FEDERAL PRODUCTIVITY MEASUREMENT PROGRAM

AGENCY INSTRUCTION PACKAGE

FISCAL YEAR 1982

This report has been cleared in accordance with FPMR 101-11.11 and assigned interagency report control number 0169-DOL-AN.

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- I. Introduction
- II. Reporting Procedures
 - A. Key Dates
 - B. Project Mailing Address
 - C. Contact for Technical Assistance
- III. Data Reporting Instructions
 - A. Project Definitions
 - B. Criteria for Choosing Output Indicators
- IV. Required Data Exhibits
- V. Appendices

Appendix A: BLS Agency Analysts

Appendix B: Detailed Criteria for Selecting

Output Indicators

Appendix C: Functional Category Definitions

INTRODUCTION

This data call represents a continuation of the permanent system to collect and analyze productivity data for the Federal sector. Last year 455 organizational units participated in the Federal productivity program by submitting output and input data to the Bureau of Labor Statistics (BLS). The data they provided covered 64 percent (1.8 million employee-years) of the civilian Executive branch.

For the purpose of this system, productivity is defined as the efficiency with which an organization's resources are utilized to produce final outputs. Specifically, productivity is expressed as the ratio between the volume of goods or services produced (output) and the quantities of labor resources consumed in its production (employee-year inputs). This ratio is translated into an index with FY 1977 data referenced at 100. Yearly changes in the ratio are readily analyzed by comparing the current index with the base year, reference index.

For an organization producing a single uniform product or performing a single uniform service, the productivity index simply measures the change over time of the ratio of units produced to total direct and indirect employee-years expended to produce this output. For organizations producing several types of products, a composite output index must be constructed through the use of base-year unit employee-year weights. The quantity of each product produced each year is weighted (i.e., multipled) by the employee-years required to produce one unit of output in the base year. Thus, products which required more unit labor time to produce in the base-year are given more importance or greater weight in the composite output measure. These base-year weights are constructed by BLS from the detailed data provided by each organization participating in this project. When detailed data are unavailable, outputs are combined with estimated weights using other information supplied by each organization. See Appendix B for examples of weighting outputs.

Data for this submission can be extracted from existing management information systems already in place within your agency or department. An agency that has been reporting productivity data at the agency level may also want productivity indexes on a more detailed level, for example, a field office, program, or activity. These productivity measures can be provided by BLS in addition to the measures already generated in the system. If questions arise concerning this data submission, BLS analysts are available to assist each agency with technical details.

REPORTING PROCEDURES

Productivity data are to be reported on six separate documents (Exhibits A through F). The following is a brief summary of exhibit contents and due dates for submissions. More detailed information on each exhibit can be found on pages 6 through 12.

Each organizational unit should submit its data package to the agency principal who will forward it to BLS before the key dates indicated.

A. Key Dates

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July 15, 1983	Exhibit A - Name of Agency Productivity Principal and list of agency organizations submitting data to the system.
July 22, 1983	Exhibit B - Revision, expansion, or modification of last year's submission of Exhibit B which describes in narrative form all organizations with the agency.
July 22, 1983	Exhibit C - List of output, employee-year and compensation data for each activity.
July 22, 1983	Exhibit D - Response to questions on data submitted in Exhibit C concerning time required to produce a unit of output, responsiveness, quality of outputs, extent of contracting, and extreme changes in outputs and inputs.
Oct. 31, 1983	Closing date for data revisions
Oct. 31, 1983	Exhibit E - Narrative on factors contributing to changes in productivity.
Oct. 31, 1983	Exhibit F - Verification of data returned to agency by BLS.

B. Project Mailing Address

Charles W. Ardolini
Office of Productivity and Technology
Bureau of Labor Statistics
Room S-4320 Frances Perkins Building
200 Constitution Avenue, N.W.
Washington, D.C. 20212 (or stop #167)
202-523-9156

C. Contact for Technical Assistance

Questions concerning this instruction package or technical assistance regarding productivity measurement should be directed to Charles W. Ardolini, Chief, Division of Industry Productivity and Technology Studies (523-9244) or individual agency specialists (See Appendix A).

