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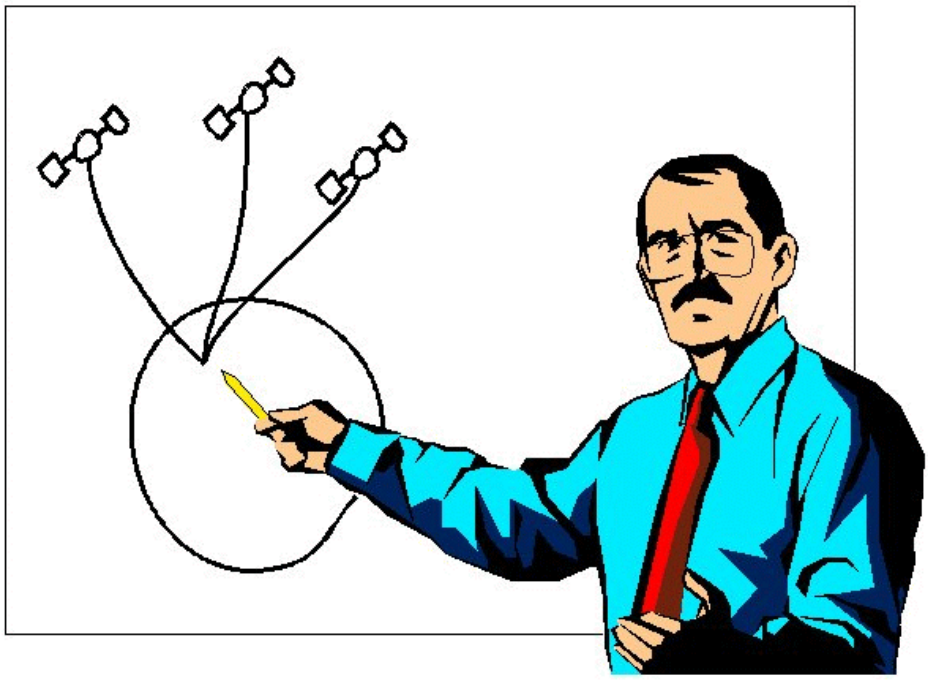

Assessment of SDDOT Training Needs

Prepared by
SDDOT Office of Research
700 East Broadway Avenue
Pierre, SD 57501-2586

February 2002

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This work was performed under the supervision of the SD1995-03 Technical Panel:

Mike Durick . . . . . Operations
Ellen Zeller . . . . . Bureau of Personnel
Darrell Cassidy . . . . . Internal Services
Joe Feller . . . . . Materials & Surfacing
Randy Tollefson . . . . . Mitchell Region
Monica Ortbahn . . . . . Pierre Region
Wayne Cramer . . . . . Huron Area
Dale Russell . . . . . Rapid City Region

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16. Abstract

The South Dakota Department of Transportation needed to develop a method to identify its present and future training needs and determine how effectively its training supports organizational goals. A training needs assessment survey was developed and sent to all of the Departments employees. The survey contained questions covering the general training environment and knowledge areas that affect all employees. Additional questions covering specific knowledge areas were divided into groups identified as domains. Each employee completed only the domain that applied to him or her. Focus groups were used to identify areas the survey should emphasis and provide insight needed to prepare a quantitative survey. Analysis of the focus groups and 810 surveys returned by the Department's employees indicated a variety of training needs. Questions concerning the general training environment in the Department identified some key areas of concern. A key finding is that most employees do not systematically plan for the training they need. Five non-technical domains—Personnel, Leadership, Employee Development, Quality Improvement, and Communications—were identified having the highest training need over all other domains. Recommendations were made to the Department for its approval.

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1 EXECUTIVE SUMMARY

Because of its investment in training, the increasing number of new employees, the loss of experienced employees, the increasing costs of training, and changing technology, SDDOT needs to develop methods to identify its present and future training needs and determine how effectively its training supports organizational goals.

A training needs assessment survey was sent to 1130 employees in the Department of Transportation. 810 surveys were returned for a response rate of 72%. The survey covered the general training environment—including motivation and planning for training, as well as training scheduling and format— in SDDOT. All employees completed questions divided into seven domains covering knowledge areas or training subjects that affect all employees. Additional questions covering specific knowledge areas were divided into 19 different domains; each employee completed only the domains that applied to him or her. Focus groups were used to identify areas the survey should emphasize and provide insight needed to prepare a quantitative survey.

Analysis of focus group comments and 810 surveys returned by the Department's employees indicated a variety of training needs. Questions concerning the general training environment identified some key areas of concern. A key finding is that most employees do not systematically plan for the training they need. Few employees prepare for a class or even know the course content before attending. Often, they are informed of the training just prior to the anticipated need for the training or just before a course is offered. Supervisors seldom ask if the employee needs training. If asked about training the employees planned at the periodic Performance Planning and Review (PPAR), the employees indicated they rarely receive the requested training. Planning for training usually occurs when the employee or supervisor is made aware a training class has been scheduled.

Short-term planning for training would enable the Department and employees to meet immediate needs. The immediate needs can be met during the periodic PPAR. Discussion between the supervisor and the employee can identify individual needs. This information should be passed to a central location where it can be assembled and can provide invaluable department-wide data for the planning of training. The central training contact and the Department's management can then use the assembled data to develop plans and schedules for formal training programs, and allocations can be made in relation to the requests. The employees requesting training will be identified early in the process so direct contact can be made to customize the course to meet their needs.

Supervisors have the responsibility to promote employee development by using available training resources and plan employee training. Planning employee development is an ongoing process. At least annually, performance training needs should be evaluated at the periodic PPAR.

In conjunction with employees, the supervisor should identify training needs and schedule employees for training. The supervisor is responsible to ensure employees are provided an opportunity to attend needed training as workload permits. They should also identify, prioritize, and communicate the organization's training needs.

Long-range planning centers around future manpower needs. Some changes have occurred in the numbers of employees in specific job groups. Although the composition of the Department's workforce has not changed drastically, some changes can be predicted. Changes in technological developments and attrition are some of the considerations for long-range planning. Future needs for manpower in the various job groups gives an indication of the long-term training needs. Looking at the nature of the future organization of the department many indicate the magnitude of training challenges.

Many employees felt it is important to have a period of overlap when a position is being vacated and a replacement is hired. It is difficult to learn some positions when there aren't other employees available who are knowledgeable about the duties of the position being replaced. Many employees feel the Department could save time and money and avoid mistakes by having replacements properly trained before the position vacates.

Managers and Support groups indicated no preference to the time of year training should be offered. The other job groups indicated January-February as the best time for training with the summer and fall months generally not the most preferred time for training.

Small groups hands-on training was preferred by most employee job groups. A small class size allows all employees to participate in the class. Computer and maintenance training were identified as sometimes either not directed to the level of all learners or where only one or two employees at a time were able to observe the training being demonstrated. Employees also indicated they would take training delivered in any method appropriate for the training.

Domain level analysis indicated the most significant unmet need for training was in the non-technical areas. This reflects the widespread applicability of these subjects to employees throughout the Department, and possibly a lack of emphasis in these areas in the past. Also, training in the technical domains is stressed throughout the department and the analysis indicated that there is sufficient knowledge within those domains. The fact that need values are low does not indicate training in those areas can be ignored. This is simply an indication that the Department is providing the necessary training in these areas and should continue to do so.

The Department should review the following recommendations developed from analysis of the data and comments obtained from the focus groups:

1. SDDOT should make training and employee development part of Performance Planning & Review (PPAR) for all employees and a supervisory responsibility for supervisors.

An individual employee's role is paramount in identifying training needs and appropriate opportunities. Individuals should identify and assess personal development needs; consult with supervisors about development plans and needs; help identify opportunities; and negotiate plans annually. Supervisors are responsible for effective resource development and utilization. Once a individual training and development plan is developed it should be submitted to the training professional for inclusion in the Department-wide training plan.

2. SDDOT should communicate training information by a variety of means so that all employees are aware of opportunities.

E-mail is rapidly becoming the preferred method to become aware of training opportunities for most employees. However, the workplace bulletin board is perceived more useful by Maintenance and Part Time & Seasonal Job Groups. The Bureau of Personnel's Training Catalog is also very useful. Personal contact with a training professional can be very effective in communicating the services and resources available through the training program.

3. SDDOT should recognize training as an integral component of the Department's Strategic Plan.

This linkage communicates the significance of employee training in helping the Department achieve it's missions, goals and objectives. The importance of training is stressed in many professional studies. A 1993 Survey by the American Society for Training and Development of the training activities of 19 major corporations revealed that the training function within these companies surveyed had written corporate commitments for training through mission statements and/or strategic plans.

4. SDDOT should develop a yearly training plan to define objectives of the Department's training program and to develop staffing, facility, and budget requirements.

A training plan must meet the short-term and the long-range needs of the Department. The plan should also address the goals of the Department's strategic plan. The top five training need domains and identified courses should be included in the plan.

5. As SDDOT develops its future training plans, it should focus on providing training in the top five domains identified under Section 7.3 Domain Level Analysis.

Since the assessment showed that Personnel, Leadership, Employee Development, Quality Improvement, and Communications training is desired by almost all Department employees, the Department must make a concerted effort to provide training on these topics.

6. SDDOT should dedicate a full-time position to the Department's Training Program. This training professional must have the ability to interact with all Divisions and all levels within the Department and the BOP training program.

The training person should coordinate and oversee all training activities in the Department. Specific duties that should be performed by the safety professional would include:

- Work with each Division to identify specific training needs.
- Develop and track training goals for the Department.
- Provide visible support from the Central Office.
- Identify and track mandated training.
- Use the training database to track all changes of DOT employees and have employees verify the records are correct.

The Department does not have a central contact for employees to address their training needs. When the Department eliminated the Training Activity some functionality was lost. Employees at all levels do not feel there is a well-coordinated training activity within the department. Some also feel they are not informed about training activities. Many feel the training provided to them does not address their needs or apply to Department activities. Having one individual who is responsible for overseeing the program would help ensure that the program is on course. This individual would advise and guide management, supervisors and employees on all matters pertaining to training.

7. SDDOT should continue training in all technical training domains.

Department-wide employees feel they have sufficient knowledge in most technical domains. The training need values are typically in the low to moderate range. A low ranking does not mean the training is not needed, but rather that the employees feel they are receiving sufficient training. The Department should continue training in these areas.

8. SDDOT should periodically conduct training surveys of all Department employees.

A sample survey was developed with nine questions that were designed to address employee training needs and minimize the work involved in analyzing the data. There isn't a need to include questions in every domain since this makes data analysis difficult. The survey could be administered every two years to track trends, enabling the Department to track the performance of the training program.

2 PROBLEM STATEMENT

Training is required to provide knowledge and skills necessary to enable employees to perform their present jobs, become more diversified in their abilities, and meet future technological changes. Through its own staff, other state and federal agencies, and consultants, the Bureau of Personnel (BOP) provides the South Dakota Department of Transportation (SDDOT) training in management, supervision, construction, maintenance, safety, clerical skills, and technical subjects.

Because of its investment in training, the increasing number of new employees, the loss of experienced employees, the increasing costs of training, and changing technology, SDDOT needs to develop methodologies to identify and validate its present and future training needs and determine how effectively its training supports organizational goals.

3 BACKGROUND SUMMARY

The earliest documented attempt to establish training needs in the Department of Transportation was through a 1987-1988 Training Task Force that established recommendations for specific training for each job classification based on existing course offerings.

Another attempt at training needs assessment was a survey developed by the Training Activity staff in 1990. 2500 surveys were completed by DOT employees. Resources were only available to establish a database, analyze data, and report on the needs analysis data supplied by 62 technicians. In summary, the technicians were satisfied with training offered. Their number one training need included surveying, computer use and, field materials testing training, in that order. Their top education need included computer training, mathematics (algebra and trigonometry), and surveying. Their top six priorities for training were computer training, surveying, field materials testing, and earthwork and asphalt plant inspection training tied for fourth place, and asphalt paving training. Considerable detailed data was obtained from this analysis, but it took one person ten days to collate, analyze and prepare a report on the data. This would have translated into a year of work for one person if the remaining 2438 surveys were also collated, analyzed and reported. The lesson learned was that a better needs analysis method was needed.

3.1 Literature Search

A telephone survey of 48 of the 50 state transportation departments identified use of a formal training needs analysis program by the States of Washington, Colorado, Kansas, and New Mexico (uses Colorado model). Montana uses a survey system similar to the one used in 1990 by the Training Activity with the same results. Some States do very little training except what local supervisors can offer. The remaining states rely on employee and supervisor feedback, supervisor recommendations, surveys and in some cases intuition.

Within SDDOT, questionnaires are completed by every attendee to courses presented by DOT instructors. They are used to determine general training needs and indicate fulfillment of attendee's training course needs.

The Department maintains a database tracking all training taken by its employees. The database contains employee identification, date of training, number of hours of training, cost and miscellaneous costs. The cost is the wages and fees. The miscellaneous costs contain travel costs. This information is obtained from the time sheets. The individual training classes are identified by a Authorization for Expenditure (AFE).

3.2 Mandated Training

A review of SDDOT's policies and State and Federal regulations identified many areas that mandate some type of training. That information is summarized below:

Federal Government Agencies and Offices

- The Federal Highway Administration (Federal-Aid Policy Guide, 23 CFR 650C) requires Safety Inspection of In-Service Bridges satisfied by a 2 week National Highway Institute (NHI) Course.
- Federal Highway Administration (Federal-Aid Policy Guide, 23 CFR 650C) requires Engineering Concepts for Bridge Inspectors satisfied by a 1-week NHI Course.
- 49 CFR 382.603 requires supervisors of Commercial Drivers License (CDL) holders to receive one hour of training in alcohol misuse and an additional hour of training on controlled substances use. The training shall cover physical behavior, speech, and performance indicators of probable alcohol misuse and use of controlled substances.
- 49 CFR 382.601 requires employers to provide educational materials that explain the requirements of drug and alcohol policies and practices with respect to meeting the requirements for drug and alcohol testing.
- United States General Accounting Office requires auditors responsible for planning, directing, conducting, or reporting on government audits to complete every two years, at least 80 hours of continuing education and training which contributes to the auditor's professional proficiency.
- EPA Model Accreditation Program, 40 CFR 763, and the South Dakota Bureau of Administration's decision to have a Departmental in-house capability requires 8 hours of refresher training annually and successful completion of a written examination every third year to retain Asbestos Supervisor/Contractor Certification.

South Dakota Government Agencies, Boards and Offices

- Title 20 Department of Commerce and Regulation, Article 20:38, Chapter 20:38:10 - Continuing Education, Section 20:38:10:01 requires all registered land surveyors to complete 30 hours of continuing education within two calendar years.
- South Dakota Career Service System, 55:01:25:08, Training in Management and Performance Appraisal. Within 12 months after appointment to a supervisory or management position, an employee must attend the supervisor training courses offered by the Bureau of Personnel. In addition, within 3 years after appointment to a supervisory or management position, the employee must complete an additional 40-hours in supervision or management training.
- SDCL 38-21 and Administrative Rule ARSD 12:56 establish a pesticide applicator certification program. The applicant desiring certification must take and pass a written examination. The program requires certified individuals to attend an approved rectification program every two years.

Department of Transportation

The Department of Transportation recommends training for several specialties:

- Four Courses have been recommended through Research Project Implementation

Recommendation Approvals: Flagger Certification Program, Joint Sealing with Silicone, Railroad Crossing Design, and Asphalt Surface Treatment for Inspectors.

- Urban street system improvements and economic development grant and community access grant program training are recommended.
- Administrative and technical assistance is provided as needed to rural and urban transit managers and personnel.
- At a minimum, three DOT sponsored training sessions, including drivers' training and drug and alcohol testing training are offered annually in support of Local Government Assistance.
- The Research Project "Enhancement of South Dakota's Pavement Management System" identified training that should be performed annually.
- Operations Support has provided annual bridge inspection training for Department inspectors and consultants.
- T3S, under oversight of its Advisory Board and the Office of Research selects technical workshops to be presented to state and local transportation workers by Department staff.
- Administrative guidance, assistance, and ongoing training is to be provided for the enhancement sponsors.
- Formal and informal training is provided for winter snow and ice removal operations.
- Subsurface investigation training is recommended.
- In the area of Aviation Safety Training, pilots must attend a flight safety course every two years and every other year the instructors must attend a certified flight instructor course.
- Selected managers attend the AASHTO management training courses.

3.3 SDDOT Training Investment

The Department maintains a mainframe database that tracks training obtained by Department employees. Training records are available for years earlier than 1989, but they are not complete and may not provide valuable information. The Department spent approximately $1.0 million on training during the calendar year 2001 Figure 1. This is approximately 3 times what was spent annually during the years 1989 through 1993, and

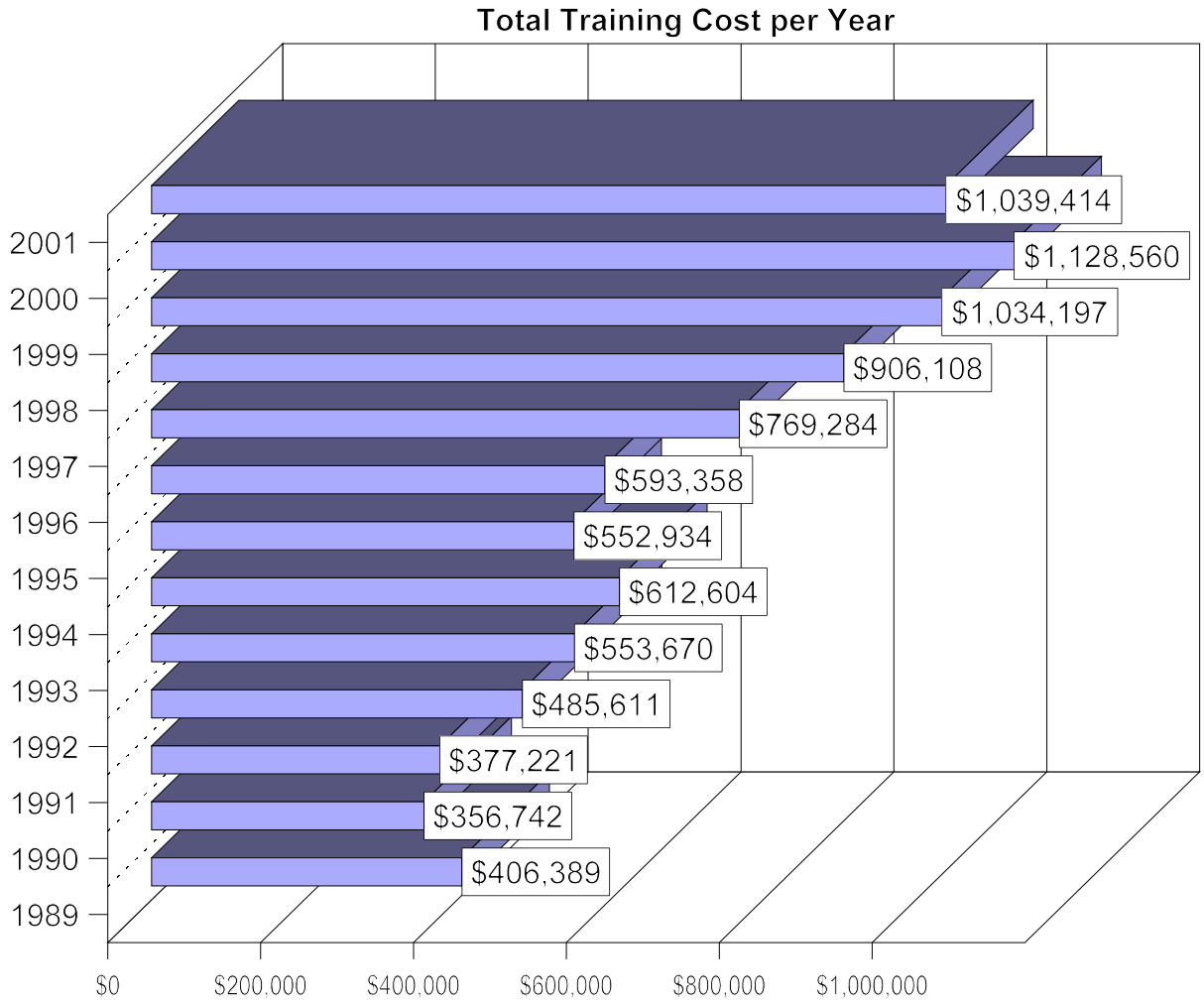

Figure 1: Total Training Cost per Year

represents a substantial investment in resources. From 1998 until 2000 the training costs have increased as much as 18% per year.

4 OBJECTIVES

The objectives for this project, as established by the South Dakota Department of Transportation are to:

- Develop a method for assessing SDDOT's short term and long range training needs.
- Assess the training needs using the developed methodology.
- Develop and evaluate a method to determine how effectively training achieves organizational goals.

5 RESEARCH PLAN

5.1 Meet with Technical Panel

Task 1: Meet with the project's technical panel to review project scope and work plan.

The research team met with the technical panel in late August, 2000. This meeting was to provide communication between the technical panel and the research team. The technical panel will provide additional guidance to aid in the refinement of the work plan.

5.2 Review and Summarize State of the Art

Task 2: Review and summarize state of the art methods for evaluating training needs, effectiveness, and benefit to the sponsoring organization.

State DOT Training Departments were contacted regarding how they assess their training needs. Two states indicated they hired a consultant, and most have developed their own methods. Examples of those methods were obtained and served as examples in developing the methodology for this study.

5.3 Review Organizational Goals and Training

Task 3: Review current organizational goals and SDDOT's training policies, procedures, and programs.

A comprehensive review of current SDDOT policies and procedures was made. This will include the 2001 Strategic Plan, which outlines the departments goals, objectives strategies and actions concerning training of SDDOT personnel.

The Executive Team developed the 2001 Strategic Plan, addressing many of the issues raised by the Organizational Health Assessment 2001 research study. It included the following goals:

- ***Training Goal:*** Provide for employees' development and training in areas such as supervision, maintenance management, equipment maintenance and operation, and office support skills.
- ***Information Goal:*** Ensure that employees throughout the Department have convenient access to information that affects them and their jobs.

- ***Ideas Goal:*** Ensure that managers invite employees' ideas and suggestions, seriously consider them, and promptly provide feedback on decisions.
- ***Purpose Goal:*** Unify and create common management purpose among all Department supervisors and lead workers.
- ***Teamwork Goal:*** Establish a "can-do" culture of teamwork among all segments of SDDOT.
- ***Careers Goal:*** Address career development and advancement, recruitment, and retention of employees.
- ***Customer Satisfaction Goal:*** Focus the Department's highway construction and maintenance efforts on items most important to its customers.
- ***Capability Goal:*** Ensure the capability of SDDOT and its workforce to meet future demands.

Many of these goals relate to training either directly or indirectly. The needs assessment identified training needs within the department that address specific goals listed in the strategic plan.

5.4 Develop Need Assessment Methodology

Task 4: Develop methodology to assess SDDOT's short and long range training needs.

The methodology to assess SDDOT's training needs consisted of a variety of "tools". The tools used was a training needs survey or questionnaire and focus groups. The training needs questionnaire was developed using a combination of the methodologies obtained from other state DOT's in Task 2.

Development of the survey was completed in five steps:

- SDDOT's job classifications were divided into a manageable number of related categories: maintenance, engineering, administrative, supervisor-maintenance, supervisor-engineer, specialist, part-time & seasonal, and managers.
- Focus groups were used to determine important topics related to training and to identify concerns of the employees that could be addressed in a survey.
- Review of questionnaires of other state transportation departments, comparing the questions and categories to be sure they fit with SDDOT"’s concerns, was useful and provided good insight into how to prepare a survey.
- The Department's strategic plan was reviewed for applicable references to training.
- The questionnaire was developed.

Focus Groups

Focus groups were divided into four categories: maintenance, engineering, administrative, and managers, and further subdivided into supervisor and non-supervisor groups (Table 1). The focus group meetings, held in Huron and Pierre, were used to identify areas the survey should emphasize and to provide insight needed to prepare a quantitative survey.

The focus groups responses closely matched the responses from the surveys. Nearly all focus groups felt the Department would benefit by hiring replacements before an experienced employee leaves or changes positions. Much knowledge is lost when a employee leaves a position in the department. The replacement must learn the new position by trial and error or by asking others who may or may not know all the duties required of the position. Most obtained their skills and knowledge by on-the-job training.

Table 1: Focus Group Composition and Location

	Non-Supervisor 9:30 a.m. - 12:00 p.m.	Supervisor 1:00 p.m. - 4:00 p.m.	Meeting Location
Maintenance	Aberdeen Region Mitchell Region	Aberdeen Region Mitchell Region	Huron
	Pierre Region Rapid City Region	Pierre Region Rapid City Region	Pierre
Engineering	Aberdeen Region Mitchell Region Central Office	Aberdeen Region Mitchell Region Central Office	Huron
	Pierre Region Rapid City Region Central Office	Pierre Region Rapid City Region Central Office	Pierre
Administrative	Aberdeen Region Mitchell Region Central Office	Aberdeen Region Mitchell Region Central Office	Huron
	Pierre Region Rapid City Region Central Office	Pierre Region Rapid City Region Central Office	Pierre

Comments concerning computer training suggested the training should address all learners skill levels. Some employees were not able to keep up with the course content and felt they did not receive ample attention or help. The training should use examples specific to the Department. Many felt examples that relate specifically to the Department or their work would be of great benefit. Many times it was difficult for the employee to understand how the training would benefit them.

Shortage of employees and increased work load makes it difficult to assign an experienced employee to work with an inexperienced employee. Many times the experienced employee is assigned more difficult tasks so the work will get accomplished. The inexperienced employee then gets the simpler tasks and does not benefit from learning more complicated tasks from experienced employees.

Many field personnel felt Microstation training did not address their needs. They said they are required to design projects during the winter months and inspect construction projects during the summer months, leaving little time for training. Infrequent use of the software may be what is causing the dissatisfaction with the training. A field user's guide may be useful for those who do not use the software frequently enough to be familiar with the commands.

Questionnaire Design

The design of the questionnaire was based on a variety of sources with emphasis on the identification of specific training needs of SDDOT. The questionnaire contained the employee's name, activity and position title. The questions were divided into three sections:

- Questions 4 through 10 were general questions regarding when, where, and why employees

attend training.

- Questions 11 through 101 explored the job importance, present knowledge, and need for additional training in a number of topics in seven general training domains. All employees completed these questions.
- Questions 102 through 318 similarly explored the job importance, present knowledge, and need for additional training in a large number of specific knowledge areas. These questions were divided into twenty different training domains. Each employee completed only those domains that applied to him or her.

The survey was mailed to every full-time and part-time and seasonal employee working for the Department on January 5, 2001. Copies of the survey were mailed to the local office or area where the employee was attached. Of the 1130 surveys that were mailed, 810 surveys were returned for a response rate of 72 percent. The response rate was very high for a survey of this type.

5.5 Develop Effectiveness Assessment Methodology

Task 5: Develop methodology to assess the effectiveness of training to achieve organizational goals.

The development of a methodology to assess the effectiveness of training was the most difficult portion of this project. Directly estimating the benefit of training is difficult in all but a few cases. For example:

- A properly trained inspector on a construction project could save millions of dollars by ensuring that a project is constructed according to specifications.
- Safety training may or may not be correlated to number of accidents.
- Accidents may or may not be a reflection on whether the employee received adequate training or was able to implement the training.

Course evaluation forms may provide some valuable information, but even if the evaluation is given immediately after the course and the evaluation is completed fairly and objectively, it only rates the quality of the course. The proper course evaluation should be given at some time later, perhaps six months or even one year after the course. Many employees might avoid training courses if they were tested over the course content before, during, or after completion of the course, but this is the standard scholastic approach to measuring course effectiveness. BOP Training currently administers written tests in certain training courses. These tests vary from quizzes given during the course to a final examination.

What is desirable is to measure the improved job performance, creativity, and professional vigor. Measuring these qualities would require communication between employees and their supervisors. It would also require a separate assessment from the supervisor and the employee relating to how the training benefitted the employee and the Department. This feedback would be obtained at some time interval after the training completed, perhaps within a year of the training. The following items would be submitted by the supervisor and the employee:

- An evaluation of what training had been accomplished to date;
- An assessment on how effectively the employee had applied the training to the job;
- Information to the employee of changes in technology, policies or procedures that may affect the employee's job;
- Feedback and suggestions for improvement related to training options.

This information and the answers to the following questions would provide insight into the effectiveness of training and be the beginnings of a method for evaluation of training effectiveness:

- Did the training support goals identified in the Department's strategic plan?
- Was training provided to meet changing technology?
- Was training provided to meet the employee's request for training?
- Was the training cost-effective?
- Did the training provide the desired result?
- Were you allowed to use the information learned from the training?

5.6 Prepare Interim Report

Task 6: Prepare an interim report recommending methodologies for analyzing short and long term needs and determining how effectively training achieves organizational goals. The interim report should include a detailed work plan for remaining tasks.

A sample survey and rough draft report was presented to the technical panel on August 22, 2000 for review. Changes were made to the survey based on comments received at this meeting.

5.7 Review Methodologies

Task 7: Meet with the technical panel to review the methodologies and detailed work plan.

The research team met with the Technical Panel to review the methodologies that were developed and provide input to the remaining tasks. This meeting was held August 22, 2000. Comments by the technical panel were incorporated in the survey..

5.8 Test Need Assessment Methodology

Task 8: Test the methodology to assess training needs.

This task verified that the questionnaire is simple to the point and will provide the proper information. A small sampling of DOT personnel will be used to complete the questionnaire and provide feedback as to the practicality and ease of use of the questionnaire. The sampling group will be comprised of a representative sample of DOT personnel. The data obtained from the questionnaires will then be analyzed to verify that they generated useable data. This testing occurred October 25, 2000. The researcher met with a representative sample of SDDOT employees from the Pierre Area. The employees were allowed to complete the survey and provided comments on all aspects of the survey. Changes were made to the survey based on comments received from the Pierre Area employees.

5.9 Assess Training Needs

Task 9: Use the recommended methodology to assess SDDOT's training needs in cooperation with the Training Activity.

The questionnaire was distributed to all SDDOT employees January 5, 2001. Most surveys were received by the January 19, 2001 deadline. However, a small number of surveys were received between January 19 and January

31 of 2001. These surveys were included in the analysis.

5.10 Test Effectiveness Assessment Methodology

Task 10: Test the recommended methodology to assess the effectiveness of training to achieve organizational goals.

A specific method to identify training effectiveness was not developed. Current methods used to test employees knowledge at the training class is sufficient. However, if a follow-on needs assessment survey is prepared questions identified in Task 5 could be included.

5.11 Prepare Users Manual

Task 11: Prepare necessary documentation in the form of a User's Manual to enable SDDOT to implement the methodologies.

The following questions should be used to determine the effectiveness of the training program.

1. I participate in training because:
   - A. I felt I personally needed to do so
   - B. I was encouraged to do so by my supervisor
   - C. Both A and B

2. When do you discuss training with your supervisor?
   - Informally, on the job
   - At Performance Planning and Review (PPAR)
   - When a training class is offered
   - Never
   - Other

3. When do you plan for the training you will take and when you will take it?
   - I never plan
   - I plan 6 months in advance
   - I plan 1 year in advance
   - I plan 2 years in advance
   - I plan 3 years in advance
   - I plan 5 years in advance

4. Have you been able use training you have received?
   - Yes
   - No
   - If no, why were you unable to use the training?

5. Have you had personal contact with the training office?
   - Yes
   - No

6. Is SDDOT's training program responsive to your needs?
   - Yes
   - No

7.Which of the following methods should be used to evaluate this type of training?

   - A. Pre-test employees before the course and test after having the course
   - B. Test employees after course
   - C. Contact employees 6 months to 12 months after attending training and ask if they were able to use the training they received on the job

8. Have you received training in the following training categories?

A. Personnel	Yes	No
B. Leadership	Yes	No
C. Employee Development	Yes	No
D. Quality Improvement	Yes	No
E. Communications	Yes	No

9. Indicate the training you would like to attend. Include dates when you will need the training.

Figure 2: Suggested Questions for Subsequent Training Surveys

The survey can be analyzed by tallying percentages of responses for each questions by all employees and by individual job groups. This should give a sufficient indication of employee needs and minimize the work

involved with entering and analyzing the data. The survey results can be compared to the results of the survey from this project.

5.12 Prepare Final Report

Task 12: Prepare a final report and executive summary of the literature review, research methodology, findings, conclusions, and recommendations.

A final report was prepared which included the results of all tasks. The report included the research methodology, findings, conclusions and recommendations regarding the implementation of the studies findings.

5.13 Make Executive Presentation

Task 13: Make an executive presentation to the SDDOT Research Review Board at conclusion of the project.

A final presentation will be made to the Research Review Board. The presentation will highlight the important points revealed from the research which will include the findings and recommendations.

6 SURVEY DEMOGRAPHICS

As stated previously, 810 employees returned surveys, for a excellent response rate of 72 percent For purposes of analysis, employees were divided into eight groups of similar classifications and supervisory responsibilities. For each job group, Table 2 lists the number of employees, the number of responses received, and the calculated response rate. Table 3 lists the classifications belonging to each job group.

The Part-Time & Seasonal Job Group had the lowest response rate of 42%. Part-Time & Seasonal employees do not have as much contact with the department and may have felt the survey did not apply to them. The Support Job Group's response rate was 66%. The Specialist and Engineering Job Groups' response rates were 72% and 75% respectively. The remaining Job Groups' response rate varied between 80% and 90%.

Table 2: Questionnaire Response Rate

Category		Number of Employees	Questionnaires Sent	Questionnaires Completed	Response Rate
Non-Supervisor	Maintenance	332	332	272	81.9%
	Support	84	84	55	65.5%
	Engineering	387	387	291	75.2%
	Part-Time & Seasonal	183	183	76	41.5%
	Specialist	46	46	33	71.7%
Supervisor	Maintenance	29	29	25	86.2%
	Engineering	29	29	26	89.7%
	Management	40	40	32	80.0%
Total		1130	1130	810	71.7%

Table 3: Job Group Classifications

Job Group	Classifications	
Supervisor	Accounting Manager	Litigation Supervisor
	Administrator	Program Manager
	Department Secretary	Right-of-Way Supervisor
	Equipment Shop Foreman	Technical Administrator
	Exempt Administrator director	Transportation Engineering Supervisor
	Highway Maintenance Supervisor	
Engineering	Civil Engineering Technician	Senior Right-of-Way Specialist
	Draftsman	Senior Transportation Technician
	Environmental Senior Scientist	Transportation Engineer
	Geology Specialist	Transportation Engineering Specialist
	Journey Transportation Technician	Transportation Engineering Supervisor
	Land Designer	Transportation Lead Project Engineer
	Right-of-Way Specialist	Transportation Project Engineer
	Right-of-Way Supervisor	Transportation R Engineering Specialist
	Right-of-Way Technician	Transportation Technician
Maintenance	Equipment Mechanic	Highway Maintenance Worker
	Equipment Service Worker	Lead Highway Maintenance Worker
	Equipment Shop Foreman	Parts Room Assistant
	Equipment Technical	Parts Room Technician
	Fabrication Technician	Region Maintenance Coordinator
	Highway Maintenance Supervisor	Senior Highway Maintenance Worker
Support	Account Assistant	Maintenance Equipment Operator
	Accountant	Office Supervisor
	Accountant Assistant	Press Operator
	Administrative Assistant	Press/Bind Operator
	Administrative Assistant I	Secretary
	Administrative Assistant II	Senior Accountant
	Budget Analyst	Senior Claims Clerk
	Business Manager	Senior Intr Auditor
	Exempt Clerk	Senior Secretary
	Exempt Professional	Staff Assistant
	Internal Auditor	Statistical Assistant
	Management Analyst	
Managers	Accounting Manager	Exempt Administrator
	Administrator	Litigation Supervisor
	Assistant Administrator	Program Manager
	Department Secretary	Technical Administrator
	Director	
Specialists	Auto Mapping Specialist	Program/Analyst
	Aviation Services Manager	Property Management Specialist
	Building Maintenance Supervisor	Records Management Specialist
	Cartographer	Senior Program/Analyst
	Chief Cartographer	Senior Statistician
	Civil Rights Program Administrator	Senior Trial Attorney
	Civil Rights Program Specialist	Statistical Program Manager
	Equipment Management Specialist	Traffic Data Technician
	Exempt Technician	Transportation Analyst
	Information Specialist	Transportation Specialist II
	Labor Law Compliance Officer	Transportation Specialist II

Employees were also grouped by years of service with the Department. For purposes of analysis, groups of 0-5, 6-10, 11-20, and more than 20 years service were defined. Table 4 shows the number of survey responses

submitted by employees in each job group, by geographical location, by years of tenure, and by gender.

Table 4: Number of Responses by Employee Group, Location, Tenure, and Gender

Employee Group	Total SDDOT	By Location					By Tenure			
		Central Office	Rapid City	Aberdeen	Mitchell	Pierre	0-5 Years	6-10 Years	11-20 Years	>20 Years
Engineers	291	116	44	42	51	38	91	45	81	74
Maintenance	272	-	62	65	67	78	126	34	63	49
Support	55	35	4	6	7	3	17	7	17	14
Part-Time & Seasonal	76	-	39	11	20	6	39	7	14	16
Supervisor—Maintenance	26	-	6	6	8	6	4	3	8	11
Supervisor—Engineering	25	13	3	3	4	2	9	3	5	8
Managers	32	16	4	4	4	4	5	3	11	13
Specialists	33	33	-	-	-		6	5	12	10
Total	810	213	162	137	161	137	297	107	211	195
Male	712	150	151	130	150	131	261	88	188	175
Female	98	63	11	7	11	6	36	19	23	20

7 FINDINGS

7.1 Summary

Approximately 90% of all respondents personally felt some need for training. Respondents indicated they rarely discuss training in conjunction with Performance Planning & Review (PPAR). Of particular concern is the fact that many respondents in all Job Groups except Supervisor Engineering indicated training is never discussed. Respondents also indicated they either never plan or only plan 6 months in advance. Although employees felt a need for training little planning for training occurs. Respondents comments indicate the workload prohibits thinking about or attending training.

Most respondents indicated e-mail is the preferred method to learn about training. However, the Maintenance and Part-Time & Seasonal Job Groups indicated that workplace bulletin boards were preferred. The Training Catalog is useful to all Job Groups except Part-Time & Seasonal and Specialists. Those respondents may feel their training needs lie outside the catalog's standard offerings.

Respondents indicated the January-February months are the best time to attend training. March-April and May-June periods are also good times for training. The summer and fall months are not preferred training times for most employee groups. Comments indicate employees are willing to take training anytime it is practical. Some training—such as Chip Seal Training—can only take place during certain times of the year.

A related question asked where employees prefer to take training. The results suggest that most employees would rather have training at their base locations. Other comments indicate training should be given at a location that is cost-effective to bring all the participants together and where training can be effectively demonstrated. Most employees preferred "small group hands-on" or "small group" training as opposed to less personal methods.

7.2 SDDOT Training Environment

Prior to investigating any specific training areas or courses, the questionnaire inquired about the general training environment in SDDOT. Questions concerned motivation and planning for training, as well as training scheduling and format.

