U.S. Department of Transportation

Human Capital Management

Workforce Analysis Handbook

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INTRODUCTION

Overview

Strategic Human Capital Management is defined as the "active alignment of the talent, energy, knowledge and enthusiasm that people invest in their work with the strategic objectives of the organization."[1] The concept is great in theory; however, the challenge for management is that priorities and organizations are continually changing—so how can management really know if the workforce is aligned correctly today, much less positioned for tomorrow?

Workforce planning is a key component of Strategic Human Capital Management, and workforce analysis is an integral part of workforce planning. The Workforce Analysis Handbook presents a practical methodology for examining the workforce on an annual cycle. The methodology consists of seven steps and integrates demographic, organizational, and competency data to analyze the workforce. The workforce analysis methodology:

1. Firmly establishes strategic objectives as the foundation and focal point of the workforce analysis.
2. Systematically reviews mission critical occupations.
3. Provides essential data to inform human capital management decisions:
   - Integrates data from multiple sources;
   - Identifies and prioritizes what data needs to be tracked; and
   - Establishes a "dashboard" of key human capital metrics to provide uniform focus on results.
4. Provides a repeatable methodology that is both robust and streamlined integrating currently separate initiatives.
5. Emphasizes inter-Operating Administration (OA) cooperation through identification of common attributes and sharing of best practices.
6. Looks at the workforce from both the Department-wide perspective and the individual OA perspective to understand common linkages for use in closing gaps and improving operations.
7. Provides for prioritization and cost-benefit analysis of strategies to close gaps.

The methodology forms the cornerstone for successfully implementing the Strategic Alignment System in the Office of Personnel Management (OPM) Human Capital Assessment and Accountability Framework (HCAAF). The analysis data and findings support workforce planning and human capital planning, the methodology establishes human resources as a strategic partner, and facilitates sharing best practices throughout the Department.

For meaningful results, the methodology requires the active participation of leadership, management, employees, financial management, and acquisition, as well as human resources. Senior leadership commitment to the process with active, visible participation, and allocation of necessary resources is instrumental in getting the cooperation and participation needed throughout the Department.

[1] Glossary, Office of Personnel Management web site, www.opm.gov, .2007. http://www.opm.gov/hcaaf_resource_center/glossary.asp

The process is designed for both Department-wide and individual OA application. The approach enables Departmental and OA leadership, management, and HR to look across the Department or the OA to understand workforce issues and their potential solutions from a more holistic viewpoint. The approach encourages collaboration between OAs or organizations within OAs to identify common linkages and to optimize limited resources by reducing duplicative efforts and using crosscutting strategies to solve common problems.

The methodology takes a proactive, top-down approach beginning with the Department's strategic objectives and looks at the workforce from an organizational perspective. The approach fully integrates data from strategic plans, organizations, and competency assessments to strengthen workforce planning. The approach also provides process efficiencies by centralizing parts of the process at the Departmental or OA level.

Table 1: Workforce Analysis Process Overview presents the seven-step process and the objectives for each step.

Table 1: Workforce Analysis Process Overview

STEP	OBJECTIVE	SUGGESTED TIMEFRAME
Step 1. Identify strategic direction	Firmly establish the strategic objectives and priorities of DOT and the OAs as the foundation and focal point of the workforce analysis. A second and equally important purpose is to set the tone for an analysis that looks at the workforce from both the Department-wide perspective and the OA perspective to understand common linkages for use in closing gaps and improving operations.	2–6 Weeks Month 1
Step 2. Understand the current workforce	Understand the current composition of the workforce to identify general trends and similarities between the OAs.	4–6 Weeks Months 1, 2
Step 3. Understand how the MCO performs within the organization	Understand the work performed, the organization structure, the supervisory span of control, and the allocation/investment of agency resources to identify areas for operational improvement. This step also establishes the foundation for determining the competencies in Step 5.	8–12 Weeks Months 2, 3, 4,
Step 4. Understand how the MCO fits into the organization in the future	Anticipate changes in the external and internal environment to forecast future manpower and skill requirements.	4–6 Weeks Months 4, 5
Step 5. Identify competencies for the MCO	Identify competency requirements to develop the competency model and rating scale.	12–15 Weeks Months 4, 5, 6, 7
Step 6. Identify competency gaps	Identify and prioritize competency gaps using a competency assessment survey, workforce data, and meetings with the SMEs.	8–12 weeks Months 8, 9, 10
Step 7: Identify strategies to close gaps	Identify and evaluate a range of strategies to determine the "best" strategy for closing gaps and improving operations. This step is the culmination of the workforce analysis, using information from the previous six steps to make an informed decision about how to effectively close gaps and improve operations.	2–6 Weeks Months 10, 11

Table 2: Workforce Analysis Process Timeline

STEPS	MONTHS											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	1	2	3	4	5	6	7	8	9	10	11	12
Step 1. Identify strategic direction	1											
Step 2. Understand the current workforce	2	2										
Step 3. Understand how the MCO performs within the organization		3	3	3								
Step 4. Understand how the MCO fits into the organization in the future				4	4							
Step 5. Identify competencies for the MCO				5	5	5	5					
Step 6. Identify competency gaps								6	6	6		
Step 7: Identify strategies to close gaps										7	7	

The workforce analysis process is designed for execution in sequence as each step informs the next. To reduce the total time necessary to perform all steps, it is practical to begin some steps prior to completion of the next step, especially those steps that involve coordination with multiple participants throughout the Department or OA. *Table 2: Workforce Analysis Process Timeline* presents the seven steps in a calendar timeline showing the suggested overlap.

The timeline could begin in October using the data from fiscal year end September 30 and completing the process during or before August of the next fiscal year. This timeline is consistent with the current data snapshots captured in the DOT Workforce Plan and thus establishes a consistent date for trend analysis. This timeline is consistent with data collected for financial management, acquisition, and other management data within the Department and the federal government. The timeline is also consistent with the federal budget process where submission of the initial budget request for the following year is due mid-September. Cost information on the chosen gap closure strategies can then be incorporated in the initial budget request submission due mid-September.

The timeline for this process could take 6–11 months depending on the size of the OA workforce, the size of the MCO chosen for review, the timelines for notification of the union, the availability of data, and the skill level and availability of HR resources.

The process is designed for use on a repeatable, ongoing basis. As this process is understood, implemented, and practiced by HR, leadership, management, and employees, it is anticipated that the process will take fewer work hours and some of the timeframes can be reduced. However, in some instances where leadership, management, employees, unions, etc. are included in the process, there will always need to be sufficient time for notification, input, and follow-up to ensure meaningful participation.

The methodology is written for Department-wide application. For application within an individual OA, the term OA becomes interchangeable with the "Department" or overarching management entity, while the organizations within the OA are interchangeable with the term "OA."

How to Use This Handbook

The Handbook is designed to be a user-friendly reference book with detailed step-by step directions. The chapters are organized according to the seven major process steps. Each chapter begins with an overview of the process step, identifies key participants, and outlines the key communications. Then each task is described in detail with examples from case studies, templates, and related frequently asked questions. Included in the chapters are helpful hints along with web links to additional resources.

The Handbook includes a chapter with background information on how the workforce analysis process fits into the strategic management of human capital, including the Chief Human Capital Officers Act of 2002, the HCAAF, and workforce planning.

The Handbook also includes frequently used terms and acronyms and their definitions in *Appendix A: Definition of Terms and Acronyms* and a summary of the process, step-by step, in *Appendix B: Checklist of Outcomes and Key Tasks*.

BACKGROUND

The workforce analysis methodology forms the foundation for successfully implementing the Strategic Alignment System in the OPM Human Capital Assessment and Accountability Framework (HCAAF). The analysis process supports workforce planning, and human capital planning, establishes human resources as a strategic partner, and facilitates sharing best practices throughout the Department. The HCAAF was developed by OPM as a requirement of the Chief Human Capital Officers Act of 2002.

QUICK LINK

Public Law 107-296 is 187 pages, but the Chief Human Capital Officers Act of 2002 is only about 13 pages. It is contained in TITLE XIII—FEDERAL WORKFORCE IMPROVEMENT (pages 2287-2300) http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_cong_public_laws&docid=f:publ296.107.pdf

Chief Human Capital Officers Act of 2002

In November 2002, Congress passed Public Law 107-296, parts of which are known as the Chief Human Capital Officers Act of 2002. The law requires that each agency establish a Chief Human Capital Officer (CHCO). The functions of the CHCO include:

1. setting the workforce development strategy of the agency;
2. assessing workforce characteristics and future needs based on the agency's mission and strategic plan;
3. aligning the agency's human resources policies and programs with organization mission, strategic goals, and performance outcomes;
4. developing and advocating a culture of continuous leaning to attract and retain employees with superior abilities;
5. identifying best practices and benchmarking studies; and
6. applying methods for measuring intellectual capital and identifying links of that capital to organizational performance and growth.[2]

[2] Section 1302. Agency Chief Human Capital Officers, Public Law 107-296, November 25, 2002.

Human Capital Assessment and Accountability Framework

The CHCO Act Section 1304 states, "the Office of Personnel Management shall design a set of systems, including appropriate metrics, for assessing the management of human capital by Federal agencies."[3] *Table 3: CHCO Act Linkage to the HCAAF* displays the CHCO Act requirements in the left column and the relationship to the OPM Human Capital Assessment and Accountability Framework in the right column.

Table 3: CHCO Act Linkage to the HCAAF

CHIEF HUMAN CAPITAL OFFICERS ACT OF 2002	HUMAN CAPITAL ASSESSMENT AND ACCOUNTABILITY FRAMEWORK
(A)(i) aligning human capital strategies of agencies with the missions, goals, and organizational objective of those agencies; and (ii) integrating those strategies into the budget and strategic plans of those agencies;	Strategic Alignment System
(B) closing skill gaps in mission critical occupations;	Talent Management System
(C) ensuring continuity of effective leadership through implementation of recruitment, development, and succession plans;	Leadership and Knowledge Management System
(D) sustaining a culture that cultivates and develops a high performing workforce;	Results Oriented Performance Culture System
(E) developing and implementing a knowledge management strategy supported by appropriate investment in training and technology; and	Leadership and Knowledge Management System
(F) holding managers and human resources officers accountable for efficient and effective human resources management in support of agency missions in accordance with merit system principles.	Accountability System

[3] Section 1304. Strategic Human Capital Management. (c) (1), Public Law 107-296, November 25, 2002.

Table 4: HCAAF Critical Success Factors presents the set of five systems that make up the HCAAF and their critical success factors. The Strategic Alignment System supports the Leadership and Knowledge Management System, the Results Oriented Performance Culture System, and the Talent Management System. The Strategic Alignment System also establishes the performance measures that are measured in the Accountability System.

OPM provides an online HCAAF Resource Center, which contains information for each of the five systems including a definition, standard, critical success factors, effectiveness and compliance indicators, and applicable merit system principles. The site provides links to applicable laws, guidance, and resources. OPM also provides an HCAAF Practitioners Guide in PDF format that can be downloaded and printed.

The workforce **analysis** provides data and key findings for use in developing the workforce plan, which in turn supports the human capital plan. All of these are critical success factors for the strategic alignment system. The workforce analysis **process** promotes collaboration between management and HR to establish HR as a strategic partner at all levels in Department and provides a mechanism for sharing knowledge and best practices.

QUICK LINK

OPM HCAAF Resource Center
http://www.opm.gov/hcaaf_resource_center/1-1.asp

Table 4: HCAAF Critical Success Factors

HCAAF COMPONENT		CRITICAL SUCCESS FACTORS
Strategic Planning	Strategic Alignment System	Human Capital Planning
		Workforce Planning
		Human Capital Best Practices and Knowledge Sharing
		Human Resources as Strategic Partner
Implementation	Leadership and Knowledge Management System	Leadership Succession Management
		Change Management
		Integrity and Inspiring Employee Commitment
		Continuous Learning
		Knowledge Management
	Results Oriented Performance Culture System	Communication
		Performance Appraisal
		Pay for Performance
		Diversity Management
		Labor/Management Relations
	Talent Management System	Recruitment
		Retention
Evaluating Results	Accountability System	Regular Evaluations
		Independent Verifications

Human Capital Management

OPM uses the HCAAF to assess the management of human capital in agencies. As part of that process, agencies are required to develop a Human Capital Plan and a Workforce Plan.

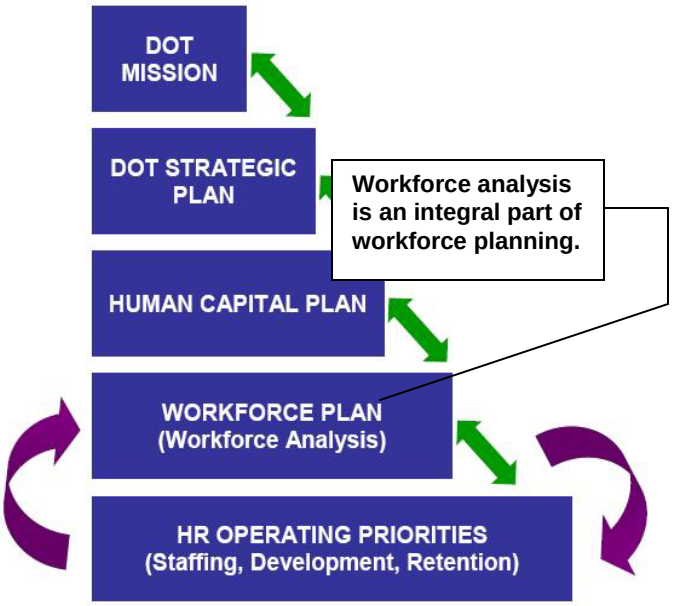
Essentially, the Human Capital Plan is a **strategic** document that outlines human capital management **goals and objectives.** These human capital goals and objectives link directly to the strategic objectives of the agency. It looks at any critical mission challenges that are likely to affect the agency's workforce in the short- and long-term. It will include an implementation plan and a method to evaluate if the goals and objectives have been met.

The Workforce Plan is more of a **tactical** document that looks in detail at the workforce to determine what **strategies** are required to meet the Human Capital Plan goals and objectives. It looks at historical patterns of changes in the workforce composition and turnover. A comprehensive workforce plan generally also contains an analysis of critical skills and competencies, and helps to assess which competencies need to be at higher proficiency levels and for which competencies there appears to be an increasing need. The Workforce Plan contains the data for supporting human capital decision-making and aligns with the Human Capital Plan and strategic goals of the agency.

The workforce analysis methodology in this Handbook is an integral part of workforce planning. It supports workforce planning through the workforce planning cycle by: (1) linking analysis priorities to strategic objectives, (2) analyzing the workforce, (3) providing an analysis process for evaluating gap closure strategies, and (4) providing data metrics to support monitoring.

Figure 1 illustrates how the workforce analysis supports the human capital management by translating goals and workforce data into practical strategies for implementation.

Figure 1: Relationship between Workforce Analysis and Human Capital Management



Case Studies

The Department conducted a Workforce Analysis Pilot to develop the workforce analysis methodology that is presented in this Handbook. The Workforce Analysis Pilot reviewed the mission critical occupation (MCO) Engineering Family. This involved 3,602 engineers across ten Operating Administrations (OAs) in four series—0801 General Engineering, 0810 Civil Engineering, 0830 Mechanical Engineering, and 0855 Electronics Engineering. The Handbook incorporates lessons learned form the pilot and includes specific examples to demonstrate how to perform the outlined tasks. As the Department uses this methodology, the intent is continually to improve the Handbook by including lessons learned and examples from additional case studies.

STEP 1: IDENTIFY STRATEGIC DIRECTION

Process Overview

The primary purpose of this step is to establish the strategic objectives and priorities of DOT and the OAs as the foundation and focal point of the workforce analysis. The importance of this step is identifying and understanding strategic direction helps structure the framework of the analysis, helps identify the data that is collected or not collected, and helps set priorities throughout the workforce analysis process. A second and equally important purpose is to set the tone for an analysis that looks at the workforce and the MCO(s) from both the Department-wide perspective and the OA perspective to understand common linkages for use in closing gaps and improving operations. For Step 1, the process is centered on having a conversation with HR, leadership, and management about strategic objectives, priorities, similarities between the OAs, and identifying the MCO(s) for review this analysis cycle. *Table 1-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 1-1: Process Overview

OUTCOMES		
• Listing of prioritized DOT/ OA goals and objectives to focus on for this analysis cycle • Listing of similarities and differences between OAs goals and objectives • Listing of general similarities and differences between OAs • Listing of Mission Critical Occupation(s) to be reviewed for this analysis cycle		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
1-A Establish Workforce Analysis Steering Group	2–4 weeks (prior to starting process)	N/A
1-B Establish a Workforce Analysis Working Group	1–2 weeks (Prior to starting process)	N/A
1-C Prepare for Workforce Analysis Kick-off (Steering Group Session #1)	1–3 weeks	1–3 weeks
1-D Review DOT and OA Strategic Plans	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-E Review DOT and OA Human Capital Plans	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-F Review DOT Workforce Analysis/Plan from prior year	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-G Convene OA leadership and HR to identify common goals and objectives	Steering Group Session #1	2–4 weeks
1-H Convene OA leadership and HR to identify similarities and differences between OAs	Steering Group Session #1	2–4 weeks
1-I Identify MCO(s) for review	Steering Group Session #1	2–4 weeks

Executing this process requires the participation of Department leadership, Department HR, OA leadership, and OA HR. *Table 1-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 1-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Review DOT and OA strategic objectives • Coordinate and facilitate a Working Session #1 to understand strategic direction across the Department and to discuss similarities between the OAs, select MCO for review
Departmental Leadership	• Participate in Workforce Analysis Steering Group • Prepare for and attend Working Session #1, select MCO(s) for review
Departmental HR Analyst	• Prepare for Steering Group Session #1
OA HR	• Participate in Workforce Analysis Steering Group/ Working Group • Prepare for and attend Working Session #1, select MCO(s) for review
OA Leadership	• Participate in Workforce Analysis Steering Group • Prepare for and attend Steering Group Session #1, select MCO(s) for review

The key communication is to announce the beginning of the workforce analysis cycle and to announce the selection of the MCO(s) that will be reviewed this analysis cycle. The communication will occur both informally and formally.

Table 1-3: Key Communications

AUDIENCE	PURPOSE/MESSAGE	TIMING
OA Leadership and HR	• Invitation to participate in Workforce Analysis Steering Group • Invitation to kick off workforce analysis and select MCO for review	4–8 weeks prior to Working Session to get on leadership calendar
OA Leadership and HR	• Introduction to workforce analysis process	Steering Group Session #1
OA Leadership, Management and Employees	• Formal notice of MCO selected for review, overview of workforce process, timeline, and their participation	Within 2 weeks of the decision on the MCO

Key Tasks Description

1-A Establish Workforce Analysis Steering Group

The Workforce Analysis Steering Group is instrumental to the success of the workforce analysis. This group:

- Provides a forum for HR and management to share workforce information and make decisions at key points in the process;
- Provides a forum for HR and management to look across the Department to identify common linkages and to optimize limited resources by reducing duplicative efforts and using cross-cutting strategies to solve common problems; and
- Provides leadership support and involvement in the process to facilitate access to data and resources, facilitate communication, and encourage participation.

The Workforce Analysis Steering Group convenes periodically during the process to:

1. Identify and prioritize goals and objectives for the workforce analysis; select MCO(s) for analysis. (Step 1)
2. Review the workforce analysis data, metrics, and identify future needs. (Steps 2, 3, and 4)
3. Validate competency model(s). (Step 5)
4. Identify and prioritize gaps. (Step 6)
5. Select strategies to close gaps. (Step 7)

To make these decisions and facilitate the workforce analysis process, the Workforce Analysis Steering Group members should include:

- Departmental HR leadership (to facilitate the workforce analysis process);
- Representatives from Departmental leadership;
- Representatives from OA leadership/management;
- Representatives from OA HR; and the
- Departmental HR analyst.

Departmental HR should work with Departmental and OA leadership/management to determine the right level and mix of representation for this group to be effective. Depending on the overall structure of human capital planning and who participates in the higher level strategic planning, this Steering Group could be an effective forum for leaders with more hands-on operational knowledge to get involved in the human capital management process.

NOTE: OAs may want to have multiple representatives to the Steering Group to ensure that their entire organization is adequately represented; this is especially true of the larger OAs.

NOTE: The Steering Group is a decision-making group, and members should have sufficient authority to speak for and make decisions for their OAs at the meetings.

NOTE: It is very important that the Departmental HR analyst who is actually working with the data attend this meeting to hear firsthand the discussion. The discussion provides valuable insight into what data is relevant. Meeting notes may not capture nuances or information that may become important during the analysis process.

1-B Establish Workforce Analysis Working Group

The Workforce Analysis Working Group provides day-to-day support for the workforce analysis. Typically, they meet monthly. This group:

- Coordinates OA participation in the process, working with leadership, management, and employees;
- Facilitates communication within the OAs:
- Facilitates data collection within the OAs;
- Reviews and validates workforce data; and
- Prepares workforce information to facilitate decision making for the Steering Group.

The Workforce Analysis Working Group should include:

- Departmental HR leadership;
- Departmental HR analyst;
- Representatives from OA HR;
- Representative from Departmental financial management;
- Representative from Departmental acquisition.

The OA HR representatives may be members of both the Steering Group and the Working Group.

It is very important to have representatives from financial management and acquisitions actively participate in the workforce analysis process. Two of the biggest workforce analysis challenges are:

1. Getting **access** to **relevant** financial and acquisition data; and
2. Getting the data in a **format** to support human capital management.

As the representatives understand how the workforce analysis uses financial and acquisition information, they can help identify and provide access to relevant data. They also serve as a liaison to their organizations to help shape future data collection and format to better support human capital management.

Depending on the MCO(s) chosen for review, the need for developing a competency model for the first time, the employee perceptions about the process, the Working Group may want to establish a separate group to concentrate on communication with employees across the Department for the workforce analysis process.

NOTE: See *Step 3: Understand how the MCO performs within the organization*, for more details on the types of financial and acquisition information that are used in the workforce analysis process. *Step 3-D: Perform cost driver analysis* uses DOT, OA, and organizational personnel, facility, equipment, and contract costs to understand the relative cost of the MCO to the organization. *Step 3-E: Review organization charts for each of the OAs* includes identifying contract workers in the organization.

NOTE: *Step 7: Identify strategies to close gaps* uses cost-benefit analysis to evaluate a range of strategies. For *Step 7-C: Determine cost of alternatives*, financial data and cost estimating expertise are needed to develop the cost estimate for the alternatives that are being evaluated.

1-C Prepare for workforce analysis kick off (Steering Group Session #1)

For step 1, Steering Group Session #1 is the method to kick off the workforce analysis and to carry out steps:

1-G Convene OA leadership and HR to identify common goals and objectives

1-H Identify similarities and differences between OAs, and

1-I Identify MCO(s) for review.

The objectives of Steering Group Session #1 are:

- Facilitate a conversation with leadership and HR department-wide;

- Review the workforce analysis process and the Steering Group involvement;
- Develop a listing of prioritized goals and objectives for this analysis review cycle;
- Identify how OA goals link to DOT goals;
- Develop a listing of similarities and differences between OA's goals and objectives;
- Develop a listing of general similarities and differences between the OA; and
- Identify the MCO(s) for review this analysis cycle.

It is important that this session be conducted as effectively as possible in the shortest amount of time practical to achieve the objectives. To accomplish this, Departmental HR will need to prepare in advance.

- Four to six weeks prior to the session, coordinate a date and time with the Steering Group members;
- Prepare and send out agenda with meeting objectives and any read-ahead materials;
- Review DOT and OA goals and objectives (See Step 1-D for more details);
- Review DOT and OA human capital goals and objectives (See Step 1-E for more details); and
- Review DOT Workforce Analysis/Plan from prior year (See Step 1-F for more details).

The first time the Workforce Analysis Steering Group meets, they should be given a briefing on the workforce analysis process. The Handbook could be provided or selected handouts from the handbook: e.g., *Appendix A: Definition of Terms and Acronyms* and *Appendix B: Checklist of Outcomes and Key Tasks.* This overview will help them understand the process and their role in the process. It will also prepare them to better participate in the Steering Group Sessions.

One of the biggest impediments to conducting the workforce analysis in a meaningful and timely way is limited or no access to data and people. The Steering Group should be informed about what data is necessary and who needs to participate at this first meeting. This will enable them to begin paving the way for access to data and people early in the process. Departmental HR should provide an overview list of the data required and a tentative schedule of when participation is needed.

This session should conclude with a workforce analysis schedule review and next steps, including planning ahead to schedule the next meeting.

Appendix 5-2: Meeting Facilitator Guide Samples provides a sample format to aid in thinking through the session objectives, outcomes, participants, flow, and schedule. Thinking the session through in detail can ensure that the meeting objectives are met and that adequate time is scheduled for the meeting.

NOTE: The first time the Workforce Analysis Steering Group meets to discuss goals and objectives and to identify similarities and differences may take some time. With two or more representatives from each OA, there will be, at a minimum, twenty participants that will need time to share their thoughts.

Plan for three hours, but reserve the room for four in case the meeting needs to go longer. This will ensure that the group gets an opportunity to finish discussion without being cut off abruptly. This is true for setting up teleconferencing as well.

1-D Review DOT and OA Strategic Plans

To prepare for the Steering Group Session #1 and to provide background for the workforce analysis, Departmental HR collects and reviews current vision, mission, and goals for DOT and for the OAs noting differences and similarities.

The first place to start is the DOT Strategic Plan. This document provides a wealth of information to jump start the analysis. The DOT Strategic Plan for 2006-2011 sets forth the mission,

vision, values for DOT. The mission is met through five policy goals and an organizational excellence goal. For each goal there are strategies, specific outcomes, and performance measures. For each goal, there is a discussion of external factors, including legislation, that affect the Department's ability to achieve the goals. There is also a plan for program evaluation.

QUICK LINK

The DOT Strategic Plan is available in PDF and HTML at: http://www.dot.gov/stratplan2011/.

A good way to capture the information from the Strategic Plan for use throughout the workforce analysis is to create a crosswalk. Essentially the crosswalk is a table that captures the strategic goals, outcomes, strategies, performance measures, external factors, etc. in the first column, human capital objectives in the second column, and workforce analysis questions and comments in the third column. This table structure helps to structure the analysis so that it can directly support the strategic goals. The process of building the table also helps the analyst perform a structured review of the document. An example crosswalk is presented with some sample information in *Appendix 1-1: Strategic Alignment Crosswalk*. The second column of the crosswalk will be filled in during review of the DOT Human Capital Plan (Step 1-E). Note any questions, ideas, comments in the third column as you review; these notes are an important element of your working papers.

The structure of the table and the level of detail may vary as you work through the analysis process adding other information and notes.

NOTE: A quick trick to convert large amounts of text to a table format is to use the "convert text to table" function in MSWord.

The next step is to review the OA's strategic goals and plans in relation to DOT and each other. This provides Departmental HR with a comprehensive look at the Department OA by OA.

A good way to accomplish this task is to develop a table with the DOT strategic goals/objectives down the side of the table and the OAs across the top. Filling in the table with information from the review will provide one way to organize the information to begin to see similarities and differences across DOT. An example table is provided in *Appendix 1-2: Comparing OA Goals and Objectives Worksheet.* This sample is the first step in capturing high level goals, but can also be used to capture the more specific objectives under each goal, and even operational and workforce issues.

QUICK LINK

The FAA Human Resource Management Fiscal Year 2008 Business Plan is a good example of specific human capital planning with goals and objectives to support the OA's strategic plan. http://www.faa.gov/about/plans_reports/media/AHR%20Business%20Plan%20with%20Cover.pdf

The table format is also a good way to summarize information that for distribution at the Steering Group Session #1 as a discussion starter. The format could also be used to facilitate a discussion of specific objectives, by having the OAs identify their top three objectives and aligning them to the table.

Case Study. For the engineering pilot, the Working Group developed a table with DOT strategic goals and then aligned OA objectives with DOT objectives. This was a relatively straight forward exercise because most of the OAs had closely followed the DOT goals in developing their goals.

NOTE: Typically, strategic goals and plans are written for 3-5 year timeframes. Because the plans do not change annually, the upfront work required to review and align the analysis with the strategic goals will take less time the next analysis cycle. That said, the analyst should always review the plan again each analysis

cycle. Different information may stand out as relevant as the workforce issues change or as the external and internal factors change. The analyst should always check for updates.

NOTE: The OA Strategic Plans are directly linked to the DOT Strategic Plan and follow the same basic framework. This provides a common framework for strategic alignment and comparative analysis between OAs.

1-E Review DOT and OA Human Capital Plans

Once the DOT and OA goals and objectives are analyzed for similarities and differences, the next step is to review the DOT Human Capital Plan. The DOT Human Capital Plan 2007–2011 provides a good foundation for understanding the big picture human capital management objectives for the Department. The DOT Human Capital Plan provides:

- A concise summary of DOT Vision, Values, Mission, and Goals (Part 1);
- A status review of current DOT human capital management accomplishments (Part 2);
- A concise summary of the workforce characteristics and current trends and MCOs (Part 3);
- A overview of human capital goals and strategies linked to the HCAAF (Part 4); and
- A table with milestones, target dates, and the DOT organization responsible (Part 5).

QUICK LINK

DOT Human Capital Plan is available at:
http://dothr.ost.dot.gov/pdf/dot200711strathcplan.pdf

Using the Strategic Alignment Crosswalk started during the review of the DOT Strategic Plan, conduct the review of the Human Capital Plan by filling in the second column where it relates to the first column.

There may not be a direct correlation between the two documents. The DOT and OA Strategic Plan's typically use the DOT six goals as the framework so they align neatly; however, many Human Capital Plans use the HCAAF and President's Management Agenda initiatives as the framework. For DOT, the Human Capital Plan aligns most closely with the DOT organizational excellence goal. Continue to fill in the second column and add additional rows at the end where there are items that do not correspond directly to the Strategic Plan. Note any questions, ideas, comments in the third column as you review; these notes are an important element of your working papers.

The next step is to review the OA's human capital goals and plans in relation to DOT and each other. This provides Departmental HR with a comprehensive look at the Department's human capital approach.

Similar to Step 1-D, using a table format is a good way to compare the data across the Department. The table could align the human capital strategies for each OA according to the HCAAF systems or the goals and objectives or both. This is also a good format to summarize key information for presentation at the Steering Group Session #1.

While the OA's missions might be quite different, the workforce issues could be similar. The human capital strategies to address workforce issues may also be similar. Laying these out in a table format will make any similar issues, goals, objectives apparent. This review helps identify possible workforce strategies where the OAs could work together. For example, recruiting—outreach, advertising, job fairs.

1-F Review DOT Workforce Analysis/Plan from prior year

Once Step 1-D (Review Strategic Plans) and Step 1-E are completed, the next step is to review the DOT Workforce Analysis/Plan from the prior year. It is important to review the

documents in this order to understand how the plans work together to support achieving the goals.

The DOT Workforce Analysis/Plan contains valuable information to help facilitate the Steering Group Session #1 and to inform the analysis. The DOT Workforce Analysis/Plan includes:

- An concise summary of the most important information in the plan (Executive Summary);
- The methodology and assumptions used in looking at the workforce data and how workforce planning fits into the strategic management of human capital (Introduction);
- An overall demographic profile of the workforce, including individual tables on OST and the 12 operating administrations (Chapter 1);
- A five-year timeline with key events that have impacted the size and composition of the workforce (Chapter 1);
- A discussion on MCOs and the status of their competency assessments (Chapter 2);
- A set of projections on turnover and projected workforce strength by OA (Chapter 3);
- A review of DOT programs for staffing continuity including the Continuity of Operations Plan (COOP) and succession planning (Chapter 4);
- A discussion of DOT programs and approaches in use to manage employee talent (Chapter 5); and
- Detailed information and analyses in appendices.

It is important to review this data for background and understanding of the workforce issues at DOT, but it is not expected that the information be committed to memory. The important point is the analyst will now know where to find important data.

NOTE: Data contained in the workforce plan may be relevant to identifying the MCOs for review.

QUICK LINK

The DOT Workforce Analysis 2007, Snapshot data as of September 30, 2006, can be found in PDF format at:
http://dothr.ost.dot.gov/pdf/dot200711strathcplan.pdf

NOTE: The DOT Workforce Plan will be reviewed in more detail for *Step 2: Understand the current workforce*. If time permits, the analyst may want to conduct the more thorough review at this point in the process in preparation for the Steering Group Session #1.

1-G Convene OA leadership and HR to identify common goals and objectives

This purpose of Step 1-D and 1-E is to start a conversation with leadership and HR across OAs to encourage thinking about how OAs can work together to leverage human capital management strategies to accomplish their individual missions and the overall DOT mission.

This is accomplished as part of the Steering Group Session #1. The outcomes are:

1. A listing of prioritized goals and objectives for this analysis review cycle; and
2. A listing of similarities and differences between OA's goals and objectives.

The first step in working together is for all OAs to understand the missions, goals, and objectives of each OA so they can clearly see where there are differences and where there are similarities. While this may seem like obvious information from the OA's mission and strategic plan and there are other strategic planning groups that may look across the Department in this same way, this group's focus is on human capital management issues at a more operational level—work force issues, competencies, and evaluating gap closure strategies. The

importance of Steering Group Session #1 is not really the goals and objectives, but the discussion itself, which usually reveals important operational issues that need to be addressed. The discussion can also sweep away old perceptions that are no longer valid based on changing internal and external factors.

The second step is for the OAs to prioritize their objectives for this analysis cycle. Organizations are far more effective in meeting objectives if they can identify a few priorities and focus energy and resources on them to make real progress, rather than spreading out the same resources on too many objectives. In practice, this prioritization is often difficult to do because all the objectives seem equally important. However, the discussion should help identify operational issues, which can help determine what the priorities should be for this analysis cycle.

In prioritizing objectives, it will be important to look at the workforce analysis as a series of analysis cycles (three, five or even 10 years). It might be easier to agree to focus on one objective over another for this year if the Steering Group knows the other objective will be the priority next year or the year after. (The same prioritization issues are true for selecting an MCO for review (Step 1-I) and these discussion may overlap.)

This discussion helps leadership and HR step out of the weeds of day-to-day management for a review of goals and objectives and an opportunity to reset the priorities.

To focus the discussion, Departmental HR should facilitate developing a list of prioritized objectives.

NOTE: For HR to move from reacting to management requests to **proactively** managing human capital, they must work to be included as part of the leadership/management team.

1-H Convene OA leadership and HR to identify similarities and differences between OAs

This purpose of this step is to facilitate conversation and discussion across OAs with leadership and HR to encourage thinking about how they can work together. This is accomplished as part of the Steering Group Session #1. The outcome is a listing of general similarities and differences between OAs.

This discussion should focus on organizational and operational similarities and differences and their potential impact on working together. For example, organizational considerations might include: number of total employees, geographic location, level of union activity, organizational culture, workforce issues, etc. Operational considerations might include: mission, designated MCOs, processes (including HR processes).

At this point in the process, the conversation has just started and it may seem like there are many more differences than similarities—that is an important finding. However, as the workforce analysis process unfolds, perceptions and understanding about the differences and similarities may change.

Case Study. For the engineering pilot, the Working Group identified one of the significant differences between the OAs is number of employees and geographic location. For example, FAA has approximately 44,000 employees located around the world as compared to RITA with a little less than 700 employees in three US locations. These large differences impact the size of the MCO under review, organizational culture, availability of resources, level of bureaucracy in getting things done, communication protocol, etc.

1-I Identify MCO(s) for review

An important outcome of Steering Group Session #1 is to identify the MCO for review in

this analysis cycle. Depending on the need, more than one MCO may be reviewed.

The workforce analysis approach is designed to systematically review all the MCOs on a periodic basis. For the MCO(s) selected for review, the process is a comprehensive, in-depth look at the occupation from an individual personnel and an organizational perspective. This type of review is time consuming and not necessary every analysis cycle. Depending on the occupation, this in-depth review may only be necessary every 5 years.

DOT has designated 10 job families as MCOs across the Department:

1. Engineer
2. Community Planning
3. Program Management
4. Financial Management
5. Legal
6. Physical Scientist
7. Transportation Specialist
8. Transportation Industry Analyst
9. Transportation Safety
10. Information Technology

QUICK LINK

The DOT Workforce Analysis 2007 includes an in-depth discussion of MCOs at DOT in Chapter 2. . http://dothr.ost.dot.gov/pdf/dot200711strathcplan.pdf

DOT has participated in government-wide competency assessments for:

- Leaders (executives, managers, and supervisors)
- Information technology professional
- Human capital professional
- Acquisition and contracting professionals

The most recent DOT Workforce Analysis/Plan provides an up-to-date list of MCOs by OA.

Case Study. For the engineering pilot, the four engineering occupations: 0801-General Engineering, 0810-Civil Engineering, 0830-Mechanical Engineering, and 0855-Electronics Engineering were chosen based on these primary considerations:
--Intersect with most/all OAs
--Range across multiple skill levels
--Not subject to likely Lines of Business migration
--Readily available competency standard
--Ability to leverage core competencies across multiple occupations
--Acceptable to involved OAs

The first time an MCO is reviewed in this analysis process will likely require developing a competency model (Step 5) and conducting a competency assessment survey (Step 6) to identify the competency gaps. Steps 5 can take 8–14 weeks and Step 6 can take 8–12 weeks. Subsequent reviews of the same MCO may include an evaluation of the competency model to ensure that it reflects the competencies to do the work. If yes, then a competency assessment survey is conducted. If not, then a competency assessment survey may or may not be necessary. The competency model may not need to be reviewed, but a competency assessment is conducted to measure progress in closing gaps identified in the first review.

See *Step 5: Develop competencies for the MCO* and *Step 6: Identify competency gaps* for more detailed information.

The determination to review an MCO could be triggered by external or internal factors, such as:

- Periodic review cycle to measure the results of gap closure strategies;
- Prepare for succession planning;
- Change in DOT or OA mission requirements;

- Change in OA funding for mission requirements;
- Significant change in the MCO workforce;
- Change in technology that impacts competencies required to perform the work;
- Changes in the domestic and international economy and their impact on workload; and
- Changes in the local economy and their impact on recruiting and retention.

To facilitate this discussion, it may be necessary to bring workforce data to the focus group. Some examples of data that might be helpful in making this decision are:

- General description of the work performed by the MCO (Workforce Plan)
- MCO percentage of total workforce for DOT (Workforce Plan)
- Workforce profile information about MCO (Workforce Plan)
- Information on external and external factors that effect MCOs

NOTE: On a periodic basis, DOT and the OAs may need to reassess which of their occupations are distinguished as mission critical. To develop, maintain, and use competencies is time consuming and should be applied only to those occupations where it will generate real results.

Generally, it is agreed that all occupations contribute to the mission or they would not be part of the organization; however, "**mission critical**" implies that these occupations are central to the agency's mission and form the backbone work of the agency. The determination will depend on the mission of the agency. For example, Border Patrol Agents are the only critical occupation for the Customs and Border Patrol Agency, whereas engineers are one of 10 mission critical occupations for DOT.

Some of the factors to consider when determining mission critical occupations include:

- The degree to which the occupation is "directly" linked to mission accomplishment and the strategic goals. The higher the degree of linkage the more likely the occupation is mission critical.
- The uniqueness of the occupation. The more unique the function the more likely that it is mission critical. For example, Transportation Specialist, Transportation Industry Analyst, and Transportation Safety are unique to DOT. A Mutilation Currency Examiner is only found at the Bureau of Engraving and Printing in the Department of Treasury. On the other hand, financial management, procurement, and human resources are commonly found in most government agencies. If necessary, DOT could call on another agency to provide these services. If the function is common to many agencies, these competencies will more likely be assessed across the Federal Government by their lead functional agencies (e.g., OPM for HR; FAI for acquisition; and CIO Council for IT, etc.). Information technology (IT) can be common if it is dealing with common platforms and systems, but if it is a specialized application then IT might be mission critical.
- The amount of time required to get a new employee up to full performance. If the position is so specialized that even when the new employee has the educational background and similar work experience it takes significant time—one year, 5–10 years—to get to full performance. Alternatively, if a new employee were hired with the educational background and similar work experience, but it would only take 60 days to 1 year to get to full performance. For example, it takes 10 years to become an engraver at the Bureau of Engraving and Printing; for this reason, engravers are a MCO. The longer time that it takes to get a new employee up to full performance, the more likely it is mission critical.
- The percentage of the agency's personnel in this occupation as compared to total agency personnel. If the function represents a very small portion of the total workforce, and it is a very specialized position or unique to the agency, then there are very few personnel who could do this job so that might make it

mission critical. On the other hand, if the percentage is very large, then the sheer numbers of personnel involved to perform the work might make this occupation mission critical. It is likely the very small percentage or the very large percentage will indicate whether the occupation is mission critical.

- The percentage of the agency's personnel dollars spent on this occupation as compared to total personnel costs. If an agency spends a significant portion of its budget on this function, then this occupation is likely directly related to the accomplishment of the mission. Or if only indirectly linked, the occupation consumes so many resources that managing it effectively has a direct effect on total resource allocation and mission accomplishment; if true, then the occupation is likely mission critical. The larger the percentage the more likely the occupation is mission critical.

There is no right or wrong answer in determining MCOs. Usually it is a combination of factors that contribute to making an occupation mission critical.

Lessons Learned Summary

The Workforce Analysis Pilot process is a broad based approach to workforce analysis that goes beyond the traditional area of Human Resources and requires the commitment and participation of leadership, senior management, and subject matter experts. To get the resources, buy-in, and participation to make this process successful, each step needs to include effective communication.

The strategic goals and objectives of the agency provide a logical framework for the workforce analysis and a framework for comparing OAs across the Department.

Regular review of goals and objectives helps maintain focus on results.

For HR to be successful in developing and implementing human capital strategies, they must be included in strategic planning.

The Department and OA Strategic Plans, Human Capital Plans, and Workforce Plans contain a wealth of information that can jump-start the workforce analysis. It is easy to skip these reviews and jump right into the more active part of the workforce analysis, but the reviews provide the foundation for the entire workforce analysis.

The Steering Group, the Working Group, and employees should have a common understanding for frequently used terms and acronyms. This includes human capital management terms as well as general organizational and management terms. When working with management and HR across OAs during the pilot, it became clear that different terms had different meanings depending on OA and the amount of exposure to human resources. It was also clear that employees needed some education on terms to ensure that everyone understood the message. The glossary of this Handbook is a good start, but may not encompass all the terms that clarification to improve communication and understanding.

Frequently Asked Questions

Why does the timeline start in October and overlap? October may not be a good starting point for the workforce analysis. End of fiscal year data may not be available for several weeks after the close of the fiscal year (see step 2). Step 5 (Identify competencies for the MCO) would seem to be dependent on the completion of steps 3 and 4 (understanding how the MCO fits into the organization and the future organization) and therefore an overlapping would not be possible. Additionally, Step 6 (Identify competency gaps) would need to be complete before step 7 (Identify strategies to close gaps).

The workforce analysis could easily be adjusted to start at a different time of year. The thought process in creating the overlap was to minimize the time required to conduct the analysis, ensuring that coordination activities started as early as possible. Step 1 does not require current year data; if any data is necessary, it would be from quarterly metrics or the previous years workforce data analysis that was just completed. Step 2 starts a few weeks into October with the review of DOT and OA workforce plans. Workforce data would be needed in the third to fourth week of October, which is several weeks after the close of the fiscal year. The primary reason to start Step 5 early is all the coordination required to get SMEs together. The most important information for developing the competency model from Step 4 is Step 4-A and 4-B, which are completed within the first two weeks. The competencies begin with a look at the current work and that information is from Step 3. The remaining information is not required until the competencies are refined in Step 5-F, which is well past the overlap.

Why are some occupations not considered mission critical when the Department could not function without them?

Mission critical occupations (MCOs) are defined as those occupations that are unique and perform the mission of the organization. So one would look to the role, purpose, and mission of a department and say what is it that makes the Department of Transportation different from the Department of Interior? Clearly, it would be roles that are related to transportation; i.e., air traffic controllers, engineers, railroad safety inspectors, community planners, etc. Roles that are important such as procurement, human resources, information technology are important but not *unique* to DOT. These functions are found in almost every major Department in the Federal government.

Does the workforce analysis look at non-mission critical occupations?

Yes, the workforce analysis looks at the workforce as a whole, including all occupations. For MCOs, the workforce analysis collects and analyzed additional data (organizational and competency data) for a more in-depth review. DOT has designated 10 job families as MCOs and at the end of FY 2006 MCOs represented 78% of DOT's total population.

STEP 2: UNDERSTAND THE CURRENT COMPOSITION OF THE WORKFORCE

Process Overview

The purpose of this step is to understand the current composition of the workforce, identify general trends, and note similarities and differences between OAs. This analysis is accomplished using readily available data in OPM's Enterprise Human Resources Integration (eHRI) system, including the Central Personnel Data File (CPDF), the Workforce Analysis Support System (WASS), the Civilian Forecasting System (CIVFORS), and data in the Federal Personnel Payroll System (FPPS) Datamart. The current workforce profile is documented for inclusion in the DOT Workforce Plan. This step is the foundation for establishing and/or updating metrics to monitor the workforce on a regular basis and provide decision makers with key indicators of how the workforce is doing. During this step, a database to integrate data from different systems within DOT is started and populated with CPDF data. *Table 2-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 2-1: Process Overview

OUTCOMES		
• Current workforce profile • Listing of similarities and differences between OAs • Workforce analysis database populated with CPDF data • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
2-A Review DOT and OA Workforce Plans	3 days – 1 week	1 week
2-B Create the workforce profile	1 week – 2 weeks	2-3 weeks
2-C Identify general workforce trends	2 days – 1 week	2–4 weeks
2-D Identify similarities and differences between OAs	3 days – 1 week	3–5 weeks
2-E Establish and/or update metrics	1 day – 1 week (Concurrent with 2-B,C)	3–5 weeks
2-F Develop the workforce analysis database	3 days – 1 week	4–6 weeks

Executing this process requires Departmental HR to create a current workforce profile and conduct trend analysis using CPDF data. The Departmental HR analyst is analyzing data and building a database. The Working Group will review and validate the data and findings. The Working Group will also plan the schedule for employee participation in *Step 3: Understand how the MCO fits into the organization*, *Step 5: Identify competencies for the MCO*, and *Step 6: Identify competency gaps*. *Table 2-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 2-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Pave the way to obtain access to Department systems for Step 3 • Lead Working Group Monthly Meeting
Departmental HR Analyst	• Access to eHRI, CPDF, WASS, CIVFORS, FPPS • Create the workforce profile • Develop basic database
Steering Group	• Pave the way to obtain access to data and people
Working Group	• Attend monthly meetings • Validate data and findings from Step 2 • Plan for management and employee participation in Steps 3, 4, 5, and 6

This step is primarily analysis of existing information and does not involve participation outside Departmental HR and the Working Group. However, the Working Group should begin to schedule, plan, and notify leadership, management, and employees throughout their OA about their participation in the process. The data collection for Step 3 also begins at this time. See *Step 3: Understand how the MCO performs within the organization* for details on what data needs to be collected. See the Introduction *Table 2: Workforce Analysis Process Timeline* to see the overlap between Step 2 and 3

Table 2-3: Key Communications

AUDIENCE	MESSAGE	TIMING
OA Leadership, management and employees	• Formal notice of MCO selected for review, overview of workforce process, timeline, and their participation	During step 2 Month 2
OA Management	• Selection of MCO SMEs to participate in Steps 3 and 5 • Data collection for Step 3	During step 2 Month 2
MCO SMEs	• Information about their role in the process • Scheduling their participation in Steps 3 and 5	During step 2 Month 2

Key Tasks Description

Conducting workforce analysis is comparable to being a detective. Similar to a detective, the analyst must sort through lots of data (clues) to begin to understand what is important and how the data relate to each other. Similar to a detective, the analyst does not always know exactly what the data indicates; each piece of data raises new questions, which lead them to the next piece of data. Often, the importance of seemingly irrelevant information only becomes apparent as the data is analyzed and looked at in different ways.

The first step in finding the right data (clues) when analyzing the CPDF data is understanding the organization's mission, goals, and objectives, which were identified and prioritized in Step 1. The next step is reviewing existing workforce plans.

2-A Review DOT and OA Workforce Plans

In Step 1-F, the DOT Workforce Plan was reviewed in preparation for the Steering Group Session #1. The DOT Workforce Plan is reviewed a second time with a focus on creating the current workforce profile. This basic step is often overlooked, but it is an important document to review for clues as to what data is important and what data makes up the current workforce profile.

The DOT Workforce Analysis/Plan contains valuable information to inform Step 2; including:

- A concise summary of the most important information in the plan (Executive Summary);
- The methodology and assumptions used in looking at the workforce data and how workforce analysis fits into the strategic management of human capital (Introduction);
- An overall demographic profile of the workforce, including individual tables on OST and the 12 operating administrations (Chapter 1);
- A five-year timeline with key events that have impacted the size and composition of the workforce (Chapter 1);
- A discussion on MCOs and the status of their competency assessments (Chapter 2);
- A set of projections on turnover and projected workforce strength by OA (Chapter 3);
- A review of DOT programs for staffing continuity including the Continuity of Operations Plan (COOP) and succession planning (Chapter 4);
- A discussion of DOT programs and approaches in use to manage employee talent (Chapter 5); and
- Detailed information and analyses in appendices.

One way to review the DOT Workforce Plan is to create a worksheet where you can document and record important information from your review. The first column is to record the DOT Workforce Plan reference (Chapter, page, etc.), the second column is to record useful information from the plan, and the third column is to note any questions, ideas, comments as you review. Columns can be added to the worksheet as the need arises to separate out thoughts or information for easier review. The worksheet will be used throughout the workforce analysis process. An example worksheet with sample data is included in *Appendix 2-1: Workforce Plan Review Worksheet.*

Notes from the review of OA Workforce Plans can be added to the worksheet alongside relevant data or as additional columns or rows depending on the nature of the review comments.

NOTE: Prior to beginning the Workforce Plan review, it is important to read the remainder of Step 2 to gain a sense of what information will be important and how the steps work together.

2-B Create the workforce profile

Essentially, the workforce profile is a set of data that characterizes the workforce. Using the Workforce Analysis Review Worksheet created in Step 2-A, identify the key data and findings that make up the current work force profile. Table 2-3 presents an overview of basic workforce characteristics.

Table 2-3: Workforce Characteristics Summary

WORKFORCE CHARACTERISTICS SUMMARY	
Numbers of FTE	How many do we have?
Vacancies	How many do we need?
Operating Administrations	What is their mission?
Occupational Series	What do they do? Are they mission critical?
Location	Where are they located?
Grade	What level of experience is do they have?
Salary	What is their compensation?
SES, Managers, Supervisors	How are they managed?
Gender, Race, National Origin	How diverse are they?
Veterans, Persons with Disabilities	Are we supporting groups with special needs?
Age	How old are they?
Years of Service	How long have they been in the government?
Retirement Eligible	Will they be leaving any time soon?
Turnover	How many are leaving? Why are they leaving?
New Hires	How many are new? Who are they?

This basic workforce data can be found in the Central Personnel Data File (CPDF). This data along with the trend analysis in *Step 2-B: Identify general workforce trends* and findings from *Step 2-C: Identify similarities and differences between OAs* will generate the workforce profile.

The CPDF is a central repository for all Executive Branch employee data. It is part of OPM's Enterprise Human Resources Integration (eHRI) reporting system, which also provides analytical tools to support workforce analysis:

- **The Workforce Analysis Support System (WASS)** is an analytical tool used to retrieve data from the CPDF. The WASS has built in routines that can sort, filter, query, and analyze data for conducting the analysis.
- **The Civilian Forecasting System (CIVFORS)** provides seven-year projections based on five years of data. This system will be used for forecasting as part of *Step 4: Understand how the MCO fits into the organization in the future.*

QUICK LINK

OPM provides the Central Personnel Data File (CPDF) and the new Enterprise Human Resources Integration (EHRI) human resources reporting systems, along with a set of tools for trend analysis and forecasting. More details are and links are available at:
http://www.opm.gov/feddata/guidance.asp

Each OA has a license to the eHRI WASS/CIVFORS systems. It is important that the analyst familiarize themselves with the data elements and their definitions so they can quickly identify the data elements they require and fully use the capability of these systems. The OPM Website has information on the data elements and their definitions. *Appendix 2-3: FedScope Data Definitions* contains a handy reference list for all the data contained in the CPDF.

QUICK LINK

For quick access to definitions of the data elements in CPDF and on personnel actions, Update 58, August 2007 is available at: http://www.opm.gov/feddata/gp58.pdf

Another readily available source of workforce data is the Federal Personnel and Payroll (FPPS) Datamart. FPPS Datamart is a web-based data warehouse. The FPPS Datamart is developed on an Oracle platform and uses modern analytical query tools to produce reports.