DATA REPORTING INSTRUCTIONS

A. Project Definitions

- 1. Agency Principal: The primary contact between an agency (and its organizational units) and the BLS project team (See appendix A). The individual will be responsible for collecting each exhibit from all organizations of the agency and submitting these exhibits by the target dates indicated on page 2.
- 2. Agency: Departments and establishments of the Executive branch (e.g., Department of Treasury or Veterans Administration).
- 3. Organizational Unit: An organization within an agency which may be as small as a division or decision unit or as large as an entire agency (e.g., Bureau of Labor Statistics, the Federal Aviation Administration, or the personnel division within a department).
- 4. Outputs: The products and services produced by an organizational unit. Final outputs are produced by the reporting organization and consumed by outside organizations or individuals. Intermediate outputs are produced and consumed by the reporting organization and should only be included in the input side of the final output.
- 5. Measurable Activities: The activities of an organizational unit for which final outputs and their corresponding employee-year inputs can be quantified.
- 6. Non-measurable Activities: The activities of an organization for which final outputs cannot be adequately quantified.

- 7. Employee-years: The measure of labor resources devoted to producing the outputs of an organizational unit. An employee-year includes regularly scheduled time, overtime, and leave time of all full-time, part-time, and intermittent employees. One employee-year equals 2080 paid hours (i.e., the equivalent of one individual paid for 40 hours a week for 52 weeks).
 - (A) Employee-years associated with final measured outputs:
 The total employee-years required to produce the final outputs which the organization has been able to quantify. Each employee-year figure should include not only the direct employee years required to produce the output, but also the indirect efforts without which the output could not have been produced, e.g., clerical, typing, supervisory, secretarial, and administrative efforts. In the event that indirect time cannot be allocated to specific final outputs, it should be reported in the category of "employee-years associated with administration and support."
 - (B) Employee-years associated with final non-measured outputs: The direct and indirect employee-years required to produce final outputs which cannot be quantified.
 - (C) Employee-years associated with administration and support: The indirect employee-years required to provide executive direction and other general services such as, typing which cannot be allocated to the final outputs of the organizational unit.
- 8. Compensation: Wages (personnel service costs) and fringe dollar benefits (personnel benefits cost, e.g., life and health insurance), including separation costs (i.e., severance pay and terminal leave). The data should match those provided under OMB Circular A-11 (object classes 11 and 12).

B. Criteria for Choosing Output Indicators:

- 1. Fach output measure should consist of units which are relatively homogeneous with respect to their labor requirements.
- 2. Outputs generally should be repetitive. Non-repetitive final outputs can be included in the data base but require special treatment, i.e., estimates of base-year weights.

- 3. Output indicators should directly reflect the workload of the organizational unit.
- 4. Output measures should reflect changes in output quality.
- 5. Output measures should indicate only the amount of work done during each fiscal year.
- 6. Output measures should reflect the final products and service of an organization.

For more detailed instructions on methods of choosing output indicators see Appendix B. Should any questions arise concerning these criteria, contact your BLS team member listed in Appendix A for assistance.

IV. REQUIRED DATA EXHIBITS

1. Exhibit A: Due Date: July 15, 1983

This exhibit provides an overview of each agency and identifies all agency organizational units (i.e., those which have measurable activities and those which do not).

Exhibit A: List of agency organizational units for FY 82

Date submitted:
Name of agency:
Agency Principal:
Phone:
Mailing Address 1/:
Agency Alternate:
Phone:
Mailing Address 1/:

Name of Organization

1. 2.

1/ Include stop number

2. Exhibit B: Date Due: July 22, 1983

Exhibit B provides a narrative description of each measured organizational unit and its outputs within an agency. BLS is returning to you the FY 81 Exhibit B data that you can revise, expand, or otherwise modify. Blank forms are also provided for new organizations to be measured. The functional category to which an organization has been assigned is included on the top of each Exhibit B. Please verify this functional assignment (See Appendix C for functional definitions).

Each organizatonal unit should submit one of the following:

Exhibit B-1: Description of organizational units with measurable activities (for units already in the data base). Please use the computer printout provided for your submission.

Exhibit B-2: Description of new organizational units with measurable activities (for units not in the data base). Please use blank computer forms provided.

Note: If there are no changes to the BLS' computer printout returned to you, please state so.

