	5.5	8	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
DETROIT, MI

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	28	320	11.43	12	9
COLLEGE	10	19	1.9	3	1
YEARS OF SERVICE	28	515	18.40	28	3
PS LEVEL	28	160	5.7	11	4

TABLE VIII

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
OAKLAND, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	21	223	10.62	12	7
COLLEGE	2	5	2.5	4	1
YEARS OF SERVICE	21	399	19	37	4
PS LEVEL	21	121	5.76	8	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
OAKLAND, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	11	127	11.55	12	9
COLLEGE	5	14	2.8	4	1
YEARS OF SERVICE	12	137	11.42	26	1
PS LEVEL	12	69	5.75	11	5

TABLE IX

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
SAN FRANCISCO, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	41	455	11.10	12	7
COLLEGE	11	23	2.09	3	1
YEARS OF SERVICE	42	721	17.17	32	1
PS LEVEL	42	238	5.67	10	3

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
SAN FRANCISCO, CA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	16	191	11.94	12	11
COLLEGE	4	7	1.75	3	1
YEARS OF SERVICE	18	214	11.89	33	1
PS LEVEL	18	95	5.28	10	4

TABLE X

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
DENVER, CO

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	12	132	11	12	8
COLLEGE	1	2	2	2	2
YEARS OF SERVICE	12	244	20.33	35	9
PS LEVEL	12	72	6	8	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
DENVER, CO

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	10	115	11.5	12	10
COLLEGE	2	5	2.5	4	1
YEARS OF SERVICE	11	150	13.63	25	4
PS LEVEL	11	58	5.27	8	5

TABLE XI

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
WASHINGTON, DC

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	55	583	10.6	12	7
COLLEGE	10	21	2.1	4	1
YEARS OF SERVICE	59	1,090	18.47	33	3
PS LEVEL	59	354	6	9	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
WASHINGTON, DC

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	11	128	11.64	12	10
COLLEGE	6	12	2	4	1
YEARS OF SERVICE	12	204	17	30	4
PS LEVEL	12	68	5.67	11	5

TABLE XII

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
HOUSTON, TX

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	25	252	10.08	12	7
COLLEGE	9	18	2	4	1
YEARS OF SERVICE	27	387	14.33	35	4
PS LEVEL	27	157	5.81	8	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
HOUSTON, TX

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	11	126	11.45	12	10
COLLEGE	9	22	2.44	5	1
YEARS OF SERVICE	12	157	13.08	27	5
PS LEVEL	12	69	5.75	10	5

TABLE XIII

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
DALLAS, TX

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	7	76	10.86	12	7
COLLEGE	0	0	0	0	0
YEARS OF SERVICE	7	130	18.57	31	7
PS LEVEL	7	40	5.71	10	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
DALLAS, TX

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	1	12	12	12	12
COLLEGE	1	2	2	2	2
YEARS OF SERVICE	1	8	8	8	8
PS LEVEL	1	5	5	5	5

TABLE XIV

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
ATLANTA, GA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	25	289	11.56	12	9
COLLEGE	6	15	2.5	4	1
YEARS OF SERVICE	28	491	17.54	38	4
PS LEVEL	28	149	5.32	10	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
ATLANTA, GA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	3	36	12	12	12
COLLEGE	1	2	2	2	2
YEARS OF SERVICE	4	75	18.75	29	14
PS LEVEL	4	24	6	9	5

TABLE XV

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
PITTSBURGH, PA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	35	381	10.89	12	7
COLLEGE	2	3	1.5	2	1
YEARS OF SERVICE	36	656	18.22	39	3
PS LEVEL	35	200	5.71	8	4

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
PITTSBURGH, PA

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	13	148	11.38	12	8
COLLEGE	4	9	2.25	3	2
YEARS OF SERVICE	14	238	17	35	6
PS LEVEL	14	77	5.5	11	4

TABLE XVI

STATISTICAL INFORMATION FOR PLANT EQUIPMENT PERSONNEL AT
CINCINNATI, OH

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	38	399	10.5	12	7
COLLEGE	2	4	2	3	1
YEARS OF SERVICE	42	634	15.10	28	2
PS LEVEL	42	231	5.5	8	3

STATISTICAL INFORMATION FOR MAINTENANCE CONTROL PERSONNEL AT
CINCINNATI, OH

<u>LABEL</u>	<u>N</u>	<u>SUM</u>	<u>AVE</u>	<u>MAX</u>	<u>MIN</u>
HIGH SCHOOL	16	185	11.56	12	10
COLLEGE	6	11	1.83	3	1
YEARS OF SERVICE	16	210	13.12	26	1
PS LEVEL	16	84	5.25	8	5

By selecting a city such as New York City, a comparison can be made of the average PS levels of plant equipment personnel (see Figure 5.) in that city (5.6 PS level) compared to the average (see Figure 2.) of the fifteen cities surveyed (5.6 PS level) and it was found that they were both exactly the same average PS level.

The average PS level of the maintenance control personnel (5.5 PS level) is also the same as the national average (5.5 PS level).

The only variance found was that the average PS level of all occupational areas nationwide (6.5 PS level) was higher than the PS level in New York City (5.7 PS level) by about one PS level. (See Figure 5.)

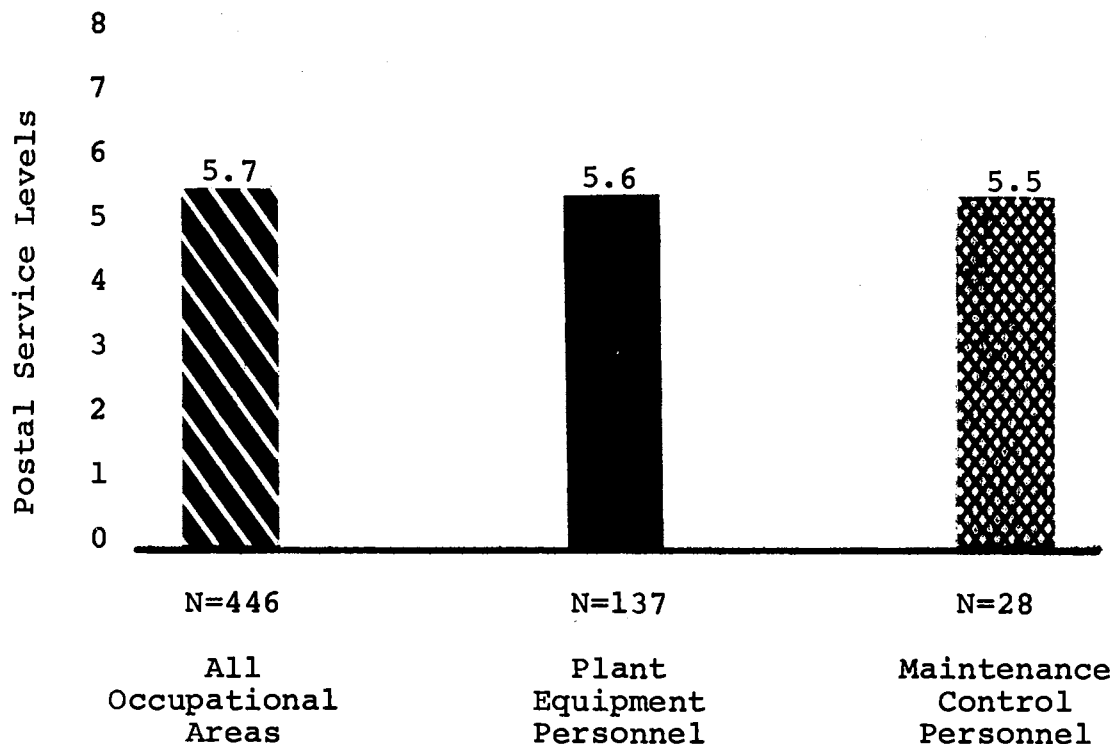


Figure 5. Average PS Levels for Technical Maintenance Personnel in New York City

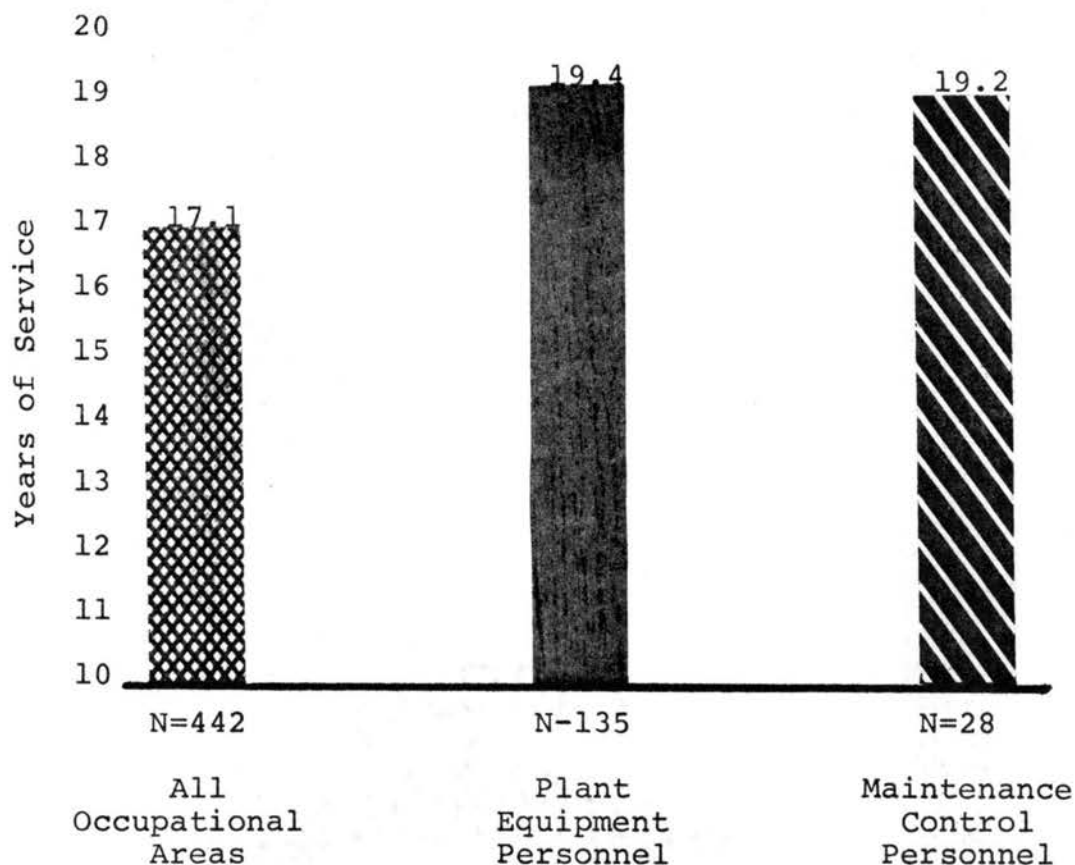


Figure 6. A Comparison of Average Years of Service of Technical Maintenance Personnel in New York City

When comparing New York City's personnel average years of service in the plant equipment area (see Figure 6.), it was found they have an average of 19.4 years of service compared to the national average of 17.6 years for plant equipment personnel working in all cities surveyed.