Training Motivation & Planning

Several questions explored how training needs are identified and addressed. As shown in Table 5, most employees take training because both they and their supervisors sense the need for it. Of the three possible responses to Question 4, employees' most common answer was that both they and their supervisors sensed or expressed the need for training. For the remainder of employees in every employee group, the next most common response was that the employee alone felt training was needed. In every group, the response that the supervisor alone encouraged training was the least common response.

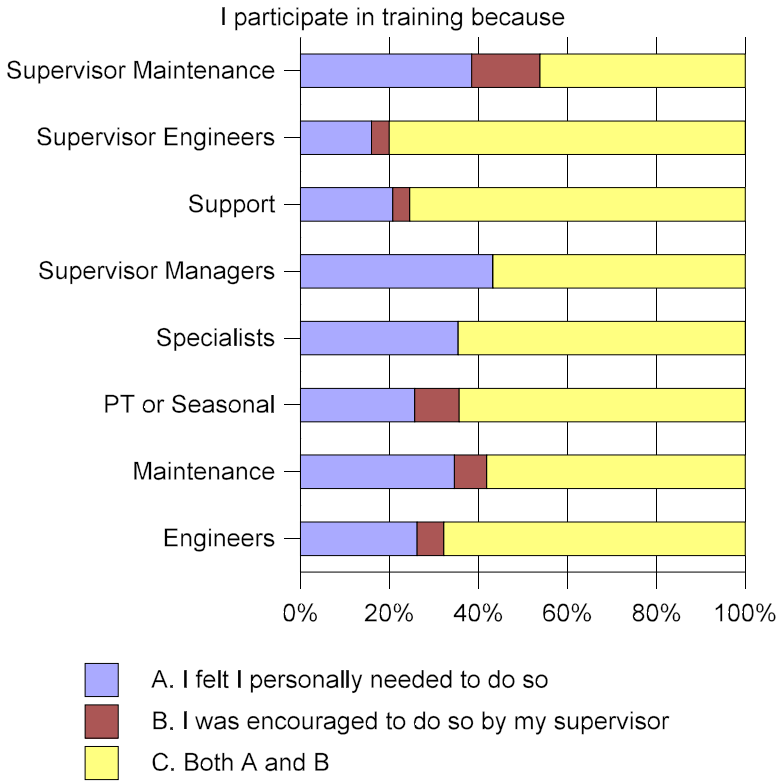

Figure 3: Motivation for Training

Table 5: Motivation for Training

Question 4: I participate in training because:	Engineering	Maintenance	Part Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
A. I felt I personally needed to do so.	26.2%	34.6%	25.7%	35.5%	43.3%	20.8%	16.0%	38.5%
B. I was encouraged to do so by my supervisor	6.0%	7.3%	10.0%	0.0%	0.0%	3.8%	4.0%	15.4%
C. Both A and B.	67.8%	58.1%	64.3%	64.5%	56.7%	75.5%	80.0%	46.2%
Total that felt they need to	94.0%	92.7%	90.0%	100.0%	100.0%	96.2%	96.0%	84.7%
Total encouraged by supervisor	73.8%	65.4%	74.3%	64.5%	56.7%	79.2%	84.0%	61.6%

All of the Specialists and Managers who responded to Question 4 said they personally felt the need for training, as did more than 90% of most other employee groups. Although the Supervisor Maintenance group expressed the lowest rate (approximately 85%), clearly the overwhelming majority of employees personally sense their need for training.

The percentage of employees encouraged by their supervisor to take training varied significantly by employee

group. The Supervisor Engineering group demonstrated the highest rate (84%), while Engineering, Part Time/Seasonal and Support groups showed rates between 70% and 80%. The percentages for Maintenance and Supervisor Maintenance groups were substantially lower, with less than two-thirds of respondents indicating encouragement from their supervisor. Specialists and Managers also showed low rates of supervisor encouragement, possibly indicating that supervisors rely on these classifications to identify their own training needs.

Question 9 (Table 6) explored the occasions when training needs are discussed between employees and supervisors. In every employee group, the two most common responses were "Informally, on the job" and "When a training class is offered." Among the employee groups, the combination of these responses accounted for between 65% and 82% of the total.

Table 6: Occasions When Training is Discussed

Question 9: When do you discuss training with your supervisor?	Engineering	Maintenance	Part Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
Informally, on the job	34.7%	42.4%	54.4%	35.7%	45.1%	26.5%	43.6%	33.3%
At Performance Planning and Review (PPAR)	24.6%	18.7%	7.6%	30.4%	21.6%	24.1%	18.0%	18.2%
When a training class is offered	35.1%	30.0%	22.8%	30.4%	25.5%	44.6%	38.5%	42.4%
Never	5.7%	8.9%	15.2%	3.6%	7.8%	4.8%	0.0%	6.1%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

With the exception of Specialists, less than one-fourth of employees in any group responded that they discussed training needs in conjunction with Performance Planning & Review (PPAR). Among the Maintenance, Supervisor Maintenance, and Supervisor Engineering groups about 18% of respondents said training was discussed during PPAR. Only about 8% of Part Time/Seasonal employees indicated that PPAR included discussion about training.

Of concern is the fact that some employees in every group except Supervisor Engineers said training is never discussed. This was most pronounced among the Part Time/Seasonal group, where over 15% of respondents indicated discussions never happen.

Question 10 (Table 7) asked employees to state how far in advance employees plan for their own training. Department-wide, the predominant response was "Never", with approximately three-quarters of the Maintenance, Part Time/Seasonal, and Support groups indicating that response.

For employees who do plan in advance, the most common planning horizon is 6 months. Substantially fewer plan one year in advance, and virtually no one in any employee group indicated planning training more than one year in advance. These results are consistent with responses to Question 9, which indicated that training is mainly discussed informally or when a course is offered, rather than formally in advance.

Table 7: Planning for Training

Question 10: I plan for the training I will take and when I will take it.	Engineering	Maintenance	Part Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
I never plan	49.8%	72.4%	73.6%	53.1%	34.4%	75.0%	24.0%	44.0%
I plan 6 months in advance	40.3%	23.0%	25.0%	28.1%	50.0%	21.2%	64.0%	32.0%
I plan 1 year in advance	9.5%	4.6%	1.4%	18.8%	15.6%	1.9%	12.0%	24.0%
I plan 2 years in advance	0.4%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%
I plan 3 years in advance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I plan 5 years in advance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

In combination these results suggest that, in SDDOT, training needs and plans are not systematically addressed. Although employees and their supervisors generally recognize the need for training, discussions and planning seem to occur informally or as training courses become available, not as part of an intentional effort to ensure that employees have the skills they need in their current job or possible future jobs.

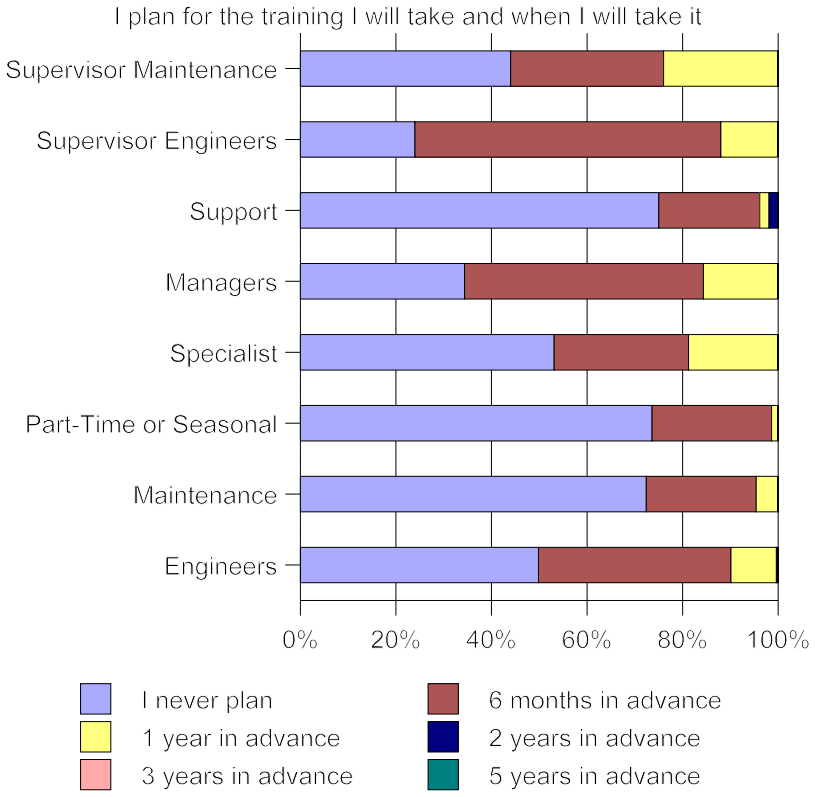

Figure 4: Planning for Training

Training Scheduling

The questionnaire also explored how, when, and where training is scheduled. Question 6 (Table 8) asked employees to state their preference for sources of information about training availability. Responses varied significantly among employee groups.

Figure 5: Preferred Source of Information on Training Availability

Among Engineering, Specialists, Support, Supervisor Engineering, and Supervisor Maintenance Groups, e-mail was the clearly preferred method; with one-half to three-quarters of respondents rating it their first choice. Except for Supervisor Maintenance, these groups also rated the Internet highly. For the Maintenance and Part-Time/Seasonal groups, electronic notifications were far less favored, probably reflecting less access, experience, and available time with computers. For these groups, workplace bulletin boards were perceived as more useful.

Table 8: Preferred Source of Information on Training Availability

Question 6: What is the BEST source for you to find out about Training courses?	Engineering	Maintenance	Part-Time/ Seasonal	Specialist	Managers	Support	Supervisor Engineering	Supervisor Maintenance
Bureau of Personnel Training Catalog	12.1%	17.5%	8.7%	6.3%	16.1%	16.7%	25.0%	30.8%
E-mail	49.8%	29.7%	15.9%	68.8%	74.2%	55.6%	45.8%	50.0%
Internet	13.2%	2.3%	0.0%	21.9%	0.0%	11.1%	12.5%	0.0%
Workplace bulletin board	13.2%	33.8%	62.3%	0.0%	0.0%	1.9%	0.0%	3.9%
Other	11.8%	16.7%	13.0%	3.1%	9.7%	14.8%	16.7%	15.4%

The Bureau of Personnel's Training Catalog was most useful to Supervisor Engineering and Supervisor Maintenance groups, and fairly useful to Engineering, Maintenance, Managers, and Support groups. The catalog was perceived least useful to the Part Time/Seasonal and Specialists groups, possibly because their training needs tend to lie outside the catalog's standard offerings.

Additional comments supplied by the employees indicated they would use a combination of sources to identify

training needs. Employees also use their knowledge and experience in their specific jobs to identify training needs.

Question 5 (Table 9) inquired for preferred training times during the year. A substantial number of employees indicated no preference; not surprisingly, this response was most predominant for the Managers and Support groups. Among specific two-month periods, the January-February period was most strongly favored by almost all employee groups. Respondents in most employee groups also rated the March-April and May-June periods highly. Summer and fall months were generally rated lower by most employee groups.

Additional comments provided by employees indicated the time a class is offered does not matter. There is generally not a good time for training because of work load..

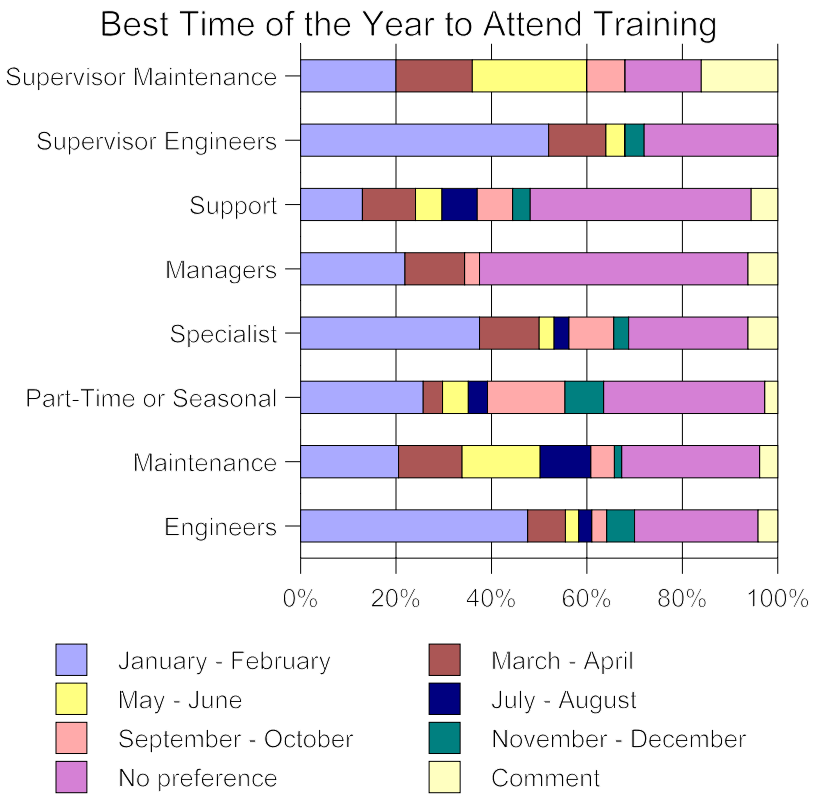

Figure 6: Best Time of Year to Attend Training

Table 9: Preferred Training Times During Year

Question 5: Please indicate which time of year would be the BEST choice for you to attend training.	Engineering	Maintenance	Part-Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
January - February	47.6%	20.5%	25.7%	37.5%	21.9%	13.0%	52.0%	20.0%
March - April	7.9%	13.3%	4.1%	12.5%	12.5%	11.1%	12.0%	16.0%
May - June	2.8%	16.4%	5.4%	3.1%	0.0%	5.6%	4.0%	24.0%
July - August	2.8%	10.7%	4.1%	3.1%	0.0%	7.4%	0.0%	0.0%
September - October	3.1%	4.9%	16.2%	9.4%	3.1%	7.4%	0.0%	8.0%
November - December	5.9%	1.5%	8.1%	3.1%	0.0%	3.7%	4.0%	0.0%
No preference	25.9%	28.9%	33.8%	25.0%	56.3%	46.3%	28.0%	16.0%
Comment	4.1%	3.8%	2.7%	6.3%	6.3%	5.6%	0.0%	16.0%

Training Locations

Question 7 (Table 10) asked employees where they preferred taking training. Responses varied among employee groups, but almost certainly reflected how the groups are distributed geographically more than any intrinsic advantage of particular locations. These results suggest that several employee groups are receptive to training at their base locations. The vast majority of Part Time/Seasonal respondents indicated a preference for training at the Unit, Area, or Region office, as did about half of the Maintenance group and nearly two-thirds of the Supervisor Maintenance group. Providing courses at field locations saves these groups travel time and inconvenience, and may provide a familiar setting for training.

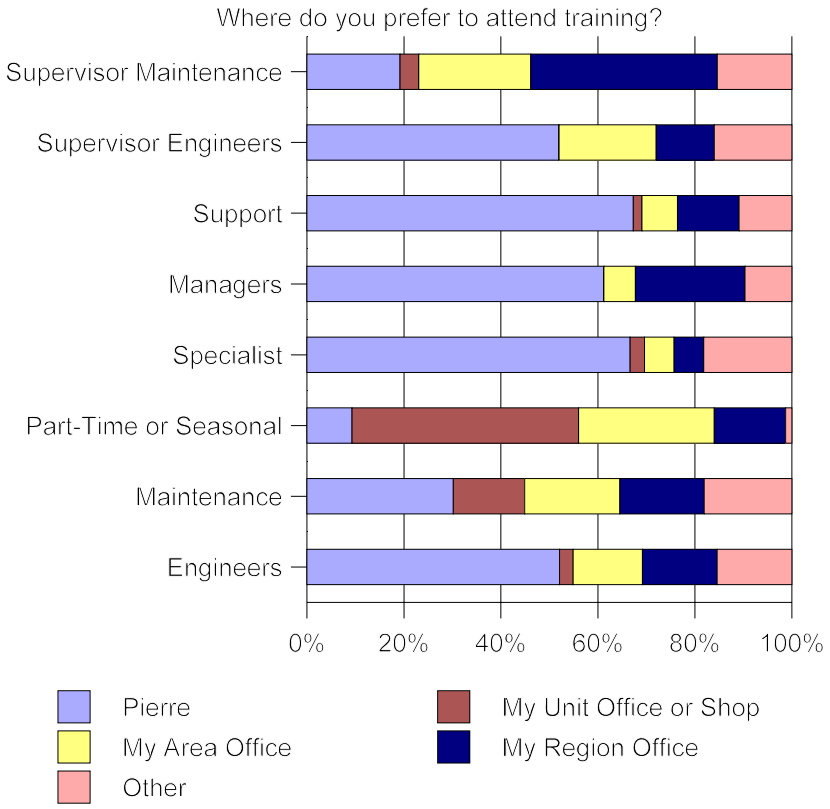

Table 10: Preferred Training Locations

Question 7: Where do you prefer to attend training?	Engineering	Maintenance	Part Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
Pierre	52.1%	30.2%	9.3%	66.7%	61.3%	67.3%	52.0%	19.2%
My Unit Office or Shop	2.8%	14.7%	46.7%	3.0%	0.0%	1.8%	0.0%	3.9%
My Area Office	14.3%	19.6%	28.0%	6.1%	6.5%	7.3%	20.0%	23.1%
My Region Office	15.4%	17.4%	14.7%	6.1%	22.6%	12.7%	12.0%	38.5%
Other	15.4%	18.1%	1.3%	18.2%	9.7%	10.9%	16.0%	15.4%

Additional comments provided by employees indicated training should be given at a location to minimize travel and should be given at a location where the training can be effectively demonstrated.

Training Format

Question 8 asked employees to state their preference concerning training course format. Table 11 shows that the clear preference of most employee groups was "small group hands-on" training. Classroom training was the second choice of most groups, and was actually the format preferred by Managers. That the preferred methods are face-to-face is significant. Electronic methods, such as computer-aided training or remotely transmitted training, were much less favored; whether this reflects limited exposure to these methods or dissatisfaction with them is unclear. One noteworthy item is that Part Time/Seasonal expressed a significantly higher rating for training by videotape than did any other employee group.

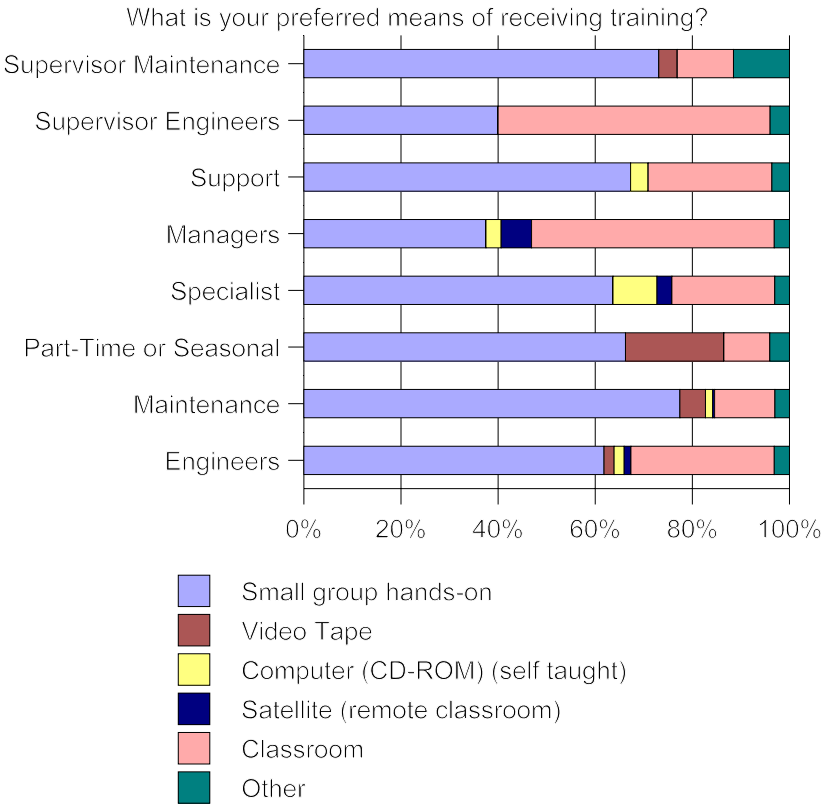

Figure 8: Preferred Means of Receiving Training

Additional comments provided by employees indicated the method to deliver training doesn't matter. They will use the means that is appropriate for the training. Although small groups are better for most training especially computer and maintenance training.

Table 11: Preferred Means of Receiving Training

Question 8: What is your preferred means of receiving training?	Engineering	Maintenance	Part Time/ Seasonal	Specialists	Managers	Support	Supervisor Engineering	Supervisor Maintenance
Small group hands-on	61.8%	77.4%	66.2%	63.6%	37.5%	67.3%	40.0%	73.1%
Video Tape	2.1%	5.3%	20.3%	0.0%	0.0%	0.0%	0.0%	3.9%
Computer (CD-ROM, self taught)	2.1%	1.5%	0.0%	9.1%	3.1%	3.6%	0.0%	0.0%
Satellite (remote classroom)	1.4%	0.4%	0.0%	3.0%	6.3%	0.0%	0.0%	0.0%
Classroom	29.5%	12.4%	9.5%	21.2%	50.0%	25.5%	56.0%	11.5%
Other	3.1%	3.0%	4.1%	3.0%	3.1%	3.6%	4.0%	11.5%

7.3 Need Assessment Methodology

Presenting the results of the assessment of training needs of the 26 subject domains and the individual training topics within each domain presents a practical challenge, due to the sheer volume of information involved. For each domain and for each training topic, results were tabulated for the entire Department, by location (regions and central office), by job group, and by years of service (tenure) in the Department.

The research team decided to use a graphical format to present this large body of information. In a single graph, it is possible to illustrate:

29.1 Importance to Job—the importance of the training domain or topic to employee's job duties;

29.2 Present Knowledge—how much knowledge employees already possess in the training domain or topic;

29.3 Unmet Need—how much unmet need exists for the training domain or topic;

29.4 Excess Training—how much training has been provided beyond what is needed for employee's work duties.

Importance to Job

For each knowledge area, the survey asked employees to rate its Importance to Job (Figure 9). Average responses values were tallied by assigning numerical values of 0 if the knowledge area was "not needed" for an employee's job, 2 if "somewhat"needed, and 4 if "very essential". On this scale, an average rating of 4 would correspond to all employees saying the knowledge area was "very essential" to their job duties.

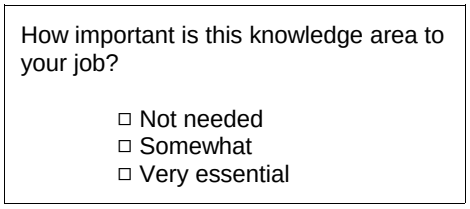

Figure 9: Importance to Job

Present Knowledge

Employees were also asked to rate their present knowledge in each knowledge area (Figure 10). Average response values were tallied by assigning numerical values of 0 to "none", 2 to "some, but I need more", and 4 to both "enough for the work I do" and "too much". On this scale, an average rating of 4 would correspond to all employees saying they had either "enough" or "too much" training in this knowledge area.

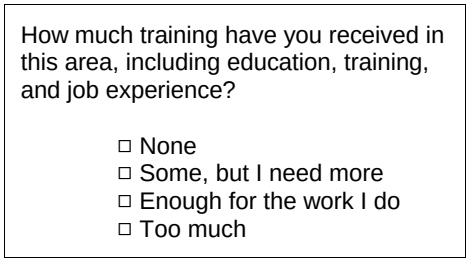

Figure 10: Present Knowledge

Unmet Need

Unmet Need for training was calculated by combining the ratings of Importance to Job and Present Knowledge. The highest possible score of 4 was assigned if a knowledge area was "very essential" but the employee had indicated he had no training in the subject. Conversely, if a knowledge area was "not needed" for an employee's job duties, a score of 0 was assigned for unmet need, regardless of how much training an employee had. Other combinations of Importance to Job and Present Knowledge were assigned intermediate values, as indicated in Table 12. The highest average value of Unmet Need recorded for any of the employee groups surveyed in this study was 1.96, corresponding to "Enough for the Work I do".

Table 12: Unmet Need Calculation Method

Importance to Job \ Present Knowledge	None	Some, but I need more	Enough for the work I do	Too much
Not Needed	0	0	0	0
Somewhat	2	1	0	0
Very essential	4	2	0	0

Excess Training

Excess Training was likewise calculated by combining the ratings of Importance to Job and Present Knowledge. When an employee indicated that he had received "too much" training in a knowledge area, scores of 4, 2 or 1 were assigned, depending on whether the employee said the knowledge area was "not needed", "somewhat" needed, or "very essential" to the employee's job duties. When an employee indicated that he had the training was "Not Needed" a score of 1 was assigned depending on whether the employee said their present knowledge was "Some, but I Need More", or "Enough for the Work I do". Excess Training scores of 0 were assigned for every other case, as indicated in Table 13. The highest average value of Unmet Need recorded for any of the employee groups surveyed in this study was 0.44, corresponding to "None".

Table 13: Excess Training Calculation Method

Importance to Job \ Present Knowledge	None	Some, but I need more	Enough for the work I do	Too much
Not Needed	0	1	1	4
Somewhat	0	0	0	2
Very essential	0	0	0	1

Presentation

Preliminary analysis of results revealed that of the four reportable scores, only the first three—Importance to Job, Present Knowledge, and Unmet Need—had practical significance in the Department. Because virtually no respondents said they had "too much" training in any subject addressed in the survey, the research team decided to disregard Training Excess in the remaining analysis and reporting of results.

Throughout the remainder of this report, the three remaining scores are reported on combined bar charts, as illustrated by Figure 11. Importance to Job is represented by bars in the central region of each chart. Bars in the leftmost region of each chart represent Present Knowledge, while Unmet Need is represented by bars in the rightmost region of each chart. Data labels show the actual numerical value of each score. (Parentheses around Present Knowledge values are artifacts of the charting method used, not an indication of negative values.)

To illustrate the presentation method, the scores shown in this example represent average scores for the 26 training domains, each of which includes several distinct knowledge areas. Of the domains, Safety shows the highest Importance to Job. Materials, Right of Way, and Testing & Inspection show the highest level of Present Knowledge (for those who responded to questions in those particular domains). The highest levels of Unmet Need for training are Personnel, Leadership, and Quality Improvement.

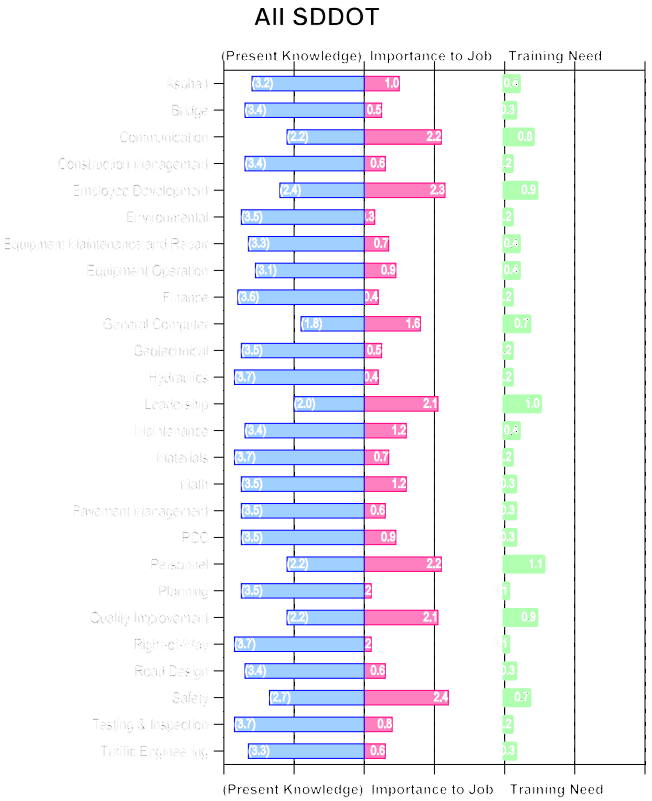

Figure 11: Example Chart of Present Knowledge, Importance to Job, & Unmet Need

This same presentation format is used to report results for all knowledge areas and employee groups surveyed.

7.4 Domain Level Analysis

All SDDOT

Figure 12 illustrates Present Knowledge, Importance to Job, and Training Need for all 26 subject domains identified for the study. Department-wide, employees rate their current knowledge high in the vast majority of domains, with scores of 3 or higher. Interestingly, the exceptions to this rule rank among the knowledge areas considered most important to employees throughout the Department, as shown in Table 14. Average scores for Present Knowledge in these areas are just slightly above 2, the point at which employees say they have "some knowledge but I need more". The Unmet Need for training scores for these domains stand clearly above all of the others.

Table 14: Domains Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Personnel	2.2	2.2	1.1
Leadership	2.0	2.3	1.0
Employee Development	2.4	2.3	0.9
Quality Improvement	2.2	2.1	0.9
Communications	2.2	2.2	0.8

It is significant that training appears to be most needed in domains that are non-technical. This reflects the widespread applicability of these knowledge areas to employees throughout the Department, and possibly a lack of emphasis in these areas in the past.

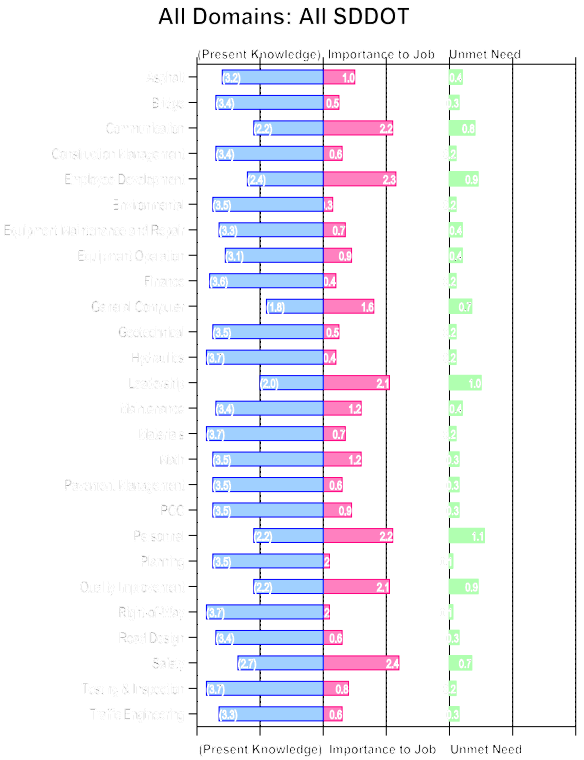

Figure 12: All Domains: All SDDOT

By Location

As shown in Figures 13 through 17, the Present Knowledge, Importance to Job, and Unmet Need for all 26 subject domains taken collectively for all the regions and central office closely reflect the findings for the entire Department. Also, the domains most in need of training exactly match those of the entire Department. An interesting finding is that the region offices tend to give the Safety Domain a higher rating than the central office.

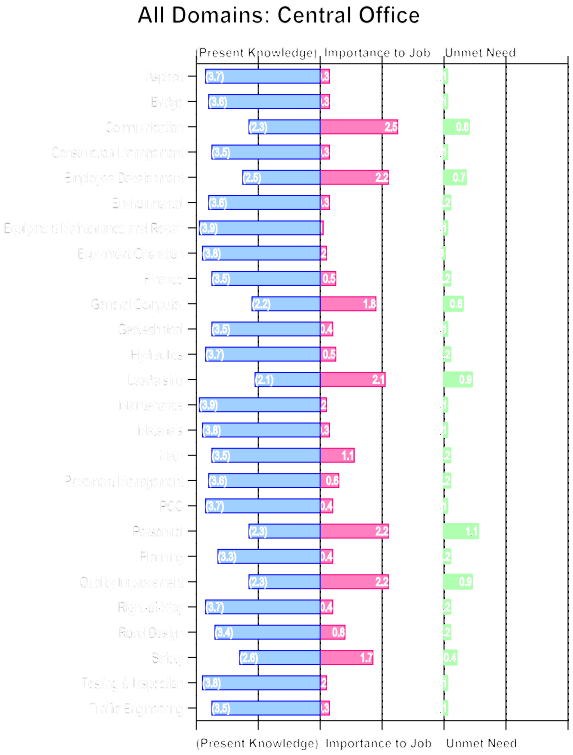

Figure 13: All Domains: Central Office

By Job Group

As shown in Figures 18 through 25, the Present Knowledge, Importance to Job, and Unmet Need for all job classifications in the 26 subject domains closely reflect findings for the entire Department. The domains having the most needs for training exactly match findings for the entire Department with the following exceptions: 1) Specialists ranked the General Computer Domain higher than did other job groups and, 2) The Maintenance and Part Time & Seasonal job groups ranked safety higher.

By Tenure

As shown by Figures 26 through 29, Present Knowledge, Importance to Job, and Unmet Need are similar for all four tenure groups in the Department. Unmet Need also closely matches that of the entire Department.