3. Exhibit C: Due Date: July 22, 1983

Exhibit C: This exhibit provides quantitative data on the outputs, employee-years, and personnel compensation for each organizational unit having at least one output that can be measured. Again, if any questions arise, please contact your assigned BLS analyst for assistance (see Appendix A). Fach organizational unit should submit one of the following:

Exhibit C-1: 0 rganizational units that submitted data last year should use the attached Exhibit C form. Corrections to FY 1977-1981 data and/or inclusion of new outputs should be submitted separately. Indicate whether any data are estimated and submit the final numbers as soon as they are available. Any change in the method of measuring an output should be reported on both the old and the new basis. If a reorganization has taken place, all data for FY 1977 forward should be presented on a consistent basis. Please use the forms provides for your data submission and return the originals to BLSF.

Exhibit C-2: Organizational units reporting data for the first time should use the new blank forms provided.

Note: If photocopies are submitted, please be sure that the entire form is reproduced. Include ID numbers on left and all compensation numbers on right.

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Exhibit D: Due Date: July 22, 1983

Exhibit D: This exhibit requires responses to a number of questions concerning the data provided in Exhibit C. These responses will be used by the BLS project team in evaluating the input and output data and interpreting results of overall functional trends.

Exhibit D: Responses to questions

Date submitted: Name of agency: Name of organizational unit:

For each organizational unit with measurable activities (i.e., organizational unit submitting Exhibit C), responses to the following questions are required:

- 1. Show the typical low, high, and average labor time required in FY 1982 to produce one unit of each measured output. If actual data are not available, an educated estimate is acceptable.
- 2. Indicate the average total time which elapses from the time one unit of each measured output commences production to the time it is considered completed. This includes production time and any intervening slack time. If actual time is not available, an educated estimate is acceptable.
- 3. Has the quality of any of the outputs changed during the time period? If yes, describe, by output, the nature of the change and when it occurred.
- 4. Has a contractor contributed to the production of any reported output? If yes, explain the nature and extent of the contractor's efforts.
- 5. Have there been extreme movements in the output or input indicators from FY 1981 to FY 1982? If yes, explain the nature and causes of such movements.

5. Exhibit E: Due Date: October 31, 1983

Exhibit E provides documentation on the individual factors directly or indirectly contributing to changes in productivity indices which have been computed by BLS with the data submitted on Exhibit C.

Each organizational unit is requested to provide information on the causes of changes in these productivity indexes (shown on BLS printouts returned to you), according to the following format:

Please note that Exhibit E cannot be completed until the productivity and related measures are returned by BLS.

Exhibit E:

Date submitted:
Name of Agency:
Name of organizatinal unit:

- Factors Causing a Change in Productivity
- Productivity Outlook

Or ganization representatives should consult with others within the organization, including representatives from line management, personnel, budget and labor unions. Agencies with unions having exclusive bargaining rights must consult them on responses to this exhibit prior to submission.

1. Factors Causing a Change in Productivity

The causes for productivity increases and decreases for the entire period (FY 1967-1982) should be discussed for each organizational unit in order to explain the reasons for the long-term productivity trem. Causes for productivity change during FY 1982 should be identified separately. The causes of productivity change such as motivation, skill, technology, work environment, procedural changes, and others should be described. In some cases, measurement problems may affect the productivity index (e.g., product mix). Describe any measurement problems that are reflected in the productivity trends. It is most important that the causes of change be identified as specifically as possible.

It may be appropriate for an organizational unit to identify obstacles to productivity improvement even though it experienced a productivity increase. For example, an organization that increased productivity! 7 percent because of a change in work procedures might have had a 10 percent increase if a new computer system had been installed on schedule. In that case, both factors should be discussed.

2. Productivity Outlook

- a. Describe the productivity changes expected in FY 1983.
- b. Describe the productivity trends expected in the next several years.
- c. Describe future actions planned by the organization which are expected to improve productivity.

6. Exhibit F: Due Date: October 31, 1983

) Other comments.

Exhibit F: Verfication of FY 1982 data returned to you by BLS

Date submitted: Name of agency: Name of organizational unit:

1.	Are	th	e basic data on output, employee-years, and
	com	pen	sation correct as shown on the computer printout
	()	Data are correct as shown.
	()	Data are correct as shown. The following changes should be made:
2.	rep	res	employee-year productivity indexes appear to be entative of productivity trends within the zational element?
	()	Indexes are representative.