(See Figure 4.)

The maintenance control personnel had an average of 19.2 years of service compared to the national average surveyed of 15.0 years.

By comparison, all occupational areas in New York City had an average of 17.1 years of service compared to 16.3 years indicated by the national average figures.

When a comparison was made between the educational level (10.0 years) of plant equipment personnel (see Figure 7.) in New York City and the average of all cities combined (10.6 years), it was found that it was below the national average.

By the same comparison, the maintenance control personnel have an average of 11.0 years of education compared with a national average of 11.4 years for those working in the maintenance control function.

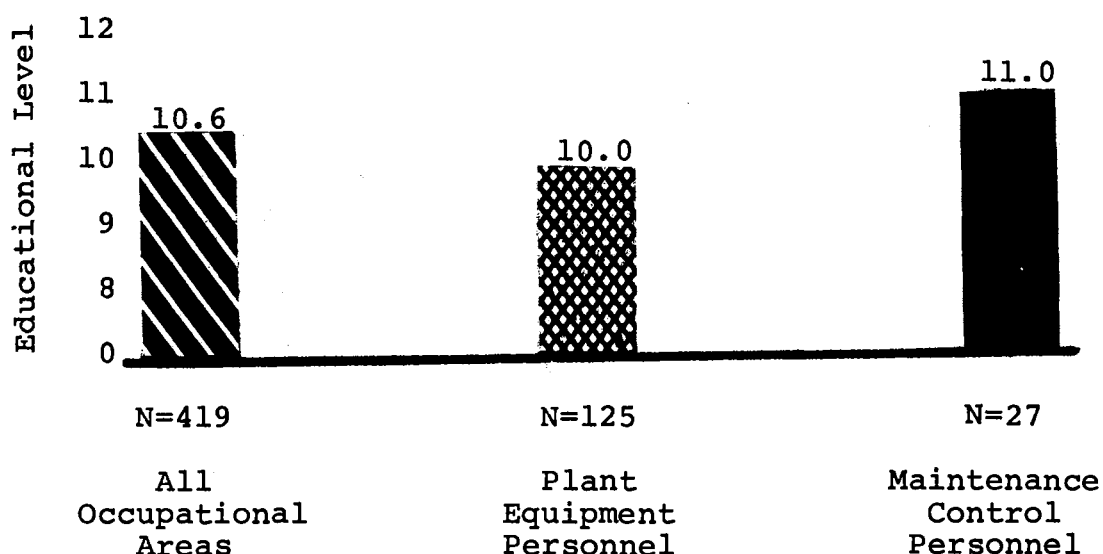


Figure 7. A Comparison of Average Educational Level Attainment of New York City Technical Maintenance Personnel

The average educational level of all technical maintenance personnel in New York City was found to be 10.5 years compared to 10.8 years for the national average (Figure 5.) of all occupational areas surveyed. It is apparent that the overall educational average of New York City's personnel

compares favorably with the nationwide average, with the plant equipment average (10.0 years) being below the national average of 10.8 years and the maintenance control area being above the average with 11.0 years of formal education.

Task Analysis Information

The summary of task analysis information in Table XVII is on plant equipment personnel and shows the percentage of time all personnel spend in each major task within a broad occupational area. The total is the number of respondents for a major task area and the percentage located in the right hand column relates the percentage of respondents who perform some work in that major task area. By studying the tables in each area, they indicate that most of the individuals working in these areas have a wide range of responsibilities, spending on the average of 10 to 20 percent of their time in most of the tasks represented.

Maintenance control personnel listed in Table XVIII spend the majority of their time working in a wide range of activities with the largest number of respondents stating that 10 to 20 percent of their time is spent in each of the major task areas shown.

Both of the tables listed above are very similar and can be interpreted by closely examining the major task areas, the percentage of time spent in each major task, and comparing the totals for each task to the total number of respondents, as shown in percentages.

TABLE XVII

SUMMARY OF PERCENTAGE OF TIME IN MAJOR TASK
FOR PLANT EQUIPMENT PERSONNEL

Total Number of Respondents = 397

	<u>10%</u>	<u>20%</u>	<u>30%</u>	<u>40%</u>	<u>50%</u>	<u>60%</u>	<u>70%</u>	<u>80%</u>	<u>90%</u>	<u>100%</u>	<u>TALLY</u>	<u>%</u>
AIR CONDITIONING EQUIPMENT	44	31	31	10	9	2	0	0	1	7	0135	.340
HEATING SYSTEMS	38	29	26	11	5	0	0	0	0	1	0110	.277
VENTILATION	47	20	8	7	3	2	2	0	0	5	0094	.236
ELEVATOR REPAIR & MAINT.	38	19	3	0	1	1	1	0	2	20	0085	.214
ELECTRICIAN (GENERAL)	59	22	11	4	3	1	2	1	4	39	0146	.367
CARPENTRY & CABINET MAKING	20	6	2	4	2	1	1	1	0	19	0056	.141
PLUMBING & PIPE FITTING	52	20	5	1	1	0	1	1	0	11	0092	.231
WELDING	21	2	5	0	4	1	0	0	4	6	0043	.108
PAINTING	29	7	7	4	0	0	2	2	0	17	0065	.163
MACHINE SHOP	19	2	0	0	2	1	0	1	1	3	0029	.073
SUPERVISION	13	6	2	2	4	4	0	1	3	15	0050	.125
CLERICAL	13	4	2	1	0	1	0	1	0	1	0023	.057
ASST OTHER CRAFTSMEN	13	5	5	6	7	4	3	6	1	21	0071	.178

TABLE XVIII

SUMMARY OF PERCENTAGE OF TIME IN MAJOR TASK
FOR MAINTENANCE CONTROL PERSONNEL

Total Number of Respondents = 139

	<u>10%</u>	<u>20%</u>	<u>30%</u>	<u>40%</u>	<u>50%</u>	<u>60%</u>	<u>70%</u>	<u>80%</u>	<u>90%</u>	<u>100%</u>	<u>TALLY</u>	<u>%</u>
PLANNING & SCHEDULING WORK	38	24	10	7	6	1	3	1	0	0	0090	.647
FOLLOW-UP ON PERFORMANCE	48	22	5	2	3	1	0	0	0	0	0081	.582
MAKE REQUIRED REPORTS	48	20	10	4	1	0	1	1	0	0	0084	.604
MAINTAIN HISTORICAL RECORD	40	27	5	3	4	0	0	3	1	0	0083	.597
MAINTAIN FILES ON DRAWINGS	21	2	2	1	0	0	0	0	0	0	0026	.187
COMMUNICATIONS	51	16	16	3	2	1	0	0	0	1	0090	.647
SUBMIT REQUISITIONS	26	14	5	4	3	2	2	0	0	1	0057	.410
MAINTAIN STOCK ACCOUNTS	25	18	6	2	3	2	3	1	1	0	0061	.438

Selected Job Titles

As a result of in-depth research, twenty-nine job titles have been identified in the plant equipment and maintenance control occupational areas as representative of the standard job titles found in these two broad occupational areas as shown in Figures 8 and 9.

In addition, the average Postal Service level is shown for each job title. The PS level of each of the job titles below the PS 9 level remains fairly constant, but each of the positions above the PS 9 level may vary as much as two or three PS levels for each job title.

Generally speaking, those job titles that were not included in Figures 8 and 9 represent job titles where less than 50 individuals are employed nationwide in that particular position or job title with the U.S. Postal Service.

By understanding the job titles and the PS level, a meaningful career ladder can be developed and implemented.