QUICK LINK

More detailed information on the FPPS Datamart is found at: http://www.nbc.gov/payroll/datamart.html

Appendix 2-2: Workforce Profile Analysis Worksheet presents a systematic approach to querying and analyzing the workforce data one characteristic at a time. Although, some of the queries may seem repetitious, this is the nature of analysis. The same data is looked at multiple times in different groupings and contexts. The worksheet shows the same analysis DOT-wide and by OA. In addition, each of the data points is analyzed for trends, which is discussed in *Step 2-B: Identify general workforce trends*.

During analysis, keep the prioritized goals and objectives in mind while analyzing data. With each table or chart generated, determine if the data relates to the list.

Once the data is analyzed, the data is documented in the annual Workforce Plan. The documentation depends on the data and the findings, but a good format to start with is the prior years Workforce Plan. Some tips on documenting the analysis:

Statistical data is typically presented in two ways:

- General information, which would be a series of tables or graphs or facts for general reference; and
- Specific information or combination of information to illustrate or support an analysis finding.

Statistical data is easer to understand if it is presented in context or logical order; begin with the big picture and drill down to the details. Statistical data in a set of tables/charts is easier to understand if similar data appears in the same order and same color from table/chart to table/chart. Combine data into one table or chart where it makes sense.

Begin thinking about documentation as the analysis is conducted. Structure the queries and tables so that they are easily converted into charts and will fit on a standard page. Consistent labeling for table rows, columns, and titles from one table to the next helps the reader better understand and follow the data analysis.

NOTE: The analyst should keep the prioritized goals and objectives in mind while analyzing data. Consider structuring the data to align with the strategic objectives, if possible. It may not be possible at this stage of the analysis the information will not directly correspond to the strategic objectives; however, in Step 3 additional data will potentially enable linking this workforce profile data to the strategic objectives.

NOTE: Determining a consistent date for creating your snapshot will help you to build a set of data that can be used for trend analysis. For this Handbook, the suggested date is the end of the previous fiscal year because the date aligns with the current DOT Workforce Plan. It also aligns with financial data reporting which will become important when we integrate financial data with the CPDF data in Step 3.

2-C Identify general workforce trends

At the end of FY2006, DOT had 52,520 permanent employees. This is an important fact, but one data point or a snapshot in time does not usually provide enough information to understand the dynamic nature of the workforce.

Presenting one number typically raises more questions than it answers. Is DOT a big or small federal agency? Did the number of employees decrease or increase from the previous year? If so, by how much? If it decreased, was DOT unique or did other federal agencies numbers decrease, too? Why did it increase or decrease? Was this caused by internal or external factors?

The analysts' job is to anticipate these questions and answer them through the analysis. The answers to these types of questions are found by:

1. Looking at trends over time;
2. Making comparisons;
3. Identifying correlation between the data; and
4. Identifying correlation between the data and external and other internal factors.

Once the basic data has been identified, the analyst will usually need to look to additional sources of workforce data to enrich the analysis. *Appendix 2-3: FedScope Data Definitions* contains a handy reference list for the full range of data contained in the CPDF. The analyst should review this available data to determine if it could provide additional information for the analysis.

Good sources of additional data include:

- OPM Office of Workforce Information and Planning;
- OPM Human Capital Survey;
- Agency Annual Reports;
- Office of Management and Budget reports;
- FedStats;
- Department of Labor Statistics;
- U.S. Census Data;
- Integrated Post secondary Education Data System (IPEDS); and
- GAO Reports.

Appendix 2-4: Sources of Workforce Analysis Data contains a list of data sources with a brief description of the type of data they provide.

2-D Identify similarities and differences between OAs

While analyzing the CPDF data, looking at trends, and making comparisons for DOT-wide data. Break this data down and look at it specifically for each OA. *Appendix 2-2: Workforce Profile Analysis Worksheet* includes a column for systematically analyzing the CPDF workforce data and comparing it across the OAs.

The findings from this analysis will help the Department and the OAs understand where the OA workforces are similar and different. This analysis informs developing the competencies, identifying gaps, and identifying strategies to close the gaps.

2-E Establish and/or update metrics

To create the workforce profile, the analyst reviews lots of data; the process takes weeks and the result is lots of tables and charts. The purpose of this step is to sort through all of the tables and charts to identify the data or combinations of data that represent key indicators to provide leadership and HR with information that can help them manage the workforce **proactively**.

Developing metrics is a process and is included as parts of Steps 3, 4, and 6. The combination of data, combined and narrowed to a few meaningful indicators, which HR can track on a regular basis.

Collecting and analyzing data is expensive. The hope is that through the analysis process, the type of data that is meaningful and worth tracking will be determined together by leadership, management, and HR. The questions that follow will help in the decision-making process on the type of data to track. What is measured? Why is it meaningful? Who would use this data? How often should it be measured? (Monthly, Quarterly, Annually, Bi-annually).

Establishing metrics and updating them is an ongoing process; as the internal and external

factors change, some indicators may become more meaningful than other indicators.

Appendix 2-5: Workforce Analysis Metrics Worksheet provides a format to look at workforce metrics and how they can measure workforce strategies, which align with the DOT strategic goals and the human capital goals. The worksheet is a table with DOT goals down the left column and the five HCAAF systems across the top. Aligned with the DOT Goals and HCAAF systems are a wide variety of workforce metrics that can help leadership assess if they are meeting their objectives. The worksheet includes metrics that are comprised of data from all steps in the workforce analysis process.

2-F Develop the workforce analysis database

During Step 2, it is important to look forward to *Step 3: Understand how the MCO performs within the organization* and begin developing the relational database that will integrate data from separate existing systems within DOT for analysis.

The database concept is straightforward. The database will be populated with tables of DOT data from different systems: CPDF, FPPS, financial management, acquisition data, FAIR Act Inventory data, etc. The different tables will be related through a unique identifier or the primary key. The ideal key to relate/link different personnel data is the unique agency employee identification number or social security number. The financial data and acquisition data is not directly linked to individuals, but may be related through the organization codes for analysis.

NOTE: Because of the sensitivity of personnel data and other data that will be integrated in the database, access to this data must be controlled. It is important to identify the analyst(s) who will be building and using the database as early as possible to allow time to obtain proper clearances and access to the data.

NOTE: Departmental HR will need to determine the database platform and who is capable of building and using the database. For many analysts familiar with MS Excel, working with an MS Access database is well within their capabilities for this type of analysis.

The first data that will be entered into the database is CPDF data used to create the workforce profile. The queries from the CPDF can be input as separate tables into the database. Each table must contain a unique employee identification number or the social security number to be used as the primary key to relate the tables for integrating their data.

NOTE: Using a relational database, the OAs can also use data from OA databases to integrate their data with CPDF, FPPS, financial management, acquisition data, FAIR Act Inventory data, etc. The Workforce Analysis Database would provide a mechanism for comparing OA data to Department data to resolve inconsistencies.

Lessons Learned Summary

Develop analysis spreadsheets and charts with an eye toward using that information in the Workforce Plan or a leadership briefing.

To facilitate data comparison across OAs, OAs should consider standardizing data fields, data definitions, and query formats.

Frequently Asked Questions

What is the best way to start analyzing the data?

The analyst should take a systematic approach to the analysis to ensure that all information is reviewed. The first step may be to identify the set of data for initial analysis and then plan the comparisons to be sure that each data element is reviewed.

How often are workforce analyses updated?

Generally, workforce analysis on the scale of this proposed method is performed annually and the results are captured in the annual Workforce Plan. However, it is important to understand that workforce analysis is done on a continuing basis to provide information to management. Some information and analysis is done annually, quarterly, monthly or on an ad hoc basis depending on the type of information that is required and the degree of change in both the internal and external environment.

STEP 3: UNDERSTAND HOW THE MCO PERFORMS WITHIN THE ORGANIZATION

Process Overview

The purpose of Step 3 is to understand the how the MCO performs within the organization through analyzing work performed, where the MCO sits in the organization structure, the supervisory span of control, and the allocation of agency resources to help identify the competencies required and areas for operational improvement.

In Step 2, a current profile of the workforce is created using primarily demographic data; e.g., age, years of service, grade, gender, ethnicity, occupational series, etc. This next step expands beyond the data traditionally used in workforce planning to include data that is more typically used in an organizational assessment. This approach requires access to data outside the typical HR area of control and that access to data is what makes this task the most difficult; the actual analysis is straight forward. Congress recognized the importance of using a wider range of agency data in managing human capital. The Chief Human Capital Office Act of 2002 specifically authorizes the agency Chief Human Capital Officer:

"(1) shall have access to all records, reports, audits, reviews, documents, papers, recommendations, or other material that—

(A) are the property of the agency or are available to the agency; and

(B) relate to programs and operations with respect to which that agency Chief Human Capital Officer has responsibilities under this chapter; and

(2) may request such information or assistance as may be necessary for carrying out the duties and responsibilities provided by this chapter from and Federal, State, or local governmental entity."[4]

Figure 3-1: Step 3

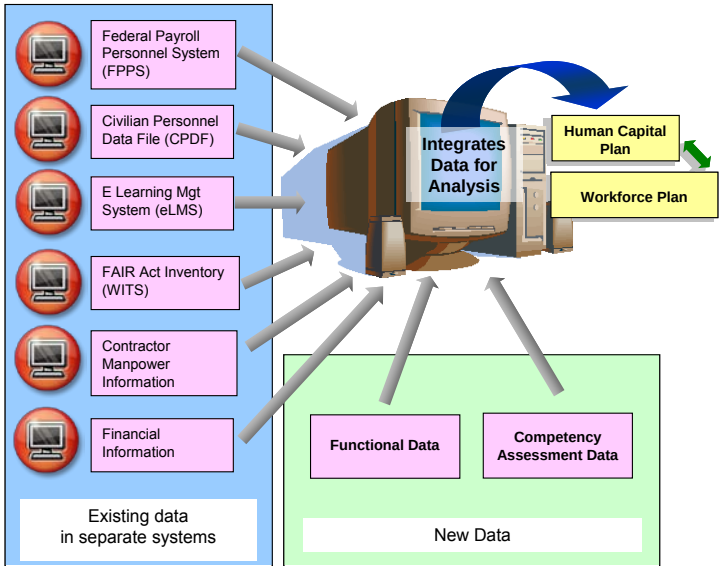


Figure 3-1 illustrates the concept of Step 3 for integrating existing data from separate systems. In this step, we will also take the time to develop functional data and automated organizational charts. Once initially developed, the data can be updated on an annual basis in conjunction with the employee's performance appraisal.

[4] Section 1402. Authority and function of agency Chief Human Capital Officers, Public Law 107-296, November 25, 2002.

One of the outcomes of Step 3 is to continue identifying data that provides decision makers with key indicators of how the workforce is doing. *Table 3-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 3-1: Process Overview

OUTCOMES		
• MCO profile, including organizational information • Listing of similarities and differences between OAs • Workforce analysis database populated with organizational data • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
3-A Create MCO profile	1 day – 3 days	3 days
3-B Compare MCO profile to DOT workforce and to other federal agencies	3 days – 1 week	4 days –1 week
3-C Review existing studies, analyses, and initiatives	1 day – 1 week	1–2 weeks
3-D Perform a cost driver analysis	1 day – 1 week	2–3 weeks
3-E Review organization charts for each of the OAs	1 day – 1 week	2–4 weeks
3-F Identify current career progression and upward mobility	1 day – 1 week (Concurrent with 3-E)	2–4 weeks
3-G Review existing position descriptions	1 day – 1 week	2–5 weeks
3-H Develop function statements to describe the work performed	6–8 weeks	8–13 weeks
3-I Identify similarities and differences of work performed between OAs	1 day – 1 week	8–14 weeks
3-J Map workforce data to organization charts	1 day – 1 week	8–15 weeks
3-K Map MCO by position to the FAIR Act and IG inventories	1 day – 1 week	8–16 weeks
3-L Identify core capabilities needed by OAs	1 day – 1 week (Concurrent with 3-L)	9–16 weeks
3-M Establish and/or update metrics	1 day – 1 week	10–16 weeks

To execute this process will require access to Department data, data analysis, and building and using a MS Access database. It will also require data from throughout the Department and the participation of MCO Subject Matter Experts (SMEs) for *Step 3-H: Develop function statements to describe the work performed. Table 3-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 3-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Coordinate data collection and validation at the Department level • Build data base and conduct analysis • Research external data for comparisons
Finance	• Provide financial data • Participate in Working Group
Acquisition	• Provide acquisition and contract data • Participate in Working Group
OA Management	• Provide data: e.g., organization charts, contractor manpower information, FAIR Act and IG inventory • Participate in data validation review
OA HR	• Coordinate data collection and validation at the OA level • Participate in data validation • Participate in Working Group
MCO SMEs	• Participate in developing function statements to describe the work performed • Participate in data validation

Table 3-3: Key Communications

AUDIENCE	MESSAGE	TIMING
Finance	Data requests and follow up	Follow up from Step 2
Acquisition	Data requests and follow up	Follow up from Step 2
OA Management	• Data requests and follow up • Request for SMEs to participate in workgroup to develop function statements	Follow up from Step 2
MCO SMEs	Form a working group to develop function statements to describe the work performed	Follow up from Step 2

Key Tasks Description

In Step 2, the focus is creating a profile of the current workforce at the DOT and OA level. In Step 3, the focus is on the MCO. The focus is also the organizational context of the MCO. Ideally, we would conduct an organizational assessment, but it takes too long, takes up too much time, and costs too much money. It is really not practical for an entire Department on a recurring basis.

The purpose of Step 3 is to identify key data indicators of organizational and operational effectiveness to track on an on-going basis.

Although there are twelve tasks in this step, most of the twelve are straight forward and self-explanatory. The biggest challenge is collecting or getting access to the data. Before you begin the key tasks of this step, it might help to read Step 3 in its entirety and continue through steps 4, 5, 6, and 7. Knowing how you will use the data from Step 3 to inform subsequent steps will help you understand what data to collect and analyze; it will help you know what "clues" to look for.

3-A Create MCO profile

In step 2, the focus is creating a profile of the current workforce at the DOT and OA level. In Step 3, the focus is on the MCO. In this step, the information from all the tasks will help produce an MCO profile that includes information about how the MCO fits into the organization.

Using the data analysis in Step 2, create a basic profile of the MCO to compare to the OA profile and to the Department profile.

Case Study. For the engineering pilot, the Working Group developed the MCO profile using data from the Federal Personnel Payroll System (FPPS) rather than CPDF. At that time, the belief was that the data in FPPS would be more accurate and up-to-date than the data in CPDF.

3-B Compare MCO profile to DOT workforce and to other federal agencies

The next step is to see if the profile of the MCO is similar or different from the DOT workforce. Once that is accomplished, it is important to compare the profile to other federal agencies.

Similar to the analysis in Step 2 for making comparisons, this comparison is focused on the specifics of the MCO.

For example, a simple MCO Engineering Family profile would tell us:

- Engineers are 10.3% of the DOT workforce
- Average age is 47.2 and has increased since last year
- 16.3% are Managers/Supervisors
- 14.2% are eligible to retire

These numbers by themselves do not give the understanding needed to identify strategies (Step 7) to meet our objectives.

A simple illustration: If one of DOT's human capital goals is to increase representation of women and minorities at DOT, then how do we hire and retain more women and minorities in the MCO engineering?

For comparison, the analyst would first look for federal agencies with engineers: e.g., Department of Energy, Corps of Engineers, etc. The analyst would review their MCO profile. If one of these agencies had a much higher percentage of women and minorities than DOT, then how were they able to increase their numbers. What other workforce factors are different or similar to DOT?

If similar percentages exist in other agencies, then the question becomes, why are all federal agencies having difficulty increasing the number of women and minorities in engineering.

With these facts, the analyst might then look to see if this trend is consistent with the private sector and the general population (Fed Stats, U.S. Census Data, etc.). The analyst could then look at the Integrated Post-secondary Education Data System (IPEDS) to see the ratios of women and minorities graduating with engineering degrees. If this number is small, then DOT's strategy might include programs that encourage high school women and minorities to pursue education in engineering. Over time, this could increase the pool of women and minority engineers as potential applicants for DOT engineering positions.

The same thought process can be applied to the DOT strategic goals; however, they are more easily applied in Step 3 using the organizational data and actual work performed (rather than occupational series) and Step 5 with competencies.

3-C Review existing studies, analyses, and initiatives

Keeping in mind our primary objective in Step 3 is to understand how the MCO fits into the organization, request from the OAs any existing organizational assessments, analysis, or any other data that may be available about the organization. This information does not have to pertain directly to the MCO under review because the objective is to understand the organization. Again, this simple step is often overlooked, but it is an important place to look for clues as to what data is important and for establishing the organizational context of the MCO under review.

Often this information is collected, but is not used because it seems a daunting amount of information to review. It is not expected that the analyst would read this information cover to cover. The first step is to scan the documents for areas that might warrant further reading. Scan all the documents first, and then prioritize which information would be the most helpful. The information can alert you to potential pitfalls in the analysis and help you validate data and assumptions. Analysis is putting the clues together to get the big picture. Having the information in Step 2 and Step 3-A and B, will give the analyst enough information to be able to determine if any of the information is relevant or not.

Building on the DOT, OA, and MCO profile and comparisons that have already been completed, review the information looking for:

NOTE: Develop a list of notes from your reading and highlight or flag sections of interest. This will make sure that you can access this information when you need it in the future.

NOTE: This step can save the Department time and money by using information that has already been gathered. The analysis that may be required may already have been completed as part of another initiative. The data may be older, but it could provide information for a trend analysis.

NOTE: This step should be accomplished after the Steps 3-A and 3-B. The knowledge gained from performing these steps will enable the analyst to understand what is important while reviewing the existing studies and analysis.

3-D Perform a cost driver analysis

The purpose of the cost driver analysis is to understand the **relative** cost of the MCO to the organization. While the percentage of MCO FTE to total DOT FTE gives an understanding strength in numbers; however, depending on the grade/salary/compensation of the MCO the percentage of cost to the organization could be very different.

Relative cost information is critical to management as it can help them gain proper perspective and establish priorities. This

analysis can be performed using actual cost data or it can be done using cost estimating techniques. This is usually accomplished by looking at the big picture and drilling down to a lower level of detail as appropriate. For example:

- The relative cost of the DOT budget to the total federal budget;
- The relative cost of the DOT workforce to the total cost of the federal workforce;
- The relative cost of the DOT workforce to the DOT budget;
- The relative cost of the MCO to the entire DOT budget;
- The relative cost of the MCO to total cost of the DOT workforce;
- The relative cost of the MCO to each OA;
- The relative cost of the MCO to the entire job family;
- The relative cost of the occupational series that make up the MCO;
- The relative cost of related contracts to the MCO cost; etc.
-

This is just an example of one series of cost driver analyses, but this can be applied to all of the data analyzed in Step 2; e.g., women, minorities, persons with disabilities, retirements, new hires, etc. This helps to put the workforce data in budget context, which is very important to decision makers.

Analyzing personnel costs relative to facilities, equipment, and contract costs provide insight into the relative cost of the MCO to the organization.

Similar to the analysis in Step 2, the data should be analyzed by OA, for trends, compared, and correlated.

This information will be useful throughout the analysis process to understand where to spend time and resources. If the Steering Group is making decisions between funding for human capital strategies that could affect .01% of the workforce budget vs. 10% of the workforce budget, then this puts the funding level in perspective to the impact.

This information can inform competency development by showing a relative importance or impact the MCO has to the workforce.

This type of data may also be useful in identifying which MCO(s) should be reviewed in Step 1.

Appendix 3-1: Organizational data Analysis Samples provides examples of the types of data available through the procurement tracking system.

QUICK LINK

Columbia University Libraries is a great resource for U. S. Federal Budget information. It also contains links to other useful sites on government spending.
http://www.columbia.edu/cu/lweb/indiv/usgd/budget.html

3-E Review organization charts for each of the OAs

The purpose of this step is to gain understanding about the organizational context of the MCOs. Understanding how the MCO fits into the organization provides insight into developing the competencies and developing successful strategies for closing gaps.

Building on the analysis completed in step 3-A, review organization charts to:

- Identify where MCOs reside in the organization structure;
- Identify lines of authority and reporting structures; and
- Identify if the organization/MCO is augmented by contract workers

Identify where MCOs reside in the organization structure. This information provides a better understanding of the impact of the workforce trends that were identified in Steps 2 and 3-A,B. Are the MCOs all located in

one organization? Are they scattered throughout multiple organizations? Do they primarily work together as a group or are they integrated with other occupations to perform the work?

Identify lines of authority and reporting structures. Percentage of SES and percentage of mangers and supervisors to the total workforce, or by MCO only tells us part of the picture. Looking at an organizational chart can help in understanding if the organizational layers are appropriate to the work or if they may be excessive.

The organizational structure is an important factor in evaluating how efficiently the work is being accomplished. If the organization has several layers of management, or a high manager/supervisor ratio, there may be unnecessary levels of management that hinder decision-making and may represent non-value added work. If the organization has a low manager/supervisor ratio, but the employees are at the higher grades, it may be that the higher grades are doing work that could be accomplished by lower grades.

Identify if the organization/MCO is augmented by contract workers. Identify if there are any contractors within the organization and note them on the organization chart. In most federal agencies, contractors have become an important component of how the work of the agency is accomplished. Typically, the workforce analysis process only looks at federal government employees, but to gain a true understanding of the workforce, contractors should be considered.

The challenge in identifying contractors in most agencies is that the data is not collected in a format that makes it easy to identify individuals, numbers of FTE, work hours, or work performed. The acquisition office tracks contracts by dollars. The details of the contract; e.g. labor rates, work hours, etc. are usually not readily available and are considered proprietary. *Appendix 3-1: Organizational data Analysis Samples* provides an example of the type of data that was available through the procurement tracking system. This data was helpful in understanding the relative size and scope of the contract activity (See Step 3-E), but did not have the detail to link the work or the information on number of FTEs and where they are located that is helpful at this point in the analysis.

For purposes of this workforce analysis, the contractors that are most significant are those contractors who are working alongside the federal government employees. Contractors are the part of the workforce that may have been engaged to complete work using contract dollars because no FTE dollars were available or because of an FTE ceiling limitation. It is typically possible for management to identify contract employees, what they do, and approximately what they cost.

Case Study. For the engineering pilot, the Working Group initially was concerned that organizational charts would not be available; however, for most organizations, basic organization charts were available. Some were out of date, but they were available.

3-F Identify current career progression and upward mobility

In conjunction with reviewing the organization charts, identify the opportunity for career progression and upward mobility. If the organization is very flat, then there may not be opportunities to move up in the organization. This could help explain lower numbers of younger (<29) new hires that were discovered in Step 2. The lack of career progression could also explain attrition rates at different grades.

3-G Review existing position descriptions

The next step is to review the existing position descriptions to understand the work performed by the MCO. Understanding the work performed is critical to building the competency

model in Step 5. This review is accomplished as part of Step 3-H:

This is also a good time to determine if the positions descriptions are out-of-date, and if so, when and how the position descriptions should be updated.

NOTE: It is not uncommon for positions descriptions (PDs) to become out of date due to changes in mission, technology, work and skills required. The workforce analysis process provides a routine review (See Step 1 for how frequency is determined) of MCO PDs to ensure they are up-to-date.

3-H Develop function statements to describe the work performed

To describe the *work performed* by the engineers, the workforce analysis process recognized that there was not a readily available source for this information within the OAs or across DOT. While position descriptions reviewed in Step 3-H seem to be the logical place to go for this information, PDs are often out of date and may not accurately reflect *actual* work performed. Moreover, the format, style, and content of the PDs make it difficult to use the information to compare work within the OA and across DOT. Therefore, to more easily identify, describe, and analyze the work performed by engineers for workforce analysis, an important part of the analysis process is to develop function statements to describe the work performed.

For this step, the analyst will work with the OAs and MCO SMEs to develop a set of functional data that can be combined with data from CPDF, FPPS, competency data, etc. to provide a more robust way to link the workforce data to the DOT and OA strategic goals and objectives.

Case Study. While developing function statements for the pilot, the Working Group recognized early on that function statements alone would not provide a complete picture of the work performed. Looking ahead to using the information for analysis, additional information would be needed to fully understand and analyze the work performed by the engineers. For the pilot, the Working Group expanded on the "function statement" concept to include six pieces of data: (1) Role, (2) Work Location, (3) Sub-specialization/Discipline, (4) Function 1, (5) Function 2, and (6) Function 3. [The seventh new piece of data, "Function Category," was added as a result of lessons learned during the pilot.]

The functional data consists of seven new pieces of data that are developed and collected by the OAs for each of the MCOs under review: (1) Role, (2) Work Site, (3) Sub-specialization/ Discipline, (4) Function Category; (5) Function 1, (6) Function 2, and (7) Function 3.

(1) Role. It is important to know whether the employee is a manager, supervisor, team leader, or professional staff/specialist, to gain further understanding of the work and whether it changes at different levels in the organization. Although grade is a CPDF/FPPS data element, grade alone is not an adequate indicator of management or supervisory responsibility. Furthermore, the CPDF/FPPS field that designates supervisors is not always completed because it is not a mandatory data field.

(2) Work Site. To help distinguish the type of work being performed, it is important to know more than the location (city, state, country); it is important to know where the employee sits in the organizational structure. To accomplish this, four work sites: "National/Headquarters," "Regions/Service Areas," "Centers," or "Field locations". An example of how the site data can clarify the work performed is that when the function project management is performed at National/Headquarters it is usually for a large scale project with a national scope whereas project management at a Field Location is typically for a smaller localized project. While both engineers perform project management, the type of work is very different.

Case Study. For the engineering pilot, the Working Group considered whether the location field in FPPS would be sufficient to make this distinction, but in some cases one geographical location could contain multiple "work locations;" i.e., both National /Headquarters and Centers work is performed in Atlantic City, New Jersey. To avoid confusion with the CPDF/FPPS data field "Location" and to more accurately describe this data, this data category is labeled "Site."

(3) Sub-specialization/Discipline. In the case of engineers, the occupational series (0801—General Engineering, 0810—Civil Engineering, 0830—Mechanical Engineering, and 0855—Electronics Engineering) are broad categories that can contain very different types of work and do not really provide enough of a distinction to understand the work performed. The sub-specialization/discipline was added to further categorize the work; e.g., Project Management, Area/Field Operations, Operational Support, Safety, Environmental, etc.

(4) Function category. The function category data provides a broad category to group the related functions for analysis. To simplify and organize the large number of function statements generated by 10 unique OAs, related function statements are grouped into broader job function categories. For example, the "procurement" category included the following function statements: "performance of procurement activities," "development of statements of work," "serving as contracting officer's representative," "other activities related to contract management," and "having a general knowledge of the contract process to be able to facilitate contractual work."

NOTE: The use of this data field needs to be coordinated with the Sub-Specialization/ Discipline data field to ensure this is not a repeat or they are providing distinctly different information.

(5) Function 1, (6) Function 2, and (7) Function 3. For most MCOs, the list of function statements includes 25–30 items. While all the functions need to be performed, for workforce analysis purposes, it is important to identify those functions that are most important and their frequency across the organization. The Working Group determined that prioritizing these tasks and identifying the top three as Function 1, Function 2, and Function 3 would provide important data on the work performed.

Table 3-4: provides a summary of the functional data.

Table 3-4: Functional Data Description Summary

DATA CATEGORY	DATA DESCRIPTION
Role	The "Role" data category describes the employees role or level in the organization and is defined by four choices: "Manager," "Supervisor," "Team Leader," or "Professional staff/specialist."
Work Location	The "Work Location" data category describes where the employee performs their engineering job. This data category was only collected by FAA and defined by four choices: "National/Headquarters," "Regions/Service Areas," "Centers," or "Field locations."
Sub-Specialization/ Discipline	The "Sub-Specialization/Discipline" data category represents the major or broad area of engineering in which the employee works. This data category was defined by each OA.
Function Category	The function category groups the individual functions into broad functional categories. This makes the data more manageable for analysis.
Function 1, Function 2, and Function 3	The Function 1, 2, and 3 data category describes the top three most important functions in priority order performed by the employee to do their job. This category was defined by a general list of 19 function statements that was used by all the OAs plus a unique list of functions defined by each OA.

The primary challenge in developing the functional data is collecting this new data. It is important to minimize the time required by HR, management, supervisors, and employees. The process involves four main tasks:

1. Develop a preliminary list of function categories and function statements;
2. Develop a preliminary list of Sub-Specialization/Disciplines;
3. Submit preliminary function statements and Sub-Specialization/Disciplines to SMEs for review and further development;
4. Collect functional data; and
5. Compile FPPS data and functional data for analysis.

1. Develop a preliminary list of function categories and function statements. Using an MS Excel workbook, create the Job Analysis Workbook. This is a workbook that will be used to organize and review job functions and to align them with competencies (Step 5).

Using position descriptions, the Working Group develops a draft set of "function statements" for each OA to characterize the work performed by the MCO. To facilitate comparison across OAs, the Working Group compares OA lists and the "function statements" using two categories: "unique functions" that were specific to the engineering series and OA and "general functions" which were common to all the OAs and all the engineering series. The result was a set of function statements for each of the four engineering series for each OA.

Once the function statements have been developed, it is important to group the functions into broad function categories; e.g., Calibration and Repair; Policies, Procedures, and Regulations; Drafting and Architecture; Procurement; Research; Inspections, etc.

For each occupational series within the MCO, develop the function categories and related function statements in a separate worksheet. Then list all the functions in one worksheet. This exercise will help to show if the work is similar or different between occupational series within the MCO.

NOTE: The function statements need to be as concise as possible and express only one function or a group of related functions. The function statements should be easily understood without room for interpretation. Because many of the function statements originated from the position descriptions, some of the function statements contained multiple functions or were complex sentences rather than brief statements.

2. Develop a preliminary list of Sub-Specialization/Disciplines. This list was developed by the Working Group using information from the PDs. Each OA defined a unique list of choices.

3. Submit preliminary function categories, function statements and Sub-Specialization/Disciplines to SMEs for review and further development. Once the preliminary list of function categories, function statements, and Sub-specialization/Disciplines are developed by OA HR, it is important to get the MCO SMEs involved in validating and developing the list further to most accurately reflect the work functions currently performed.

Case Study. For the engineering pilot, the Job Analysis Workbook showed that the majority of job function categories were common across all four engineering series.

Using the Job Analysis Workbook, SMEs review their engineering series and the all engineering series to validate:

- The function statements were listed under the relevant broad job function category;
- No job function categories/function statements were missing;

- No unnecessary job function categories/function statements were included; and
- Which job functions categories/function statements were unique to a specific organization.

The Job Analysis Workbook is sent to the SME through email for them to validate/comment. A sample of the email that was sent to the SMEs is included in *Appendix 1-3: Communication Samples*.

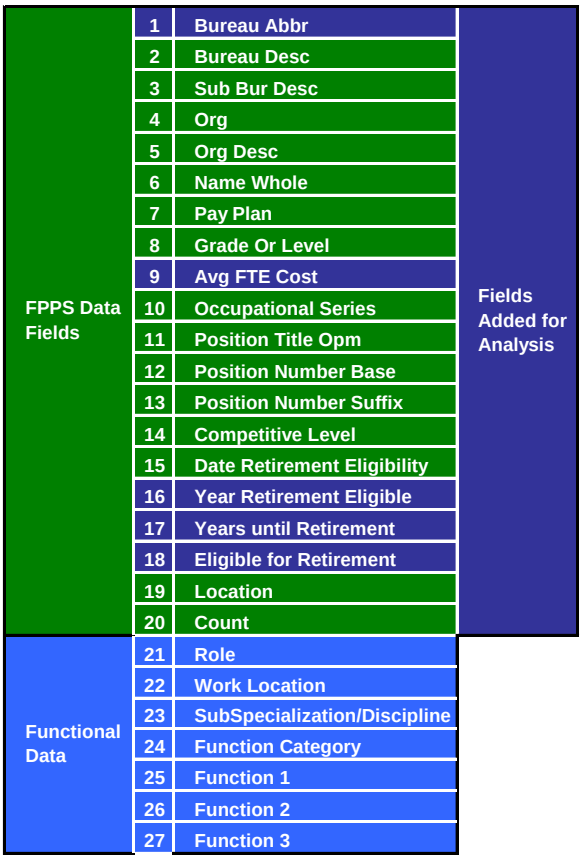
Case Study. Early in the pilot process, the engineers expressed concern that all the engineering series and all the OAs would be lumped into one competency model that would be so generic that it would not be useful. The general feeling by the engineers was that the functions that each engineering series performed were very different. Furthermore, because of the different modes of transportation supported by each OA, the engineering work was different even within the same engineering series. The Working Group was sensitive to this concern and acknowledged the differences of the OAs by developing individual lists by OA and by series. However, after the data was collected and the data was analyzed, many of the **unique** function statements and unique Sub-specialization/ Discipline were very similar, but worded differently by each OA; i.e., "Performs Program/Project Management," "Planning and Programming," "Program Management," and "Program/Project Management. During this part of the process, the function statements and disciplines could have been reviewed by a focus group of SMEs from all OAs and the lists standardized in wording where appropriate and the distinctions made clearer where appropriate. This would have provided a more accurate list of function statements and one that could be more easily compared across OAs.

4. Collect functional data. Once the function statement lists and the sub-specialization/discipline lists were reviewed by SMEs and finalized, the next task was to collect the data for each of the employees. For the pilot, the Working Group thought that supervisors would be the best source to gather the functional data for employees. To minimize the time required and to standardize the inputs, an MS Excel worksheet was prepared with selected FPPS data to identify each employee and drop down lists for each functional data field: (1) Role, (2) Sub-specialization/Discipline; (3) Work Location, (4) Function 1, (5) Function 2, and (6) Function 3. Supervisors were asked to complete the six data fields for each of their employees using the spreadsheet with the drop down lists.

NOTE. Limit the length of the function description to 255 characters so that the information is easier to manipulate and display in MS Excel and MS Access. When moving entire worksheets, MS Excel limits the data moved in each cell at 255 characters. This 255 character constraint will also ensure that the function statements are concise

6. Compile FPPS data and functional data for analysis. The functional data and selected FPPS data is merged resulting in the "functional data set." The functional data set consists of 27 fields, 15 FPPS fields (green), seven Functional Data fields (light blue), with five fields added (dark blue) to make analysis using MS Excel easier.

Figure 3-1: Functional Data Set Fields



The functional data set enabled the Working Group to look at the FPPS data in a new way; for example:

- Occupational Series by Role, Discipline;;
- Role, Discipline, Function by location;
- Count of Function by Role;
- Occupational Series by Primary Function (Function 1);
- Count of Primary Function (Ranking);
- Occupational Series by Function 2;
- Average Cost by Occupational Series;
- Average cost by Discipline; and
- Retirement Eligible by Role.

Appendix 3-1: Organizational Data Analysis Samples presents some sample charts to demonstrate how this data can be presented.

The functional data set table can be added to the database. Linking the functional data to CPDF data enables another look at the work performed. For example:

- Percentage of women, RNO, PWD, etc by Role
- Percentage of women, RNO, PWD, etc by Discipline;
- Role, Discipline, Function by age, YOS, retirement eligibility;
- Role, Discipline, Function, by attrition;
- Employee awards (Pay, time off, etc.) by Role, Discipline, Function;
- Role, Discipline, Function by level of education (Highest Degree Obtained);

Linking the functional data eLMs data provides yet another look. For example:

- Employee by Role, Discipline by training courses taken in the last year, two years, five years;
- Employee by Role, Discipline by gender, RNO, etc. by training courses taken in the last year, two years, five years;

NOTE: Any information the Department collects by individual and contains the same unique identifier can be linked together for analysis.

NOTE: In *Step 6: Identify competency gaps*, the competency data is added to the database for further capability to look at the work performed.

NOTE: When using this information to inform *Step 5: Identify Competencies*, the function statements from all the OAs were grouped into major job functions (see Step 5-A) to facilitate job analysis and to see common functions. To eliminate a step in the process, the "function category" was added to the functional data.

3-I Identify similarities and differences of work performed between OAs

The purpose of this step is to review the data analyzed in Step 3 to ensure that we continue to look for similarities and differences between the OAs. Using the data collected in the previous steps, look for and compile a listing of similarities and differences between OAs.

NOTE: It is important to compile a written list. The process of writing the list on paper clarifies the thinking. The initial list is validated by the Working Group and then presented to the Steering Group.

3-J Map workforce data organizational charts

The purpose of this step is to map the data from Step 2 and Step 3 to organizational charts. The mapping puts the data in the context of the organization and provides a visual picture of the workforce information to identify any trends. *Appendix 3-1: Organizational Data Analysis Samples* provides a simple example.

This can be accomplished by creating a new data field in the Workforce Analysis Database table that contains CPDF data. The new field would contain a numbering system for each employee to identify supervisory relationships and placement in the organization. Using a computer macro and the numbering system, the computer can automatically populate a grid that represents the organization.

NOTE: In practice, the biggest challenge to developing this system is maintaining up-to-date information on each employee's supervisor. At a minimum, each year as part of the performance appraisal process, the employee and HR should be responsible for updating this information.

3-K Map MCO by position to the FAIR Act and IG inventories

The purpose of this step is to use the information already collected for the FAIR Act inventory and Inherently Governmental inventories for additional workforce data analysis.

Inventory Overview. The Office of Management and Budget (OMB) requires all agencies to prepare two annual inventories of activities or functions performed by federal employees. The inventories are to be categorized as either commercial or inherently governmental. The foundation of this requirement is the Federal Activities Inventory Reform Act of 1998, or FAIR Act, which requires all agencies to submit a complete inventory of all federal employees, reported by FTE, that perform commercial activities. More specifically, the Circular No. A-76 revisions of May 29, 2003 require each agency to submit the following by electronic (e-mail) to OMB:

(a) an inventory of commercial activities performed by government personnel;

(b) an inventory of inherently governmental activities performed by government personnel; and

(c) an inventory summary report.

An agency may provide aggregate data for uniformed services personnel and foreign nationals performing inherently governmental activities. For the annual inventories, an agency uses the format and data requirements found at the OMB web site (www.OMB.gov).

In the FAIR Act Inventory, the commercial activities are categorized by function codes and reason codes. The function codes represent a standardized way to describe activities; codes are defined as A through Z (e.g., W is Automated Data Processing, W500 is Data Maintenance, W600 is Data Operations). The reason codes are designated A through F for commercial functions and indicate the availability of the function for A-76 competition. Reason Code A is used to identify commercial functions that are not available for A-76 competition.

The FAIR Act Inventory is due to OMB by June 30th of each year. After submission, OMB reviews each agency inventory, consults with the agency regarding the content of the inventory, and then publishes a notice in the Federal Register that annual agency inventories are available. The agency then makes the inventories available to Congress and the public. The new OMB Circular A-76, Performance of Commercial Activities allows challenges to the inventory only when a job function is reclassified from governmental to commercial or vice-versa, or when an agency uses a reason code to exempt a commercial job from competition.

Beyond OMB and Congressional reporting, the Department uses the FAIR Act Inventory to identify commercially available functions and assist in the identification of candidates (functional areas) for A-76 competition.

In most Departments, the HR Specialist does not participate directly in compiling or submitting the FAIR Act Inventory. However, on-going, day-to-day HR responsibilities contribute directly to the Department's ability to prepare an accurate inventory of activities and management may request HR support in updating position description in determining activity codes and reason codes.

QUICK LINK

For more details on the Inventory process, see OMB Circular No. A-76 (Revised), *Performance of Commercial Activities*, May 29, 2003. The Circular is three pages, and the detailed attachment on the inventory is only three pages. http://www.whitehouse.gov/omb/circulars/a076/a76_incl_tech_correction.html.

The FAIR Act and Inherently Governmental Inventory submission to OMB consists of twelve data fields. *Appendix 3-1: Organizational Data Analysis Samples* provides a sample.

A review of the data would indicate that it would be impossible to link to the workforce data for analysis purposes. However, this data is the OMB submission, most OAs develop this inventory on a position-by-position basis. In fact, it is recommended as a best practice to link the inventory data directly with HR workforce data.

The position-by-position breakdown of the inventory could be added to the database for further analysis. For example:

- Function by activity function code;
- Function by commercial or inherently governmental status;
- Function by reason code A;
- Function by reason code B;
- Occupational series by activity function code;
- Occupational series by status;
- Retirement eligible by activity function code;

These are just a few examples, but the combinations of this data with the workforce data (CPDF) and the function data could identify additional trends and correlations that will inform the workforce analysis.

NOTE: It is not expected that the activity function codes would align with the occupational series. The activity function codes could relate to the function statements and should probably be applied in some consistent manner.

NOTE: At this time, there may not be a direct link between the workforce data and the inventory data. However, because the Department is spending the time and resources to collect both workforce and inventory data, consistent and integrated information would be beneficial.

3-L Identify core capabilities needed by OAs

Using the function data and SMEs from Step 3-H and the FAIR Act Inventory data, identify the core work that is being done by the OAs. For example:

- Rank order the functions by frequency
- Compare the functions with their inventory status and reason code; those that are inherently governmental and reason code A are likely to be core functions.

NOTE: The core capabilities should link directly to the ability to achieve the goals outlined in the strategic direction (Step 1).

3-M Establish and/or update metrics

The purpose of this step is to sort through all the tables and charts to identify the data or combinations of data that represent key indicators. The key indicators could provide leadership and HR with information that can help them to manage the workforce **proactively**. (See Step 2-E for more details.)

Lessons Learned Summary

In conducting the workforce analysis, data outside human resources is very difficult if not impossible to obtain. Some databases are administered and managed at the Department level which often means access to the data is difficult to obtain for logistical, security (sensitive information), cost (clearances), and political reasons (who should have access).

Currently the relevant databases used by the Department are not linked together. While integrating these systems is not practical in the short term, for those systems with personnel information, the data could be linked outside the current systems using an assigned personal identification number or social security number.

Using static downloads of financial information can be challenging as the costs are different depending upon when in the pay cycle the download is taken. The date to download financial information is not always obvious; while year end may seem like a good date, the data for year end is not usually complete until after that date.

Using static downloads of data can restrict the effectiveness of the analysis; in analyzing data it is not always immediately obvious what the data tells us, it take some detective work and looking through all the data, conduction various analysis, to understand the relationship of the data to each other and all the variables.

Frequently Asked Questions

Why is important to look at the organizational context of the MCO?

Without this context, it is difficult to understand the workforce characteristics and trends. It is only through a thorough understanding of what the trends mean and what causes them that we can identify practical, workable, strategies to solve them. The organizational context provides valuable insight.

This analysis also widens the range of potential gap closure strategies from traditional training, recruitment and retention to organizational restructuring.

STEP 4: UNDERSTAND HOW THE MCO FITS INTO THE ORGANIZATION IN THE FUTURE

Overview

The purpose of this step is to identify future human capital needs with a special focus on the MCO(s) under review. Looking to the future to determine how the work is changing provides an important foundation for proactive human capital management strategies. Changes that will impact the future are identified for the total workforce and for the MCO(s) under review. This information is important to develop and maintain competencies in Step 5. *Table 4-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 4-1: Process Overview

OUTCOMES		
• Steering Group review and validation of data from Steps 2 and 3 • Workforce supply and demand forecast • MCO manpower and skills forecast • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
4-A Convene OA leadership and HR to discuss the future workforce (Steering Group Session #2)	Steering Group Session #2	1-2 weeks
4-B Review factors that will impact work	1 week (Concurrent with 4-A)	1 week
4-C Forecast workforce supply and demand	1–2 weeks (Concurrent with Step 5)	1 week
4-D Perform manpower and skill requirements analysis for MCO(s)	1–4 weeks (Concurrent with Step 5)	3-5 weeks
4-E Compare manpower and skill requirements to industry benchmarks	1 week (Concurrent with Step 5)	4-6 weeks
4-F Identify similarities and differences between OAs	1-day – 1 week (Concurrent with 4-B,C,D,E)	4-6 weeks
4-G Establish and/or update metrics	1 day – 1 week (Concurrent with 4-B,C,D,E)	4-6 weeks

Table 4-2: Key Participants identifies key participants with a summary of their roles and responsibilities.

Table 4-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Lead and facilitate Steering Group Session #2
Departmental HR analyst	• Prepare workforce forecast data
Steering Group	• Review the workforce analysis data and metrics from steps 2 and 3 • Identify internal and external factors to impact the future workforce and MCO for workforce forecasting and competency development • Participate in Steering Group Session #2
MCO SME	• Provide MCO expertise to inform Steering Group Session #2

Table 4-3: Key Communications

AUDIENCE	PURPOSE/MESSAGE	TIMING
Steering Group	Schedule Steering Group Session #2	4–6 weeks prior to Steering Group Session #2
OA Leadership	Need to identify MCO SME to support forecasting	4–6 weeks prior to Steering Group Session #2
OA MCO SME	Invitation to provide SME to help forecast future workforce/MCO needs	4–6 weeks prior to Steering Group Session #2

Key Tasks Description

4-A Convene OA leadership and HR to discuss the future workforce (Steering Group Session #2)

For Step 4, Steering Group Session #2 is the method to bring OA leadership and HR together to discuss the future workforce. The objectives of Steering Group Session #2 are to:

- Review and validate workforce analysis data/metrics from Steps 2 and 3;
- Identify the internal and external factors that have changed since the last workforce analysis and how they impact the future workforce;
- Identify the internal and external factors that impact the MCO(s) under review directly and how they impact the future MCO workforce; i.e., numbers of FTE, competencies, etc.;
- Identify specific future competencies to be considered in the developing the competency model; and
- Determine the major assumptions to apply to the forecasting process.

To aid in looking to the future, the Steering Group may want to invite MCO SMEs or others knowledgeable about these topics.

It is important that this session be conducted as effectively as possible in the shortest amount of time practical to achieve the objectives. To accomplish this, Departmental HR needs to prepare in advance.

- Four to six weeks prior to the session, coordinate a date and time with the Steering Group members (Ideally this should be scheduled during the Steering Group Session #1 or shortly after, see Step 1);
- Prepare and send out agenda with meeting objectives. For this session, it is important to provide significant lead time, 4-6 weeks in advance. The Steering Group members will likely need some time to prepare. Some OAs may want to meet with SMEs prior to this meeting. In addition, it might be helpful to send with the agenda a list of potential external and internal factors for them to consider as they prepare for the meeting.
- Prepare and send out read-ahead materials. The read-ahead materials are summary data from Steps 1 and 3.

Begin the session reviewing the listing of prioritized DOT/OA goals and objectives for this analysis cycle

Review and validate workforce data/metrics. Opening with the review of the workforce data provides a good foundation for the session. First, it familiarizes the members with the DOT workforce profile (Step 2) and the detailed MCO profile (Step 2 and 3). This includes last year's data, trend data, comparisons, correlations, and organizational data. Second, the members can comment on the data and validate whether it reflects what they are seeing in their organizations or not. The discussion will provide additional insight to the analysis. This discussion can conclude with a review of the workforce forecast from the previous year.

Identify the internal and external factors that will impact the future workforce. One way to facilitate this discussion is to begin with the list of factors that was sent as read-ahead material. This will likely provide a catalyst for good discussion and ensure that each typical factor is addressed. For the more specific discussion about the MCO(s), the functional data in 3-H that describe the work performed combined with the list of external and internal factors can help structure the discussion. Note any data from the work groups during Step 3 and examine it for themes that might indicate future trends. See *Step 4-B: Review Factors that Will Impact Work* for more detail.

Case Study. For the engineering pilot, a recurring theme during the SME work groups was processes and equipment are increasingly more electronic in nature; even equipment that had been predominantly mechanical now contains computer chips. The SME groups across OAs indicated that there was an increasing need to hire more electronics engineers and also to cross-train current engineers in electronics.

The discussion of these factors should result in some specific assumptions that can be made during *Step 4: Forecast workforce supply and demand.*

This session should conclude with a workforce analysis schedule review and next steps, including planning ahead to schedule the next meeting.

Appendix 5-2: Meeting Facilitator Guide Samples provides a sample format to aid in thinking through the session objectives, outcomes, participants, flow, and schedule. Thinking the session through in detail can ensure that the meeting objectives are met and that adequate time is scheduled for the meeting.

NOTE: It is important to read and understand all the information required for all the Step 4 tasks to understand what information the analyst needs from Steering Group Session#1.

4-B Review factors that will impact work

The first place to start is the DOT Strategic Plan. For each goal, there is a discussion about external factors that affect the Department's ability to achieve the goals. For example, for the DOT safety strategic goal, the external factors listed were:

- **Demographic trends**; i.e., increasing population resulting in increased travel; an older population and an influx of immigrants.
- **Growth in the Motor Carrier Industry**; i.e., truck traffic is growing faster than vehicular traffic.
- **Driver Shortages**; i.e., lack of qualified large truck drivers,
- **Economic cycles** effect on pipeline industry safety measures.
- **Technology**; i.e., improved safety features in cars and trucks (anti-lock brakes, airbags, warning sensors, etc.).

For the organizational excellence goal, the external factors were:

- **DOT workforce departures**; i.e., retirement, the move to the new headquarters building.

QUICK LINK

The DOT Strategic Plan is available in PDF and HTML at: http://www.dot.gov/stratplan2011/.

At first glance, some of these factors may not appear to have a direct impact on the work; however, they all should be carefully reviewed to determine their impact. Factors to consider and evaluate are shown in *Table 4-4: Workforce Change Factors.*

NOTE: It is important to document timeframes for the anticipated change and their impact when discussing these workforce change factors.

Determine how these changes are directly related to the work performed by DOT and the MCO(s)s under review. Are there competing priorities? What additional information is needed in order to make a determination?

Table 4-4: Workforce Change Factors

FACTORS	CONSIDERATIONS
Mission	Expanding or contracting Pending legislation Technology Location Amount of work (workload) Core capability Priorities
Budget	Increasing or decreasing Static budget with annual pay increases FTE ceilings
Organizational structure	Skill levels Grades Manager/Supervisor ratios Location
Technology	Pace of change Business and work processes
Work	Work processes Skill levels Grades Technology Multi-skilled positions Numbers of FTE
Economic cycles	Expanding or contracting Consumer perceptions New hires Retirements
Culture	Customer expectations
Demographics	Workforce Local population General population
Turnover	Skill level Retirements
Outsourcing	Expanding or contracting Contracted work type

4-C Forecast workforce supply and demand

Using the information from Step 2, Step 3, and the Steering Group Session #2, the next step is to forecast workforce supply and demand. The difference between workforce supply and workforce demand is the gap that human capital strategies must address.

Workforce supply is the current workforce. Essentially, workforce supply is the workforce profile and MCO profile developed in Step 2. Using this profile, current trends can be forecasted into the future.

Using CPDF data, the Civilian Forecasting system (CIVFORS) provides seven-year projections based on five years of data.

QUICK LINK

OPM provides the Central Personnel Data File (CPDF) and the new Enterprise Human Resources Integration (EHRI) human resources reporting systems, along with a set of tools for trend analysis and forecasting. More details are and links are available at:
http://www.opm.gov/feddata/guidance.asp

Workforce Demand is the projected staffing that is needed for the future. To project workforce demand can be challenging. It may require more in-depth analysis of manpower and skill requirements. These are discussed in Step 4-D.

The difference between workforce supply and workforce demand is the gap that must be closed.

QUICK LINK

The DOT Workforce Analysis 2007, Chapter 3: DOT Future Workforce provides insight into the trends from the previous analysis and an example using CIVFORS. It can be found in PDF format at:
http://dothr.ost.dot.gov/pdf/dot200711strathcplan.pdf

4-D Perform manpower and skill requirements analysis for MCO(s)

The purpose of this step is to determine the numbers and skill level of employees needed to perform the work. This can be accomplished in a variety of ways and to differing degrees of detail. The analyst will have to determine the degree of detail necessary for the analysis.

The first place to look is the individual OAs to see if they have procedures, systems, and data in place to perform this type of analysis. The data from Steps 1, 2 and 3 are a good foundation for this analysis.

Developing the competency model (Step 5) and the competency assessment (Step 6) will be an important component of this skills analysis. This task may not be complete until the data from the competency assessment is available for analysis.

Case Study. For the engineering pilot, the functional data set revealed that the primary function performed by the engineers was Program and Project Management. This validated the trend where DOT is moving away from a "doing" role to an "oversight" role.

4-E Compare manpower and skill requirements to industry benchmarks

It is important to compare the data to similar organizations to understand if the forecasts are on target. This information may also help to identify and refine assumptions in the analysis.

NOTE: The comparison should also include other federal agencies.

4-F Identify similarities and differences between OAs

While completing Step 4, continue to look for similarities and differences between the OAs. Document those findings to inform Steps 5, 6, and 7. To give a more holistic picture of the similarities and differences, these finding should be combined with the findings from Steps 1, 2, and 3.

4-G Establish and/or update metrics

The purpose of this step is to sort through all the tables and charts to identify the data or combinations of data that represent key indicators. The key indicators could provide leadership and HR with information that can help them to manage the workforce **proactively**. (See Step 2-E for more details.)