APPENDIX A

Bureau of Labor Statistics Agency Analysts

Edwin Adelman

523-9317

Army Corps of Engineers Civil Aeronautics Board Environmental Protection Agency Export - Import Bank Farm Credit Administration Department of Interior International Communications Agency International Development Cooperation Agency Department of Justice Library of Congress National Science Foundation National Transportation Safety Board Postal Service Railroad Retirement Board Department of State Department of Transportation U.S. Soilders' Airmen's Home

Darlene Forte

523-9315

Department of Education
Department of Energy
Federal Deposit Insurance Corporation
Federal Mediation and Conciliation Service
Federal Trade Commission
General Services Administration
Department of Health and Human Services
Department of Housing and Urban Development
Department of Labor
National Aeronautics and Space Administration
National Credit Union Administration
National Iabor Relations Board
Nuclear Regulatory Commission
Securities and Exchange Commission
Tennessee Valley Authority

Arthur Young

523-9354

American Battle Monuments Commission Arms Control and Disarmament Agency Department of Commerce Commodity Futures Trading Corporation Department of Defense Federal Communications Commission Federal (Labor Relations Authority Federal Maritime Commission General Accounting Office Government Printing Office International Trade Commission Merit Systems Protection Board Occupational Safety and Health Review Commission Panama Canal Company Office of Personnel Management Inited States Courts Veterans Administration

Gary Burdette

523-9316

ACTION

Department of Agriculture
Commission on Civil Rights
Consumer Product Safety Commission
Federal Election Commission
Rederal Home Loan Bank Board
Interstate Commerce Commission
National Foundation on the Arts
National Foundation of the Humanities
Small Business Administration
Department of the Treasury

APPENDIX B:

Criteria for Selecting Output Indicators

1. Each output measure should consist of units which are relatively homogeneous with respect to their labor requirements. If the output units represented by one output indicator are not homogeneous and if over a period of time the proportion changes between those units that are more labor intensive and those that are less labor intensive (i.e., product mix), the resulting output measure may be seriously distorted. Special efforts should be made to separate outputs which are known to have widely varying labor requirements into two or more output line items.

Example: An organizational unit produces two types of reports:

Output	Base-Year Output Weight	Actual of Re	Number ports	_	d Number ports	
		FY 1	FY 2	FY 1	FY 2	
Туре А	20	8	12	80	120	
Type B	1	12	_6	12	6	
Total		20	18	92	126	

If only the total number of reports produced is submitted, the output measure would show a decline of 10 percent. However, if each type of report is quantified and appropriately weighted into a composite, the output measure would show an increase of 37 percent.

- 2. Outputs generally should be repetitive. Outputs which are produced on a regular basis are generally most amenable to meaningful quantification. Such outputs might be: (1) those which are produced on a regular schedule (e.g., periodic audits or periodic publications, (2) those which are produced in response to frequent requests (e.g., investigations concerning health and safety laws), or (3) those which are produced on a regular, although not a scheduled basis (e.g., a series of bulletins on methods of farming or a series of bulletins on wage patterns for different areas). Non-repetitive final outputs can be included in the data base but require special treatment, i.e., estimates of base-year weights. Your BLS team member should be contacted in these situations.
- 3. Output indicators should directly reflect the workloads of the organizational unit. When workload data are unavailable, proxy output indicators may be useful. However, such proxy measures should not be used as output indicators unless the workload of the Federal employee depends on and remains proportinal to the workloads represented by the proxy.

Example: An organizational unit develops job training programs for veterans, awards contracts to private organizations to run the programs, and monitors the work performed under these contracts. Outputs such as the number of monitoring visits, number of technical inquiries answered and number of contracts administered by type of program might be appropriate as indicators of the work performed by the Federal organization. However, the number of veterans trained or the number of employee years of training delivered would probably be less desirable as indicators of Federal workloads, since the efforts expended by the Federal workers may not change appreciably whether 100 or 500 people are trained in a given program.

Example: A personnel office provides a variety of services to employees and potential employees, e.g., promotions processed, classification actions, and inquiries answered. Because these services are utilized in varying degrees by employees and the relative proportion of these services is likely to change over time, a proxy indicator such as the number of employees served would not appropriately measure the actual services provided.