Formal Training

The summary information of formal training in plant equipment and the maintenance control areas is shown in Table XIX and Table XX. Each of these tables shows the number of respondents who have received formal training in one or more of the major occupational areas. By analyzing the data found in Table XIX in the plant equipment areas, it was found that the 737 individual respondents made 1775

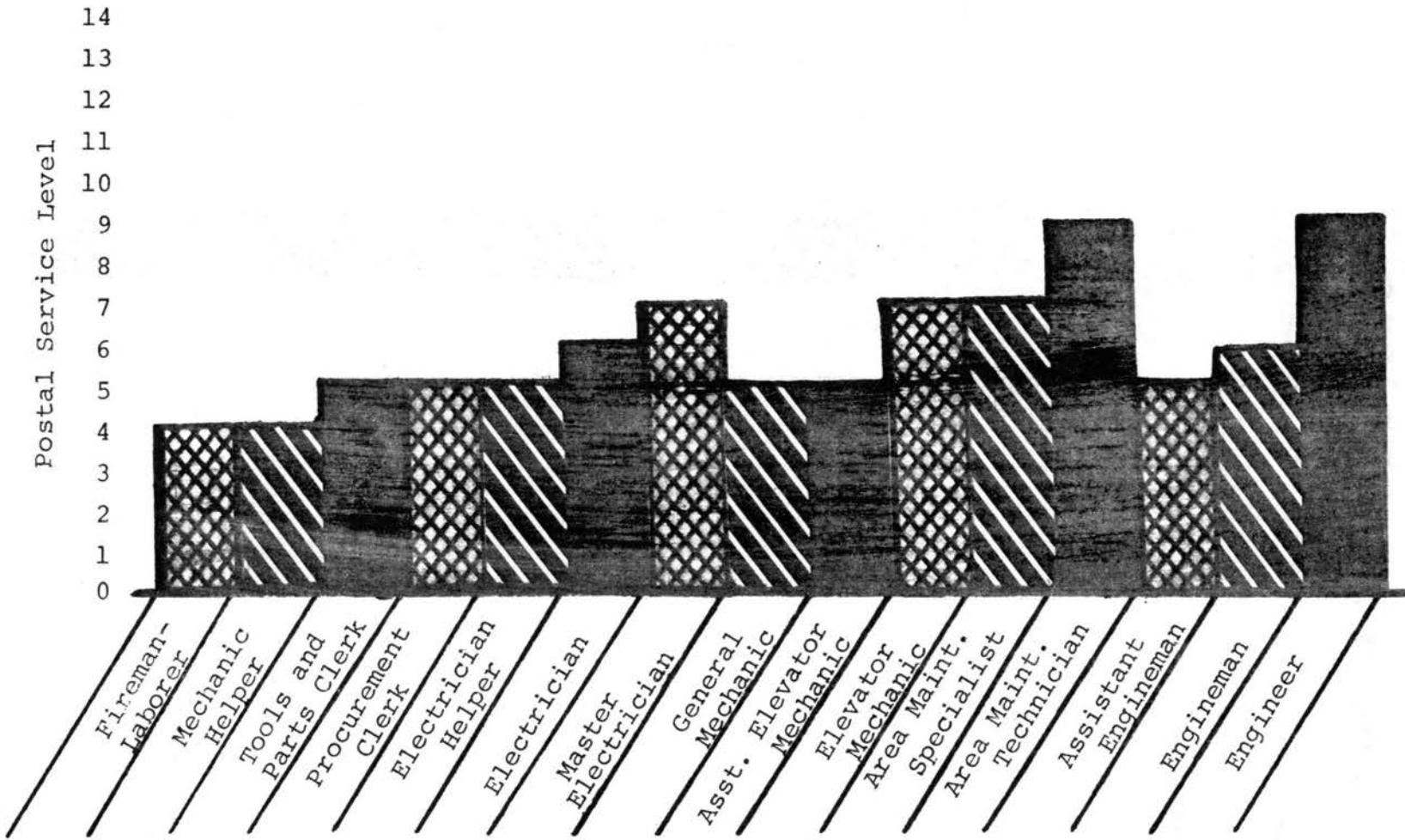


Figure 8. Average PS Levels for Plant Equipment Personnel

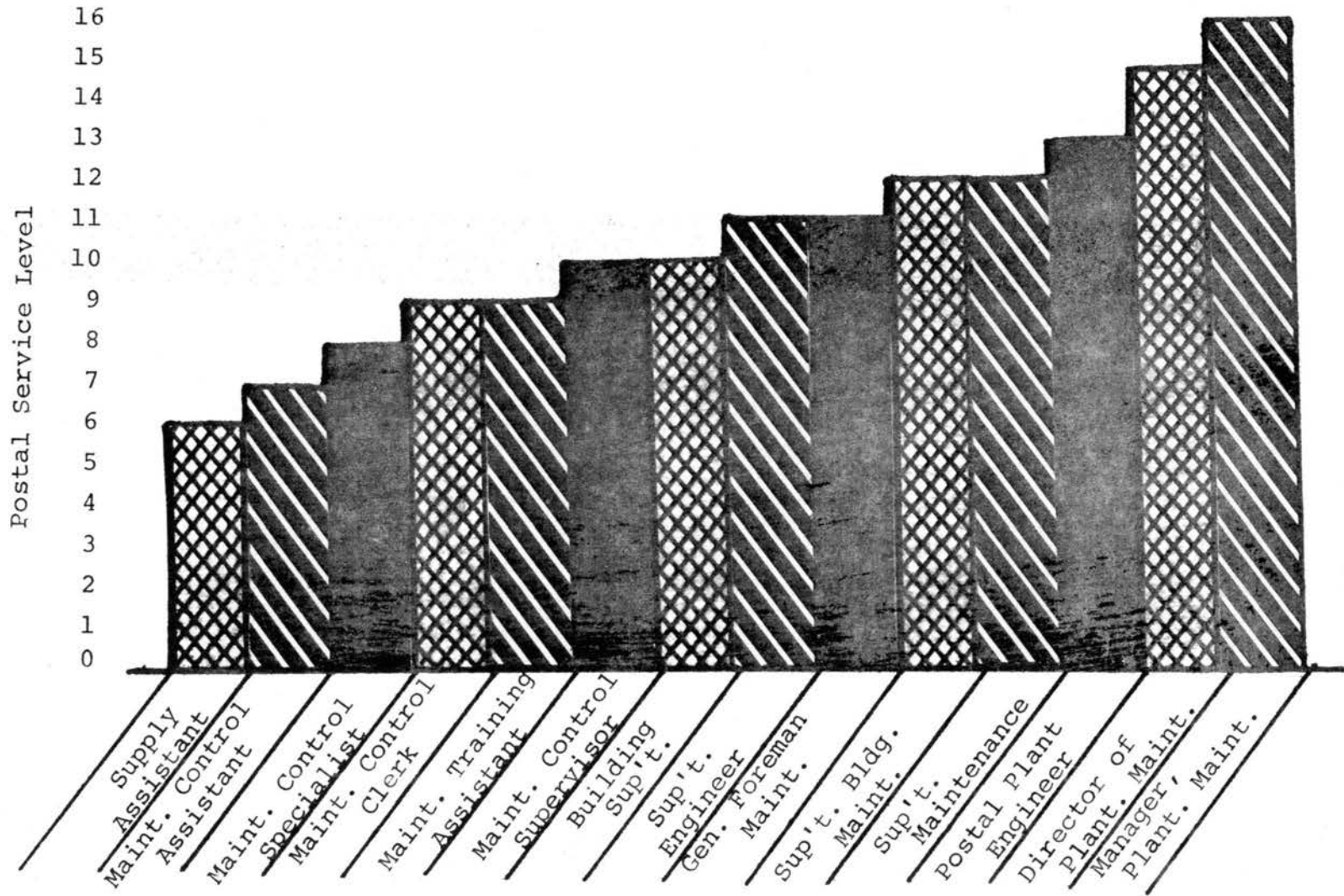


Figure 9. Average PS Levels for Plant Equipment Personnel in the U.S. Postal Service

entries under "Schools Attended." This indicates that the respondents have received previous training in the same occupational areas at different schools or the respondents have previously attended courses in more than one occupational area.

It was found that 22 percent of the respondents have previously had some training in one of the occupational areas while attending high school. Approximately 8 percent indicated they have previously attended military schools and 25 percent indicated they have previously attended courses offered by the Postal Service. The largest percentage (45%) indicated having received training in industry, at a technical school, or in college.

The 737 respondents made a total of 1587 entries, which indicated that approximately 48 percent of the respondents have received training in more than one specific occupational area. For the length of training entries, 9 percent indicated they have received a one week or less course of instruction in the major occupational areas shown. However, 23 percent indicated attending a one to five week course of instruction, 13 percent have attended a five to ten week course, 15 percent have attended a ten to sixteen week course, 17 percent have attended a sixteen week to one year course, 13 percent have attended a one to two year course and 10 percent indicated they have attended a course of instruction longer than two years in length.

TABLE XIX-A

SUMMARY OF FORMAL TRAINING IN PLANT EQUIPMENT AREAS

Total Number of Respondents = 737

	SCHOOLS ATTENDED				LENGTH OF TRAINING							
	HIGH SCHOOL	MILI-TARY	POST OFFICE	COL/IND TECH.	1 WK.	5 WK.	10 WK.	16 WK.	52 WK.	2 YR.	+2 YR.	
BASIC AIR CONDITIONING	13	17	91	132	15	73	25	40	40	22	12	
ADVANCED AIR CONDITIONING	3	4	34	52	4	19	10	11	21	9	7	
HEATING, GAS FIRED	2	7	30	56	12	18	14	11	19	8	6	
HEATING, OIL FIRED	4	9	30	46	15	17	14	12	14	5	7	
VENTILATION	4	2	33	33	8	21	9	6	10	6	5	
ELEVATOR MAINTENANCE	2	1	56	13	12	27	11	4	7	2	6	
ELECTRICAL (GENERAL)	41	21	41	88	10	31	16	31	29	20	25	
CARPENTRY & CABINET MAKING	92	10	3	34	2	6	15	21	20	41	22	
PLUMBING & PIPE FITTING	8	9	18	30	5	10	6	11	7	13	6	
WELDING	66	49	35	157	22	61	56	41	40	31	19	
PAINTING, SPRAY	14	12	10	39	7	29	5	3	9	4	9	
PAINTING, BRUSH	15	14	20	27	16	21	3	5	8	6	6	
MACHINE SHOP	125	23	12	102	6	27	24	44	52	42	37	