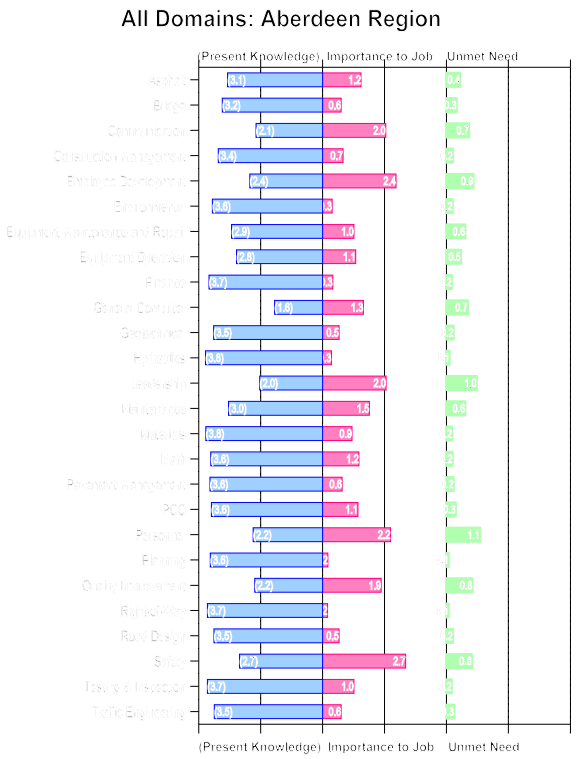

Figure 14: All Domains: Aberdeen Region

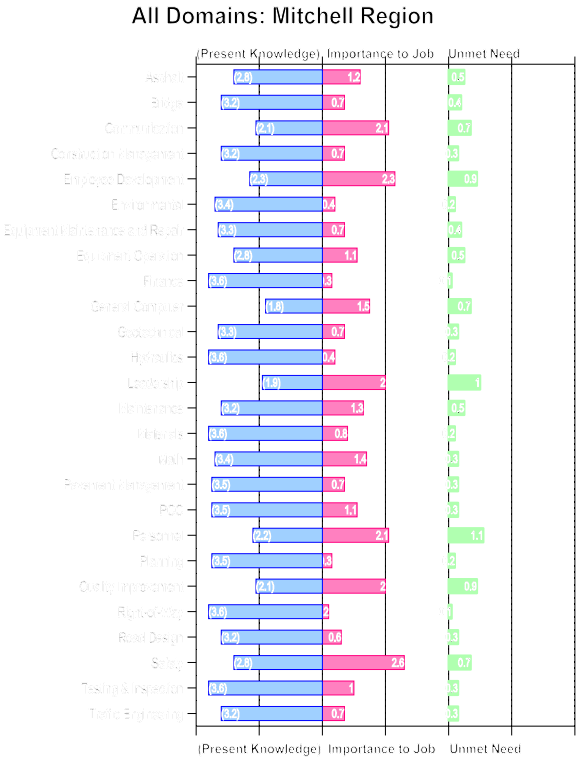

Figure 15: All Domains: Mitchell Region

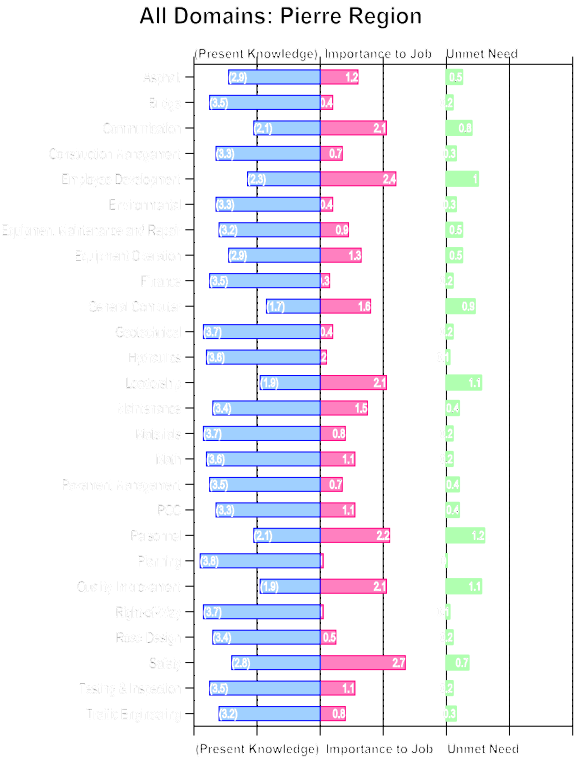

Figure 16: All Domains: Pierre Region

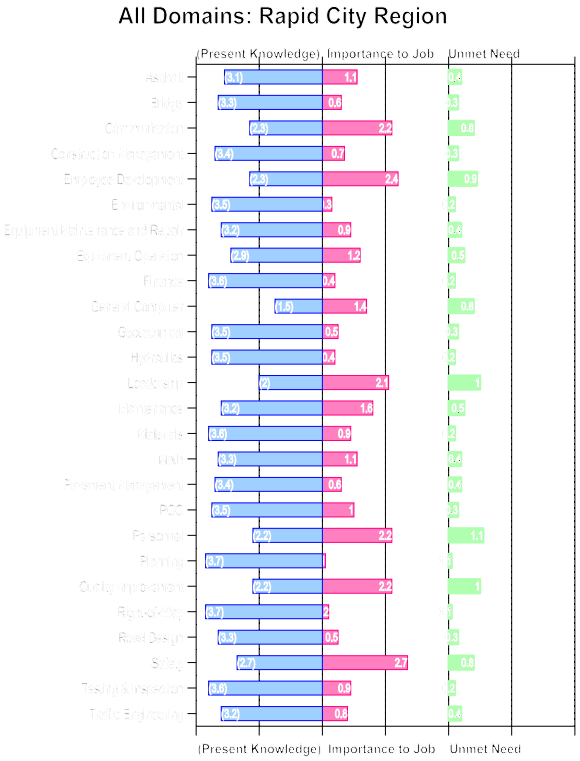

Figure 17: All Domains: Rapid City Region

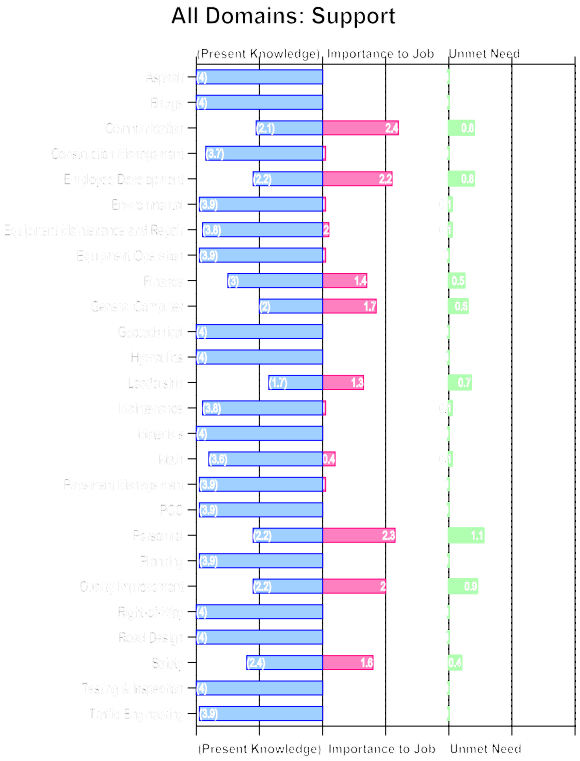

Figure 18: All Domains: Support

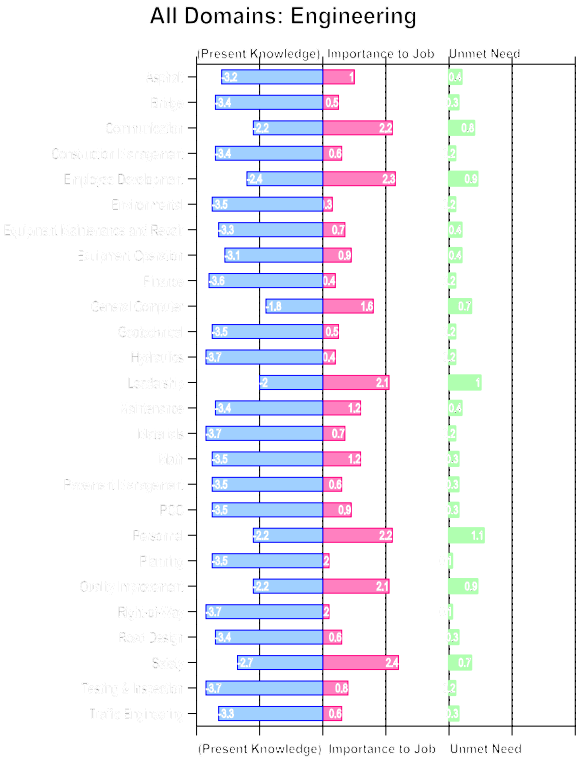

Figure 19: All Domains: Engineering

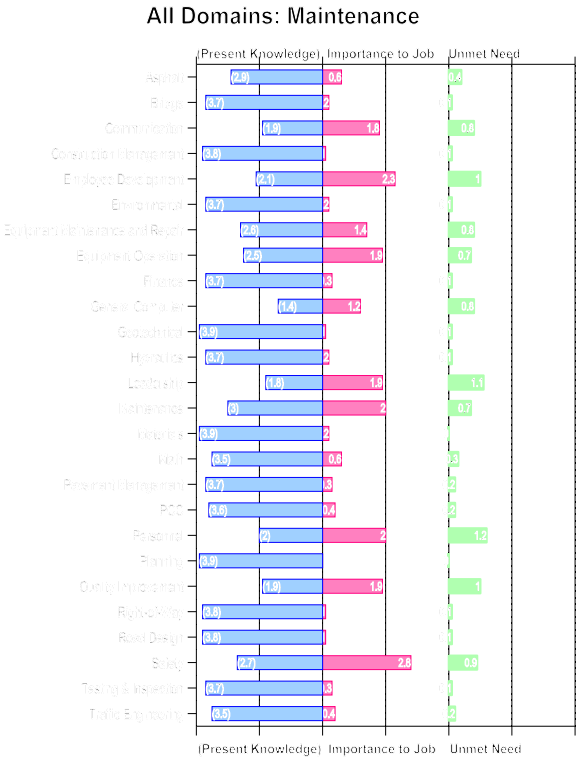

Figure 20: All Domains: Maintenance

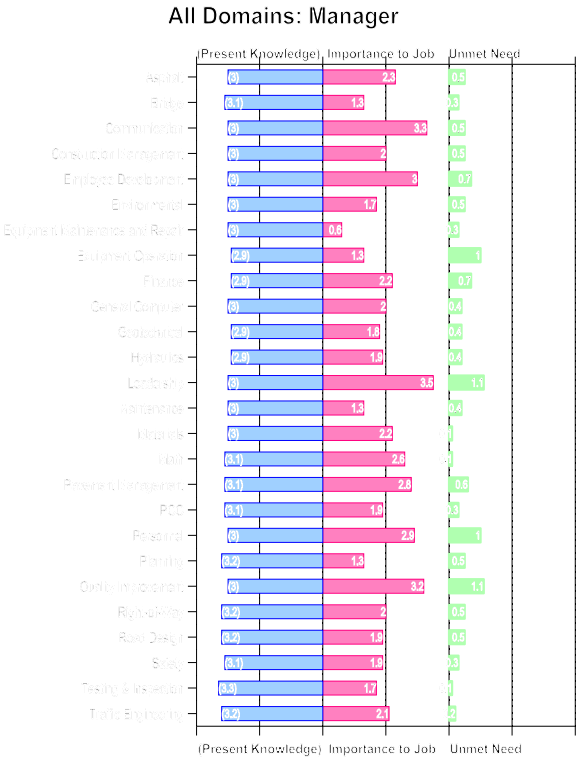

Figure 21: All Domains: Manager

All Domains: Part TIme & Seasonal

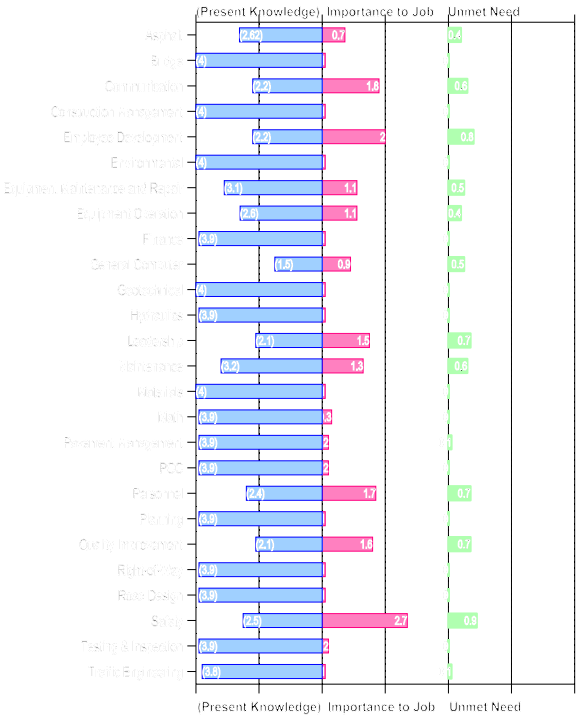

Figure 22: All Domains: Part Time & Seasonal

All Domains: Supervisor—Maintenance

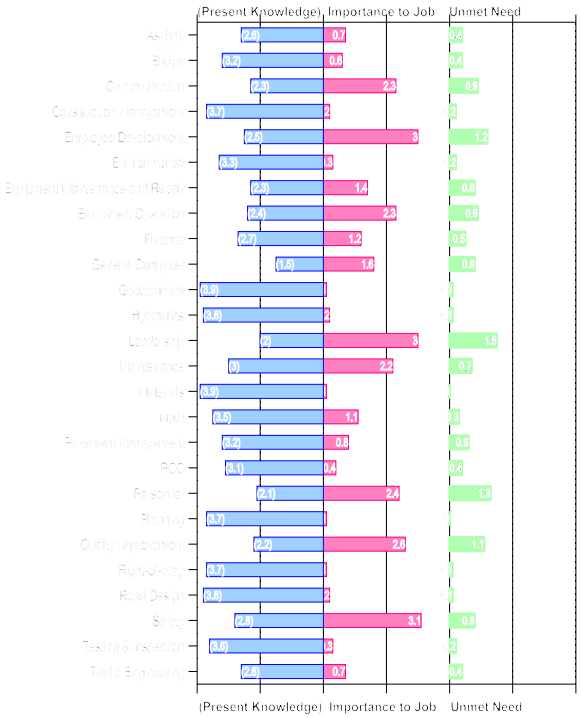

Figure 23: All Domains: Supervisor—Maintenance

All Domains: Supervisor—Engineering

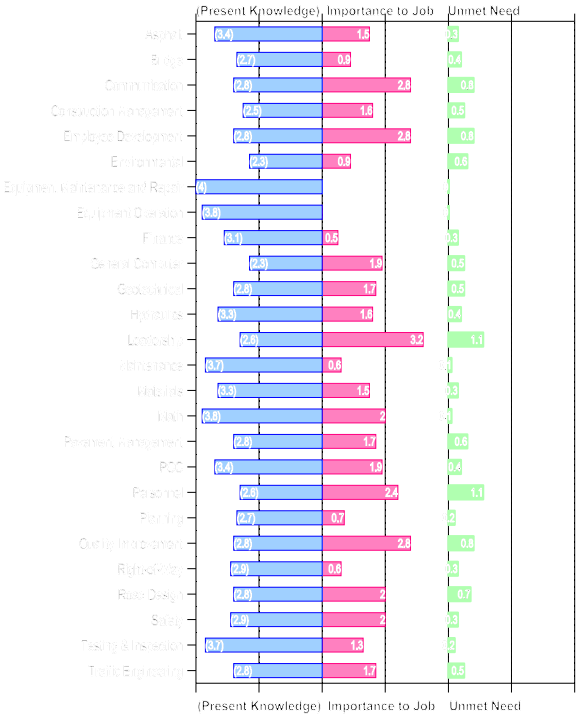

Figure 24: All Domains: Supervisor—Engineering

All Domains: Specialist

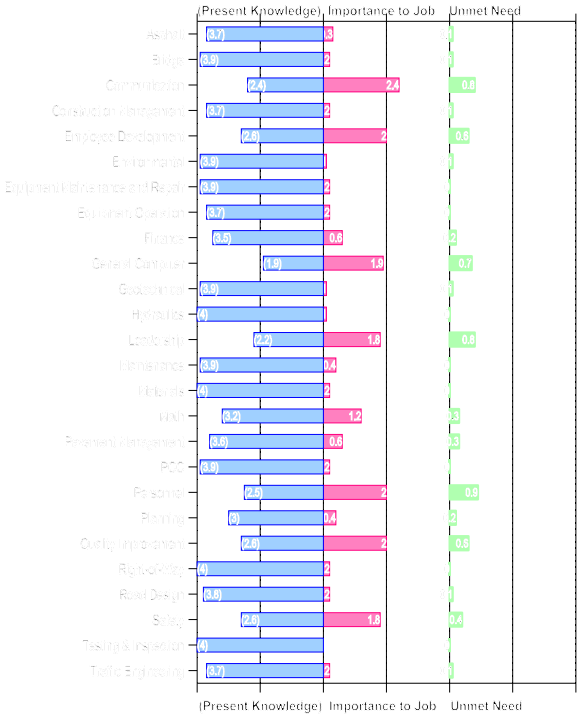

Figure 25: All Domains: Specialist

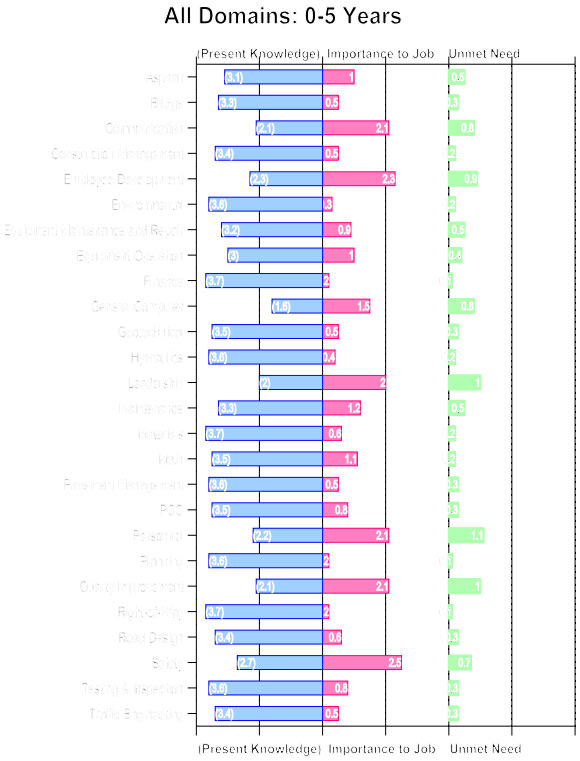

Figure 26: All Domains: 0-5 Years

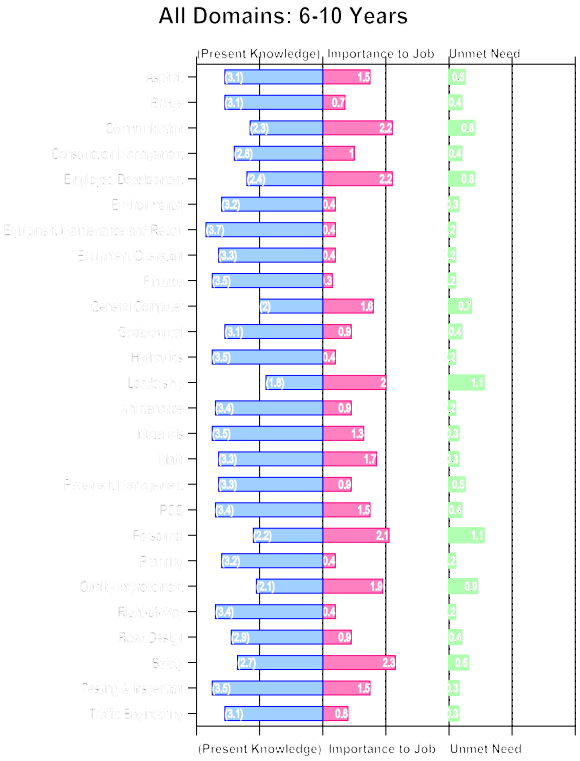

Figure 27: All Domains: 6-10 Years

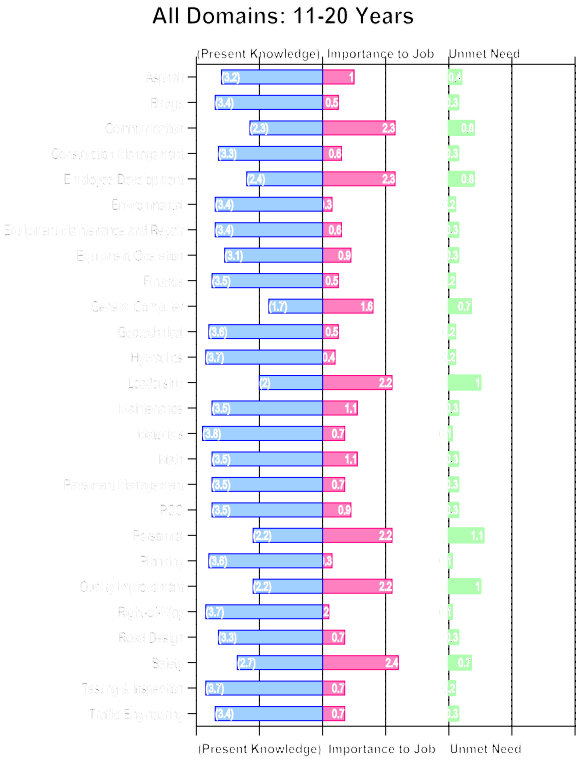

Figure 28: All Domains: 11-20 Years

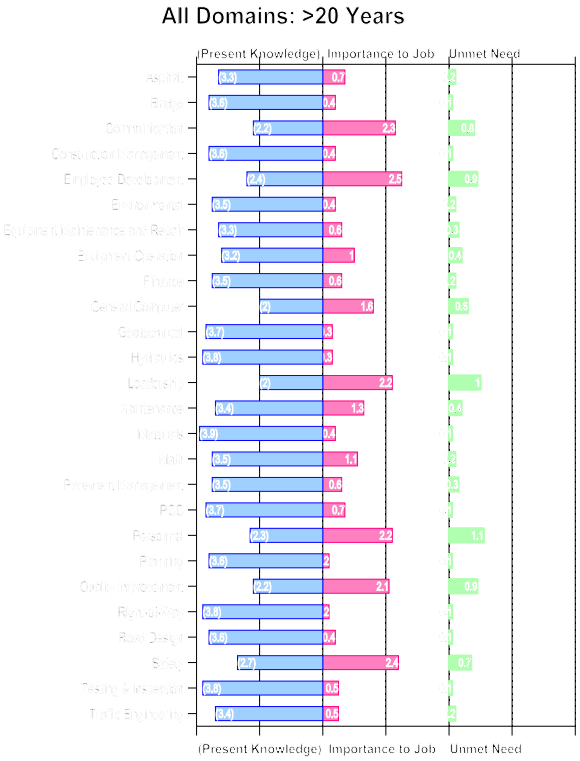

Figure 29: All Domains: >20 Years

7.5 Asphalt

Overview

Table 15 lists the knowledge areas where some benefit could be derived by additional training, especially for the Engineering, Maintenance, Supervisor—Maintenance, Supervisor—Engineering, and Manager job groups. Although the Unmet Need ratings are low, it is probably due to the increased emphasis placed on certification training for engineers and technicians. The Manager job group ranked the Unmet Need for *Superpave Mix Design and Testing Fundamentals* higher than did other job groups.

Table 15: Asphalt Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Asphalt Surface Treatment	3.4	1.3	0.5
HMA Concrete Production Control	3.3	1.0	0.4
HMA Construction Documentation	3.3	1.1	0.4
HMA Inspection & Compaction	3.3	1.1	0.4
HMA Materials Characteristics	3.2	1.1	0.4

All SDDOT

Figure 30 illustrates Present Knowledge, Importance to Job, and Unmet Need for all employees in the Department under the *Asphalt Domain*. Department-wide, employees rate their current knowledge high in the vast majority of the individual knowledge areas under the *Asphalt Domain*, reflected by scores of 2.9 and higher. The Unmet Need scores are not high, even for the five knowledge areas indicating the most need. This suggests that employees involved in asphalt inspection feel the Department is providing adequate training within this domain. This is due to the increased emphasis in technician and engineer certification training.

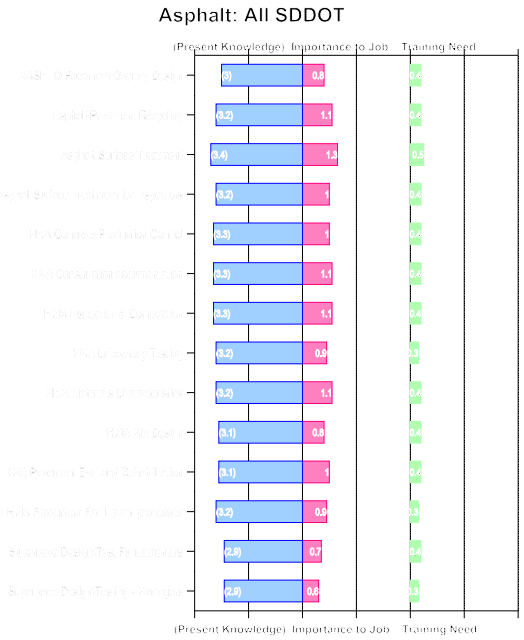

Figure 30: Asphalt Domain: All SDDOT

By Location

As illustrated in Figures 31 through 35, the Present Knowledge, Importance to Job, and Unmet Need within the *Asphalt Domain* at each location closely reflect the findings for the entire Department. The regions indicate that the *Asphalt Domain* has a higher job importance than the central office. However, the Unmet Need is very low. This is probably due to an increased emphasis on materials and testing certification training and is reflected in the Present Knowledge rankings of 2.6 and upwards.

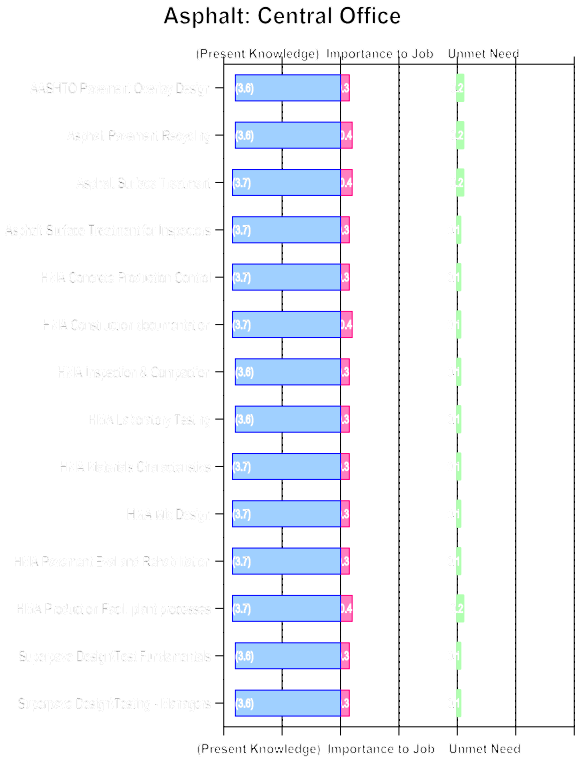

Figure 31: Asphalt: Central Office

By Job Group

Figures 36 through 43 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Asphalt Domain* within each job group. The Engineering, Maintenance, Supervisor—Maintenance, Supervisor—Engineering, and Manager job group rankings reflect those of the entire Department for the *Asphalt Domain*. The Manager job group ranked the Unmet Need for *Superpave Mix Design and Testing Fundamentals* higher than did other job groups.

By Tenure

Figures 44 through 47 illustrate the Present Knowledge, Importance to Job, and Unmet Need for the *Asphalt Domain* by tenure. The tenure groups closely reflect the ratings by the entire Department except for the 11-20 Years tenure group. Knowledge in the *Asphalt Domain* for the 11-20 Year group ranked very high (3.9 and above) with a corresponding Unmet Need that was very low.