4. Output measures should reflect changes in output quality. For purposes of productivity measurement, changes in output quality refer to changes in the basic characteristics of the output which reflect an altered production process with different base-period labor requirements, e.g., adding a step in processing a grant. Changes in output characteristics which affect the value of the output to the user but which do not reflect an altered production process or different base-period labor requirements do not require special treatment. For example, the substitution of synthetic fibers for rubber in the manufacture of tires would not be considered a quality change even though the life of the tire may be extended, assuming that the labor requirements did not change. While such changes are certainly an important consideration for the program manager, they do not fall within the definition of output quality when measuring labor productivity.

If productivity indexes are derived from output measures which have not been adjusted for changes in output quality, they will reflect both "real" changes in efficiency and "apparent" changes resulting simply from alterations in the basic characteristics of the output. Thus, when quantifying outputs, it is necessary to identify changes in output quality and to adjust for these changes to obtain a meaningful indication of productivity. Such adjustments may take two forms:

(A) Identify when the change in output quality occurred, create a new output category, and estimate the time it would have taken to produce this output in the base year. 1/

^{1/} Various techniques are available for estimating base-year weights. Your BLS team member should be contacted for assistance.

Example: In FY 3 an organizational unit increased the quality of Type B reports by including several new sections and tables. This change could be reported as follows:

Output	Base-Year Output-Weight	Number of Repor		
		FY 1	FY 2	FY 3
Type A	2 (calculated)	5	7	8
Type B (old)	2 (calculated)	7	8	-
Type B (new)	1.5 (estimated)	_	_	6

(B) Identify the specific areas of changes in a given output, quantify these areas separately, and estimate the incremental time it would have taken to produce these changes in the base year.

Example 1: Using the data from the previous example, an alternate method of reporting could be:

Output	Base-Year Output-Weight	Number of Reports Produced		
		FY 1	FY 2	FY 3
Type A	2 (calculated)	5	7	8
Type B (old)	1 (calculated)	7	8	. 6
Type B (new)	0.5 (estimated)	_	_	6

Example 2: An organizational unit has been conducting increasingly thorough inspections of food processing plants. Initially, it had only sampled the products of the plants. In FY 2, it also began inspecting equipment at some of these plants. This change could be reported as:

Output	Base-Year Output-Weight		mber of ections	Made
		FY 1	FY 2	FY 3
Plants	0.044	•		
Inspected	(calculated)	500	510	520
Equipment	0.001		200	1.00
Inspected	(estimated)		200	400

- 5. Output measures should indicate the amount of work done during each fiscal year. If outputs with a cycle time extending beyond one year are quantified only in the year completed, the resulting output index is likely to be erratic and meaningless. For example, if 5 years are required to build a ship, it would be improper to report the production of one ship in the fifth year and zero production (i.e., no work performed) in the first through fourth years. There are two ways to handle these situations:
 - (A) Establish the total base-year labor requirements for one unit of output and quantify the percentage of an output that has been completed in each year. (Note: This solution applies not only to completed outputs but also to outputs which were initiated during a recent period and which will be completed in some future period. In the case of unfinished outputs, estimate the portion completed during the current time period. These estimates should be revised as additional information becomes available.)

Example: If a report took two years to complete and if work began at the start of FY 1 and was completed at the end of FY 2, then 1/2 unit of output would be credited to FY 1 and 1/2 unit to FY 2—assuming that the effort expended in each year was approximately equal. If the work began in mid-FY 1, then FY 1 would be credited with 1/4 report completed, FY 2 with 1/2 report, and FY 3 with 1/4 report.

(B) Identify the major steps required to complete the output and count the number of steps completed each year rather than the final output.

Example: An organization studies the nation's industries and produces three major documents, each of which takes from two to three years to complete. The first document reports on technology in each industry, the second reports on sales and profit trends in each industry, and the third reports on the wages and occupational requirements in each industry. This organization may decide to use as its output indicator the number of industry chapters completed (by type of publication) rather than the number of documents completed. Its output submission thus might be:

Output	Number of Chapters Completed		
	FY 1	FY 2	FY 3
Chapters on Industry Technology	27	31	28
Chapters on Industry Sales and Profits	45	41	42
Chapters on Industry Wages and Occupational Requirements	17	23	30

6. Output measures should reflect the final products and services of an organization. Ideally, a productivity index should relate final outputs to their associated direct and indirect input(s). Therefore, the output data submitted by each organizational unit should be final from the perspective of the organization providing the information (i.e., the outputs that are consumed outside of the reporting organization). Employee-years associated with intermediate outputs (i.e., outputs produced and then consumed by the reporting organization) should be allocated to the final outputs that are produced, or when not possible, should be included with other administration and support employee-years.