TABLE XIX-B
SUMMARY OF FORMAL TRAINING IN PLANT EQUIPMENT AREAS

Total Number of Respondents = 737

	LAST TRAINED				TOTAL RESPONDENTS FOR EACH AREA	% OF RESPONDENTS FOR EACH AREA
	1 YR.	2 YR.	5 YR.	+5 YR.		
BASIC AIR CONDITIONING	28	20	48	132	0228	.300
ADVANCED AIR CONDITIONING	10	9	15	48	0082	.115
HEATING, GAS FIRED	9	13	16	47	0085	.115
HEATING, OIL FIRED	14	13	14	41	0082	.115
VENTILATION	10	7	15	32	0064	.086
ELEVATOR MAINTENANCE	5	8	19	37	0089	.120
ELECTRICAL (GENERAL)	13	6	20	125	0164	.222
CARPENTRY & CABINET MAKING	2	0	9	116	0127	.172
PLUMBING & PIPE FITTING	6	2	6	44	0058	.078
WELDING	17	18	34	203	0272	.369
PAINTING, SPRAY	4	2	5	58	0069	.093
PAINTING, BRUSH	7	2	3	53	0065	.088
MACHINE SHOP	16	0	12	204	0232	.314

TABLE XX-A

SUMMARY OF FORMAL TRAINING IN MAINTENANCE CONTROL AREA

Total Number of Respondents = 530

	SCHOOLS ATTENDED				LENGTH OF TRAINING						
	HIGH SCHOOL	MILI-TARY	POST OFFICE	COL/IND TECH.	1 WK.	5 WK.	10 WK.	16 WK.	52 WK.	2 YR.	+2 YR.
OFFICE MACHINES	54	15	26	49	5	9	15	13	14	19	21
SECRETARIAL	13	3	4	22	0	1	2	8	7	8	7
SHORTHAND	32	2	3	22	0	1	5	11	12	9	9
TYPING	231	70	16	68	1	29	68	55	74	71	32
CLERICAL	61	39	26	45	2	14	19	18	17	23	26
BOOKKEEPING	88	11	11	53	0	11	18	15	37	30	22
MAINTENANCE CONTROL	2	21	90	13	16	53	13	6	7	7	8
STORES OPERATION	1	34	42	12	14	22	9	9	4	7	11
SAFETY PRACTICES	16	21	64	20	27	30	11	4	3	1	7
OTHER	6	12	22	29	5	17	5	3	14	12	8

TABLE XX-B

SUMMARY OF FORMAL TRAINING IN MAINTENANCE CONTROL AREA

Total Number of Respondents = 530

	LAST TRAINED				TOTAL RESPONDENTS FOR EACH AREA	% OF RESPONDENTS FOR EACH AREA
	1 YR.	2 YR.	5 YR.	+5 YR.		
OFFICE MACHINES	9	5	13	69	0096	.363
SECRETARIAL	9	1	5	23	0033	.063
SHORTHAND	2	3	3	41	0049	.092
TYPING	11	9	22	291	0333	.628
CLERICAL	9	6	12	93	0120	.226
BOOKKEEPING	5	6	9	113	0133	.250
MAINTENANCE CONTROL	22	19	27	43	0111	.209
STORES OPERATION	16	6	10	46	0078	.147
SAFETY PRACTICES	28	10	14	33	0085	.160
OTHER	5	8	11	42	0066	.124

This data reinforces the data collected on schools attended and does show that the respondents have received most of their previous vocational-technical training in high school, industry, technical school or college, because of the longer lengths of programs usually conducted in these institutions.

There were 1,597 entries made by the 737 respondents when they were asked to fill out information on when they last received training. An average of 9 percent have received training within the past year in each of the occupational areas. A total of 6 percent indicated they have received training from one to two years ago. Approximately 14 percent reported training was received from two to five years ago, and 71 percent indicated receiving vocational-technical training over five years ago.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The primary objective of this study was to gather, compile, document, and relate statistical information relative to plant equipment personnel working for the United States Postal Service in order to provide knowledge and facts to key Postal Service personnel that will be helpful in designing, organizing, and implementing quality national technical training programs for the U.S. Postal Service.

Information was compiled on a total of 3,402 individuals presently employed in three broad occupational areas. However, only the plant equipment and the maintenance control personnel were included in the study except for an occasional statistical comparison that has been made to all occupational areas. The study has been limited to personnel working in the 15 cities mentioned in Chapter II of the study.

Conclusions

The findings of this study can be most effectively reported by responding to the research questions posed in Chapter I. The answers to the following questions are based

on an analysis of the information contained in the preceding chapter.

Research Question 1

What is the educational background of plant equipment personnel employed by the U.S. Postal Service? The average formal education background was found to be 10.86 years for all occupational areas, 10.64 years for plant equipment personnel, and 11.44 years for maintenance control personnel at all facilities visited. There were 172 individuals in the plant equipment and maintenance control areas that had previously attended college with 2.08 years of average attendance. This indicates that approximately 20 percent of the 930 individuals surveyed have some college background. This question was answered as shown in Figures 3 and 7. Also, by referring to Tables II through XVI, a summary of statistical information on all cities is shown along with a summary of plant equipment and maintenance control personnel for each facility surveyed.

Research Question 2

How does the educational background of plant equipment personnel in the U.S. Postal Service compare by post office? The formal education background of plant equipment personnel was found to be 10.64 average years with a variance of less than ± 0.5 of a year for plant equipment personnel and 11.44 years for maintenance control personnel with less than ± 0.6

of a year variation at each of the facilities surveyed. Additional information can be found in Figures 3 and 7. Also, Tables II through XVI show a summary of each facility.

Research Question 3

What are the average years of service of plant equipment personnel? The summary of statistical information for plant equipment personnel shows that 17.5 years is the average years of service at all facilities surveyed. Maintenance control personnel indicate 14.9 years of service on the average. Additional statistical information can be found in Tables II and XVI. Also, Figures 4 through 16 provide additional information on years of service.

Research Question 4

What are the PS levels for plant equipment personnel in the U.S. Postal Service in selected job titles? The PS levels for plant equipment personnel vary from level four to level sixteen. There is a range of as much as three levels in some job titles at the PS 9 level and above. This question has also been answered by conducting research that is shown in Figure 8 and Figure 9. These figures indicate the standard job titles in which plant equipment and maintenance control personnel are presently employed with the U.S. Postal Service.

Research Question 5

What are the major tasks performed by plant equipment personnel? The major tasks performed by plant equipment personnel are as follows: Air-conditioning service, electrical service, heating systems, elevator maintenance, plumbing, pipe fitting, welding, carpentry and other related functions. The tasks performed by maintenance control personnel are planning and scheduling work, follow-up on performance, making required reports, communications, maintaining historical records, submitting requisitions and maintaining proper inventory. The answer to this question is also found in the task analysis information presented in Chapter IV and is located in Table XVII and XVIII. The task analysis tables give the major tasks, the percentage of time spent in each major task, the individual number of respondents and the percentage of respondents for each task compared to the total number of respondents.

Research Question 6

What formal training has plant equipment personnel received and how long has it been since this training was conducted? This question has been answered for the plant equipment and the maintenance control personnel in selected facilities throughout the United States as shown in Table XIX and Table XX. The tables show that 9 percent of plant equipment respondents received training one year ago or less, 6 percent received training one to two years ago, 14 percent

indicate training two to five years ago and 71 percent have received training that was conducted over five years ago. An in-depth examination was conducted in this area including schools attended, length of training, and when the employee last attended training programs in each occupational area shown.

Recommendations

1. Career ladders should be developed in all occupational areas and technical training programs developed and taught on a continuing basis parallel to the career development program of each individual technical maintenance employee working for the U.S. Postal Service.

2. All vocational-technical training that was received by the individual Postal Service employee over four years ago should be considered obsolete due to the new techniques, test instruments, modern mechanized equipments, and the latest technological advancements that are being introduced into the system at an ever increasing rate.

3. Additional technical training programs should be developed and taught in each occupational area to insure the future Postal Service of a highly skilled and motivated work force capable of assuming responsibility of a total preventative maintenance program at all physical facilities under the jurisdiction of the United States Postal Service.

4. Contrary to current policies and practices, a method should be established to (1) transfer technically qualified

personnel from other craft areas in the Postal Service to the technical maintenance function laterally, and (2) also provide ways and means to recruit qualified personnel outside the organization when exhaustive efforts fail to produce qualified candidates from within the organization.

5. Because of the limitations of this report, further study on a continuing basis is recommended to provide in-depth examination of retirement, promotional opportunities, selection criteria, compensation, technical training needs, attrition, and various other subject areas of major importance relating to the technical maintenance family of the United States Postal Service.

Recommendations for Further Study

1. Additional in-depth studies should be conducted in all occupational areas to provide statistical information on the technical maintenance family in the U.S. Postal Service that will be helpful to management in solving future mechanization and personnel problems.