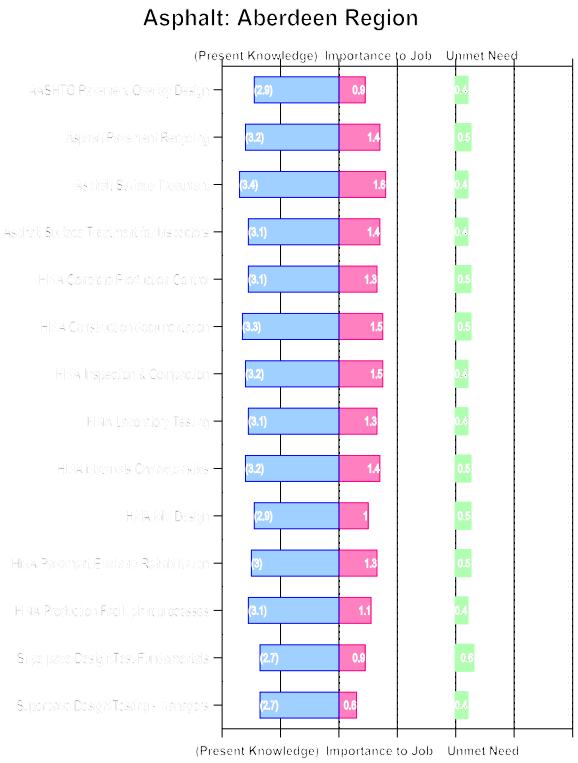

Figure 32: Asphalt: Aberdeen Region

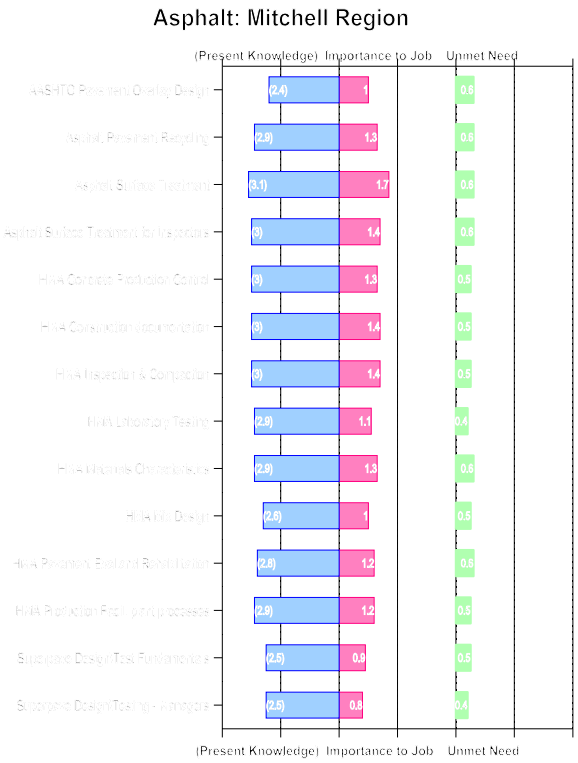

Figure 33: Asphalt: Mitchell Region

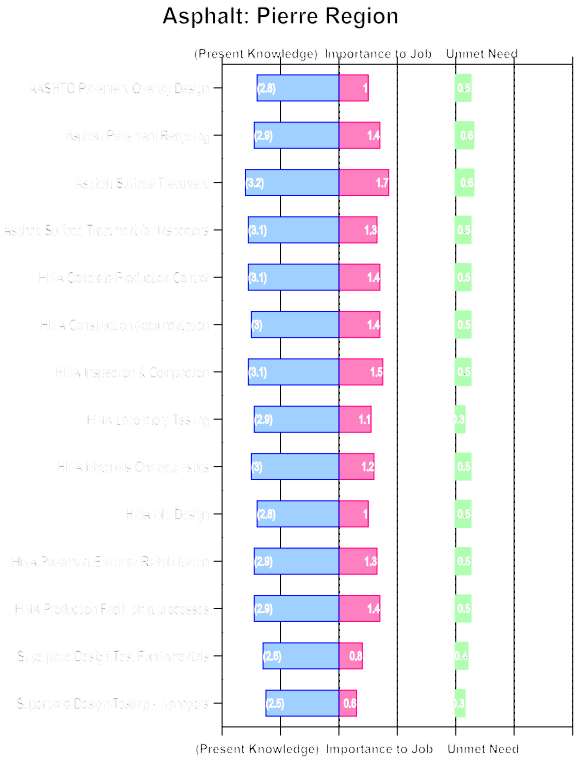

Figure 34: Asphalt: Pierre Region

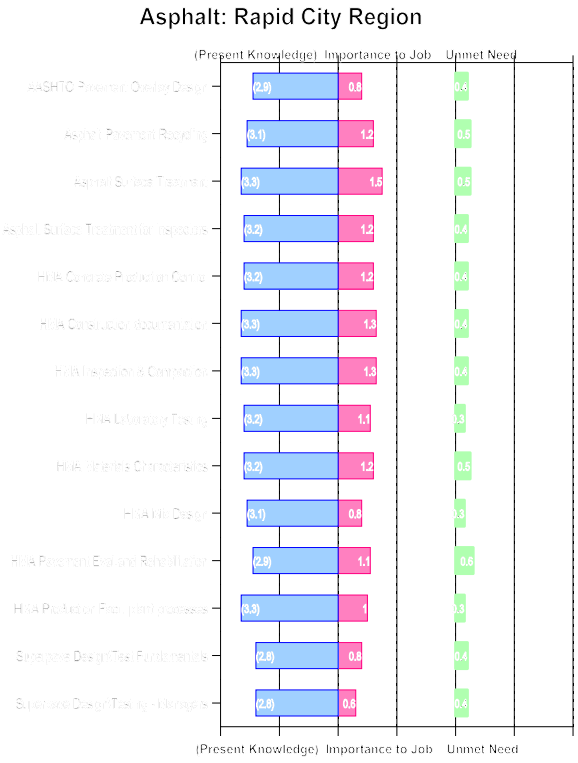

Figure 35: Asphalt: Rapid City Region

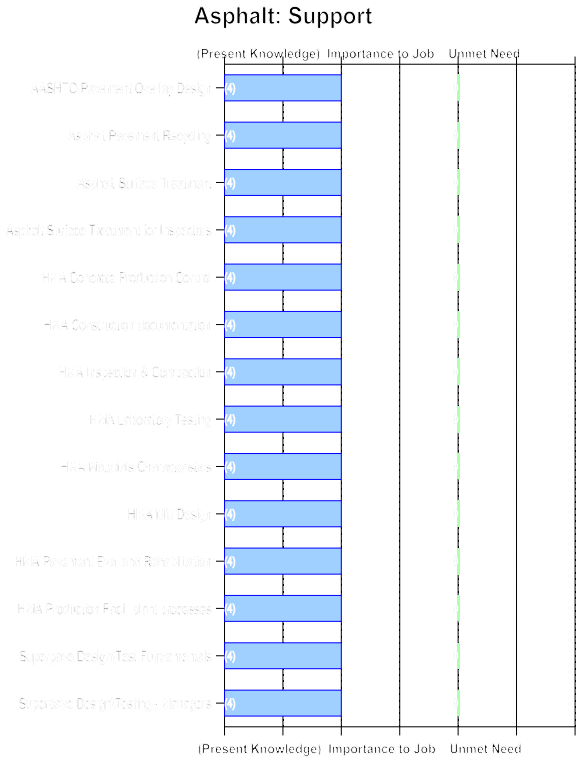

Figure 36: Asphalt: Support

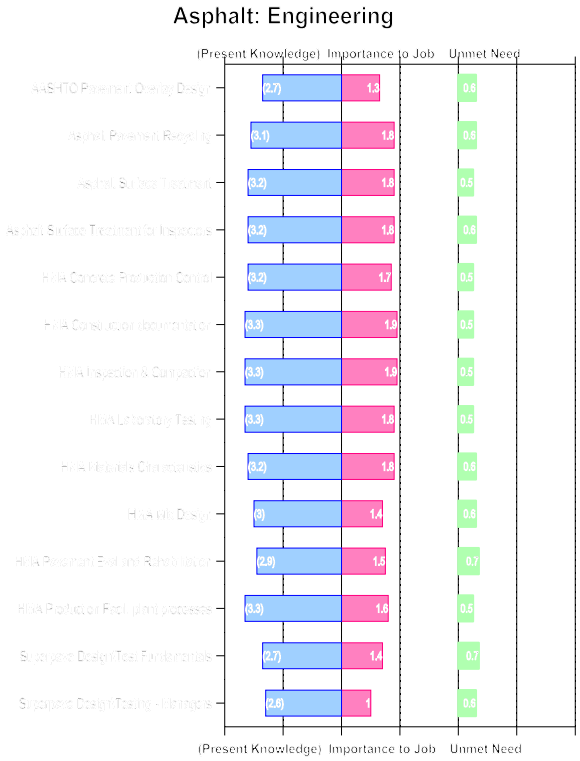

Figure 37: Asphalt: Engineering

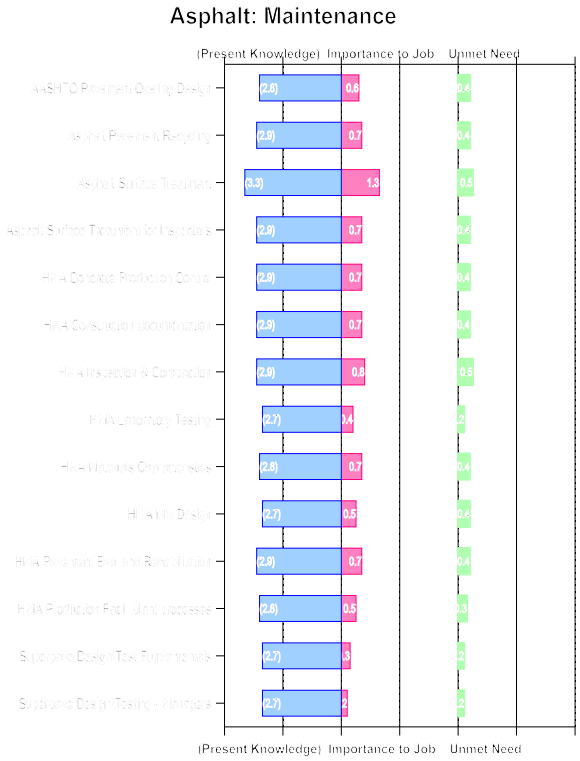

Figure 38: Asphalt: Maintenance

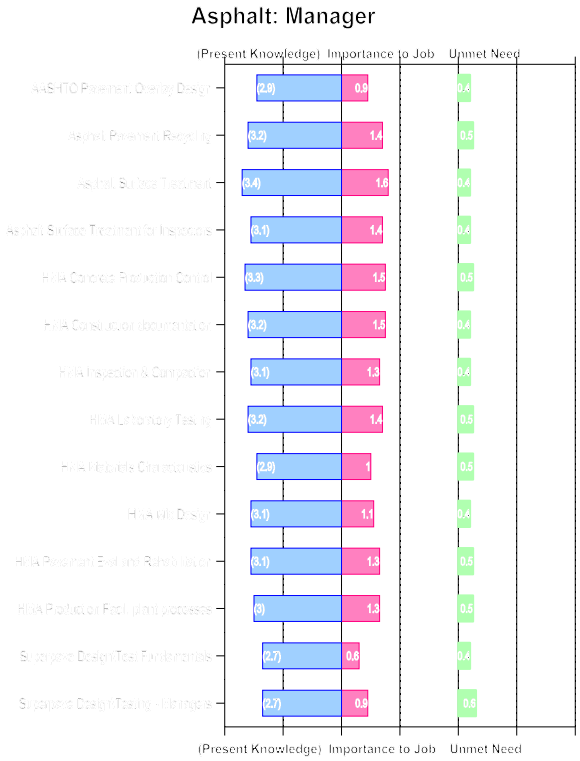

Figure 39: Asphalt: Manager

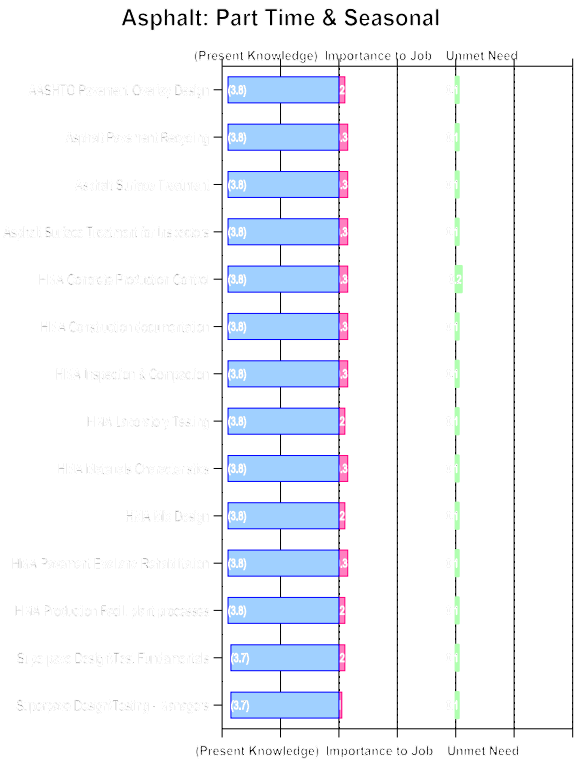

Figure 40: Asphalt: Part Time & Seasonal

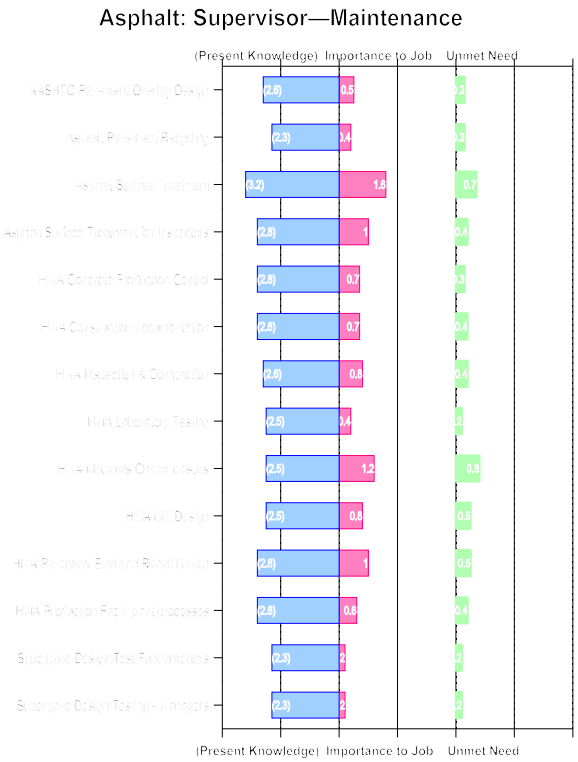

Figure 41: Asphalt: Supervisor—Maintenance

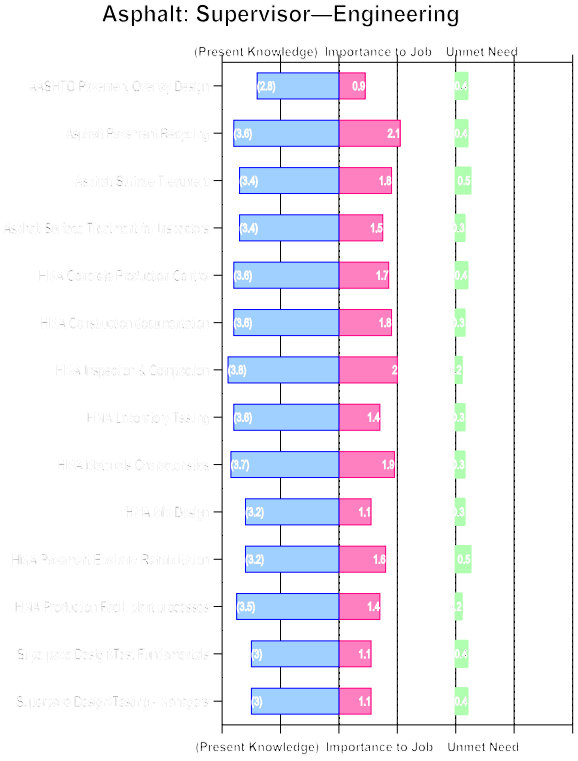

Figure 42: Asphalt: Supervisor—Engineering

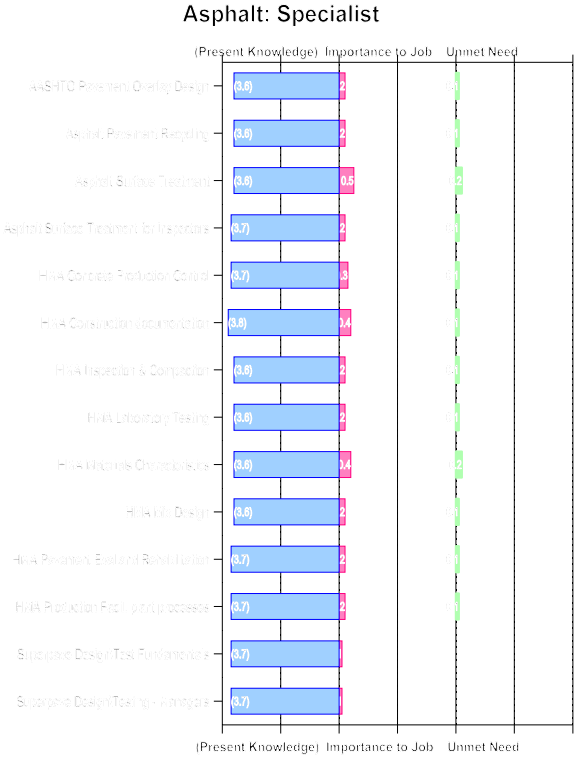

Figure 43: Asphalt: Specialist

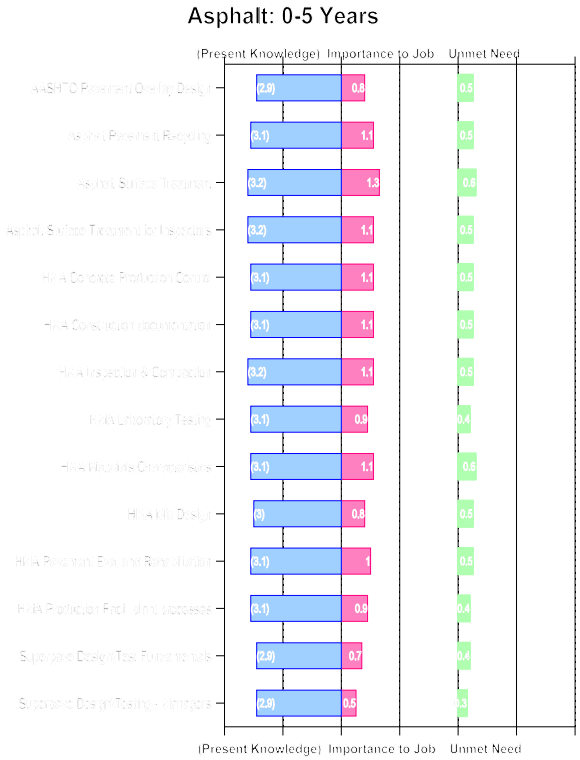

Figure 44: Asphalt: 0-5 Years

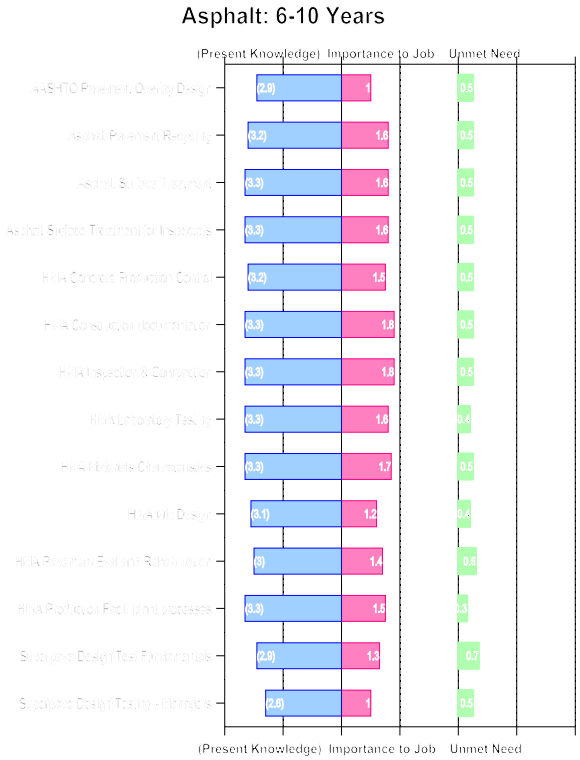

Figure 45: Asphalt: 6-10 Years

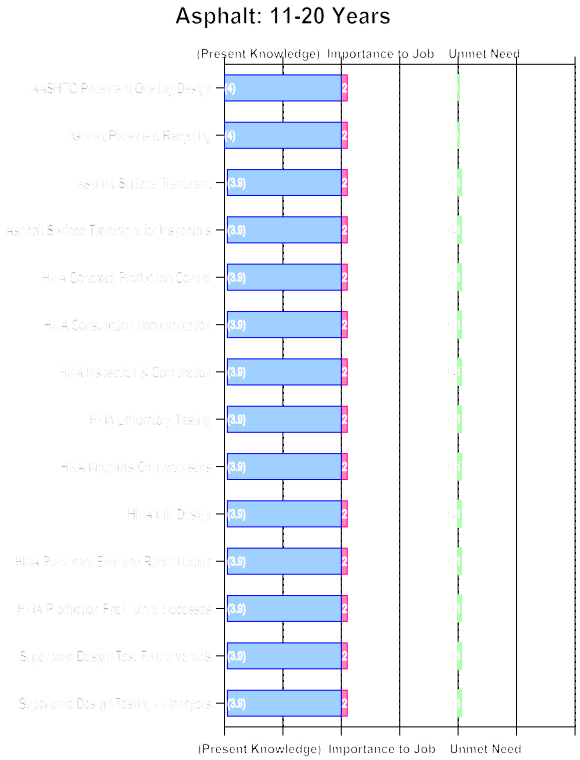

Figure 46: Asphalt: 11-20 Years

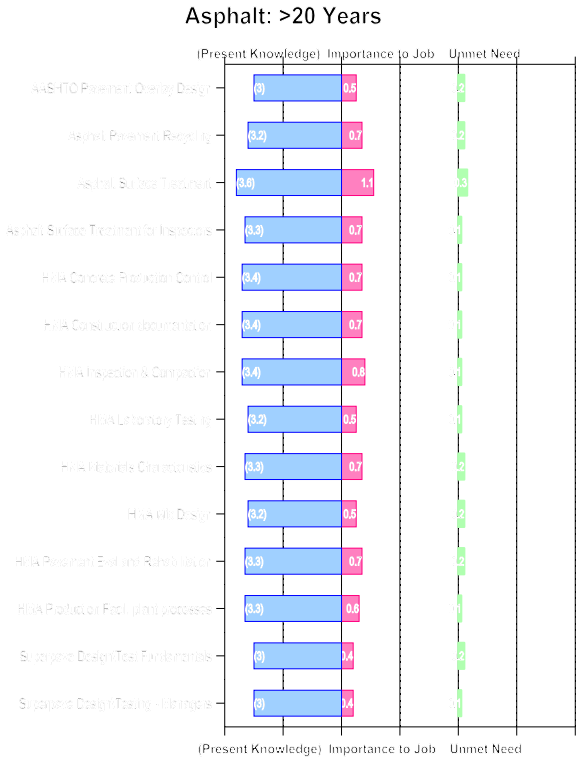

Figure 47: Asphalt: >20 Years

7.6 Bridge

Overview

Table 16 lists the knowledge areas where some benefit could be derived by additional training, especially for the Engineer, Supervisor—Maintenance, Supervisor-Engineer, and Manager job groups. These job groups are involved in the design, construction, inspection and/or repair of bridges. The low Unmet Need is due to the existing training emphasis within this domain. Most individuals in this field receive specialized training from college, technical schools, or on-the-job training, depending on their job group. The Engineer-in-Training program provides valuable experience and knowledge in the design and construction of bridges for those participating in this program. Emphasis on training within the *Bridge Domain* should continue.

Table 16: Bridge Knowledge Areas Most in Need of Training for All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Bridge Inspection Refresher Training	3.5	0.7	0.3
Bridge Protective Coatings	3.4	0.6	0.3
Basic Concepts Bridge Inspectors	3.5	0.6	0.3
Fracture Critical Inspection	3.3	0.5	0.3
Safety Inspection In-Service Bridges	3.3	0.5	0.3

All SDDOT

Figure 48 illustrates Present Knowledge, Importance to Job, and Unmet Need for the *Bridge Domain*. Department-wide, employees who work with bridges rate their current knowledge very high with scores of 3.3 or higher. The Unmet Need is low, 0.3 or lower. This clearly indicates there isn't a significant Unmet Need in the *Bridge Domain* Department-wide.

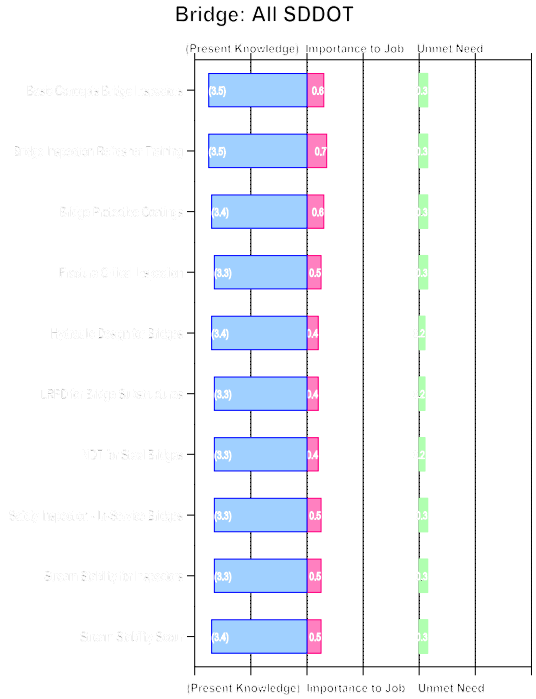

Figure 48: Bridge: All SDDOT

By Location

Figures 38 through 53 illustrate the Present Knowledge, Importance to Job, and Unmet Need for the *Bridge Domain* by location. All region offices, as well as the central office, indicate a high degree of knowledge with scores ranking 3.0 and higher. The central office indicates little or no Unmet Need, while the regions indicated a slightly higher need reflected by scores approaching 0.5.

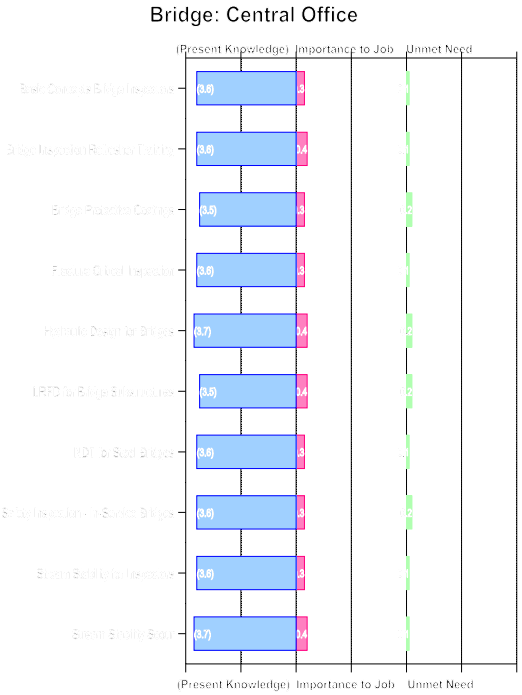

Figure 49: Bridge: Central Office

By Job Group

As shown in Figures 54 through 61, the Supervisor—Engineer, Supervisor—Maintenance, Manager, and Engineer job groups indicated the *Bridge Domain* holds some importance to their job with scores between 0.3 and 1.4. Unmet Need scores from these groups are very low, 0.6 and lower. Engineers and technicians tend to receive training when requested, particularly when it is directly related to their work. Many feel they have received sufficient training from college or other advanced education. As might be expected from the specialized nature of bridge training, the Importance to Job and Unmet Need scores were very low for job groups not directly involved in bridge design, construction, or maintenance.

By Tenure

Figures 62 through 65 illustrate the Present Knowledge, Importance to Job and Unmet Need for each Tenure group. There is no significant Unmet Need identified by any of the tenure groups and the corresponding Present Knowledge scores are very high, with values of 3.0 and higher.

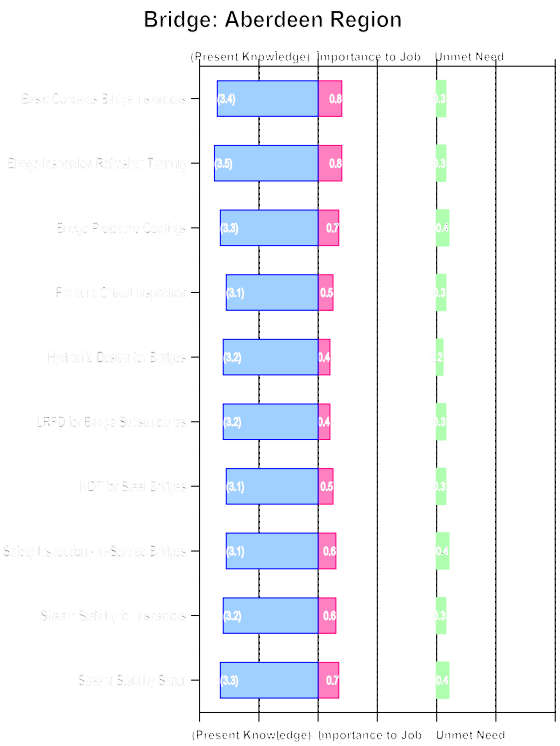

Figure 50: Bridge: Aberdeen Region

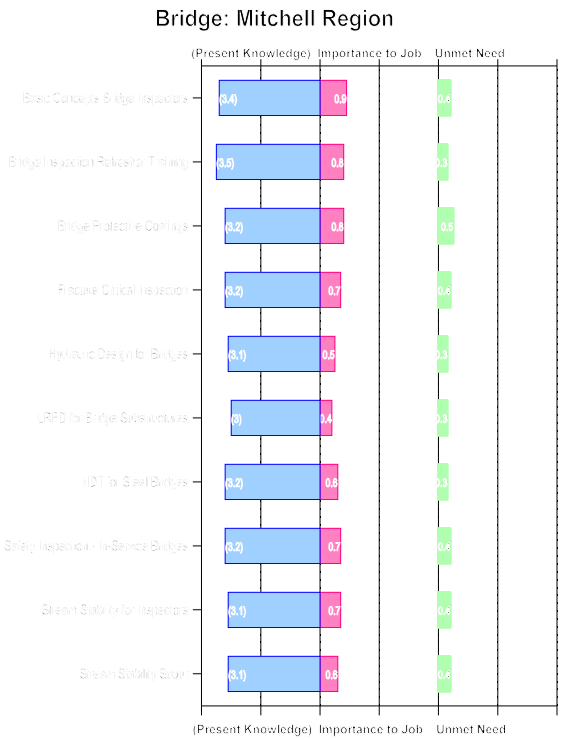

Figure 51: Bridge: Mitchell Region

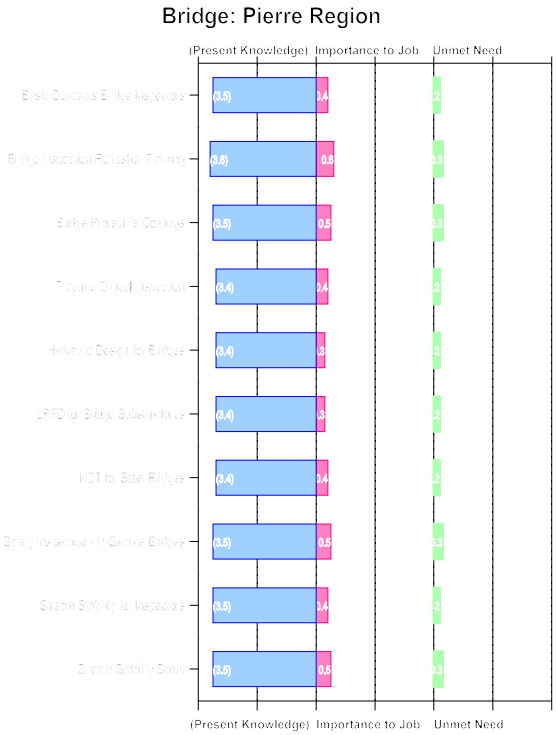

Figure 52: Bridge: Pierre Region

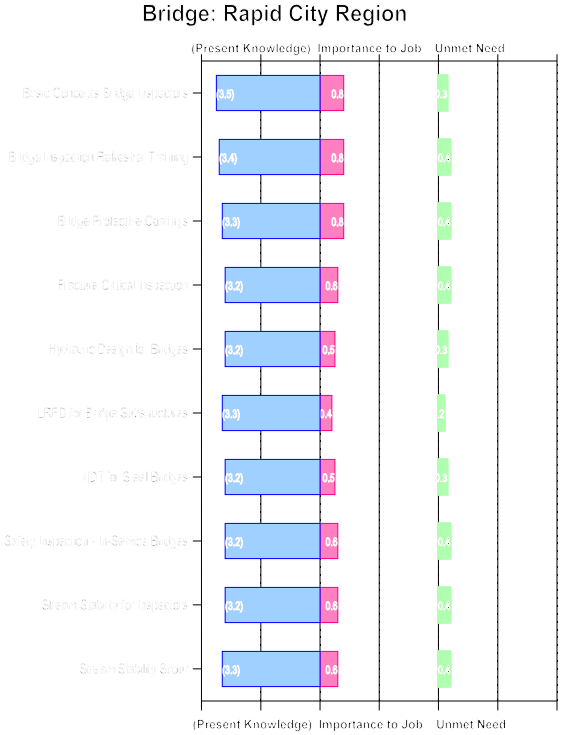

Figure 53: Bridge: Rapid City Region

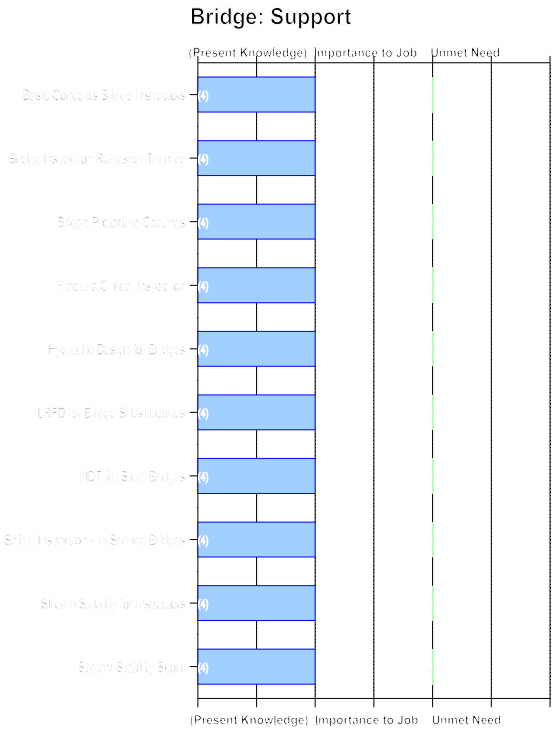

Figure 54: Bridge: Support

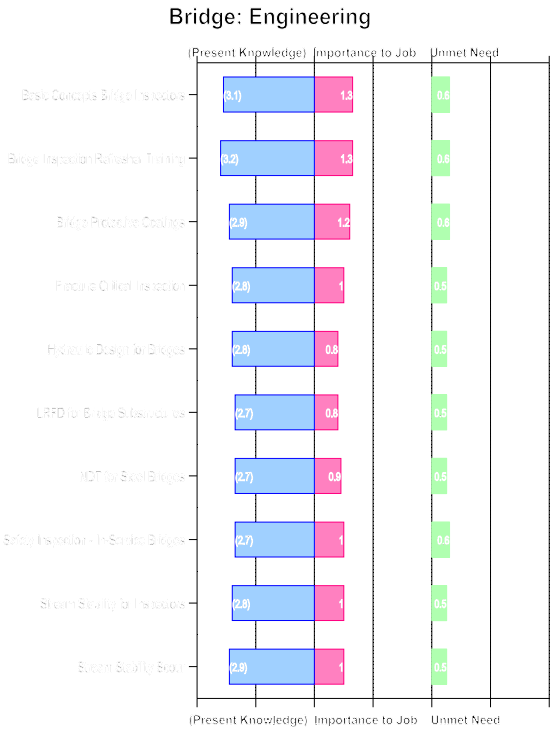

Figure 55: Bridge: Engineering

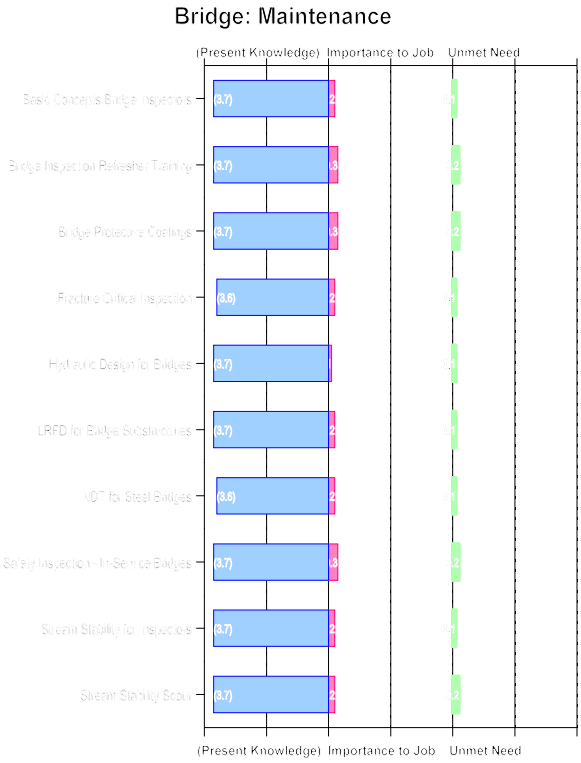

Figure 56: Bridge: Maintenance

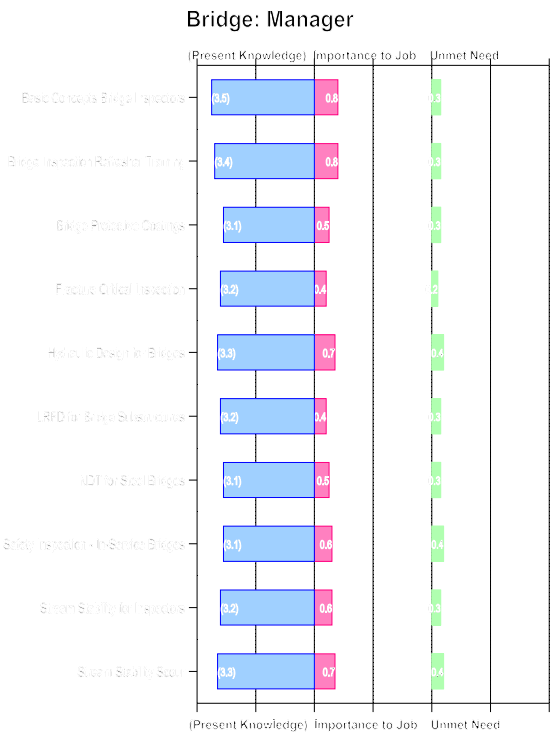

Figure 57: Bridge: Manager

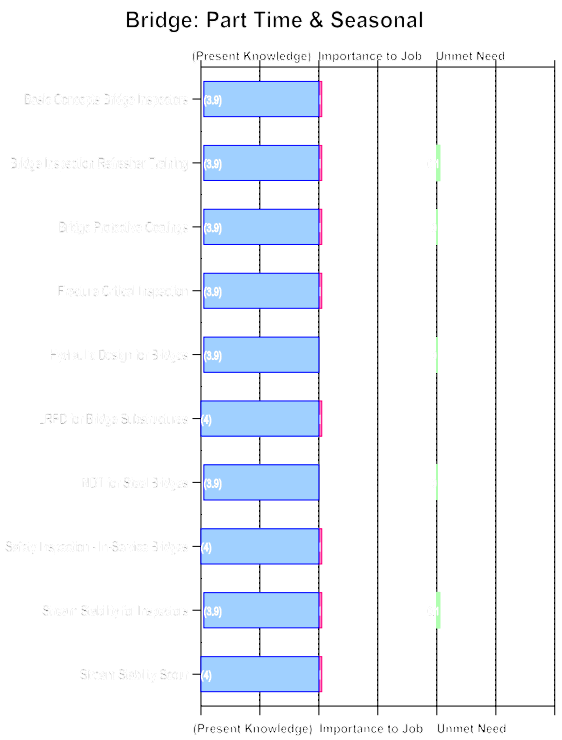

Figure 58: Bridge: Part Time & Seasonal

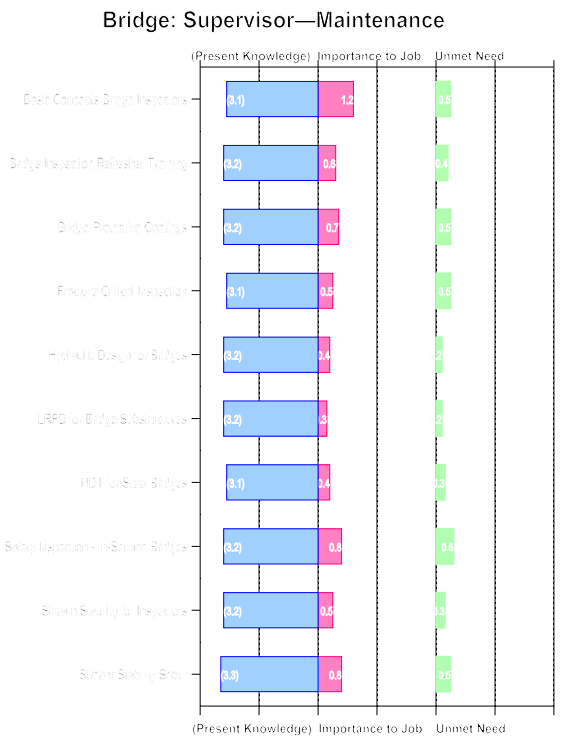

Figure 59: Bridge: Supervisor—Maintenance

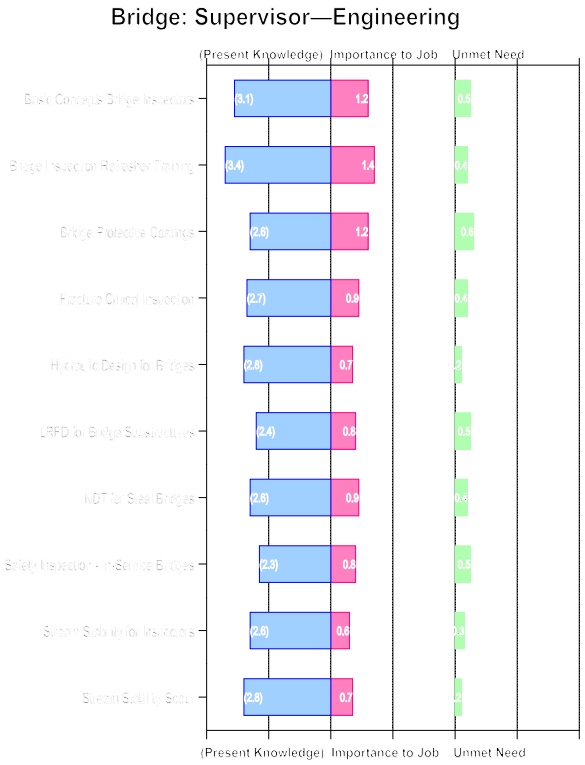

Figure 60: Bridge: Supervisor—Engineering

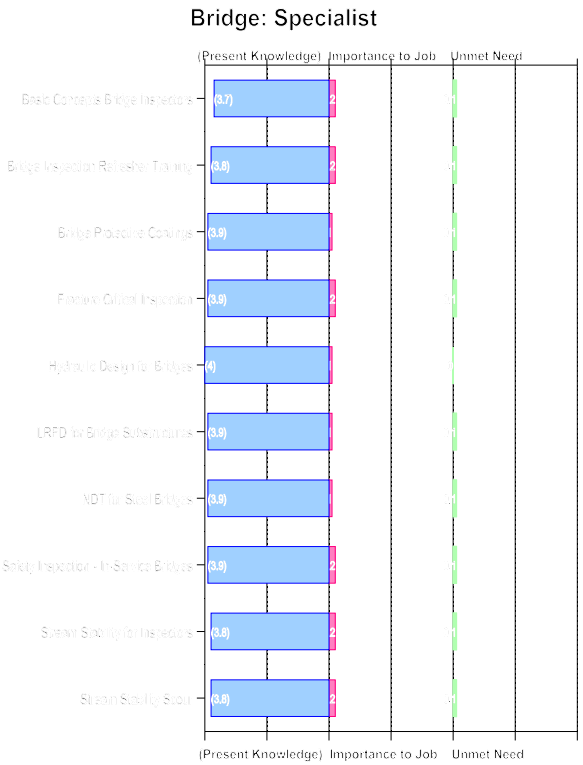

Figure 61: Bridge: Specialist

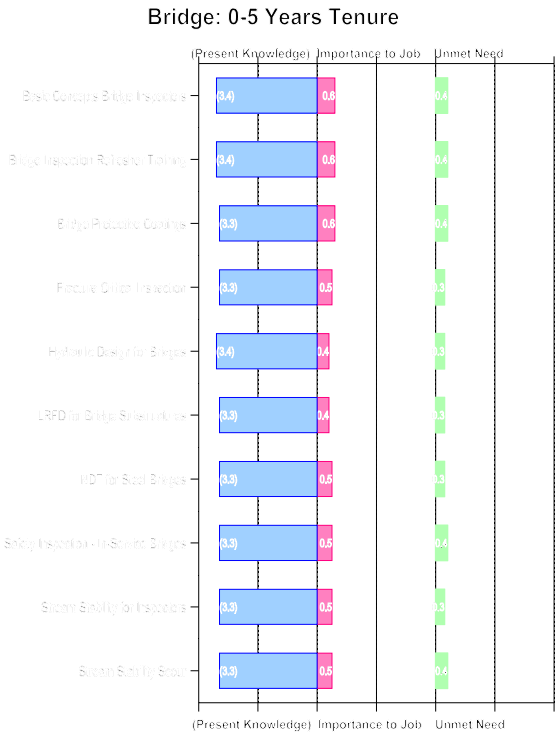

Figure 62: 0-5 Years Tenure

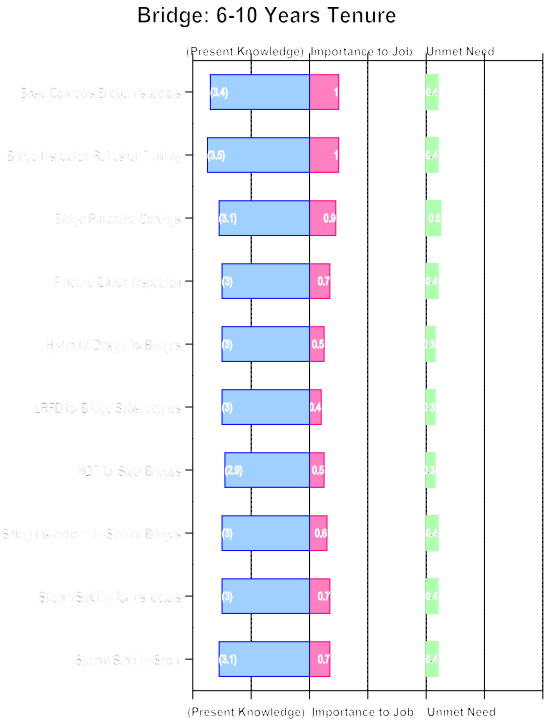

Figure 63: Bridge: 6-10 Years Tenure

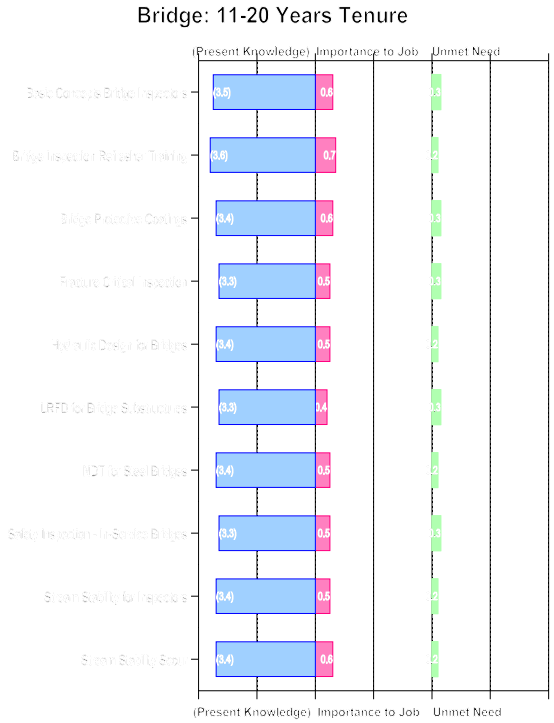

Figure 64: Bridge: 11-20 Years Tenure

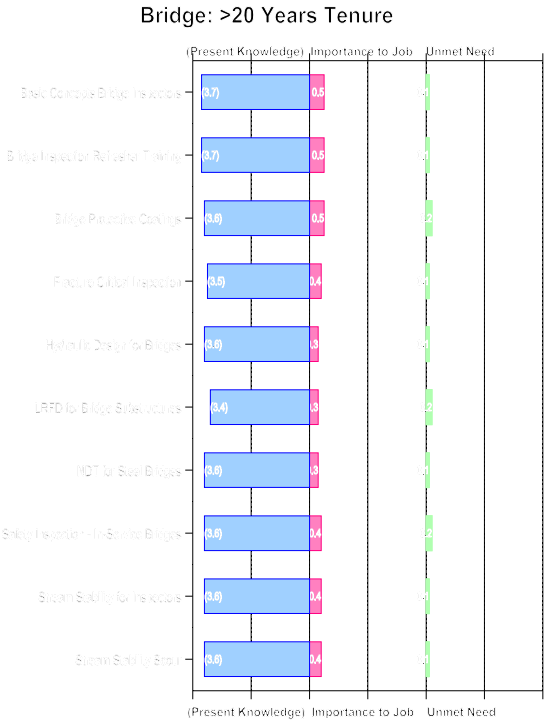

Figure 65: Bridge: >20 Years Tenure

7.7 Communication

Overview

Department-wide, the *Communications Domain* ranks as one of the top five domains with most Unmet Need for training. Table 17 lists the top five knowledge areas where benefit could be derived by additional training for all SDDOT employees. These top five provide a starting point for training in this domain. The Unmet Need is higher than most other domains, indicating most employees feel they have some knowledge in this domain but could benefit from additional training.

Table 17: Communication Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Improving Listening Skills	2.5	2.8	1.1
Assertiveness	2.3	2.6	1.1
Communicating Effectively with Co-workers	2.7	3.2	1.0
Communicating Effectively with External Customers	2.6	2.9	1.0

All SDDOT

Figure 66 illustrates Present Knowledge, Importance to Job, and Unmet Need for the *Communication Domain*. Department-wide, employees rate their current knowledge from low to moderate with scores ranging from 1.4 to 2.7. These indicators combined with the high Importance to Job for many employees make the Unmet Need one of the highest for all domains throughout the Department.

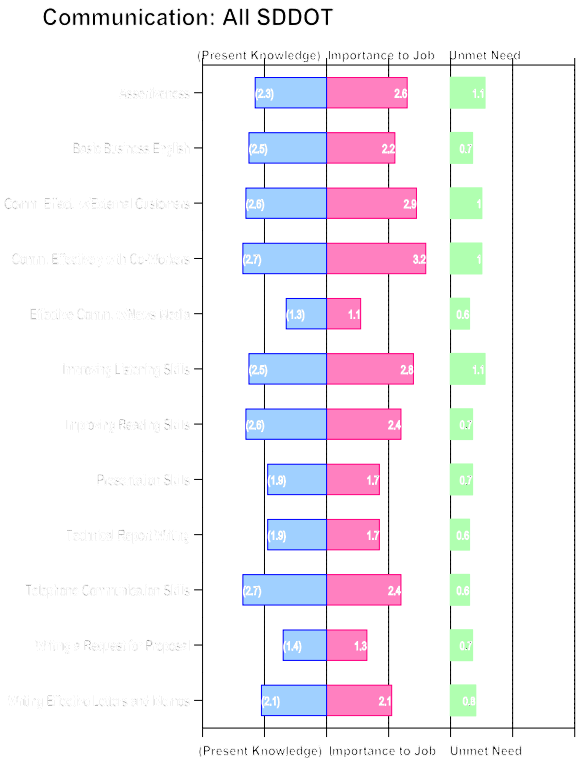

Figure 66: Communication: All SDDOT

By Location

Figures 68 through 71 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Communication Domain* for each region and the central office. The findings for each location are nearly identical to the combined results for All SDDOT within the *Communication Domain*. The knowledge areas considered the most important to employees are again shown in Table 17. The Unmet Need for these knowledge areas coincides almost exactly with those identified as being most important to all SDDOT employees.

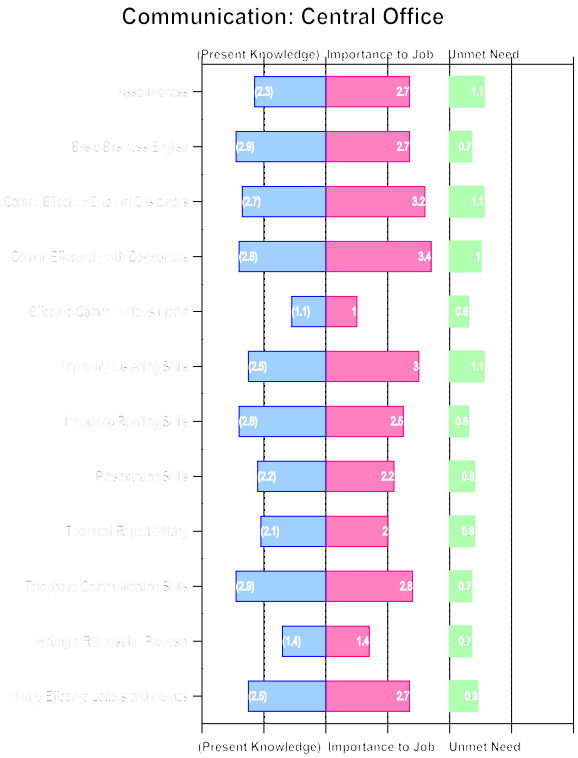

Figure 67: Communication: Central Office

By Job Group

Figures 72 through 79 illustrate Present Knowledge, Importance to Job and Unmet Need within the *Communication Domain* for each job group. All job groups closely match the results for All SDDOT within the *Communication Domain*. The Part-Time & Seasonal job group placed less significance on this domain than other groups. However, they still indicate a need for better skills in the *Communication Domain*. This is one of the top five domains indicated by the All SDDOT findings and is correspondingly represented in the individual job groups.

By Tenure

Figures 80 through 83 illustrate Present Knowledge, Importance to Job and Unmet Need within the *Communication Domain* by tenure. The results are nearly identical to the All SDDOT findings. All employees, regardless of years with the Department, rated individual knowledge areas within the *Communication Domain* in similar terms with Importance to Job and Unmet Need. There are no significant trends by tenure evidenced.