Example: A library purchases books and periodicals, catalogs these materials and lends them to individuals and other institutions. The outputs associated with lending activities (i.e., number of books and periodicals lent) are final to the library and should be quantified. However, activities are intermediate and should not be quantified; the employee-years associated with these activities should be considered support employee-years.

Example: When an output is produced from the joint efforts of regional and headquarters personnel, it should be counted only once. For example, if the regional offices collect data which are used by headquarters to construct statistical series, the number of each type of statistical series produced should be the output measure, and the weights for combining the different types of statistical series should reflect employee—years expended in the base year by the regional offices as well as headquarters.

APPENDIX C:

Definitions of Functional Categories

- 1. Audit of Operations: Organizations responsible for reviewing, evaluating, and analyzing Federal programs and operations.
- 2. Buildings and Grounds: Organizations responsible for the construction, maintenance, repair, alteration, services, and security of Federal buildings, installations, or grounds.
- 3. Communications: Organizations responsible for processing messages and performing telecommunications services.
- 4. Education and Training: Organizations responsible for providing general or specialized education or training.
- 5. Electric Power Production and Distribution: Organizations responsible for generating, transmitting or selling electricity.
- 6. Equipment Maintenance: Organizations responsible for the maintenance and repair of motor vehicles and equipment and the calibration of instruments.
- 7. Finance and Accounting: Organizations responsible for maintaining accounting records, processing payroll vouchers and invoices, and related activities.
- 8. General Support Services: Organizations performing overall administrative and supportive activities including automatic data processing, internal mail delivery, graphics, and planning.
- 9. Information Services: Organizations responsible for preparing or distributing statistical, scientific, technical or other information.
- 10. Legal and Judicial Activities: Organizations responsible for instituting proceedings in a court or administrative tribunal or rendering decisions in a judicial capacity.
- 11. <u>Library Services</u>: Organizations responsible for providing research and reference services for Federal agencies, Congress, or the public.
- 12. Loans and Grants: Organizations responsible for issuing research grants, making awards, offering various types of loans, and borrowing funds from the public.

- 13. Medical Services: Organizations responsible for operating health care facilities and providing medical, hospital, dental, or nursing services for disease prevention or treatment.
- 14. Military Base Services: Military organizations responsible for providing commissary, laundry, dry cleaning, or food services.
- 15. Natural Resources and Environmental Management: Organizations responsible for developing or overseeing programs which effect natural resources or the environment.
- 16. Personnel Investigations: Organizations responsible for conducting personnel security checks or criminal investigations of Federal employees.
- 17. Personnel Management: Organizations responsible for providing personnel services including recruitment, position classification, employee development, and EEO counseling.
- 18. Postal Service: Organizations responsible for delivering mail and providing related services including mail insurance and special delivery.
- 19. Printing and Duplication: Organizations responsible for printing or reproducing reports, manuals, circulars, or other documents.
- 20. Procurement: Organizations responsible for purchasing supplies, equipment, or services.
- 21. Records Management: Organizations responsible for maintaining, classifying, storing, or searching records.
- 22. Regulation Compliance and Enforcement: Organizations engaged in activities to ensure compliance with established rules and regulations.
- 23. Regulation Rulemaking and Licensing: Organizations responsible for issuing licenses, permits, or other authorizations in government controlled activities.
- 24. Social Services and Benefits: Organizations responsible for the payment of benefits or claims, or for improving the welfare of the public or a special group.
- 25. Specialized Manufacturing: Organizations involved in the production of physical outputs such as helium, munitions, chemicals, and currency.

- 26. Supply and Inventory Control: Organizations responsible for distributing supplies and equipment and for the management of inventories.
- 27. Traffic Management: Organizations responsible for arranging for the movement of people or cargo.
- 28. Transportation: Organizations responsible for moving or assisting in the movement of people or cargo.