Lessons Learned Summary

It is important to have the right people at Steering Group Session #2 with the right information to have a meaningful discussion about the future workforce.

Managers, SMEs, and HR seem to find it difficult to focus on the future especially for a period that is 5 to 10 years out. Because OAs are busy with current work issues, it is very challenging to make time to reflect on the future of an organization and an occupation. Ideally, this step should occur here, but it may be that it needs to be revisited as part of validating the competency model and identifying competency gaps.

Frequently Asked Questions

Would it be more efficient to combine the first two Steering Group sessions and discuss both strategic direction and the future workforce together?

The data from Steps 1, 2, and 3 is an important foundation for looking at the future workforce. The data allows the facilitator to ask specific questions about the assumptions that are made for forecasting the workforce.

Some discussion about the future is likely to occur during Step 1 for identifying priorities and for selecting the MCO(s) for review. Because the Step 2 and 3 data is not available for the first session, the meeting may not be able to meet the Session #2 objectives. However, this discussion can be documented and considered throughout the analysis process.

STEP 5: IDENTIFY COMPETENCIES FOR THE MCO TO PERFORM SUCCESSFULLY

Process Overview

The purpose of this step is to identify competency requirements to develop the competency model and rating scale. In general, job competencies can be defined as: the knowledge, skill, ability, and behaviors that affect a major part of one's job. Job competencies correlate with performance on the job; can be measured against well-accepted standards; and can be improved with training and development. *Table 5-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 5-1: Process Overview

OUTCOMES		
Competency model(s) and rating scale		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
5-A Define competency and how the competency model will be used	1-2 weeks	1-2 weeks
5-B Identify and prioritize the MCO work/functions	1-2 weeks (Concurrent with Step 5-A)	1-2 weeks
5-C Research competencies required for similar work	1-2 weeks	3-4 weeks
5-D Map competencies to work/functions by series	1-2 weeks (concurrent with step 5-B)	3-4 weeks
5-E Convene SMEs to develop a preliminary set of competencies	1-2 weeks (1 day group session plus 2 weeks for additional input)	4-6 weeks
5-F Convene SMEs to prioritize and refine competencies	2 weeks (1 day group session plus 2 weeks for additional input)	5-8 weeks
5-G Group competencies into competency model	1 day -1 week	6-9 weeks
5-H Determine competency rating scale	1 day - 1 week (Concurrent with steps 5-F)	7-10 weeks
5-I Convene OA leadership and HR to validate competency model (Steering Group Session # 3)	1-3 weeks Steering Group Session #3	8-13 weeks
5-J Finalize competency model	1–2 weeks (Concurrent with Step 5-I)	8-13 weeks

Step 5 is the most time and labor intensive step in the process because it requires active participation by a wide range of personnel who can represent the MCO. *Table 5-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 5-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Coordinate and facilitate Steering Group Session #3 • Coordinate and facilitate Working Group monthly meetings
Departmental HR Analyst	• Provide data to inform competency development • Attend MCO SME work groups to hear issues related to workforce analysis
OA Leadership	• Pave the way for access to MCO SMEs and HR participation
OA Management	• Selection of MCO SMEs to participate in work groups
MCO SMEs	• Participate in MCO SME work groups to develop competency model
Steering Group	• Participate in Steering Group Session #3 • Validate competency model(s)

Table 5-3: Key Communications

AUDIENCE	PURPOSE/MESSAGE	TIMING
Steering Group	Invitation to attend Steering Group Session #3	4–6 weeks prior to the session
OA Leadership	Update on the WFA process and what happens next	Beginning of Step 5
MCO SMEs	• Notification to participate in work groups • Schedule of work groups	Beginning of Step 5
MCO	• Notification that MCO SME groups are formed and their purpose • Advance notification of competency assessment (Step 6)	Beginning of Step 5

Key Tasks Description

5-A Define competency and determine how the competency model will be used

While this seems like an obvious step and everyone knows what a competency is, the term "competency" is used in widely different ways and for different purposes. Clear communication to senior leadership, senior managers, and subject matter experts about the competencies are and how they will be used is important.

Defining the term "competency" or "competencies" and how the competency model will be used prior to developing the competencies establishes a foundation for consistent decision making throughout the development process. The Department will have to make important decisions about how the competency model will be used. This is very important because how the competencies are used will greatly influence what the competency model looks like. Will the competency model be used to inform current Human Resource Management (HRM) processes; such as, recruitment and selection, training and development, appraisal, and succession planning? Currently DOT uses competency gap results for developmental purposes only.

Case Study. For the engineering pilot, competencies were defined as "the domain of related knowledge, skills, abilities, talents, and other personal characteristics that contribute significantly to job performance."

NOTE. When identifying competency gaps in Step 6, SMEs thought the competency assessment data would be most effective at the individual level. The competency assessment could provide supervisors and employees with important information to support Individual Development Plans (IDPs).

5-B Identify and prioritize MCO work/functions

Using the functional data set developed in Step 3-H, review the data to:

(1) Identify the most common engineering duties and tasks across OAs,

(2) Determine core work functions, and

(3) To identify relevant trends.

Appendix 3-1: Organizational Data Analysis Samples provides some queries of the functional data set that show the most common engineering duties and tasks across OAs.

5-C Research competencies required for similar work

Using the validated Job Analysis Workbook developed in Step 3-H, the next step is to identify the competencies required to successfully perform the work. Identifying competencies and writing good competency definitions is difficult, therefore it is important to begin with researching competencies and/or competency models that have already been developed, validated, and used. If possible, finding competencies used for similar occupations is ideal. However, be careful not to limit yourself and review a variety of competency models.

When researching competencies for an occupation, the research should include at a minimum the following:

- The Occupational Series – Professional Organizations – competencies/training
- Department of Labor Framework of Competencies;
- Office of Personnel Management Competency Models; and
- Various other academic and professional research articles.

Using the competencies from the research, identify a full range of specific competencies for performing the MCO work. Be sure to identify some general, non-technical competencies. In addition, think about competencies that link directly with organization mission and values (e.g., displaying teamwork or understanding customer needs). Compile all potential competencies into a clearinghouse worksheet for use in mapping competencies to specific job functions and for development of the Job Series Competency Map.

5-D Map competencies to work/functions by series

Using the worksheets developed and validated by SMEs in Step 3-H and the competencies identified in Step 5-C, map relevant competencies to each function statement and broad job function category. This yields a set of competencies associated with each job function category for each occupational series. This is referred to as the Job Series Competency Map. An example is contained in *Appendix 5-1: Job Function Competency Map Samples*.

5-E Convene SMEs to develop a preliminary set of competencies

Convene Subject Matter Experts (SMEs) representing the OAs from each of the occupational series for a focus group session to review competencies in the Job Series Competency Map.

It is important to involve SMEs in developing the competencies for their areas of expertise. This involvement supports using competencies in two ways:

(1) The competency model will more accurately reflect the attributes required to perform the work, and

(2) It becomes the first step to gain buy-in to and acceptance of the competency model.

Case Study. From the beginning of the pilot process, the engineers expressed an overriding concern about being considered as one homogenous group. They wanted it to be very clear that the work that they performed is very different depending on which engineering series they were in—general, civil, mechanical, or electronics—and moreover the work is very different within each engineering series depending on the OA's mode of transportation and mission (13 OAs). When developing the function statements in Step 3.I, separate function statements were written for each OA and each series. (See Step 3.I for details on function statement development). The overriding sense was that a competency model would need to be developed by series and by OA resulting in four series for 13 OAs or 42 different competency models.

While forty-two different competency models would be burdensome to develop and even more burdensome to assess, analyze, and eventually manage, the Working Group approached the process willing to develop 42 models if that was the best solution. It was only after the initial analysis of the functional data set revealed that there was similarities between the series and between the OAs that consideration was given to developing fewer models. However, whether that was 13 models—one model for each OA, four models—one model for each of the job series, one overall model or some number in between was not known. The Working Group proceeded without prejudice to a specific solution to look at the data in a systematic fashion involving SMEs to see how the competency models would evolve.

The focus group should also contain a representative of the population performing the work, not just supervisors. Refer to the MCO profile in Steps 2 and 3 to inform the composition of the focus groups to ensure that each occupational series, grade, gender, race is adequately represented in the SME focus groups.

Most subject matter experts are not typically familiar with or understand how competency models are developed and used. Some general education on competencies and how they may be used should help the SMEs provide better information and streamline the competency identification process. Furthermore, in addition to education on competencies, general workforce information gathered in Steps 2 and

3, summarized and presented to the SMEs would enrich the process—providing SMEs with the bigger picture of the Department's workforce efforts will aid them in making more informed decisions on workforce issues and priorities.

Appendix 5-2: Meeting Facilitator Guide Samples provides a sample format to aid in thinking through the session objectives, outcomes, participants, flow, and schedule. Thinking the session through in detail can ensure that the meeting objectives are met and that adequate time is scheduled for the meeting. A sample of the email that was sent to the SMEs for this focus group during the engineering pilot is included in *Appendix 1-3: Communication Samples*.

Workforce analysis Steps 2-A, 2-B, and 3-A require reviews of existing Departmental information; e.g., Human Capital Plans, Workforce Plans, and existing studies, analysis, and initiatives. While the organizations will be aware of their own individual information and may find this step redundant, one purpose of this process is to provide a more holistic approach to workforce planning in the Department and to help organizations leverage best practices. A member of the competency development team should be provided with the understanding of all the organizations within a Department and their plans and issues, etc. This insight will expose both the unique aspects of the individual organizations and their areas of similarity in the final competency model. It can also ensure that the competencies reflect relevant workforce issues.

NOTE. Providing SMEs with a Draft Competency Model (straw model) and then letting them add/ subtract and change the competency definitions could reduce the time to develop the competency model. This approach saves time and allows SMEs to focus more on the task at hand rather than get bogged down in the job analysis process (Job Competency Map). It is also useful to begin with the "end in mind." This means it might have taken less time if we had started with the premise that one model can work for all OAs and all occupational groups within an occupational series.

Using the SME input from the focus group, develop the initial set of competencies by removing, consolidating, adding, and refining the definitions of the competencies. The result is a draft set of competency models; one for each of the occupational series in the MCO.

For the preliminary set of competency models, consider grouping similar competencies together during this step to enable the SMEs to more clearly differentiate and define the competencies; in some cases, where it is difficult to differentiate it may become apparent that both competencies are not needed.

Case Study. For the engineering pilot, the focus group was scheduled for four hours beginning with a full group session and then broke into smaller groups by engineering series to review and comment on the competencies and the definitions. Each of the groups approached the task differently (mostly dictated by the personalities and the level of the engineers in the group), some focusing on the big picture and narrowing down and prioritizing the competencies, while some focused on refining the competency definitions. Some SMEs also provided further feedback regarding the maps following the session. During the focus group, the SMEs identified trends that could impact future responsibilities and competencies.

NOTE: Consider using the information from *Step 1, Identify strategic direction*, to develop and structure competencies to align with Department and agency's strategic objectives. Perhaps structure the development of the competencies using Department and/or agency's strategic objectives as the basic framework. This direct alignment would help identify specific competencies that clearly support strategic objectives. This direct alignment would likely help to refine and clarify the competency definitions in a way that makes them more relevant and easier for employees and supervisors to understand the purpose and their importance. Using this framework could also help to prioritize competencies, potentially

reducing the number of competencies that are tracked and assessed. This framework could also help to develop meaningful groupings of competencies that would be easier to define and assess. Finally, using the strategic objectives as a framework for competency development should help in providing a direction and guidance for the final competency model(s).

5-F Convene the SMEs to prioritize and refine competencies

Reconvene the SMEs for a second facilitated, focus group to review and validate the draft competency models for each series. The objectives of this focus group session are to:

- Prioritize the competencies
- Determine whether there is sufficient agreement to form one model from the multiple models representing the different occupational series;
- Refine competency definitions to ensure they are accurate, meaningful, and easily understood;
- Establish the "target" proficiency levels required for each competency in each occupational series; and
- Identify a preferred rating scale methodology.

Prior to the focus group session, send out the draft competency models asking the individual SMEs to rank order the competencies for their series, with the largest number being most important and the lowest number being least important. Have them bring this information to the focus group session. During the focus group session, have the SMEs partner with other representatives within their occupational series to validate the competencies, compare and discuss individual rankings as well as calculate combined SME rankings for each occupational series. Have the occupational series report out on their prioritized competencies by listing them on a flip chart.

Once all the occupational series have reported out and the flip charts are on the wall, the SMEs can review the results and discuss whether or not the competency models for each occupational series can be combined, what the priority competencies should be and how many competency models will be required. SMEs can discuss combining similar and complementary competencies, and provided suggestions for refining the wording for some of the competency definitions. When disparities exist between the occupational series, the SMEs can determine if there was any applicability of the competency to job functions in the series that had not been previously identified. During the session, revisions are made to the competency lists for each series as necessary.

Following the meeting, the revised competency model is sent out to the all the SMEs for final validation. Ask SMEs to provide any additional suggested revised language and any other recommendations regarding consolidation or merging of competencies to within one week of the focus group session.

NOTE: *Step 3-E, Perform a cost driver analysis*, is a good way to identify the relative importance of workforce issues and can help establish priorities. This information can be used in the SME focus groups to help make decisions for selecting competencies.

NOTE: *Step 3-L, Identify core capabilities needed by the agencies*, is another important step in understanding of the work performed by engineers. This information can be used in the SME focus groups to prioritize the competencies.

Case Study. For the engineering pilot, the SMEs confirmed that the identified job functions and the associated competencies applied to their respective positions within the OAs as well as the occupational series that they represented. It is important to note that while an engineer may have been classified by OPM as a particular engineering specialist, based on formal education and academic training, they may be performing duties of another engineering series. In addition, during this facilitated session, the SMEs confirmed the necessary competencies required for each series as well as identified other competencies that were not previously included in the analysis. The final result was that there was sufficient similarity between the priority competencies of the four engineering series competency models that the engineers across all four series agreed to combine them into one model. Adjustments were made to ensure that all priority competencies in each of the four individual models were included in the final combined engineering model.

5-G Group competencies into competency model

Using the validated list from 5-H, prepare the competencies in groupings and with a logical flow or in a framework to produce provide a competency model that can more easily be assessed and applied. The competencies can be aligned to goals, separated by core or technical or grouped based on similarities. The validated competencies that were most similar or complementary were grouped into competency categories, e.g., Core and Technical.

Case Study. For the engineering pilot, those competencies that were common among all four engineering series were considered to be core competencies; whereas, those competencies that were specific to a particular series were called technical competencies.

Preparing the competencies into a logical flow will facilitate a better assessment; the competencies and their definitions can be better understood if they demonstrate how they contribute to successful work performance.

As part of this process, it is important to review the competency assessment/management system that the organization will be using to understand its capabilities and limitations and those issues impacted the final groupings of the competencies. For example, the eLMS does allow identification of the competencies as knowledge, skill, ability, or behavior but it does not define core competency as compared to technical competency.

5-H Determine competency rating scale

The rating scale is used to indicate the level of proficiency for each competency. These typically range from a 5-point to a 7-point scale. Each point represents a level of proficiency, which is defined in the rating scale. The more points on the rating scale provides for more distinction between the different proficiency levels. However, the nature of competency assessments where employees/supervisor provide subjective ratings is an inexact science and adding additional points to the rating scale may not yield a higher degree of accuracy. *Appendix 5-3: Competency Model Sample* shows a 5-point rating scale as an integral part of the competency model. OPM has adopted a 5-point scale for its government-wide competency assessments.

More important than the number of points or proficiency levels is the rating scale definitions. The employees taking the competency assessment must be able to understand and easily distinguish which level they should choose. Usually, defining these levels leads to the correct number of levels.

NOTE: To facilitate comparisons between OAs and between DOT and the federal government a similar competency rating scale is recommended.

5-I Convene OA Leadership and HR to validate competency model (Steering Group Session #3)

Upon completion of the final competency model, the next step is to validate the model. The competency model is validated three ways:

(1) Approval by Departmental and OA leadership;

(2) Benchmarking with other competency models for similar work; and

(3) Applying the competency model and checking to see if the competencies correlate to high performers.

Approval by Departmental and OA Leadership serves two key purposes:

- To obtain Departmental and OA Leadership input to ensure that the competency model and rating scale are aligned with the organization's strategic direction; and
- To further Departmental and OA Leadership understanding of the competencies and how they will be used.

At this point in the process, the model is fully developed so it will be easier and require less time for Departmental and OA Leadership to provide their insight and knowledge to further develop and validate the model. This step will ensure that the competencies and their definitions are aligned with the organization's strategic direction. This validation will also support buy-in and acceptance of the competency model by employees.

This validation can be effectively accomplished by conducting Steering Group Session #3. The competency model and rating scale should be provided ahead of time for review. The focus group can then review the model and address and issues or revisions.

To further validate the competency model, find an existing competency model that contains similar key competencies and assess how well that model has been used and by what audiences.

Case Study. For the engineering pilot, the model was compared against the competencies described in the Civil Engineering Body of Knowledge for the 21st Century, published by ASCE in 2004. This book prescribes 15 outcomes (competencies) which collectively prescribe the necessary depth and breadth of knowledge, skills, abilities, and attitudes required of an individual aspiring to enter the practice of civil engineering at the professional level (licensure) in the 21st century (see pages 24-38). The Working Group found that all of the competencies addressed by DOT were included in the ASCE model. The ASCE model did include a few additional competencies that are focused on the future aspects of engineering.

The third method to validate the competency model is using it and then assessing its success in supporting superior work performance.

5-J Finalize competency model

Based on the outcome from the Steering Group Session #3, any final adjustments can be made to finalize the competency model.

Lessons Learned Summary

Whenever possible, follow the workforce analysis process in proper sequence to ensure that the information gathered in each step can inform the next step. Proceed through the systematic process without a predetermined outcome letting the data determine the next step—as this creates a more accurate competency model in Step 5.

Involve subject matter experts (SME) in developing the competencies. This involvement supports using competencies in two ways: (1) the competency model(s) more accurately reflects the attributes required to perform the work, and (2) this becomes the first step to gain buy in to and acceptance of the competency model. Generally, the focus groups should represent the workforce and not just supervisors. In addition, most SMEs are not typically familiar with or understand how

competency models are developed and used; therefore, some general education on competencies and how they would be used would help the SMEs provide better information and might streamline the process. In addition to education on competencies, general workforce information gathered in Steps 2 and 3, summarized and presented to the SMEs would have enriched the process. The focus group is designed to get the insights and viewpoints of individuals; giving them a bigger picture of the Department will help them make more informed decisions on workforce priorities.

Optimize the number of competencies in the model. The tendency is to have too many competencies which then make the model unmanageable and over-whelming. Whenever possible, prepare the competencies in groupings with a logical flow to produce a model that can more easily be assessed and applied. The competencies should be aligned to goals, separated by core or technical or grouped based on similarities. Grouping similar competencies together during development enables the SMEs to differentiate and better define the competencies; in some cases, where it is difficult to differentiate it may become apparent that both competencies are not needed. Preparing the competencies into a logical flow will facilitate a better assessment because the competencies and their definitions can be better understood as to how they contribute to successful performance of the work.

Validate the competency model with leadership and management and, if possible, with an outside independent model. Senior management should provide their insights and knowledge of whether the model needs to be refined to ensure that the competencies are aligned with the agency's strategic direction. This also supports buy-in and acceptance of the competency model by the direct reports for that occupational series.

*Departments should agree on a set of **core** competencies that should be used across all occupations within the Department. This would save time developing the competency models and provide some standardization in prioritizing competencies for gap closure.*

It is important to involve the SMEs in defining and refining the technical competencies for the organization. The SMEs should be briefed on the purpose and role of competencies and assessments before they begin the process of defining them.

Frequently Asked Questions

What level of employee should participate in the focus groups?

The focus group should include a representation of the occupation. This includes supervisors and a demographic representation of employees who are outstanding performers in the job series.

What is the ideal number of individuals who should participate in a focus group?

There is no magic number, but 8–10 persons are manageable and should provide enough representation for the groups that need to address their competencies.

How much time will the focus group take?
If straw models are provided, most focus groups can complete their work in a 3–4-hour timeframe with some possible follow-up needed for final changes (an additional hour or so).

What were the sources for the original straw model competencies?

We began with the Army Corps of Engineers – job definitions and training objectives – competencies and then looked at OPM and DOL competency models. After completing the Engineering Competency Model, we located the ASCE Body of Knowledge – Engineering Model that independently validated the model developed by the DOT engineering series focus groups.

STEP 6: IDENTIFY COMPETENCY GAPS

Process Overview

The purpose of this step is to identify competency gaps. OPM defines a competency gap as: "The difference between the projected or actual availability of mission-critical competencies and the projected or actual demand for such competencies. Identification of current or future gaps typically addresses the size, composition, and competency proficiency levels of the workforce."[5] The gap analysis is performed at both the Departmental level and at the OA level. The process allows for OAs to use a variety of methods to identify the competency priorities, set proficiency levels, and to identify the actual gaps. *Table 6-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 6-1: Process Overview

OUTCOMES		
• Competency assessment completed • Competency gaps identified • Listing of similarities and differences between OAs • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
6-A Conduct competency assessment	3-4 weeks	3–4 weeks
6-B Review and analyze competency data	1–2 weeks	4–6 weeks
6-C Convene SMEs to prioritize competencies and gaps	1 day–1 week	4–5 weeks
6-D Determine process for identifying competency gaps	1–2 weeks	6–9 weeks
6-E Identify competency gaps for closure	1–2 weeks	8–12 weeks
6-F Convene OA leadership and HR to identify competency gaps (Steering Group Session #4)	Steering Group Session #4	8–12 weeks
6-G Establish and/or update metrics	1 day – 1 week (Concurrent with 6-B, E)	8–12 weeks

[5] Glossary, Office of Personnel Management web site, www.opm.gov, .2007. http://www.opm.gov/hcaaf_resource_center/glossary.asp

To identify the competency gaps requires a completed competency assessment by the MCO(s) and their supervisors, data analysis at both the Departmental and at the OA level, and then, within each OA, identification of competency priorities and priorities for gap closure by managers/SMEs. *Table 6-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 6-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Coordinate and facilitate the Working Group to identify competency gaps
Departmental HR Analyst	• Perform competency assessment analysis
OA HR	• Prepare for and attend Working Group – • Conduct OA competency data analysis
OA Leadership	• Identify SMEs to participate in working groups
OA SMEs	• Provide expertise in prioritizing competencies and establishing gaps for closure
MCO Employees	• They participate in the surveys and should receive feedback on the survey results – both globally and individually

Table 6-3: Key Communications

AUDIENCE	PURPOSE/MESSAGE	TIMING
OA Leadership	Notice of Work Group meeting, overview of competency gaps—data summary	2–4 weeks prior to the Work Group meeting
OA SMEs	• Notice of Work Group meeting, overview of competency gaps—data summary • Invitation to participate in discussion of how to identify the competency gaps	2–4 weeks prior to Work Group to get on calendar
MCO(s) Employees	To provide the employees with notice that a competency survey assessment will be forth coming and to include the rationale of why it is important for them to complete it – including the planned uses of the data- results.	2–3 Weeks before survey and then with survey and then a follow-up to raise survey participation

Key Tasks Description

6-A Conduct competency assessment

The first task is to build and launch the competency survey. For each OA, the survey(s) needs to meet the eLMS system requirements and it needs to be able to be completed in a reasonable amount of time at one sitting (no more than 20 minutes). As part of this process, the competency model is developed into an Excel format to be used in the E-Learning Management System. *Appendix 6-1: Competency Assessment Survey Development Samples* provides a sample of the fields that are required in converting the competency model into a survey tool.

It is best to keep the eLMS data entry/presentation format in mind when developing the survey as this allows easy transition to the Excel data format needed to upload the survey into the eLMS. Thus, a member of the HR workforce team needs to be familiar with the eLMS formatting and data requirements.

As part of the survey launch, unions and management must be provided with information regarding the MCO employees' survey, how it was developed and the purposes for which the data will be used. It is very critical that the HR management information system provide the names of each MCO employee's supervisor; this is necessary for the supervisor to rate the employees who take the survey.

NOTE: The percentage of participation should be checked during the survey process. If necessary, the time to respond may need to be extended to ensure an adequate response.

6-B Review and analyze competency data

Once the assessment survey is completed, the data is reviewed and analyzed.

Then, summary charts are developed which contain the weighted ratings for all competencies by OA and across the Department for the occupation. This data will be used by the OAs and SMEs to:

- Prioritize competencies and gaps (Step 6-C);
- Determine the process for identifying the competency gaps (Step 6-D); and
- Identify competency gaps for closure.

The first step is obtaining the competency assessment data. The analyst should work with the eLMS staff to determine the best format to get the data in for analysis purposes. In some cases, the data is going to be very raw and will take some manipulation to get it into a format for analysis purposes.

Case Study. After completion of the surveys by employees and their supervisors during the engineering pilot, the eLMS system provided the results with one row for each competency for each employee resulting in over 65,000 rows of data on three Excel spreadsheets. It is recommended that the data be formatted to provide one row for each employee by OA. This format would allow all the data to fit on one Excel spreadsheet (instead of three) and it would have saved considerable time reformatting the data into this format for analysis.

For determining the statistical validity of the data, determine the percentage of the population that completed the survey.

Prior to analyzing the survey data, the Working Group must determine whether the scores will be weighted. Weighting provides a way to give the supervisors score more emphasis in the analysis. This is done consistently for all competencies for all participants.

Case Study. For the engineering pilot, the Working Group agreed that the Department would use 65% weighting for supervisor scores to a 35% weighting for employee scores (65:35 ratio) in analyzing the competency data.

Using the weighted competency survey data, the data can be analyzed. For example:

- Rank core competencies by proficiency scores by OA;
- Rank technical competencies by proficiency scores by OA;
- Compare the employee rating, supervisor rating and weighted rating for core and technical competencies; and
- Compare the weighted competency scores by series.

Distribution charts can also be developed to show raw numbers of survey respondents at each of the proficiency levels.

See Appendix 6-2: Competency Survey Analysis Samples for a sampling of analysis tables and charts.

The competency data is added as another table to the Workforce Analysis relational database developed in Step 3. The competency data can now be integrated through queries with the demographic and organizational data already in the database. This enables the competency scores to be analyzed based on the workforce profile characteristics (Step 2 and 3). For example:

- Weighted competency scores by gender, RNO, age, etc. (CPDF)
- Weighted competency scores by grade, manager/supervisor (CPDF);
- Weighted competency scores by Role, Function Category, Work Site, Discipline and primary functions (Functional Data); and
- Weighted competencies by training courses taken in the last year (eLMS Data).

Each OA needs to be provided with the individual and supervisory scores along with the overall weighted scores (Supervisor to Employee 65:35) for all competencies for all participants of the survey.

An overall Department rating is also calculated for each of the competencies, both technical and core competencies. The overall OA scores and the Department scores need to be shared with the working groups and discussions are conducted within 3–4 weeks after the results have been provided to the organizations to review the findings.

Each OA should provide data to all SMEs and supervisors. Depending upon the union concerns for some OAs only summary data may be able to be provided. Ideally, it is best to provide the data for each participant's supervisor, who can in turn meet with employees and develop an individual development plan (IDP) for employee development of their competencies. Each OA also need to take ownership and decide how to use the data to develop training plans for their employees. By sharing the data results across the Department, there may be some efficiency gained in selecting strategies to close gaps.

6-C Convene SMEs to prioritize competencies and gaps

Once the data is analyzed the next critical task is to convene OA SMEs to determine which competencies (technical and core) are of most concern and highest priority to the individual OAs and then to the department overall. In general, the department should defer to the OAs on these matters. In order for each OA to establish competency priorities, individual OA meetings need to be held with both SMEs and an OA's HR staff. The focus of these meetings is to ascertain the OA's' mission critical priorities for specific occupational competencies. The SMEs, including supervisors, are in the best position to review the competencies and determine which are highest in priority for gap closures. It is important to note that even after setting a competency as a high priority, if the data depicts a fairly high level of proficiency on the part of the participants, then the SMEs may decide to select the next highest priority.

These meetings need to occur within one month after the OAs have been provided the data analysis and survey results. During these meetings, the SMEs not only discuss the mission

critical competency priorities and which ones they wanted to focus on for gap closures, but they also address which competencies were used the least within their OA by their SMEs.

Table 6-4: Competency Gap Priorities Summary Example presents an example of the OAs' competency priorities for the engineering pilot. It can be seen that there was no clear trend across OAs for prioritizing competency gaps for technical engineering competencies. However, for those OAs who's SMEs were interviewed, there was a clear pattern for priority core competencies and that was that some combination of Leadership competencies (decision-making, teamwork, interpersonal skills) were selected as priority competencies for gap closure.

NOTE: The proficiency levels are determined after the competencies are prioritized to minimize the work required to identify competency gaps. Once the competencies are prioritized, a frequency distribution can be developed for only those competencies that are a priority and provided to the key decision-makers for use in setting proficiency levels. If this was done prior to identifying priority competencies then a proficiency level would be set for every competency. This would create more work in development of the distribution charts for all competencies and more importantly more data and possibly overload of information for supervisors to review. By conducting a two-step process, the data analysis requirements are reduced as well as the information that supervisors must review.

Table 6-4: Competency Gap Priorities Summary Example

OPERATING ADMIN-ISTRATION	TOTAL ENGINEERS IN PILOT	TOTAL ENGINEERS/ TOTAL FTES	PRIORITIES	
			TECHNICAL COMPETENCIES	CORE COMPETENCIES
FAA	2,078	3713 / 43,847	1. Technical Knowledge 2. Technical Savvy 3. Technical Writing Priorities for Gap Closure: 1. Technical Writing 2. Risk Analysis and Cost Benefit Analysis 3. Safety Design	1. LEADERSHIP Cluster--Leadership/Teamwork and Interpersonal Skills
FHWA	1,133	1,257 / 2,796	1. Process Improvement	1. LEADERSHIP Cluster—Leadership, Decision-Making, Teamwork, and Interpersonal Skills
FRA	33	32 / 787	1. Safety Design 2. Risk Analysis 3. Safety Inspection 4. Math & Statistics 5. Diagnosing	1. LEADERSHIP Cluster—Leadership, Decision-Making, Teamwork, and Interpersonal Skills
PHMSA	101	103 /327	1. Technical Writing 2. Statistical Analysis	Leadership – Teamwork and Creative Problem Solving
PHMSA	101	103 /327	1. Technical Writing 2. Statistical Analysis	Leadership – Teamwork and Creative Problem Solving

6-D Determine process for identifying competency gaps

From the joint meetings held between the HR staff and the SMEs an agreement needs to be reached as to how the OA will identify the competency gaps for the priority competencies that were selected by the SMEs. There are different methodologies that can be employed to determine the gap to be closed. For example, one OA plans to use a distribution of the scores across the five levels of proficiency with a rounding down to the nearest whole number. Then the OA SMEs can determine what percentages of individuals need to be at higher levels of proficiency across grade levels. Another approach is to just review the percentages of individuals currently at the different proficiency levels and use that percentage to target gap closures between proficiency levels. For example, if the weighted scores had 37% of the occupation receiving a score between 3 and 4, then they could target 37% moving up to scores ranging between 4 and 5. The important point is that the OA try to be consistent over time of how they are measuring their gap closures.

Each OA needs to be provided with employee ratings and supervisor ratings for each competency (one row per employee), along with weighted scores for each employee. In addition, each OA should be given the average weighted ratings for each competency both core and technical for their OA and then for the entire Department occupational population who completed the competency assessment. Meet with the OAs and select a few different approaches for identification of competency gaps for the occupational grouping in their OAs. For example, one OA was considering using (as they did for identifying their HR competency gaps) a percentage of the occupational group who scored at the level 3 proficiency to score at level 4 for the target competency gap to be closed. Another OA used a distribution table to determine how many individuals were at which proficiency level and for each grade what percentages of the individuals were at which proficiency level. This information will be used by groups of SMEs to ascertain how many engineers need to close their competency gaps for the priority competencies.

One OA used a distribution approach across the board for identifying the competency gap on a key technical competency (that they identified as their priority to close). After calculating the data for each of the proficiency levels, they next rounded down to the nearest whole number and took the percentages at each level and then set those percentages to move up one level as their competency gap. This information and data was then shared with the SMEs who serve on various process improvement committees for feedback and validation of the process. As part of the competency gap identification process, grade levels were taken into consideration with priority given to those at GS 14–15 whose jobs require performance of specific technical at higher levels. *Appendix 6-3: Competency Gap Analysis Samples* provides an example of the distribution approach.

6-E Identify competency gaps for closure

As discussed in Step 6-F, different approaches can be used to identify competency gaps. For smaller OAs, which have a manageable number of individuals in an occupational grouping, each of their supervisors could work with each of their direct reports to determine the technical proficiency level for the competency priorities established by that OA. They will then need to also assess the proficiency level for these competencies for next year. Then they will individually assess the competency gap for each direct report. This information is shared with HR so they can determine the total competency gap for their OA and subsequently over time, whether the gap for that OA for that competency is closed or lessened. One example of this process is for the supervisor to set a proficiency level such as 4.0 and to focus on raising the scores of those engineers who were not already at that level for the priority competency.

Each supervisor should provide the number of direct reports at each proficiency level and

where the target proficiency level needs to be in order to close the gaps. This can be rolled up by offices to provide an OA with totals and then after rolling up all lines of business for that occupation it can be provided to the Department. This is information that can then be directly provided to OPM by the Department.

In Appendix 6Table 6-3-2: Calculating the Gap Worksheet provides an example format from the Federal Highway Administration for calculating the gap for each targeted competency.

6-F Convene OA Leadership to identify competency gaps (Steering Group Session #4)

The purpose of this step is to bring OA Leadership and HR together to determine which competency gaps are going to be closed this analysis cycle.

6-G Establish and/or update metrics

The purpose of this step is to sort through all the tables and charts to identify the data or combinations of data that represent key indicators. The key indicators could provide leadership and HR with information that can help them to manage the workforce **proactively**. (See Step 2-E for more details.)

Lessons Learned Summary

Review the timing of the launch of the competency survey to avoid times when there are holidays and/or disruptions due to a move or computer shut-down.

Coordinate with the eLMS system administrator to retrieve the competency assessment data in a format that is ready for analysis by the OAs.

Consider and evaluate using the enhanced capabilities of the eLMS to provide additional analyses.

Provide OAs with some ideas such as using not only average weighted scores (65:35 supervisor to employee ratios) but also distribution scores across the proficiency levels for each competency.

Convene a SME and HR joint workgroup for each OA to discuss how to identify the gap and gap closure strategies (to be discussed in detail in Step 7).

Collect and compare trends and differences across the mission critical occupations to ascertain which competencies need to be addressed by each OA and which ones can be addressed across OAs at a DOT level effort.

Educate and encourage employees and supervisors to learn more about competencies and how they will be used in employee development and training programs.

Communicate to employees the results of the competency assessment; this is imperative to getting SME participation in the next assessments. This will help increase employees understanding about the survey assessment data and how it will be used will likely lead to better survey participation and more useful results.

Currently the results of the competency assessments are presented in the aggregate so the information does not inform the individual employee or his supervisor. Linking competencies/competency gaps to Individual Development Plans (IDPs) would give the competency data more relevance to individual employees. This increased relevance could lead to more participation in the survey by employees and their supervisors and encourage more responses.

Need to work with unions to use competency assessment results on an individual basis for IDPs. Need to clearly distinguish that the competency assessment would not be used for performance appraisals, only for IDPs.

The current DOT eLMS has an IDP module, but it is not a robust one and is not being used. A more robust IDP module could be purchased from Plateau but it would need to be evaluated and the cost-benefit determined.

Frequently Asked Questions

How does one decide what strategy to employ for identifying competency gaps?

There is no one right way to perform this step. There are a number of acceptable methods to accomplish this task. One key variable appears to be sheer number of participants in the mission critical competency for which gaps have been established and identified. The smaller the number the easier it is to do this on an individual basis. The larger the numbers the more necessary it becomes to establish an agreed upon strategy that will be used by an OA to ascertain the gap and then be able to monitor the gap closures and for HR to roll up for the Department to submit to OPM as required.

What criteria will your agency use to establish proficiency levels?

Most agencies have adopted OPM's five levels of proficiency and their applicable definitions. For establishing a baseline and cross-comparisons there appears to be no critical rationale to use any different scale for proficiency levels. Supervisor to employee ratios on the other hand appear to vary from 35% to 65% weighting from Department to Department depending on the degree to which supervisors feel comfortable that employees' assessments are accurate. OPM has been using a 50/50 split for the Government-wide competency assessments.

What metrics will you use from the data analysis to assist in identifying competency gaps?

The approach to this will also vary depending upon the occupational group, the scores, the weighted scores, and how much of a gap there is to be closed.

STEP 7: IDENTIFY STRATEGIES TO CLOSE GAPS AND IMPROVE OPERATIONS

Process Overview

The purpose of this step is to identify, evaluate and determine the "best" strategy for closing gaps and improving operations. This step is the culmination of the workforce analysis, using information from the previous six steps to make an informed decision about how to close gaps effectively. It provides a systematic approach to evaluating alternative strategies for both costs and factors that are intangible—e.g., affect on productivity, ease of implementation, and impact on employee morale—using cost-benefit analysis. The process is straightforward and results in documented rationale to support the chosen strategy. *Table 7-1: Process Overview* provides the expected outcomes and the process steps with estimated timeframes.

Table 7-1: Process Overview

OUTCOMES		
Gap closure strategy		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
7-A Identify potential strategies	1 day	1 day
7-B Define alternatives	1 day -1 week	1 day – 1 week
7-C Determine cost of alternatives	1–3 weeks (Includes time waiting for cost data)	1-4 weeks
7-D Perform a benefits analysis on alternatives	1–3 weeks (Concurrent with Step 7-C)	1-4 weeks
7-E Conduct cost benefit analysis of alternatives	1 day – 1 week	1-5 weeks
7-F Convene the OA leadership and HR to select the best alternative (Steering Group Session #5)	1-day – 1 week	2-6 weeks
7-G Notify workforce about workforce analysis outcomes	1-3 weeks	N/A

This Step primarily involves the Working Group. *Table 7-2: Key Participants* identifies key participants with a summary of their roles and responsibilities.

Table 7-2: Key Participants

PARTICIPANT	ROLE AND RESPONSIBILITY SUMMARY
Departmental HR	• Coordinate and facilitate Working Group meetings • Coordinate and facilitate Working Session #5
Departmental HR Analyst	• Conduct the cost-benefit analysis
Departmental Budget/ Financial Management	• Support cost estimating for the cost-benefit analysis
Departmental Leadership	• Participate in Workforce Analysis Steering Group • Prepare for and attend Working Session #5, select gap closure strategy
OA HR	• Participate in Workforce Analysis Steering Group/ Working Group • Prepare for and attend Working Session #5, select gap closure strategy
OA Leadership	• Participate in Workforce Analysis Steering Group • Prepare for and attend Steering Group Session #5, select gap closure strategy • Provide access to data and people to inform process

The most important communication in this step is reporting the outcome of the Workforce Analysis to the employees. It is included as a separate task in *Step 7: Notify workforce about workforce analysis outcomes.* This step also requires coordinating participation to identify/evaluate gap closure strategies. This may be the same SMEs from Steps 5 and 6, and/or it might include more management level participation. This step also involves coordinating data collection for cost estimating and coordinating Steering Group Session #5.

Table 7-3: Key Communications

AUDIENCE	MESSAGE	TIMING
OA Leadership	• Invitation to Steering Group Session #5 • Workforce Analysis Outcomes	• 4-6 weeks prior to session • Prior to MCO employees and DOT Workforce
MCO Employees	Workforce Analysis Outcomes	Prior to DOT Workforce
DOT Workforce	Workforce Analysis Outcomes	2-3 weeks after gap closure strategies are selected

Key Tasks Description

In general, when HR identifies strategies to close workforce gaps, HR is inclined to select those strategies within HR control and budget, which often means that, by default, training is the chosen strategy. In this broader workforce analysis approach, where HR is partnering with management, working with SMEs, and looking at solutions from an organizational (not individual employee) perspective, the potential strategies available to close gaps are more far reaching.

This broader approach requires input from throughout the organization. The process follows a straight-forward cost benefit analysis process, which allows for substantial flexibility in how it is applied (level of detail) and the time and level of resources that are required. The Working Group is the core group for this step, but may need additional input or support from other parts of the organization. The Steering Group makes the final decision on the gap closure strategy.

7-A Identify potential strategies

The first step is to identify potential strategies. One of the best ways to identify potential strategies is to gather representatives from different parts of the organization—e.g., HR, finance, IT, management, SMEs—and brainstorm potential strategies. If you have formed a working group, this group would be ideal. Each of these participants will bring knowledge from their organization about what is possible to do. *Table 7-4: Gap Closure Strategies Summary* provides a list of strategies by category for use as a starting point. *Appendix 7-1: Gap Closure Strategies Key Considerations* expands on this list to include key considerations, applicable tools, advantages, and disadvantages.

Table 7-4: Gap Closure Strategies Summary

CATEGORY	STRATEGY
Employee Development	Conduct formal training
	Conduct on-the-job training
	Implement Mentor-Protégé program
	Shadow
	Facilitate career progression
	Assign collateral duties
	Correct poor performance
Retention	Retain essential employees
Acquire/Hire	Fund additional FTEs
	Detail employees
	Reassign employees
	Hire new employee to replace existing employees
Organizational Realignment	Perform function in another area within the organization/department
	Abolish positions
	Restructure where the work is performed
	Incorporate technology
	Facilitate alternative duty locations
	Restructure how the work is performed
Competitive Sourcing	Conduct public-private competition
	Have function performed by another government department
	Have function performed by a University or other non-profit (or trade function with private sector)
	Contract out the function to the private sector
	Replace contractors with federal employees
In-sourcing	Replace contractors with federal employees
Outsourcing (10 and fewer FTEs)	Have function performed by another government department
	Have function performed by a University or other non-profit (or trade function with private sector)
	Contract out the function to the private sector
Privatization	Stop performing the function; buy the product

7-B Define alternatives

Using the strategies identified in Step 7-A, the next task is to define a set of **three or more** alternatives to consider for closing the gap. The importance of defining more than one alternative is:

- Identifying multiple alternatives expands the possible solutions; and
- Evaluating multiple alternatives will help clarify thinking producing solid rationale to support the chosen alternative.

When defining alternatives, it is important to consider:

- Using more than one strategy to define an alternative;
- Defining alternatives that are a stretch or "out of the box;"
- Timeframes;
- Outcomes; and
- How success will be measured.

Using more than one strategy is a more realistic way of looking at solutions. In addition, it is important to include the status quo as an alternative. Again, this clarifies the thinking during the evaluation process and sheds light on what happens if we continue to operate as usual.

For each alternative, it is important to define the outcome. Since all the alternatives are trying to close the same gap, this could be as simple as restating the gap that needs to be closed for each alternative or the outcomes could be different but the result is that the gap is closed. The outcome could also include timeframes for completion.

OPM has identified eight factors to consider in defining and later evaluating and selecting gap closure strategies. These factors are presented in *Table 7-5: Factors in Selecting Gap Closure Strategies* along with some questions to ask in applying these factors.

Table 7-5: Factors in Selecting Gap Closure Strategies

FACTORS	APPLICATION
Effectiveness	What is the gap closure goal? Will the goal be accomplished? How effective is it in accomplishing the goal? How will gap closure be measured
Efficiency	Is it cost effective? What is the return on investment (ROI)?
Time	How much time will it take to implement the strategy? How much time until the gap is closed?
Resources	How much will it cost? Who are the people needed? e.g., SMEs, management, HR, etc. How many labor hours needed? Will we need facilities? Training?
Current competency profile	What is the baseline competency profile? What is the competency profile after gap closure? How does attrition impact the current competency profile? What is the reliability of the competency profile?
Workplace dynamics	What is the culture of the organization? What are the political sensitivities? How will the union react? What is the turnover rate? How will leadership react? How will employees react?
External competition	How does external competition affect our ability to retain employees? If hiring, what is the competition for the skills needed? What does the labor market look like?
External environment	What is the impact of changes from impending legislation? What is the impact of a change in leadership? What is the impact of a change in administrations?

The outcome is a list of alternatives. *Appendix 7-2: Cost-Benefit Analysis Sample,* Table 7-2-1 provides a sample format for capturing the set of alternatives and their outcomes.

7-C Determine cost of alternatives

The next step is to determine the cost of each alternative. This step is often skipped because it just seems too difficult; reasons include:

- Estimating costs is outside of the realm of HR;
- Good financial information in the government is often difficult to get; and
- Usually the "buzz" in the agency is that there is no money any way.

While these reasons are true, this process can overcome most of these reasons.

- While estimating costs may be outside the realm of HR, it is not outside the realm of the OA or department. Having someone from the finance/budget office on the working group will usually provide this cost estimating expertise necessary and access to data.
- It is true that good financial information is difficult to get, but in completing Step 3, we already have most of the cost information that we would need. Furthermore, we can identify a small set of costs that will allow us to make an effective comparison between alternatives.
- The "buzz" at all agencies is that there is no money so why consider any alternatives. Typically, an agency does not have money unless you can show a strong business case for why you should undertake this alternative. Estimating costs and the benefits can provide important information to senior leadership about each alternative, including the status quo.
- Even the status quo has a cost. There is a cost to continuing to operate as usual which is often not considered. Often there is additional "cost to doing nothing." It may not always be obviously financial; the "cost" may become obvious in the next step when we perform a benefits analysis.

The outcome is the cost of the alternatives. *Appendix 7-2: Cost-Benefit Analysis Sample,* Table 7-2-2 provides a format for documenting the resources needed and the cost of the alternatives.

7-D Perform a benefits analysis on alternatives

An important consideration in determining which alternative to choose is an evaluation of the benefits each alternative will yield. Benefits are often intangible and include those factors which are neither monetary nor otherwise quantifiable. Intangibles are generally difficult to deal with because they lack a common frame of reference to which they can objectively be compared. To resolve this difficulty, a measurement system has been developed to evaluate the benefits of each alternative. The measurement system is simple and consists of four steps:

1. Identify benefits desired from all alternatives
2. Assign relative weighting factor to each benefit and determine scoring rationale for each benefit
3. Score each alternative
4. Multiply score by the relative weighting to get the benefits score

Benefits analysis is highly subjective and for that reason can be controversial. But the success of a strategy is also highly subjective depending on the situation, the environment, and the values of the personnel involved. The benefits analysis creates a process that facilitates discussion about these subjective factors and then quantifies them. Although this process is simple and subjective, the process is powerful in clarifying priorities and getting all participants to come to some understanding about the relative importance of factors that are difficult to quantify. *Appendix 7-2: Cost-Benefit Analysis Sample,* Tables 7-2-4 and 7-2-5 provide a sample format for documenting the benefits analysis.

7-D-1 Identify benefits desired from all alternatives

The dictionary defines benefit as "anything that is advantageous."[6] Advantage may be an easier way to think about the kind of benefits that may be important to us in evaluating these strategies. When identifying benefits, think about what factors in closing the gap would be advantageous to the employees, customers, OA or Department.

The Working Group should brainstorm the benefits, probably at the same time they are identifying alternatives. Here are some examples of benefits:

- Timeliness of alternative;
- Minimizes disruption to organization;
- Least impact on productivity;
- Effectiveness in improving productivity;
- Fewest personnel involved;
- Least involvement/effort by HR;
- Least involvement/effort by management;
- Degree to which competency gap is closed;
- Ease of implementation;
- Increases employee morale;
- Most political will to implement;
- Senior leadership commitment;
- Favorable to union;
- Aligns with strategic objectives; and
- Effectiveness in carrying out the goals of the organization.

Appendix 7-2: Cost-Benefit Analysis Sample, *Table 7-2-2: Benefits Weighting and Scoring Rationale* shows the identified benefits.

7-D-2 Assign relative weighting factor to each benefit

For each benefit, a weighting factor is assigned and the weighting is explained. Typically, a weighting scale from 1 to 5 is used. *Appendix 7-2: Cost-Benefit Analysis Sample*, *Table 7-2-2: Benefits Weighting and Scoring Rationale* shows an example of identified benefits, relative weighting factor, and scoring criteria.

7-D-3 Score each alternative

The alternatives are then listed in a table and scored for each benefit (one table for each benefit). Remarks are made to justify/clarify the difference in scoring. *Appendix 7-2: Cost-Benefit Analysis Sample*, Tables 7-2-4 through 7-2-8 show the scoring for each benefit by alternative.

7-D-4 Multiply score by the relative weighting to get the benefits score

To calculate the benefits score for each alternative, the benefits score is multiplied by the relative weighting for each benefit and then added together to get the total benefits score. *Appendix 7-2: Cost-Benefit Analysis Sample*, *Table 7-2-9: Benefits Scoring—Total Weighted Benefits Score* illustrates the calculation of the total weighted benefits score for each alternative.

7-E Conduct cost benefit analysis of alternatives

The next task is dividing the cost of the alternative (Step 7-C) by the benefits score (Step 7-D). The results are documented in a simple table format similar to *Table 7-4: Relative Cost Effectiveness of Alternatives* showing the alternative, cost, benefit and the cost benefit ratio.

[6] The Random House Dictionary of the English Language, College Edition, 1969, 1968 by Random House, Inc.

Table 7-4: Relative Cost Effectiveness of Alternatives

ALTERNATIVE		OUTCOME	COST	BENEFIT SCORE	COST-BENEFIT RATIO	RANK ORDER
1	Status Quo	No action is taken to close gaps	$0.00	55	n/a	N/A
2	Training	All engineers receive formal training in technical writing followed up with on-the job training.	$18,110,200	60	301,837	2
3	Training/ Acquire/Hire	All engineers receive formally training in technical writing followed up with on-the job training. Hire new engineers with an emphasis on technical writing proficiency.	$18,110,200	67	270,301	1
4	Organizational realignment /Acquire/Hire	Hire professional technical writers for each OA.	$36,245,000	66	549,167	4
5	Organizational realignment (Shared Service)	Create a centralized resource or shared service to provide specialized technical writing services to all OAs. This does not have to be centrally located, just centrally managed.	$32,635,500	51	639,912	5
6	Outsourcing	A professional technical writer through a contract with the private sector edits and finalizes draft technical reports on an as needed basis.	$29,698,305	66	449,974	3

To further support the ranking of the alternatives, it may be necessary perform a sensitivity analysis. A sensitivity analysis tests the reliability of the results by identifying the degree to which the cost or benefits would have to change to impact the results. For example, if a relatively small change in cost changes the ranking, then the analysis is sensitive to cost. Or conversely, if a large change in cost *does not* change the ranking, then the analysis is not sensitive to cost. This sensitivity can be tested for all the input parameters if necessary; e.g., weighting of the benefits and scoring.

Appendix 7-2: Cost-Benefit Analysis Sample, provides the complete set of tables used to document a cost-benefit analysis.

7-F Convene the OA leadership and HR to select the best alternative (Steering Group Session #5)

Using the cost benefit analysis, the alternative with the lowest cost-benefit ratio is considered the most cost effective alternative.

The method for selecting the best strategies is Steering Group Session #5. The objectives are to:

- Review the cost-benefit analysis to select the strategy that is best to close.

However, the lowest cost-benefit ratio may not be the most important factor in making the decision. Two alternatives may be very close, but the one with the slightly high cost benefit

ratio has a much larger benefits score. The power of this process is that it provides a structured process to think through the selection of one alternative over another. Through this process of **thinking**—identifying alternatives, estimating costs and determining benefits--senior management should now have the information and the confidence they need to support making a decision.

See *Appendix 7-2: Cost-Benefit Analysis Sample,* for the complete set of formats used in Step 7 for use as a template.

7-G Notify workforce on workforce analysis outcomes

Once the workforce analysis is completed, prepare a summary of the outcomes to present to the workforce. This serves to:

- Allay employee fears about the workforce analysis process and how the workforce information is used:
- Foster employee understanding of the process and the importance of their participation;
- Encourage employee participation in the competency assessment survey because they understand how the survey information is actually used;
- Supports more accurate competency assessment ratings when employees understand the information is used for their personal development; and
- Prepares employees for any changes that may result from the selected strategies.

Lessons Learned Summary

Combining strategies is a realistic way of determining solutions to close gaps.

It is important to notify the workforce, especially the MCO(s) under review, about the outcomes from the workforce analysis.

Frequently Asked Questions

Why perform a cost-benefit analysis?

Cost-benefit analysis provides a framework for evaluating potential strategies for benefits, which can be more important than cost in choosing a strategy. An important consideration in determining which alternative to choose is an evaluation of the benefits each alternative will yield. Benefits are often intangible and include those factors which are neither monetary nor otherwise quantifiable. Intangibles are generally difficult to deal with because they lack a common frame of reference to which they can objectively be compared. The benefits analysis creates a process that facilitates discussion about these subjective factors and then quantifies them. The cost-benefit analysis process is powerful in clarifying priorities and getting all participants to come to some understanding about the relative importance of factors that are difficult to quantify.