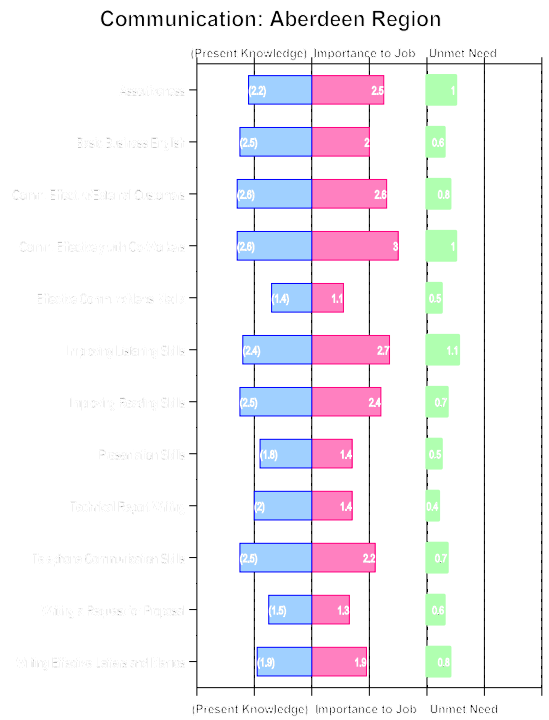

Figure 68: Communication: Aberdeen Region

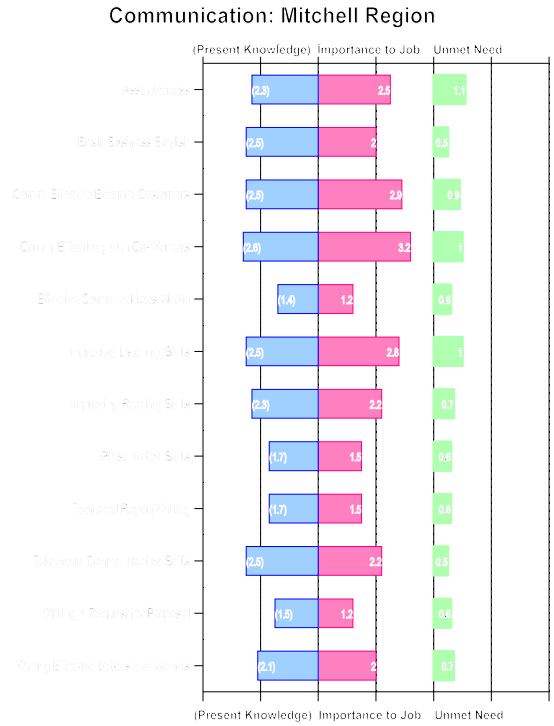

Figure 69: Communication: Mitchell Region

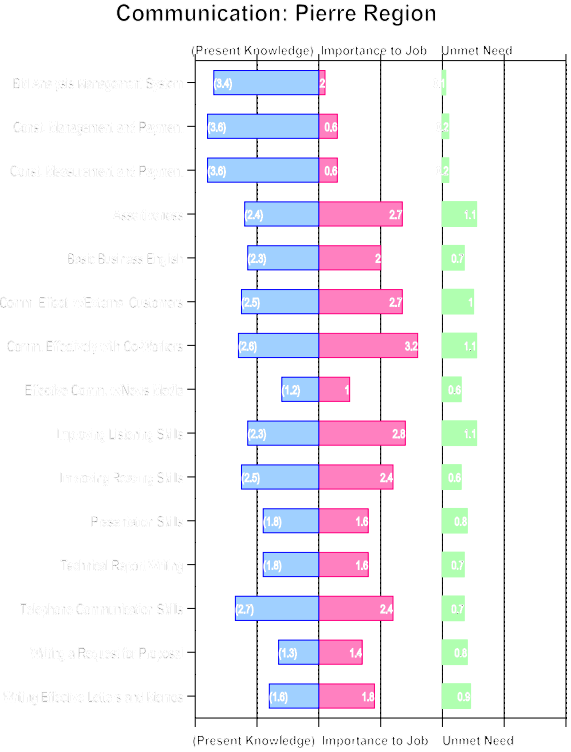

Figure 70: Communication: Pierre Region

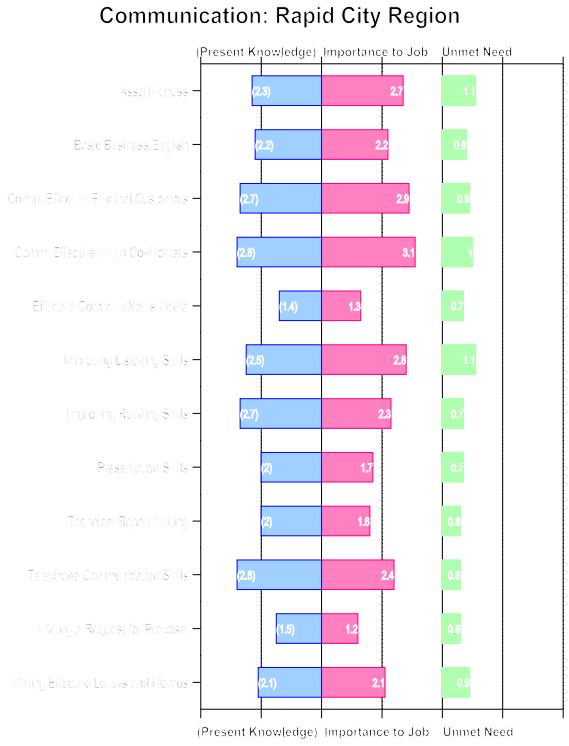

Figure 71: Communication: Rapid City Region

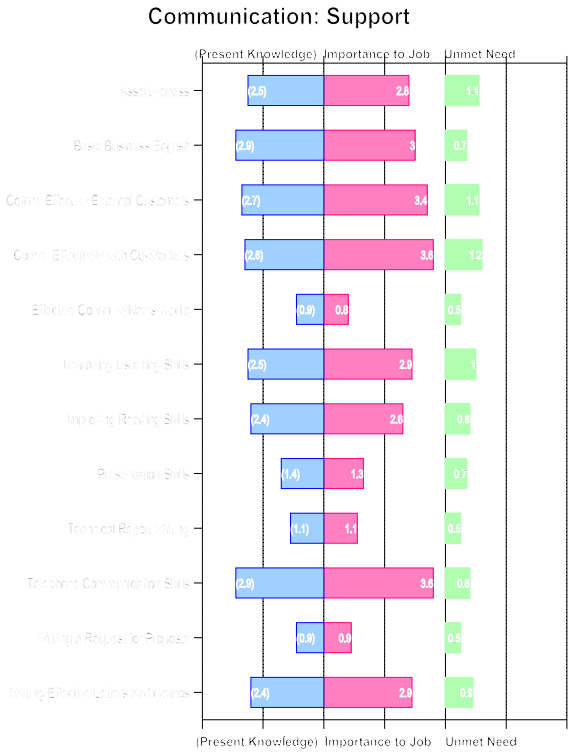

Figure 72: Communication: Support

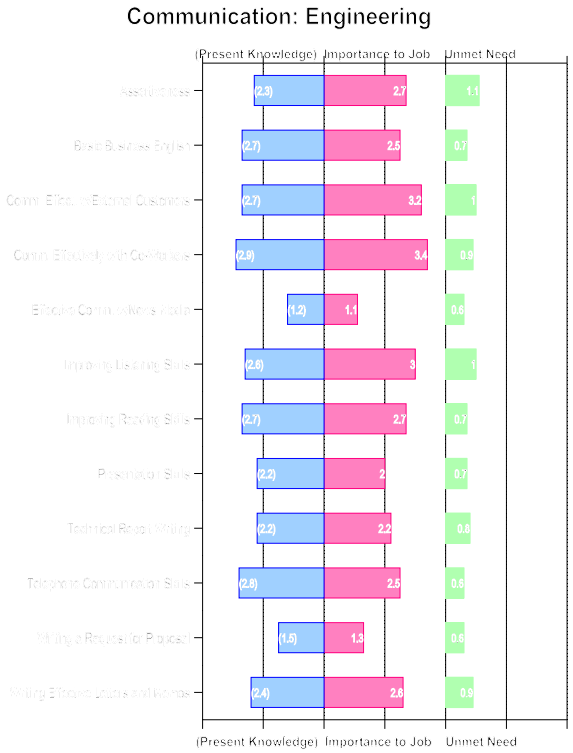

Figure 73: Communication: Engineering

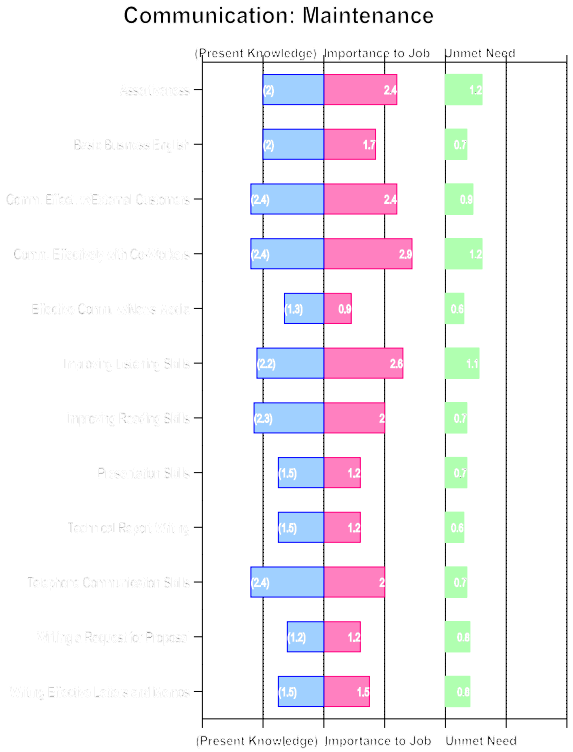

Figure 74: Communication: Maintenance

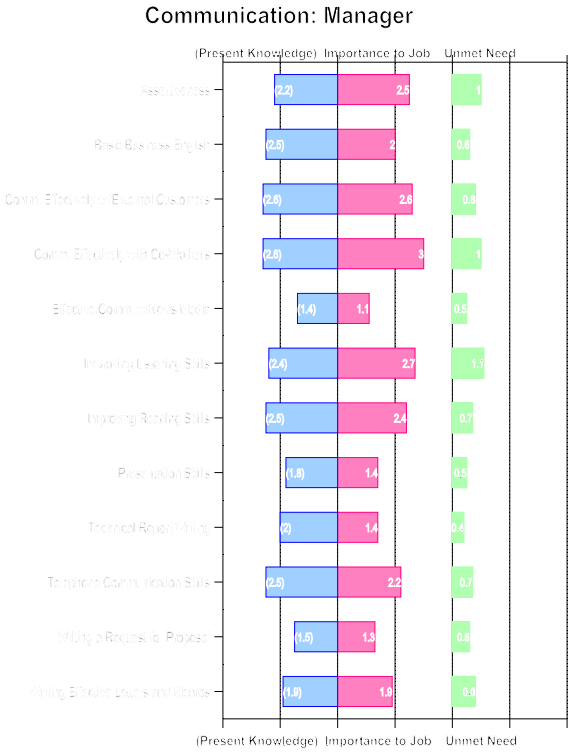

Figure 75: Communication: Manager

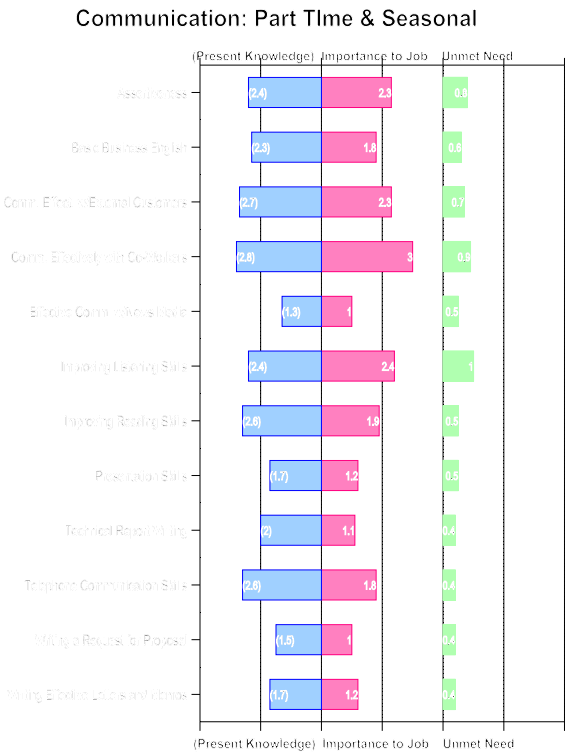

Figure 76: Communication: Part Time & Seasonal

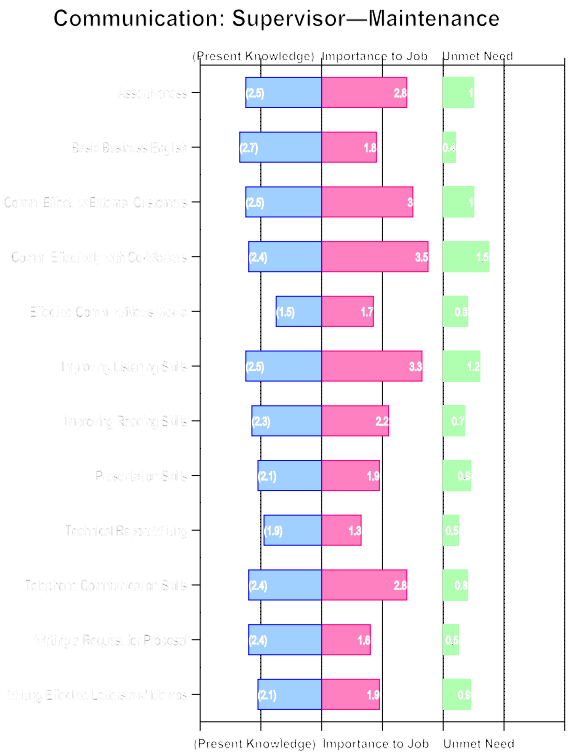

Figure 77: Communication: Supervisor—Maintenance

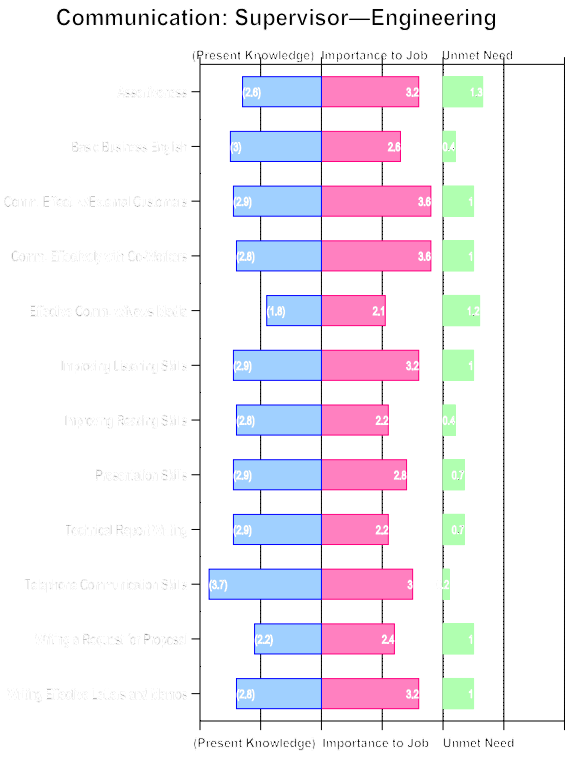

Figure 78: Communication: Supervisor—Engineering

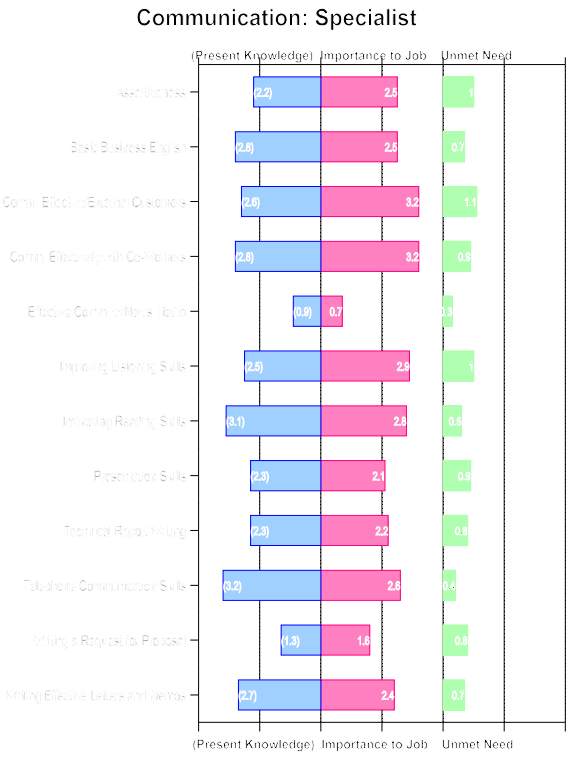

Figure 79: Communication: Specialist

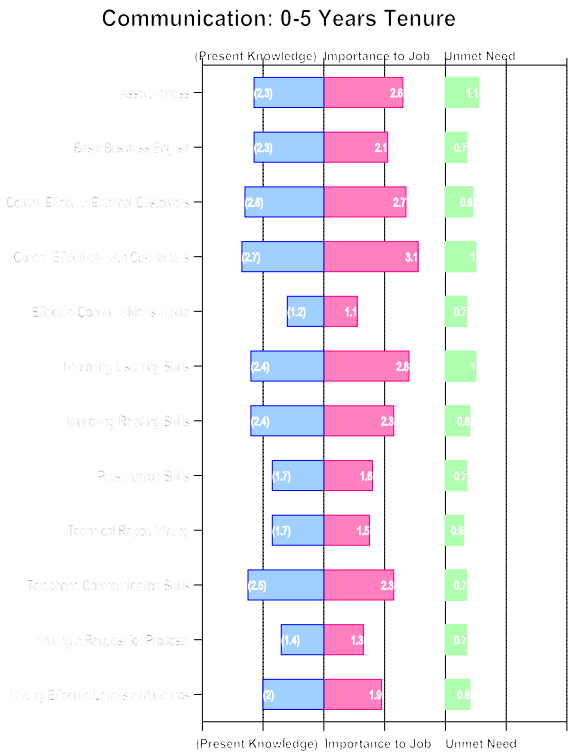

Figure 80: Communication: 0-5 Years Tenure

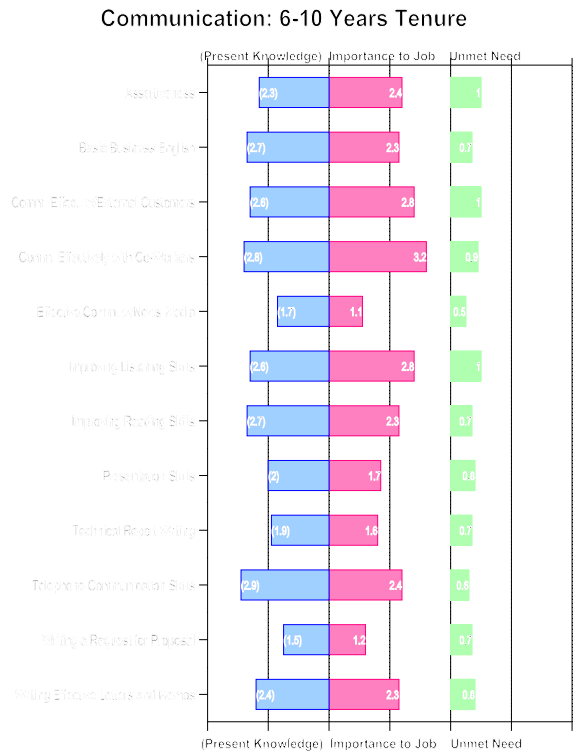

Figure 81: Communication: 6-10 Years Tenure

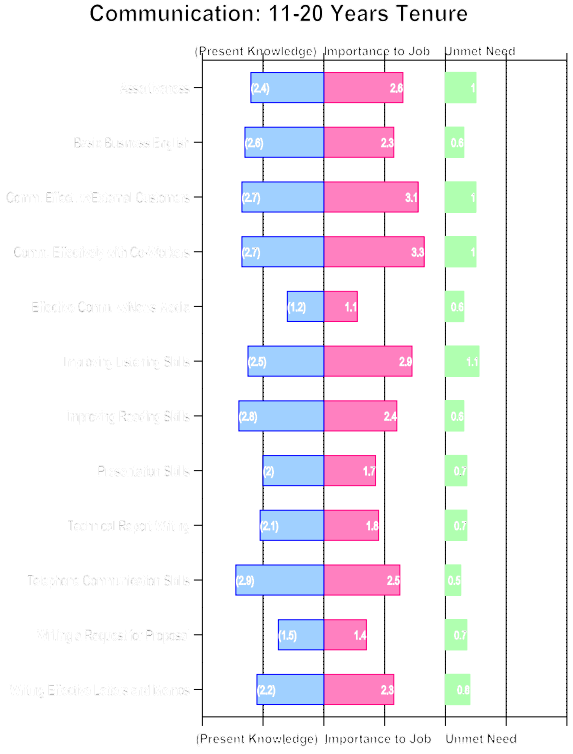

Figure 82: Communication: 11-20 Years Tenure

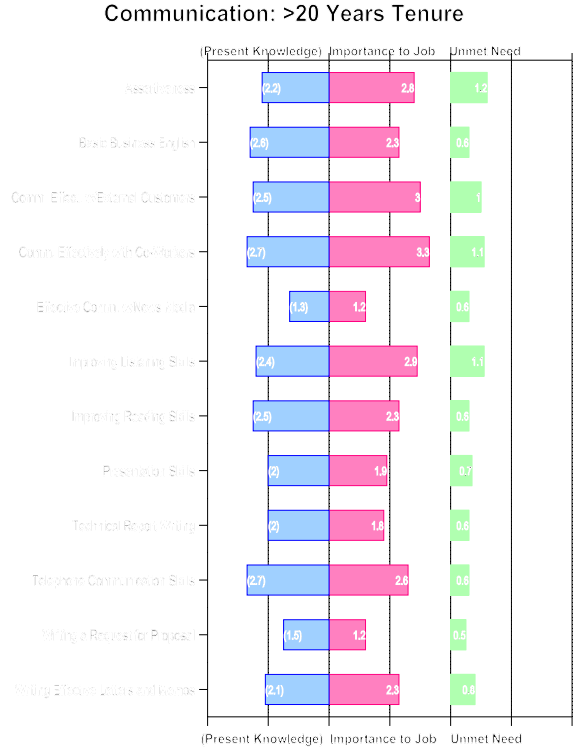

Figure 83: Communication: >20 Years Tenure

7.8 Construction Management

Overview

Table 18: Construction Management Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Material Testing System Software	3.2	0.6	0.4
Using GPS for Construction Surveying	3.3	0.5	0.4
Const. Management and Payment	3.5	0.8	0.3
Const. Measurement and Payment	3.5	0.8	0.2

Table 18 lists the knowledge areas where some benefit could be derived by additional training for the Engineering, Supervisor—Engineering, and Manager job groups. There isn't a strong Unmet Need indicated. However, the Supervisor—Engineering job group indicated a moderate need for *Material Testing System Software*. Recent training has been provided to many in this knowledge area.

All SDDOT

Figure 84 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Construction Management Domain* for the entire Department. Department-wide, employees rate their current knowledge very high with scores of 3.1 or higher. The Unmet Need scores are 0.4 and lower with a corresponding importance to job of 1.0 and lower. The rankings for Present Knowledge indicate the employees have sufficient knowledge in the *Construction Management Domain*. The Importance to Job indicates that this domain has low importance to most employees. However, knowledge in this domain is still required of many Department employees.

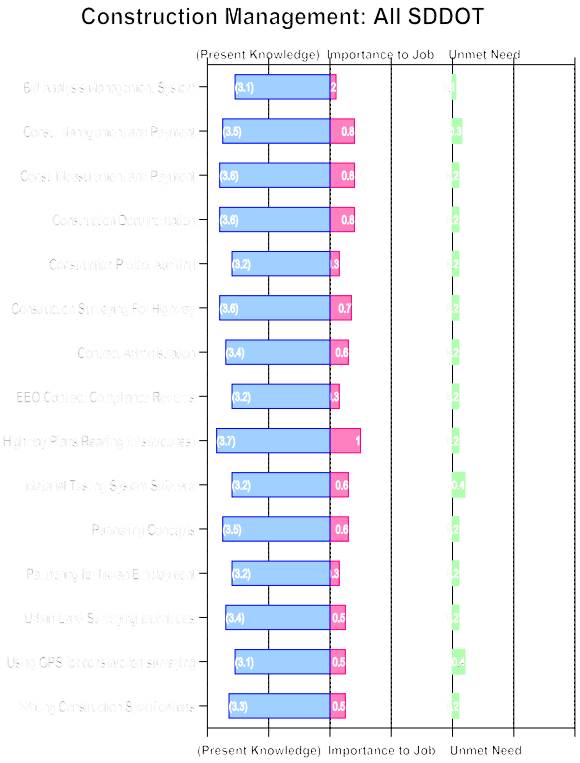

Figure 84: Construction Management: All SDDOT

By Location

Figures 85 through 89 illustrate Present Knowledge, Importance to Job and Unmet Need for the *Construction Management Domain* by location. Analysis by location indicates the Department has adequate knowledge in the *Construction Management Domain*. All locations indicate there is some need for training in the *Materials Testing System Software*. Although the ratings are low, the regions have indicated a greater Unmet Need in this domain than the central office. The Unmet Need ratings for the central office indicate almost no need for training in this domain.

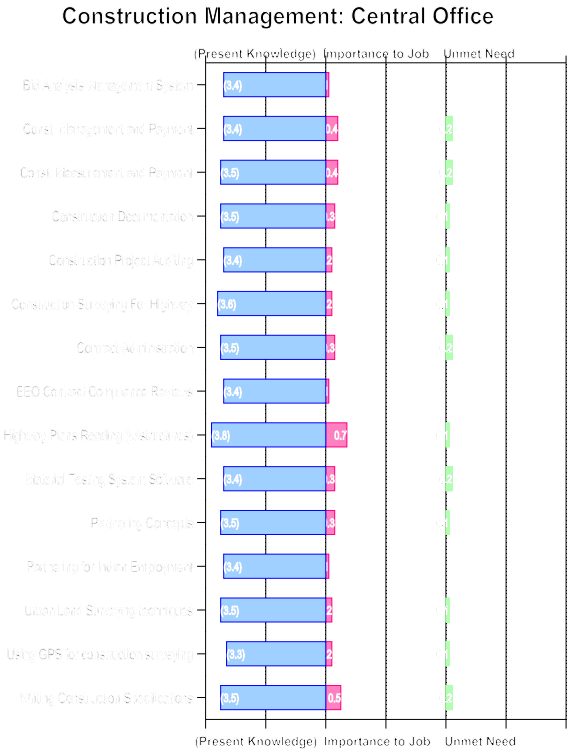

Figure 85: Construction Management: Central Office

By Job Group

Figures 90 through 97 illustrate Present Knowledge, Importance to Job and Unmet Need for the *Construction Management Domain* by job group. Analysis by job group indicates the Department has adequate knowledge in the *Construction Management Domain*. The Engineering, Supervisor—Engineering, and Manager job groups indicate this domain is important to their work. Rankings are similar to those indicated by the department as a whole.

By Tenure

Figures 98 through 101 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Construction Management Domain* by tenure. The ratings closely reflect those of the entire Department and locations within the Department. A somewhat higher need is indicated by the 6-10 Years tenure group.