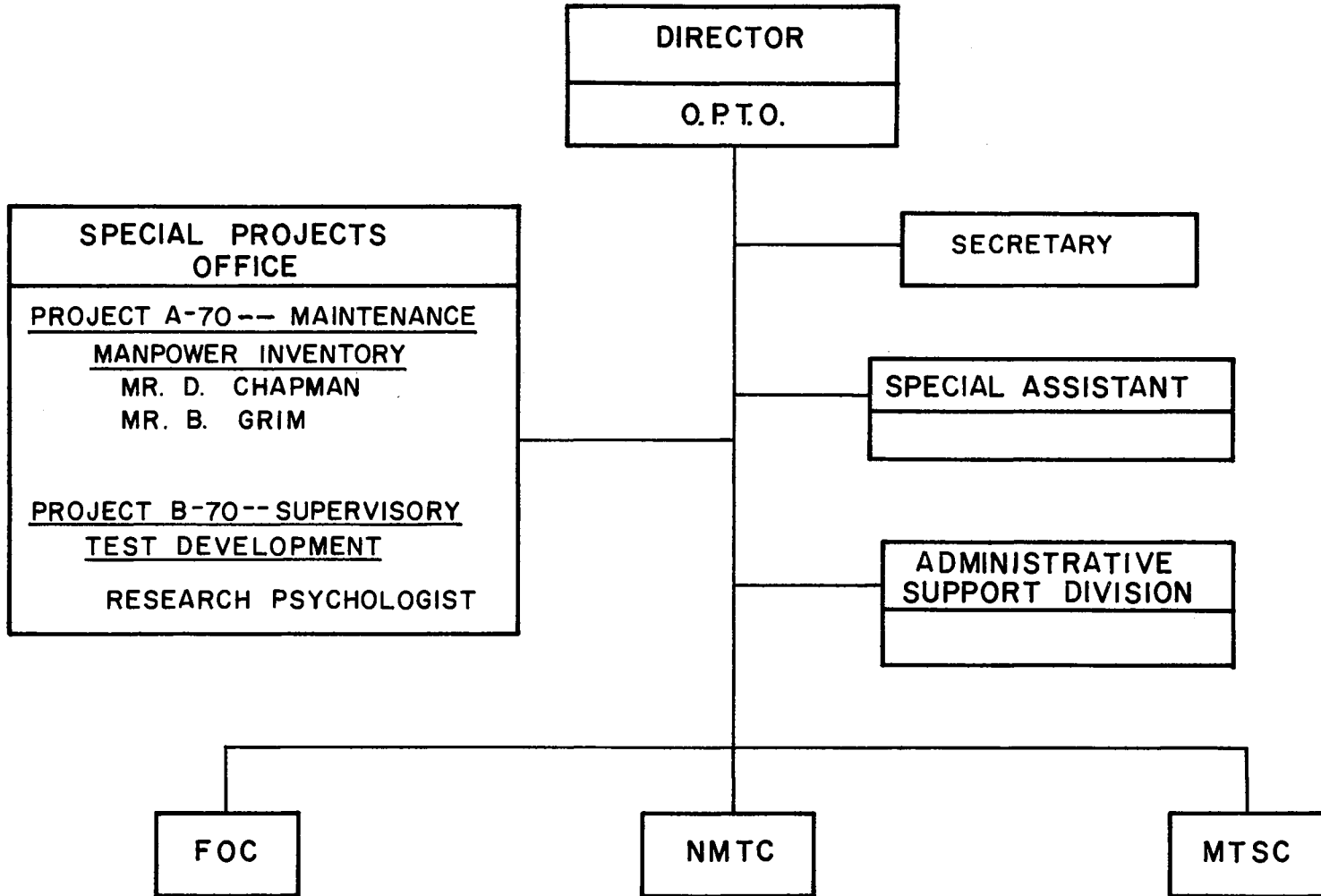
2. Since the study indicated that proliferation of job titles exists, it is recommended that all positions in the plant equipment area be further analyzed to determine the extent of job title proliferation and (1) reduce the number of job titles from 83 to approximately 35, and (2) change the names of certain job titles to more clearly reflect the actual work being performed.

SELECTED BIBLIOGRAPHY

- (1) Towards Postal Excellence. The Report of the President's Commission on Postal Organization, Frederick R. Kappel, Chairman. Washington: U.S. Government Printing Office, June, 1968, p. 110.
- (2) Sheele, Carl H., A Short History of the Mail Service, Smithsonian Institute Press, 1970, p. 64.
- (3) Federal Employees' News Digest, 18th Annual Edition, Federal Employees' 1971 Almanac, edited by Joseph Young, p. 155.
- (4) Grim, Bill G., "Organizing and Implementing a National Inventory System for the U.S. Postal Service." (Unpublished report, Oklahoma State University, Stillwater, Oklahoma, 1971), p. 1.
- (5) Braden, Paul V., Occupational Training Information System, Stillwater, Oklahoma: The Research Foundation, Oklahoma State University, June, 1970, p. 2.
- (6) Occupational Outlook Handbook, 5th ed., U.S. Bureau of Labor Statistics, 1961, p. 1.
- (7) Hoppock, R., Occupational Information, McGraw-Hill Company, Inc., New York, 1963, p. 3.
- (8) Venn, Grant, Man, Education and Work, American Council on Education, 1964, p. 72.
- (9) Burkett, Lowell A., "Critical Issues in Vocational Education," in Vocational Education for Rural America, ed. Gordon S. Swanson. Washington: Department of Rural Education, 1960, p. 301.
- (10) Collins, L. R., "Higher Education in an Age of Revolution", in current issues in Higher Education, ed. G. Kerry Smith. Washington: Association for Higher Education, 1962, p. 6.

APPENDIX A
SPECIAL PROJECTS OFFICE

OKLAHOMA POSTAL TRAINING OPERATIONS



APPENDIX B
PROJECT RESPONSIBILITY

POST OFFICE DEPARTMENT

OKLAHOMA POSTAL TRAINING OPERATIONS

P. O. BOX 1400

Norman, Oklahoma 73069

DATE: June 12, 1970

REPLY TO
ATTN OF:

SUBJECT: Assignment of Project Responsibility
TO:

Memo to All OPTO Personnel

The speciality projects which have and will be assigned to OPTO are increasing in number and complexity. To meet the management needs and the speciality requirements of these projects a Projects Office is hereby established as staff to the Director, OPTO.

Assignments to this Office may or may not be on a permanent assignment. Two current on-going projects are identified below and will be staffed as indicated.

PROJECT A-70 -- MAINTENANCE MANPOWER INVENTORY
AND JOB SKILLS ANALYSIS STUDY.

Senior Project Coordinator & Team Coordinator	- Dennis Chapman (NMTC) (Part Time)
Project Coordinator & Team Coordinator	- Bill Grim (NMTC) (Part Time)
Team Coordinator	- Norris Griffith (MTSC) (Part Time)
Test Development Coordinator	- New Position for Research Psychologist yet to be filled

PROJECT B-70 -- SUPERVISORY TEST DEVELOPMENT

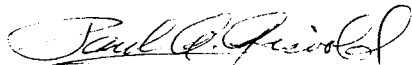
Test Development Coordinator	- New Position for Research Psychologist yet to be filled (Same person as Project A-70)
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Project A-70 is intended to inventory all technical maintenance personnel of the Post Office and to identify job skills needed to do those jobs. It is underway and is expected to be completed by March 1, 1971. Included in this project is the use of Drs. Braden and Phillips from Oklahoma State University to develop the test instruments and to assist in evaluation of results. Also on board are 12 consultants (Local Technical University teaching faculty members) for inventory/interview data collection. They will be in and out of OPTO during the next three months.

Project B-70 covers a contract to the University of Oklahoma for development of Supervisory Tests for the Post Office. It is to be completed within six months. This requires an on-site test development specialist (Research Psychologist). This person will also be chartered with the responsibility of developing entry, promotion and performance tests for the maintenance family as part of Project A-70.

Because of the size of Project A-70 and its use of multiple consultants, it was decided to place it in the Special Projects Office. Because of the unique staffing and across the board use including application to Project A-70 it was decided to place Project B-70 also in the Special Projects Office.

I would appreciate all the assistance you can furnish the Special Projects Office. These special projects can be very vital in image forming for OPTO.



PAUL A. GISVOLD
Acting Director

APPENDIX C
INSTRUMENT NUMBER ONE

TO: Technical Maintenance Employees
FROM: Maintenance Manpower Project Office OPTO
**SUBJECT: Request for Information for the United States Postal
Service Maintenance Manpower Inventory System**

You are being asked to complete the attached form as soon as possible. The document is designed to determine present educational levels and assist in determining future training needs, and information related to technical maintenance personnel. The information will be collected by using the attached questionnaire. If you need any additional assistance, the distribution official will know how to assist you.

Start with your social security number which is item No. 1 and complete the form. Read carefully the instructions which apply to each section or individual statement. This questionnaire is concerned with obtaining the following information about you: General identification; educational level; type of formal classroom training (if any); and work experience over the last ten years. DO NOT MAKE ANY MARKS IN THE SHADED AREAS ON THE FORM, SINCE THEY ARE FOR DATA PROCESSING PURPOSES ONLY.

As soon as you have completed the form, you should give it to the postal official who initially distributed it to you. With this information you can be sure your postal service training record is up to date. Your cooperation is appreciated.

**INSTRUCTIONS FOR COMPLETING
FORMAL-CLASSROOM-TRAINING PART OF THE FORM**

On the following 5 pages information is sought on the amount of formal training you have received while in school, military or in post office employment. Please remember **this does not refer to on-the-job training**. Only the training in a formal classroom situation should be entered here.

Example: John Doe went through a 16 week course in Auto Electric Systems; was then drafted and while serving in the Army was sent for another course in advanced Auto Electric Systems, lasting three weeks; and finally while employed with the P.O.D. attended a refresher course of one week in the same subject. This adds up to 18 weeks. Therefore, in the sample below, an X was marked in the "17-52 wks" column. Another X was marked in the "Over 2 Years But Less Than 5 Years" column because John's last course was offered in March of 1968.