APPENDIX A: DEFINITION OF TERMS AND ACRONYMS

The list of terms and acronyms in this appendix is provided for quick reference; the OPM web site provides a comprehensive glossary of terms at: http://www.opm.gov/hcaaf_resource_center/glossary.asp.

TERMS/ACRONYMS	DEFINITIONS
Agency	Any department (e.g., Treasury) or independent establishment (e.g., Federal Trade Commission) of the Federal Government. The Departments of Army, Navy, and Air Force are considered to be individual agencies except where otherwise indicated. All other organizations within the Department of Defense are considered as one combined agency. **Source:** OPM Web-site www.opm.gov See Glossary
Agency Strategic Plans (as required by the Government Performance and Results Act)	A formal description of how an agency will carry out its mission over a period of time. The strategic plan must include the agency's mission, its strategic goals, the strategies to be used to achieve the goals (including workforce adjustments, staff skills, and human resource programs), a description of the relationship between annual program performance goals and the agency's strategic framework, key factors that could affect achievement of strategic goals, and a description of program evaluations used in preparing the strategic plan. GPRA requires agencies to develop and maintain strategic plans covering a 5-year period; the plan is updated every 3 years. **Source:** OPM Web-site www.opm.gov See Glossary
Competency	An observable, measurable set of skills, knowledge, abilities, behaviors, and other characteristics an individual needs to successfully perform work roles or occupational functions. Competencies are typically required at different levels of proficiency depending on the specific work role or occupational function. Competencies can help ensure individual and team performance aligns with the organization's mission and strategic direction. **Source:** OPM Web-site www.opm.gov See Glossary
Competency Gap	The difference between the projected or actual availability of mission-critical competencies and the projected or actual demand for such competencies. Identification of current or future gaps typically addresses the size, composition, and competency proficiency levels of the workforce. **Source:** OPM Web-site www.opm.gov See Glossary
Competency Model	A framework that describes the full range of competencies required to be successful in a particular occupation. These models usually describe the required occupation-specific, or technical, competencies and general cross-occupational competencies (e.g., analytical competencies). Competency models are used to support key human capital programs such as selection, career development, training, and performance management. **Source:** OPM Web-site www.opm.gov See Glossary
Human Capital Management Outcome	**Human Capital Management Outcome:** The intended result, effect, or consequence that occurs from carrying out a program or activity or delivering products and services. Examples of human capital management outcomes include establishing jobs that reflect appropriate work and organizational structuring, filling jobs with employees who have the competencies and skills required to do the work, and providing employees with accurate, transparent, and timely benefits and record keeping. Quality, customer satisfaction, and effectiveness indicators may all be used to measure outcomes. Note that outcomes differ from outputs. Through their work activities, individuals and groups produce outputs (i.e., products or services). Examples of human capital outputs include job analysis, classifying jobs, recruiting applicants, benefits and retirement counseling, personnel actions processing, etc. **Source:** OPM Web-site www.opm.gov See Glossary

TERMS/ACRONYMS	DEFINITIONS
Individual Development Plan (IDP)	A plan of developmental assignments and formal training an employee will undertake to gain competency in the Executive Core Qualifications (ECQs). Usually developed in conjunction with the employee's supervisor, or a mentor who is (or has been) a member of the SES. **Source:** https://www.opm.gov/ses/glossary.asp
Job Analysis	A job analysis identifies the competencies/KSAs directly related to performance on the job. It is a systematic procedure for gathering, documenting, and analyzing information about the content, context, and requirements of the job. It demonstrates that there is a clear relationship between the tasks performed on the job and the competencies/KSAs required to perform the tasks. For more details on job analysis, why job analysis is important, how to conduct job analysis, and legal requirements, visit: http://www.opm.gov/deu/Handbook_2003/DEOH-Section-7.asp
Metrics	Measurements that provide a basis for comparison. Strategic human capital management requires a reliable and valid set of metrics that provides an accurate baseline against which individual agency progress can be assessed. Required outcome metrics are provided for the three systems that implement strategic human capital plans and programs: Leadership and Knowledge Management, Results-Oriented Performance Culture, and Talent Management. Additional suggested metrics are also included. **Source:** OPM Web-site www.opm.gov See Glossary
Mission Critical Occupations (MCOs)	Occupations agencies consider core to carrying out their missions. Such occupations usually reflect the primary mission of the organization without which mission-critical work cannot be completed. **Source:** OPM's PPT: Closing Competency Gaps Nuts and Bolts
Staffing Gap	Staffing gaps and surpluses are the difference between the numbers of employees an agency needs and the number it has. **Source:** Appendix A: Directions for completing MCO Resource and MCO Competency Profile Charts
Strategic Alignment System	A system led by senior management—typically the Chief Human Capital Officer (CHCO)—that promotes alignment of human capital management strategies with agency mission, goals, and objectives through analysis, planning, investment, measurement, and management of human capital programs. **Source:** OPM Web-site www.opm.gov See Glossary
Strategic Human Capital Management	The active alignment of the talent, energy, knowledge and enthusiasm that people invest in their work, with the strategic objectives of the organization. Leaders and managers can maximize their human capital assets by leading from the perspective that human capital produces sustained advantage; and by actively advancing the relationships among strategy, organizational design, deployment of talent, and results. **Source:** OPM Web-site www.opm.gov See Glossary
Strategic Human Capital Plan	A plan that sets forth how the agency's human capital management strategies will be aligned with the agency's mission, goals, and objectives through analysis, planning, investment, and management of human capital programs. Broadly stated, the plan describes what the agency will do to ensure its employees have the mission-critical competencies required to carry out the agency's strategic goals. This includes workforce planning and deployment, including succession planning; recruiting and retaining talent; achieving performance goals; and addressing unique programmatic challenges. **Source:** OPM Web-site www.opm.gov See Glossary
Workforce Planning	An assessment undertaken to look at the workforce and tie the HC strategies to the agency goals and objectives. **Source:** OPM Web-site www.opm.gov See Glossary

TERMS/ACRONYMS	DEFINITIONS
Workforce Strategies	A strategy or plan for recruiting and hiring based on the agency's strategic goals and objectives. It includes analyzing and establishing viable recruitment sources that will produce candidates with mission-critical competencies and fill the vacancies in the organization, and targeting these sources for recruitment efforts. For example, a staffing/hiring strategy is designed and executed to help establish the model organization. **Source:** OPM Web-site www.opm.gov See Glossary

APPENDIX B: CHECKLIST OF OUTCOMES AND KEY TASKS

OUTCOMES		
• Listing of prioritized DOT/ OA goals and objectives to focus on for this analysis cycle • Listing of similarities and differences between OAs goals and objectives • Listing of general similarities and differences between OAs • Listing of Mission Critical Occupation(s) to be reviewed for this analysis cycle		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
1-A Establish Workforce Analysis Steering Group	2–4 weeks (prior to starting process)	N/A
1-B Establish a Workforce Analysis Working Group	1–2 weeks (Prior to starting process)	N/A
1-C Prepare for Workforce Analysis Kick-off (Steering Group Session #1)	1–3 weeks	1–3 weeks
1-D Review DOT and OA Strategic Plans	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-E Review DOT and OA Human Capital Plans	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-F Review DOT Workforce Analysis/Plan from prior year	1 day – 1 week (Concurrent with 1-C)	1–3 weeks
1-G Convene OA leadership and HR to identify common goals and objectives	Steering Group Session #1	2–4 weeks
1-H Convene OA leadership and HR to identify similarities and differences between OAs	Steering Group Session #1	2–4 weeks
1-I Identify MCO(s) for review	Steering Group Session #1	2–4 weeks

OUTCOMES		
• MCO profile, including organizational information • Listing of similarities and differences between OAs • Workforce analysis database populated with organizational data • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
3-A Create MCO profile	1 day – 3 days	3 days
3-B Compare MCO profile to DOT workforce and to other federal agencies	3 days – 1 week	4 days –1 week
3-C Review existing studies, analyses, and initiatives	1 day – 1 week	1–2 weeks
3-D Perform a cost driver analysis	1 day – 1 week	2–3 weeks

3-E Review organization charts for each of the OAs	1 day – 1 week	2–4 weeks
3-F Identify current career progression and upward mobility	1 day – 1 week (Concurrent with 3-E)	2–4 weeks
3-G Review existing position descriptions	1 day – 1 week	2–5 weeks
3-H Develop function statements to describe the work performed	6–8 weeks	8–13 weeks
3-I Identify similarities and differences of work performed between OAs	1 day – 1 week	8–14 weeks
3-J Map workforce data to organization charts	1 day – 1 week	8–15 weeks
3-K Map MCO by position to the FAIR Act and IG inventories	1 day – 1 week	8–16 weeks
3-L Identify core capabilities needed by OAs	1 day – 1 week (Concurrent with 3-L)	9–16 weeks
3-M Establish and/or update metrics	1 day – 1 week	10–16 weeks

OUTCOMES		
• Steering Group review and validation of data from Steps 2 and 3 • Workforce supply and demand forecast • MCO manpower and skills forecast • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
4-A Convene OA leadership and HR to discuss the future workforce (Steering Group Session #2)	Steering Group Session #2	1-2 weeks
4-B Review factors that will impact work	1 week (Concurrent with 4-A)	1 week
4-C Forecast workforce supply and demand	1–2 weeks (Concurrent with Step 5)	1 week
4-D Perform manpower and skill requirements analysis for MCO(s)	1–4 weeks (Concurrent with Step 5)	3-5 weeks
4-E Compare manpower and skill requirements to industry benchmarks	1 week (Concurrent with Step 5)	4-6 weeks
4-F Identify similarities and differences between OAs	1-day – 1 week (Concurrent with 4-B,C,D,E)	4-6 weeks
4-G Establish and/or update metrics	1 day – 1 week (Concurrent with 4-B,C,D,E)	4-6 weeks

OUTCOMES		
Competency model(s) and rating scale		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
5-A Define competency and how the competency model will be used	1-2 weeks	1-2 weeks
5-B Identify and prioritize the MCO work/functions	1-2 weeks (Concurrent with Step 5-A)	1-2 weeks
5-C Research competencies required for similar work	1-2 weeks	3-4 weeks
5-D Map competencies to work/functions by series	1-2 weeks (concurrent with step 5-B)	3-4 weeks
5-E Convene SMEs to develop a preliminary set of competencies	1-2 weeks (1 day group session plus 2 weeks for additional input)	4-6 weeks
5-F Convene SMEs to prioritize and refine competencies	2 weeks (1 day group session plus 2 weeks for additional input)	5-8 weeks
5-G Group competencies into competency model	1 day -1 week	6-9 weeks
5-H Determine competency rating scale	1 day - 1 week (Concurrent with steps 5-F)	7-10 weeks
5-I Convene OA leadership and HR to validate competency model (Steering Group Session # 3)	1-3 weeks Steering Group Session #3	8-13 weeks
5-J Finalize competency model	1–2 weeks (Concurrent with Step 5-I)	8-13 weeks

OUTCOMES		
• Competency assessment completed • Competency gaps identified • Listing of similarities and differences between OAs • Updated workforce metrics		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
6-A Conduct competency assessment	3-4 weeks	3–4 weeks
6-B Review and analyze competency data	1–2 weeks	4–6 weeks
6-C Convene SMEs to prioritize competencies and gaps	1 day–1 week	4–5 weeks
6-D Determine process for identifying competency gaps	1–2 weeks	6–9 weeks

6-E Identify competency gaps for closure	1–2 weeks	8–12 weeks
6-F Convene OA leadership and HR to identify competency gaps (Steering Group Session #4)	Steering Group Session #4	8–12 weeks
6-G Establish and/or update metrics	1 day – 1 week (Concurrent with 6-B, E)	8–12 weeks

OUTCOMES		
Gap closure strategy		
STEP	**ESTIMATED TIME TO COMPLETE**	**ELAPSED TIME**
7-A Identify potential strategies	1 day	1 day
7-B Define alternatives	1 day -1 week	1 day – 1 week
7-C Determine cost of alternatives	1–3 weeks (Includes time waiting for cost data)	1-4 weeks
7-D Perform a benefits analysis on alternatives	1–3 weeks (Concurrent with Step 7-C)	1-4 weeks
7-E Conduct cost benefit analysis of alternatives	1 day – 1 week	1-5 weeks
7-F Convene the OA leadership and HR to select the best alternative (Steering Group Session #5)	1-day – 1 week	2-6 weeks
7-G Notify workforce about workforce analysis outcomes	1-3 weeks	N/A

APPENDIX 1-1: STRATEGIC ALIGNMENT CROSSWALK

This appendix provides a sample structure and format for a tool to capture and align information during the workforce analysis process:

DOT STRATEGIC PLAN		
STRATEGIES	**HUMAN CAPITAL PLAN**	**WORKFORCE ANALYSIS QUESTIONS/COMMENTS**
GOAL: SAFETY **OUTCOMES: Reduction in transportation related deaths** **2. Reduction in transportation-related injuries**		
1. Sponsor and conduct research to address the causal factors and risks in accidents, to anticipate future safety risks, and to determine the most effective ways of mitigating the consequences of transportation accidents in all modes.		Who does this work? Which OAs? Within the OAs, which occupations? Is this work encompassed by the current MCO designations? Is the work performed by an organization within the OAs, or throughout the OA? What is the work performed? Is it the actual work or program management an oversight? What are the competencies required? If this is a strategy for all modes, what do they have in common with regard to performing the work?
2. Promote voluntary information sharing on accident causes, precursors, and mitigation strategies among the people in government and industry best able to act on that information.		MCO Transportation Safety Family
3. Support safety rulemaking by assessing the potential safety impacts of new transportation technologies, vehicles, infrastructure, concepts, designs and operational procedures in all modes		MCO Transportation Safety Family
4. Sponsor and participate in conferences, seminars and meeting at which transportation consumers and providers can share advances in safety technology, regulation, and procedures		MCO Transportation Safety Family
5. Use DOT web sites to communicate information on best safety practices, educational materials, consumer information and other materials relating to safety.		Is this effort accomplished by each OA?
6. Improve safety in all modes through outreach, education, enforcement, collaboration with public and industry safety partners, demonstration programs, consumer information, and strategic media usage.		MCO Transportation Safety Family

DOT STRATEGIC PLAN		
STRATEGIES	**HUMAN CAPITAL PLAN**	**WORKFORCE ANALYSIS QUESTIONS/COMMENTS**
7. Provide and collaborate in safety training for transportation professionals, continuously updating the training to reflect advances in the state-of-the-art and state-of-the-practice and to meet changing training needs.		MCO Transportation Safety Family
8. Develop and utilize comprehensive programs that make use of safety-related data to evaluate the impact of new vehicle and infrastructure technologies, focus inspection activities, prioritize and address risks, and assess enforcement techniques.		MCO Transportation Safety Family
9. Optimize DOT's operational effectiveness through continuous implementation of best practices and innovations in enforcement in all modes.		MCO Transportation Safety Family Enforcement
10 Assess the benefits of crash avoidance and crashworthiness capabilities, upgrade standards, use consumer information to improve safety performance and increase the proper use of crash avoidance and protection equipment.		MCO Transportation Safety Family
11. Support the deployment of enhanced emergency medical and 9-1-1 systems.		NA
12. FHWA. Conduct a comprehensive compliance enforcement program to assure that vehicles and equipment comply with Federal motor vehicle safety standards, and conduct a comprehensive defects investigation and recall program to assure that safety defects for motor vehicles and equipment are identified and corrected or kept off the road.		NA
14 FRA. Accelerate research on rail tank-car structural integrity and on fatigue in the rail industry and identify promising technologies for reducing the risk of train accidents in 'dark' or nonsignaled territory where hazardous materials are transported.		Does accelerating research require more FTE? Is this work done within FRA or does FRA identify industry partners and initiatives to meet this goal? Or is this work contracted out and FRA provides
SCHEDULE FOR MAJOR PROGRAM AUTHORIZATIONS		Determine if this information can be used effectively in projecting the future workforce.

APPENDIX 1-2: COMPARING OA GOALS AND OBJECTIVES WORKSHEET

This appendix contains two tables:

Table 1-2-1: Sample Format for Comparing Information across OAs

Table 1-2-2: Comparing OA goals and Objectives Worksheet Sample

Using this table structure as a guide, the analyst can compile information from the different OAs for comparison. This can be used to compare strategic goals; e.g., state the goals, list the top three objectives from each OA for each goal, etc.

For comparing human capital goals and strategies, the left column could be the five HCAAF systems: Strategic Alignment System, Leadership and Knowledge Management System, Results Oriented Performance Culture System, Talent Management System, and the Accountability System. Or this could be the critical success factors.

The table can be developed in MSWord and can be developed in a legal (81/2 by 14) or ledger size (11 x 17) to facilitate looking at all the information across one page for comparison.

Table 1-2-1: Sample Format for Comparing Information across OAs

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
VISION										
MISSION										
SAFETY										
SECURITY										
MOBILITY										
GLOBAL CONNECTIVITY										
ENVIRONMENTAL STEWARDSHIP										
ORGANIZATIONAL EXCELLENCE										
OTHER										

Using this table structure as a template, the analyst can compile a variety of information from different OAs for comparison. For illustration, this same table structure is completed with OA goals in Table 1-2-2.

Table 1-2-2: Comparing OA goals and Objectives Worksheet Sample

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
VISION	Safer, Simpler, Smarter Transportation Solution	Our job is to make a difference every day. Our vision is to improve the safety and efficiency of aviation, while being responsive to our customers and accountable to the public.	Improving transportation for a strong America		A visionary and vigilant DOT leading the way to transportation excellence in the twenty-first century.	Global leader in motor vehicle and highway safety.		A maritime system that serves America with American ships and American labor.		
MISSION	To develop and administer policies and programs that contribute to providing fast, safe, efficient, and convenient transportation at the lowest cost consistent with the national objectives of general welfare, economic growth and stability, the national security, and the efficient use and conservation of the resources of the United States	Our mission is to provide the safest, most efficient aerospace system in the world. Moving America safely. It's what we do.	Enhancing Mobility Through Innovation, Leadership, and Public Service.	Our primary mission is to reduce crashes, injuries, and fatalities involving large trucks and buses.	Serve the United States by ensuring a safe transportation system that furthers our vital national interests and enhances the quality of the life of the American people.	Save lives, prevent injuries, reduce vehicle-related crashes.	Improve public transportation for America's communities.	Promotes the development and maintenance of an adequate, well-balanced US merchant marine, sufficient to carry the Nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of serving as a naval and military auxiliary in time of war or national emergency.	PHMSA is the federal agency charged with the safe and secure movement of almost 1 million daily shipments of hazardous materials by all modes of transportation. The agency also oversees the nation's pipeline infrastructure which accounts for 64 percent of the energy commodities consumed in the United States.	Foster innovations leading to effective, integrated, and intermodal transportation solutions.

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
SAFETY	Enhance public health and safety by working toward the elimination of transportation related deaths and injuries.	Increased Safety. Safety isn't just a public-interest priority; it's also an economic necessity. People fly only if they fee safe. They must trust the system and their trust must be upheld by constantly improving performance.	Safety: Implement countermeasures to reduce highway-related fatalities.	Commercial Motor Vehicle Safety: Save lives and reduce injuries by preventing truck and bus crashes. Hazardous Materials Safety: Reduce hazardous materials incidents involving trucks.	Safety. Promote the public health and safety by working toward the elimination of transportation-related deaths and injuries.	Enhance public health and safety by working toward the elimination of transportation related deaths and injuries.			Reduce the risk of harm to people due to the transportation of hazardous materials by pipeline and other modes. Preparedness and Response: To reduce the consequences (harm to people, environment, and economic impacts) after a pipeline or hazmat failure has occurred.	Same as DOT
SECURITY	Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce	Included in Safety	National Homeland Security: Ensure the integrity and performance of the Nation's highway system in response to and recovery from all hazards including terrorism, promoting consistency with the National Response Plan and the National Infrastructure Protection Plan.	Hazardous Material Security: Reduce the vulnerability of commercial vehicle transportation of hazardous materials to threats of violence.	National Security. Ensure the security of the transportation system for the movement of people and goods, and support the National Security Strategy.	Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce		National Security: Assure that sufficient sealift capability and intermodal transportation infrastructure exists to support vital homeland and national security interests.		Same as DOT

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
MOBILITY	Advance accessible, efficient, intermodal transportation for the movement of people and goods.	Greater capacity. Increasing capacity is a double-edge sword. Air traffic is increasing rapidly, but growth must not interfere with passengers' abilities to reach their destinations on time. And this must not be done at the expense of the environment.	Mobility: Mitigate congestion and improve system reliability through actions targeted at key causes of congestion.	See "other"	Mobility. Shape an accessible, affordable, reliable transportation system for all people, goods, and regions.	Advance accessible, efficient, intermodal transportation for the movement of people and goods.	Position public transportation as the mode of choice in America.	Commercial Mobility: Promote and facilitate a United States waterborne transportation system that improves the safe and efficient movement of people and goods.	Reliability. To help maintain and improve the reliability of systems that deliver energy products and other hazardous materials.	Same as DOT
GLOBAL CONNECTIVITY	Facilitate a more efficient domestic and global transportation system that enables economic growth and development	International Leadership. Across the globe, aviation is a $1.4 trillion business. Given our expertise in operating the world's largest and most complex system, it's clear that in the aviation industry, safety is our most vital national export. We will enhance America's leadership role by sharing expertise and new technologies with our international partners. We aim to raise the level of safety everywhere planes fly.	Global Connectivity: Improve travel time reliability for freight movement at ports-of-entry and along corridors. Promote and facilitate a more efficient domestic and global transportation system that enables economic growth.			Facilitate a more efficient domestic and global transportation system that enables economic growth and development			To harmonize and standardize the requirements for pipeline and hazardous materials transportation internationally, to facilitate efficient and safe transportation through ports of entry and through the supply chain. We intent to reduce the number and impact of differing requirements.	Same as DOT

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
ENVIRONMENTAL STEWARDSHIP	Promote transportation solutions that enhance communities and protect the natural and built environment.	Included in Mobility	Environment: Promote and showcase environmental stewardship and ecosystem conservation initiatives in the Federal-aid Highway Program (FAHP) and Federal Lands Highway Program (FLHP).		Human and Natural Environment: Protect and enhance communities and the natural environment affected by transportation.	Promote transportation solutions that enhance communities and protect the natural and built environment.		Promote marine and intermodal transportation solutions that enhance environmental stewardship.	To reduce the risk of harm to the environment due to the transportation of oil and hazardous materials by pipeline and other modes.	Same as DOT
ORGANIZATIONAL EXCELLENCE	Advance the Department's ability to manage for results and achieve the goals of the President's Management Agenda.	The men and women of the FAA are committed to achieving these goals. To do so, the FAA must continually improve the way we train our employees and manage our finances. Last year's achievements are a benchmark for the next. This requires greater fiscal responsibility, stronger leadership, more cooperation, improved customer service, and performance-based management. Simply put, we need to operate like the world's finest bottom-line, cost-driven enterprises with top quality results.	Organizational Excellence: FHWA partnerships develop, maintain, and improve capability to deliver and steward the Federal Highway Administration Program with high performance and integrity.	Organizational Excellence: Support the President's Management Agenda (in the interest of furthering other goals/performance segments).	Organizational Excellence. Advance USDOT's ability to manage for results and innovation.	Advance the Department's ability to manage for results and achieve the goals of the President's Management Agenda.	Establish effective business processes and leverage technology Attract and retain the best people.	Advance the ability of the Maritime Administration to manage resources to accomplish measurable results and to achieve the goals of the President's Management Agenda.		Same as DOT

	DOT	OPERATING ADMINISTRATIONS								
		FAA	FHWA	FMSCA	FRA	NHTSA	FTA	MARAD	PHMSA	RITA
OTHER		Safety is our passion. We are the world leaders in aerospace safety. Quality is our trademark. We serve our country, our customers, and each other. Integrity is our character. We do the right thing even when no one is looking. People are our strength. We treat each other as we want to be treated.	Mobility and Productivity: Preserve, improve, and expand the Nation's highway transportation system while, at the same time, enhancing the operation of the existing highway system and intermodal connectors.	Commercial Motor Vehicle Productivity: Promote efficient and economical motor carrier operations to sustain mobility and economic growth. (Refers specifically to enforcement, compliance with regulations and consumer education and information related to the transport of household goods.	Economic Growth: Support a transportation system that sustains America's economic growth.		Deliver products and services that are valued by FTA customers.			

APPENDIX 1-3: COMMUNICATION SAMPLES

STEP 1: Identify Strategic Direction

Overview
DOT is conducting a Workforce Analysis Pilot Project and needs your help. The purpose of the pilot project is to establish a practical, repeatable methodology for evaluating the workforce. The primary goals of the pilot project are to:

- Determine a process or methodology to systematically evaluate all the mission critical occupations to ensure that employees have the skills they need to do their jobs; the competency assessment is part of this process
- Identify the best way to close skill gaps; e.g., training, education, recruitment, retention, succession planning, etc.
- Look at DOT across all the OAs rather than just individual OAs
- Look at organizations rather than just individuals

The Cross-Functional Workgroup needs your participation in reviewing and validating information and participating in focus groups so we can understand what you need to do your job. As a subject matter expert, you also play a key role in developing a meaningful process.

The hope is that the resulting methodology and analysis will provide you and your leadership with information to better understand your role in the organization and the competencies or skills required to be successful. With this information, you and your managers can identify the best way to enhance your ability to do your job, prepare you for advancing in your career, and prepare you in advance for future changes in the work. Looking at the whole organization will ensure that you and your colleagues have the right balance of skills so that you can work together successfully.

Background
To reach these goals, the Deputy Secretary of the DOT established a Workforce Analysis Executive Steering Committee in the fall of 2005. This Committee is composed of the Deputy Administrators from each Operating Administration (OA) and is focused on understanding the transportation workforce of today to help make informed decisions about the workforce of tomorrow. The Steering Committee has two working groups—the Cross Functional Work Group and the Communications Team—composed of human resource officials from each OA.

The Executive Steering Committee chose the four engineering series—0801 General Engineers, 0810 Civil Engineering, 0830 Mechanical Engineering, and 0855 Electronics Engineering—from the DOT Engineering Family for evaluation in the pilot process primarily because they are:

- Acceptable to involved OAs
- Present in all OAs
- Range across multiple skill levels

- Not subject to Lines of Business migration (e.g., HR, Procurement, IT, and Financial Mgt)
- Competency standards are readily available
- Able to leverage core competencies across multiple occupations

The plan is to repeat the methodology to evaluate all of the mission critical occupations.

STEP 5: Identify Competencies for the MCO to Perform Successfully

Email to the SMEs

Welcome to the cross functional work group. The task of your group is to determine the competencies for the engineering job classes (Civil, Mechanical, Electronic and General).

You have been selected as a subject matter expert (SME) because of your expertise in your job class and functions. As an engineering SME, we are asking for your assistance in determining the competencies that are required for success as an engineer in the DOT.
There are three main steps in this effort:

- Validation of the job functions (no more than 2 hours) (via this email, due by March 14th)
- Review and approval of the competency requirements by job function (via focus group, March 19th 2-4pm, 3328)
- Finalize the competencies included in the DOT engineering assessment (via email, due March 27th)

This email covers the first step in that process which is to validate the job functions of people serving in engineering roles. The job functions, included here as a starting point, were based on information provided by DOT engineers in these job classes.

Detailed instructions on this validation process are included in the ***Directions*** tab of the attached spreadsheet (Engineering Functions Validation).

Please return the results of your review to _____ via email at _____ on or before March 14th.

We will bring the consolidated feedback plus an analysis of the competencies required for success for each Engineering Classification to the SME focus group on March 19 from 2-4pm in room 3328. We hope that all of you will be able to attend that session as well. However, we do understand that in some cases this will not be possible and will provide you with one more chance to review the outcome of the focus group session. This will be managed via an email or survey effort after the focus group session.

APPENDIX 2-1: WORKFORCE PLAN REVIEW WORKSHEET

This worksheet is an example of how to effectively review a document in detail for use during analysis. Using this table structure as a guide, the analyst can compile information throughout the process by adding additional columns as needed. The sample shows data separated out to determine the workforce profile. The comments/questions column can be a repository for thoughts, question, and tasks throughout the analysis.

The table can be developed in MSWord and can be developed in a legal (81/2 by 14) or ledger size (11 x 17) to facilitate looking at all the information across one page.

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Executive Summary	Average employee age remained stable at **46.7**	• Average employee age • Trend analysis 2005-2006 • Compared to federal civilian workforce	• How long should the trend analysis be for? This looks like it is just from last year—need to check; the Exec Summary talks about two years but the data in Chapter 2 compares three years • Was not compared to the federal workforce • How does that compare to the MCO under review?
Executive Summary	Average grade remained the same at 12.6 (compared to the Federal Average of 10.0)	• Average grade • Trend analysis 2005-2006 • Compared to federal civilian workforce	• Was this average federal grade or federal civilian workforce; need to check in the document. • How does that compare to the MCO under review?
Executive Summary	Average salary rose approximately 3.3% to $99,000	• Average salary • Trend analysis 2005-2006 • Compared to federal civilian workforce	• How does that compare to the MCO under review?
Executive Summary	Percentage of supervisors declined slightly to 15.2%	• Percentage of supervisors to employees	• Who does the term supervisor include? • How does that compare to the MCO under review?
Executive Summary	Representation of all women remained stable at 26.6%, lower than the representation of 43.0% in the Federal civilian workforce overall Meets Goal 2, Strategy 1: Emphasize Diversity needs when prioritizing outreach options—Progress in outreach to women and minorities	• Percentage of women • Trend analysis 2005-2006 • Compared to federal civilian workforce	• How does that compare to the MCO under review? • • Note: This goal is for the old DOT Strategic Plan, need to see where this fits in the new plan.

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Executive Summary	Representation of all minorities increases slightly to 22.2 %, lower than the representation of 33.8% in the Federal civilian workforce overall Meets Goal 2, Strategy 1: Emphasize Diversity needs when prioritizing outreach options—Progress in outreach to women and minorities	• Percentage of minorities • Trend analysis 2005-2006 • Compared to federal civilian workforce	• How does that compare to the MCO under review? • • Note: This goal is for the old DOT Strategic Plan, need to see where this fits in the new plan.
Executive Summary	Representation of veterans decreased slightly but remained robust at 27.6% (down from 28.3%)	• Percentage of veterans • Trend analysis 2005-2006 •	• How does that compare to the MCO under review?
Executive Summary	Turnover: Separations from DOT (all reasons) outpaced new hires by a ratio of almost 3:1; During FY 2006 hiring was effectively frozen for most of the fiscal year during the continuing budget resolution while retirement continued. A strategic reduction due to Competitive Sourcing at FAA further increased the rate of turnover.	• Turnover • Trend analysis	• How does that compare to the MCO under review?
Executive Summary	Workforce projections: the total DOT workforce will **decline by about 8%** over the next four years. MCOs including leaders, Program Mangers, and Engineers will be the most heavily impacted	• Workforce projections	• Need to look at this in Step 4; this is based on all factors staying the same;
Executive Summary	Workforce challenges to be monitored: increase hiring at entry levels 20% of all new hires in FY 2006 were below the age of 29, compared to 26.8% of the new hires in 2005. This hiring trend compounds the overall aging of the DOT Workforce	• Percentage of new hires below the age of 29	•
Executive Summary	Workforce challenges to be monitored: pulse check on diversity Representation of minorities and people with disabilities remained relatively stable as the overall DOT workforce decreased in size	• Percentage of persons with disabilities • Trend analysis • • Percentage of persons with targeted disabilities	• What are the targeted disabilities?

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Executive Summary	Workforce challenges to be monitored: manage succession planning DOT published, and OPM accepted, the Executive Succession Planning Report OAs have established their bench strength and reached milestones in the areas of accountability, communications, senior level commitment and measuring the effectiveness of Succession Planning activities	•	•
Introduction	Integrating its human capital efforts with those of other PMA initiatives, smart competitive sourcing, improved financial performance, better budget and performance integration, and expanded electronic government	•	• How is DOT doing this?
Introduction	The 2007 workforce Analysis has been developed with specific attention to the definition of Workforce Planning in the HCAAF The organization identifies the human capital required to meet organizational goals conducts analyses to identify competency gaps, develops strategies to address human capital needs and close competency gaps, and ensures the organization is appropriately structured.	•	• How is DOT doing this?
Introduction	Strategic Alignment Table;	•	•
Introduction	Workforce plan used current Bureau of Labor, OPM and Equal Employment Opportunity Commission data on the U.S. Civilian workforce.	•	•
Introduction	Each OA has formal plans in place and provides quarterly updates on vacancy forecasts	•	• May want to look at the vacancy information during the analysis • Consider as part of the “dashboard” metrics

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Introduction	OST coordinates OA efforts through the Program Manger for Recruiting: office maintains data on candidate pools, outreach efforts, and applicant pools (including data management through Quickhire)	•	• What kind of data is available from this central office?
Introduction	The DOT-wide Human Capital Council, composed of workforce planning specialists from every OA, reports quarterly on full-time equivalents, anticipated changes, and anticipated structure needs and changes	•	• What does Departmental HR do with this information? Budget issues?
Introduction	**Methodology and Assumptions:** The source of all data was the Civilian Personnel Data File (CPDF) as of month end September 2006 (ME Sep06)	•	• Why don't they just say September 30, 2006? • When we started the workforce analysis process, we used FPPS data because there was concern that the CPDF data was not up-to date. How reliable is CPDF data; what are the issues surrounding the reliability of the data
Introduction	**Methodology and Assumptions:** The eHRI Tools, Workforce Analysis Support System (WASS) and Civilian Forecasting System (CIVFORS) are used to draw data and forecasts trends for five year window form the CPDF data source.	• Five year forecasts	• If CIVFORS uses five year data to make 7 year projects; how do the timeline events impact the reliability of the projections.
Introduction	**Methodology and Assumptions:** The FY 2006 employee turnover has been analyzed using specific, identifiable "nature of action" codes. However, due to the transition within CIVFORS during FY2006, demographic codes are not available for every employee who terminated. This has limited the ability to make comprehensive comparisons to turnover in from FY2005 to 2006. In addition, due to requirement of the CIVFORS tool, the forecast for future turnover included unidentified personnel actions in the calculation basis. Some demographic breakdowns were not available in WASS when analyzing Nature of Action codes against the new ERI codes.	•	• Look up the set of nature of action codes; understand how the differences in data impact the validity of the data

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Introduction	**Methodology and Assumptions:** Only permanent employees on full-time or part-time work schedules are included in counts.	•	• How many temporary or intermittent employees are in the Department? Is this something that should be looked at? • This is discussed on page 21 under seasonal employees
Introduction	**Methodology and Assumptions:** Workforce strength is based on counts of those actually on board, not on authorized full-time equivalent (FTE) allocations.	•	• Can we get the authorized FTE numbers? This question was asked earlier and it was said that this information was not available—need to ask again.
Introduction	**Methodology and Assumptions:** Unless otherwise noted, analyses and forecasts are not broken out by OA, but are based on the entire DOT workforce.	•	• For use in managing human capital, this data may not be meaningful at the DOT workforce level except used as a comparison, even then the averages are probably not that meaningful to the OAs. Need to look at how the OAs really uses this data. • • How much does the FAA data influence the averages? • How different are the averages when FAA data is excluded? • This data is supposed to be available for all OAs to use in HC planning; should more data be broken out by OA? Would this help the OAs or do they run their own analyses anyway? • In looking for differences and similarities between OAs; we will need to break out the data by OA and overlay it for easier comparison.
Introduction	**Methodology and Assumptions:** SES members are included in counts and data analysis, unless specifically excluded	•	•
Introduction	**Methodology and Assumptions:** People with targeted disabilities have not been shown separately from people with (all) disabilities in workforce projections and the numbers are too small to be usable in statistical calculations.	•	•

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Introduction	**Methodology and Assumptions:** Where percentages are shown, numbers may not add due to rounding.	•	•
Introduction	**Methodology and Assumptions:** Population breakouts by demographic category were developed using the WASS tool. A more detailed analysis, originally to have been prepared utilizing the Department's new subscription to the Visual powerfiles for EEO (VPEEO) system, is not possible. VPEEO was found to be inadequate, and was discontinued during FY 2006.	•	• Does the EEO office maintain data that may be helpful in understanding the workforce? • Can we get the number of EEO complaints and how they were resolved? With lower representation of women and minorities in the Department, are there any underlying discrimination issues that may need to be addressed?
Introduction	**Methodology and Assumptions:** Forecasts are based on two assumptions: (1) current budget and FTE levels would be maintained into the future; and (2) core competencies would remain the same as they are today. Core competencies may b added or adjusted in subsequent plan years.	•	• Are forecasts ever run based on a decreasing or increasing budget and FTE count? • Based on knowledge of internal/external factors, we might be able to project an increase or a decrease.
Introduction	**Methodology and Assumptions:** The OPM website, Federal Employment Statistics (www.opm.gov/feddata), is the source for comparative government-wide numbers and statistics. The most recent data available are for 2004. The EOC Annual Report (June 2006) is the source of some additional government-wide statistics.	•	•
	Planning environment:	•	• What factors should the 2008 update account for? • Need to capture the external and internal factors in the DOT 2007-2011 and OA strategic plans to determine how they will impact planning environment for analysis purposes.
Introduction	**Planning environment:** Depleted Funding Streams, DOT has experienced flat appropriations Aviation and Highway Trust funds have experienced declining balances	•	• How do annual salary increases impact the overall budget with flat appropriations?

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
	Planning environment: Workforce attrition. Employee terminations from all sources outpaced new hires by a ratio of almost 3:1.	•	• Is "terminations" the appropriate word here? Should this be separations?
	Planning environment: Continuing shift from "doing" to "managing" DOT will deploy additional contract help as a strategy to respond to reduced budgets or FTE and to insure the latest technology is available Increased need for Project Managers and contracting officials Emphasis on project management, contract management, and oversight competencies in the current workforce Project Manager group of employee has one of the highest retirement eligibility rates among MCO in the Department	•	• This is more rationale for showing the contractor workforce as part of the workforce profile.
	Planning environment: Federal Government as a desirable workplace	•	• How does this impact workforce analysis? What type of recruiting and retention information would be useful? • Does the HC survey address this issue? Would the results of the survey provide information
	Planning environment: Diversifying workforce Sources and methods of recruiting New employee orientation, retention, and positioning for success	•	• What kind of detail does HR track with regard to recruiting?
	Planning environment: National security Preparation for national emergencies.	•	•

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 1: DOT Current Workforce	52,520 employees at DOT 1,202 temporary personnel on a variety of appointments	• Total workforce strength • Number of temporary personnel	• What is the number of temporary, intermittent, and contract employees? •
Chapter 1, page 2 OAs, Chapter 1, Pages 3-6	Figure 1-1: Workforce Facts [for DOT] Figure 1-3: Workforce Facts by Operating Administration Workforce Facts: Total Number on Board Average Age Average Years of Service Average Grade Average Salary ($000) (Base Salary Only) Supervisor and Manger (Excludes Execs) Women All Minorities Employees with Disabilities Veterans	• Workforce Facts for DOT • Workforce Facts for each OA • • Total Number on Board • Average Age • Average Years of Service • Average Grade • Average Salary ($000) (Base Salary Only) • Supervisor and Manger (Excludes Execs) • Women • All Minorities • Employees with Disabilities • Veterans	• While the facts by OA was good, it was difficult to compare in this format; may want to overlay the information to make it more easy to analyze
Chapter 1, page 2	Figure 1-2 Workforce Strength for all DOT Bar chart showing number of FTE by OA	• •	• With FAA as the big gorilla, the smaller OAs are dwarfed on the bar chart. May need to show them without the FAA data.
Chapter 1, page 7	Figure 1-4: Key Events Timeline FAA competition	• Key events Timeline	• Where is FAA in the transitioning employees out of FAA?
Chapter 1, page 8	Figure 1-5: Age distribution of employees The percentage of older employee is increasing, while the percentage of younger employees is decreasing DOT employees are slightly older on average than other federal government employees	• Age distribution of employees over time	• What are the factors that are contributing to this decrease in younger employees? • Is there data that can shed light on why this is happening? •
Chapter 1, page 9	Figure 1-6: DOT Employees Eligible for Retirement	• DOT Employees Eligible for Retirement by CSRS and FERS	• Good chart.

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 1, page 9	Figure 1-7: Retirement Eligibility by SES, Manger/Supervisor and DOT MCO	• Retirement Eligibility by SES, Manger/Supervisor and DOT MCO	• Great chart
Chapter 1, pages 10-12	Figure 1-8: Age vs. Years of Service	• Number of employees by Age by Years of Service	• Interesting, but in general this chart is difficult to look at and understand what it means. Need to determine if there is a better way to present this information.
Chapter 1, page 13	Figure 1-9; Pay distributions DOT wide Number of Employees by Grade, unspecified, grades 0-15, SES, Wage Grade	• Number of Employees by Grade,	• Need to convert the FAA pay scale to GS equivalents
Chapter 1, page 14	Figure 1-10: Race, National Origin, and Gender	• Number of Employees by Race, National Origin, and Gender	• Good chart but a little difficult to read, need to think about how to make this better; maybe just left justifying the Race/National Origin labels would make it easier to read • • This information may be important when identifying SMEs for Step 5 •
Chapter 1, page 15	Figure 1-11: Race, National Origin, and Gender Representation of Mangers and Supervisors	•	• Given the number of engineers and other technical positions, should additional comparisons be made to understand why DOT is so much lower than the federal workforce average • • This information may be important when identifying SMEs for Step 5 •
Chapter 1, page 15	Minorities represented 56% of the candidates for employment at DOT on FY2005 and 33.8% in FY2006	• Percentage of employee candidates that are minorities	• The data may be misleading because 37.9% did not self-identify by race/national origin and are not included in the percentage reported
Chapter 1, page 16	Figure 1-12: Employee Representation by Grade by Race/National Origin	• Employee Representation by Grade by Race/National Origin	•

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 1, page 16	Geographic distribution of race/ethnic groups	• Employees by race/ethnic groups by location	•
Chapter 1, page 17	Representation of white men at DOT Singled out FAA success in achieving equity I all upper pay grades for Hispanic men Singled out FHWA	• Number of white men by manager/supervisor position or SES for all of DOT • • Number of white men by manager/supervisor position or SES by OA • •	•
Chapter 1, page 17	Representation of white women at DOT	• --Number of white women by manager/supervisor position or SES for all of DOT • --Number of white women by manager/supervisor position or SES by OA •	•
	Representation of minorities at DOT	• --Number of minorities (broken out) by manager/supervisor position or SES for all of DOT • --Number of minorities (broken out) by manager/supervisor position or SES by OA	•
	Representation of targeted disabilities at DOT	• --Number of targeted disabilities by manager/supervisor position or SES for all of DOT • --Number of targeted disabilities by manager/supervisor position or SES by OA	• 19 charts provide the workforce profile •
		• --New hires by race, origin, gender, persons with disabilities, veterans	•

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 1, page 18	Figure 1-13: Persons with Disabilities, 2004-2006	• Percentage of persons with all disabilities (includes targeted disabilities • Trend analysis 2004-2006 • Comparison to federal workforce	•
Chapter 1, page 19	Figure 1-14: Persons with disabilities by RNO and leader position	• Percentage of persons with all disabilities by race/national origin • • Percentage of persons with all disabilities by race/national origin and manager/supervisor and SES	•
Chapter 1, page 20	Figure 1-15: Veterans by RNO and Leader Position	• Percentage of veterans by race/national origin and manger/supervisor and SES •	•
Chapter 1, page 20	Figure 1-16: Veterans by Gender and Disability Status	• Percentage of veterans by gender and disability status	• Somewhat of a difficult chart to understand, unless you read the explanation carefully; “Total Strength” should be clarified to mean only veterans in the table.
Chapter 1, page 21	Figure 1-17: Seasonal Employees by OA Figure 1-18: Seasonal Employees by Occupational Series within SLSDC Figure 1-19: SLSDC Permanent Employees vs. Seasonal Employees Only SLSDC and FHWA have seasonal employees	• Number of seasonal employees by OA • Percentage of seasonal employees by OA • Seasonal Employees by Occupational Series by OA • Percentage of seasonal employees vs. permanent employees	•
Chapter 3, page 2	Figure 2-1: Internally Designated Mission Critical Occupations: Representation September 30, 2006 Pie chart 78% of the DOT workforce is designated as an MCO	• Percentage of MCOs vs. total workforce strength • Percentage of MCOs by MCO	•
Chapter 3, page 5	Figure 2-2: LEADERS: Representation by OA as of September 30, 2006	• Number of MCO Leaders by OA (total strength) • Number/percentage of MCO Leaders by OA by persons with targeted disabilities • Number/percentage of MCO leaders by	• This did not break out the percentage of women; maybe it should • • The 2005 total should probably be shaded on the chart to show

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
		OA by person with disabilities • Number/percentage of MCO leaders by OA by veterans	
Chapter 3, page 5	Figure 2-2a: Leadership Pipeline Demographics: Gender and Race/National Origin	•	• Since pipeline is a term used by PHMSA, maybe another term should be used.
	Figure 2-2b: Leadership Pipeline Demographics: Attrition	•	• Footnote 33 is in the wrong place.
Chapter 2, page 15	Provides the profile of a typical Transportation IT worker Classifies as a GS-0334 Male White (non-Hispanic) 51-55 years old Grade level of GS-13/14 Has over 11 years of public sector experience Has less than three years public sector experience Able to retire in the next 11-20 years Holds a bachelors degree This data came from the Federal IT Workforce Capability Planning and Analysis Tool (CPAT)	• MCO by • Occupational Series •	•
Chapter 2	Figure 2-11: Information Technology Family by OA	• Number of IT MCO by OA (total strength) • IT MCO Average Age by OA • Number/percentage of IT MCO Manager/Supervisor • Number/percentage of IT MCO Persons with targeted disabilities • Number/percentage of IT MCO persons with disabilities • Number/percentage of IT MCO veterans	• No number of women; is there a reason why • Did not include Years of Service, retirement eligibility, or other typical profile data—is there a reason why? • Why not a repeat of workforce facts? •

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 2, page 22	Figure 2-18: Human Capital Family	• Number of HC MCO by OA (total strength) • HC MCO Average Age by OA • Number/percentage of HC MCO Manager/Supervisor by OA • Number/percentage of HC MCO Persons with targeted disabilities by OA • Number/percentage of HC MCO persons with disabilities by OA • Number/percentage of HC MCO veterans by OA	•
Chapter 2, page 27	Figure 2-21: Representation of Engineering Family (All DOT)	• Number of Engineering MCO by OA (total strength) • Engineering MCO average age by OA • Number/percentage of Engineering MCO Manager/Supervisor by OA • Number/percentage of Engineering MCO persons with targeted disabilities by OA • Number/percentage of Engineering MCO persons with disabilities by OA • Number/percentage of Engineering MCO veterans by OA	• Inconsistent table titles
Chapter 2, page 27	Acquisition management professionals Figure 2-22: Representation of Management/Contracting Professional	• Same data as above	• Formatting: The title of the tables are inconsistent
Chapter 2, page 28	Figure 2-23: Representation of Community Planning Family Occupational series 0020	• Same data as above	• Inconsistent table titles
Chapter 2, page 29	Figure 2-24: Representation of Program Management Family by OA	• Same data as above	• Inconsistent table titles
Chapter 2, page 31	Figure 2-25: Representation of Financial Management Family by OA	• Same data as above	•

DOT WORKFORCE PLAN REFERENCE	REVIEW NOTES	CURRENT WORKFORCE PROFILE DATA	COMMENTS/QUESTIONS
Chapter 2, page 31	Figure 2-26: Representation of Legal Family by OA	• Same data as above	•
Chapter 2, page 34	Figure 2-27: Representation of Physical Scientist Job Family by OA	• Same data as above	• Inconsistent table titles
Chapter 2, page 35	Figure 2-28: Representation of Transportation Specialist Family by OA	• Same data as above	•
Chapter 2, page 35	Figure 2-29: Representation of Transportation Industry Analyst by OA	• Same data as above	• Where is “family”-- inconsistent table titles
Chapter 2, page 37	Figure 2-30: Representation of Transportation Safety Family by OA	• Same data as above	•
		•	• Need to clearly distinguish between federal civilian workforce and federal workforce

APPENDIX 2-2: WORKFORCE PROFILE ANALYSIS WORKSHEET

This worksheet presents a systematic approach to querying and analyzing the workforce data one characteristic at a time. Although, some of the queries may seem repetitious, this is the nature of analysis. The same data is looked at multiple times in different groupings and contexts. The worksheet shows the same analysis DOT-wide and by OA. In addition, each of the data points is analyzed for trends, which is discussed in *Step 2-B: Identify general workforce trends*.

Acronyms used in the worksheet:

FTE-Full-time equivalents
MCO-Mission critical occupation
PWD-Persons with disabilities
PWD-Persons with targeted disabilities
RNO-Race/ national origin

NOTE: The MCO Leaders include executives, mangers, and supervisors; this is different from the queries for SES and Mangers/Supervisors

NOTE: Numbers and percentages are often interchangeable depending on the analysis objectives.