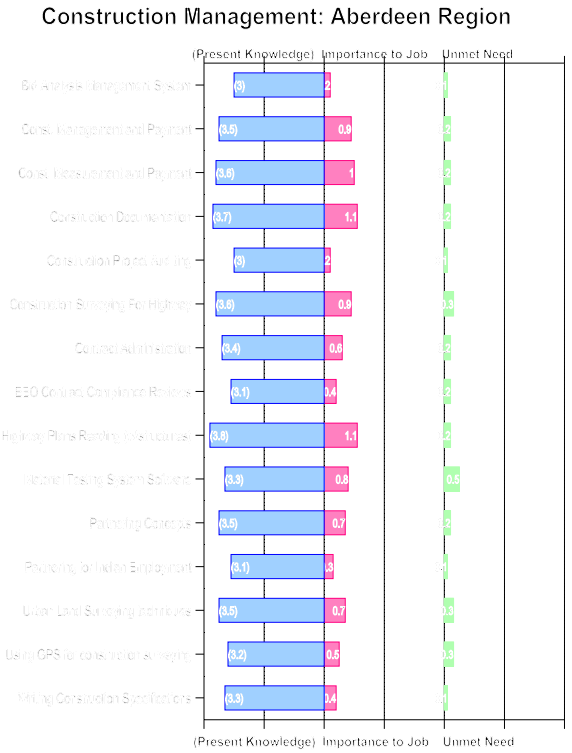

Figure 86: Construction Management: Aberdeen Region

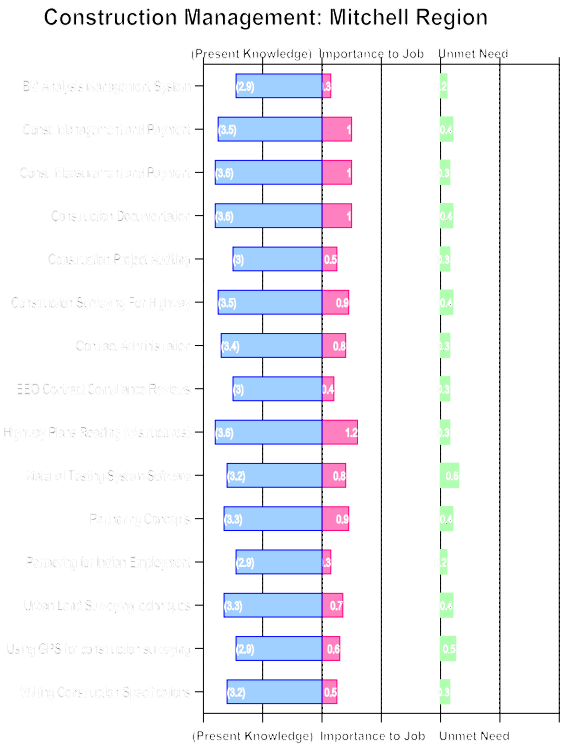

Figure 87: Construction Management: Mitchell Region

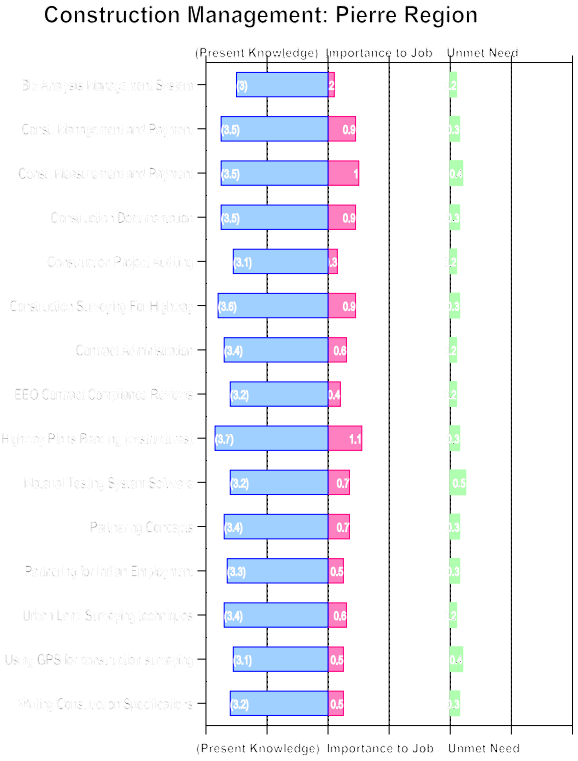

Figure 88: Construction Management: Pierre Region

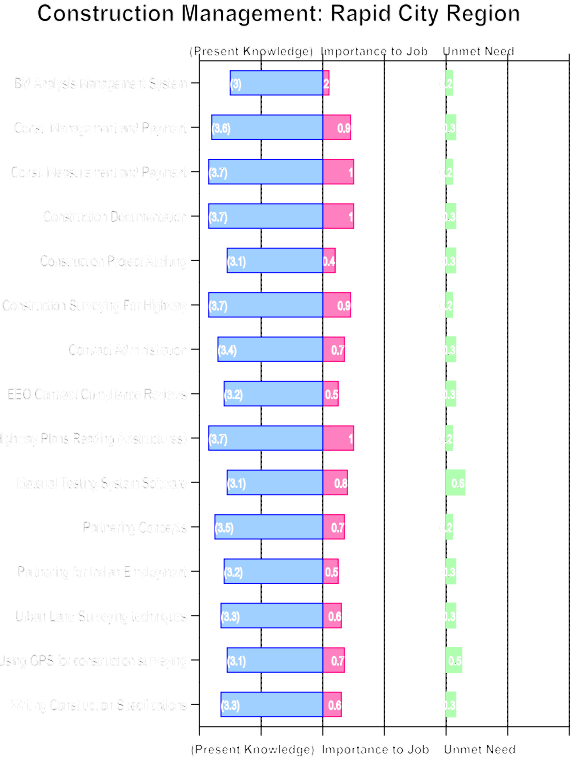

Figure 89: Construction Management: Rapid City Region

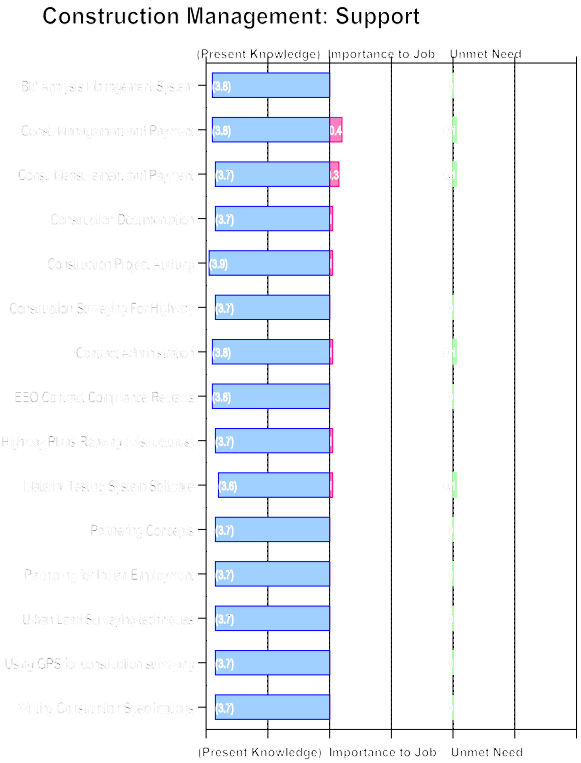

Figure 90: Construction Management: Support

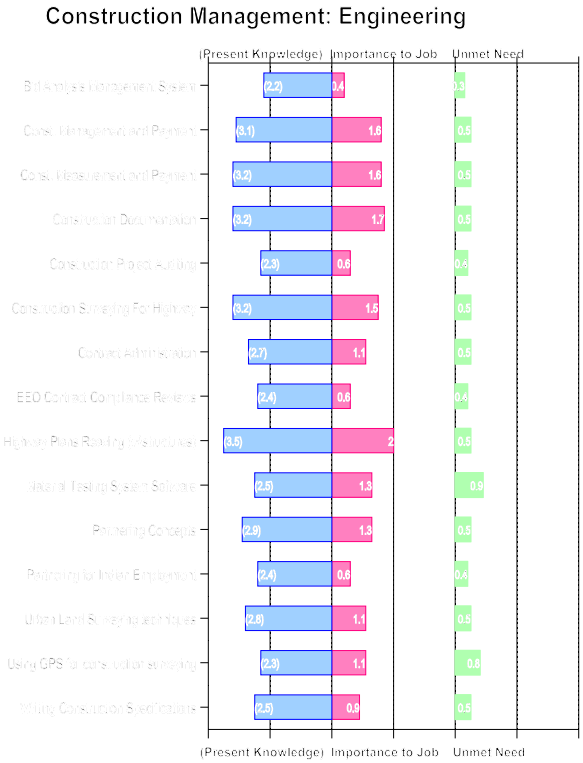

Figure 91: Construction Management: Engineering

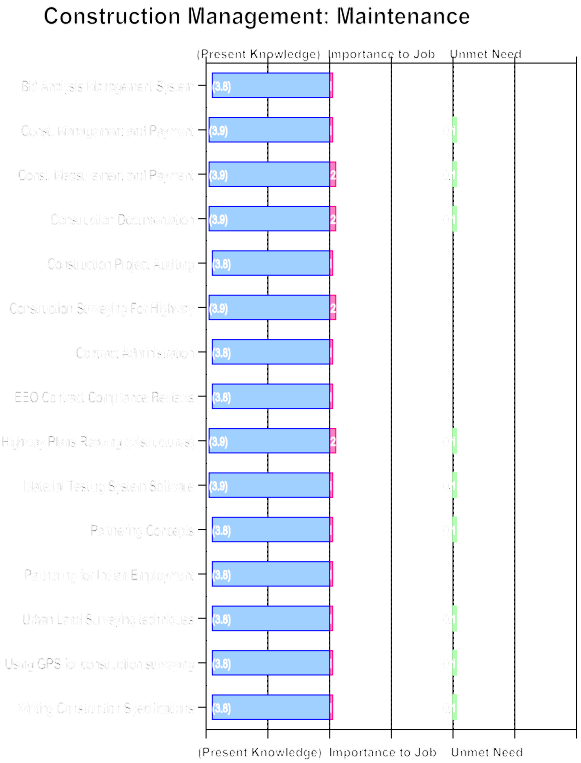

Figure 92: Construction Management: Maintenance

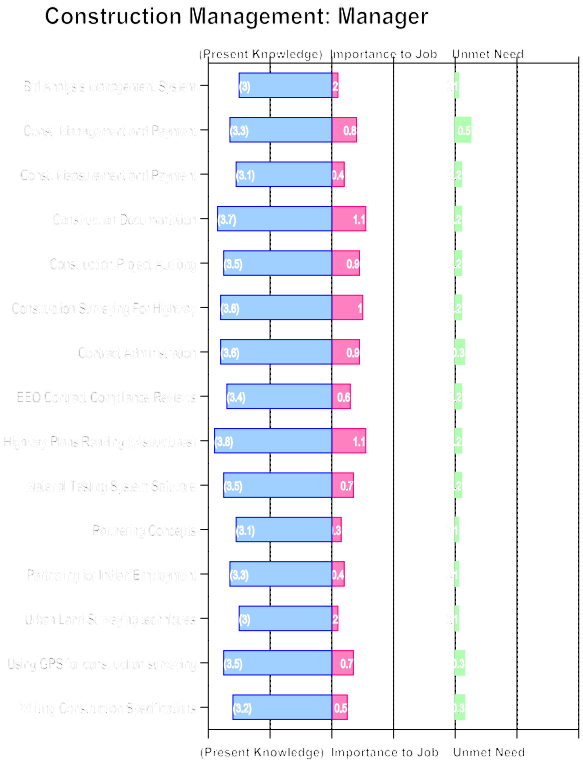

Figure 93: Construction Management: Manager

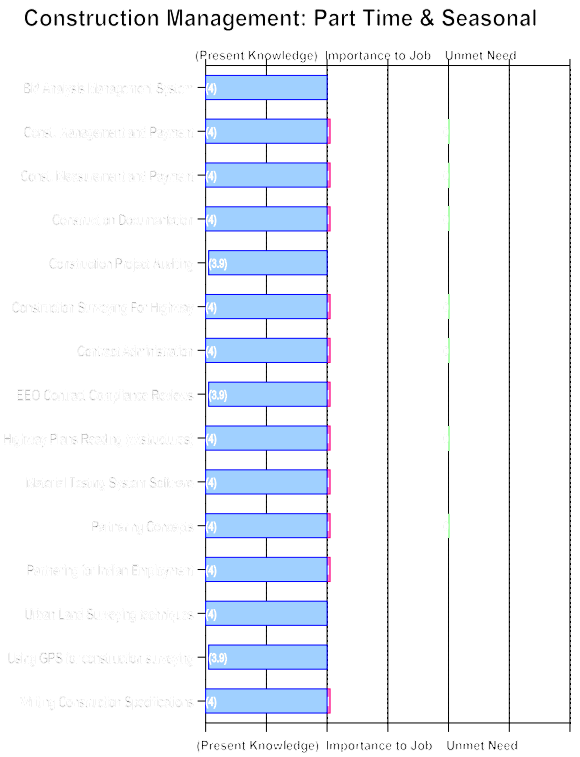

Figure 94: Construction Management: Part Time & Seasonal

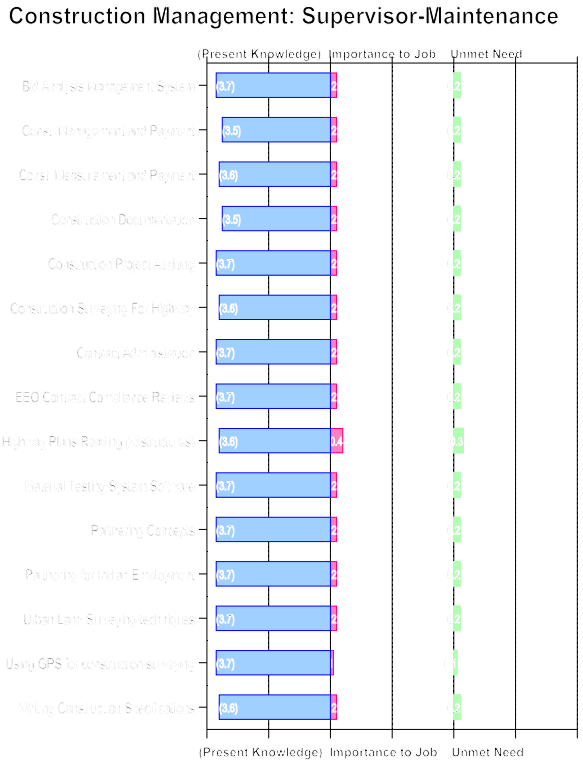

Figure 95: Construction Management: Supervisor—Maintenance

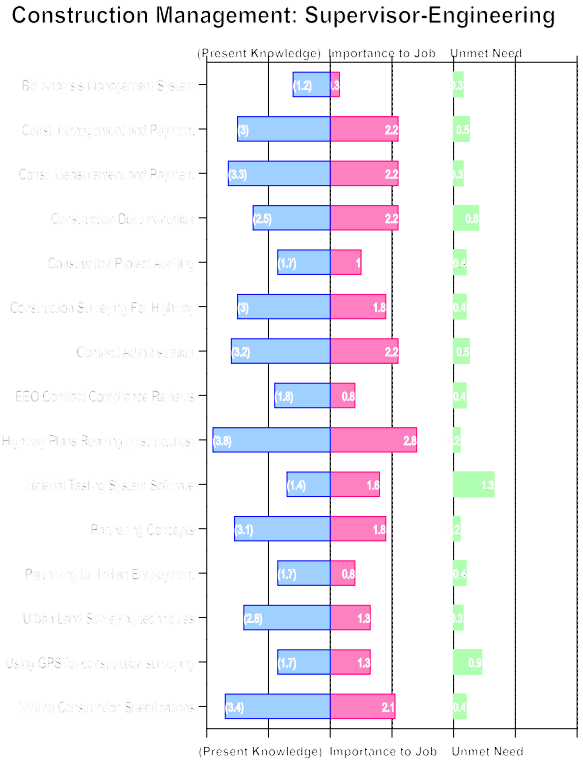

Figure 96: Construction Management: Supervisor—Engineering

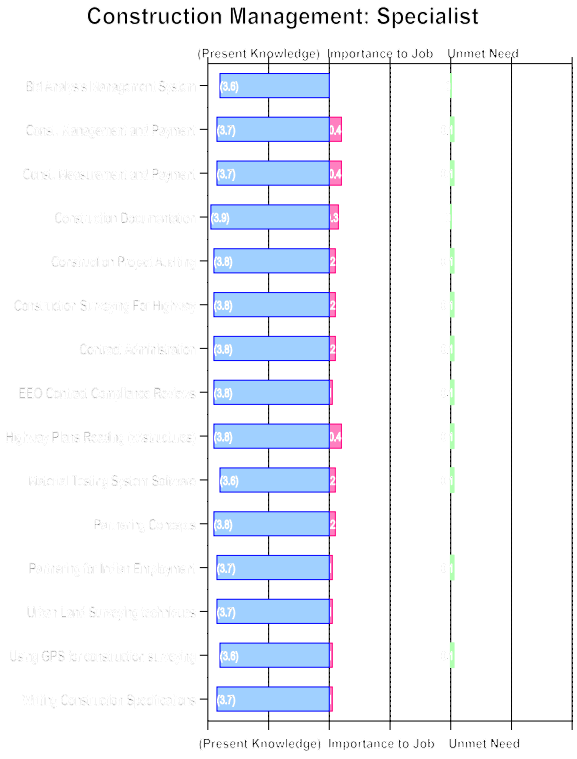

Figure 97: Construction Management: Specialist

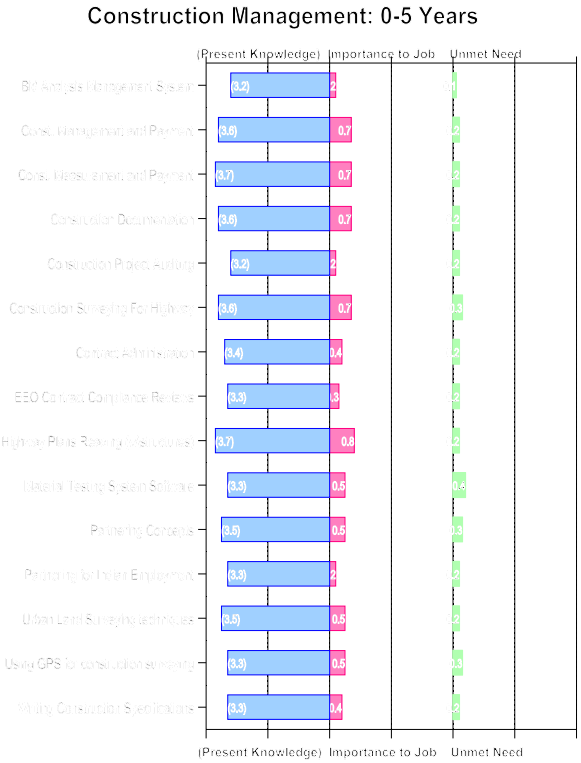

Figure 98: Construction Management: 0-5 Years

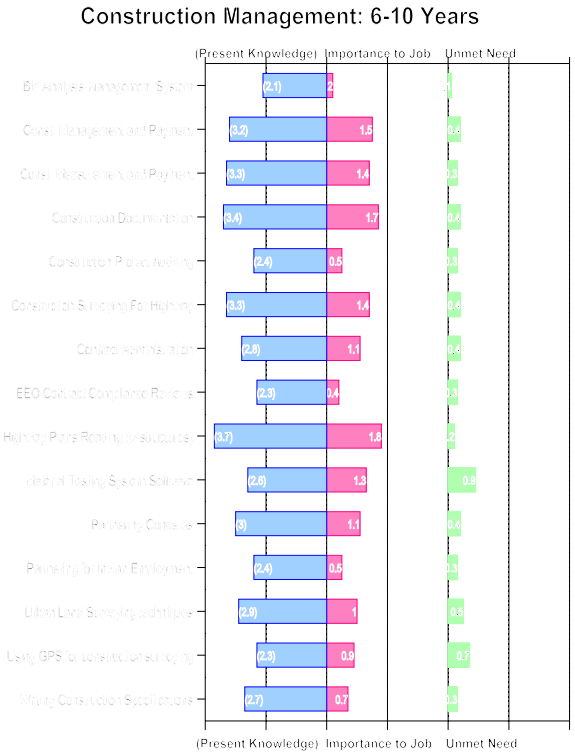

Figure 99: Construction Management: 6-10 Years

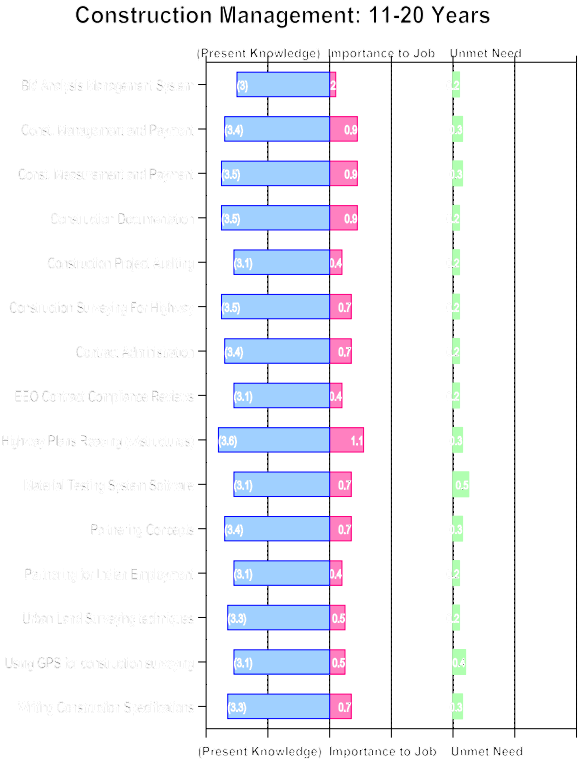

Figure 100: Construction Management: 11-20 Years

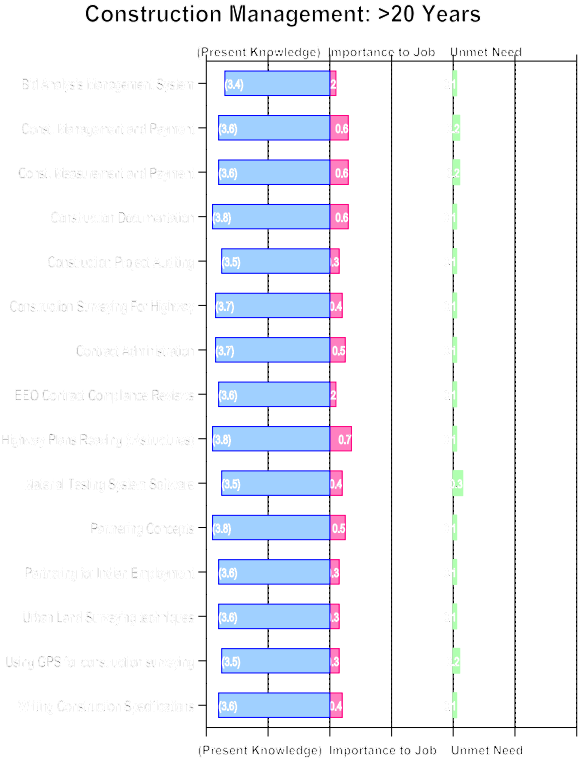

Figure 101: Construction Management: >20 Years

7.9 Employee Development

Overview

Table 19: Employee Development Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Employee Development	2.1	2.9	1.4
Career Development	2.0	2.5	1.3
Legal Issues and the Work Place	2.0	2.5	1.2
Employee Benefits	2.6	2.6	1.1
Project Management	2.3	2.3	1.1

Department-wide, the *Employee Development* domain ranks as one of the top five domains in terms of Unmet Need for training. The individual job groups ranked the knowledge areas slightly different from those listed in Table 19,. These differences are considered small since the *Employee Development Domain* ranks in the top five Unmet Needs among all other domains. The differences in the rankings are small considering most of the deviations indicate that nearly all of these knowledge areas could benefit from additional training. The Supervisor—Maintenance and Part Time & Seasonal job groups ranked *Maintenance Management Training* and *Work Relationship With Supervisor* higher than other groups.

All SDDOT

Figure 102, 103 illustrates Present Knowledge, Importance to Job, and Unmet Need for the knowledge areas within the *Employee Development Domain*. Department-wide, employees rate both Present Knowledge and Importance to Job as moderate to high. The Unmet Need ranges from 0.5 to 1.4, indicating there is a definite Unmet Need for training in this domain. The knowledge areas showing the highest Unmet Need for training are also the areas indicating the highest ratings for Importance to Job.

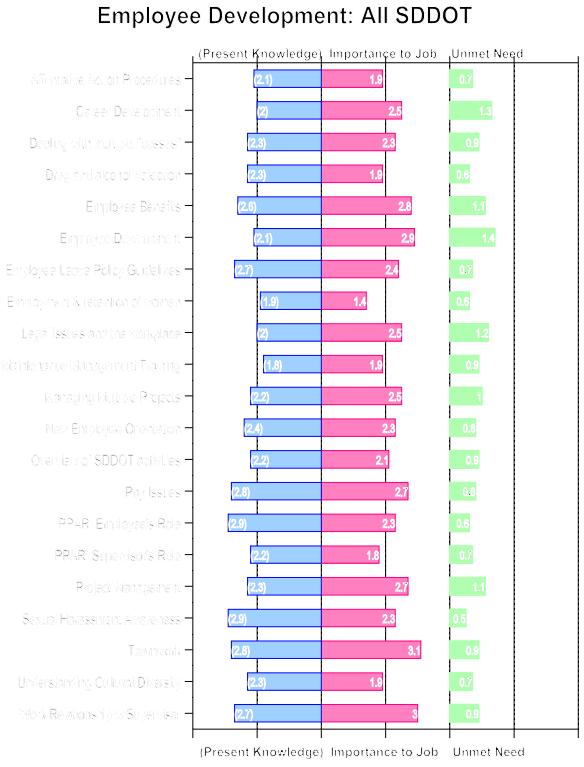

Figure 102: Employee Development: All SDDOT

By Location

Figures 103 through 107 illustrate Present Knowledge, Importance to Job and Unmet Need within the *Employee Development Domain* by location. Results shown by location indicate that the Department has needs that are similar to the Department as a whole. The central office and the Pierre Region ranked *Managing Multiple Projects* slightly higher than *Employee Benefits*. This may be due to the easier access afforded to the SDDOT central office and the State Bureau of Personnel Office for those employees having questions regarding benefits. The Aberdeen and Mitchell Regions ranked *Team Work* slightly higher than *Project Management*.

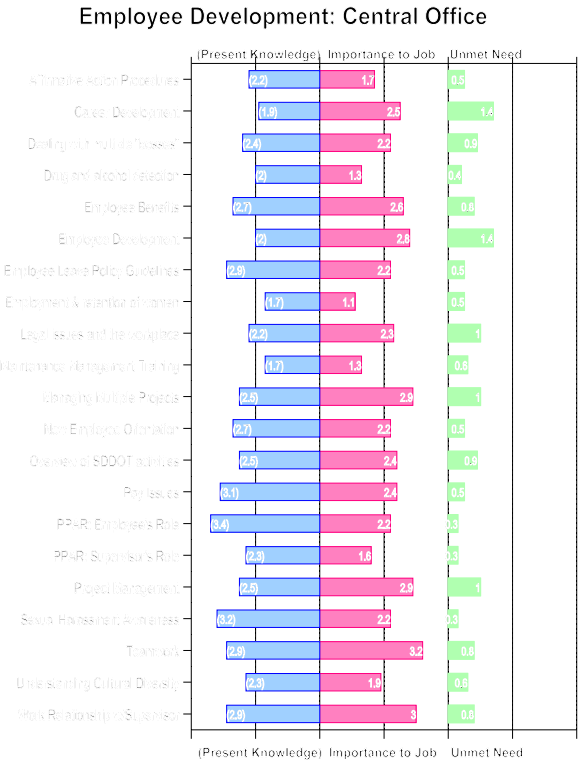

Figure 103: Employee Development: Central Office

By Job Group

Figures 108 through 115 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Employee Development Domain* by job group. Resultant rankings by job group are similar to the ratings received under the All SDDOT analysis. The Support and Supervisor—Maintenance job groups indicated *Work Relationship with Supervisor* highest. *Team Work* ranks within the top five needs for the Specialists, Part Time & Seasonal, Supervisor—Engineering, and Manager job groups. *Maintenance Management Training* was also listed in the top five for the Supervisor—Maintenance job group.

By Tenure

Figures 116 through 119 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Employee Development Domain* by tenure. The analysis by tenure indicates ratings similar to the All SDDOT, location, and job group analyses. Employees with 6-10 years of tenure did not rank Employee Benefits as high as other tenure groups, possibly because employees new to the Department are still learning about all aspects of the Department including benefits, while employees with more tenure are becoming more concerned with retirement issues. Employees with more than 20 years tenure ranked Teamwork higher than other tenure groups did.

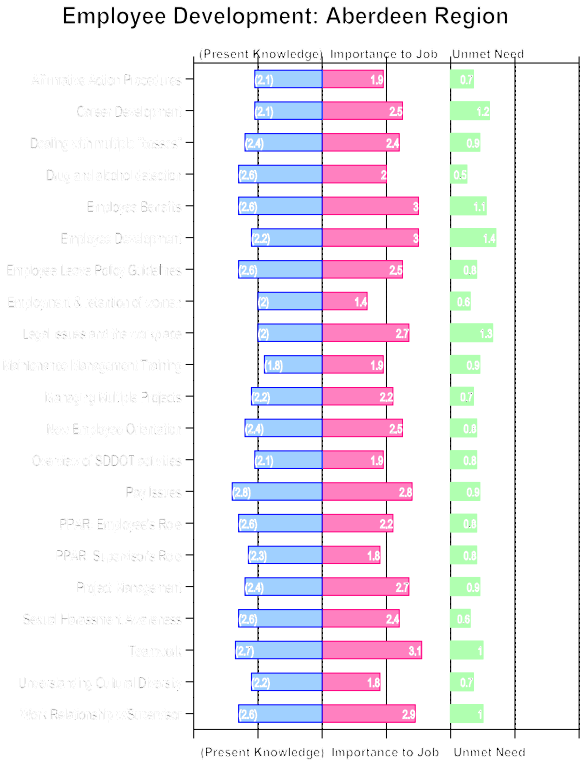

Figure 104: Employee Development: Aberdeen Region

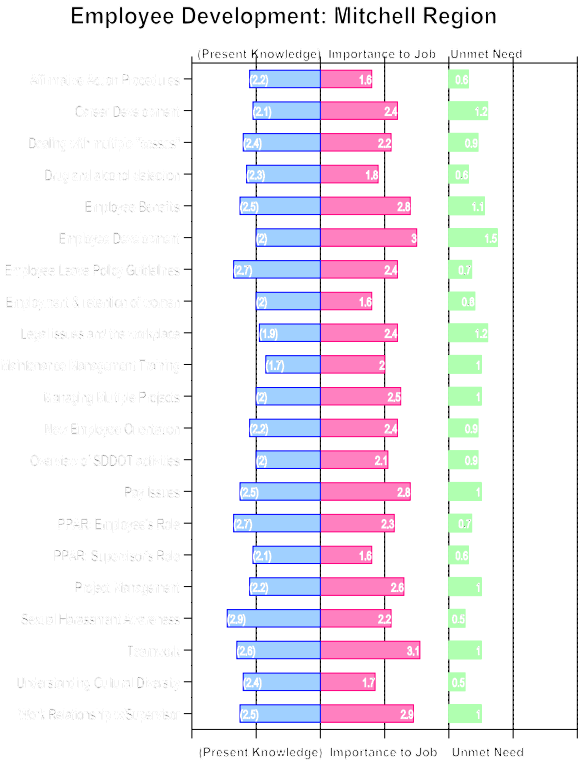

Figure 105: Employee Development: Mitchell Region

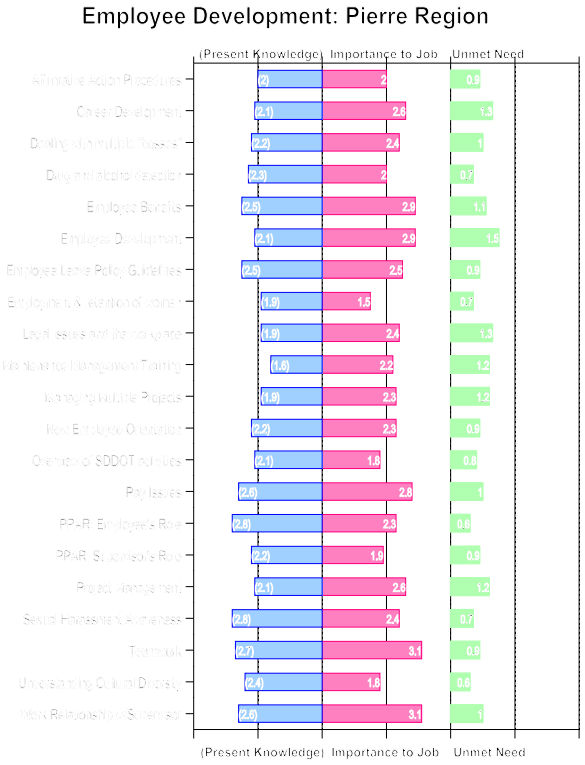

Figure 106: Employee Development: Pierre Region

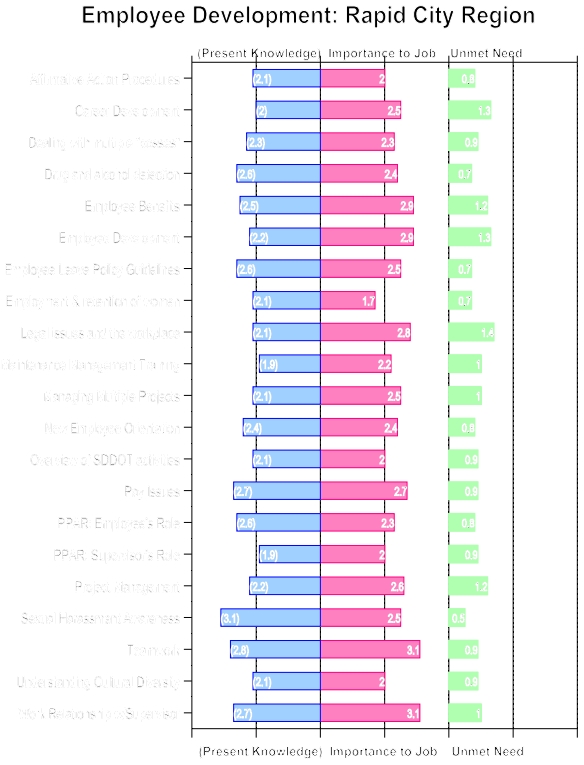

Figure 107: Employee Development: Rapid City Region

Employee Development: Support

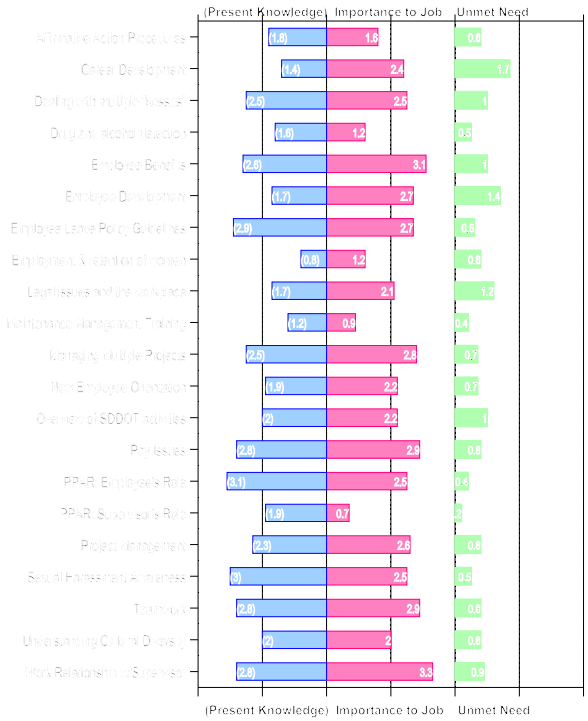

Figure 108: Employee Development: Support

Employee Development: Engineering

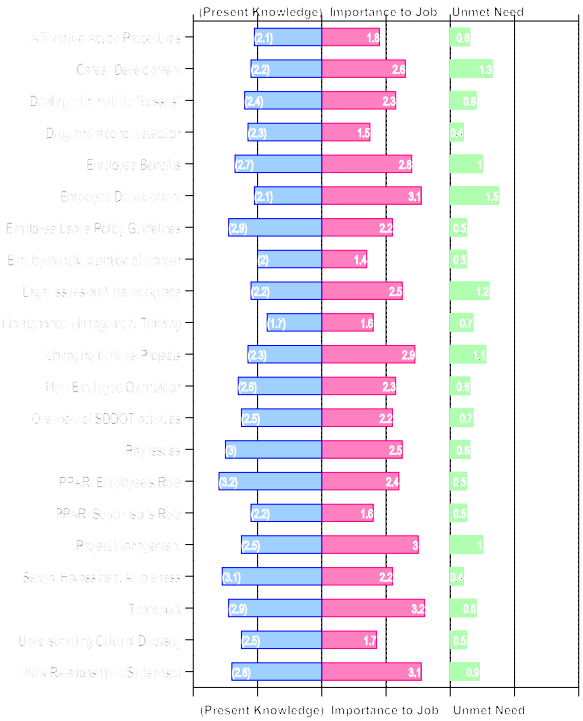

Figure 109: Employee Development: Engineering

Employee Development: Maintenance

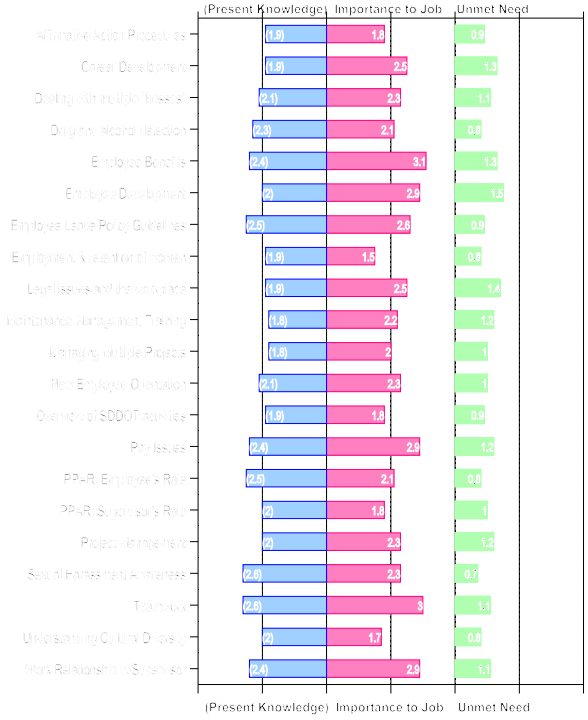

Figure 110: Employee Development: Maintenance

Employee Development: Manager

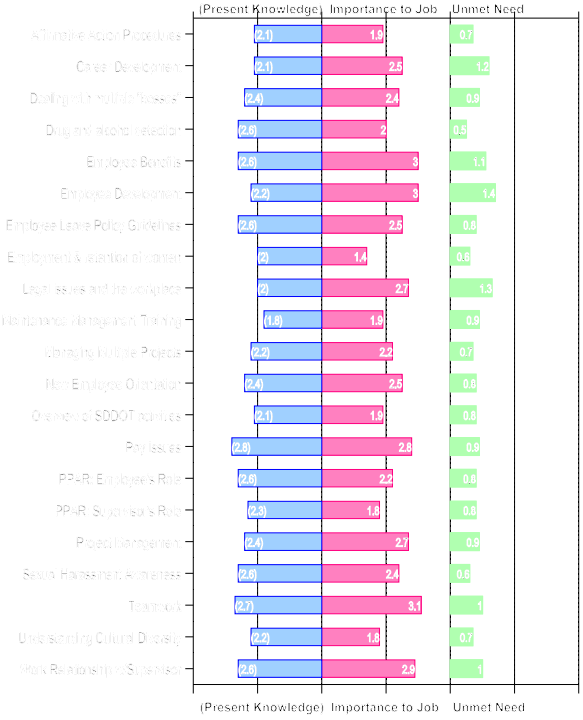

Figure 111: Employee Development: Manager

Employee Development: Part Time & Seasonal

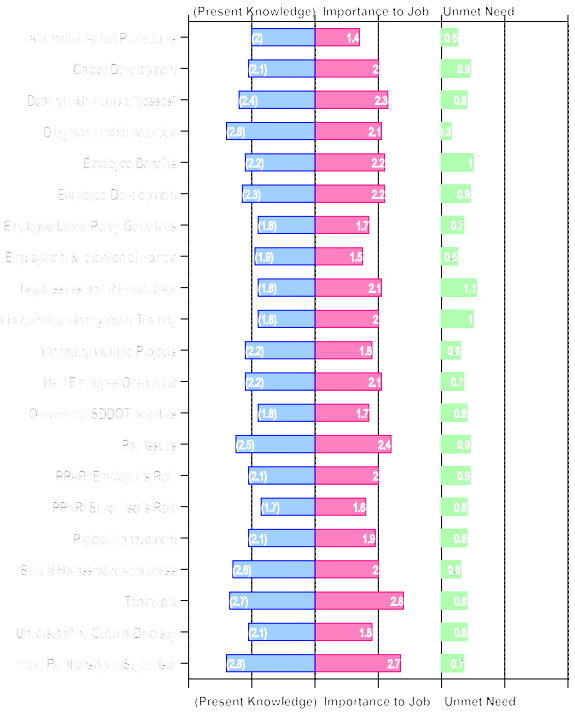

Figure 112: Employee Development: Part Time & Seasonal

Employee Development: Supervisor-Maintenance

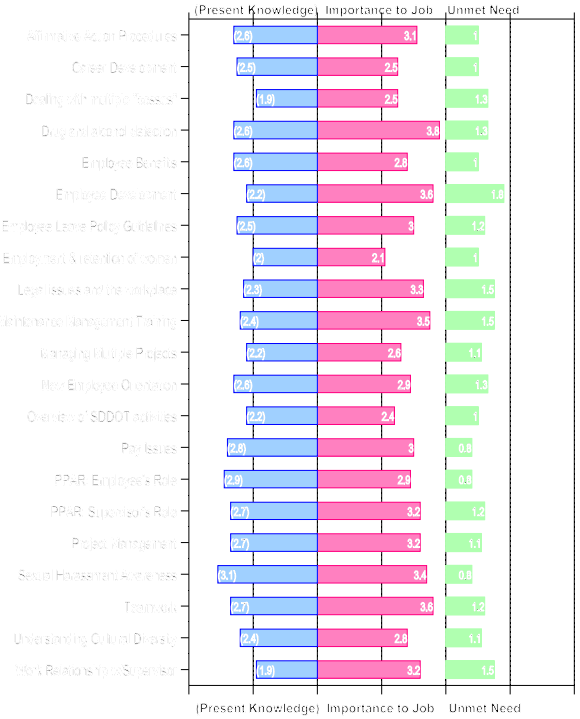

Figure 113: Employee Development: Supervisor—Maintenance

Employee Development: Supervisor-Engineering

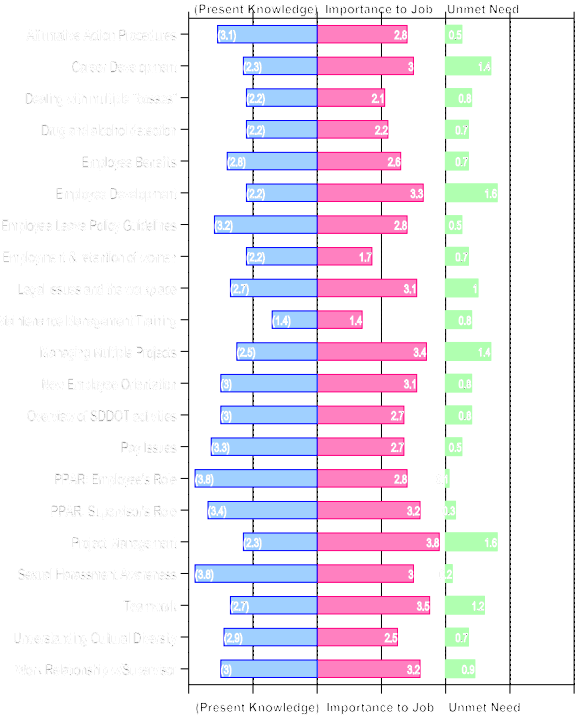

Figure 114: Employee Development: Supervisor—Engineering

Employee Development: Specialist

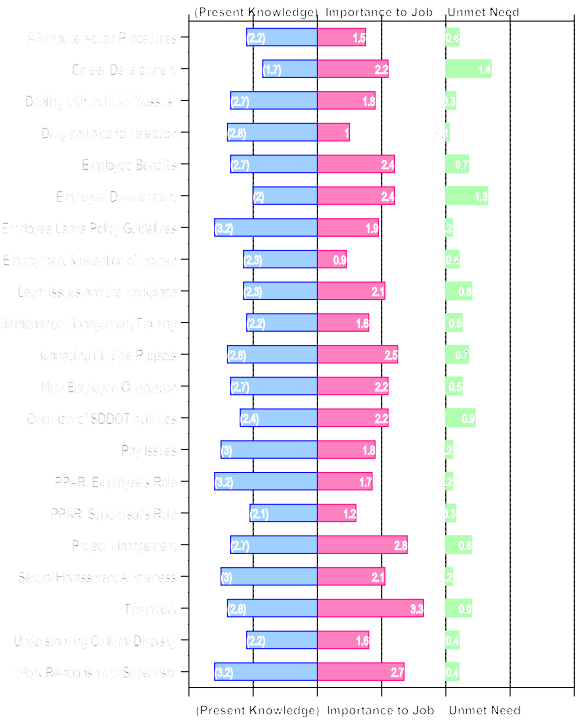

Figure 115: Employee Development: Specialist

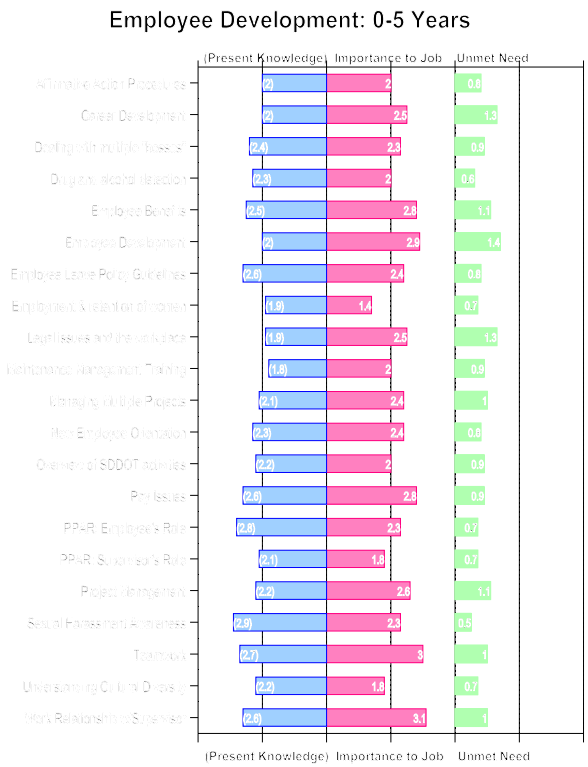

Figure 116: Employee Development: 0-5 Years

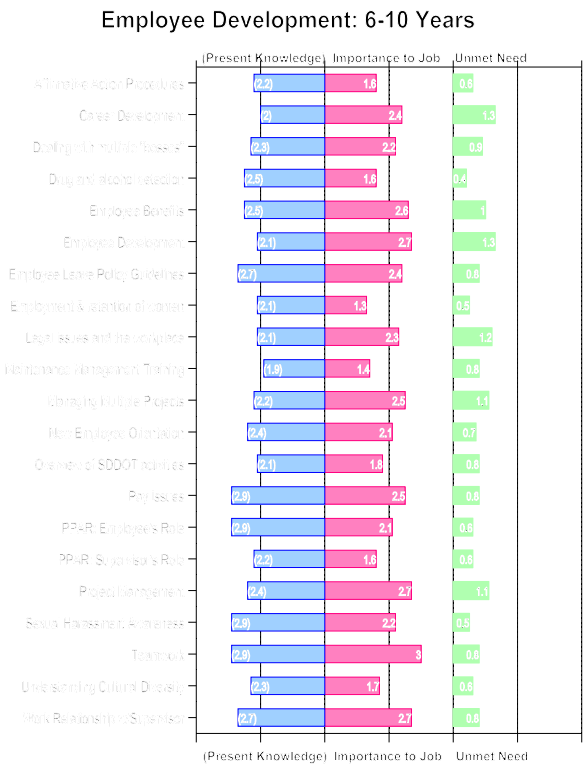

Figure 117: Employee Development: 6-11 Years

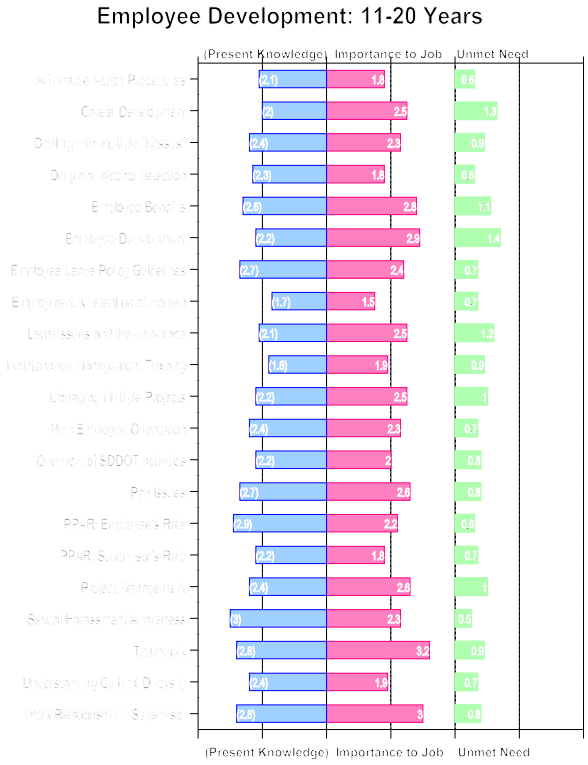

Figure 118: Employee Development: 11-20 Years

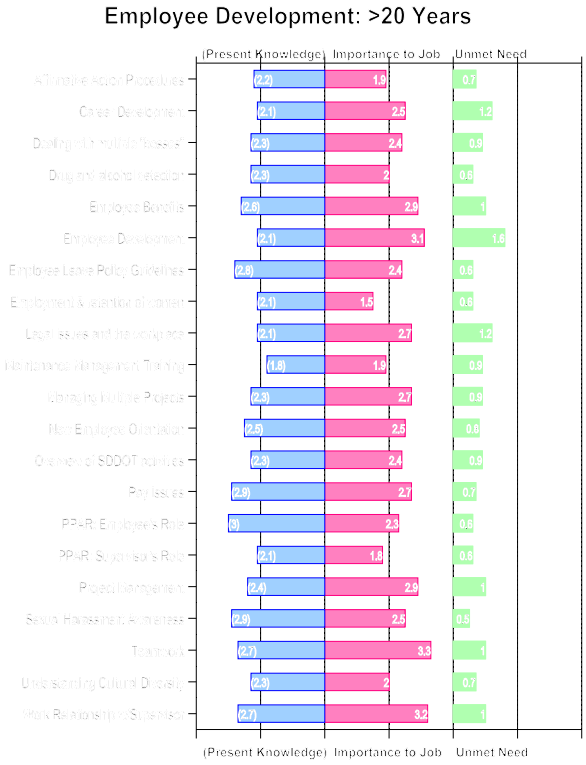

Figure 119: Employee Development: >20 Years

7.10 Environmental

Overview

Table 20 lists the knowledge areas where some benefit could be derived by additional training. primarily for the Engineering, Supervisor—Engineering, Supervisor—Maintenance, and Manager job groups. Although the Unmet Need is low for all knowledge areas within this domain, the Hazardous Waste Regulations knowledge area shows the highest need within this domain. Sufficient Present Knowledge coupled with little Importance to Job were indicated throughout the other job groups. All tenure groups had nearly identical results.