SAMPLE FORM SHOWN BELOW:

RECORD OF FORMAL CLASSROOM TRAINING IN AUTOMOTIVE (Do Not Include On-The-Job Training)	SCHOOLS ATTENDED				COMBINED LENGTH OF TRAINING PROGRAMS							When Did You Last Have This Training? Check Only One			
	1	2	3	4	1	2	3	4	5	6	7	1	2	3	4
	High School	Military	Post Office Industry, Technical, College		Less Than 1 Week	1-5 Weeks	6-10 Weeks	11-16 Weeks	17-52 Weeks	1-2 Years	Over 2 Years	Within the Past Year	Over 1 Year But Less Than 2 Years	Over 2 Years But Less Than 5 Years	Over 5 Years Ago
Basic Auto Mechanics	X						X							X	
Supervision															
Clerical															
Tune-Up APCD	X					X									X
Auto Electric Systems	X	X	X						X					X	

A13
12. (continued)

RECORD OF FORMAL CLASSROOM
TRAINING IN ELECTRONICS—MPE*

		SCHOOLS ATTENDED				COMBINED LENGTH OF TRAINING PROGRAMS							When Did You Last Have This Training? CHECK ONLY ONE						
		1	2	3	4	1	2	3	4	5	6	7	1	2	3	4			
		High School	Military	Post Office Industry, Technical, College	Less Than 1 Week	1-5 Weeks	6-10 Weeks	11-16 Weeks	17-52 Weeks	1-2 Years	Over 2 Years	Within the Past Year	Over 1 Year But Less Than 2 Years	Over 2 Years But Less Than 5 Years	Over 5 Years Ago	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)			
A13A	Electricity													201					
A13B	Motors and Generators													202					
A13C	Maintenance													203					
A13D	Basic Electronics													204					
A13E	Solid State													205					
A13F	Radio													206					
A13G	Intercom & Paging Systems													207					
A13H	Advanced Electronics													208					
A13I	Television													209					
A13J	Digital													210					
A13K	Computer Maintenance													211					
A13L	Optical													212					
A13M	SPE Patron Service Machines													213					
A13N	Small Operating Equipment													214					
A13O	Small Postal Machines													215					
A13P	Self-Service Postal Unit													216					

*If you have not had training in the area of ELECTRONICS mark an X in this block and skip to page 8.

12. (continued)

RECORD OF FORMAL CLASSROOM
TRAINING IN ELECTRONICS—MPE

		SCHOOLS ATTENDED				COMBINED LENGTH OF TRAINING PROGRAMS							When Did You Last Have This Training? CHECK ONLY ONE						
		1	2	3	4	1	2	3	4	5	6	7	1	2	3	4			
		High School	Military	Post Office Industry, Technical, College	Less Than 1 Week	1-5 Weeks	6-10 Weeks	11-16 Weeks	17-52 Weeks	1-2 Years	Over 2 Years	Within the Past Year	Over 1 Year But Less Than 2 Years	Over 2 Years But Less Than 5 Years	Over 5 Years Ago	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)			
A13Q	MPE Letter Sorter Console															217			
A13R	Letter Sorter Machine															218			
A13S	Parcel Sorter Machine															219			
A13T	Sack Sorter Machine															220			
A13U	Mark II Facer-Canceler															221			
A13V	Mark II LID															222			
A13W	Bulk Belt Conveyor															223			
A13X	Portable Conveyor															224			
A13Y	Drafting															225			
A13Z	Hydraulics															226			
A131A	Pneumatics															227			
A131B	Basic Mechanics															228			
A131C	Safety Practices (Shop)															229			
A131D	Other															230			
																231			
																232			

A14
12. (continued)

RECORD OF FORMAL CLASSROOM
TRAINING IN PLANT EQUIPMENT*

		SCHOOLS ATTENDED				COMBINED LENGTH OF TRAINING PROGRAMS							When Did You Last Have This Training? CHECK ONLY ONE							
		1	2	3	4	1	2	3	4	5	6	7	1	2	3	4				
		High School	Military	Post Office	Industry, Technical, College	Less Than 1 Week	1-5 Weeks	6-10 Weeks	11-16 Weeks	17-52 Weeks	1-2 Years	Over 2 Years	Within the Past Year	Over 1 Year But Less Than 2 Years	Over 2 Years But Less Than 5 Years	Over 5 Years Ago	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)			
A14A	Basic Air Conditioning															301				
A14B	Advanced Air Conditioning															302				
A14C	Heating, Gas Fired															303				
A14D	Heating, Oil Fired															304				
A14E	Ventilation															305				
A14F	Elevator Maintenance															306				
A14G	Electrical (General)															307				
A14H	Carpentry & Cabinet Making															308				
A14I	Plumbing & Pipe Fitting															309				
A14J	Welding															310				
A14K	Painting, Spray															311				
A14L	Painting, Brush															312				
A14M	Machine Shop															313				
A14N	Safety practices (Shop)															314				
A14O	Other															315				
																316				

* If you have not had training in the area of PLANT EQUIPMENT mark an X in this block and skip to page 9.

A15
12. (continued)

RECORD OF FORMAL CLASSROOM
TRAINING IN MAINTENANCE
CONTROL (MS-10) *

		SCHOOLS ATTENDED				COMBINED LENGTH OF TRAINING PROGRAMS							When Did You Last Have This Training? CHECK ONLY ONE							
		1	2	3	4	1	2	3	4	5	6	7	1	2	3	4				
		High School	Military	Post Office	Industry, Technical, College	Less Than 1 Week	1-5 Weeks	6-10 Weeks	11-16 Weeks	17-52 Weeks	1-2 Years	Over 2 Years	Within the Past Year	Over 1 Year But Less Than 2 Years	Over 2 Years But Less Than 5 Years	Over 5 Years Ago	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)			
A15A	Office Machines Operations															401				
A15B	Secretarial															402				
A15C	Shorthand															403				
A15D	Typing															404				
A15E	Clerical															405				
A15F	Bookkeeping															406				
A15G	Maintenance Control															407				
A15H	Stores Operation															408				
A15I	Safety Practices															409				
A15J	Other															410				
																411				
																412				
																413				
																414				
																415				
																416				

*If you have not had training in the area of MAINTENANCE CONTROL (MS-10) mark an X in this box and skip to page 10.

INSTRUCTIONS FOR COMPLETION
JOB-EXPERIENCE PART OF THE FORM

13. Please give information about your present job in the spaces which follow the **sample** below. Study this sample before going any further. Your occupation code number can be found in the lower right-hand corner of your last salary change form.

I am presently employed at:

U / S / P / O / S / T / O / F / F / I / C / E /

City INDIANAPOLIS

State IND

Division or Branch PLANT MAINTENANCE

Tour Number (Check One) 1 2 3

Job Title ENGINEER

*Occupational Code Number 131091-1021 (See note below)

Year of Assuming This Job Title-1971
Year

PFS Level 1016 Step 1011

SALARY CHANGE NOTICE

EMPLOYEE NAME		SOCIAL SECURITY NUMBER	DESIG NATION	ACT	FINANCE No.	PAY LOC (ROUTE)	LEVEL	STEP	NEW BASIC SALARY									
		442-20-1676	09	0	39-5962	000	12	5	13493									
* EFFECTIVE DATE FOR STEP INCREASE SUBJECT TO DETERMINATION THAT LWOP IS NOT EXCESSIVE. (See 754.25 PM)																		
OFFICER	BIRTH DATE	VET PREF	SERVICE COMP DATE	LIFE INS		HEALTH BENEFITS			FICA (25 RET. 1%)	SAVED RATE	CAG	DUAL	NEXT STEP (PAY PER YR)	LEAVE				
	05-12-23	2	08-11-45	ELIG CODE	DED	ELIG CODE	PLAN	EMP DED	GOV CONT				20-71	CAT	CHANGE DATE			
POSTAL OFFICIAL IN-CHARGE										*EFFECTIVE DATE SALARY CHANGE		OFFICER	LTO TOUR	TYPE ALL	RURAL DATA			
														T/W	MILES & STOPS	LP ALL	HU MAX	
												OFFICER	PAY CODE	PROF SAL (DATE EFF YR)	OCCUPATIONAL CODE		SEX	TAX EXMP.

* This is where you will find your occupational code number on your last salary change notice.

JOB PREVIOUS TO ABOVE (IF ANY)

A17D
A17D1
A17D2
A17D3

D. Job Title _____
Name of
Organization _____
City _____
State _____
Dates Held—From 19____ to 19____

JOB PREVIOUS TO ABOVE (IF ANY)

A17E
A17E1
A17E2
A17E3

E. Job Title _____
Name of
Organization _____
City _____
State _____
Dates Held—From 19____ to 19____

JOB PREVIOUS TO ABOVE (IF ANY)

A17F
A17F1
A17F2
A17F3

F. Job Title _____
Name of
Organization _____
City _____
State _____
Dates Held—From 19____ to 19____

JOB PREVIOUS TO ABOVE (IF ANY)

A17G
A17G1
A17G2
A17G3

G. Job Title _____
Name of
Organization _____
City _____
State _____
Dates Held—From 19____ to 19____

APPENDIX D

PLANT EQUIPMENT - INSTRUMENT NUMBER TWO

U. S. POST OFFICE DEPARTMENT
MAINTENANCE MANPOWER INVENTORY

PLEASE PRINT ONE LETTER OR NUMBER PER BLOCK

Social Security Number [I I] - [I] - [I I I]

For the major tasks listed below, please indicate the percentage of time you devote to each. Please write in any additional tasks which would bring the total time to approximately 100 percent.

MAJOR TASK	PERCENT OF TIME IN EACH MAJOR TASK									
01. Air Conditioning Systems (Refrigeration)	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
02. Heating Systems	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
03. Ventilation	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
04. Elevator Repair & Maintenance	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
05. Electrician (General)	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
06. Carpentry & Cabinet Making	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
07. Plumbing & Pipe Fitting	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
08. Welding	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
09. Painting	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
10. Machine Shop	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
11. Supervision	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
12. Clerical	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
13. Assisting Other Crafts- men in Plant Equipment in the above areas	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
14. _____	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100
15. _____	[] 10	[] 20	[] 30	[] 40	[] 50	[] 60	[] 70	[] 80	[] 90	[] 100

List in order of importance the areas you feel a need for additional training.