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
Numbers of FTE Permanent Full-Time, Part-Time	– Number of FTE/ trend – Number of FTE by OCC series(job family)/ trend – Number of FTE by MCO/ trend – Number of FTE by location/ trend – Number of FTE by OA/ trend – Number of FTE by SES/ trend – Number of FTE by mgrs/supvrs/ trend – Number of FTE by gender/ trend – Number of FTE by RNO/ trend – Number of FTE by PWD/ trend – Number of FTE by PWTD/ trend – Number of FTE by veteran/ trend – Number of FTE by age/ trend – Number of FTE by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Number of FTE/ trend – Number of FTE by OCC series(job family)/ trend – Number of FTE by MCO/ trend – Number of FTE by location/ trend – Number of FTE by OA/ trend – Number of FTE by SES/ trend – Number of FTE by mgrs/supvrs/ trend – Number of FTE by gender/ trend – Number of FTE by RNO/ trend – Number of FTE by PWD/ trend – Number of FTE by PWTD/ trend – Number of FTE by veteran/ trend – Number of FTE by age/ trend – Number of FTE by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Number of FTE (other than full-time, part-time)	– Number of Temp employees/ trend – Number of Temp employees by OCC series(job family)/ trend – Number of Temp employees by MCO/ trend – Number of Temp employees by location/ trend – Number of Temp employees by OA/ trend – Number of Temp employees by mgrs/supvrs/ trend – Number of Temp employees by gender/ trend – Number of Temp employees by RNO/ trend – Number of Temp employees by PWD/ trend	– Number of Temp employees/ trend – Number of Temp employees by OCC series(job family)/ trend – Number of Temp employees by MCO/ trend – Number of Temp employees by location/ trend – Number of Temp employees by OA/ trend – Number of Temp employees by mgrs/supvrs/ trend – Number of Temp employees by gender/ trend – Number of Temp employees by RNO/ trend – Number of Temp employees by PWD/ trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
	– Number of Temp employees by PWTD/ trend – Number of Temp employees by veteran/ trend – Number of Temp employees by age/ trend – Number of Temp employees by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Number of Temp employees by PWTD/ trend – Number of Temp employees by veteran/ trend – Number of Temp employees by age/ trend – Number of Temp employees by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Vacancies	– Number of vacancies/ trend – Number of vacancies by OCC series(job family)/ trend – Number of vacancies by MCO/ trend – Number of vacancies by location/ trend – Number of vacancies by OA/ trend – Number of vacancies by SES/ trend – Number of vacancies by mgrs/supvrs/ trend – Number of vacancies by PWD/ trend (if there are designated positions for them) – Number of vacancies by PWTD/ trend (if there are designated positions for them) – Number of vacancies by age/ trend – Number of vacancies by YOS/ trend – Compared to federal civilian workforce/ trend	– Number of vacancies/ trend – Number of vacancies by OCC series(job family)/ trend – Number of vacancies by MCO/ trend – Number of vacancies by location/ trend – Number of vacancies by OA/ trend – Number of vacancies by SES/ trend – Number of vacancies by mgrs/supvrs/ trend – Number of vacancies by PWD/ trend (if there are designated positions for them) – Number of vacancies by PWTD/ trend (if there are designated positions for them) – Number of vacancies by age/ trend – Number of vacancies by YOS/ trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Occupational Series (Job family)	– Percentage of FTE by OCC series (job family)/ trend – Percentage of vacancies by OCC series (job family)/ trend – Average grade by OCC series (job family)/ trend – Average salary by OCC series (job family)/ trend – Percentage of RNO by OCC series (job family)/ trend – Percentage of SES by OCC series (job family)/ trend – Percentage of Manger/Supervisor by OCC series (job family)/ trend – Percentage of women by OCC series (job family)/ trend – Percentage of RNO by OCC series (job family)/ trend – Percentage of veterans by OCC series (job family)/trend – Percentage of PWD by OCC series (job family)/trend – Percentage of PWTD by OCC series (job family)/trend – Average age by OCC series (job family)/ trend – Average YOS by OCC series (job family)/ trend – Retirement eligibility by OCC series (job family)/ trend – Turnover by OCC series (job family)/ trend – New Hires by OCC series (job family)/ trend – Compare to DOT-wide – Compare to federal workforce	– Percentage of FTE by OCC series (job family)/ trend – Percentage of vacancies by OCC series (job family)/ trend – Average grade by OCC series (job family)/ trend – Average salary by OCC series (job family)/ trend – Percentage of RNO by OCC series (job family)/ trend – Percentage of SES by OCC series (job family)/ trend – Percentage of Manger/Supervisor by OCC series (job family)/ trend – Percentage of women by OCC series (job family)/ trend – Percentage of RNO by OCC series (job family)/ trend – Percentage of veterans by OCC series (job family)/trend – Percentage of PWD by OCC series (job family)/trend – Percentage of PWTD by OCC series (job family)/trend – Average age by OCC series (job family)/ trend – Average YOS by OCC series (job family)/ trend – Retirement eligibility by OCC series (job family)/ trend – Turnover by OCC series (job family)/ trend – New Hires by OCC series (job family)/ trend – Compare to DOT-wide – Compare to federal workforce

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
Grade	– Average grade/ trend – Average grade by OCC series(job family)/ trend – Average grade by MCO/ trend – Average grade by location/ trend – Average grade by OA/ trend – Average grade by SES/trend – Average grade by mgrs/supvrs/ trend – Average grade by gender/ trend – Average grade by RNO/ trend – Average grade by PWD/ trend – Average grade by PWTD/ trend – Average grade by veteran/ trend – Average grade by age/ trend – Average grade by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Average grade/ trend – Average grade by OCC series(job family)/ trend – Average grade by MCO/ trend – Average grade by location/ trend – Average grade by OA/ trend – Average grade by SES/trend – Average grade by mgrs/supvrs/ trend – Average grade by gender/ trend – Average grade by RNO/ trend – Average grade by PWD/ trend – Average grade by PWTD/ trend – Average grade by veteran/ trend – Average grade by age/ trend – Average grade by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Salary	– Average salary/ trend – Average salary by OCC series(job family)/ trend – Average salary by MCO/ trend – Average salary by location/ trend – Average salary by OA/ trend – Average salary by SES/trend – Average salary by mgrs/supvrs/ trend – Average salary by gender/ trend – Average salary by RNO/ trend – Average salary by PWD/ trend – Average salary by PWTD/ trend – Average salary by veteran/ trend – Average salary by age/ trend – Average salary by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Average salary/ trend – Average salary by OCC series(job family)/ trend – Average salary by MCO/ trend – Average salary by location/ trend – Average salary by OA/ trend – Average salary by SES/trend – Average salary by mgrs/supvrs/ trend – Average salary by gender/ trend – Average salary by RNO/ trend – Average salary by PWD/ trend – Average salary by PWTD/ trend – Average salary by veteran/ trend – Average salary by age/ trend – Average salary by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
SES	– Percentage of SES/ trend – Percentage of SES by OCC series(job family)/ trend – Percentage of SES by MCO/ trend – Percentage of SES by location/ trend – Percentage of SES by OA/ trend – Percentage of SES by mgrs/supvrs/ trend – Percentage of SES by gender/ trend – Percentage of SES by RNO/ trend – Percentage of SES by PWD/ trend – Percentage of SES by PWTD/ trend – Percentage of SES by veteran/ trend – Percentage of SES by age/ trend – Percentage of SES by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of SES/ trend – Percentage of SES by OCC series(job family)/ trend – Percentage of SES by MCO/ trend – Percentage of SES by location/ trend – Percentage of SES by OA/ trend – Percentage of SES by mgrs/supvrs/ trend – Percentage of SES by gender/ trend – Percentage of SES by RNO/ trend – Percentage of SES by PWD/ trend – Percentage of SES by PWTD/ trend – Percentage of SES by veteran/ trend – Percentage of SES by age/ trend – Percentage of SES by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
Manager/ supervisor	– Percentage of mgr/supvrs/ trend – Percentage of mgr/supvrs by OCC series(job family)/ trend – Percentage of mgr/supvrs by MCO/ trend – Percentage of mgr/supvrs by location/ trend – Percentage of mgr/supvrs by OA/ trend – Percentage of mgr/supvrs by gender/ trend – Percentage of mgr/supvrs by RNO/ trend – Percentage of mgr/supvrs by PWD/ trend – Percentage of mgr/supvrs by PWTD/ trend – Percentage of mgr/supvrs by veteran/ trend – Percentage of mgr/supvrs by age/ trend – Percentage of mgr/supvrs by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of mgr/supvrs/ trend – Percentage of mgr/supvrs by OCC series(job family)/ trend – Percentage of mgr/supvrs by MCO/ trend – Percentage of mgr/supvrs by location/ trend – Percentage of mgr/supvrs by OA/ trend – Percentage of mgr/supvrs by gender/ trend – Percentage of mgr/supvrs by RNO/ trend – Percentage of mgr/supvrs by PWD/ trend – Percentage of mgr/supvrs by PWTD/ trend – Percentage of mgr/supvrs by veteran/ trend – Percentage of mgr/supvrs by age/ trend – Percentage of mgr/supvrs by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Women	– Percentage of women/ trend – Percentage of women by OCC series(job family)/ trend – Percentage of women by MCO/ trend – Percentage of women by location/ trend – Percentage of women by OA/ trend – Percentage of women by SES/ trend – Percentage of women by mgrs/supvrs/ trend – Percentage of women by RNO/ trend – Percentage of women by PWD/ trend – Percentage of women by PWTD/ trend – Percentage of women by veteran/ trend – Percentage of women by age/ trend – Percentage of women by YOS/ trend – Percentage of women New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of women/ trend – Percentage of women by OCC series(job family)/ trend – Percentage of women by MCO/ trend – Percentage of women by location/ trend – Percentage of women by OA/ trend – Percentage of women by SES/ trend – Percentage of women by mgrs/supvrs/ trend – Percentage of women by RNO/ trend – Percentage of women by PWD/ trend – Percentage of women by PWTD/ trend – Percentage of women by veteran/ trend – Percentage of women by age/ trend – Percentage of women by YOS/ trend – Percentage of women New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Race/National Origin	– Percentage of RNO/ trend – Percentage of RNO by OCC series(job family)/ trend – Percentage of RNO by MCO/ trend – Percentage of RNO by location/ trend – Percentage of RNO by OA/ trend – Percentage of RNO by SES/ trend – Percentage of RNO by mgrs/supvrs/ trend – Percentage of RNO by gender/ trend – Percentage of RNO by PWD/ trend – Percentage of RNO by PWTD/ trend – Percentage of RNO by veteran/ trend – Percentage of RNO by age/ trend – Percentage of RNO by YOS/ trend – Percentage of RNO New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of RNO/ trend – Percentage of RNO by OCC series(job family)/ trend – Percentage of RNO by MCO/ trend – Percentage of RNO by location/ trend – Percentage of RNO by OA/ trend – Percentage of RNO by SES/ trend – Percentage of RNO by mgrs/supvrs/ trend – Percentage of RNO by gender/ trend – Percentage of RNO by PWD/ trend – Percentage of RNO by PWTD/ trend – Percentage of RNO by veteran/ trend – Percentage of RNO by age/ trend – Percentage of RNO by YOS/ trend – Percentage of RNO New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
Veterans	– Percentage of veterans/ trend – Percentage of veterans by OCC series(job family)/ trend – Percentage of veterans by MCO/ trend – Percentage of veterans by location/ trend – Percentage of veterans by OA/ trend – Percentage of veterans by SES/ trend – Percentage of veterans by mgrs/supvrs/ trend – Percentage of veterans by RNO/ trend – Percentage of veterans by PWD/ trend – Percentage of veterans by PWTD/ trend – Percentage of veterans by age/ trend – Percentage of veterans by YOS/ trend – Percentage of veterans New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of veterans/ trend – Percentage of veterans by OCC series(job family)/ trend – Percentage of veterans by MCO/ trend – Percentage of veterans by location/ trend – Percentage of veterans by OA/ trend – Percentage of veterans by SES/ trend – Percentage of veterans by mgrs/supvrs/ trend – Percentage of veterans by RNO/ trend – Percentage of veterans by PWD/ trend – Percentage of veterans by PWTD/ trend – Percentage of veterans by age/ trend – Percentage of veterans by YOS/ trend – Percentage of veterans New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Persons with Disabilities	– Percentage of PWD/ trend – Percentage of PWD by OCC series(job family)/ trend – Percentage of PWD by MCO/ trend – Percentage of PWD by location/ trend – Percentage of PWD by OA/ trend – Percentage of PWD by SES/ trend – Percentage of PWD by mgrs/supvrs/ trend – Percentage of PWD by RNO/ trend – Percentage of PWD by veteran/ trend – Percentage of PWD by age/ trend – Percentage of PWD by YOS/ trend – Percentage of PWD New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of PWD/ trend – Percentage of PWD by OCC series(job family)/ trend – Percentage of PWD by MCO/ trend – Percentage of PWD by location/ trend – Percentage of PWD by OA/ trend – Percentage of PWD by SES/ trend – Percentage of PWD by mgrs/supvrs/ trend – Percentage of PWD by RNO/ trend – Percentage of PWD by veteran/ trend – Percentage of PWD by age/ trend – Percentage of PWD by YOS/ trend – Percentage of PWD New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Persons with Targeted Disabilities	– Percentage of PWTD/ trend – Percentage of PWTD by OCC series(job family)/ trend – Percentage of PWTD by MCO/ trend – Percentage of PWTD by location/ trend – Percentage of PWTD by OA/ trend – Percentage of PWTD by SES/ trend – Percentage of PWTD by mgrs/supvrs/ trend – Percentage of PWTD by RNO/ trend – Percentage of PWTD by veteran/ trend – Percentage of PWTD by age/ trend – Percentage of PWTD by YOS/ trend – Percentage of PWTD New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of PWTD/ trend – Percentage of PWTD by OCC series(job family)/ trend – Percentage of PWTD by MCO/ trend – Percentage of PWTD by location/ trend – Percentage of PWTD by OA/ trend – Percentage of PWTD by SES/ trend – Percentage of PWTD by mgrs/supvrs/ trend – Percentage of PWTD by RNO/ trend – Percentage of PWTD by veteran/ trend – Percentage of PWTD by age/ trend – Percentage of PWTD by YOS/ trend – Percentage of PWTD New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Age	– Average age/ trend – Average age by OCC series(job family)/ trend – Average age by MCO/ trend – Average age by location/ trend	– Average age/ trend – Average age by OCC series(job family)/ trend – Average age by MCO/ trend – Average age by location/ trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
	– Average age by OA/ trend – Average age by SES/trend – Average age by mgrs/supvrs/ trend – Average age by gender/ trend – Average age by RNO/ trend – Average age by PWD/ trend – Average age by PWTD/ trend – Average age by veteran/ trend – Average age by YOS/ trend – Average age of New Hires/trend – Compared to federal civilian workforce/ trend	– Average age by OA/ trend – Average age by SES/trend – Average age by mgrs/supvrs/ trend – Average age by gender/ trend – Average age by RNO/ trend – Average age by PWD/ trend – Average age by PWTD/ trend – Average age by veteran/ trend – Average age by YOS/ trend – Average age of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Years of Service	– Average YOS/ trend – Average YOS by OCC series(job family)/ trend – Average YOS by MCO/ trend – Average YOS by location/ trend – Average YOS by OA/ trend – Average YOS by SES/trend – Average YOS by mgrs/supvrs/ trend – Average YOS by gender/ trend – Average YOS by RNO/ trend – Average YOS by PWD/ trend – Average YOS by PWTD/ trend – Average YOS by veteran/ trend – Average YOS by age/ trend – Average YOS New Hires/trend – Compared to federal civilian workforce/ trend	– Average YOS/ trend – Average YOS by OCC series(job family)/ trend – Average YOS by MCO/ trend – Average YOS by location/ trend – Average YOS by OA/ trend – Average YOS by SES/trend – Average YOS by mgrs/supvrs/ trend – Average YOS by gender/ trend – Average YOS by RNO/ trend – Average YOS by PWD/ trend – Average YOS by PWTD/ trend – Average YOS by veteran/ trend – Average YOS by age/ trend – Average YOS New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Retirement Eligible **Broken out by:** **Eligibility point** **CSRS** **FERS** **Year (distribution over time)**	– Retirement eligible/ trend – Retirement eligible by OCC series(job family)/ trend – Retirement eligible by MCO/ trend – Retirement eligible by location/ trend – Retirement eligible by OA/ trend – Retirement eligible by SES/trend – Retirement eligible by mgrs/supvrs/ trend – Retirement eligible by gender/ trend – Retirement eligible by RNO/ trend – Retirement eligible by PWD/ trend – Retirement eligible by PWTD/ trend – Retirement eligible by veteran/ trend – Retirement eligible by age/ trend – Retirement eligible by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Retirement eligible/ trend – Retirement eligible by OCC series(job family)/ trend – Retirement eligible by MCO/ trend – Retirement eligible by location/ trend – Retirement eligible by OA/ trend – Retirement eligible by SES/trend – Retirement eligible by mgrs/supvrs/ trend – Retirement eligible by gender/ trend – Retirement eligible by RNO/ trend – Retirement eligible by PWD/ trend – Retirement eligible by PWTD/ trend – Retirement eligible by veteran/ trend – Retirement eligible by age/ trend – Retirement eligible by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Turnover **(Total)**	– Percentage of attrition/ trend – Percentage of attrition by OCC series(job family)/ trend – Percentage of attrition by MCO/ trend	– Percentage of attrition/ trend – Percentage of attrition by OCC series(job family)/ trend – Percentage of attrition by MCO/ trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
	– Percentage of attrition by location/ trend – Percentage of attrition by OA/ trend – Percentage of attrition by SES/trend – Percentage of attrition by mgrs/supvrs/ trend – Percentage of attrition by gender/ trend – Percentage of attrition by RNO/ trend – Percentage of attrition by PWD/ trend – Percentage of attrition by PWTD/ trend – Percentage of attrition by veteran/ trend – Percentage of attrition by age/ trend – Percentage of attrition by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of attrition by location/ trend – Percentage of attrition by OA/ trend – Percentage of attrition by SES/trend – Percentage of attrition by mgrs/supvrs/ trend – Percentage of attrition by gender/ trend – Percentage of attrition by RNO/ trend – Percentage of attrition by PWD/ trend – Percentage of attrition by PWTD/ trend – Percentage of attrition by veteran/ trend – Percentage of attrition by age/ trend – Percentage of attrition by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
Turnover Broken out by Nature of Action Codes	– Percentage of attrition/ trend – Percentage of attrition by OCC series(job family)/ trend – Percentage of attrition by MCO/ trend – Percentage of attrition by location/ trend – Percentage of attrition by OA/ trend – Percentage of attrition by SES/trend – Percentage of attrition by mgrs/supvrs/ trend – Percentage of attrition by gender/ trend – Percentage of attrition by RNO/ trend – Percentage of attrition by PWD/ trend – Percentage of attrition by PWTD/ trend – Percentage of attrition by veteran/ trend – Percentage of attrition by age/ trend – Percentage of attrition by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend	– Percentage of attrition/ trend – Percentage of attrition by OCC series(job family)/ trend – Percentage of attrition by MCO/ trend – Percentage of attrition by location/ trend – Percentage of attrition by OA/ trend – Percentage of attrition by SES/trend – Percentage of attrition by mgrs/supvrs/ trend – Percentage of attrition by gender/ trend – Percentage of attrition by RNO/ trend – Percentage of attrition by PWD/ trend – Percentage of attrition by PWTD/ trend – Percentage of attrition by veteran/ trend – Percentage of attrition by age/ trend – Percentage of attrition by YOS/ trend – Number of New Hires/trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend
New Hires (Total)	– Percentage of new hires/ trend – Percentage of new hires by OCC series(job family)/ trend – Percentage of new hires by MCO/ trend – Percentage of new hires by location/ trend – Percentage of new hires by OA/ trend – Percentage of new hires by SES/trend – Percentage of new hires by mgrs/supvrs/ trend – Percentage of new hires by gender/ trend – Percentage of new hires by RNO/ trend – Percentage of new hires by PWD/ trend – Percentage of new hires by PWTD/ trend – Percentage of new hires by veteran/ trend – Percentage of new hires by age/ trend – Percentage of new hires by YOS/ trend – Compared to federal civilian workforce/ trend	– Percentage of new hires/ trend – Percentage of new hires by OCC series(job family)/ trend – Percentage of new hires by MCO/ trend – Percentage of new hires by location/ trend – Percentage of new hires by OA/ trend – Percentage of new hires by SES/trend – Percentage of new hires by mgrs/supvrs/ trend – Percentage of new hires by gender/ trend – Percentage of new hires by RNO/ trend – Percentage of new hires by PWD/ trend – Percentage of new hires by PWTD/ trend – Percentage of new hires by veteran/ trend – Percentage of new hires by age/ trend – Percentage of new hires by YOS/ trend – Compared to federal civilian workforce/ trend – Compared to DOT wide/trend – Compared to other OAs/trend

WORKFORCE CHARACTERISTICS	DOT WIDE ANALYSIS	BY OA ANALYSIS
New Hires (by specific age groups; e.g., under 29)	– Number of new hires below the age of 29/ trend – Percentage of new hires (<29) by MCO/ trend – Percentage of new hires (<29) by OCC series (job family)/ trend – Percentage of new hires (<29) by OA/ trend – Percentage of new hires (<29) by location/ trend – Percentage of new hires (<29) by grade/ trend – Percentage of new hires (<29) by salary/ trend – Percentage of new hires (<29) by mgr/supervisor/ trend – Percentage of new hires (<29) by gender/ trend – Percentage of new hires (<29) by RNO/trend – Percentage of new hires (<29) by PWD/ trend – Percentage of new hires (<29) by PWTD/ trend – Percentage of new hires (<29) by veteran/ trend – Compare to federal civilian workforce/trend	– Number of new hires below the age of 29/ trend – Percentage of new hires (<29) by MCO/ trend – Percentage of new hires (<29) by OCC series (job family)/ trend – Percentage of new hires (<29) by OA/ trend – Percentage of new hires (<29) by location/ trend – Percentage of new hires (<29) by grade/ trend – Percentage of new hires (<29) by salary/ trend – Percentage of new hires (<29) by mgr/supervisor/ trend – Percentage of new hires (<29) by gender/ trend – Percentage of new hires (<29) by RNO/trend – Percentage of new hires (<29) by PWD/ trend – Percentage of new hires (<29) by PWTD/ trend – Percentage of new hires (<29) by veteran/ trend – Compare to federal civilian workforce/trend

APPENDIX 2-3: FEDSCOPE DATA DEFINITIONS

This Appendix provides FedScope Data Definitions for easy reference. Additional information on FedScope can be obtained from http://www.fedscope.opm.gov.

FEDSCOPE DATA	
Accessions	A personnel action resulting in the addition of an employee to an agency's staff. For the purposes of FedScope, restorations and returns to duty are excluded.
Transfers-in	Movement of a single employee, or group of employees, from another agency with a break in service of 3 days or less.
Individual transfer	Transfer-in of an individual employee.
Mass Transfer	Transfer-in of a group whose function was transferred to another agency.
New hires	Appointment of an employee from outside of the Federal government; a transfer-in from an Excepted Service position or a transfer-in from one type of Federal service to another (e.g. left a Competitive Service position in one agency to take an Excepted or Senior Executive Service position at another agency).
Competitive service appointment	Appointment to a position that is governed by civil service law, but not a part of the Senior Executive Service (SES)
Expected service appointment	Appointment to a position that is not part of the Competitive Service or Senior Executive Service. These positions are exempt by law, Executive order, and OPM regulation.
Senior Executive Service	Appointment to a managerial or supervisory position above the GS-15 level in which the employee performs executive functions. These positions do not require Presidential or congressional approval.
Age	An employee's age. Age is displayed in five-year intervals, except for an initial interval of less than 20 years and a final interval of 65 years or more.
Agency	The employing organization. Agencies are summarized into four categories: 1. Cabinet level departments 2. Large independent agencies (1000 or more employees) 3. Medium independent agencies (100 to 999 employees) 4. Small independent agencies (less than 100 employees) Data for specific agencies are obtained by drilling down within a category.
Average length of service	A measure representing the average number of years of Federal civilian employment and creditable military service.
Average salary	A measure representing the average adjusted basic pay, an annualized rate of pay. Adjusted basic pay is the sum of an employee's rate of basic pay and any locality comparability payment and/or special pay adjustment for law enforcement officers. An employee's actual earnings may be more or less than the annualized rate because of factors such as overtime, shift differentials, less than full time work, or leave without pay.
Employment	A measure representing the number of employees in pay status at the end of the quarter (or end of the pay period prior to the end of the quarter).
Ethnicity and Race Indicator	An employee's ethnicity and race identification as defined by the Office of Personnel Management (OPM). Ethnicity and Race Indicator (ERI) consists of one ethnicity category (Hispanic or Latino) and five race categories. All applicable categories may be selected, and at least one category must be selected. 1. Hispanic or Latino: A person of Cuban, Mexican, Puerto Rican, South or Central America, or other Spanish culture or origin, regardless of race. 2. American Indian or Alaska Native: A person having origins in any of the original peoples of North and South America, including central America, who maintains tribal affiliation or community attachment.

FEDSCOPE DATA	
	3. Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, the Philippine Islands, Thailand, and Vietnam. 4. Black or African American: A person having origins in any of the black racial groups of Africa. 5. Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. 6. White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
Gender	An employee's gender (male or female).
General Schedule (GS) and related grade	The GS grade for pay plans in the GS and Related pay plan category. GS and Related Grade is derived differently for the two groups that make up this category.
General Schedule and identical pay plans	The General Schedule and Related Grade is the actual grade of the pay plan. That is because these pay plans use the General Schedule grade structure to classify jobs.
Other related pay plans	The General Schedule and Related Grade will probably be something other than the actual grade of the pay plan. That is because these pay plans do not use the General Schedule grade structure to classify jobs. The General Schedule and Related Grade for these pay plans is derived from job analysis studies and/or algorithms that relate the grade and salary of other pay plans to the General Schedule and assign a General Schedule grade.
Length of Service	The number of years of Federal civilian employment and creditable military service. Length of service is grouped by five-year intervals, except for: a. the initial intervals of less than 1 year, 1-2 years, and 3-4 years and b. the final interval of 35 years or more.
Location	The official duty station of an employee. Locations in the United States are defined in terms of states and counties (or county equivalents). Locations outside the United States are defined in terms of countries and U.S. territories. Locations are summarized into three categories: 1. United States 2. U.S. Territories 3. Foreign Countries Detailed data are obtained by drilling down within a category. From the United States category, you can drill down to specific states. For security purposes, FedScope does not provide detailed location information for the: 1. Federal Bureau of Investigation (Justice Department) 2. Drug Enforcement Agency (Justice Department) 3. Bureau of Alcohol, Tobacco, and Firearms (Treasury/Treasury and Justice Department beginning in 2003) 4. Secret Service (Treasury/Homeland Security Department beginning in 2003); or 5. Bureau of the Mint (Treasury Department)
Metropolitan statistical area (MSAs)	The geographic area of an employee's official duty station, where the geographic area consists of a city and the surrounding counties (or portions of counties) that are economically and socially linked to that city, as defined by the Office of Management and Budget (OMB). Metropolitan statistical areas are grouped by name, plus a Not-an-MSA group. Data for a specific MSA are obtained by drilling down within the group. For security purposes, FedScope does not provide detailed location information for the: 1. Federal Bureau of Investigation (Justice Department) 2. Drug Enforcement Agency (Justice Department) 3. Bureau of Alcohol, Tobacco, and Firearms (Treasury/Treasury and Justice Department beginning in 2003) 4. Secret Service (Treasury/Homeland Security Department beginning in 2003); or

FEDSCOPE DATA	
	5. Bureau of the Mint (Treasury Department)
Occupation	An employee's occupation as defined by the Office of Personnel Management (OPM). Occupations are categorized by white collar and blue collar. Within these categories, occupations are further summarized by occupation families (i.e., the first two characters of the occupation code that identifies groups of related occupations). Data for specific occupations are obtained by drilling down within a category and family.
Occupational Category	Occupational categories are defined by the educational requirements of the occupation and the subject matter and level of difficulty or responsibility of the work. For a description of the occupational categories, see The *Guide to Personnel Data Standards.*
Pay plan and grade	The pay system and, where applicable, the grade used to determine an employee's basic pay rate. Grade denotes a hierarchical position in a pay plan and is sometimes referred to as level, class, rank, or pay band. Pay Plans are summarized into three categories that are each broken down into two additional categories. Data for specific pay plans are obtained by drilling down within a category. Data for specific grades are obtained by drilling down within a pay plan.
GS and related	
GS and identical	These pay plans use the General Schedule grade structure to classify jobs.
Other related	These pay plans do not use the General Schedule grade structure but their grades can be mapped to General Schedule grades.
Prevailing rates	
Federal Wage System (FWS)	These pay plans are covered by the Federal Wage System (FWS). The FWS covers most blue collar employees, who are paid at rates prevailing in the localities where they work.
Other prevailing rate	These pay plans are prevailing rate but outside the FWS.
Other	
Government-wide or multi-agency	These other pay plans are used by more than one agency.
Single agency	These other pay plans are used by only one agency.
Salary level	An employee's adjusted basic pay, which is an annualized rate of pay. Adjusted basic pay is the sum of an employee's rate of basic pay plus any locality comparability payment and/or special pay adjustment for law enforcement officers. Salaries are grouped by $10,000 intervals, except for an initial interval of less than $20,000 and a final interval of $180,000 or more. An employee's actual earnings may be more or less than the annualized rate because of factors such as overtime, shift differentials, less than full time work, or leave without pay.
Separations	A personnel action resulting in the loss of an employee from an agency's staff. For the purposes of FedScope, furloughs, suspensions, leave without pay, and placement in non-pay status for seasonal employees are excluded. The following types of separations are included.
Transfers-out	Movement of a single employee, or group of employees, to another agency with a break in service of 3 days or less.
Individual transfer	Transfer-out of an individual employee.
Mass transfer	Transfer-out of a group whose function was moved to another agency.
Quits	Voluntary resignation by an employee, abandoning one's position, joining the military, or failing to return from military furlough. Quits also include separations by the agency if an employee declines a new position or relocation.
Retirements	Separation entitling employee to immediate annuity.
Voluntary	Employee meets minimum age and service requirements for optional retirement.
Early out	Employee does not meet the minimum age and service requirements for optional retirement, but meets reduced age and service requirements for early retirement.
Disability	Employee is found to be disabled and meets the service requirement for

FEDSCOPE DATA	
	disability retirement.
Other	Employee is involuntarily separated and meets age and service requirements for discontinued service retirement, or employee attains age requiring mandatory retirement.
Reductions in force (RIF)	Employee separation resulting from lack of work or funds, abolition of position or agency, or personnel ceiling restrictions. Employees who resign after receipt of a RIF notice are included in this number.
Termination or removal (expired appointment/ other)	Termination of a nonpermanent employee due to expiration of appointment, work, or funds. This category includes terminations for some re-employed annuitants and Excepted Service employees.
Termination or removal (discipline/ performance)	Employee removal based on misconduct, delinquency, suitability, unsatisfactory performance, or failure to qualify for conversion to a career appointment. Includes those who resign upon receiving notice of action based on performance or misconduct.
Death	Employee loss of life.
Other separations	Separations not classified in one of the categories above.
Type of appointments	An employee's appointment in terms of permanence and competitiveness. Appointments are summarized into two categories: 1. Permanent 2. Non-permanent Data for specific types of appointments (competitive, excepted, and senior executive service) are obtained by drilling down within a category.
Work schedule	The time basis on which an employee is scheduled to work. Work schedules are summarized into two categories: 1. Full-time 2. Not Full-time Data for specific work schedules are obtained by drilling down within a category.

APPENDIX 2-4: SOURCES OF WORKFORCE ANALYSIS DATA

This appendix provides additional sources of data for use in looking at the workforce.

Office of Personnel Management

The office of personnel management provides a wide array of useful resources for human capital management and their website is worth exploring on a regular basis. Here are some sources for workforce data:

Office of Workforce and Planning

- The Fact Book
- Demographic Profile
- Employment and Trends
- Employment by Geographic Area
- Occupations of White and Blue Collar Workers
- Pay Structure of Federal Civil Service
- Work Years and Personnel Costs
- Downsizing and Retirement

Fed Stats

U.S. Census Data

Integrated Post-secondary Education Data System (IPDS)

U.S. Department of Labor
Bureau of Labor Statistics

Table 2-3-1 contains a listing of data found at the Bureau of Labor Statistics (BLS) web-site with definitions. This data can be accessed at www.bls.gov.

Table 2-3-1: Bureau of Labor Statistics Summary

BUREAU OF LABOR STATISTICS SUMMARY	
Inflation and Consumer Spending	
Consumer Price Index	The **Consumer Price Indexes (CPI)** program produces monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services.
Inflation Calculator	The CPI inflation calculator uses the average Consumer Price Index for a given calendar year. This data represents changes in prices of all goods and services purchased for consumption by urban households. This index value has been calculated every year since 1913. For the current year, the latest monthly index value is used.
Contract Escalation	Consumer Price Indexes often are used to escalate or adjust payments for rents, wages, alimony, child support and other obligations that may be affected by changes in the cost of

BUREAU OF LABOR STATISTICS SUMMARY	
	living. There is a web page explaining how to use the CPI for escalating contracts. Producer Price Indexes can also be used in contract escalation. A web page explaining how to use PPIs for escalating contracts is available. In addition, the Employment Cost Index (ECI) is increasingly being used by business organizations as an escalator to adjust long-term sales and purchasing contracts, and to adjust wage rates in collective bargaining agreements. There is a web page explaining how to use the ECI for escalating contracts.
Producer Price Indexes	The **Producer Price Index (PPI)** program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.
Import/ Export Price Indexes	The International Price Program (IPP) produces **Import Price Indexes (MPI)** and **Export Price Indexes (XPI)** containing data on changes in the prices of nonmilitary goods and services traded between the U.S. and the rest of the world.
Consumer Expenditures	The **Consumer Expenditure Survey (CE)** program consists of two surveys collected for the Bureau of Labor Statistics by the Census Bureau — the quarterly Interview survey and the Diary survey — that provide information on the buying habits of American consumers, including data on their expenditures, income, and consumer unit (families and single consumers) characteristics.
Price Index Research	The **Price and Index Number Research (PINR)** conducts research to strengthen and improve existing price and expenditure measurement concepts and techniques and enhance the analytical usefulness of BLS programs.
Wage, Earnings, and Benefits	
Wages by Area and Occupation	Includes Nation, Regional, State, and Metropolitan wage data.
Earnings by Industry	Each month the **Current Employment Statistics (CES)** program surveys about 150,000 businesses and government agencies, representing approximately 390,000 individual worksites, in order to provide detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls.
Employee Benefits	**National Compensation Survey - Benefits** produces comprehensive data on the incidence (the percentage of workers with access to and participation in employer provided benefit plans) and provisions of selected employee benefit plans.
Employee Costs	**National Compensation Survey - Compensation Cost Trends** produces quarterly indexes measuring change over time in labor costs (ECI) and quarterly data measuring level of average costs per hour worked (ECEC).
State and County Wages	**The Quarterly Census of Employment and Wages (QCEW)** program publishes a quarterly count of employment and wages reported by employers covering 98 percent of U.S. jobs, available at the county, MSA, state and national levels by industry.
National Compensation Data	The **National Compensation Survey (NCS)** provides comprehensive measures of occupational earnings; compensation cost trends, benefit incidence, and detailed plan provisions. Detailed occupational earnings are available for metropolitan and non-metropolitan areas, broad geographic regions, and on a national basis. The index component of the NCS (ECI) measures changes in labor costs. Average hourly employer cost for employee compensation is presented in the ECEC.
Work Stoppages	The Bureau of Labor Statistics has two types of data about work stoppages: **Work Stoppages** program data and the **Strike Report**. The **Work Stoppages** program provides monthly and annual data and analysis of major work stoppages involving 1,000 or more workers lasting one full shift or longer. The monthly and annual data show the establishment and union(s) involved in the work stoppage along with the location, the number of workers and the days of idleness. The monthly data list all work stoppages involving 1,000 or more workers that occurred during the full calendar month for each month of the year. The annualized data provide statistics, analysis and details of each work stoppage of 1,000 or more workers that occurred during the year. The work stoppages data are gathered from public news sources, such as newspapers and the Internet. The BLS does not distinguish between strikes and lock-outs in the data; both are included in the term

BUREAU OF LABOR STATISTICS SUMMARY	
	"work stoppages". The **Strike Report**, which is at ftp://ftp.bls.gov/pub/special.requests/ee/Tables/strike.txt, is a summary of strike activity during the Current Employment Statistics (CES) survey reference period, which includes the 12th of the month. See the Work Stoppages Frequently Asked Questions for more information on the differences between Work Stoppages and the Strike Report.
Wage Calculator	
Compensation Research	The **Compensation Research and Program Development Group (CRPDG)** carries out research that addresses methodological, conceptual, and technical issues of concern to the Office of Compensation and Working Conditions (OCWC) and other Bureau programs.
Productivity	
Productivity and Costs	Two programs develop Productivity and Costs data for elements of the U.S. economy. The **Major Sector Productivity and Costs** program produces quarterly and annual output per hour and unit labor costs for the U.S. business, nonfarm business, and manufacturing sectors. These are the productivity statistics most often cited by the national media. The **Industry Productivity and Costs** program produces annual measures of output per hour and unit labor costs for U.S. industries at the 2-, 3-, 4-, 5- and 6-digit level as defined in the North American Industry Classification System (NAICS).
Multifactor Productivity	**Multifactor Productivity (MFP)** measures the changes in output per unit of combined inputs. Indexes of MFP are produced for the private business, private nonfarm business, and manufacturing sectors of the economy. MFP is also developed for 18 3-digit NAICS manufacturing industry groups and 86 4-digit NAICS manufacturing industries, the air transportation industry, the railroad transportation industry, and the utility and gas industry.
Internal Comparisons	The **Foreign Labor Statistics (FLS)** program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures. Because statistical concepts and methods vary from country to country, international comparisons of statistical data can be misleading. The Bureau of Labor Statistics attempts to derive meaningful comparisons by selecting a conceptual framework for comparative purposes; analyzing foreign statistical series and selecting those which most nearly match the desired concepts; and adjusting statistical series, where necessary and feasible, for greater inter-country comparability.
Safety and Health	
Injuries, Illnesses, and Fatalities	The **Injuries, Illnesses, and Fatalities (IIF)** program provides data on illnesses and injuries on the job and data on worker fatalities.
Incidence Rate Calculator	Step by step Incidence Rate Calculator available at http://data.bls.gov/IIRC/.
Occupational Injuries and Illnesses and Fatal Injuries Profiles	Create and customize profiles on occupational injuries, illnesses, and fatalities according to table type, year, area, characteristic type and order, sub-characteristic and ownership type, and output type.
International	
Import/ Export Price Indexes	The International Price Program (IPP) produces **Import Price Indexes (MPI)** and **Export Price Indexes (XPI)** containing data on changes in the prices of nonmilitary goods and services traded between the U.S. and the rest of the world.
Foreign Labor Statistics	The **Foreign Labor Statistics (FLS)** program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures. Because statistical concepts and methods vary from country to country, international comparisons of statistical data can be misleading. The Bureau of Labor Statistics attempts to derive meaningful comparisons by selecting a conceptual framework for comparative purposes; analyzing foreign statistical series and selecting those which most nearly match the desired concepts; and adjusting statistical series, where necessary and feasible, for greater inter-

BUREAU OF LABOR STATISTICS SUMMARY	
	country comparability.
International Technical Cooperation	The **Division of International Technical Cooperation** of the U.S. Bureau of Labor Statistics (BLS) strengthens statistical development around the world through technical cooperation, seminars, and customized training programs. For over 50 years BLS has assisted statistical organizations throughout the world in the collection, processing, analysis, dissemination, and use of labor statistics. Fees are charged for seminars, customized training programs, and consultants. Short-term international visitors are welcome at BLS, free of charge.
Occupations	
Occupational Outlook Handbook	For hundreds of different types of jobs- such as teacher, lawyer, nurse – the *Occupational Outlook Handbook* tells you: the training and education needs, earnings, expected job prospects, what workers do on the job, and working condition information. In addition, the *Hand book* gives you job search tips, links to information about the job market in each State and more.
Occupational Outlook Quarterly	A printed periodical similar to the *Occupation Outlook Handbook* that is published every three months. Online version of periodical available with archived issues.
Employment	The **Occupational Employment Statistics (OES)** program produces employment and wage estimates for over 800 occupations. These are estimates of the number of people employed in certain occupations, and estimates of the wages paid to them. Self-employed persons are not included in the estimates. These estimates are available for the nation as a whole, for individual States, and for metropolitan areas; national occupational estimates for specific industries are also available.
Wages by Area and Occupation	Includes Nation, Regional, State, and Metropolitan wage data.
Injuries, Illnesses, and Fatalities	The **Injuries, Illnesses, and Fatalities (IIF)** program provides data on illnesses and injuries on the job and data on worker fatalities.
Employment projections	The **Office of Occupational Statistics and Employment Projections** develops information about the labor market for the Nation as a whole for 10 years in the future.
Standard Occupational Classification (SOC)	The **2000 Standard Occupational Classification (SOC)** system is used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of over 820 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 23 major groups, 96 minor groups, and 449 broad occupations. Each broad occupation includes detailed occupation(s) requiring similar job duties, skills, education, or experience. General questions concerning the SOC may be sent by email or faxed to 202-691-6444.
Demographics	
Demographic Characteristics of Labor Force	The **Current Population Survey (CPS)** is a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics. It provides a comprehensive body of data on the labor force, employment, unemployment, and persons not in the labor force.
Geographic Profile of Employment and Unemployment	The **Geographic Profile of Employment and Unemployment (GP)** contains information from the Current Population Survey (CPS) for census regions and divisions, the 50 States and the District of Columbia, and selected large metropolitan areas and cities. Data are provided on the employed and unemployed by selected demographic and economic characteristics.
Consumer Expenditures	The **Consumer Expenditure Survey (CE)** program consists of two surveys collected for the Bureau of Labor Statistics by the Census Bureau — the quarterly Interview survey and the Diary survey — that provide information on the buying habits of American consumers, including data on their expenditures, income, and consumer unit (families and single consumers) characteristics.
Injuries, Illnesses, and Fatalities	The **Injuries, Illnesses, and Fatalities (IIF)** program provides data on illnesses and injuries on the job and data on worker fatalities.
Longitudinal Studies	The **National Longitudinal Surveys (NLS)** are a set of surveys designed to gather information at multiple points in time on the labor market activities and other significant life events of several groups of men and women. For more than 3 decades, NLS data have served as an important tool for economists, sociologists, and other researchers.
Time Use	The **American Time Use Survey (ATUS)** measures the amount of time people spend doing various activities, such as paid work, childcare, volunteering, and socializing.
Employment and Unemployment	
National Employment/	The **Current Population Survey (CPS)** is a monthly survey of households conducted by the

BUREAU OF LABOR STATISTICS SUMMARY	
Unemployment Rate	Bureau of Census for the Bureau of Labor Statistics. It provides a comprehensive body of data on the labor force, employment, unemployment, and persons not in the labor force.
State and Local Employment	Each month the **Current Employment Statistics (CES)** program surveys about 160,000 businesses and government agencies, representing approximately 400,000 individual worksites, in order to provide detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls for all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and over 400 metropolitan areas and divisions.
State and Local Unemployment Rates	The **Local Area Unemployment Statistics (LAUS)** program produces monthly and annual employment, unemployment, and labor force data for Census regions and divisions, States, counties, metropolitan areas, and many cities, by place of residence.
Mass Layoffs	The **Mass Layoff Statistics (MLS)** program collects reports on mass layoff actions that result in workers being separated from their jobs. Monthly mass layoff numbers are from establishments which have at least 50 initial claims for unemployment insurance (UI) filed against them during a 5-week period. Extended mass layoff numbers (issued quarterly) are from a subset of such establishments--where private sector nonfarm employers indicate that 50 or more workers were separated from their jobs for at least 31 days.
Employment Projections	The **Office of Occupational Statistics and Employment Projections** develops information about the labor market for the Nation as a whole for 10 years in the future.
Job Openings and Labor Turnover	The **Job Openings and Labor Turnover Survey (JOLTS)** program produces data on job openings, hires, and separations.
Employment by Occupation	The **Occupational Employment Statistics (OES)** program produces employment and wage estimates for over 800 occupations. These are estimates of the number of people employed in certain occupations, and estimates of the wages paid to them. Self-employed persons are not included in the estimates. These estimates are available for the nation as a whole, for individual States, and for metropolitan areas; national occupational estimates for specific industries are also available.
Longitudinal Studies	The **National Longitudinal Surveys (NLS)** are a set of surveys designed to gather information at multiple points in time on the labor market activities and other significant life events of several groups of men and women. For more than 3 decades, NLS data have served as an important tool for economists, sociologists, and other researchers.
State and County Employment	The **Quarterly Census of Employment and Wages (QCEW)** program publishes a quarterly count of employment and wages reported by employers covering 98 percent of U.S. jobs, available at the county, MSA, state and national levels by industry.
Time Use	The **American Time Use Survey (ATUS)** measures the amount of time people spend doing various activities, such as paid work, childcare, volunteering, and socializing.
Business Employment Dynamics	**Business Employment Dynamics** is a set of statistics generated from the Quarterly Census of Employment and Wages, or ES-202, program. These quarterly data series consist of gross job gains and gross job losses statistics from 1992 forward. These data help to provide a picture of the dynamic state of the labor market.
Employment Research	The **Employment Research and Program Development staff (ERPDS)** initiates, plans, and directs activities for improving the quality and enhancing the analytical usefulness of OEUS programs. Two main functions of ERPDS are to assist in the development of OEUS data programs and to conduct original research using BLS data.
At a Glance Tables	
U.S. Economy at a Glance	
Regions, States, and Areas at a Glance	Shows which *Economy at a Glance Tables* are available according to region, state, and major metropolitan areas.
Industries at a Glance	*Industry at a Glance* consists of profiles of 12 industry supersectors. Each profile contains a variety of facts about the industry supersector, and includes links to additional statistics. The 12 industry supersectors are Construction, Education and Health Services, Financial Activities, Government, Information, Leisure and Hospitality, Manufacturing, Natural Resources and Mining, Other Services, Professional and Business Services, Transportation and Utilities, and Wholesale and Retail Trade. The supersectors presented here are based on the North American Industry Classification System (NAICS).
Publications	

BUREAU OF LABOR STATISTICS SUMMARY	
Occupational Outlook Handbook	For hundreds of different types of jobs- such as teacher, lawyer, nurse – the *Occupational Outlook Handbook* tells you: the training and education needs, earnings, expected job prospects, what workers do on the job, and working condition information. In addition, the *Hand book* gives you job search tips, links to information about the job market in each State and more.
Monthly Labor Review Online	Established in 1915, *Monthly Labor Review* is the principal journal of fact, analysis, and research from the Bureau of Labor Statistics, an agency within the U.S. Department of Labor. Each month, economists, statisticians, and experts from the Bureau join with private sector professionals and State and local government specialists to provide a wealth of research in a wide variety of fields—the labor force, the economy, employment, inflation, productivity, occupational injuries and illnesses, wages, prices, and many more.
Compensation and Working Conditions Online	A list of informative articles about various topics concerning compensation and working conditions.
Occupational Outlook Quarterly	A printed periodical similar to the *Occupation Outlook Handbook* that is published every three months. Online version of periodical available with archived issues.
The Editor's Desk	Part of *Monthly Labor Review, The Editor's Desk* is a daily column that brings fresh information from all over the Bureau of Labor Statistics right to your computer screen, highlights intriguing BLS data that you might otherwise have missed, and focuses on one or two specific points of a report rather than presenting a general summary.
Career guide to Industries	For dozens of different kinds of industries – such as educational services, health care, and motor vehicle and parts manufacturing – the *Career Guide to Industries* tells you about: occupations in the industry, training and advancement, earnings, expected job prospects, and working conditions. In addition, the *Career Guide* gives you links to information about the job market in each State and more.
Economic News Releases	The Economic News Releases section of the BLS website includes: a list of major economic indicators, the most recent news releases by topic, schedules of news releases, and archived news releases.
Research	
Research Papers	The **Office of Survey Methods Research (OSMR)** plans and directs activities for improving the quality of current statistical output and for long-term program developments by evaluating BLS programs (with emphasis on conceptual, methodological, and technical issues and on responsiveness to evolving user needs), and by conducting research on statistical and behavioral science issues relevant to the BLS mission.
Compensation	The **Compensation Research and Program Development Group (CRPDG)** carries out research that addresses methodological, conceptual, and technical issues of concern to the Office of Compensation and Working Conditions (OCWC) and other Bureau programs.
Employment	The **Employment Research and Program Development staff (ERPDS)** initiates, plans, and directs activities for improving the quality and enhancing the analytical usefulness of OEUS programs. Two main functions of ERPDS are to assist in the development of OEUS data programs and to conduct original research using BLS data.
Price Index	The **Price and Index Number Research (PINR)** conducts research to strengthen and improve existing price and expenditure measurement concepts and techniques and enhance the analytical usefulness of BLS programs.
Survey Methods Research	The **Office of Survey Methods Research (OSMR)** plans and directs activities for improving the quality of current statistical output and for long-term program developments by evaluating BLS programs (with emphasis on conceptual, methodological, and technical issues and on responsiveness to evolving user needs), and by conducting research on statistical and behavioral science issues relevant to the BLS mission.
Industries	
Industries at a Glance	*Industry at a Glance* consists of profiles of 12 industry supersectors. Each profile contains a variety of facts about the industry supersector, and includes links to additional statistics. The 12 industry supersectors are Construction, Education and Health Services, Financial Activities, Government, Information, Leisure and Hospitality, Manufacturing, Natural Resources and Mining, Other Services, Professional and Business Services, Transportation and Utilities, and

BUREAU OF LABOR STATISTICS SUMMARY	
	Wholesale and Retail Trade.
Employment, Hours, and Earnings	Each month the **Current Employment Statistics (CES)** program surveys about 150,000 businesses and government agencies, representing approximately 390,000 individual worksites, in order to provide detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls.
Occupations	The **North American Industry Classification System (NAICS)** reports information on national industry-specific occupational employment and wage estimates.
Injuries, Illnesses, and Fatalities	The **Injuries, Illnesses, and Fatalities (IIF)** program provides data on illnesses and injuries on the job and data on worker fatalities.
Producer Price Indexes	The **Producer Price Index (PPI)** program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.
Employment Costs	**National Compensation Survey - Compensation Cost Trends** produces quarterly indexes measuring change over time in labor costs (ECI) and quarterly data measuring level of average costs per hour worked (ECEC).
Productivity	Two programs develop Productivity and Costs data for elements of the U.S. economy. The **Major Sector Productivity and Costs** program produces quarterly and annual output per hour and unit labor costs for the U.S. business, nonfarm business, and manufacturing sectors. These are the productivity statistics most often cited by the national media. The **Industry Productivity and Costs** program produces annual measures of output per hour and unit labor costs for U.S. industries at the 2-, 3-, 4-, 5- and 6-digit level as defined in the North American Industry Classification System (NAICS).
NAICS	The **North American Industry Classification System (NAICS)** reports information on national industry-specific occupational employment and wage estimates. This classification system is organized by industry sectors.
Business Costs	
Producer Price Indexes	The **Producer Price Index (PPI)** program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.
Employment Costs	**National Compensation Survey - Compensation Cost Trends** produces quarterly indexes measuring change over time in labor costs (ECI) and quarterly data measuring level of average costs per hour worked (ECEC).
Employee Benefits	**National Compensation Survey - Benefits** produces comprehensive data on the incidence (the percentage of workers with access to and participation in employer provided benefit plans) and provisions of selected employee benefit plans.
Foreign Labor Costs	The **Foreign Labor Statistics (FLS)** program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures. Because statistical concepts and methods vary from country to country, international comparisons of statistical data can be misleading. The Bureau of Labor Statistics attempts to derive meaningful comparisons by selecting a conceptual framework for comparative purposes; analyzing foreign statistical series and selecting those which most nearly match the desired concepts; and adjusting statistical series, where necessary and feasible, for greater inter-country comparability.
Import/ Export Prices	The International Price Program (IPP) produces **Import Price Indexes (MPI)** and **Export Price Indexes (XPI)** containing data on changes in the prices of nonmilitary goods and services traded between the U.S. and the rest of the world.
Unit Labor Costs	Two programs develop Productivity and Costs data for elements of the U.S. economy. The **Major Sector Productivity and Costs** program produces quarterly and annual output per hour and unit labor costs for the U.S. business, nonfarm business, and manufacturing sectors. These are the productivity statistics most often cited by the national media. The **Industry Productivity and Costs** program produces annual measures of output per hour and unit labor costs for U.S. industries at the 2-, 3-, 4-, 5- and 6-digit level as defined in the North American Industry Classification System (NAICS).

BUREAU OF LABOR STATISTICS SUMMARY	
Geography	
State and Local Employment	Each month the **Current Employment Statistics (CES)** program surveys about 160,000 businesses and government agencies, representing approximately 400,000 individual worksites, in order to provide detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls for all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and over 400 metropolitan areas and divisions.
State and Local Unemployment Rates	The **Local Area Unemployment Statistics (LAUS)** program produces monthly and annual employment, unemployment, and labor force data for Census regions and divisions, States, counties, metropolitan areas, and many cities, by place of residence.
State and County Employment and Wages	The **Quarterly Census of Employment and Wages (QCEW)** program publishes a quarterly count of employment and wages reported by employers covering 98 percent of U.S. jobs, available at the county, MSA, state and national levels by industry.
Geographic Profile of Employment and Unemployment	The **Geographic Profile of Employment and Unemployment (GP)** contains information from the Current Population Survey (CPS) for census regions and divisions, the 50 States and the District of Columbia, and selected large metropolitan areas and cities. Data are provided on the employed and unemployed by selected demographic and economic characteristics.
Mass Layoffs	The **Mass Layoff Statistics (MLS)** program collects reports on mass layoff actions that result in workers being separated from their jobs. Monthly mass layoff numbers are from establishments which have at least 50 initial claims for unemployment insurance (UI) filed against them during a 5-week period. Extended mass layoff numbers (issued quarterly) are from a subset of such establishments--where private sector nonfarm employers indicate that 50 or more workers were separated from their jobs for at least 31 days.
Consumer Price Index	The Consumer Price Indexes (CPI) program produces monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services.
Consumer Expenditures	The **Consumer Expenditure Survey (CE)** program consists of two surveys collected for the Bureau of Labor Statistics by the Census Bureau — the quarterly Interview survey and the Diary survey — that provide information on the buying habits of American consumers, including data on their expenditures, income, and consumer unit (families and single consumers) characteristics.
Injuries, Illnesses, and Fatalities	The **Injuries, Illnesses, and Fatalities (IIF)** program provides data on illnesses and injuries on the job and data on worker fatalities.
Wages by Area and Occupation	Includes Nation, Regional, State, and Metropolitan wage data.
Create Customized Maps (Unemployment Rates)	Create customized maps of unemployment rates according to time change, year, and month as well as area (state or county).