Table 20: Environmental Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Assessing Wetlands Requirements	3.5	0.4	0.2
Conformity and Air Quality Analysis	3.5	0.3	0.2
Environmental Regs & Mitigation	3.5	0.3	0.2
Hazardous waste regulations	3.5	0.4	0.3
Wetland Design	3.5	0.3	0.2

All SDDOT

Figure 120 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Environmental Domain* for All SDDOT. The Department as a whole has adequate knowledge and very little Unmet Need in this domain. The five knowledge areas most in need of training correspondingly revealed very little Unmet Need as compared to a Department-wide outlook, whereby ratings were all 0.3 or less.

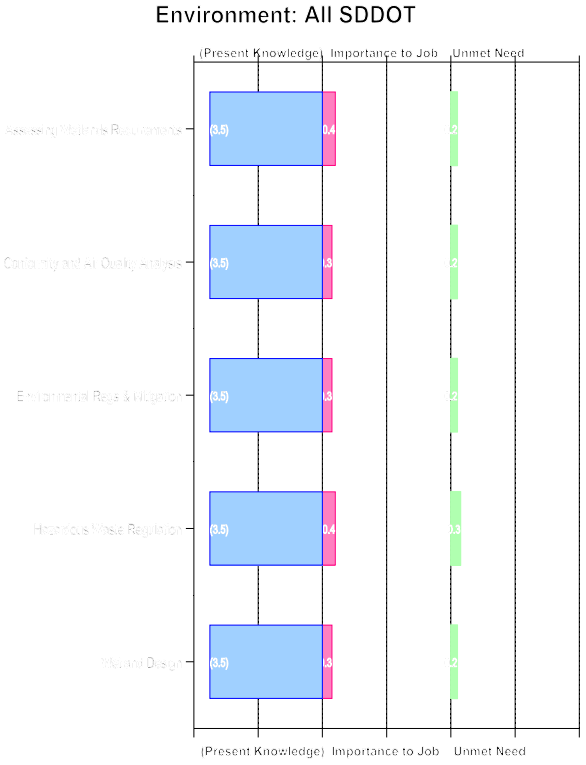

Figure 120: Environment: All SDDOT

By Location

Figures 110 through114 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Environmental Domain* for All SDDOT by location. The results closely resemble the ratings received under the All SDDOT analysis, although some need is indicated for the *Hazardous Waste Regulations* knowledge area at all locations.

By Job Group

Figures 126 through 133 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Environmental Domain* by job group. The Engineering, Supervisor—Engineering, Supervisor—Maintenance, and Manager job groups indicated the greatest Unmet Need out of all job group categories. This reflects the type of work and projects typically assigned to these job groups.

By Tenure

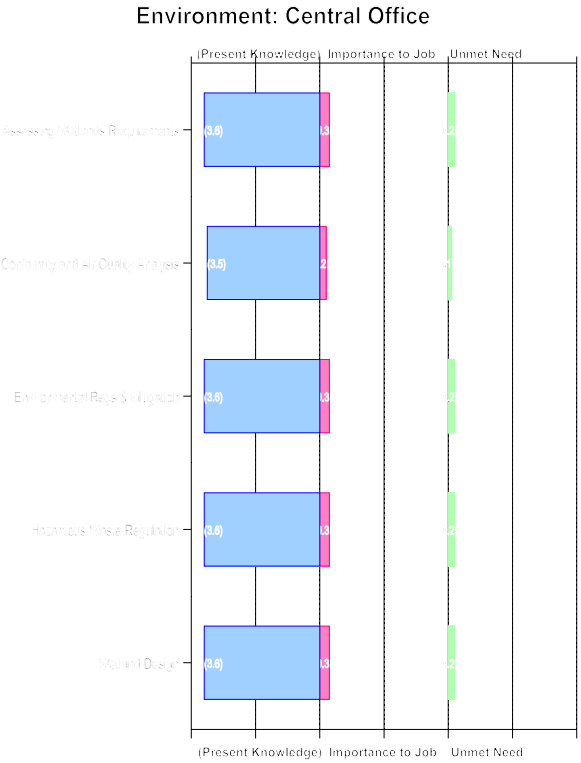

Figure 121: Environment: Central Office

Figures 134 through 137 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Environmental Domain* by tenure. The results closely resemble those shown by the All SDDOT results. There is no discernable differences among the tenure domains.

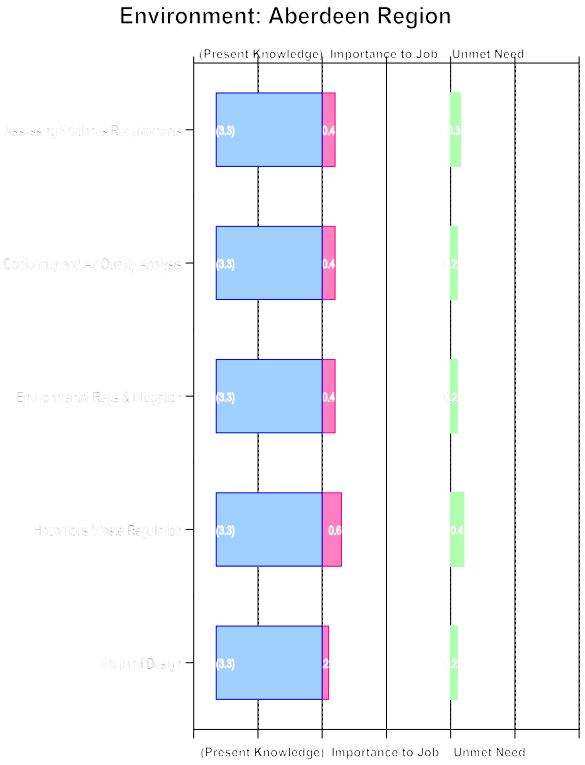

Figure 122: Environment: Aberdeen Region

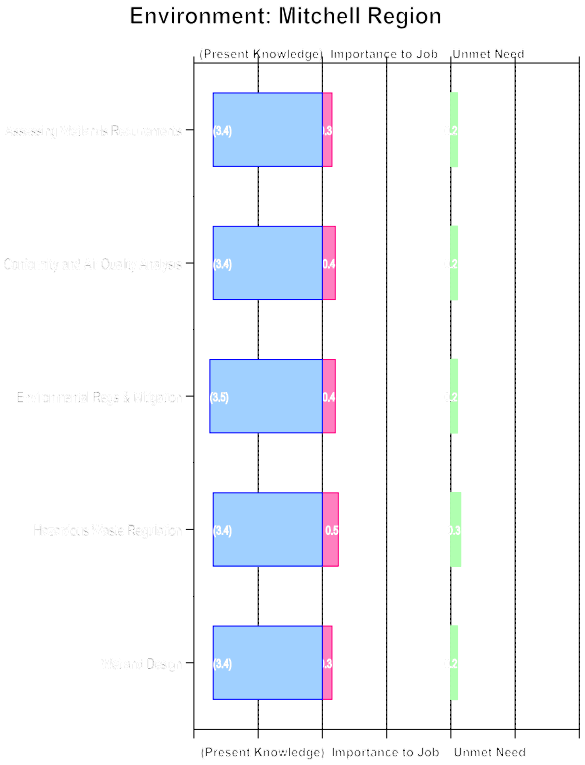

Figure 123: Environment: Mitchell Region

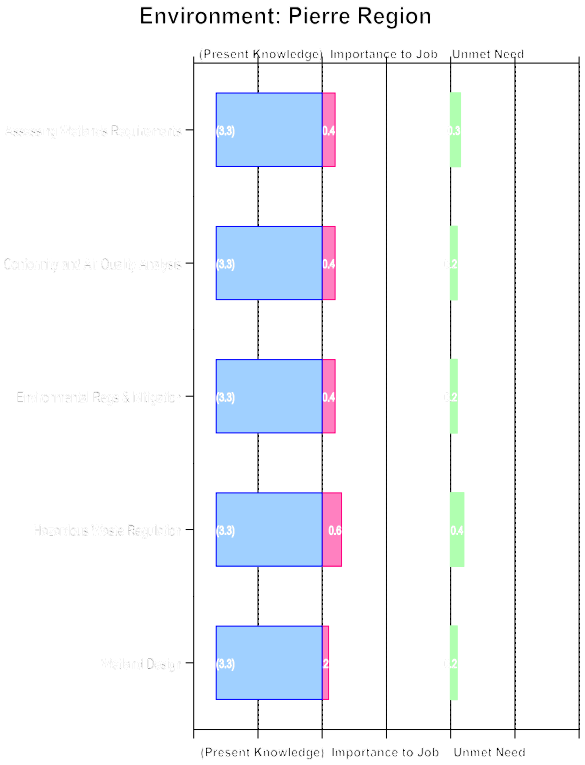

Figure 124: Environment: Pierre Region

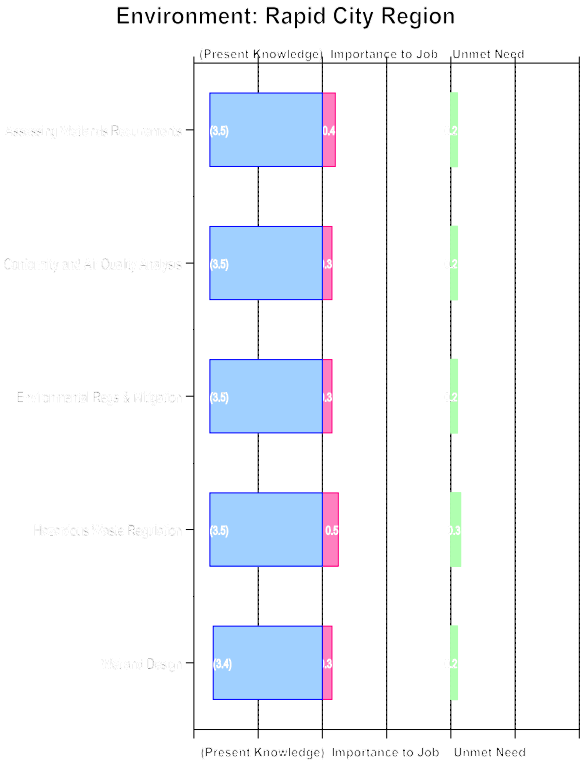

Figure 125: Environment: Rapid City Region

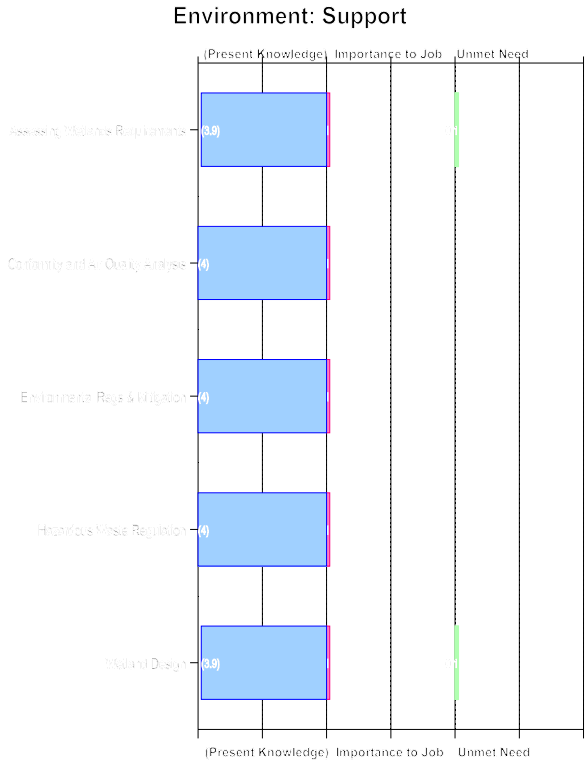

Figure 126: Environment: Support

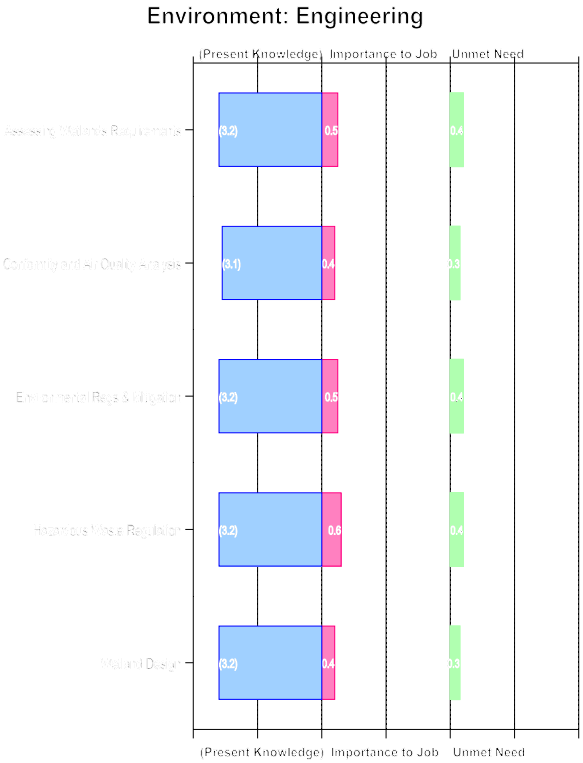

Figure 127: Environment: Engineering

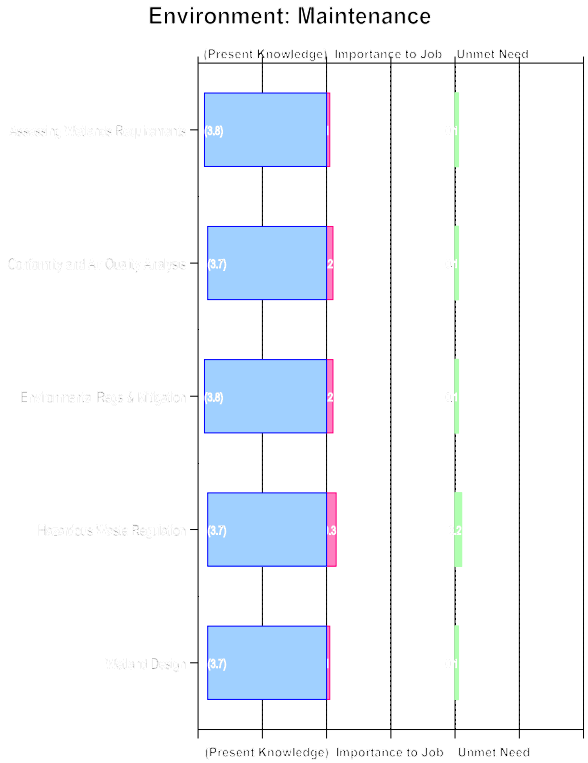

Figure 128: Environment: Maintenance

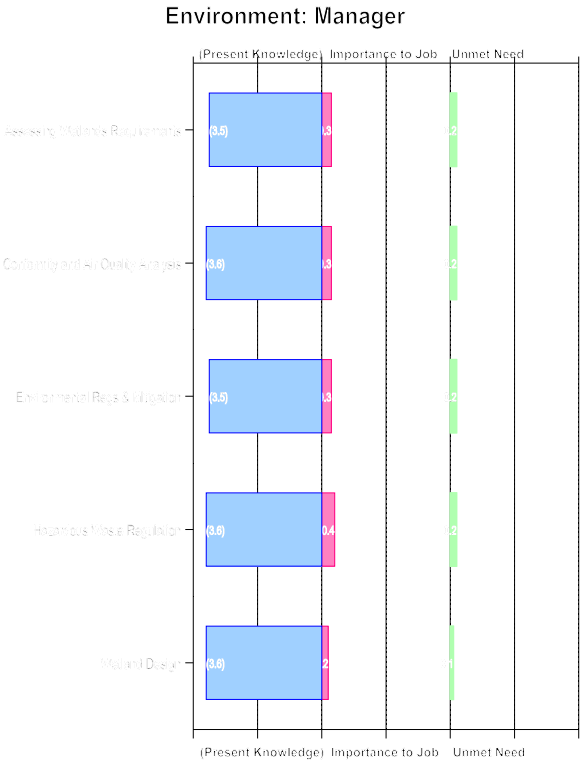

Figure 129: Environment: Manager

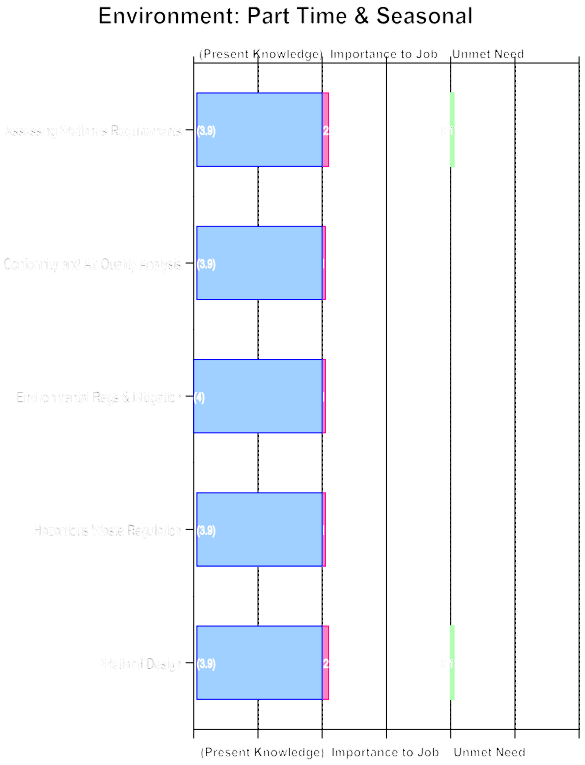

Figure 130: Environment: Part Time & Seasonal

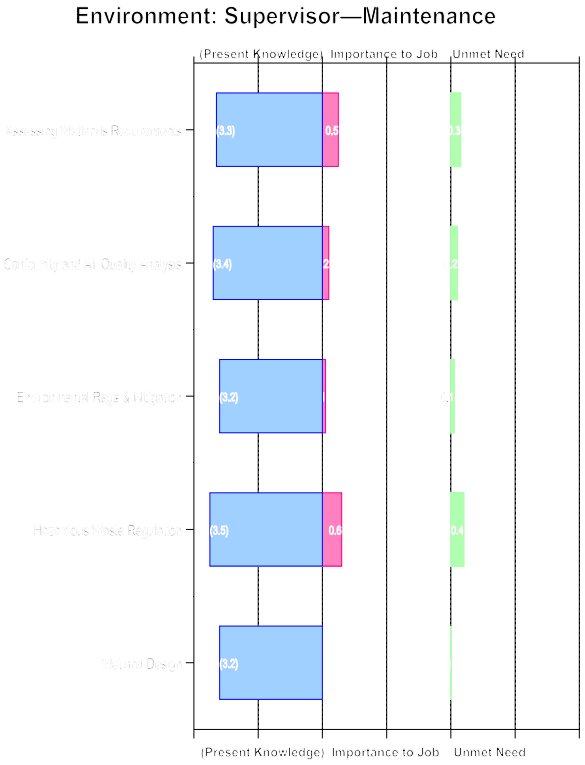

Figure 131: Environment: Supervisor—Maintenance

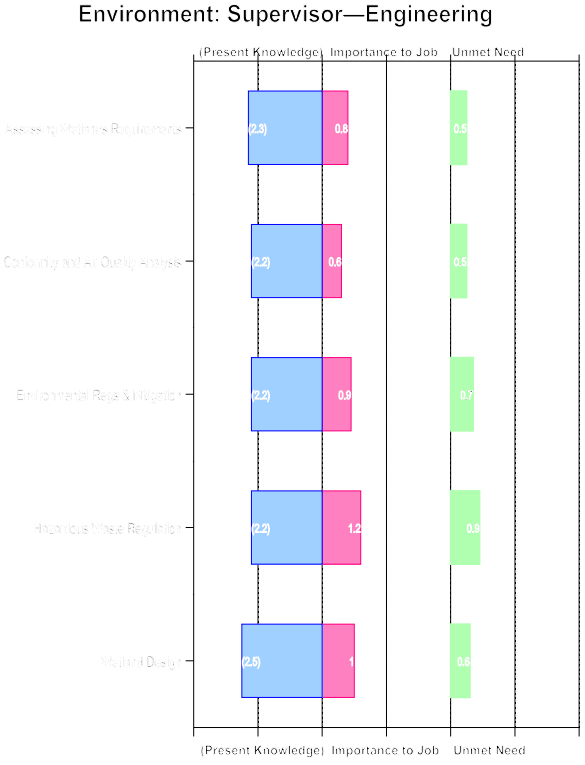

Figure 132: Environment: Supervisor—Engineering

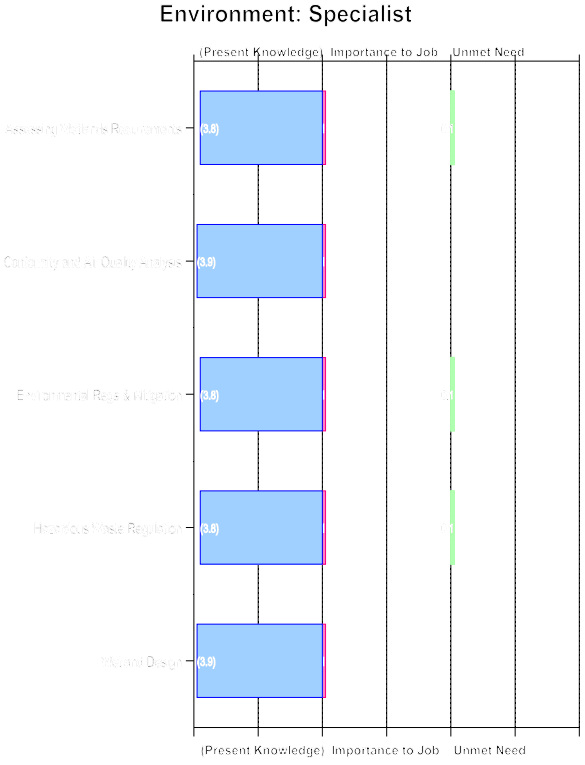

Figure 133: Environment: Specialist

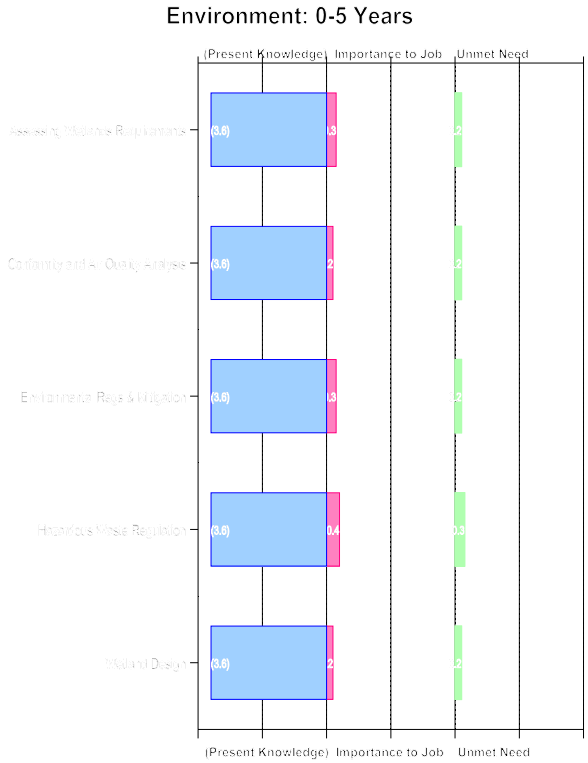

Figure 134: Environment: 0-5 Years

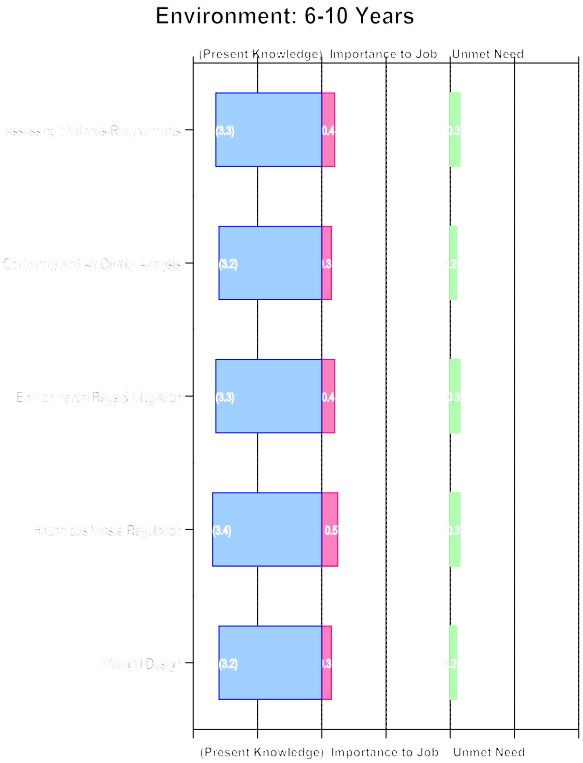

Figure 135: Environment: 6-10 Years

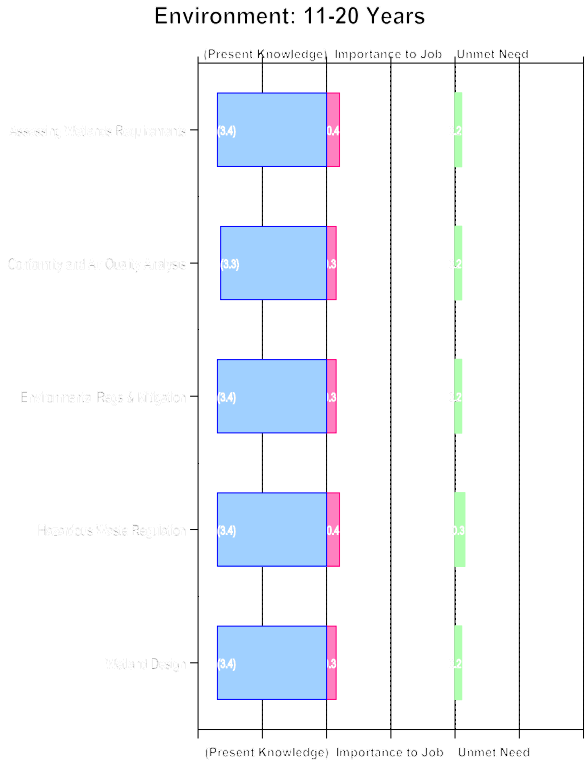

Figure 136: Environment: 11-20 Years

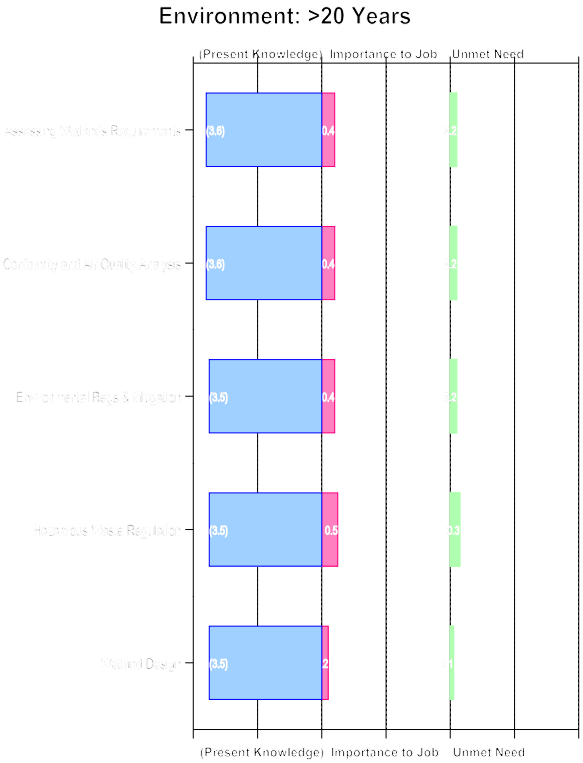

Figure 137: Environment: >20 Years

7.11 Equipment Maintenance and Repair

Overview

The Maintenance, Part Time & Seasonal, Supervisor—Maintenance, and Manager job groups indicate the greatest Unmet Need of all job groups regardless of location or tenure. The highest needs by knowledge area for this domain are listed in Table 21. Welding was identified by the maintenance focus groups as having the highest need within this domain. Many times a part on snow plows or other equipment breaks and requires welding. A trained welder is not always available and the snow plow operator who is not trained to weld must make the necessary repairs to get the equipment back in service. Many of the maintenance personnel indicated they did not expect to become a certified welder, but they did require some knowledge and ability in welding techniques to efficiently carry out their assigned tasks. The rankings of other knowledge areas within this domain are not significantly different than those listed in Table 21, indicating that there are some Unmet Needs for all knowledge areas within this domain.

Table 21: Equipment Maintenance and Repair Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Training Need
Welding	3.5	0.9	0.4
Diesel Engines	3.4	0.8	0.4
Fuel Systems	3.4	0.8	0.4
Hydraulic Systems	3.4	0.8	0.4

All SDDOT

Figure 138 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Maintenance and Repair Domain* for All SDDOT. The results indicate there is sufficient Present Knowledge and low Importance to Job in this domain for the Department as a whole.

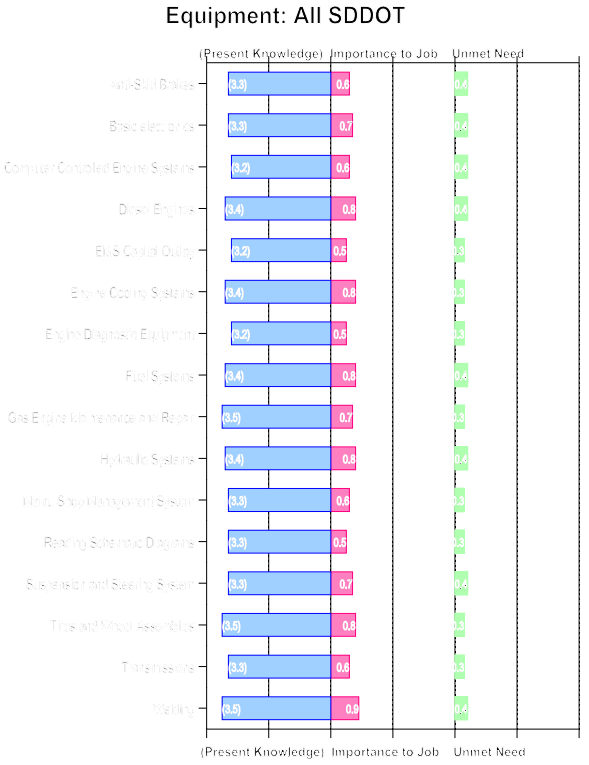

Figure 138: Equipment: All SDDOT

By Location

Figures 139 through 143 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Maintenance and Repair Domain* for all SDDOT by location. The central office employees indicated they have sufficient Present Knowledge and very little Importance to Job for this domain. The regions indicated a greater Unmet Need in this domain. The Aberdeen and Mitchell Regions have very similar results. The Pierre and Rapid City Regions also have similar results except they ranked Basic Electronics, Anti-Skid Brakes, and Welding slightly higher than the other regions.

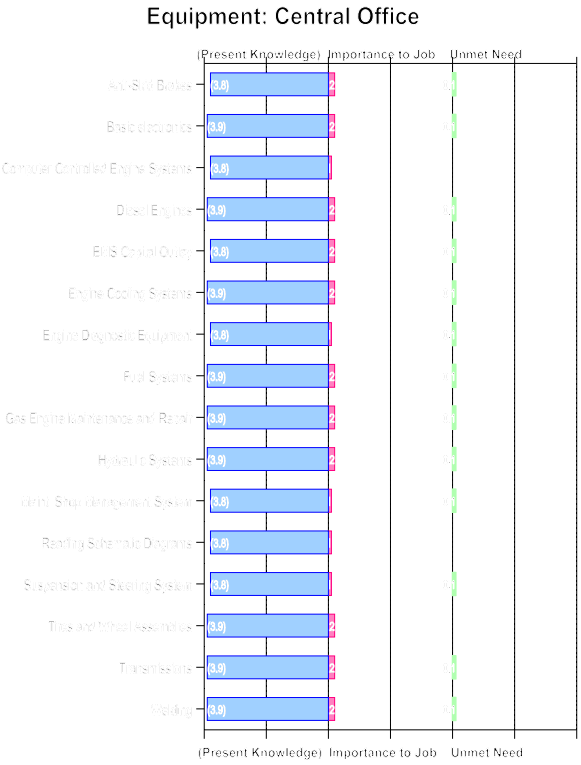

Figure 139: Equipment: Central Office

By Job Group

Figures 144 through 151 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Maintenance and Repair Domain* for all SDDOT by job group. The Maintenance, Part Time & Seasonal, Supervisor—Maintenance, and Manager job groups indicated the highest Importance to Job coupled with a moderate Unmet Need. The Maintenance and Supervisor—Maintenance job groups indicated welding has the highest Importance to Job. This was verified in the maintenance focus groups.

By Tenure

Figures 152 through 155 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Maintenance and Repair Domain* by tenure. There is a slightly higher Unmet Need shown for the 0 - 5 Years Tenure group over the other tenure groups. The 6-10 Years tenure group indicates there is not as much need as the other groups did. However, there is not significant trend indicated as a result of the tenure analysis for this domain.