01. _____ Air Conditioning Systems (Refrigeration)
02. _____ Heating Systems
03. _____ Ventilation
04. _____ Elevator Repair & Maintenance
05. _____ Electrician (General)
06. _____ Carpentry & Cabinet Making
07. _____ Plumbing & Pipe Fitting
08. _____ Welding
09. _____ Painting
10. _____ Machine Shop
11. _____ Supervision

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?	
	1	2	1	2	1	2	1	2	3	4	5	1	2
	Yes	No	Yes	No	On Job With Post Office	On Job With Other Job	Daily	Weekly	Monthly	Very Seldom	Not At All	Yes	No
I. AIR CONDITIONING													
01. Check and Clean Air-Cooled Condensers													001
02. Check and Log Gauge Readings													002
03. Start Up and Operate Air Conditioning System													003
04. Charge Refrigerant Into System													004
05. Locate and Repair Refrigeration System Leaks													005
06. Evacuate A/C System With Vacuum Pump													006
07. Perform Water Treatment Analysis													007
08. Major Repairs on Pumps, Refrigeration Cycle, Replace Seals, Bearings, Mtrs., Etc.													008
09. Analyze Readings to Determine Temp. Pressure Relationship & Take Nec. Action													009
10. Troubleshoot Pnuematic A/C Control Sys. Internal Compressor Overhaul													010
11. (Centrifugal)													011
II. HEATING	0	0	0	0	0	0	0	0	0	0	0	0	0
01. Clean Boilers, Flues, Etc.													001
02. Check & Repair Area Heating Units (Small)													002
03. Repair or Replace Fire Box Liner or Brick													003

DO NOT REPLY 0

(continued on next page)

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?		
	1 Yes	2 No	1 Yes	2 No	1 On Job With Post Office Or Other Job	2 Daily	1 Weekly	2 Monthly	3 Very Seldom	4 Not At All	5 Yes	6 No	1 DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)	2
04. Operates & Monitor Boiler Operation													004	
05. Boiler Repair (General)													005	
06. Lay Up Boilers													006	
07. Seasonal Start Up Of Boilers													007	
08. Adjust Fuel-Air Ratio for Proper Combustion													008	
09. Troubleshoot Boiler Control System													009	
III. VENTILATION	0	0	0	0	0	0	0	0	0	0	0	0		
01. Clean or Change Filters													001	
02. Oil Fans, Change or Adjust Belts, Etc.													002	
03. Check Barometric Readings and Adjust Dampers													003	
04. Check and Adjust Static Pressure Across Filters													004	
05. Balance Systems (Air Flow)													005	
06. Adjust System to Affect a Temp. or Press. Change in Air Handling Systems													006	

DO NOT REPLY 0

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IV. ELEVATORS

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?		
	Yes	No	Yes	No	On Job	When Post Office	Other Job	Daily	Weekly	Monthly	Very Seldom	Not At All	Yes	No
01. Adjust & Align Floor Level Positions														001
02. Inspect & Adjust Elevator Drive System														002
03. Mechanisms														003
04. Major Repairs On Motors, Generators, Gear Reducers, Pumps, Etc.														004
05. Adjust, Repair, Maintain, Troubleshoot Elevator Control Systems														005
V. ELECTRICIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	
01. Replace Light Bulbs, Make Switch Repairs, Change Ballast, Replace Circuit Breakers														001
02. Run New Serv., Check or Serv. High Volt. Step-Dwn, Transformers Less Than 10KW														002
03. Perform Preventive Maint. on Entrance Serv. Panels, Air Circuit Breakers, Etc.														003
04. Replace, Repair or Adjust: Capacitors, Relays, Switches, Etc.														004
05. Troubleshoot Electrical Control Systems														005
VI. CARPENTRY AND CABINET MAKING	0	0	0	0	0	0	0	0	0	0	0	0	0	
01. Build Boxes, Shelves, Bins, Etc.														001
02. Rough-In Structural Framing														002

DO NOT REPLY 0

(continued on next page)

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?		
	Yes	No	Yes	No	1	2	1	2	3	4	5	Yes	No	
Finish Work, i.e., Hang Doors, Mortice 03. Locks, Trim, Etc.													003	
04. Repair or Build Furniture													004	
Work From Drawings, Sketches and 05. General Instructions													005	
VII. PLUMBING AND PIPEFITTING	0	0	0	0	0	0	0	0	0	0	0	0	0	
01. Clean Drains, Replace Faucet Washers, Etc													001	
02. Replace Fixtures, Such As Valves, Sinks, Etc													002	
03. Piping Modifications & Repairs													003	
04. Lay-Out & Install New Plumbing Services													004	
05. Install or Repair High Press. Piping Sys.													005	
Install or Repair Hydraulic or 06. Pneumatic Lines													006	
VIII. WELDING	0	0	0	0	0	0	0	0	0	0	0	0	0	
01. Weld or Braze Light Gage Materials													001	
02. Bend & Shape Light Gage Materials													002	
03. Cut Shape & Form Heavy Gage Materials													003	

DO NOT REPLY [0]

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	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?	
	1	2	1	2	1	2	1	2	3	4	5	1	2
	Yes	No	Yes	No	On Job With Post Office Other Job	On The Job	Daily	Weekly	Monthly	Very Seldom	Not At All	Yes	No
04. Make Structural Welds													004
05. Anneal and Temper													005
06. Welding of Precision Parts													006
07. Pressure Vessel Welding Heli-Arc or Other Controlled													007
08. Environment Welding													008
IX. PAINTING	0	0	0	0	0	0	0	0	0	0	0	0	0
01. Clean or Prepare Surfaces for Refinishing													001
02. Paint Facilities													002
03. Paint Equipment													003
04. Refinish Furniture													004
05. Operate Spray Equipment													005
06. Match, Blend & Mix Paints, Thinner, Etc.													006

DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)

DO NOT REPLY

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X. MACHINING

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?			How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?		
	Yes	No	Yes	No	1	2	3	1	2	3	4	5	Yes	No	
01. Operate Drill Press, Bench Grinder, Etc. Machine Shafts, Bushings and Other														001	
02. Minor Parts														002	
03. Machine Gears, Cams, Etc.														003	
04. Tool and Die Making														004	

DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)

<u>POWER TOOLS:</u>	<u>ARE YOU QUALIFIED TO USE?</u>	<u>DO YOU USE?</u>
Drill Press	<input type="checkbox"/>	<input type="checkbox"/>
Lathe (Metal)	<input type="checkbox"/>	<input type="checkbox"/>
Lathe (Wood)	<input type="checkbox"/>	<input type="checkbox"/>
Milling Machine	<input type="checkbox"/>	<input type="checkbox"/>
Boring Mill	<input type="checkbox"/>	<input type="checkbox"/>
Shaper	<input type="checkbox"/>	<input type="checkbox"/>
 <u>TEST INSTRUMENTS:</u>		
V. O. M.	<input type="checkbox"/>	<input type="checkbox"/>
Velometer	<input type="checkbox"/>	<input type="checkbox"/>
Manometer	<input type="checkbox"/>	<input type="checkbox"/>
Sling Psychrometer	<input type="checkbox"/>	<input type="checkbox"/>
Tachometer or Strobelight	<input type="checkbox"/>	<input type="checkbox"/>
Gauge, Manifold	<input type="checkbox"/>	<input type="checkbox"/>
Pyrometer	<input type="checkbox"/>	<input type="checkbox"/>
Gauge Block	<input type="checkbox"/>	<input type="checkbox"/>

What is the biggest problem you have with this job?

What kind of training (if any) do you feel would be most helpful to you on this job?

Are there any comments you would like to make about your job?

APPENDIX E

MAINTENANCE CONTROL - INSTRUMENT NUMBER TWO

U. S. POST OFFICE DEPARTMENT
 MAINTENANCE MANPOWER INVENTORY

PLEASE PRINT ONE LETTER OR NUMBER PER BLOCK

Social Security Number [] [] [] - [] [] - [] [] [] []

For the major tasks listed below, please indicate the percentage of time you devote to each. Please write in any additional tasks which would bring the total time to approximately 100 percent.

MAJOR TASK	PERCENT OF TIME IN EACH MAJOR TASK									
01. Planning and Scheduling	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
02. Follow-Up On Performance of Work	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
03. Make Required Reports; i. e., Maintenance Analysis Summary - Daily Summary, Etc.	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
04. Maintain Historical Records; i. e., Analyzing, Recording, & Equipment Files	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
05. Maintain Files On Mech-Electrical Drawings	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
06. Communications	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
07. Submit Requisitions For Tools and Supplies	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
08. Maintain Stock Record Accounts	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
09. _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
10. _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
11. _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100
12. _____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
	10	20	30	40	50	60	70	80	90	100

SUB TASKS

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?	
	Yes	No	Yes	No	1	2	1	2	3	4	5	Yes	No
					On Job With Post Office	On The Job	Daily	Weekly	Monthly	Very Seldom	Not At All		
Maintain master and daily schedule													
01. board or sheets?												001	
02. Receive incoming work orders?												002	
Approve or get approval before assigning													
03. work order number?												003	
Assign work order numbers from work order													
04. register?												004	
Determine priority of requested work													
05. orders?												005	
Utilize tickler files in advance													
06. scheduling?												006	
Maintain numerical file on completed													
07. work orders?												007	
Process assignment sheets (4778) and													
08. associated paper work?												008	
09. Maintain equipment files?												009	
10. Maintain summary sheets (4808)?												010	
11. Make maintenance analysis report?												011	
12. Operate a calculator?												012	
13. Type?												013	
14. Make back-log reports (work orders)?												014	
15. Post and maintain historical records?												015	
16. Operate duplicating machines?												016	

DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)

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	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?			
	1	2	1	2	1	2	1	2	3	4	5	1	2		
	Yes	No	Yes	No	On Job With Post Office	Other Job	Daily	Weekly	Monthly	Very Seldom	Not At All	Yes	No	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)	
17. Compare estimated labor costs to actual costs?													017		
18. Collect and analyze equipment maintenance cost?													018		
19. Make supply requisitions?													019		
20. Make or revise route sheets & checklists?													020		
21. Receive incoming work requests via telephone?													021		
22. Operate intercom equipment?													022		
23. Maintain custodial work requirements?													023		
24. Maintain charts or graphs relative to maintenance?													024		
25. Maintain correspondence file?													025		
26. Maintain PO Manual and Handbook files?													026		
27. Take shorthand?													027		
28. Operate dictaphone?													028		
29. Issue, receive, and inventory items of supply?													029		
30. Maintain voucher files?													030		
31. Check tools for broken, damaged, or worn parts?													031		
32. Revise part location for better storage utilization?													032		