APPENDIX 2-5: WORKFORCE ANALYSIS METRICS WORKSHEET

HUMAN CAPITAL ASSESSMENT AND ACCOUNTABILITY DASHBOARD						
	DOT STRATEGIC GOALS	**Strategic Alignment**	**Leadership and Knowledge Management**	**Results Oriented Performance Culture**	**Talent Management**	**Accountability**
		Measures agency's human capital focused/working directly toward strategic objectives	Measures agency leadership effectiveness (e.g., flat or tall org structure, succession planning)	Measures how the agency gets human capital to focus on results	Measures the agencies ability to attract and retain top talent	Measures the ability of the agency to use human capital cost effectively to achieve agency goals
Vision	**Safer, Simpler, Smarter Transportation Solution**					
Mission	To develop and administer policies and programs that contribute to providing fast, safe, efficient, and convenient transportation at the lowest cost consistent with the national objectives of general welfare, economic growth and stability, the national security, and the efficient use and conservation of the resources of the U.S.	**Ratio** of MCO FTE/Cost to total FTE **Employee Commitment Measure** **Employee Engagement Measure**	**HC Survey -Leadership** (11 Questions – 39-49) **HC Survey –** **Knowledge Management** (9 Questions – 50-58)	**HC Survey – Results Oriented Performance Culture** (16 Questions – 23-38) **HC Survey – Personal Work Experience** (11 Questions – 1-11) **Organization Results Metric** (Score for Competency Gaps Closed for Management and Leadership) **Organization Results Metric** (Score for Competency Gaps Closed for Mission Critical Occupations) **Merit System Metric** (An assessment score given by OPM for compliance with merit	**HC Survey – Talent Management** (13 Questions (12-22) **HC Survey – Employée Job Satisfaction** (9 Questions (59-70) **Diversity Index** (Measures the OA 's level of staff diversity) **Manager Satisfaction Rate** (Quantity, Quality and Timeliness of Candidates Filling Vacant Positions) **Demographic Trends** (Age, Gender, Race, MCO Skills, Disabled, Veterans)	**SES Organization Metric** (Relationship between SES performance ratings and accomplishment of the agency's strategic goals) **Organization Metric – Workforce Performance** (Degree of linkage between all employees' performance appraisal plans and agency outcomes) **Ratio of total cost of agency human capital to total US population.** [Workload driver] **FHWA—Ratio of FTE/FTE Cost to number of motor vehicles to miles of national highway**

HUMAN CAPITAL ASSESSMENT AND ACCOUNTABILITY DASHBOARD						
	DOT STRATEGIC GOALS	**Strategic Alignment**	**Leadership and Knowledge Management**	**Results Oriented Performance Culture**	**Talent Management**	**Accountability**
				system principles and related laws, rules, regulations governing the Results Oriented Culture)		**FMCSA—Ratio of FTE/FTE Cost to number of motor carriers** **FAA could compare to the number of flights, number of airports** **FRA could compare to number of rail trips**
Safety	Enhance public health and safety by working toward the elimination of transportation related deaths and injuries.	**--Percentage of FTE by MCO by grade whose primary job function is safety** (Top three job functions?)	**--Percentage of FTE by MCO by grade 13 and higher whose primary job function is safety**	**--Percentage of employees who have employee goals linked to organizational safety results** **--Percentage of Performance Appraisals above Fully Satisfactory who have a safety goal**	**--Percentage of new hires** (within 1 year) whose **primary job function is safety**	**--Ratio of total human capital cost to number of transportation related deaths and injuries (track trends-annually)** **--Ratio of number of total FTE to number of transportation related deaths and injuries (track trends-annually)**
Security	Balance homeland and national security transportation requirements with the mobility needs of the Nation for personal travel and commerce	**--Percentage of FTE by MCO by grade whose primary job function is security**	**Percentage of FTE by MCO by grade 13 and higher whose primary job function is security**	**--Percentage of employees who have employee goals linked to organizational security results** **--Percentage of Performance Appraisals above Fully Satisfactory who have a security goal**	**Percentage of new hires** (within 1 year) whose **primary job function is security**	**--Ratio of number of total FTEs to number of security positions**
Mobility	Advance accessible, efficient, intermodal transportation for the	**Percentage of FTE by MCO by grade whose primary job function is**	**Percentage of FTE by MCO by grade 13 and higher whose primary**	**--Percentage of employees who have employee goals linked**	**Percentage of new hires** (within 1 year) whose **primary job**	**--Congestion measures --- Travel Accidents (Air/Rail/Highway)**

HUMAN CAPITAL ASSESSMENT AND ACCOUNTABILITY DASHBOARD						
	DOT STRATEGIC GOALS	**Strategic Alignment**	**Leadership and Knowledge Management**	**Results Oriented Performance Culture**	**Talent Management**	**Accountability**
	movement of people and goods.	**address mobility issues**	**job function is to address mobility issues**	**to organizational mobility results** **--Percentage of Performance Appraisals above Fully Satisfactory who have a mobility results goal**	**function is to address mobility issues**	
Global Connectivity	Facilitate a more efficient domestic and global transportation system that enables economic growth and development	**Percentage of FTE by MCO by grade whose primary job function is address global connectivity issues**	**Percentage of FTE by MCO by grade 13 and higher whose primary job function is to address global connectivity issues**	**--Percentage of employees who have employee goals linked to organizational global connectivity results** **--Percentage of Performance Appraisals above Fully Satisfactory who have a global connectivity results goal**	**Percentage of new hires** (within 1 year) whose **primary job function is to address mobility issues**	**---Success Rate** (Number of sessions/conferences sponsored or facilitated or coordination of educational issues/publications on these issues)
Environmental Stewardship	Promote transportation solutions that enhance communities and protect the natural and built environment.	**Percentage of FTE by MCO by grade whose primary job function is address environmental stewardship issues**	**Percentage of FTE by MCO by grade 13 and higher whose primary job function is to address environmental stewardship issues**	**-Percentage of employees who have employee goals linked to organizational environmental stewardship results** **--Percentage of Performance Appraisals above Fully Satisfactory who have a environmental stewardship results goal**	**Percentage of new hires** (within 1 year) whose **primary job function is to address environmental stewardship issues**	**--Degree OA was responsible for reducing carbon emissions** **--Sustainability Rating on PSI index or some other index**
Organizational Excellence	Advance the Department's ability to manage for results and achieve the goals	**-- Employee Percentage at Risk -** Measure of likelihood of employee leaving the	**--Percentage eligible to retire by grade** **--Percentage eligible to retire by role**	**--Number of qualified applicants per position** **– Time to fill vacancies** **– Percentage of**	**– Percentage of jobs filled from within** **– Percentage of workforce covered by**	**– Number of employees per HR professional** **– Percentage of HR budget spent on**

HUMAN CAPITAL ASSESSMENT AND ACCOUNTABILITY DASHBOARD						
	DOT STRATEGIC GOALS	**Strategic Alignment**	**Leadership and Knowledge Management**	**Results Oriented Performance Culture**	**Talent Management**	**Accountability**
	of the President's Management Agenda.	organization **--OMB HC Measures**	**--Ratio of number of supervisors to employee** **--Ratio of cost of leadership salary dollars (GS 13 and above) to the cost of other employees ratio**	**workforce that received an incentive award** – **Percentage of workforce routinely working in a self-managed, cross-functional, or project team** – – **Ratio of EEO complaints to the total workforce** – **Number of Adverse Actions** – – **Number of Grievances**	**a union contract** – **Employee turnover** – **Number of hours of training per new employee (less than 1 year)** – **Number of hours of training per experienced employee** – **Ratio of government salary to private sector salary for similar work** – **Time to fill** – **Fill Rate (new hires to vacant positions ratio)** – **Percent vacant positions** – **Percent positions vacated –includes departures from OA and transfers within DOT** – **Ratio: Terminations/ overall Head count** – **Overtime trends** – **Absenteeism (sick leave, vacation, accumulated leave, use or lose)**	**outsourced HR activities** – **Percentage of total OA budget spent on recruiting** – **Percentage of HR budget spent on recruiting** – **Percentage of total budget spent on training and development** – **Percentage of total budget spent on incentives** – **Average salary per employee** – **Ratio of OWCP claims to the total workforce** **-Total Value of Performance Awards**
Other						

APPENDIX 3-1: ORGANIZATIONAL DATA ANALYSIS SAMPLES

Comparing the MCO to the overall composition of DOT provides a more complete picture of the MCO.

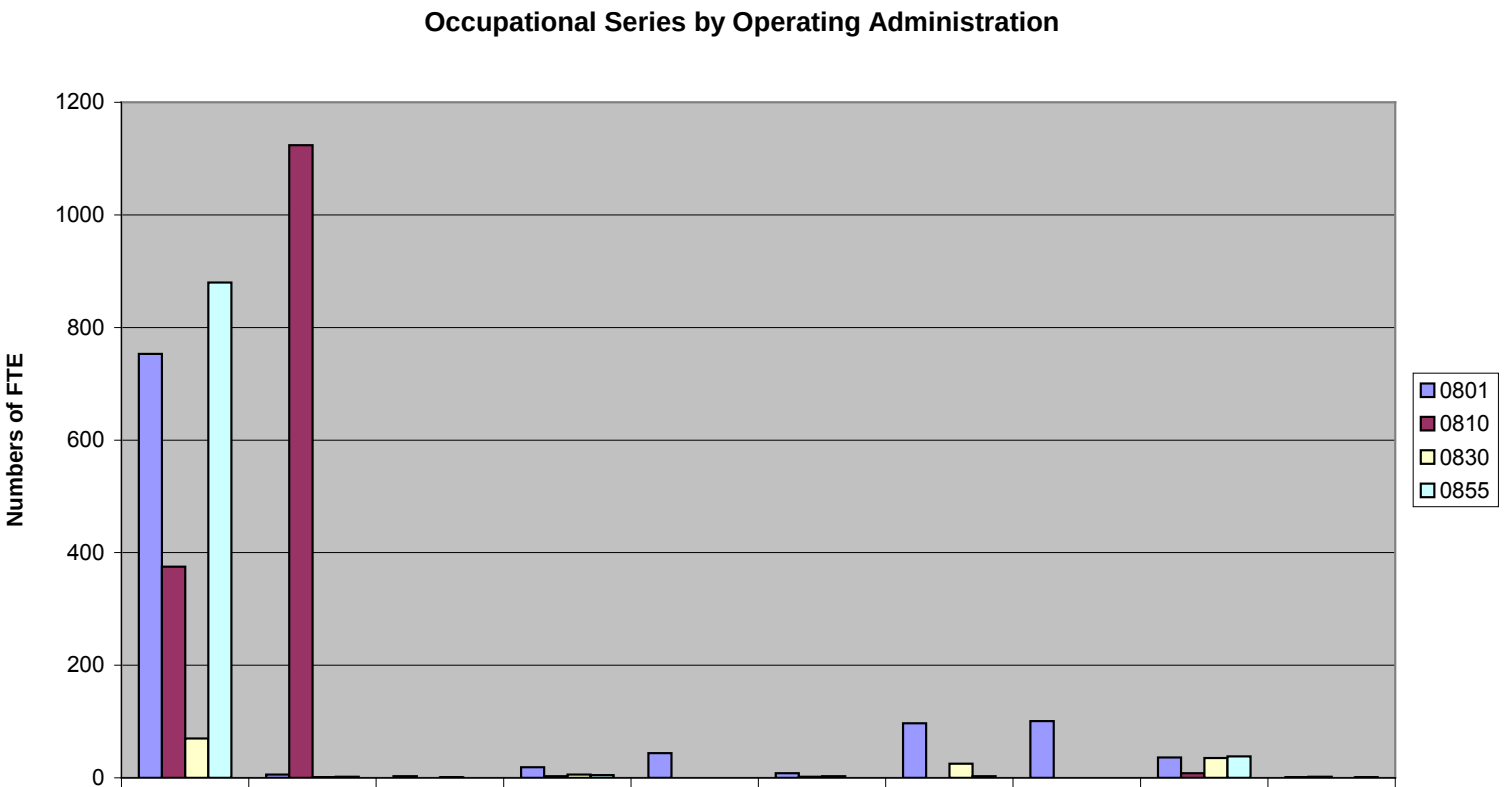
Bureau	Occupational Series in Pilot				Total Engineers in Pilot (1)	Total Engineers (2)	Total Strength (3)	Engineers as a % of Total Strength	Engineers in Pilot as a % of Total Strength	
	0801	0810	0830	0855						
FAA	753	375	70	880	**2,078**	3,713	43,847	8.47%	4.74%	
FHWA	6	1,124	1	2	**1,133**	1,257	2,796	44.96%	**40.52%**	**1**
FMCSA	3		1		**4**	4	1,070	0.37%	0.37%	
FRA	19	3	6	5	**33**	32	787	4.07%	4.19%	
FTA	44				**44**	42	489	8.59%	9.00%	**5**
MARAD	8	2	3		**13**	76	768	9.90%	1.69%	
NHTSA	97		25	3	**125**	124	598	20.74%	**20.90%**	**3**
OIG					**-**	1	415	0.24%	0.00%	
OST				1	**1**	2	683	0.29%	0.15%	
PHMSA	101				**101**	103	327	31.50%	**30.89%**	**2**
RITA	36	8	35	38	**117**	124	689	18.00%	**16.98%**	**4**
SLSDC	1	2		1	**4**	5	86	5.81%	4.65%	
STB					**-**	4	129	3.10%	0.00%	
Grand Total	**1,068**	**1,514**	**141**	**929**	**3,652**	**5,487**	**52,684**	10.41%	6.93%	

(1) DOT Workforce Analysis Pilot Plan March 2006; data as of August 2005 (page 2)
(2) DOT Workforce Plan Update 2006; data as of Sept 30, 2005 (Chapter 2, page 2)
(2) DOT Workforce Plan Update 2006; data as of Sept 30, 2005 (Chapter 1, page 3)

Acquisition/Contractor Data Related to Engineering MCO

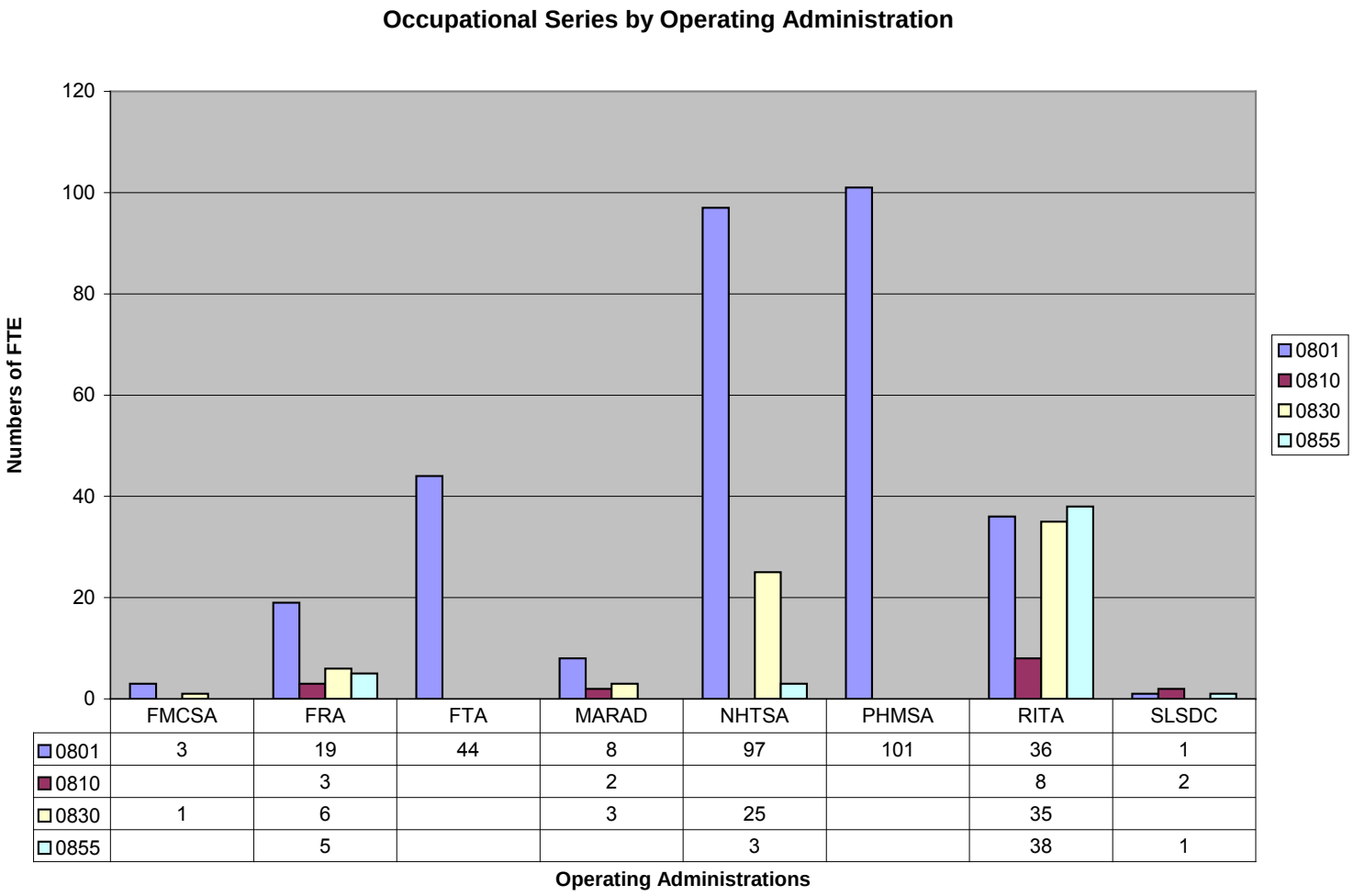
PSC Category (Description)	Contracting Agency	PSC Code (Description)	Total Actions	Total Dollars
R (SERVICES (other than R and D))	RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION (6943)	R425 (ENGINEERING AND TECHNICAL SERVICES)	302	$49,428,853.26
R (SERVICES (other than R and D))	FEDERAL HIGHWAY ADMINISTRATION (6925)	R425 (ENGINEERING AND TECHNICAL SERVICES)	98	$21,618,224.49
R (SERVICES (other than R and D))	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (6940)	R425 (ENGINEERING AND TECHNICAL SERVICES)	84	$8,363,449.00
R (SERVICES (other than R and D))	IMMEDIATE OFFICE OF THE SECRETARY OF TRANSPORTATION (6901)	R425 (ENGINEERING AND TECHNICAL SERVICES)	20	$1,279,672.70
R (SERVICES (other than R and D))	MARITIME ADMINISTRATION (6938)	R425 (ENGINEERING AND TECHNICAL SERVICES)	24	$504,745.48
R (SERVICES (other than R and D))	FEDERAL RAILROAD ADMINISTRATION (6930)	R425 (ENGINEERING AND TECHNICAL SERVICES)	4	$135,155.84
R (SERVICES (other than R and D))	SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION (6947)	R425 (ENGINEERING AND TECHNICAL SERVICES)	3	$113,100.00
R (SERVICES (other than R and D))	PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATON (695	R425 (ENGINEERING AND TECHNICAL SERVICES)	1	$24,000.00
R (SERVICES (other than R and D))	FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION (6959)	R425 (ENGINEERING AND TECHNICAL SERVICES)	4	$0.00
R (SERVICES (other than R and D))	UNITED STATES COAST GUARD (6950)	R425 (ENGINEERING AND TECHNICAL SERVICES)	1	$0.00
				$81,467,201

Most of the engineers in FHWA are civil engineers (0810), whereas all the engineers in PHMSA are general engineers 0801



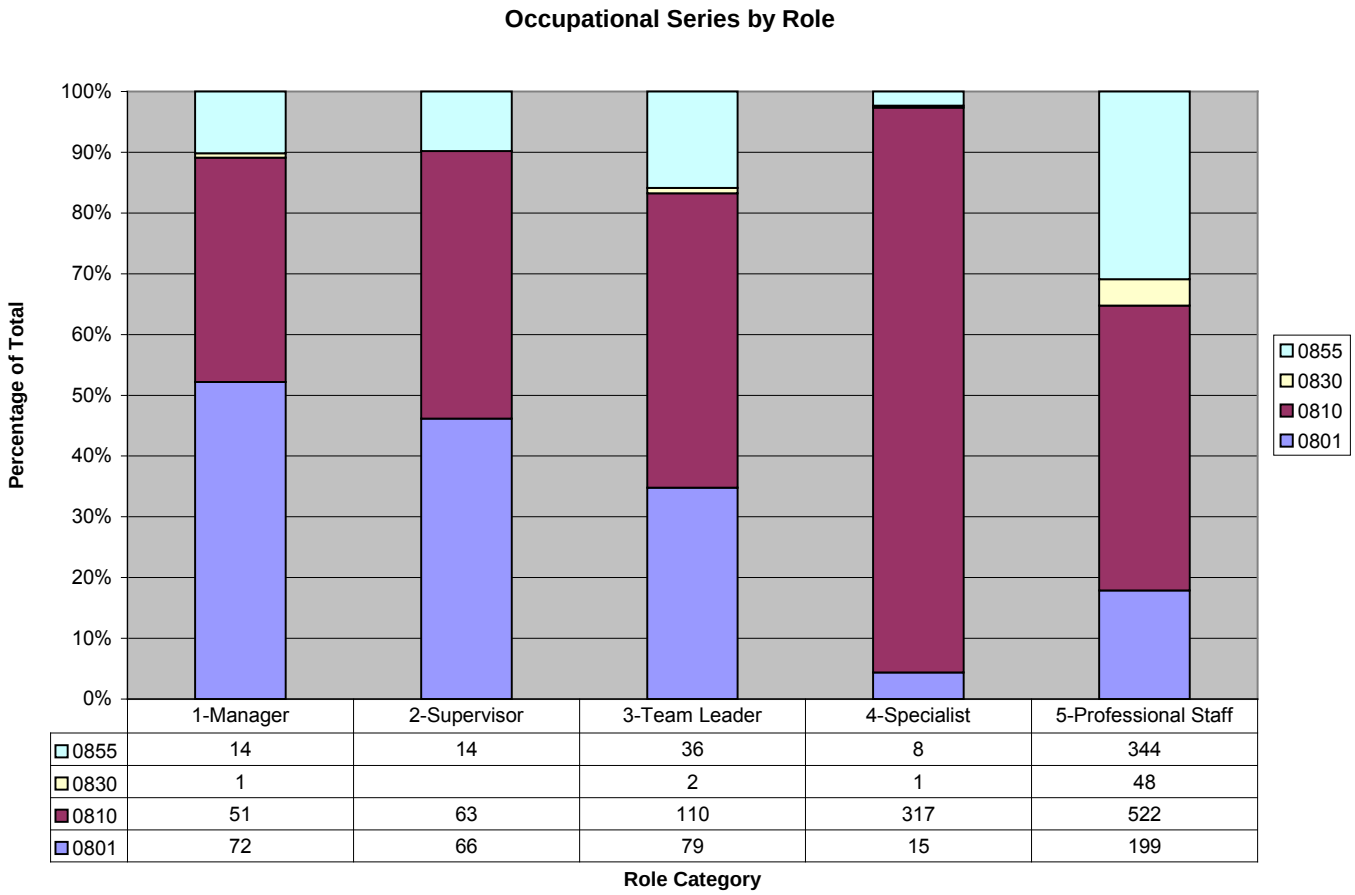
	FAA	FHWA	FMCSA	FRA	FTA	MARAD	NHTSA	PHMSA	RITA	SLSDC
0801	753	6	3	19	44	8	97	101	36	1
0810	375	1124		3		2			8	2
0830	70	1	1	6		3	25		35	
0855	880	2		5			3		38	1

Removing FAA and FHWA from the analysis provides a clearer picture of the smaller OAs



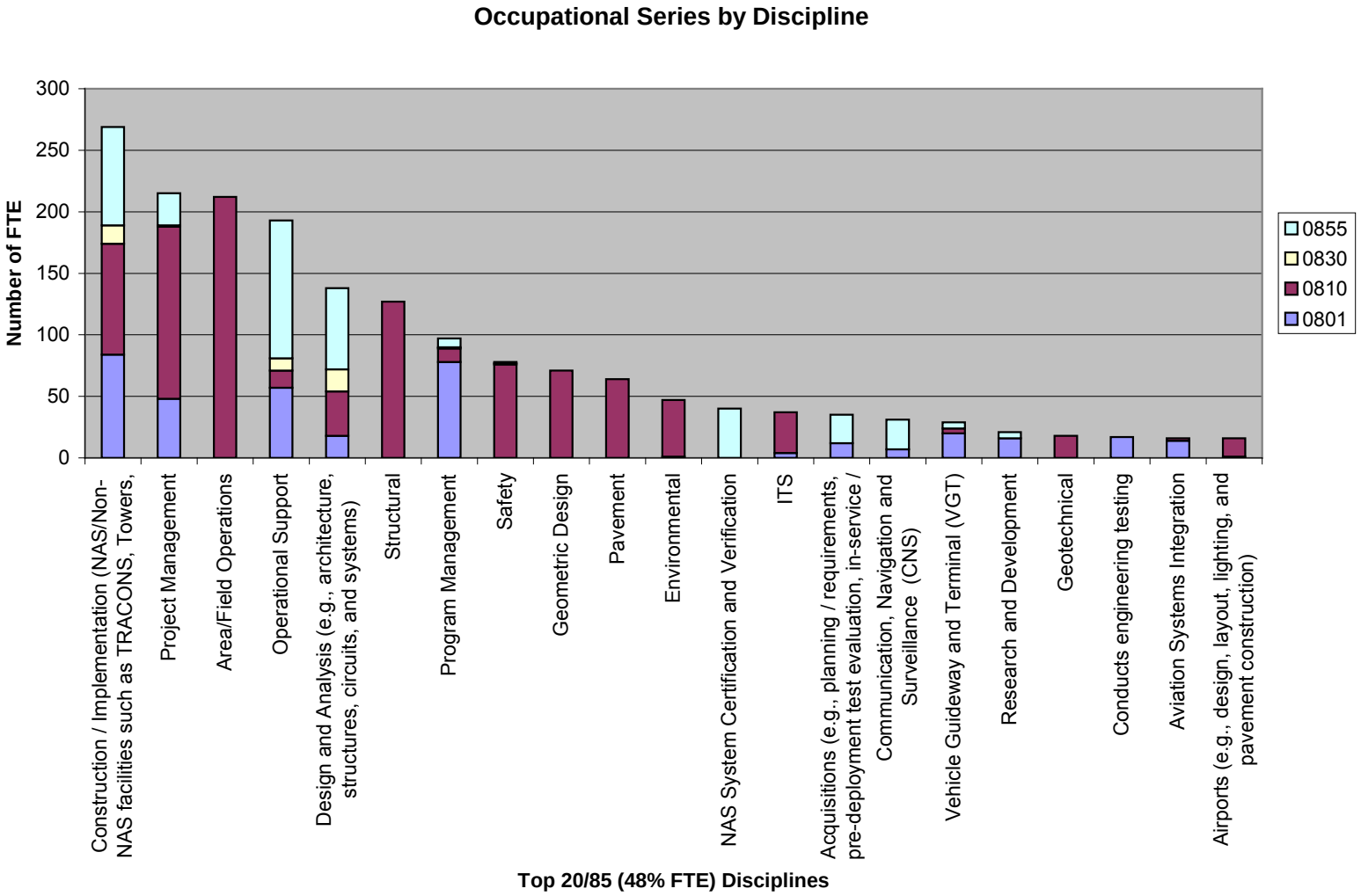
	FMCSA	FRA	FTA	MARAD	NHTSA	PHMSA	RITA	SLSDC
0801	3	19	44	8	97	101	36	1
0810		3		2			8	2
0830	1	6		3	25		35	
0855		5			3		38	1

Using the functional data set, it appears that 50% of managers are general engineers and more than 40% of supervisors are general engineers

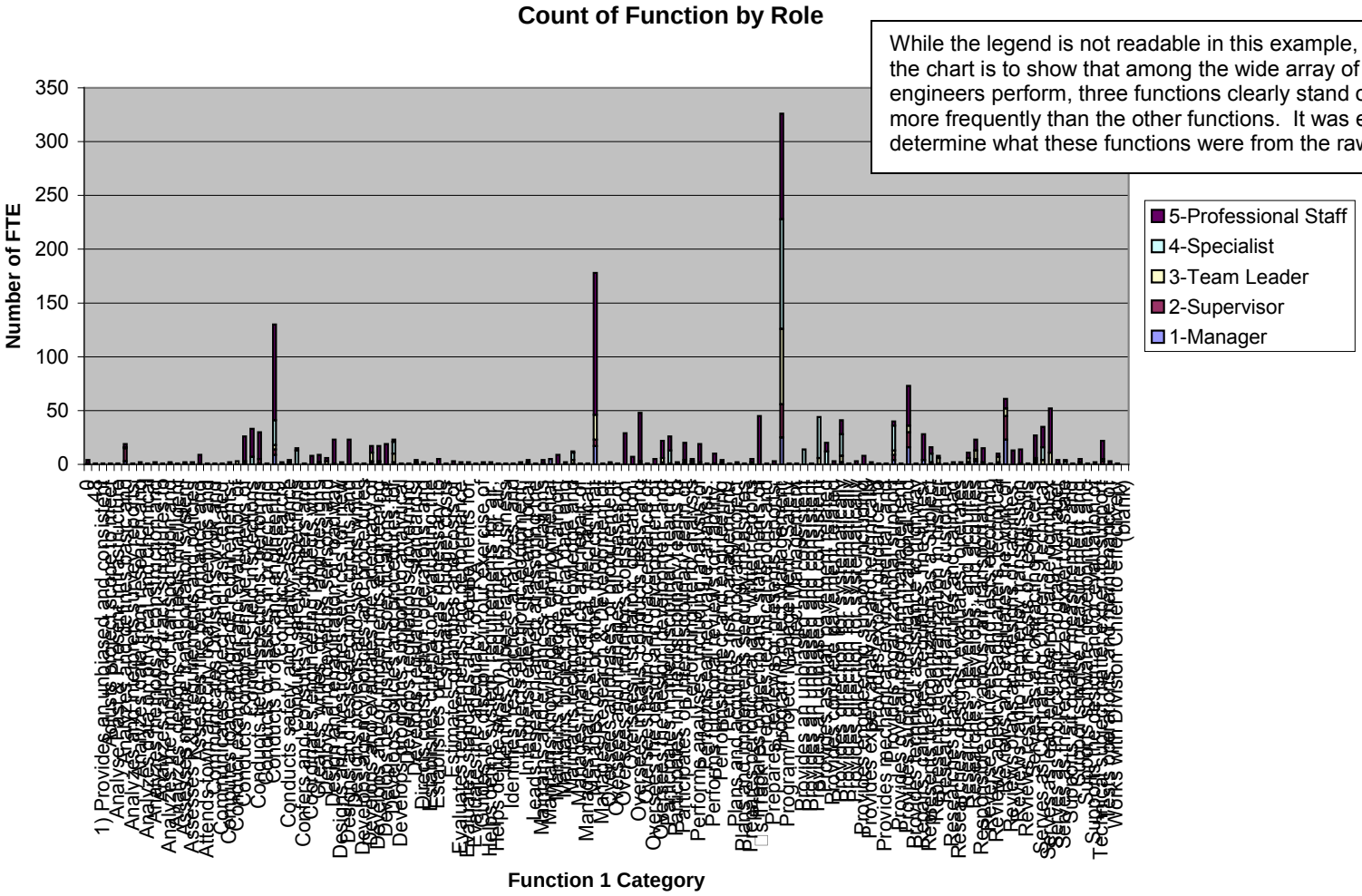


	1-Manager	2-Supervisor	3-Team Leader	4-Specialist	5-Professional Staff
0855	14	14	36	8	344
0830	1		2	1	48
0810	51	63	110	317	522
0801	72	66	79	15	199

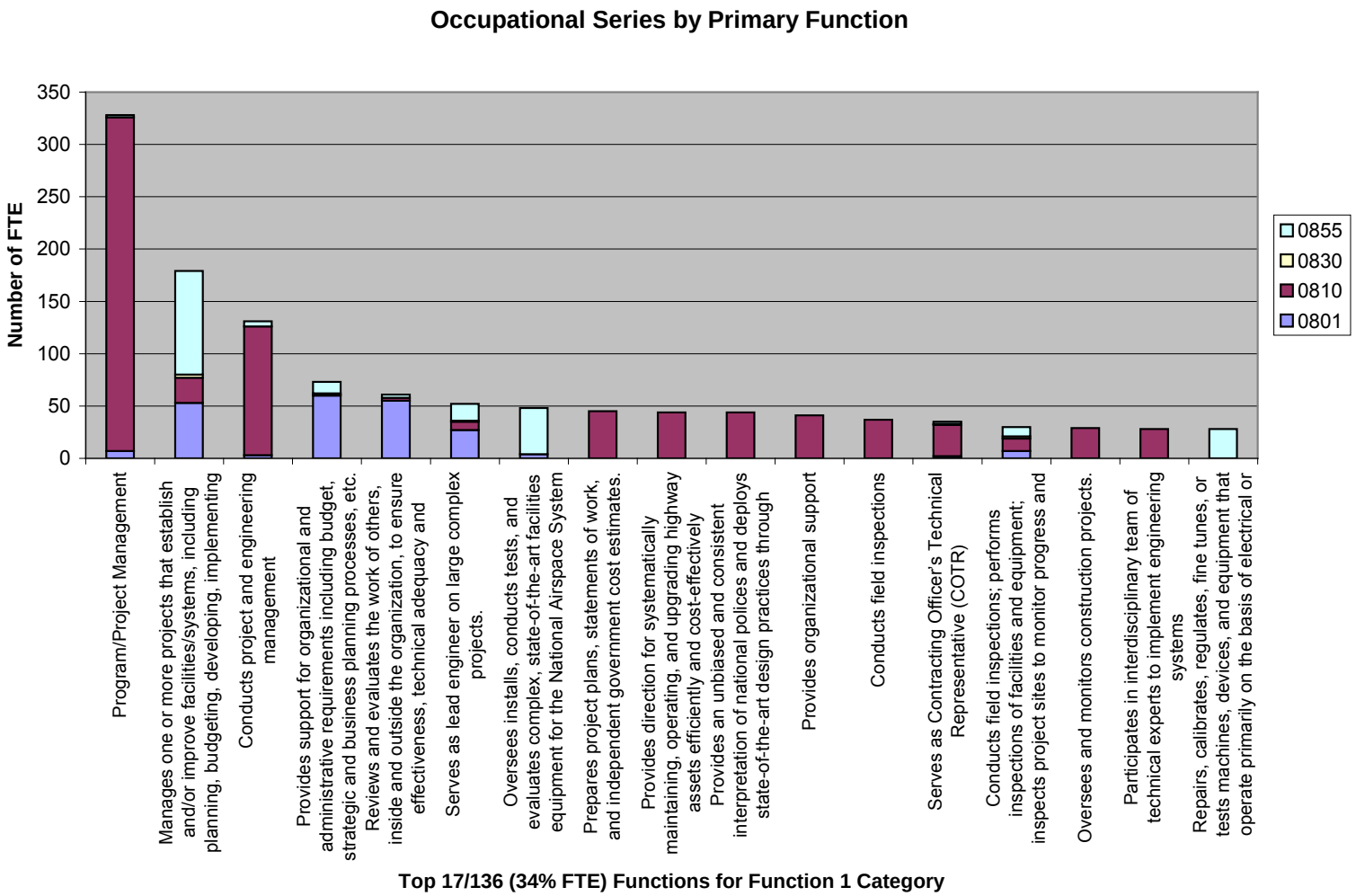
Using the functional data set, the top 20 disciplines were identified



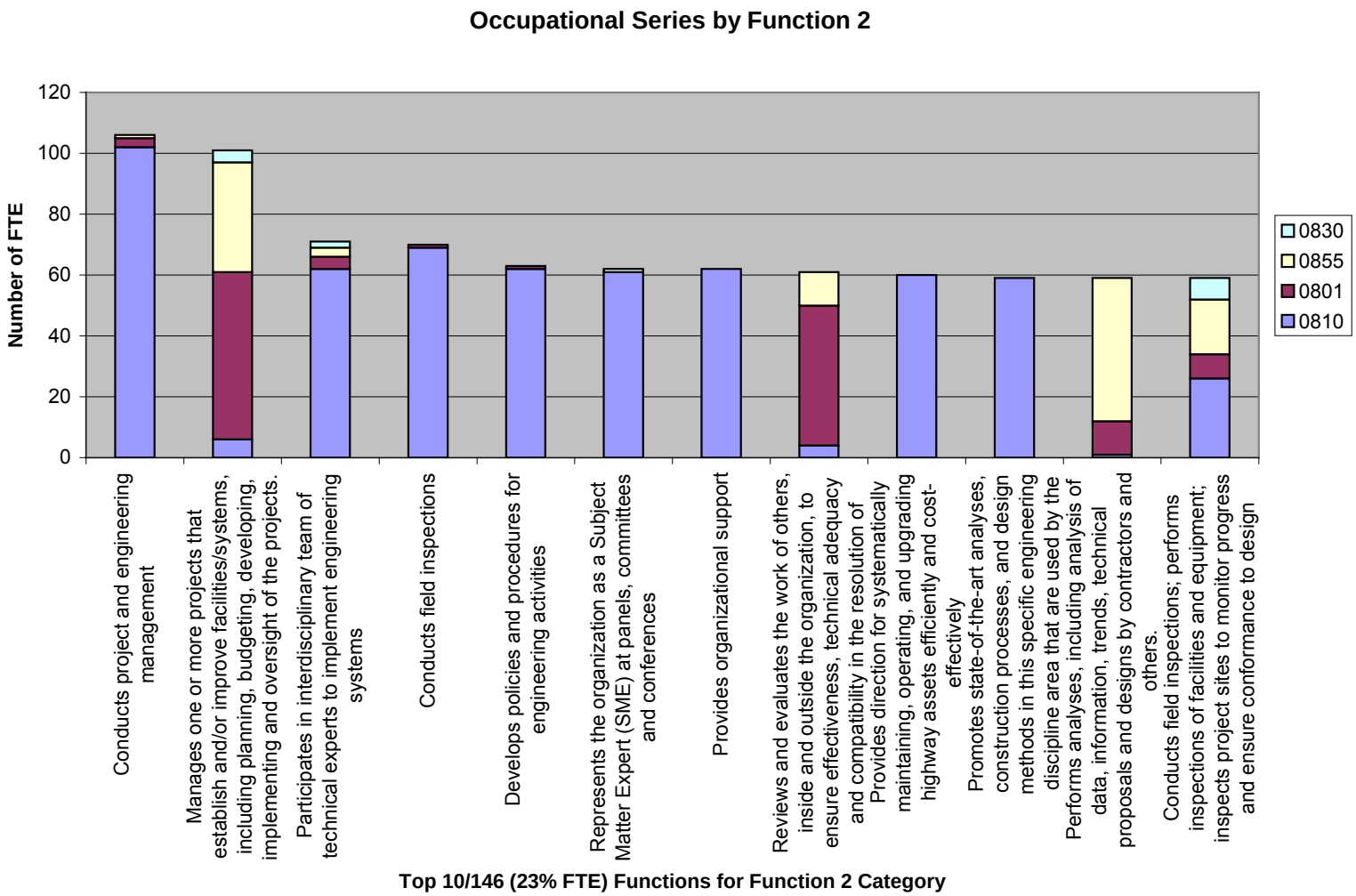
An initial run of the function data identifies three primary functions



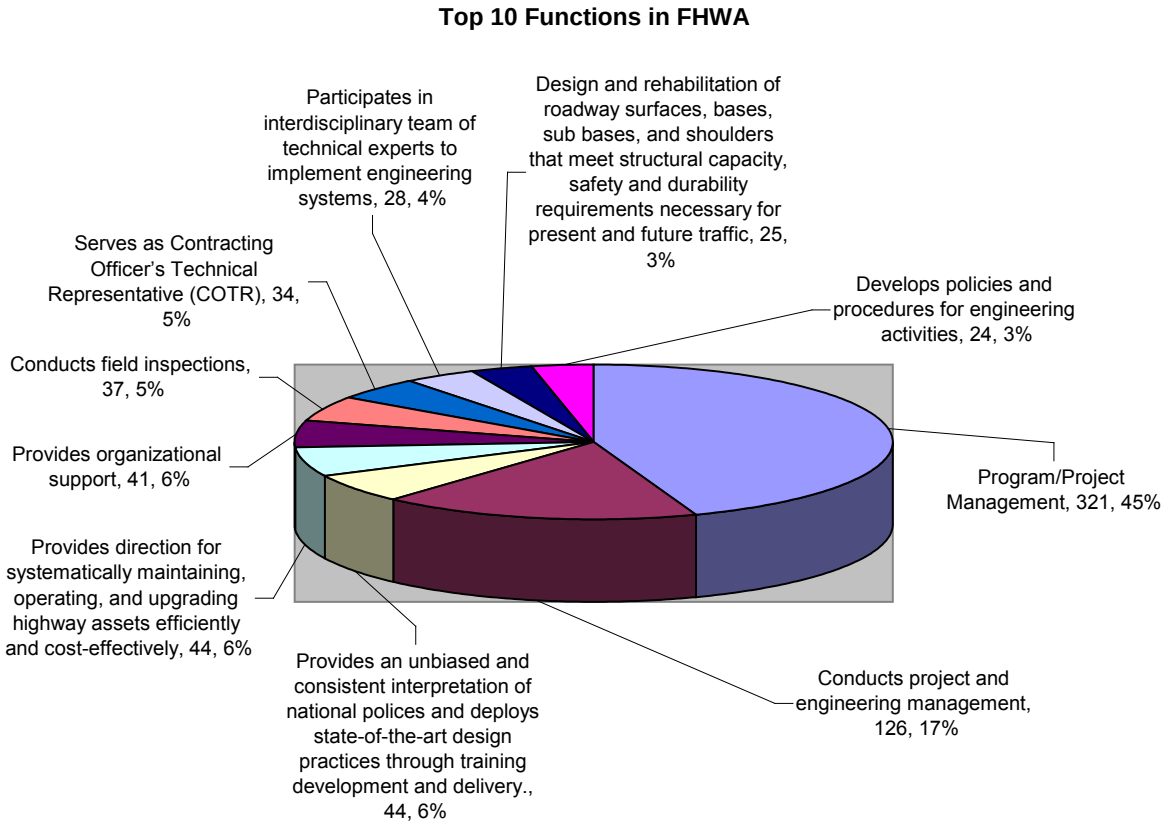
Further analysis ranks the top 17 functions

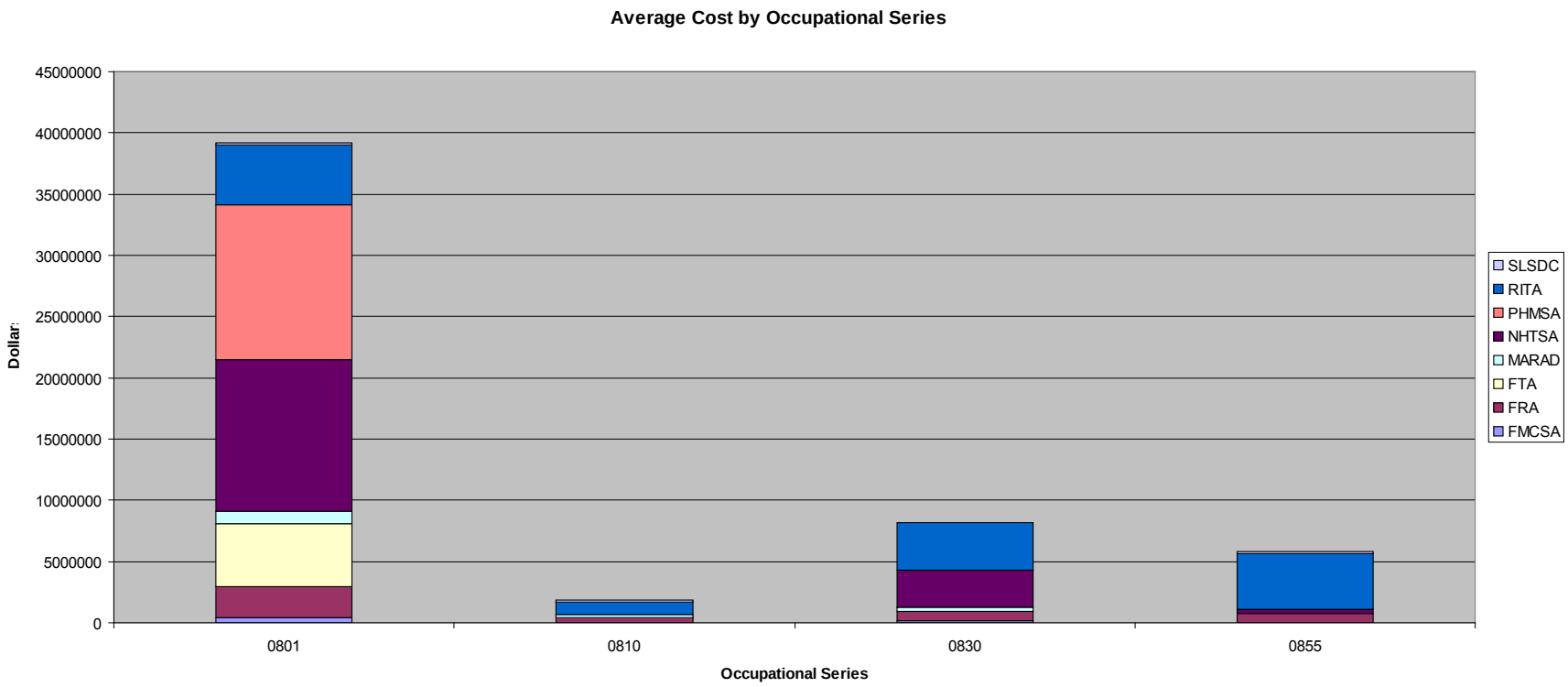


The top 10 functions are shown for Function 2



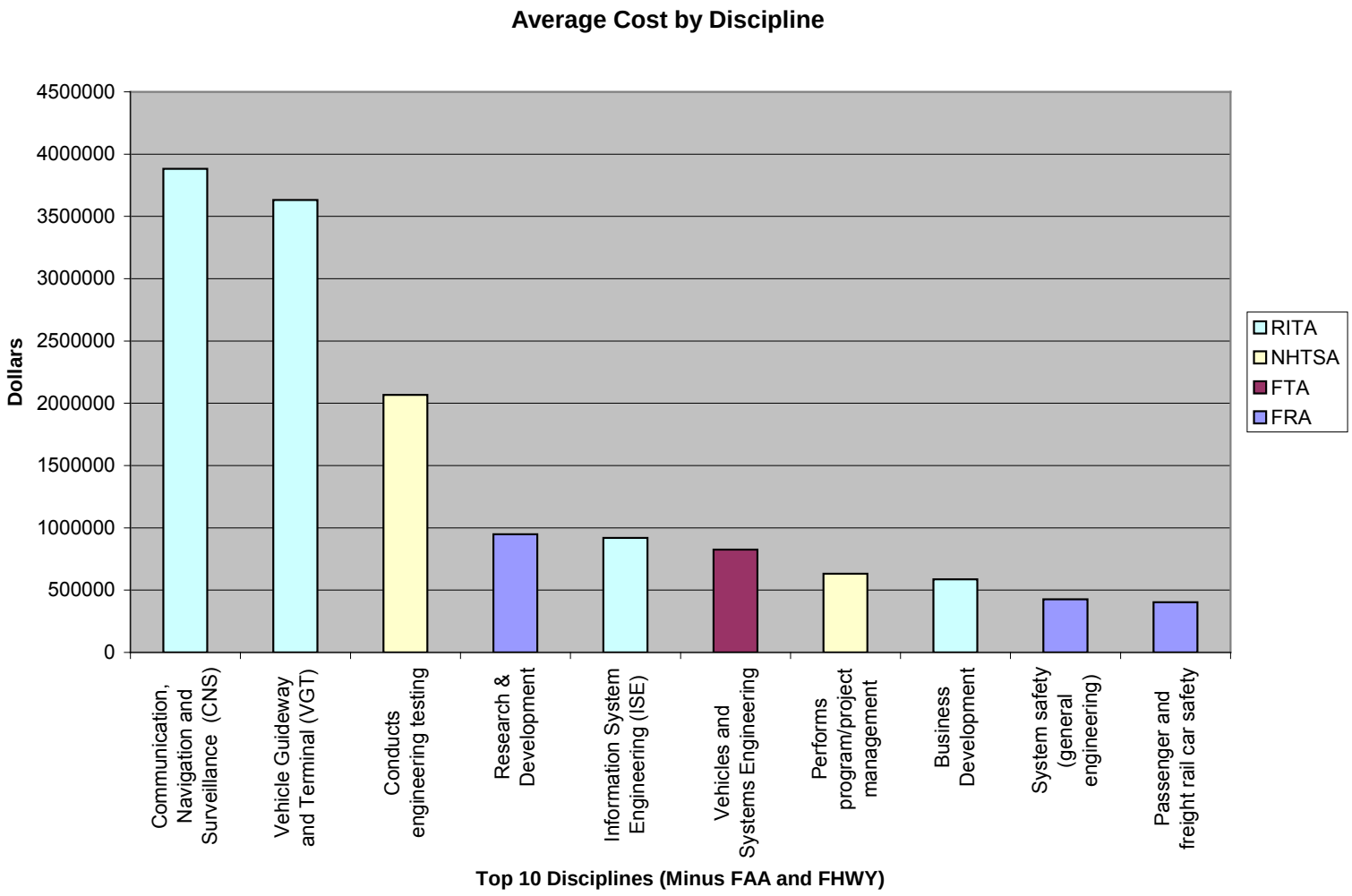
The top 10 primary functions are shown for FHWA



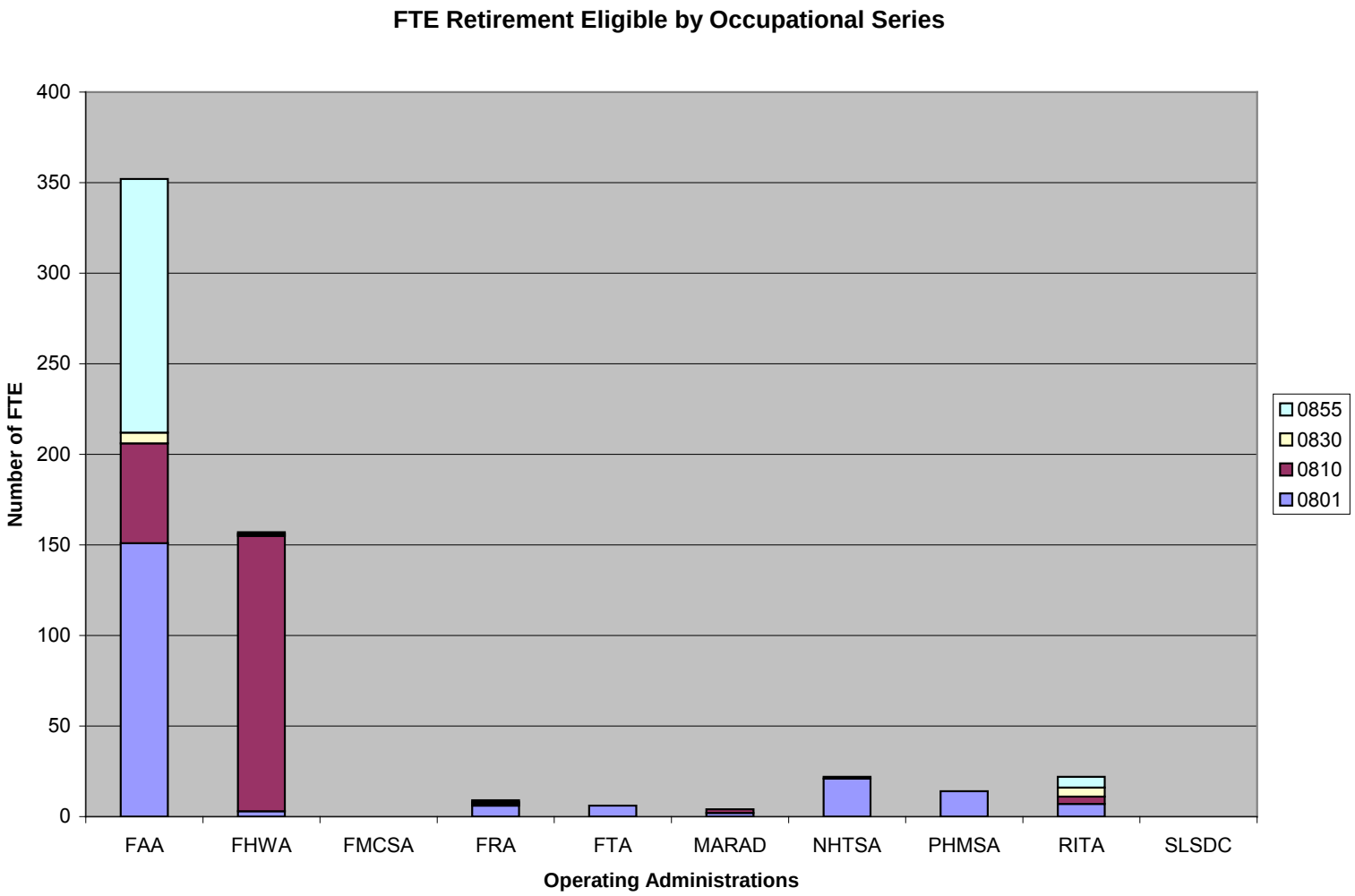


Using cost data, we can begin to understand the cost implications of positions and functions