(continued on next page)

	Are You Qualified To Perform These Tasks?		Are You Qualified By Work Experiences Only?		Where Did You Learn To Perform This Task?		How Often Do You Perform These Tasks?					Do You Have Adequate Tools To Perform This Job?		
	1	2	1	2	1	2	1	2	3	4	5	1	2	
	Yes	No	Yes	No	On Job With Post Office Or Other Job	Daily	Weekly	Monthly	Very Seldom	Not At All	Yes	No	DO NOT MARK IN THESE COLUMNS (FOR CODING ONLY)	
33. Identify equipment by tagging?												033		
34. Originate correspondence?												034		

APPENDIX F
VISITATION SCHEDULE

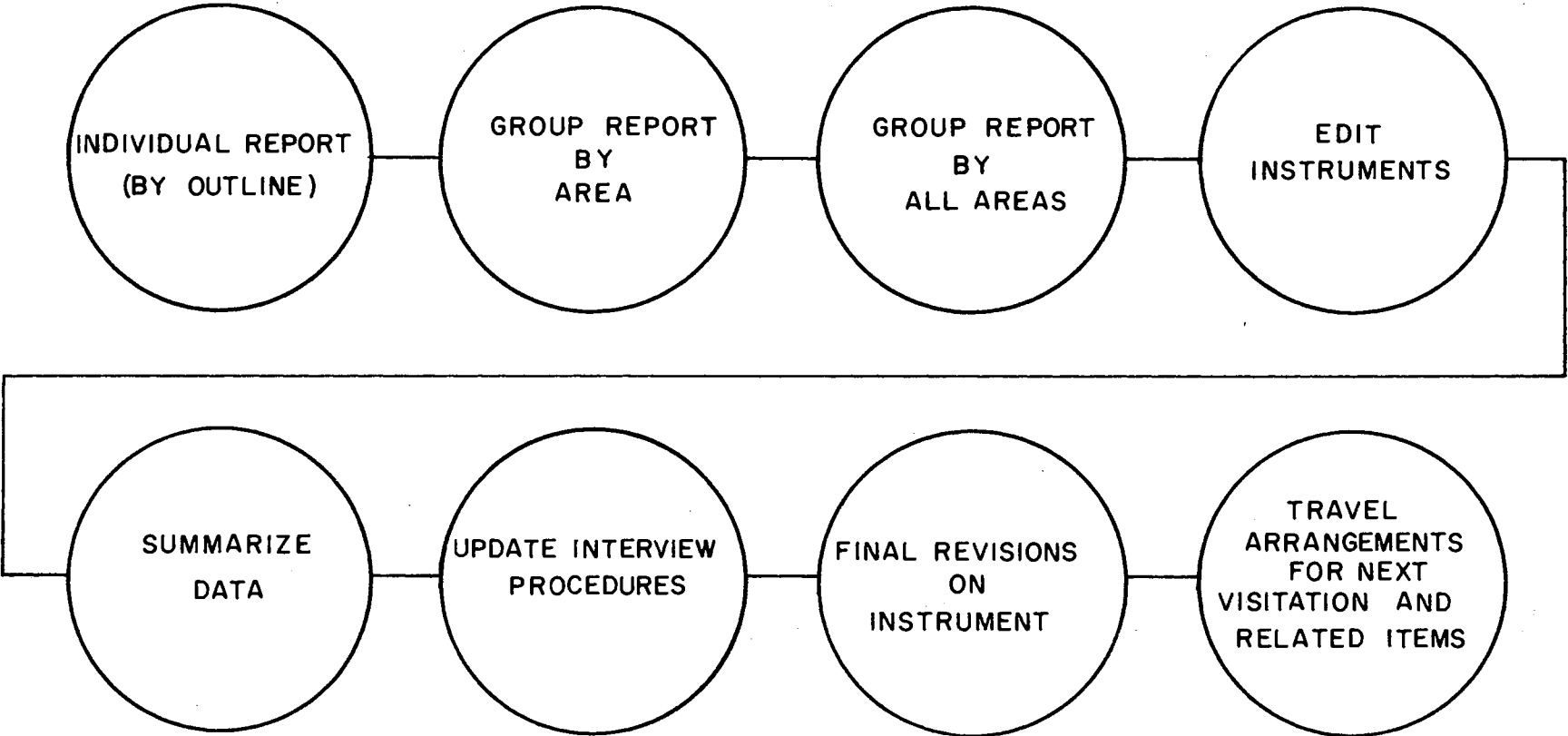
PROJECT TIMETABLE

DATES	WORK DAYS	FIELD	OPTO	ACTIVITIES
June 3 thru 5	3		X	Orientation - Workshop
June 8 thru 12	5	X		Personnel Inventories
June 15 thru 19	5		X	Inventory Compilation
June 22 thru 26	5	X		Personnel Inventories
June 29 thru July 2	4		X	Inventory Compilation
July 6 thru 10	5	X		Personnel Inventories
July 13 thru 14	2		X	Inventory Compilation
July 15 thru 31	17	X		Personnel Inventory
August 3 thru 4	2		X	Inventory Analysis
August 5 thru 21	17	X		Personnel Interview
August 24 thru 28	5		X	Inventory Compilation
November 27 thru 29	3		X	Inventory Analysis
December 28 thru 31	4		X	Project Workshop
March 1971	3		X	Project Summary
May 1971	10		X	Project Analysis and Final Recommendations
Days-to be arranged	30			
TOTAL	120			

APPENDIX G

PERT CHART

**PERT CHART OF ACTIVITIES
FOR TECHNICAL CONSULTANTS AT O.P.T.O.**



APPENDIX H
POSITION DESCRIPTION

POST OFFICE DEPARTMENT REQUEST FOR RANKING OF POSITION			
INSTRUCTION: Forward original and 2 copies to Reviewing Office.			
1. NAME OF OFFICE OR ORGANIZATION		(FOR DEPARTMENTAL USE ONLY)	
Okla. Postal Training Operations		APPROVED TITLE	
2. SUGGESTED TITLE OF POSITION		POSITION IDENTIFICATION	APPROVED PFS LEVEL
Technical Consultant			PFS-
3. RECOMMENDED SALARY LEVEL (From item 6D below)		KEY POSITION USED FOR RANKING	KEY POSITION NO.
PFS- 13			
4A. DATE OF SUBMISSION	4B. REASON FOR THIS REQUEST	SIGNATURE OF APPROVING OFFICER	DATE OF APPROVAL
5/28/70	Maintenance Inventory Project		
5. POSITION DESCRIPTION (Attach continuation sheet if additional space is needed)			
<p>A. BASIC FUNCTION Serves as a technical interviewer of POD maintenance personnel, interprets and documents pertinent information gathered as a result of personal interviews and compiles and analyzes the data in one or more of the following technical fields: Electronic, Plant Equipment, Automotive, Postal Equipment, and related areas. Writes summaries and recommendations related to information compiled in the speciality field.</p>			
<p>B. DUTIES AND RESPONSIBILITIES</p> <p>Consultant attends orientation, analysis, and project summary meetings as conducted by POD and special consultants. Writes reports and recommendations related to the purpose of such meetings.</p> <p>He administers personnel data and job related information instruments, and is responsible for the accuracy and completeness of the instrument upon completion of each interview.</p> <p>Serves as a member of a team, travels to and visits pre-selected Post Office Department facilities and personally conducts interviews with POD technical maintenance personnel within his assigned area of responsibility.</p> <p>He is also responsible for properly documenting, compiling, analyzing, interpreting and making unbiased reports of his findings regarding the group trends found within the area of specialization in which he conducts the interviews and provides the senior project coordinator with the final results. Using his expertise in his specialty technical field will assist in configuring data selection and job related information retrieval systems and provide analysis and expert recommendations for improved performance in the Postal Maintenance service.</p>			
<p>C. ORGANIZATIONAL RELATIONSHIPS</p> <p>He will work under the direct supervision of the designated team coordinator, who reports directly to the senior project coordinator and is also responsible to the Post Office Department officials assigned to the project as outlined in the organizational chart.</p>			

VITA

Bill G. Grim

Candidate for the Degree of
Master of Science

Thesis: AN OCCUPATIONAL ANALYSIS OF SELECTED PLANT
EQUIPMENT AREAS IN SELECTED POST OFFICES
THROUGHOUT THE UNITED STATES

Major Field: Technical Education

Biographical:

Personal Data: Born in Pawnee, Oklahoma, November 17,
1937, the son of Earnest (W.E.) and Opal S. Grim.

Education: Graduated from Pawnee High School, Pawnee,
Oklahoma, in May 1956; received Associate Engineer-
ing Science Degree from Oklahoma State University
in 1959, in Environmental Control Technology;
received the Bachelor of Science Degree from
Oklahoma State University in May 1962, with a
major in Technical Education; completed require-
ments for a Master of Science Degree at Oklahoma
State University in May 1971, with a major in
Technical Education and a minor in Electro-
Mechanical Technology.

Professional Experience: Worked full time for Safeway
Stores, Inc., Stillwater, Oklahoma, 1956-62; Tech-
nical Instructor, Oklahoma State Tech, Okmulgee,
Oklahoma, 1962-66; Department Head, Environmental
Control Technology, Texas A & M University, Waco,
Texas, 1966-1969; Engineering Technical Consultant,
1966-1969; United States Postal Service-Oklahoma
Postal Training Operations, Chief of Training,
Plant Equipment Division, NMTC, 1969-to present.

Professional Organizations: American Vocational Asso-
ciation; American Society Heating, Refrigeration
and Air-Conditioning Engineers; Oklahoma Technical
Society; American Association of University Pro-
fessors; Toastmasters International, Inc.