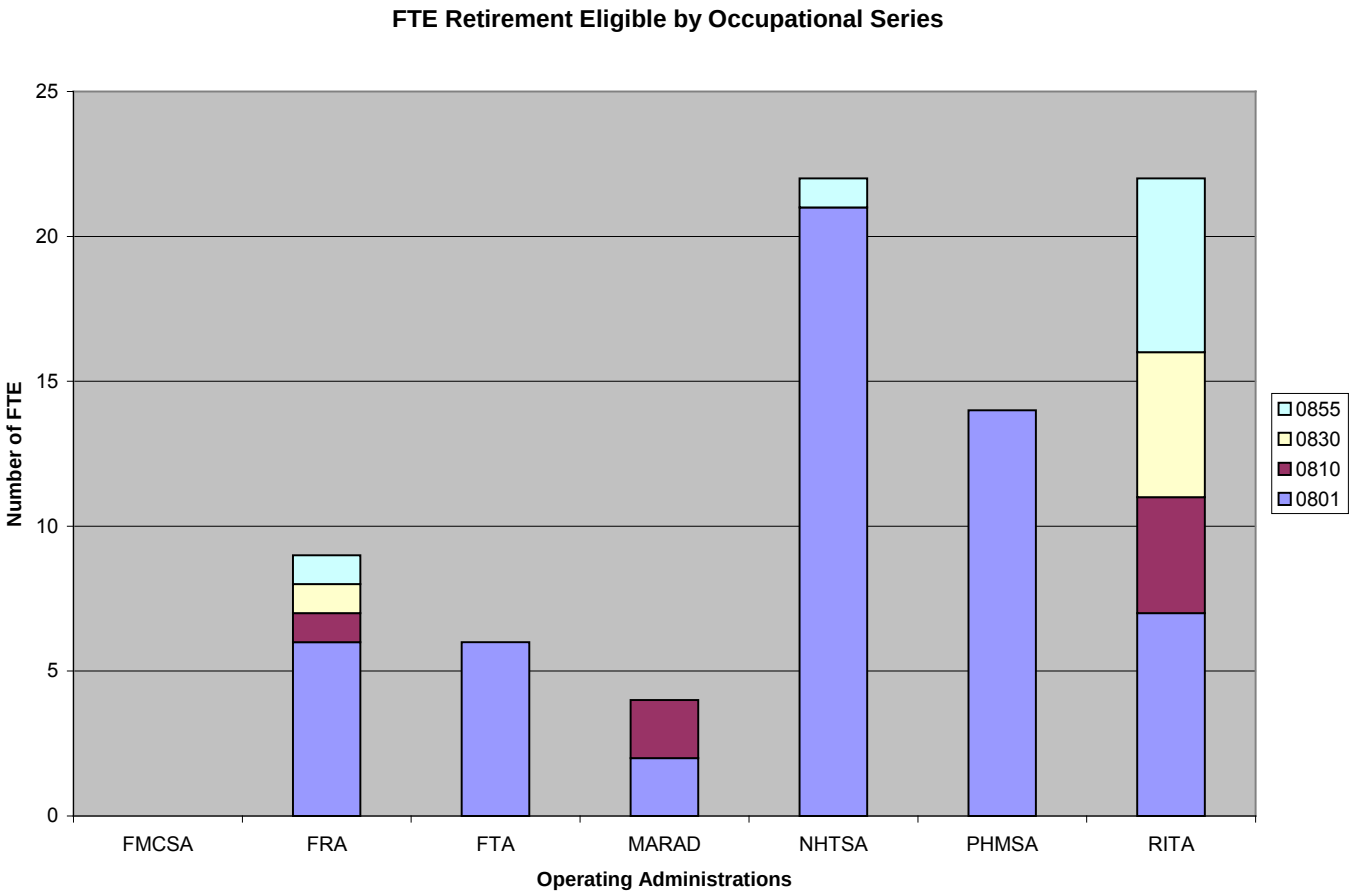
The average cost by discipline is shown for RITA, NTSA, FTA, and FRA



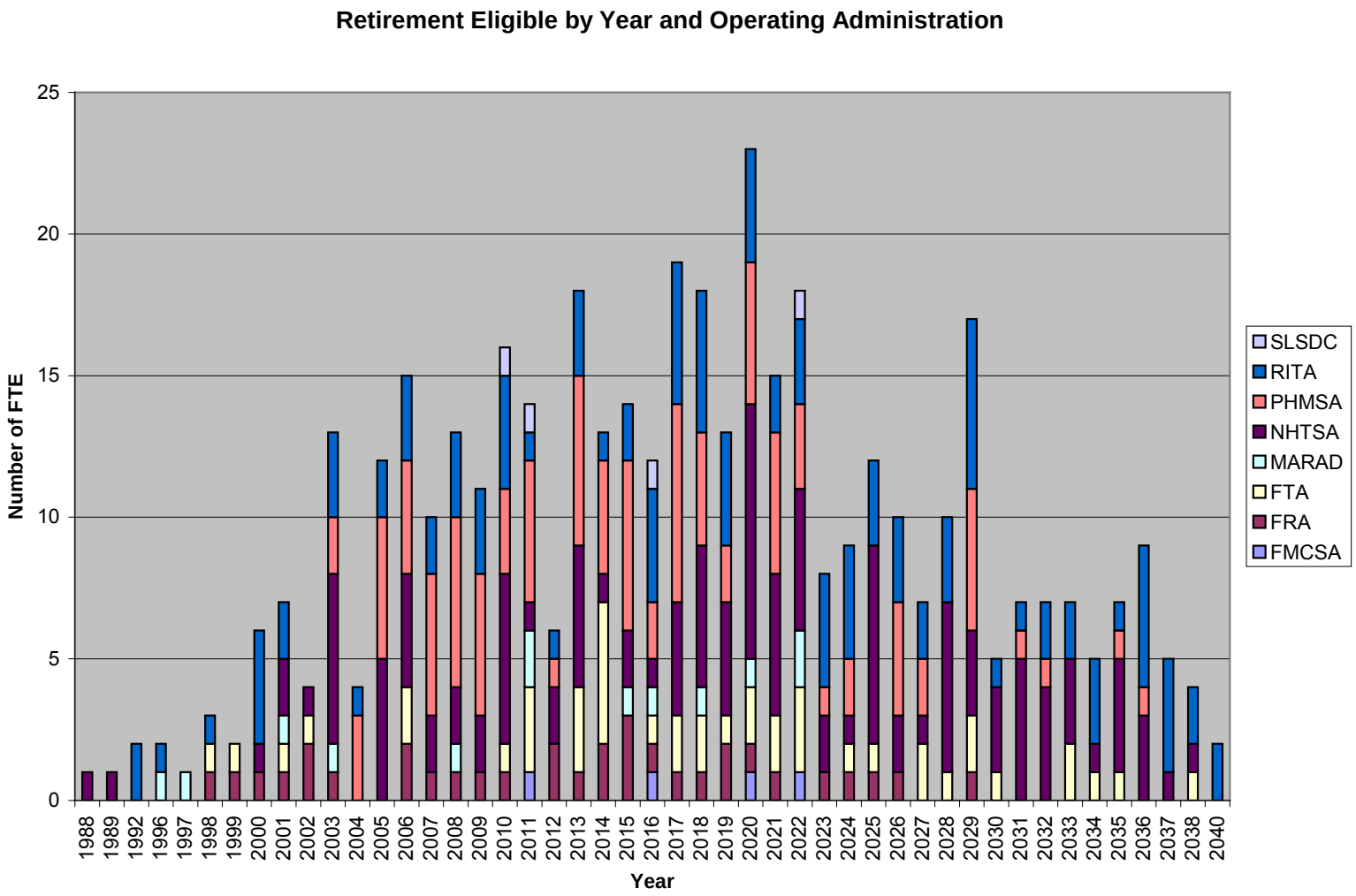
The number of FTE currently eligible for retirement is shown by series for all of the OAs



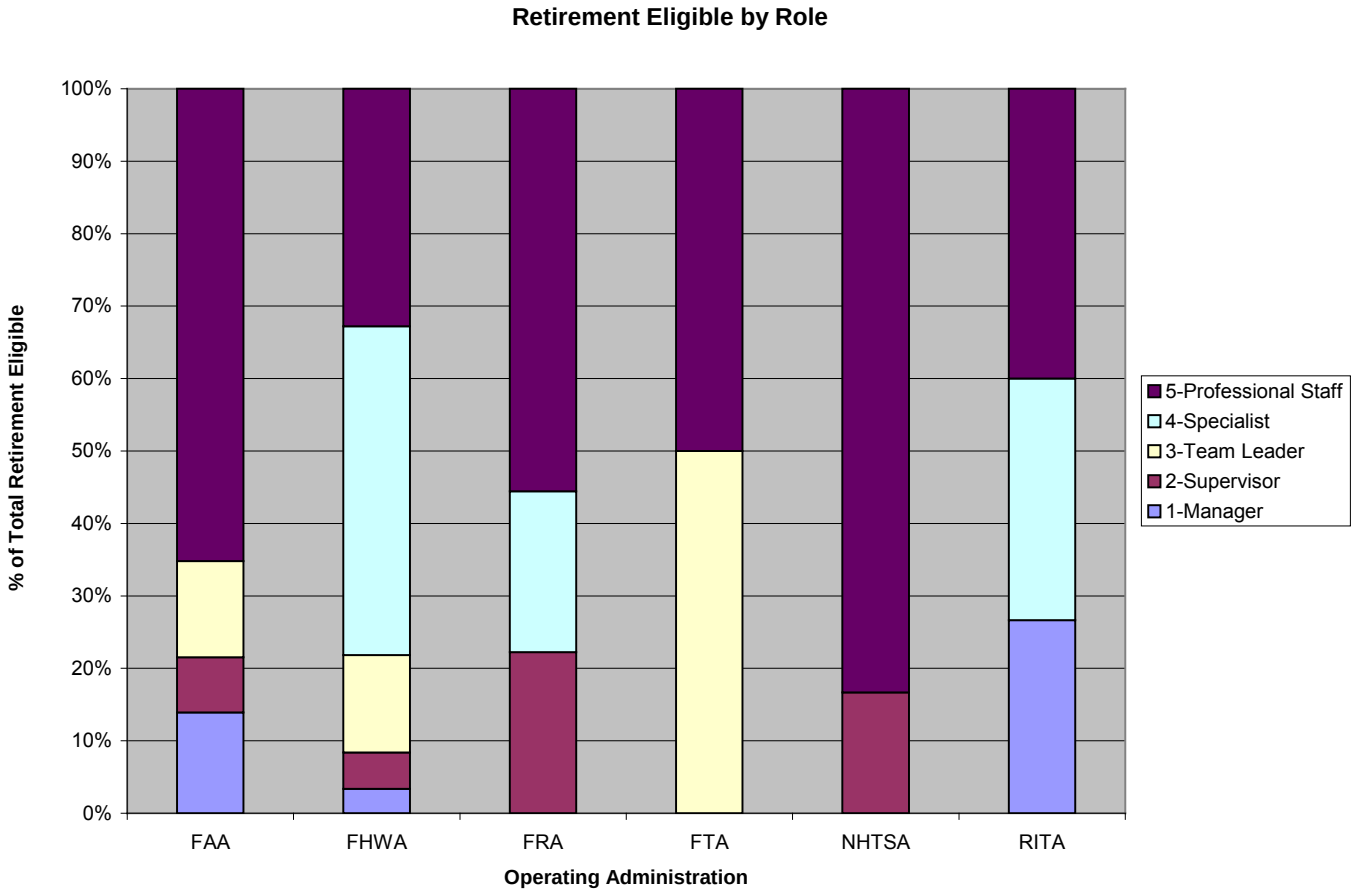
Removing FAA and FHWA from the analysis provides more detail for the remaining OAs



The functional data set will allow us to look at retirement from new angles



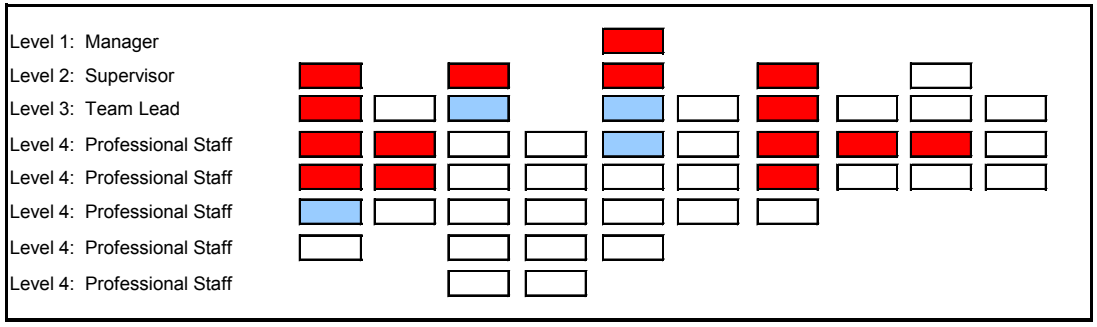
Using the functional data will allow us to see retirement eligible by role, discipline, and function



OMB Inventory Submission Sample

Agency/ Bureau	Abbr	Unit Name	State	City	Country	Total FTEs	Activity Function Code	Activity Suffix (AFC 5th position designation)	Status	Reason Code	First Year on Inventory
021-70	MARAD		NY	KINGS POINT	US	1.00	B000		I		
021-70	MARAD		NY	KINGS POINT	US	2.00	B700		I		
021-70	MARAD		DC	WASHINGTON	US	3.00	B700		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	B700		C	D	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	B700		I		
021-70	MARAD		NY	KINGS POINT	US	3.00	C300		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	C302		I		
021-70	MARAD		NY	KINGS POINT	US	1.00	C307		C	A	2001
021-70	MARAD		CA	SAN FRANCISCO	US	1.00	C307		I		
021-70	MARAD		DC	WASHINGTON	US	1.00	C314		I		
021-70	MARAD		DC	WASHINGTON	US	1.00	C316		I		
021-70	MARAD		DC	WASHINGTON	US	1.00	C316		I		
021-70	MARAD		NY	KINGS POINT	US	2.00	C400		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	4.00	C400		I		
021-70	MARAD		CA	SAN FRANCISCO	US	1.00	C401		I		
021-70	MARAD		DC	WASHINGTON	US	6.00	C401		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	C401		C	B	2001
021-70	MARAD		DC	WASHINGTON	US	5.00	C401		I		
021-70	MARAD		DC	WASHINGTON	US	1.00	D101		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	D101		C	B	2001
021-70	MARAD		NY	KINGS POINT	US	1.00	D200		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	1.00	D200		C	A	2001
021-70	MARAD		TX	BEAUMONT	US	2.00	D702		C	D	2001
021-70	MARAD		CA	BENICIA	US	4.00	D702		C	D	2001
021-70	MARAD		NY	KINGS POINT	US	16.00	D702		C	A	2001
021-70	MARAD		NY	KINGS POINT	US	1.00	D702		I		
021-70	MARAD		VA	NEWPORT NEWS	US	4.00	D702		C	D	2001
021-70	MARAD		VA	NORFOLK	US	1.00	D702		C	A	2001
021-70	MARAD		VA	NORFOLK	US	2.00	D702		I		
021-70	MARAD		CA	SAN FRANCISCO	US	1.00	D702		I		
021-70	MARAD		DC	WASHINGTON	US	11.00	D702		C	A	2001
021-70	MARAD		DC	WASHINGTON	US	5.00	D702		C	D	2001
021-70	MARAD		DC	WASHINGTON	US	2.00	D702		I		
021-70	MARAD		TX	BEAUMONT	US	1.00	D712		C	D	2001
021-70	MARAD		NY	KINGS POINT	US	2.00	D712		C	A	2001

This is a very simple example to demonstrate how a visual model of the workforce can be very effective for decision making; this example will be much more powerful on a larger scale.



48 FTE

15 Currently Eligible to Retire

4 Eligible to Retire in 2 years

APPENDIX 4-1: FORECASTING ANALYSIS SAMPLES

[Reserved for future use.]

APPENDIX 5-1: JOB FUNCTION COMPETENCY MAP SAMPLES

Using the worksheets developed and validated by SMEs in Step 3-H and the competencies identified in Step 5-C, map relevant competencies to each function statement and broad job function category. This yields a set of competencies associated with each job function category for each occupational series. This is referred to as the Job Series Competency Map, an example of which is presented in *Table 5-1-1: Engineering Job Function Competency Map Sample.* The map contains three columns and is further divided by the broad job function categories (shown in red). The first column shows the job functions (Step 3-H), the second column is a working repository for collecting all the potential competencies that contribute to successful performance of the job function, and the third column is for any notes on associated behaviors, skills, and attributes that contribute to successful performance.

Table 5-1-1: Engineering Job Function Competency Map Sample

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
BUDGETING, COSTING		
Estimates budget costs	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Estimates quantities and costs of materials, equipment or labor to determine project feasibility.	Financial Management: Acts as a responsible steward of funds. Accurately estimates budget requirements, clearly justifies requests, and manages funding to support CMS' mission.	
Analyzes and defines basic and contingent resource requirements, priorities, funding and system costs.	Organizational System Awareness: Knows the organization's mission and functions, and how its social, political, and technological systems work and operate effectively within them; this includes the programs, policies, procedures, rules, and regulations of the organization.	
Develops cost estimates	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	
Maintains project financial data and compiles budget status reports		
Budgets for projects and maintains financial plans.		
Provides support for organizational and		

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
administrative requirements including budget, strategic and business planning processes, etc.		
CALIBRATION, REPAIR		
Supports software development and integration, system training and maintenance for both transportation and logistics MIS.	Applies Mathematical Formulas and Statistical Analysis: Uses basic mathematics, algebra, descriptive, and inferential statistical tests to understand engineering problems, predict outcomes, solve problems, and demonstrate support for their recommendations.	Ability to complete simple mathematical equations (e.g., addition, subtraction, multiplication, division, percentages, averages, ratios); Ability to apply basic algebraic functions and geometric principles; Ability to take measurements accurately, estimate sizes, distances, and quantities, or determine time, costs, resources, or materials needed to perform a work activity.
Specifies system components or direct modification of products to ensure conformance with engineering design and performance specifications.	Component and System Design: Applies both general and specialized engineering knowledge to develop practical and effective solutions within the constraints of the situation. Tests the practicality and quality of solutions using simulations and models.	
	Component and System Testing: Tests entire interconnected set of components or systems for the purpose of determining proper functions and interconnections.	
	Creative Problem Solving: Draws on a broad knowledge and to identify innovative approaches to problems and opportunities. Offers and tests nontraditional approaches in the design of components, systems, and processes in order to find a solution that meets the needs of the situation.	Ability to identify potential causes of the problem by analyzing its component parts; Ability to use all available reference systems to locate and obtain information relevant to the problem; Ability to recall previously learned information that is relevant to the problem
	Electronic Systems Troubleshooting: Isolates the source of a problem and fixes it, typically through a process of elimination whereby possible sources of the problem are investigated and eliminated beginning with the most obvious or easiest problem to fix.	
	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
	Safety Inspection: Ensuring, through official examination or review, that modal systems, vehicles and equipment meet or exceed safety regulations and standards.	
DATA ANALYSIS		
Performs analyses, including analysis of data, information, trends, technical proposals and designs by contractors and others.	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Performing trend analysis	Applied Mathematics and Statistical Analysis: Applied mathematics statistical tests and financial analysis: Uses basic mathematics, algebra, descriptive, and inferential statistical tests to understand engineering problems, predict outcomes, solve problems, and demonstrate support for their recommendations..	Ability to complete simple mathematical equations (e.g., addition, subtraction, multiplication, division, percentages, averages, ratios); Ability to apply basic algebraic functions and geometric principles; Ability to take measurements accurately, estimate sizes, distances, and quantities, or determine time, costs, resources, or materials needed to perform a work activity.
Performs earned value analysis.	Problem Solving: Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.	Ability to identify potential causes of the problem by analyzing its component parts; Ability to use all available reference systems to locate and obtain information relevant to the problem; Ability to recall previously learned information that is relevant to the problem
Identifies and recommends ways to improve the analysis of data on safety, environmental protection and service reliability. Identifies and implements opportunities to improve data quality and use jointly with industry and other agencies.	Process Improvement: Uses formal methodologies, such as flow diagrams, pareto analysis, and fishbone diagrams, to identify inefficiencies and flaws in current processes and systems and to improve them.	
Identifies and uses performance measures and indicators for operator programs. Monitors and analyzes program performance to determine trends, safety and integrity levels and needed changes to program policy.	Risk Analysis: Identifies and evaluates the risks to the public and risks of engineering design due to such factors as: technological obsolescence, environmental conditions, financial costs, structural decay, regulatory change, supply chain interruption, security threats, etc.	
DEVELOPMENT		
Develops programs supporting analytical and policy objectives of current and future clients	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
DESIGN		
Other principle functions (not listed): Participate in design teams, review of PS & Es and participate in process reviews.	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Supports the design and/or evaluation of transportation safety and/or security.	Influence: Fosters cooperative working relationships guiding people toward a common goal.	Inspires, motivates, and guides others toward goal accomplishments. Consistently develops and sustains cooperative working relationships. Encourages and facilitates cooperation within the organization and with customer groups
	Interpersonal Sensitivity: Is concerned with how others respond and related interpersonally. Is sensitive to others, adapts to make them feel comfortable, and interacts with people in a respectful, positive, and effective manner.	
	Listening: Hears and pays attention to the message, focusing entirely on what the other person is saying and confirming understanding of both the content of the message and the emotions and feelings underlying the message to ensure that understanding is accurate.	
	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	
	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
	Safety Design: Identifies potential risks of harm to people through research, simulation, and modeling. Employs current regulations, standards, and technology to engineer components and systems to reduce or minimize risk.	
	System Design and Modeling: Applies a systems approach to the analysis and design of systems and equipment. Knowledge of integrated product design and development methods	
	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
EVALUATION		
Conduct examination and evaluation of products, equipment, or procedures including design documents, hardware, and software system safety analysis, and factory and field testing	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
	Applied Knowledge: Understanding of the purpose, scope, and application of requirements relating to engineering in modal operations. Ability to apply standards, codes and provisions to the design, analyses and evaluation of structures, systems, and components.	
	Cost-Benefit Analysis: Evaluates and documents the societal, safety, financial, and technical costs and benefits to engineering and business solutions. Makes recommendations and implements solutions that reflect those considerations.	
	Problem Solving: Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.	Ability to identify potential causes of the problem by analyzing its component parts; Ability to use all available reference systems to locate and obtain information relevant to the problem; Ability to recall previously learned information that is relevant to the problem

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Assesses transportation system technology, safety, and environmental impacts	Research: Conducts investigation into engineering systems, problems, or opportunities in order to make recommendations for handling engineering and safety challenges. Locates, obtains relevant data from first-hand inspection and testing, secondary research, and through models and simulations.	
"Analyzes current passenger vehicle safety system technologies and also proposed safety regulations to assess their impacts on occupant safety."	Safety Design: Identifies potential risks of harm to people through research, simulation, and modeling. Employs current regulations, standards, and technology to engineer components and systems to reduce or minimize risk.	
IMPLEMENTATION		
Works with the industry and others to plan and implement security measures that comply with regulations.	Creative Problem Solving: Draws on a broad knowledge and to identify innovative approaches to problems and opportunities. Offers and tests nontraditional approaches in the design of components, systems, and processes in order to find a solution that meets the needs of the situation.	
Plans and implements security measures	Influence: Fosters cooperative working relationships guiding people toward a common goal.	Inspires, motivates, and guides others toward goal accomplishments. Consistently develops and sustains cooperative working relationships. Encourages and facilitates cooperation within the organization and with customer groups.
	Interpersonal Sensitivity: Is concerned with how others respond and related interpersonally. Is sensitive to others, adapts to make them feel comfortable, and interacts with people in a respectful, positive, and effective manner.	
	Listening: Hears and pays attention to the message, focusing entirely on what the other person is saying and confirming understanding of both the content of the message and the emotions and feelings underlying the message to ensure that understanding is accurate.	
	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	
	Risk Analysis: Identifies and evaluates the risks to the public and risks of engineering design due to such factors as: technological obsolescence, environmental conditions, financial costs, structural decay, regulatory change, supply chain interruption, security threats, etc.	
INSPECTION		
Conducts field inspections	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Conducts field inspections; performs inspections of facilities and equipment; inspects project sites to monitor progress and ensure conformance to design specifications and safety standards.	Applied Knowledge: Working knowledge of relevant standards, codes, and provisions related to engineering requirements or pertaining to modal processes and operations.	Understanding of the purpose, scope, and application of requirements relating to mechanical engineering in modal operations. Ability to apply standards, codes and provisions to the design, analyses and evaluation of structures, systems, and components.
Conducts safety and quality assurance inspections.	Influence: Fosters cooperative working relationships guiding people toward a common goal.	Inspires, motivates, and guides others toward goal accomplishments. Consistently develops and sustains cooperative working relationships. Encourages and facilitates cooperation within the organization and with customer groups.
Conducts safety inspections	Project Management: Organizing and managing resources so that all the work required to complete a project within defined scope, quality, time and cost constraints.	
Conducts safety program reviews and provides engineering analyses and evaluations of potential safety regulatory deficiencies. Interprets and applies Federal regulations and monitoring requirements to the design, construction, operation and maintenance of systems. Performs or directs field surveys and investigations to determine existing condition of facilities. Develops alternatives, and presents findings and alternatives in written reports and verbally in meetings with affected parties.	Risk Analysis: Identifies and evaluates the risks to the public and risks of engineering design due to such factors as: technological obsolescence, environmental conditions, financial costs, structural decay, regulatory change, supply chain interruption, security threats, etc.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Knowledge of damage prevention community goals and best practices associated with the Common Ground Alliance and similar entities.	Safety Inspection: Ensuring, through official examination or review, that modal systems, vehicles and equipment meet or exceed safety regulations and standards.	
Knowledge of the emergency response community incident command structure and controlling safety and environmental laws pertaining to oil and gas transportation.	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Leads on-site inspections and conducts investigations of facilities involved in major accidents or failures, including providing direction and coordination to Federal and/or state teams assigned to major accidents.		
Manages technical inspection standards		
Reviews the design and specifications for systems under construction or repair to assure conformance with safety regulations.		
MANAGEMENT		
Adjusts project scope to meet requirement and resource changes.	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Collaborates with Division Chiefs and Directors in developing business opportunities	Contracting/Procurement: Plans and administers contract negotiations and project implementation using knowledge of Federal Acquisitions Regulations. Manages relationship with vendors and serves a technical liaison between vendor and the agency.	
Conducts comprehensive reviews of existing or proposed projects to satisfy user needs; identify existing or potential system performance deficiencies; propose alternatives and negotiate resolution issues.	Creative Problem Solving: Draws on a broad knowledge and to identify innovative approaches to problems and opportunities. Offers and tests nontraditional approaches in the design of components, systems, and processes in order to find a solution that meets the needs of the situation.	Ability to identify potential causes of the problem by analyzing its component parts; Ability to use all available reference systems to locate and obtain information relevant to the problem; Ability to recall previously learned information that is relevant to the problem
Coordinates engineering projects with airport personnel, consultants and contractors.	Influence: Fosters cooperative working relationships guiding people toward a common goal.	Inspires, motivates, and guides others toward goal accomplishments. Consistently develops and sustains cooperative working relationships. Encourages and facilitates cooperation within the organization and with customer groups.

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Coordinates project schedule with clients.	Interpersonal Sensitivity: Is concerned with how others respond and related interpersonally. Is sensitive to others, adapts to make them feel comfortable, and interacts with people in a respectful, positive, and effective manner.	
Delivers presentations on programs/projects	Listening: Hears and pays attention to the message, focusing entirely on what the other person is saying and confirming understanding of both the content of the message and the emotions and feelings underlying the message to ensure that understanding is accurate.	
Develops markets and business initiatives for the Division, and maintains current portfolio	Oral Communication: Expresses information to individuals or groups effectively, taking into account the audience and nature of the information; makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.	
Develops statements of work and procurement actions	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	
Identifies business opportunities and collaborates with peers	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	
Manages structure safety programs and projects	Process Improvement: Uses formal methodologies, such as flow diagrams, pareto analysis, and fishbone diagrams, to identify inefficiencies and flaws in current processes and systems and to improve them.	
Oversees all phases of procurement activities	Project Management: Organizing and managing resources so that all the work required to complete a project within defined scope, quality, time and cost constraints.	
Prepares project plans, statements of work, and independent government cost estimates.	Technical Credibility: Understands and appropriately applies procedures, requirements, regulations, and policies in the oversight and delivery of work within their area of technical responsibility.	
Program/Project Management - Safety Coordinator	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Provides contract management support to field engineers		

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Provides overall program management for system safety research into railroad tracks, rail equipment, operating practices, human factors, train control systems, hazardous material transportation, grade crossings, and other rail infrastructure		
Provides program management for system safety of railroad operations, rolling stock, control systems, and infrastructure		
Represents the organization as a subject matter expert, performs trends analysis, Conducts project and engineering management, Participates in interdisciplinary team of technical experts to implement engineering systems, Oversees all phases of procurement		
Reviews agency headquarters' technical directives, specifications, drawings and suggestions to determine applicability for regional conditions, adequacy of instructions, method of implementation, and funding requirements and advises appropriate headquarters		
Serves as a Contracting Officer's Technical Representative (COTR) overseeing all phases of procurement activities.		
Supports the Division Chief in building and maintaining effective teams and a pipeline of junior staff		
Works with clients to define and document a mutually acceptable scope of work		
Provides technical input to testimony for congressional hearings for budget and other issues		
Provides technical input to questions from congressional hearings		

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Participates in meetings of national research organizations, such as the Transportation Research Board, as well as industry and technical associations		
MODELING		
Supports noise measurement and modeling projects	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Supports air quality measurement and modeling projects	Applied Mathematics, Statistical Tests and Financial Analysis: Uses basic mathematics, algebra, descriptive, and inferential statistical tests to understand engineering problems, predict outcomes, and demonstrate support for their recommendations.	Ability to complete simple mathematical equations (e.g., addition, subtraction, multiplication, division, percentages, averages, ratios); Ability to apply basic algebraic functions and geometric principles; Ability to take measurements accurately, estimate sizes, distances, and quantities, or determine time, costs, resources, or materials needed to perform a work activity.
PLANNING		
Plans and implements security measures	Life-Cycle Engineering: Determines the overall life of a product, system or equipment from conception to end of useful life.	Knowledge of life-cycle engineering analysis; Knowledge of factors that influence product creation such as design for environment, design for maintenance, design for re-usability, design for service, design for disposal, and design for life-cycle analysis;
Plans and manages projects to design and/or evaluate transportation safety and/or security technologies.	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	
	Research: Conducts investigation into engineering systems, problems, or opportunities in order to make recommendations for handling engineering and safety challenges. Locates, obtains relevant data from first-hand inspection and testing, secondary research, and through models and simulations.	
Identifies, researches, analyzes, and develops corrective action strategies and solutions for parts obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS).	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
POLICIES,PROCEDURES,REGULATIONS		
Analyzes the impact of transportation and logistics systems and policies	Analysis: Uses structured, orderly approach to break down ideas and systems into their component parts in order to understand them, manipulate them and develop new systems	
Assesses R&D requirements and policies	Applied Knowledge: Understanding of the purpose, scope, and application of requirements relating to mechanical engineering in modal operations. Ability to apply standards, codes and provisions to the design, analyses and evaluation of structures, systems, and components.	
Conducts studies and provides engineering analyses of safety issues involved in the development of Federal regulations and industry guidance. Participates in technical conferences, symposia and meetings as a technical expert and authority on safety issues related to the industry.	Creative Problem Solving: Draws on a broad knowledge and to identify innovative approaches to problems and opportunities. Offers and tests nontraditional approaches in the design of components, systems, and processes in order to find a solution that meets the needs of the situation.	Ability to identify potential causes of the problem by analyzing its component parts; Ability to use all available reference systems to locate and obtain information relevant to the problem; Ability to recall previously learned information that is relevant to the problem
Demonstrated ability to form alliances of parties with potentially conflicting or competing interests to achieve higher-level purposes.	Partnering/Collaboration: Dedicated to establishing and building mutually beneficial business relationships both internal and external to the organization.	Builds relationships within and outside of the organization Devotes time and effort to maintaining a broad network of relationships Leverages expertise and contacts to solve problems, gain knowledge, or develop new business Initiates alliances to accomplish business objectives or execute strategy Develops networks that are diverse in level and function Identifies and initiates new relationships to add to their network Looks for ways to return favors in order to build a mutually beneficial relationship Takes the lead in inspiring individuals or groups to work together for mutual benefit
Develops agency policies and procedures for safety enforcement and compliance activities	Political Savvy: Navigates organizational and political realities inside and outside of CMS to reach their goals. Manages social and political dynamics in productive ways, without doing harm to others or oneself.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Develops and recommends to the Director of Policy, Regulations, and Training initiatives and strategies for implementation at the national level to address identified safety and environmental problems. Determines resource requirements, performance-based standards, and innovative regulatory approaches to institutionalize policies and procedures that address those problems systemically.	Societal Awareness: Understands the uses, applications, impact and interplay of engineering solutions on contemporary society. Considers and responds to social, ethical, legal, safety and security issues when developing engineering solutions.	
Develops policies and procedures for engineering activities	System Perspective: Maintains a high-level perspective, and develops engineering solutions that consider the impacts and relationships among other technical systems as well as other social/organizational systems.	
Develops programs supporting analytical and policy objectives of current and future clients	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Develops regulations governing engineering activities		
Develops regulations, standards, procedures, advisory circulars, and other guidance governing engineering activities.		
Formulates, develops, and coordinates international and domestic technical and procedural standards and policy for design, development, and certification of advanced state-of-the-art components, systems, and equipment.		
Identifies and promotes best industry practices which meet and exceed established standards and achieve improved safety. Solicits industry cooperation in pilot testing management systems reviews and information exchange.		
Interprets federal, state and local environmental laws and policies.		
Provides technical support in development of national and international policies and		

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
regulations		
RISK ANALYSIS		
Leads risk-based railroad system safety studies	Applied Knowledge: Understanding of the purpose, scope, and application of requirements relating to engineering in modal operations. Ability to apply standards, codes and provisions to the design, analyses and evaluation of structures, systems, and components.	
	Research: Conducts investigation into engineering systems, problems, or opportunities in order to make recommendations for handling engineering and safety challenges. Locates, obtains relevant data from first-hand inspection and testing, secondary research, and through models and simulations.	
	Risk Analysis: Identifies and evaluates the risks to the public and risks of engineering design due to such factors as: technological obsolescence, environmental conditions, financial costs, structural decay, regulatory change, supply chain interruption, security threats, etc.	
	Safety Design: Identifies potential risks of harm to people through research, simulation, and modeling. Employs current regulations, standards, and technology to engineer components and systems to reduce or minimize risk.	
	Societal Awareness: Understands the uses, applications, impact and interplay of engineering solutions on contemporary society. Considers and responds to social, ethical, legal, safety and security issues when developing engineering solutions.	
REPORTING		
Prepares periodic oral or written technical briefings and reports containing information such as confidential descriptions and specifications of hardware and software, product development and introduction schedules, product costs, and information	Interpersonal Sensitivity: Is concerned with how others respond and related interpersonally. Is sensitive to others, adapts to make them feel comfortable, and interacts with people in a respectful, positive, and effective manner.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Delivers presentations on programs/projects	Listening: Hears and pays attention to the message, focusing entirely on what the other person is saying and confirming understanding of both the content of the message and the emotions and feelings underlying the message to ensure that understanding is accurate.	
Demonstrated strong skills in oral and written communication to prepare and present analyses of programmatic and technical issues, including the preparation of reports, proposals and major public presentations.	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	
Develops and distributes information to Federal, State and local officials, as well as to operators, about how citizens can help prevent damages and enhance the security of their energy supply by being more vigilant of activities on rights-of-way.	Process Improvement: Uses formal methodologies, such as flow diagrams, pareto analysis, and fishbone diagrams, to identify inefficiencies and flaws in current processes and systems and to improve them.	
Provides technical engineering and risk assessment-based information and advice to governmental officials and communities on safety issues arising from permitting requests generated from repair and mitigation actions taken by operators to comply with new integrity management program rules.	Societal Awareness: Understands the uses, applications, impact and interplay of engineering solutions on contemporary society. Considers and responds to social, ethical, legal, safety and security issues when developing engineering solutions.	
Prepare preliminary and final regulatory impact analyses for proposed Federal safety standards.	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Regulatory Impact Analysis		
RESEARCH		
Identifies, researches, analyzes, and develops corrective action strategies and solutions for parts obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS).	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
Researches and analyzes advanced safety and security technologies	Research: Conducts investigation into engineering systems, problems, or opportunities in order to make recommendations for handling engineering and safety challenges. Locates, obtains relevant data from first-hand inspection and testing, secondary research, and through models and simulations.	
Leads technical studies on safety standards and requirements	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Plans and implements research to improve security measures		
Initiates and implements research and development activities designed to reduce or eliminate railroad accidents at grade crossings		
SUPERVISION		
Coordinates assignments with colleagues and supervisors to assure that compliance citations or advice is consistent with established policy.	Influence: Fosters cooperative working relationships guiding people toward a common goal.	Inspires, motivates, and guides others toward goal accomplishments. Consistently develops and sustains cooperative working relationships. Encourages and facilitates cooperation within the organization and with customer groups.
	Interpersonal Sensitivity: Is concerned with how others respond and related interpersonally. Is sensitive to others, adapts to make them feel comfortable, and interacts with people in a respectful, positive, and effective manner.	
	Listening: Hears and pays attention to the message, focusing entirely on what the other person is saying and confirming understanding of both the content of the message and the emotions and feelings underlying the message to ensure that understanding is accurate.	
	Oral Communication: Expresses information to individuals or groups effectively, taking into account the audience and nature of the information; makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.	
	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	

Engineering Job Functions	Competency	Associated Behaviors, Skills, and Attributes
	Planning: Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.	
TESTING		
Provides engineering support, including software and hardware expertise on a variety of diagnostic test systems.	Partnering/Collaboration: Establishes and maintains mutually beneficial business relationships both internal and external to the organization.	
TRAINING		
Develops and delivers training programs and training grants to local emergency responders to inform them about risks, appropriate emergency response techniques, and defense countermeasures for potential terrorist attacks.	Technical Writing: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.	
Identifies needs for training of both Federal and industry regulatory and compliance personnel to improve use of risk-based principles and management system approaches. Periodically reviews training programs to ensure their continuing relevance to contemporary operating and maintenance practices.		

APPENDIX 5-2: MEETING FACILITATOR GUIDE SAMPLES

Date: April 12
Time: 9:00 a.m. – 1:00 p.m.
Location: Room 4200
Dial in:

Objectives:

- Confirm the job functions, duties and activities of engineers identified in Workgroup's analysis
- Identify the trends and forces that shape the engineering occupation
- Identify the competencies required to be successful in the engineering occupation

Outcomes:

- SME understanding of the Workforce Analysis Pilot Program
- SME confidence with how their input and the assessment data will be used
- List of Competencies and associated Knowledge, Skills, Abilities, behaviors and other attributes for each occupational series: General, Civil, Mechanical, and Electronics Engineering

Session Flow

♦ Welcome and Introductions
♦ Workforce Analysis Pilot Project Overview
♦ Focus Group Objectives
♦ Overview of Focus Group Discussion Process
♦ Summary of SME Feedback on Job Data
♦ SME Questions and Feedback for the Cross Functional Working Group
♦ SME Break-out Groups to discuss each Engineering Series: Civil, Electronics, Mechanical and General Engineering:
o Review proposed competencies associated with each job duty and agree on the general definition.
o Explore competencies and tailor definitions to DOT
o Add competencies
o Delete competencies
♦ Large Group Discussion and Debrief
♦ Next Steps

ACTIVITY	TIME	LEAD
Welcome and Introductions • Name, Operating Admin, Title & Responsibilities, Prior involvement in this project.	10 minutes	
Workforce Analysis Pilot Project Overview • Emphasize that we recognize that there are very real differences not only between agencies but among the various roles in each agency. • We want to ensure that we capture that and honor those differences**.**	5 minutes	
Agenda • Focus Group Objectives o Confirm the job functions, duties and activities of engineers o Identify the trends and forces that shape the engineering occupation o Identify and define the competencies required to be successful in the engineering occupation • Overview of Focus Group Discussion Process	5 minutes	
Discussion of Job Analysis and Job Data • Summary of SME Feedback on Job Data • SME Questions and Feedback for the Cross Functional Working Group	10 minutes	
Discussion of Industry Trends What changes are taking place, or are coming, that will impact how engineers in your agency do their jobs and the competencies they need to be successful? • For example, you might think about advances in technology, the age of your infrastructure, or your organization's strategy for getting work done.	10 minutes	
SME Break-out Groups **Introduce the Session Process** • Discuss the break-out strategy and confirm it's usefulness with SMEs • Desired Outcomes: o List of important competencies for your series o Description what it looks like to demonstrate the competency o Understand what competencies drive excellence versus those that are important for proficiency. o Which competencies are unique versus common across agencies • Roles: o **Note taker** – takes detailed notes on the competencies to capture the group's consensus on the competency. o **Umpire**: helps ensure that the group stays focused and on topic. o **Time-keeper**- provides time check for the group. o **Dial-in Person: makes the conference call connection and works to include the remote callers in the conversation.**	10 minutes	

ACTIVITY	TIME	LEAD
Break-out Groups **Divide the SMEs into groups, provide call-in numbers, and disperse to their room.** • **Facilitate Break-out Discussion** o Introduce Self o Review Objectives o Identify "Role Players" • **Review each competency and facilitate a limited discussion to**: o Confirm that the competency is important to the identified function, o The definition provides a summary of the substance of the competency. Revise the competency name and definition as necessary. o Delete irrelevant items: all competencies should contribute significantly to a person's capacity to perform competently o Identify items that only apply to certain agencies o Identify competencies required to be effective in the target Job Function that are not listed.	10 minutes 35 minutes	
Explore Competencies and Tailor Definitions to DOT Explain that we want to make sure that we to be sure to get to the most important competencies first. • Identify the most important competency o Ask each person to identify their top four competencies in terms of their importance to performance. Record nomination on for each competency. o Identify the competencies with the most nominations for discussion. • Explore the Competencies to obtain an accurate description of the behaviors that demonstrate this competency. <u>Sample Probes</u>: o What makes this so important? o Think about a specific person who exemplifies this. What do you observe them doing? How is different from what lesser performers (in this area) do? o How is this competency different for engineers versus other occupations?. o Are their specific methods that are commonly used or recommended? What are they?	2 hours	
Large Group Discussion and Debrief	15 minutes	
Next Steps	5	

APPENDIX 5-3: COMPETENCY MODEL SAMPLE

2007 DOT ENGINEERING COMPETENCY MODEL	
RATING SCALE	
(1)Awareness	Demonstrates minimal awareness but does NOT apply competency
(2) Basic	Demonstrates some understanding of the competency Limited application of competency with close supervision
(3) Intermediate	Demonstrates full knowledge and an ability to routinely apply this competency
(4) Advanced	Demonstrates advanced knowledge and an ability to act independently using the knowledge and ability of the competency
(5) Expert	Leads/guides others in using this knowledge and ability Subject Matter Expert -able to mentor and train others how to use this competency

COMPETENCY CATEGORY		COMPETENCY WITH DEFINITION
CORE COMPETENCIES		
CORE	**GENERAL**	**Professionalism:** Effectively manages self and work using ethical standards to maintain a consistently high level of productivity by: accurately judging what is important, prioritizing work, accurately estimating time and effort required, planning, maintaining focus and attending to details.
CORE	**GENERAL**	**Teamwork:** Functions effectively and contributes to the overall performance of multidisciplinary teams. Contributes to the team as a technical expert; collaborates with other team members, and promotes smooth relationships in pursuit of team goals.
CORE	**GENERAL**	**Customer Focus:** Demonstrates a concern for the needs and expectations of customers and making them a high priority; maintains contact with customer; uses an understanding of customer needs as the basis for decision making and organizational action.
CORE	**GENERAL**	**Critical Thinking:** Uses systematic, methodical approaches to study problems and test solutions. Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.
CORE	**GENERAL**	**Creative Problem Solving:** Draws on a broad knowledge to identify innovative approaches to problems and opportunities. Offers nontraditional approaches in the design of components, systems, and processes in order to find a solution that meets the needs of the situation.
CORE	**GENERAL**	**Leadership:** Persuades others to accept recommendations, cooperate, or change their behavior; influences people to make decisions and take actions they otherwise would not pursue; initiates action and negotiates with people to reach agreement and pursue common goals.
CORE	**GENERAL**	**Decision Making:** Makes sound, well-informed decisions; perceives the impact and implications of decisions; commits to action, even in uncertain situations, to accomplish organizational goals.

CORE COMPETENCIES (Continued)		
CORE	**GENERAL**	**Flexibility:** Is open to change and new information; adapts behavior or work methods in response to new information, changing conditions, or unexpected obstacles; deals with ambiguity effectively.
CORE	**GENERAL**	**Interpersonal:** Builds rapport and establishes and maintains productive relationships and networks across a wide range of people and groups, inside and outside the organization; is attentive to how others respond and relate interpersonally.
CORE	**GENERAL**	**Oral Communication:** Expresses information to individuals or groups effectively, taking into account the audience and nature of the information. Makes clear and convincing oral presentations. Listens to others, attends to their nonverbal cues, and responds appropriately.
CORE	**GENERAL**	**External Awareness:** Keeps up-to-date on external forces that can impact daily work activities, makes decisions, and takes action accordingly. Understands the uses, applications, impact and interplay of engineering solutions on contemporary society. Considers and responds to social, ethical, legal, safety and security issues when developing engineering solutions.
CORE	**GENERAL**	**Organizational Awareness:** Understands the agency's mission, functions, and how it's social, political, and operational systems work. Uses their insight into those systems to support their personal effectiveness.
CORE	**GENERAL**	**Professionalism:** Effectively manages self and work to maintain a consistently high level of productivity by: accurately judging what is important, prioritizing work, accurately estimating time and effort required, planning, maintaining focus and attending to details.
CORE - Technical		
CORE	**GENERAL**	**Project Management:** Organizes, deploys, and manages resources to complete a project within defined scope, quality, time, and cost constraints.
CORE	**GENERAL**	**Planning:** Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization.
CORE	**GENERAL**	**Financial Management:** Acts as a responsible steward of funds. Accurately estimates budget requirements, clearly justifies requests, and manages funding to support the agency's mission.
CORE	**GENERAL**	**Contracting/Procurement:** Applies knowledge of various types of contracts, techniques or requirements (for example, Federal Acquisitions Regulations) for contracting, procurement, contract negotiation and contract administration.

TECHNICAL COMPETENCIES		
TECHNICAL - Core		
TECHNICAL	**Technical-Core**	**Technical Knowledge:** Uses knowledge that is acquired through formal training or extensive on-the-job experience to understand and appropriately apply procedures, requirements, regulations, and policies in the oversight and delivery of work within their area of technical responsibility.
TECHNICAL	**Technical-Core**	**Technological Savvy**: Readily adopts and masters current technology; applies new technologies to the job to improve effectiveness.
TECHNICAL	**Technical-Core**	**Technical Drawing:** Accurately creates, interprets, or revises representations of objects for technical, architectural and engineering needs.
TECHNICAL	**Technical-Core**	**Technical Writing**: Writes reports on technical topics and documents policies procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar.
TECHNICAL - Design		
TECHNICAL	**Technical-Design**	**Life-Cycle Engineering:** Studies and incorporates life-cycle factors, such as the environment, maintenance, re-usability, safety, disposal, and budget in the design of products and systems. Designs systems for maximal effectiveness and usefulness.
TECHNICAL	**Technical-Design**	**Design**: Conceptualizes, develops, produces, and uses plans, models, blueprints, and maps, including the use of tools and instruments to produce precision technical drawings, working prototypes, components, or systems.
TECHNICAL	**Technical-Design**	**Safety Design:** Ensures that modal systems, vehicles, and equipment are designed to comply with safety, structural soundness, and regulatory standards.
TECHNICAL	**Technical-Design**	**Design and Testing:** Applies both general and specialized engineering knowledge to develop practical and effective solutions related specifically to systems. Tests the practicality and quality of solutions using simulations and models.
TECHNICAL – Problem Solving		
TECHNICAL	**Technical - Problem Solving**	**Problem Solving:** Identifies problems; troubleshoots the root cause of a problem; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.
TECHNICAL	**Technical - Problem Solving**	**Mathematical and Statistical Analysis:** Uses basic mathematics, geometry, algebra, descriptive, and inferential statistical tests to understand engineering problems, predict outcomes, solve problems, and demonstrate support for their recommendations.
TECHNICAL	**Technical - Problem Solving**	**Cost Benefit Analyses:** Evaluates and documents the societal, safety, financial, and technical costs and benefits to engineering and business solutions. Makes recommendations and implements solutions that reflect those considerations.
TECHNICAL	**Technical - Problem Solving**	**Risk Analysis**: Identifies and evaluates the risks to the public and risks of engineering design due to such factors as: technological obsolescence, environmental conditions, financial costs, structural decay, regulatory change, supply chain interruption.
TECHNICAL	**Technical - Problem Solving**	**Diagnosing and Repairing Systems:** Understands the design, programming, operation, and interfaces of electronic information systems. Is capable of programming systems, diagnosing and repairing systems and applications.

TECHNICAL – Problem Solving (Continued)		
TECHNICAL	**Technical - Problem Solving**	**Research:** Conducts investigations into engineering systems, problems, or opportunities in order to make recommendations for handling engineering and safety challenges. Locates and obtains relevant data from first-hand inspection and testing, secondary research, and through models and simulations.
TECHNICAL	**Technical - Problem Solving**	**Reverse Engineering:** Deconstructs devices, electrical components, and system and analyzes its workings with the intention to construct a new device or program that does the same thing.
TECHNICAL	**Technical - Problem Solving**	**Process Improvement:** Uses formal methodologies, such as process flow diagrams, pareto analysis, and fishbone diagrams, to identify inefficiencies and flaws in current processes and to improve them.
TECHNICAL	**Technical - Problem Solving**	**System Perspective:** Maintains a high-level perspective, and develops engineering solutions that consider the impacts and relationships among other technical systems as well as other social/organizational systems.
TECHNICAL - Testing and Inspecting		
TECHNICAL	**Technical - Testing and Inspecting**	**Quality Assurance:** Develops, plans, or undertakes acceptance testing to establish that systems meet technical, safety, and quality specifications. Reviews plans to ensure technical compliance with codes, regulations, standards, requirements and industry practices.
TECHNICAL	**Technical - Testing and Inspecting**	**System Testing and Inspection:** Completes physical examination of a system or component to confirm and ensure that it meets the standards and requirements.
TECHNICAL	**Technical - Testing and Inspecting**	**Safety Inspection:** Ensures through official examination or review that modal systems, vehicles and/or equipment meet or exceed safety regulations and standards.

APPENDIX 6-1: COMPETENCY ASSESSEMENT SURVEY DEVELOPMENT SAMPLES

This is a sample of the fields required in the eLMS system for setting up the competency assessment.

Notes:
Any field that is an ID should be in all CAPITALS (i.e. CPTCY_ID, DMN_ID, etc)
Grey cells are the same value for all rows
There are 5 rows for every competency which relate to the 5 different rating criteria (see Cols Q, R, and S) which will be unique

Col #	Sample Data	Supplied?	Description	Table Name	Column Name	Value	Plateau Notes for Processing
1	ACCT	Yes	Competency ID	PA_CPTY	CPTY_ID	Direct map from file	
2	Accountability	Yes	Description	PA_CPTY	CPTY_DESC	Direct map from file	
3	LEADERSHIP	Yes	Competency Category ID	PA_CPTY	CPTY_CATEGORY_ID	Direct map from file	Three possible categories: "General", "Leadership", and "Functional"
4	Ability	Yes	Type	PA_CPTY	CPTY_TYPE	Direct map from file	Add "behavior" to drop down in addition to default list
5	COMP-5PT	Yes	Rating Scale	PA_CPTY	RATING_SCALE_ID	Direct map from file	
6	Active	Yes	Not active	PA_CPTY	NOTACTIVE	Active	Set all to 'Active'
7	PLATEAU	Yes	Source	PA_CPTY	CPTY_SOURCE_ID	Direct map from file	Set default to 'PLATEAU'
8	PUBLIC	Yes	Domain	PA_CPTY	DMN_ID	Direct map from file	Set default to 'PUBLIC'
9	Holds self and others accountable for rules and responsibilities; ensures that projects within areas of specific responsibility are completed in a timely manner and to acceptable standards.	Yes	Explanation	PA_CPTY	CPTY_EXPLANATION	Direct map from file	
10	1	Yes	Version Number	PA_CPTY	VERSION_NUMBER	Direct map from file	Set default to '1' for Standard Comp Library
11	No	Yes	e-signature Enabled	PA_CPTY	ESIG_ENABLED	No	Set default to 'No'
12		Yes	Comments	PA_CPTY	COMMENTS	null	Default is blank
13	LEADERSHIP	Yes	Competency Category ID	PA_CPTY_CATEGORY	CPTY_CATEGORY_ID	Direct map from file	

Col #	Sample Data	Supplied?	Description	Table Name	Column Name	Value	Plateau Notes for Processing
14	Leadership	Yes	Competency Category Description	PA_CPTY_CATEGORY	CPTY_CATEGORY_DESC	Direct map from file	
15	ACCT	Yes	Competency ID	PA_CPTY_RATING_CRITERIA	CPTY_ID	Direct map from file	
16	1	Yes	Version Number	PA_CPTY_RATING_CRITERIA	VERSION_NUMBER	Direct map from file	Set default to '1' for Standard Comp Library
17	1	Yes	Rating	PA_CPTY_RATING_CRITERIA	RATING	Direct map from file	Always 1 - 5
18	Needs Improvement	Yes	Rating Label	PA_CPTY_RATING_CRITERIA	RATING_LABEL	Direct map from file	
19	• Accepts some responsibility for personal work performed • Demonstrates limited awareness of performance expectations • Understands personal obligations associated with serving customers and utilizing resources	Yes	Rating Criteria	PA_CPTY_RATING_CRITERIA	RATING_CRITERIA	Direct map from file	Will differ per competency and rating level
20	Perhaps a different department would be more appropriate.	Yes	Rating suggested comments	PA_CPTY_RATING_CRITERIA	RATING_SUGGESTED_COMMENTS	null	Plateau Comp library will not have suggested comments
21	PLATEAU	Yes	Competency Source ID	PA_CPTY_SOURCE	CPTY_SOURCE_ID	Direct map from file	Set default to 'PLATEAU'
22	Plateau Competency Library	Yes	Competency Source Description	PA_CPTY_SOURCE	CPTY_SOURCE_DESC	Direct map from file	
		No	Last Updated User	PA_CPTY_SOURCE	LAST_UPD_USER	N/A	
23	ABILITY	Yes	Competency Type	PA_CPTY_TYPE	CPTY_TYPE_ID	Direct map from file	
24	Ability	Yes	Competency Type Description	PA_CPTY_TYPE	CPTY_TYPE_DESC	Direct map from file	
		No	Last Updated User	PA_CPTY_TYPE	LAST_UPD_USER	N/A	

APPENDIX 6-2: COMPETENCY SURVEY ANALYSIS SAMPLES

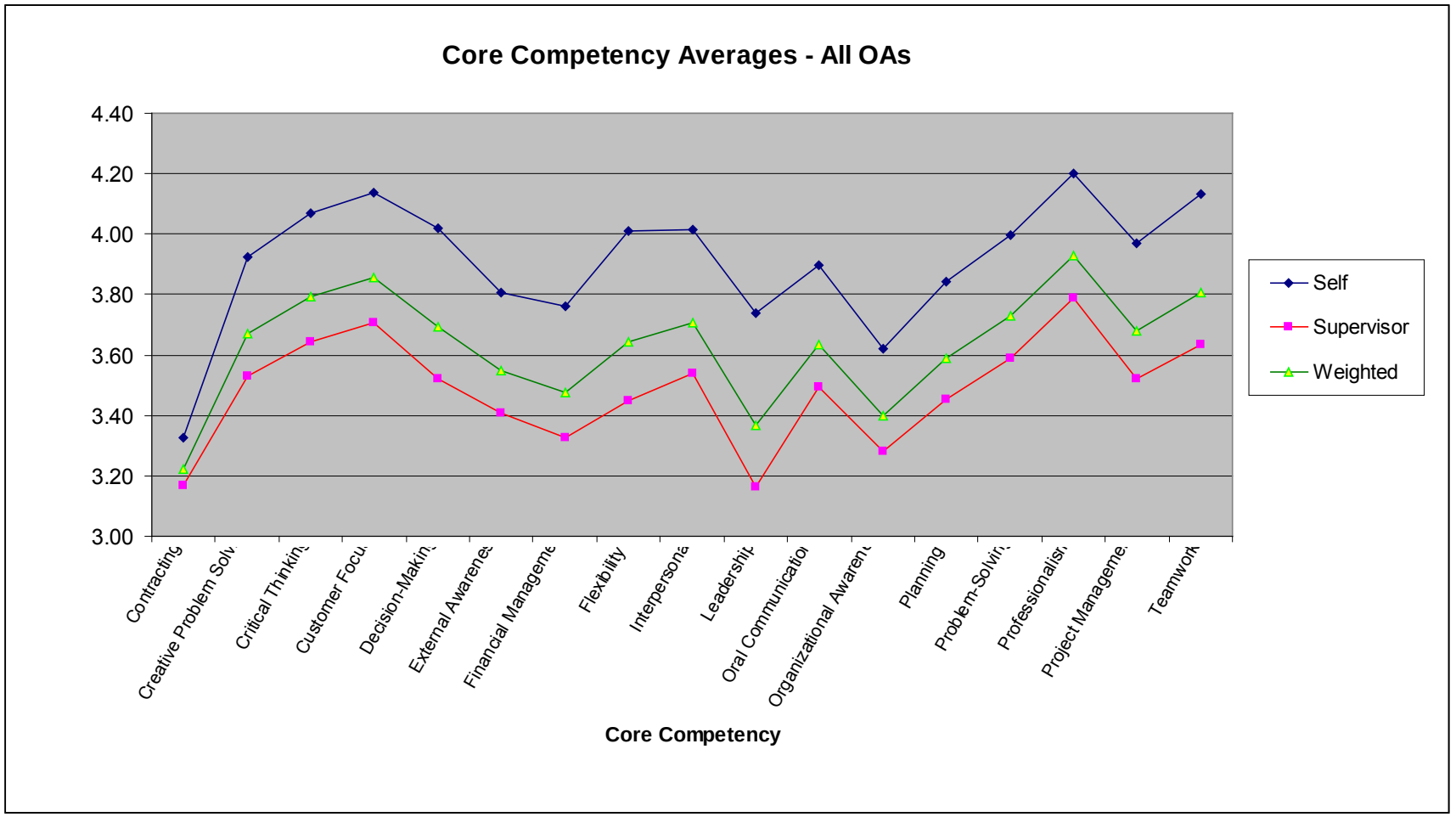
For the core competencies weighted score for all DOT, professional and customer focus were rated the highest

Engineers Series 801/810/830 and 855 Weighted Core Competencies	ALL DOT Rank ordered by Lowest Score to Highest	FAA	FHWA	FMCSA	FRA	FTA	MARAD	NHTSA	PHMSA	RITA	SLSDC
Professionalism	3.93	3.96	3.87	4.1	4.27	4.09	3.42	4.12	3.90	4.02	3.12
Customer Focus	3.86	3.88	3.85	4.12	3.64	3.98	2.89	3.93	3.66	3.88	3.35
Teamwork	3.81	3.88	3.75	4	3.97	4.00	3.39	3.95	3.63	3.97	3.35
Critical Thinking	3.79	3.88	3.73	3.93	3.85	3.86	3.46	3.9	3.80	3.76	3.68
Problem-Solving	3.73	3.84	3.66	3.68	3.77	3.70	3.96	3.89	3.63	3.72	3.68
Interpersonal	3.71	3.71	3.7	4.09	3.68	3.74	2.67	3.86	3.60	3.68	2.86
Decision-Making	3.69	3.77	3.65	3.68	3.62	3.82	3.42	3.81	3.57	3.64	3.1
Project Management	3.68	3.72	3.63	3.84	3.85	3.93	3.35	3.77	3.73	3.49	3.37
Creative Problem Solving	3.67	3.75	3.6	3.75	3.69	3.77	3.32	3.82	3.60	3.74	3.44
Flexibility	3.64	3.72	3.6	3.51	3.78	3.72	3.35	3.82	3.45	3.62	3.35
Oral Communications	3.63	3.67	3.6	3.68	3.71	3.75	3.21	3.78	3.64	3.59	2.98
Planning	3.59	3.72	3.51	3.51	3.64	3.68	3.97	3.7	3.50	3.58	3.14
External Awareness	3.55	3.59	3.5	3.84	3.56	3.66	3.35	3.78	3.50	3.44	3.28
Financial Management	3.48	3.53	3.44	3.84	3.54	3.94	3.97	3.58	2.93	3.27	3.14
Organizational Awareness	3.4	3.49	3.35	3.26	3.4	3.62	3.21	3.61	3.19	3.33	3.07
Leadership	3.36	3.45	3.29	3.84	3.32	3.53	2.63	3.53	3.20	3.58	1.19
Contracting	3.22	3.28	3.19	3.84	3.14	3.67	3.14	3.27	3.04	2.98	2.35

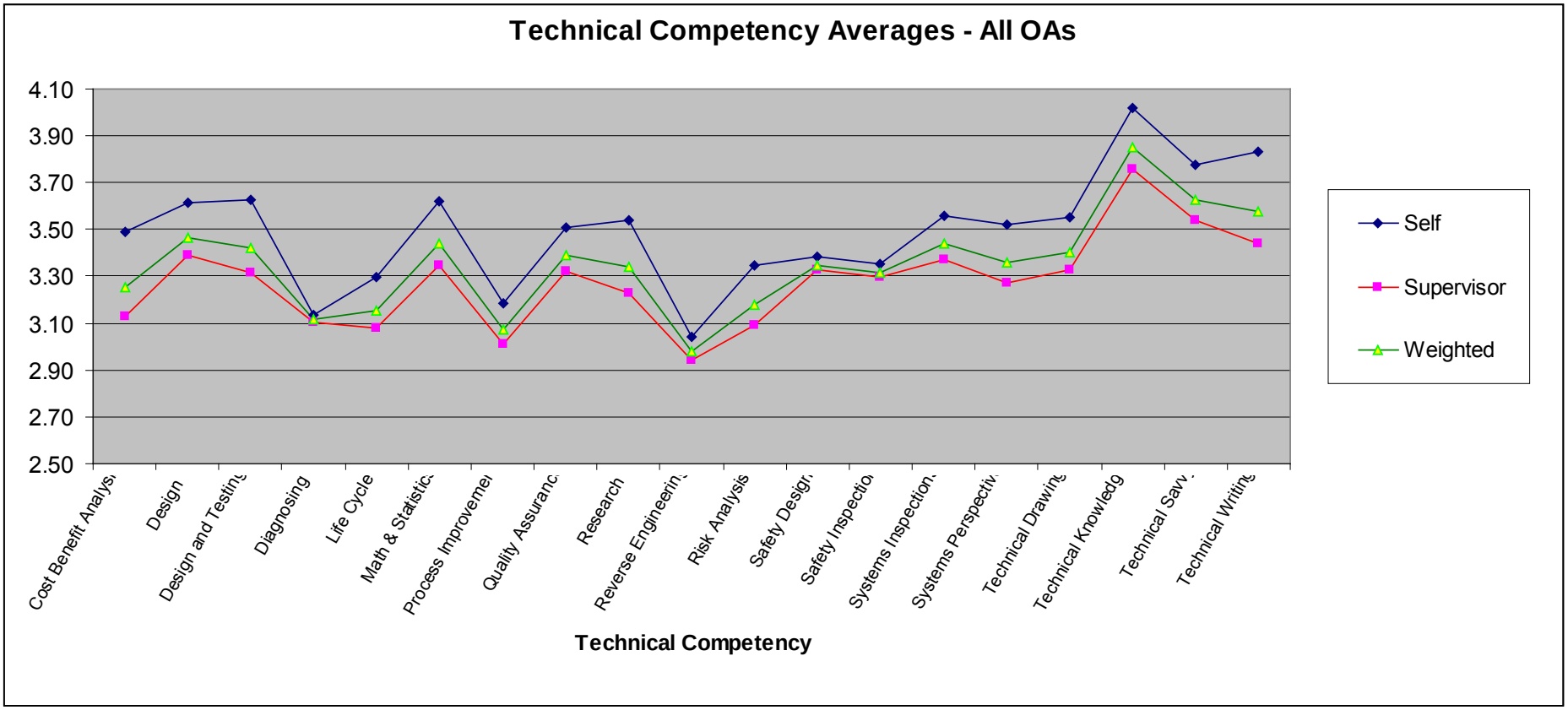
For the technical competencies weighted score for all DOT, technical knowledge and problem solving were rated the highest

Engineers Series 801/810/830 and 855 Weighted Technical Competencies	ALL DOT Rank ordered by Lowest Score to Highest	FAA	FHWA	FMCSA	FRA	FTA	MARAD	NHTSA	PHMSA	RITA	SLSDC
Technical Knowledge	3.85	3.91	3.8	3.95	4.19	3.79	3.39	3.92	3.91	3.81	3.28
Technical Savvy	3.62	3.75	3.57	3.68	3.7	3.61	3.35	3.8	3.32	3.58	3.37
Technical Writing	3.58	3.62	3.54	3.56	3.73	3.60	2.74	3.71	3.45	3.54	2.82
Design	3.47	3.54	3.39	0.88	4.23	3.43	3.35	3.58	3.29	3.56	3.26
Systems Inspections	3.44	3.57	3.27	3.18	3.48	3.28	2.7	3.87	3.83	3.39	3.21
Math & Statistics	3.44	3.52	3.39	3.23	3.64	3.57	1.89	3.49	3.19	3.45	3.14
Design and Testing	3.42	3.51	3.34	3	3.86	3.21	3.31	3.69	3.16	3.53	3.19
Technical Drawing	3.4	3.53	3.34	1.17	3.86	3.40	3.35	3.43	3.09	3.44	3.01
Quality Assurance	3.39	3.53	3.27	3.12	3.65	3.18	3.23	3.63	3.64	3.29	3.14
Systems Perspective	3.36	3.53	3.34	1.17	3.86	3.50	3.35	3.43	3.23	3.31	3.01
Safety Design	3.35	3.4	3.18	3.28	3.48	3.19	3.23	3.81	3.92	3.60	1.33
Research	3.34	3.5	3.15	3.88	3.58	3.45	1.93	3.87	3.41	3.43	3.28
Safety Inspection	3.32	3.34	3.16	3.51	3.45	3.05	3.23	3.92	3.77	3.38	1.23
Cost Benefit Analysis	3.26	3.3	3.23	3.51	3.26	3.44	3.23	3.3	2.81	3.07	3.21
Risk Analysis	3.18	3.36	3.04	3.16	3.19	3.08	1.89	3.49	3.46	3.00	2.75
Life Cycle	3.16	3.38	2.98	2.77	5.15	3.25	3.19	3.28	3.72	3.34	3.21
Diagnosing	3.12	3.47	2.77	0.53	3.11	2.88	3	3.34	2.70	3.32	3.33
Process Improvement	3.07	3.26	2.96	2.77	3.37	2.93	3.22	3.39	2.77	3.07	0.96
Reverse Engineering	2.98	3.26	2.62	2.65	1.9	2.82	1.6	3.41	3.47	3.21	2.83

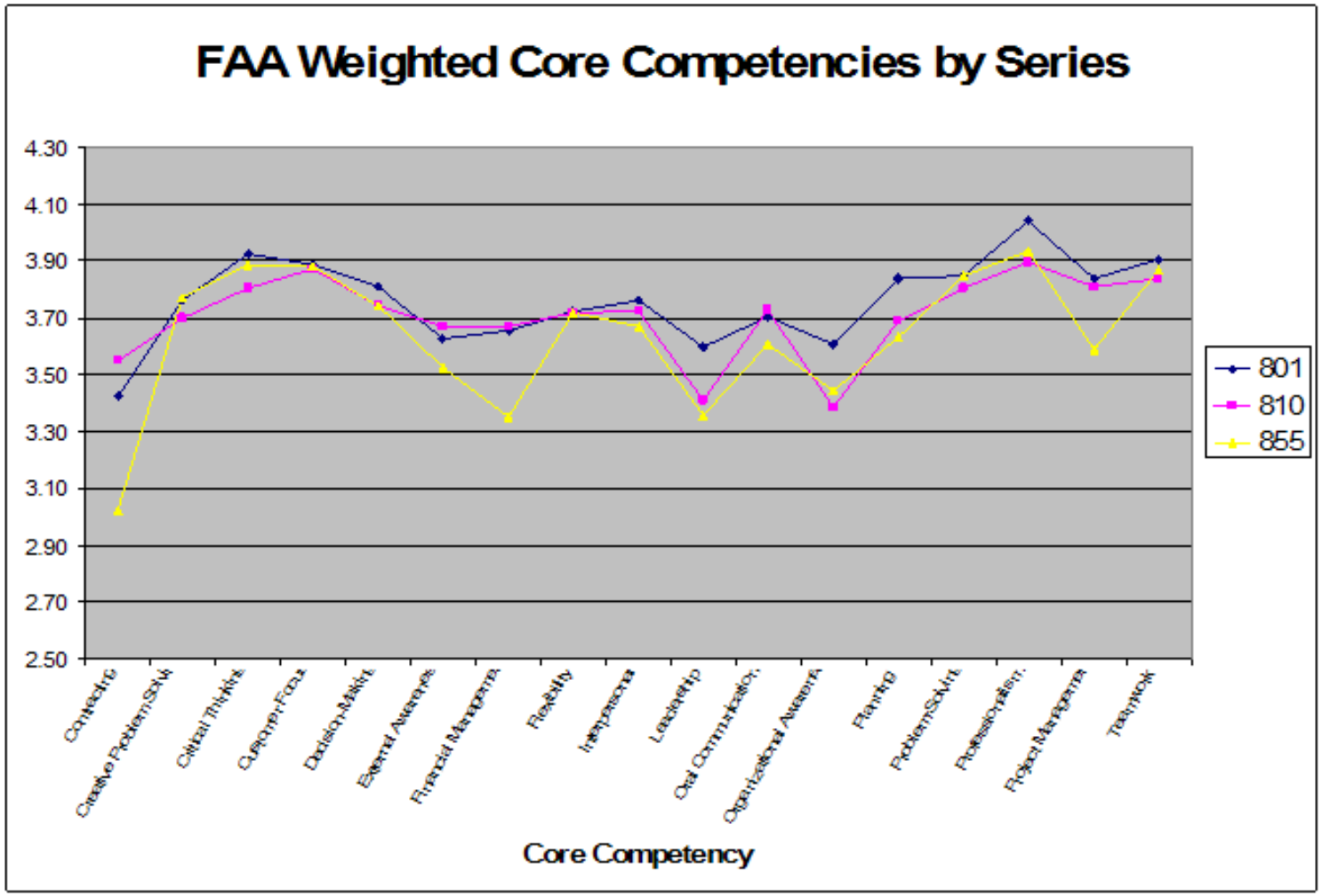
The data presented in a line chart shows that the employee self assessment is typically higher than the supervisor assessment



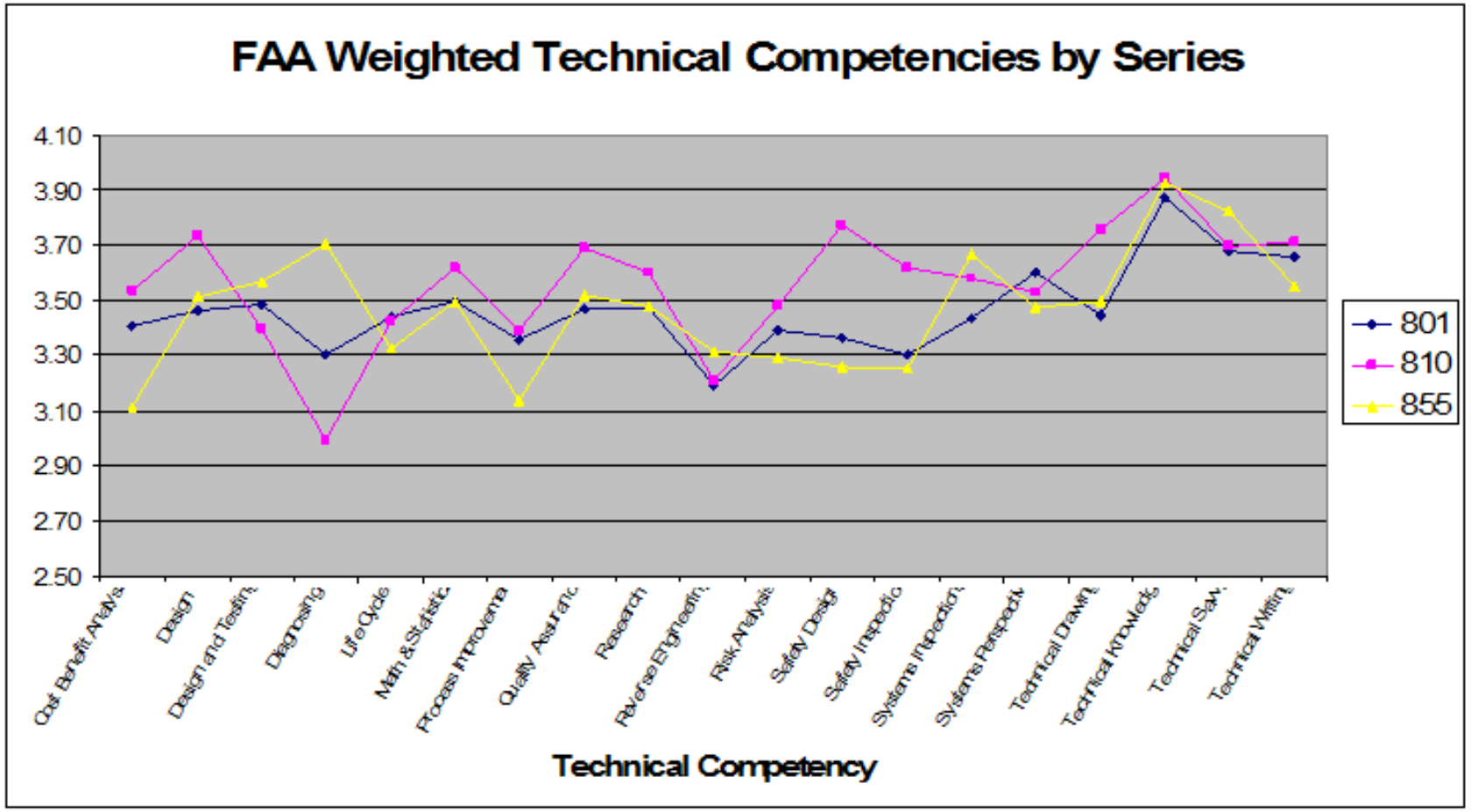
In general, cost benefit analysis, diagnosing, life cycle engineering, reverse engineering, and process improvement were rated lower than pure technical skills



The core competencies data shown by series identify general similarities between the engineering series



The technical competencies broken down by series show some clear differences between the series



APPENDIX 6-3: COMPETENCY GAP ANALYSIS SAMPLES

Table 6-3-2: OPM Competency Profile Chart for Mission Critical Occupations

Competency Profile Chart for Mission Critical Occupation(s) (MCOs)

Agency Name	Sample PMA Agency
Size of Total Workforce	9,000
Name of MCO(s)	Loan Specialist
Start Date of Measurement Year	July 1, 2006
End Date of Measurement Year	June 30, 2007
Date of Workforce Analysis	July 7, 2007
Date of this Report	July 31, 2007
Years Agency Uses for Long-Term Goal	5 years
Agency Point of Contact (POC)	John Doe
OPM Human Capital Officer (HCO)	Susan Smith

Data from the Beginning of the Measurement Year (July 1, 2006)

Mission Critical Occupation(s) (MCOs): Loan Specialist

Measure	Critical Competencies: Accounting	Finance	Statistics	Negotiation						
(A) One-Year Target (To Be) for Number of Employees with the Needed Proficiency on the Competency by the End of This Measurement Year (June 30, 2007)	90	80	80	90						
(B) As Is on July 1, 2006, the Number of Employees Currently on Board who are At or Above the Proficiency Level that They Will Need According to the One-Year target for the Competency	75	70	60	80						
(C) Projected Attrition (in number of employees, use negative numbers for attrition) between July 1, 2006 and June 30, 2007	-5	-4	-4	-5						
(D) Targeted Competency Gap/Surplus to Close This Year, Including Projected Attrition (A positive number is a surplus; a negative number is a gap. If 0, there is no gap or surplus.) (B) + (C) - (A)	-20	-14	-24	-15						
(E) Long-Term Goal for Number of Employees with the Needed Proficiency on this Competency (e.g. target over 5 years, use negative numbers for attrition)	100	90	90	100						
(F) Projected Long-Term Attrition (projection over 5 years, use negative numbers for attrition)	-25	-20	-20	-25						
(G) Competency Gap/Surplus Relative to the Long-Term Goal as of July 1, 2006, Including Projected Attrition (A positive number is a surplus; a negative number is a gap. If 0, there is no gap.) (B) + (F) - (E)	-50	-40	-50	-45						

Legend:

Enter information about dates, MCOs, and names in the rows at the top of the table and the critical competency names in the column headings in the grey cells in the table.

Other dates will be entered by the computer program based on what the agency enters at the top of the table.

Numbers in cells in aqua must be completed by the agency at the beginning of a measurement year. Gaps and attrition should be represented as negative numbers and surpluses as positive numbers.

Numbers in yellow cells show values that will be entered or calculated by the computer program.

Numbers in cells in blue must be completed by the agency at the end of a measurement year.

In each cell in Row (A), enter the one-year target or level for the number of employees needed with proficiency on the critical competency indicated in the column heading.

In each cell in Row (B), enter the number of employees who are at or above the proficiency level they need to do their work on the competency shown in the column heading.

In each cell in Row (C) enter the number of employees expected to attrit/separate during the year from the employees in the same column in Row (B). Cells will turn red if positive values are entered.

In Row (D), the computer program will calculate the gap or surplus between the one-year goal and the number on board with the needed competency level after projected attrition.

In each cell in Row (E), enter the long-term goal (based on the number of years defined as "long term" by the agency) for the number of employees needed with the competency indicated at the top of the column.

In each cell in Row (F) enter the projected long-term attrition from employees with the competency shown at the top of the column. Define long-term the same as you did for Row (E). Cells will turn red if positive values are entered.

In Row (G), the computer program will calculate the gap or surplus between the long-term goal and number on board with the needed competency level including effect of projected long-term attrition.

Table 6-3-2: Calculating the Gap Worksheet provides an example format from the Federal Highway Administration for calculating the gap for each targeted competency. In this example, the "Goal" or "To Be" profile has not been entered into the worksheet so the gap is overstated.

Table 6-3-2: Calculating the Gap Worksheet

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Contracting	Baseline ("As-Is" Profile)	51	216	392	225	25	22	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-52	-222	-427	-248	-28		-977
Cost Benefit Analysis	Baseline ("As-Is" Profile)	32	181	397	242	27	52	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-33	-187	-432	-265	-30		-947
Creative Problem Solving	Baseline ("As-Is" Profile)	6	107	379	375	62	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-7	-113	-414	-398	-65		-997
Critical Thinking	Baseline ("As-Is" Profile)	5	80	339	437	68	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-6	-86	-374	-460	-71		-997
Customer Focus	Baseline ("As-Is" Profile)	6	53	300	477	91	4	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-7	-59	-335	-500	-94		-995

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Decision Making	Baseline ("As-Is" Profile)	5	79	383	409	53	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-6	-85	-418	-432	-56		-997
Design	Baseline ("As-Is" Profile)	33	124	288	268	61	157	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-34	-130	-323	-291	-64		-842
Design & Testing	Baseline ("As-Is" Profile)	23	125	336	237	47	163	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-24	-131	-371	-260	-50		-836
Diagnosis	Baseline ("As-Is" Profile)	85	198	189	103	20	336	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-86	-204	-224	-126	-23		-663
External Awareness	Baseline ("As-Is" Profile)	14	103	441	326	41	6	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-15	-109	-476	-349	-44		-993
Financial Management	Baseline ("As-Is" Profile)	20	136	414	317	33	11	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-21	-142	-449	-340	-36		-988

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Flexibility	Baseline ("As-Is" Profile)	9	81	404	378	57	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-10	-87	-439	-401	-60		-997
Interpersonal	Baseline ("As-Is" Profile)	5	80	374	389	81	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-6	-86	-409	-412	-84		-997
Leadership	Baseline ("As-Is" Profile)	20	170	453	241	41	6	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-21	-176	-488	-264	-44		-993
Life Cycle	Baseline ("As-Is" Profile)	59	202	323	160	28	159	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-60	-208	-358	-183	-31		-840
Math & Statistics	Baseline ("As-Is" Profile)	20	125	406	241	54	85	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-21	-131	-441	-264	-57		-914
Oral Communication	Baseline ("As-Is" Profile)	5	90	401	383	50	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-6	-96	-436	-406	-53		-997

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Organizational Systems Awareness	Baseline ("As-Is" Profile)	15	150	480	246	35	5	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-16	-156	-515	-269	-38		-994
Planning	Baseline ("As-Is" Profile)	12	105	442	332	35	5	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-13	-111	-477	-355	-38		-994
Problem Solving	Baseline ("As-Is" Profile)	6	73	391	379	68	14	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-7	-79	-426	-402	-71		-985
Process Improvement	Baseline ("As-Is" Profile)	70	252	352	149	26	82	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-71	-258	-387	-172	-29		-917
Professionalism	Baseline ("As-Is" Profile)	6	48	290	477	108	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-7	-54	-325	-500	-111		-997
Project Management	Baseline ("As-Is" Profile)	8	76	412	364	58	13	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-9	-82	-447	-387	-61		-986

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Quality Assurance	Baseline ("As-Is" Profile)	48	142	347	239	47	108	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-49	-148	-382	-262	-50		-891
Research	Baseline ("As-Is" Profile)	60	146	350	196	47	132	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-61	-152	-385	-219	-50		-867
Reverse Engineering	Baseline ("As-Is" Profile)	86	143	152	69	11	470	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-87	-149	-187	-92	-14		-529
Risk Analysis	Baseline ("As-Is" Profile)	52	215	393	155	29	87	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-53	-221	-428	-178	-32		-912
Safety Design	Baseline ("As-Is" Profile)	48	125	250	178	33	297	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-49	-131	-285	-201	-36		-702
Safety Inspection	Baseline ("As-Is" Profile)	53	124	239	173	33	309	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-54	-130	-274	-196	-36		-690

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Systems Inspection	Baseline ("As-Is" Profile)	41	143	304	214	42	187	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-42	-149	-339	-237	-45		-812
Systems Perspective	Baseline ("As-Is" Profile)	47	167	372	222	30	93	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-48	-173	-407	-245	-33		-906
Teamwork	Baseline ("As-Is" Profile)	7	65	331	457	69	2	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-8	-71	-366	-480	-72		-997
Technical Writing	Baseline ("As-Is" Profile)	14	105	416	328	56	12	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-15	-111	-451	-351	-59		-987
Technical Drawing	Baseline ("As-Is" Profile)	37	123	374	258	39	100	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-38	-129	-409	-281	-42		-899
Technical Knowledge	Baseline ("As-Is" Profile)	8	62	329	411	108	13	931
	Projected Attrition	1	6	35	23	3		68
	Goal ("To-Be" Profile)							0
	Gap	-9	-68	-364	-434	-111		-986

Mission Critical Occupation: Highway Engineer 0810 - June 2007								
Targeted Competency	**Stated Profile**	**Awareness**	**Basic**	**Intermediate**	**Advanced**	**Expert**	**No Answer**	**Total**
Technical Savvy	Baseline (“As-Is” Profile)	14	102	404	335	63	13	931
	Projected Attrition	1	6	35	23	3		68
	Goal (“To-Be” Profile)							0
	Gap	-15	-108	-439	-358	-66		-986

APPENDIX 7-1: GAP CLOSURE STRATEGIES KEY CONSIDERATIONS

Table 7-1-1: Gap Closure Strategies Key Considerations

GAP CLOSURE STRATEGY		KEY CONSIDERATIONS	TOOLS	ADVANTAGES	DISADVANTAGES
CATEGORY	STRATEGY				
Employee Development	**Conduct Formal Training**	• Training is available and effective • Staff time is available to allocate to training (do you need to backfill positions while they are in training?) • Funding is available to provide training	• Training • Train the trainer	• Implementation is straightforward and effectiveness can be measured	• Training should be evaluated for effectiveness • Training may not be as effective unless used as part of a larger approach • May be expensive
Employee Development	**Conduct on-the-job training**	• Need is short or medium term • Competency already exists within the organization but is confined to only a few employees • Competency already exists within the organization but employees may be retiring soon • New employees must be hired in advance of projected attrition which may create initial increase in expense because of the overlap	• Train the trainer • Retention bonus	• Effective knowledge transfer	• May be expensive to have more FTE due to overlap; additional expense could be mitigated by organizational realignment to a less flat organizational structure • May be difficult to get the right employees to stay until the knowledge transfer is complete
Employee Development	**Implement Mentor-Protégé program**	• Need is medium or long term • Competency already exists within the organization but is confined to only a few employees • Competency already exists within the organization but employees may be retiring soon	• Mentor Training Program/Tool Kit	• Enhances retention; builds loyalty as mentor-protégé relationship develops • Effective knowledge transfer	• Requires time
Employee Development	**Shadow**	• Whether the right person(s) are available to shadow • How willing someone is to be shadowed	• Should provide guidance to both shadow and person being shadowed	• Provides direct hands-on insight into a person's job and how they go about accomplishing key tasks • Works in jobs that are easily observable	• Does not usually work in jobs which require a lot of analytical thinking • Takes certain types of personalities for this to work well

GAP CLOSURE STRATEGY		KEY CONSIDERATIONS	TOOLS	ADVANTAGES	DISADVANTAGES
CATEGORY	STRATEGY				
Employee Development	**Plan career progression**	• Need is long term • Competency currently exists in the organization • Competency is currently located in a single level of the organization, when it should be within all levels of the organization • To maintain competency proficiency level, constant exposure to advancing techniques or technology is required and is not available in the organization	• Organizational realignment • Training	• May get a better synergy revamping organizational boundaries than did in previous organizational structure • May identify employees who are better suited for specific job skill sets	• Requires a long term strategy • Focus is generally not on short time employees no matter what they contribute
Employee Development	**Assign collateral duties**	• Need is very short term (less than 6 months) • When collateral duties expand the employees responsibility to the next level	• Training • Cross-Training	May develop employees whose potential might have been over-looked	May be perceived as giving an employee more responsibility without the pay
Retention	**Retain Essential employees**	• Look at how to assign challenging work to employees • Look at what motivates employees as individuals • Assess employees' on key indicators – such as the Hartman profile to determine their leadership profile and what motivates them	• Work Assignments • Motivational Assessments • Individual Assessments • Retention Bonus • Climate Survey	• If one can keep high performing employees it helps the productivity of an organization • It costs approximately 1 ½ times a person's salary to replace and train the average employee	• It takes time and know-how to conduct validated assessments to determine what is challenging work; an employee's profile and what ultimately motivates a high performing employee • Unions need to be educated (as they have been in the private sector) on the advantages of using profile instruments for employee retention and development
Acquire/Hire	**Fund an additional FTE**	Funding availability	• Hiring • Detail	Can be accomplished in a relatively short timeframe depending up the hiring strategy used	• May not have funding or may take significant time to get funding • May have already reached the FTE ceiling
Acquire/Hire	**Detail another federal employee**	This depends upon the availability of the right skill sets and whether the lending agency/division is willing to do this (what do they get in return?)	Detail	Funding could be an issue if the receiving agency has to pay the salary for the short-term	• May need skill on a routine basis and this will only be a short-term stop gap measure • Detailee's supervisor usually will not perform the appraisal of the employee on detail and this could lead to not having control over the employee's tasks/duties

GAP CLOSURE STRATEGY		KEY CONSIDERATIONS	TOOLS	ADVANTAGES	DISADVANTAGES
CATEGORY	STRATEGY				
Acquire/Hire	**Directed Reassignment**	• Are there any individuals who can quickly get up to speed and perform the required tasks/skills? • How will this impact morale of the team/individual?	• Cross-Training • Teambuilding	Can be done very quickly	• Can negatively impact the employee and the team's morale
Acquire/Hire	**Hire new employee to replace existing employees**	• Training is complex and/or expensive • Current staff is retirement eligible and likely to leave soon • Current staff displays no interest in acquiring competency • Current staff displays no aptitude for acquiring this competency • Can attrition be managed to minimize displacement of employees	• Recruitment • Can use competencies to develop KSA • VERA • VSIP	• Can be accomplished quickly depending on the recruitment strategy and the targeted audience(s)	• Need to displace current employees • New employee may have the desired competencies but will need to become familiar with the specific job and organization • Need to plan ahead to get pre-approval to use VERA/VSIP • Need money to fund VSIP
Organizational Realignment	**Have function performed by another area within the organization or department**	To maintain competency proficiency level, constant exposure to advancing techniques or technology is required and is not available in the organization	• Detail • Reassignment	Need no special authority or budget to accomplish	May only be a short-term fix
Organizational Realignment	**Abolish the position**	Need to make a determination on whether the tasks being currently performed by the position are still needed - or could they be absorbed by other positions	• Job Analysis • Classification Assessment	May gain a FTE to be used in a more mission critical area	• Takes time to assess and analyze the job functions And conduct job analyses on impacted positions • Classifier could very likely be called upon to review jobs
Organizational Realignment	**Restructure where the work is performed**	• Are there other organizational structures that are a better fit for this position? • Would a new structure better align the work with the mission goals and objectives?	• Organizational • Assessment Job Analysis • Reclassification	Could have a more efficient and effective structure which better aligns with mission and goals	• Takes time to conduct an Organizational Assessment and determine the best structure • Can negatively impact staff morale
Organizational Realignment	**Incorporate technology**	• What are the technology tools and skills needed to better perform the MCO skills/functions? • How can a new organizational structure help to put more focus on these issues and results?	• Hiring • Training • Contracting Out function • Job Analysis • Reclassification	Can increase productivity, efficiency and effectiveness of operations	May cost a lot of money and over time these costs can escalate beyond the budget capacity of the organization to maintain the skills and competencies needed

GAP CLOSURE STRATEGY		KEY CONSIDERATIONS	TOOLS	ADVANTAGES	DISADVANTAGES
CATEGORY	STRATEGY				
Organizational Realignment	**Facilitate alternative duty locations**	• How will this help the organization carry out its mission? • Will it allow for a higher retention of high performing employees? • What are the costs associated with this?	• Telework-training • Cross-training	• Could have a lower salary cost if location of personnel is a factor for compensation • Could have higher morale if employees are allowed to telework • Could have a higher retention rate • Could favorably impact the environment and costs of doing business	• Decentralization of work means less contact between key players • Could impact the synergy of getting work done when a variety of players/skills are needed on a team
Organizational Realignment	**Restructure how the work is performed**	• What new skills are needed to do the work differently? • How easy can these competencies be obtained?	• Training • Cross-Training • Hire new employees • Reassign work • Job Analysis • Reclassification	Could make the organization perform more effectively, more efficiently and be a higher performing organization	Will likely have a budget impact on the organization
Competitive Sourcing (11 or more FTEs)	**Conduct public-private competition**	• Applies to functions already contracted out and in-house government functions designated as commercial competable (Reason Code B) on the FAIR Act Inventory • Requires significant knowledge of OMB Circular A-76 and Federal Acquisition rules	• OMB Circular A-76, Performance of Commercial Activities • Federal Acquisition Regulation • FAIR Act Inventory	• Increased savings over existing baseline costs • Performance improvement over existing operations	• 12 to 18 months to complete the competition • Requires specialized knowledge of competition procedures • Antagonistic union and employee representative interference • Unwanted congressional interest
Outsourcing (10 and fewer FTEs)	**Have function performed by another government department**	• To maintain competency proficiency level, constant exposure to advancing techniques or technology is required and is not available in the organization • Are there organizations which can provide this service or perform this function – cheaper/faster than trying to maintain the competencies in-house?	• Organizational Realignment • Competitive Sourcing • MOU	Could be cheaper and faster to implement than hiring a new employee	Negotiating and implementing MOUs can take considerable time
Outsourcing (10 and fewer	**Have function performed by**	• Are there organizations which can provide this service or perform this function –	• Organizational Realignment	Could be that the expertise is only found at certain	• These appointments generally have term limitations which could

GAP CLOSURE STRATEGY		KEY CONSIDERATIONS	TOOLS	ADVANTAGES	DISADVANTAGES
CATEGORY	STRATEGY				
FTEs)	**a University or other non-profit (or trade function with private sector)**	cheaper/faster than trying to maintain the competencies in-house? • To maintain competency proficiency level, constant exposure to advancing techniques or technology is required and is not available in the organization	• MOU • Contract	institutions such as universities or maybe able to get a loan from a private sector company	create a challenge if the person is needed long-term • There are generally salary costs that need to be paid that are often higher than the General Schedule so this could also be a budget issue
Outsourcing (10 and fewer FTEs)	**Contract out the function to the private sector**	• Need is immediate • Need is for a short term only • Private sector provider is better able to provide needed competencies • Training is complex and/or expensive • Current workforce does not possess aptitude for learning new skills • To maintain competency proficiency level, constant exposure to advancing techniques or technology is required and is not available in the organization	• Contracting • Competitive Sourcing	It may save the agency some money or the money may be easier to get if it is not in personnel dollars	The acquisition process can take some time
In-sourcing	**Replace contractors with federal employees**	• Current ratio of employees to contractors is not consistent with ability to achieve mission goals and objectives? • Costs associated with maintaining competencies using contractors is out of line with cost of federal employees	• Organizational Realignment • Hiring • Training or Cross-Training	Maintain the key competencies in-house so have them long term	• Costs can be greater than having contractors perform the work as it may take a lot of time and money to maintain the competencies of the functions • Changing the color of money
Privatization	**Stop performing the function; buy the product**	In privatization, the government relinquishes control		Do not have to maintain the skills/competencies to produce the product	Dependent upon the private sector to get work done on their timeline and costs are not totally within control of government

APPENDIX 7-2: COST-BENEFIT ANALYSIS SAMPLE

For illustration purposes, this appendix provides a simplified cost-benefit analysis to evaluate gap closure strategies. The competency gap identified for closure is for Technical Writing, defined as, "Writes reports on technical topics and documents policies and procedures in simple and concise language, accurately applying the rules of punctuation, spelling and grammar." (See *Appendix 5-2: Competency Model Sample*.) The competency is identified as a priority for three OAs. (See *Table 6-4: Competency Gap Priorities Summary Example*.) The competency is also recognized as an important competency for all OAs. While the average rated score ranked third highest among all competencies at 3.58, the proficiency level for technical writing needed to be closer to 4.5 or even better. In addition, the supervisor-reported scores were much lower than the self-reported scores. (See Appendix 6-2: Competency Survey Analysis Samples.)

To close the gap, a set of six alternatives is defined in *Table 7-2-1: List of Alternatives*.

Table 7-2-1: List of Alternatives

ALTERNATIVE		DESCRIPTION	PROBABLE OUTCOME
1	Status Quo	No action is taken to close gaps	• Proficiency scores remain at the baseline average 3.58. • The quality of technical reports is inconsistent and on average medium quality.
2	Training	All engineers receive formal training in technical writing followed up with on-the job training.	• Proficiency scores increase over time to average 4.0. • 80% of engineers will actually receive training • The quality of technical reports is more consistent and medium to high quality.
3	Training Acquire/Hire	All engineers receive formally training in technical writing followed up with on-the job training. Hire new engineers with an emphasis on technical writing proficiency.	• Proficiency scores increase overtime to average 4.2. • The quality of technical reports is more consistent and medium to higher quality.
4	Organizational realignment Acquire/Hire	Hire professional technical writers for each OA.	• Proficiency scores remain at the baseline average 3.58. The required proficiency level is lowered; therefore, the gap is closed. • The quality of technical reports is consistently highest quality.
5	Organizational realignment (Shared Service)	Create a centralized resource or shared service to provide specialized technical writing services to all OAs. This does not have to be centrally located, just centrally managed.	• Proficiency scores remain at the baseline average 3.58. The required proficiency level is lowered; therefore, the gap is closed. • The quality of technical reports is consistently highest quality.
6	Outsourcing	A professional technical writer through a contract with the private sector edits and finalizes draft technical reports on an as needed basis.	• Proficiency scores remain at the baseline average 3.58. The required proficiency level is lowered; therefore, the gap is closed. • The quality of technical reports is consistently highest quality.

The next step is to determine the cost of each alternative. The period for this analysis is five years. For illustration, the assumptions and calculations made are shown in the Resources Required Summary; however, usually the resources and assumptions are listed and the support for the cost estimating is provided as backup information.

Table 7-2-3: List of Alternatives Cost

ALTERNATIVE		RESOURCES REQUIRED SUMMARY	ESTIMATED COST 5 YEARS
1	Status Quo	No resources required.	$0.00
2	Training	80% of the 3.652 engineers are formally trained at a cost of $1,200 per engineer (2,921 x $1,200=$3,505,200)—One time cost, ($3,505,200 out of pocket) 40 man hours of engineer time at an average GS-13 to attend training (2,921 x 40 x $50 (Loaded hourly rate)=$5,842,000) 40 man hours of managements time at a GS-14 for on-the-job training for each engineer for one year (2,921 x 40 x $60 (Loaded hourly rate)=$7,010,400) 10 man hours of management time at a GS-14 for on the job training for each engineer for remaining 4 years (2,921 x 10 x $60 (Loaded hourly rate)=$1,752,600) This does not include the cost of training new hires in subsequent years.	$18,110,200
3	Training Acquire/Hire	Cost of Training (see above for calculation $18,110,200) No additional cost for hiring new engineers with an emphasis on technical writing proficiency	$18,110,200
4	Organizational realignment Acquire/Hire	Number of engineering FTE performing technical writing; estimating 8% of each engineers time is spent on technical writing (.08 x 3652=292.16 FTE) Number of FTE needed for technical writing at GS-12;assume productivity a little faster than engineers due to specialization. (.07 X 3652=255.64 FTE) Hire 255 FTE at a GS-12 (255 x 89,000(loaded rate) x 5 years =$113,475,000) Reduce number of engineers by 4 % to account for reduction in technical writing work (.04 x 3652=146.08 FTE) (146 FTE x $106,000(loaded rate) x 5 years =$77380,000) Hired technical writers cost minus reduction in engineers ($113,475,000-$77,380,000=$36,095,000) Plus the cost of consulting support to support realignment (36,095,000 + $150,000 = $36,245,000) Reduction in engineers through attrition	$36,245,000
5	Organizational realignment (Shared Service)	Same cost as Alternative 4 reduced 10% for the economies of scale for consolidation. Includes consultant cost.	$32,635,500
6	Outsourcing	Same cost as Alternative 5 minus 10% to account for reduced fringe benefits in the private sector. Add 1% for contract administration costs.	$29,698,305

Identify benefits and assign a relative weighting factor to each benefit.

Table 7-2-3: Benefits Weighting and Scoring Rationale

BENEFIT	RELATIVE WEIGHTING FACTOR	DEFINITION/RATIONALE	SCORING
Timeliness of gap closure	3	The weighting of this benefit is not high due to the fact that the work is currently being accomplished. The quality of the writing needs to improve.	The ability of the alternative to make an immediate impact on closing the competency gap.
Impact on productivity	5	The weighting of this benefit is high due to the shortage of FTE working in this area and the critical nature of their work.	The ability of the alternative to close the gap without reducing the number of productive hours available to FTE.
Minimizes disruption to organization	4	The weighting of this benefit reflects the fact that this organization has recently experienced a major reorganization and is still trying to implement organizational changes.	The degree of disruption to the organization.
Improvement in Quality of Technical Writing	5	The weighting of this benefit is high because technical writing is the primary form of communication with DOT stakeholders.	The degree to which the technical writing quality is improved.
Senior leadership commitment	5	The weighting of this benefit is high due to the need for Senior Leadership to support and commit resources to ensure successful implementation.	The degree to which senior leadership commitment is needed for success.

Score each alternative for each benefit. Tables 7-2-4 through 7-2-8 show the scoring for each benefit by alternative.

Table 7-2-4: Benefits Scoring—Timeliness of Gap Closure

ALTERNATIVE		BENEFIT SCORE	JUSTIFICATION
1	Status Quo	0	No gap closure
2	Training	3	Training existing staff would take some time and the on-the-job training would be an important component of transferring the training knowledge
3	Training Acquire/Hire	4	Hiring new staff would bring the expertise on board quickly while the existing staff are training
4	Organizational realignment Acquire/Hire	4	Hiring new staff could happen quickly, while the restructuring would take more time
5	Organizational realignment (Shared Service)	2	Reorganizing into a shared services model would take the longest time to close the gap
6	Outsourcing	5	Contracting out to the private sector is the fastest way to get the expertise

Table 7-2-5: Benefits Scoring—Impact on Productivity

ALTERNATIVE		BENEFIT SCORE	JUSTIFICATION
1	Status Quo	5	No impact on productivity
2	Training	4	Takes time away from work to attend training
3	Training Acquire/Hire	4	Takes time away from work to attend training
4	Organizational realignment Acquire/Hire	3	Takes time away from work to restructure; reorganizing could disrupt productivity
5	Organizational realignment (Shared Service)	2	Takes time away from work to restructure; consolidating to shared services could disrupt productivity
6	Outsourcing	4	No impact on productivity

Table 7-2-6: Benefits Scoring—Minimizes Disruption to Organization

ALTERNATIVE		BENEFIT SCORE	JUSTIFICATION
1	Status Quo	5	No disruption
2	Training	4	Minimal disruption due to employees our for training
3	Training Acquire/Hire	4	Minimal disruption due to employees our for training
4	Organizational realignment Acquire/Hire	3	More disruption due to learning how to work with technical writers
5	Organizational realignment (Shared Service)	2	Most disruption due to learning how to work with technical writers and with a new shared services center
6	Outsourcing	3	More disruption due to learning how to work with technical writers

Table 7-2-7: Benefits Scoring—Improved Quality of Technical Writing

ALTERNATIVE		BENEFIT SCORE	JUSTIFICATION
1	Status Quo	0	Technical writing quality is inconsistent and not improved
2	Training	2	Technical writing quality is improved, but still inconsistent and of medium-high quality
3	Training Acquire/Hire	3	Technical writing quality is improved more than training alone, but still the quality of writing is inconsistent but may be higher over time as engineers with a greater proficiency are hired and train others
4	Organizational realignment Acquire/Hire	5	Technical writing quality is consistently highest quality
5	Organizational realignment (Shared Service)	5	Technical writing quality is consistently highest quality
6	Outsourcing	5	Technical writing quality is consistently highest quality

Table 7-2-8: Benefits Scoring—Senior Leadership Commitment

ALTERNATIVE		BENEFIT SCORE	JUSTIFICATION
1	Status Quo	5	No senior leadership commitment required
2	Training	4	Minimal amount of senior leadership commitment; need to commit training dollars
3	Training Acquire/Hire	4	Minimal amount of senior leadership commitment; need to commit training dollars and emphasize hiring engineers with higher technical writing proficiencies
4	Organizational realignment Acquire/Hire	3	Needs medium level of senior leadership commitment
5	Organizational realignment (Shared Service)	2	Needs higher level of senior leadership commitment
6	Outsourcing	1	Needs highest level of senior leadership commitment

Table 7-2-9: Benefits Scoring—Total Weighted Benefits Score

BENEFITS		Timeliness of Gap Closure		Impact on Productivity		Minimized Disruption to Org		Improved Quality		Senior Leadership Commitment		Total Weighted Score
Weighting Factor		2		4		4		5		3		
ALTERNATIVE		Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	
1	Status Quo	0	0	5	20	5	20	0	0	5	15	**55**
2	Training	3	6	4	16	4	16	2	10	4	12	**60**
3	Training/ Acquire/Hire	4	8	4	16	4	16	3	15	4	12	**67**
4	Organizational realignment / Acquire/Hire	4	8	3	12	3	12	5	25	3	9	**66**
5	Organizational realignment (Shared Service)	2	4	2	8	2	8	5	25	2	6	**51**
6	Outsourcing	5	10	4	16	3	12	5	25	1	3	**66**

Table 7-2-10: Relative Cost Effectiveness of Alternatives

ALTERNATIVE		OUTCOME	COST	BENEFIT SCORE	COST-BENEFIT RATIO	RANK ORDER
1	Status Quo	No action is taken to close gaps	$0.00	55	n/a	N/A
2	Training	All engineers receive formal training in technical writing followed up with on-the job training.	$18,110,200	60	301,837	2
3	Training/ Acquire/Hire	All engineers receive formally training in technical writing followed up with on-the job training. Hire new engineers with an emphasis on technical writing proficiency.	$18,110,200	67	270,301	1
4	Organizational realignment / Acquire/Hire	Hire professional technical writers for each OA.	$36,245,000	66	549,167	4
5	Organizational realignment (Shared Service)	Create a centralized resource or shared service to provide specialized technical writing services to all OAs. This does not have to be centrally located, just centrally managed.	$32,635,500	51	639,912	5
6	Outsourcing	A professional technical writer through a contract with the private sector edits and finalizes draft technical reports on an as needed basis.	$29,698,305	66	449,974	3