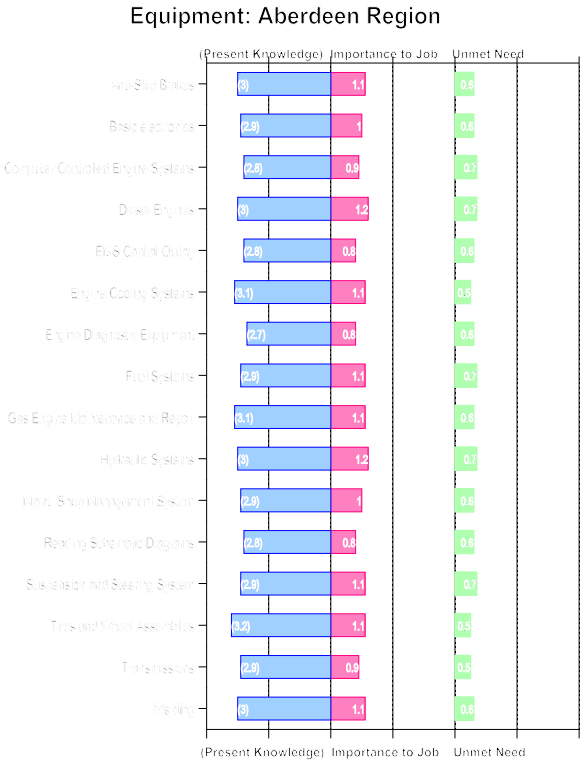

Figure 140: Equipment: Aberdeen Region

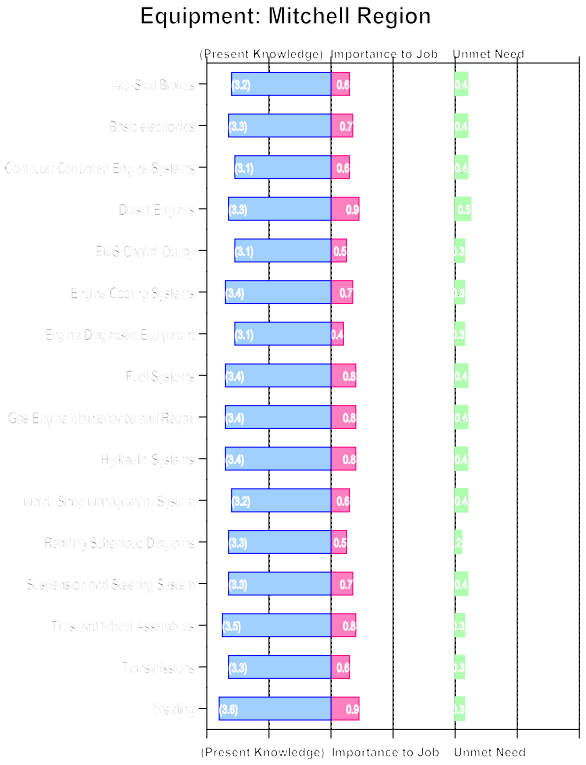

Figure 141: Equipment: Mitchell Region

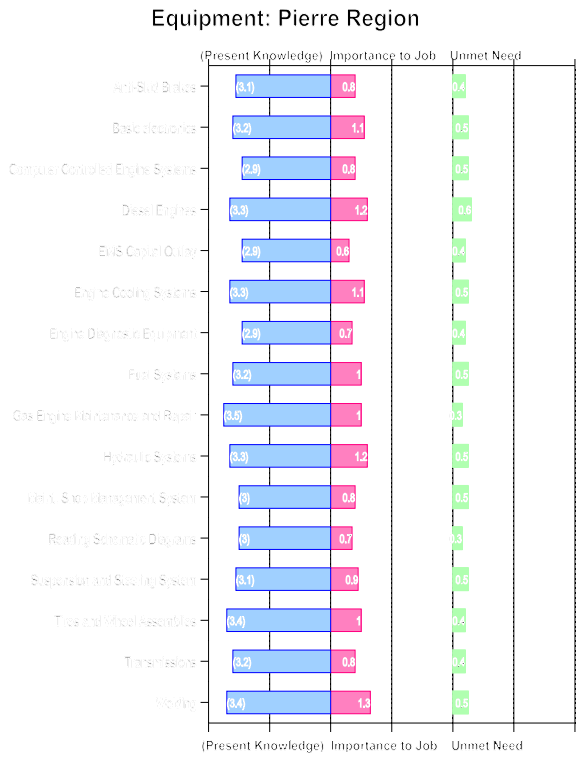

Figure 142: Equipment: Pierre Region

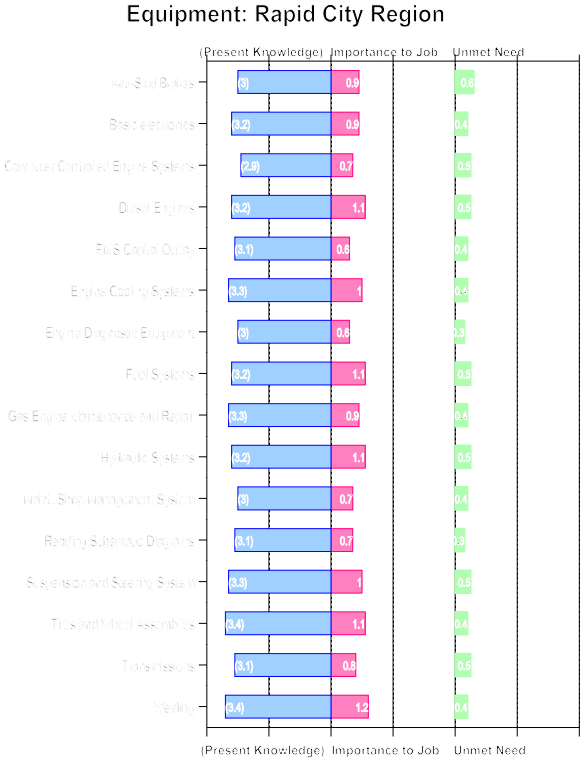

Figure 143: Equipment: Rapid City Region

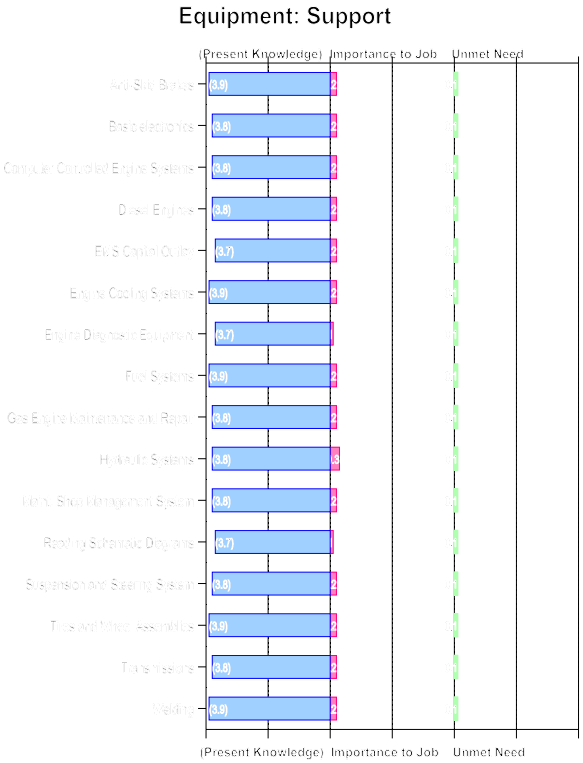

Figure 144: Equipment: Support

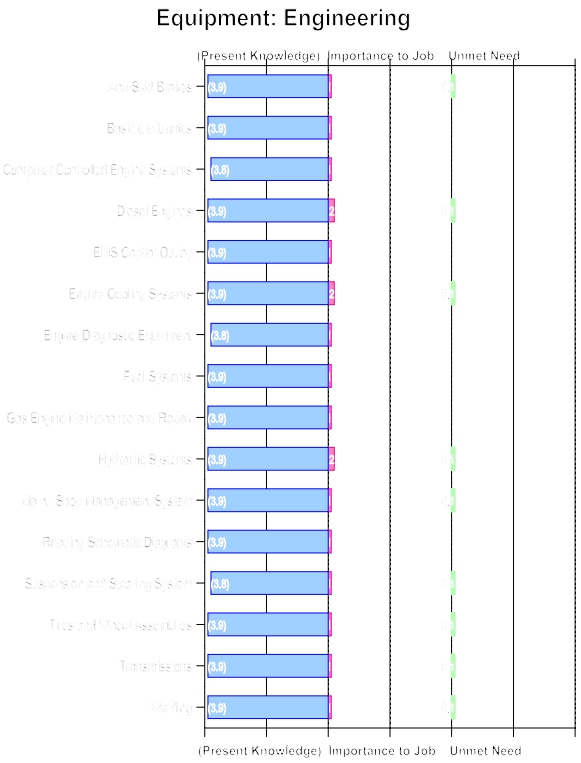

Figure 145: Equipment: Engineering

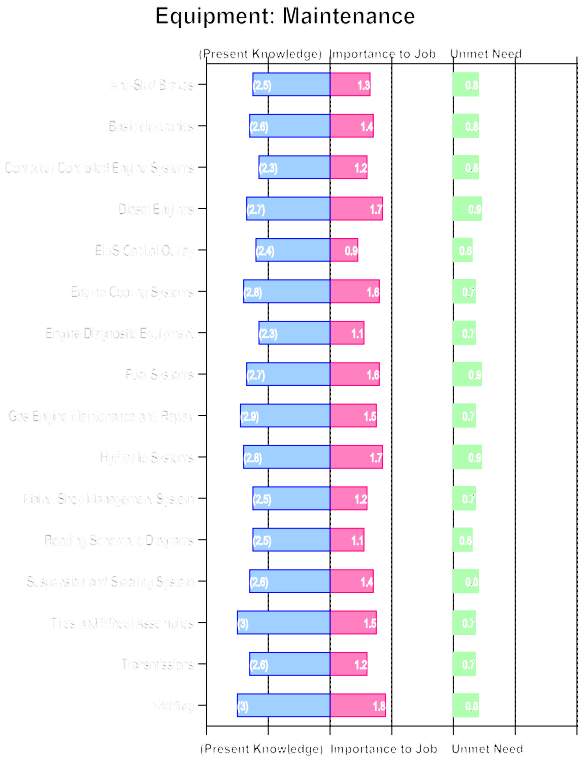

Figure 146: Equipment: Maintenance

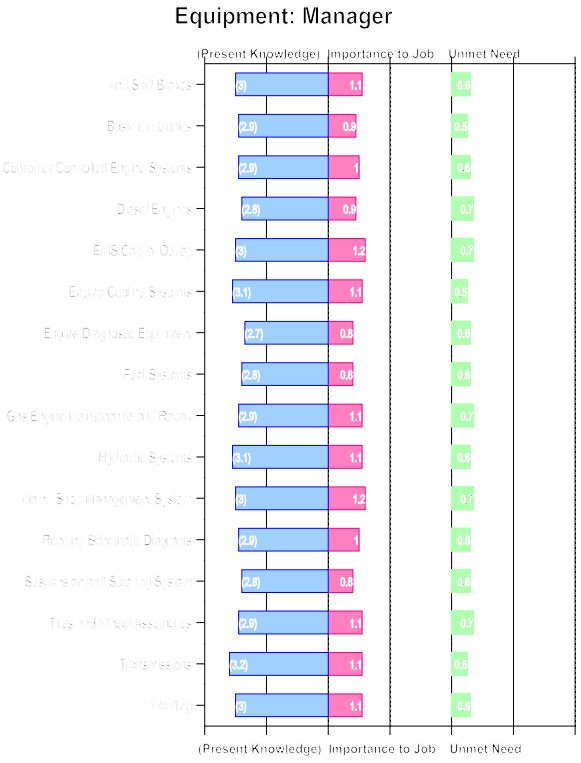

Figure 147: Equipment: Manager

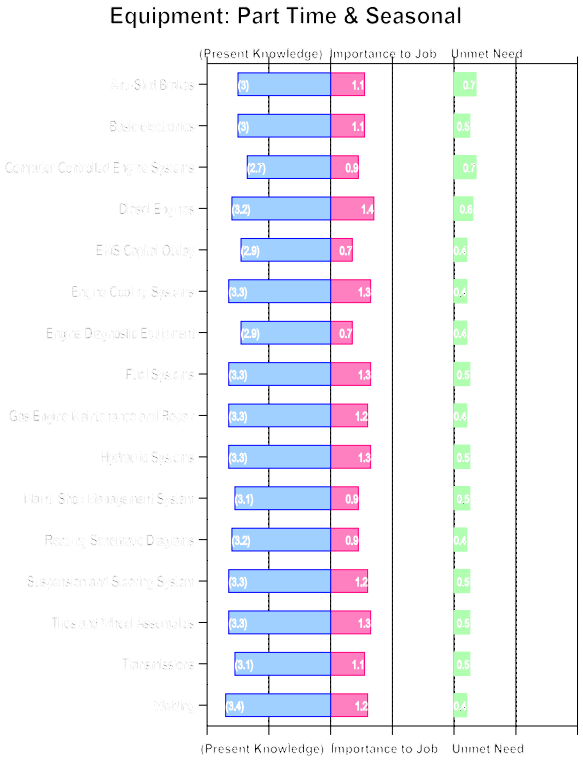

Figure 148: Equipment: Part Time & Seasonal

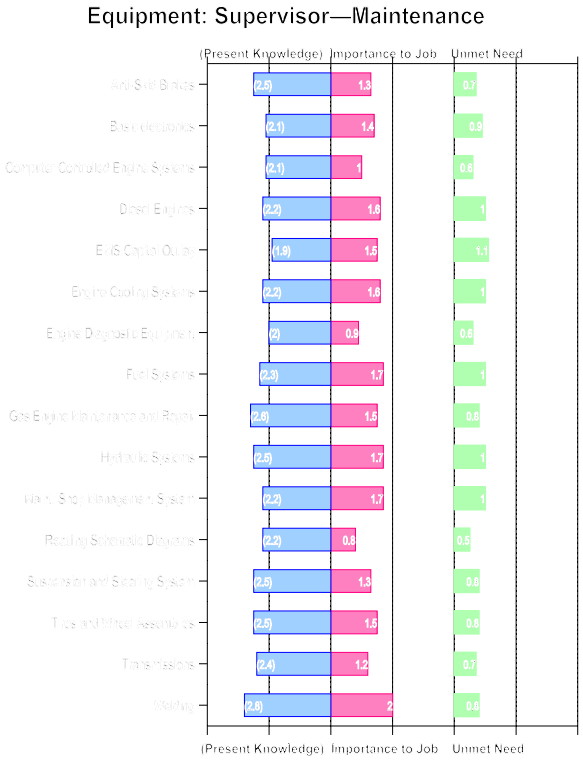

Figure 149: Equipment: Supervisor—Maintenance

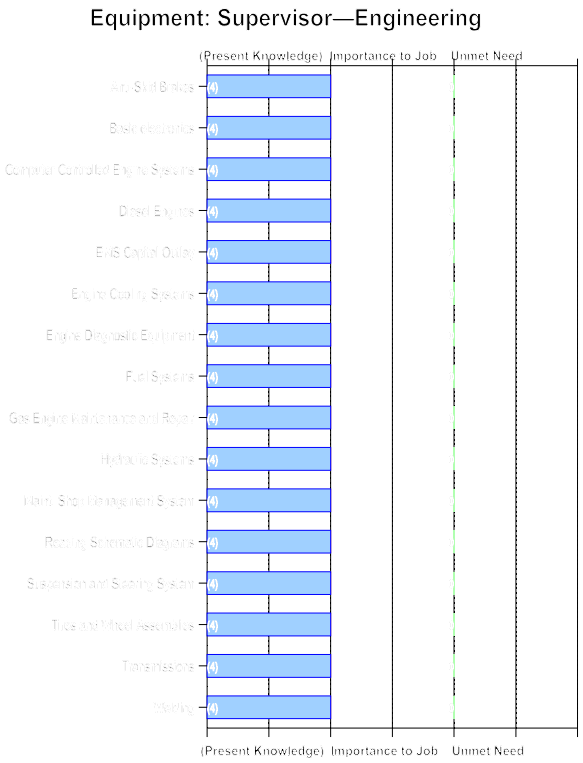

Figure 150: Equipment: Maintenance—Supervisor

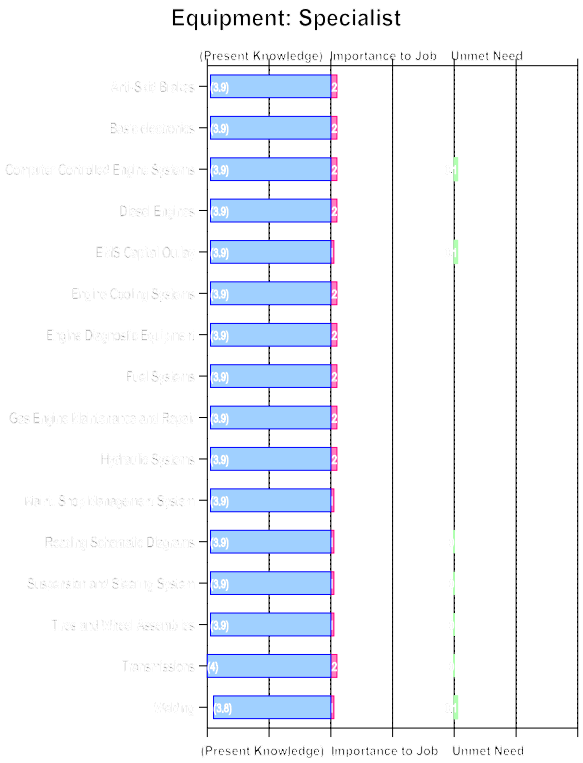

Figure 151: Equipment: Specialist

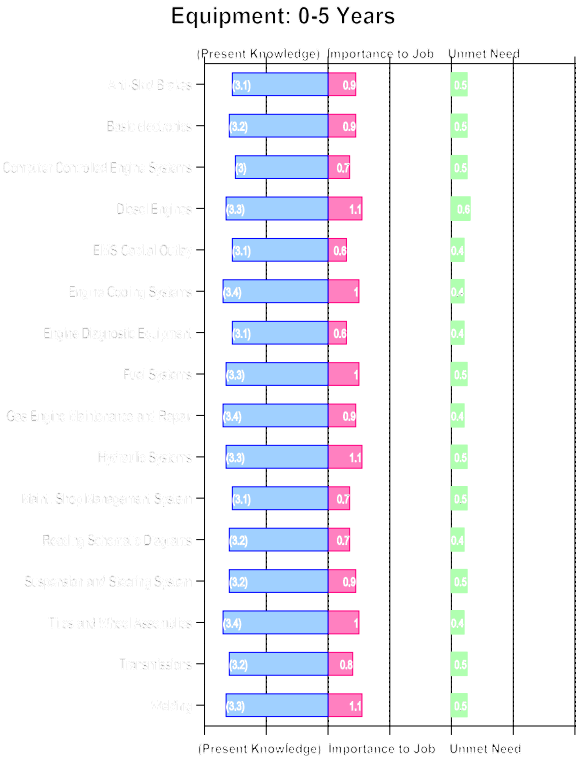

Figure 152: Equipment: 0-5 Years

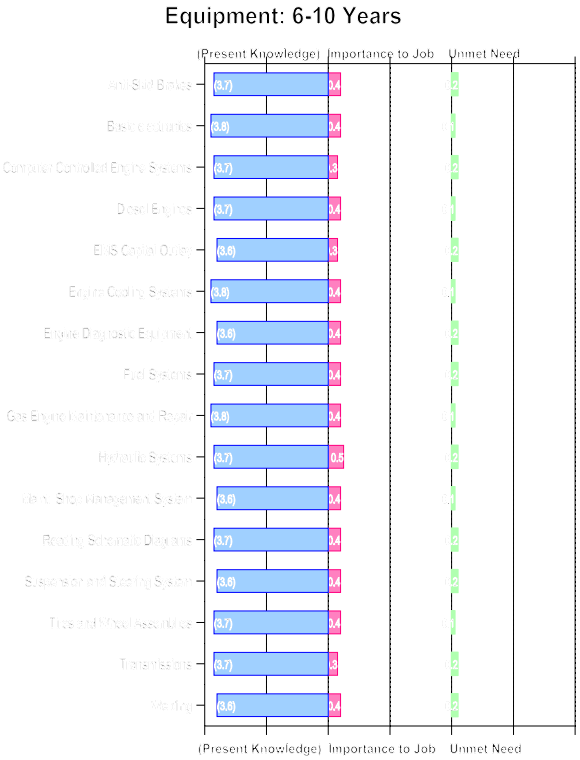

Figure 153: Equipment: 6-10 Years

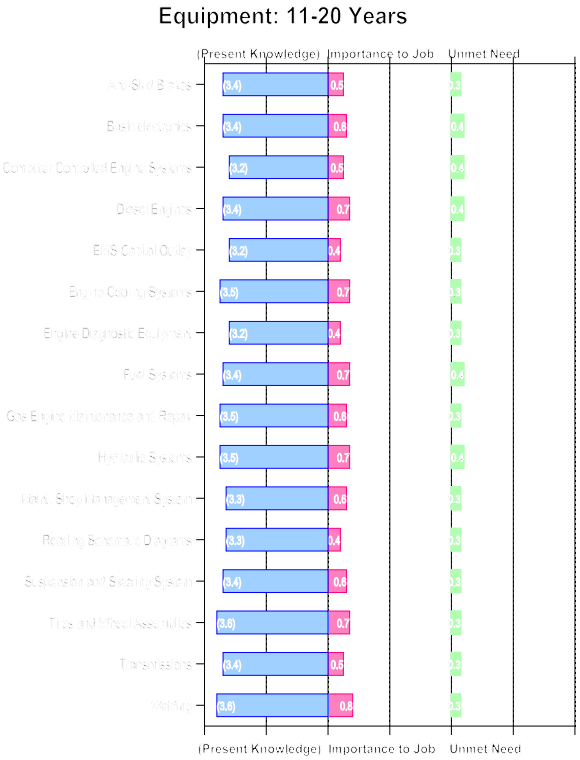

Figure 154: Equipment: 11-20 Years

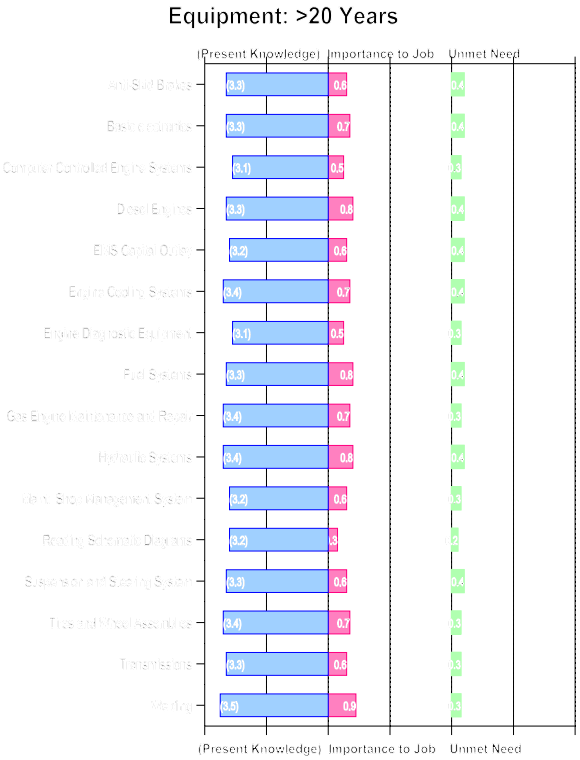

Figure 155: Equipment: >20 Years

7.12 Equipment Operation

Overview

The *Equipment Operation Domain* is important to the Maintenance, Supervisor—Maintenance, Part Time & Seasonal, Supervisor—Engineer and Manager job groups. There are minor ranking differences between these groups. The Manager and Part Time & Seasonal job groups ranked the Unmet Need lower than did other groups. Unmet Need in all of the asphalt-related knowledge areas is common to these job groups, particularly for region personnel. Providing training in the top five knowledge areas identified in Table 22 would address many of the Unmet Needs for these job groups, although, additional training in all Knowledge Areas of this domain should be addressed

Table 22: Equipment Operation Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Asphalite Machine	3.0	1.0	0.5
Asphalt Distributor	3.0	1.0	0.5
Asphalt Paver	3.0	1.0	0.5
Motor Grader	3.0	1.0	0.5
Truck Operators training	3.5	1.4	0.4

All SDDOT

Figure 156 illustrates Present Knowledge, Importance to Job, and Unmet Need for All SDDOT within the *Equipment Operation Domain*. As a whole, the Department has sufficient knowledge in this domain, and with a low Importance to Job.

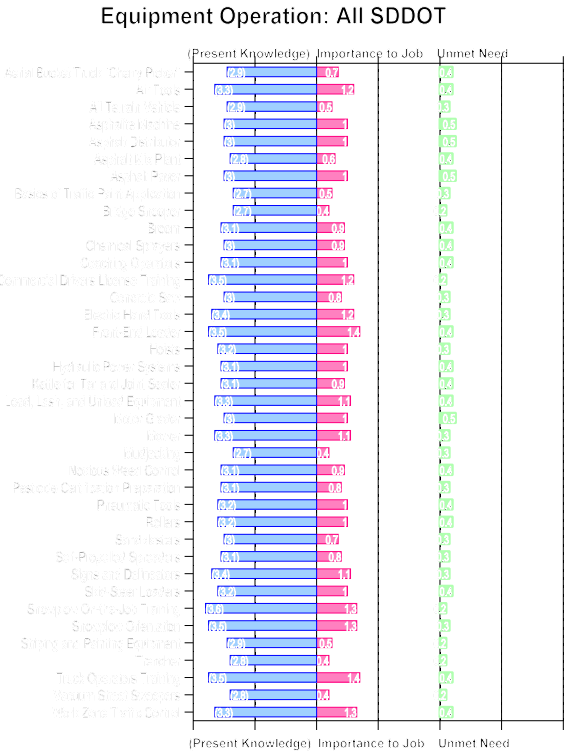

Figure 156: Equipment Operation: All SDDOT

By Location

Figures 157 through 161 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Operation Domain* for all SDDOT by location. The central office indicated that training in this domain is not required. Within this domain they have sufficient Present Knowledge with very little Importance to Job. The lack of maintenance forces in the central office explains why there is little or no Unmet Need. The regions indicated more of a need. The rankings by the regions are very similar, however, the Aberdeen and Rapid City Regions ranked *Work Zone Traffic Control* slightly higher than did the other regions. The Aberdeen Region also ranked *Air Tools* and *Commercial Drivers Training* higher than the other regions.

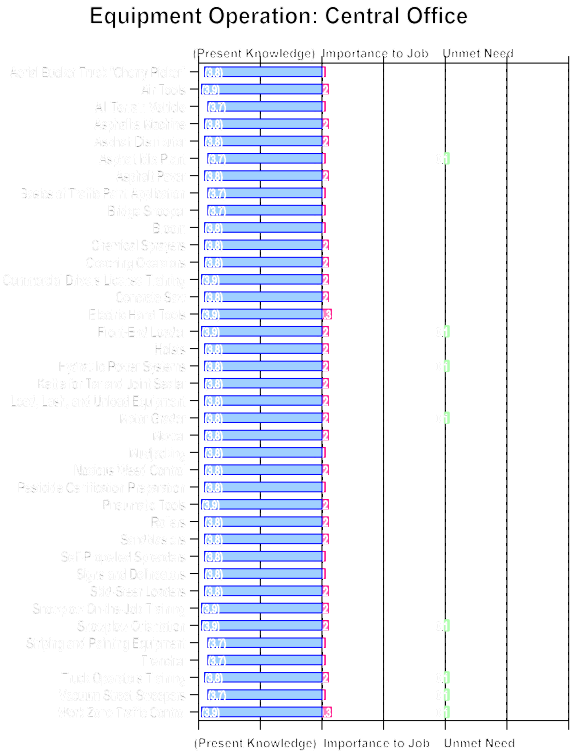

Figure 157: Equipment Operation: Central Office

By Job Group

Figures 162 through 169 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Operation Domain* for all SDDOT by job group. The Maintenance, Part Time & Seasonal, Supervisor—Maintenance, Supervisor—Engineering, and Manager Job Groups ranked Importance to Job higher in this domain than did other job groups. The Maintenance, Supervisor—Maintenance, and Supervisor—Engineer job groups' rankings are similar, and closely match the results derived from the All SDDOT analysis. Unmet Need exists in the asphalt knowledge areas for these job groups. The Part Time & Seasonal and Manager job groups indicated an Unmet Need that is low but uniform across all Knowledge Areas in this domain. The knowledge areas with the highest Importance to Job for the Part Time & Seasonal job group relate to the activities they are associated with such as *Snowplow On-the-Job Training*, *Snowplow Orientation*, *Truck Operators Training*, *Front-End Loader*, and *Air Tools*.

By Tenure

Figures 170 through 173 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Equipment Operation Domain* for all SDDOT by tenure. There were no significant trends identified within this domain. The rankings for all tenure groups are nearly identical to the results obtained from the All SDDOT analysis.

Equipment Operation: Aberdeen Region

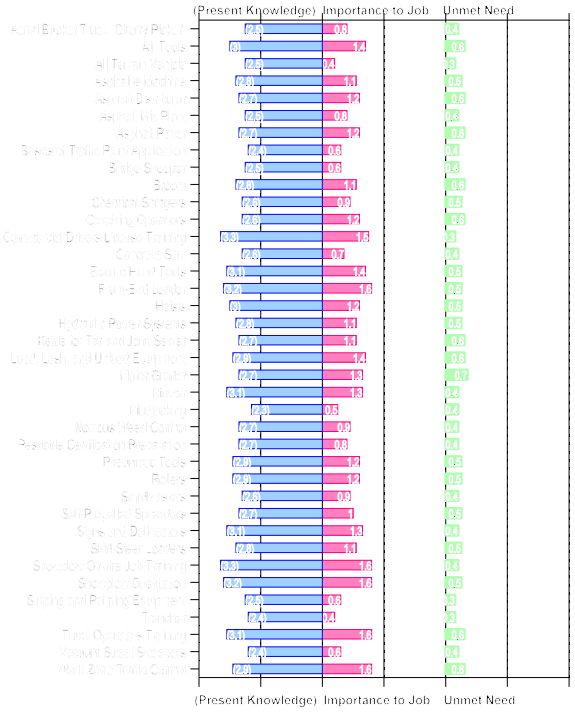

Figure 158: Equipment Operation: Aberdeen Region

Equipment Operation: Mitchell Region

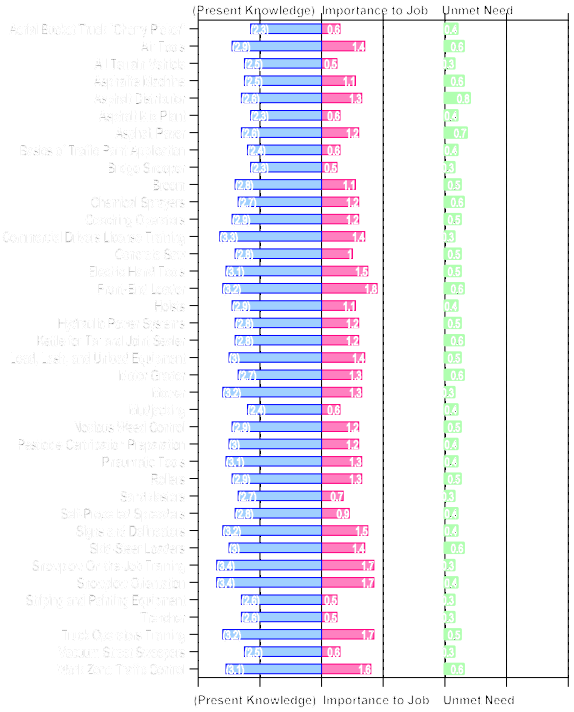

Figure 159: Equipment Operation: Mitchell Region

Equipment Operation: Pierre Region

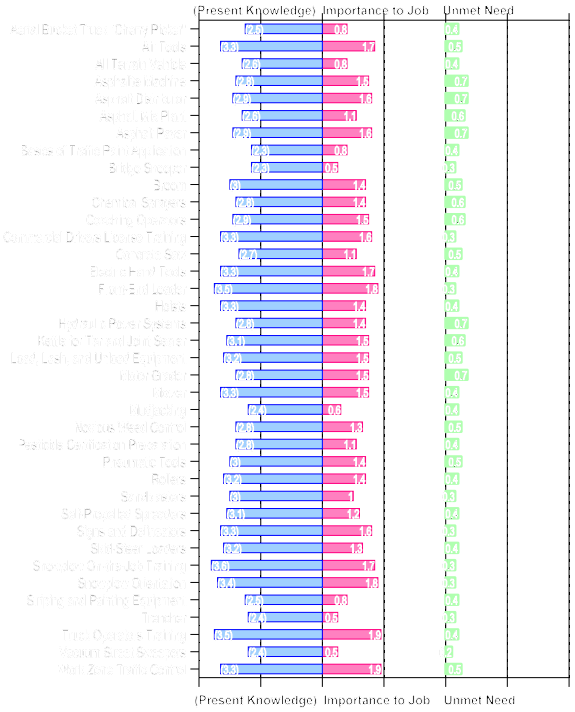

Figure 160: Equipment Operation: Pierre Region

Equipment Operation: Rapid City Region

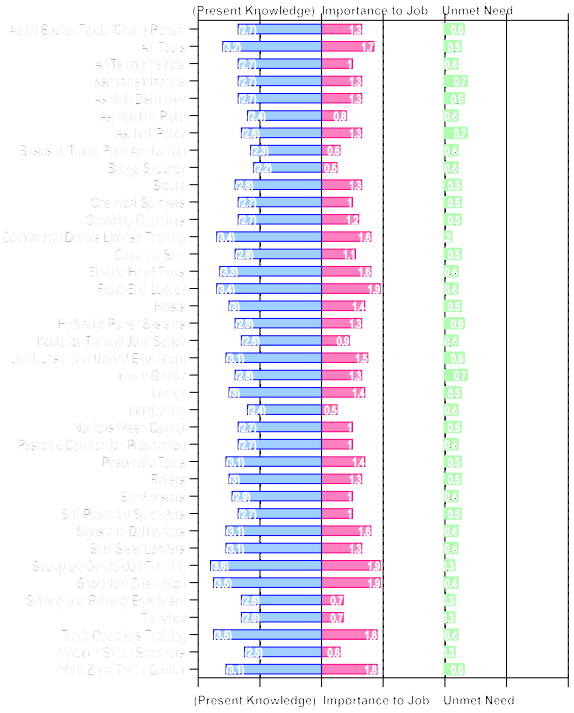

Figure 161: Equipment Operation: Rapid City Region

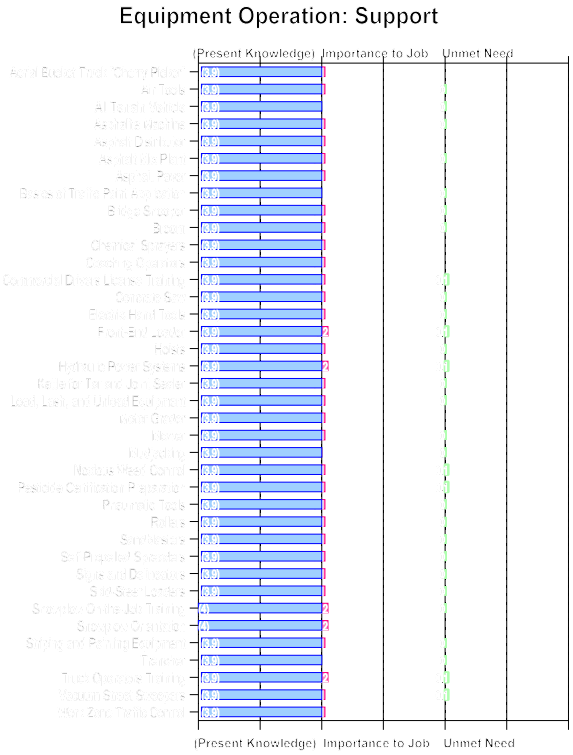

Figure 162: Equipment Operation: Support

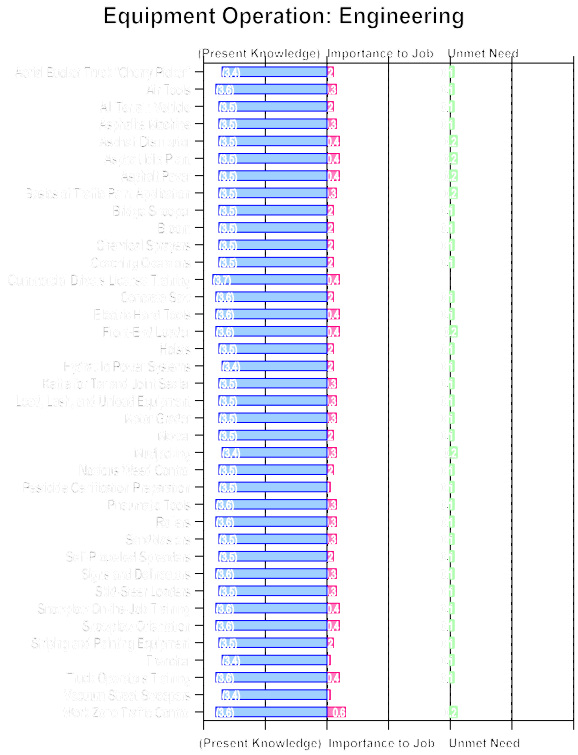

Figure 163: Equipment Operation: Engineering

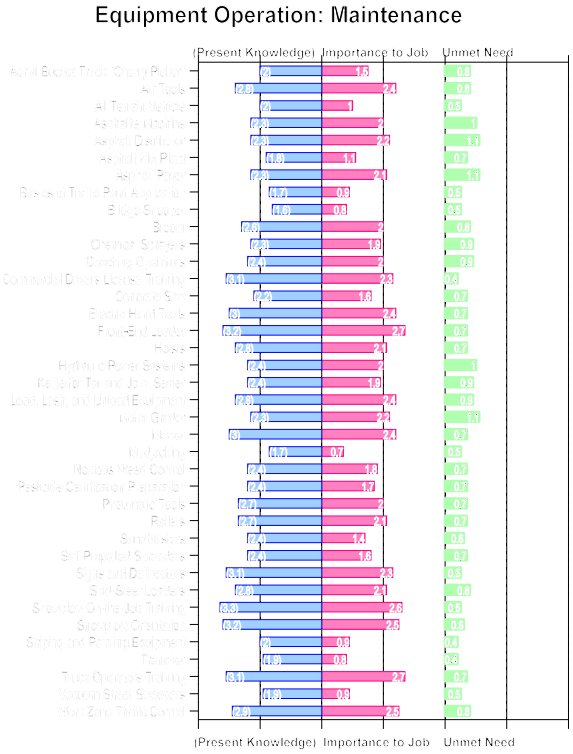

Figure 164: Equipment Operation: Maintenance

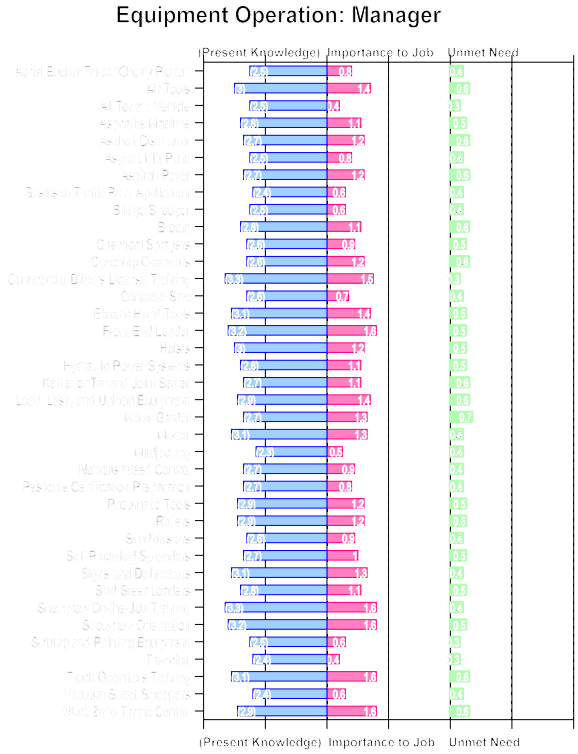

Figure 165: Equipment Operation: Manager

Equipment Operation: Part Time & Seasonal

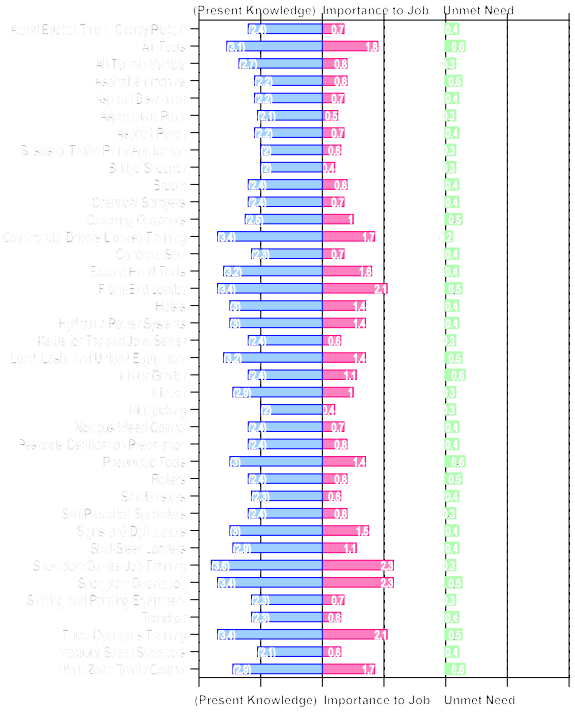

Figure 166: Equipment Operation: Part Time & Seasonal

Equipment Operation: Supervisor—Maintenance

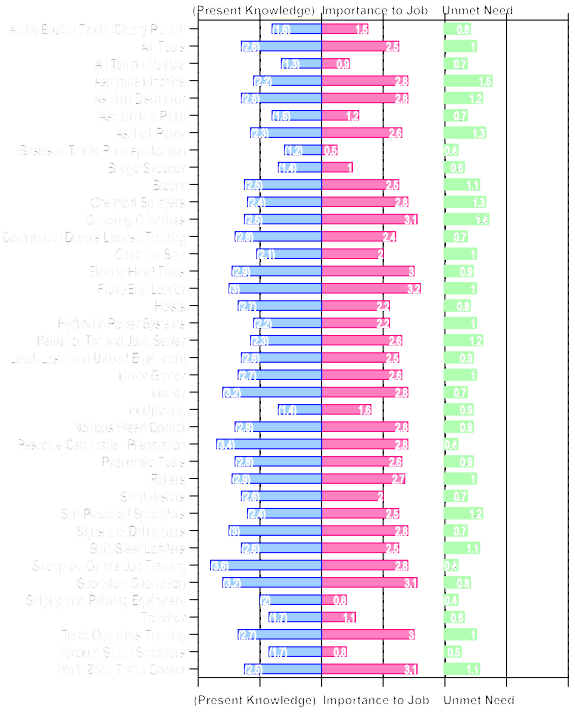

Figure 167: Equipment Operation: Supervisor—Maintenance

Equipment Operation: Supervisor—Engineering

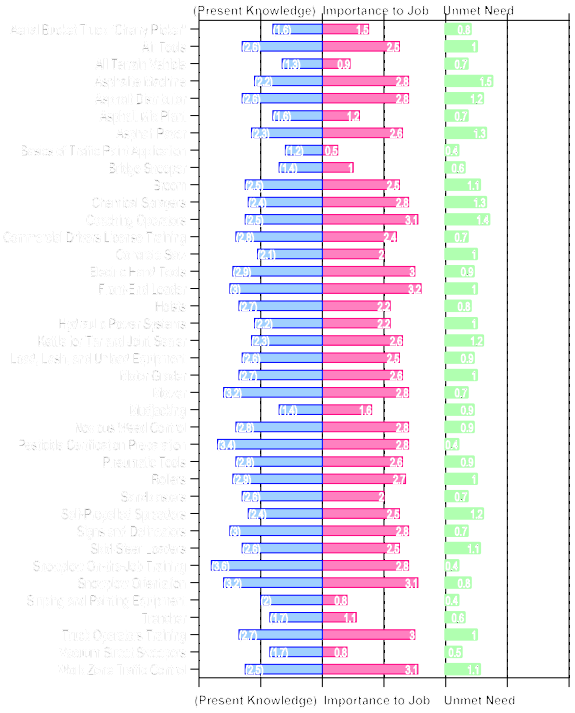

Figure 168: Equipment Operation: Supervisor—Engineering

Equipment Operation: Specialist

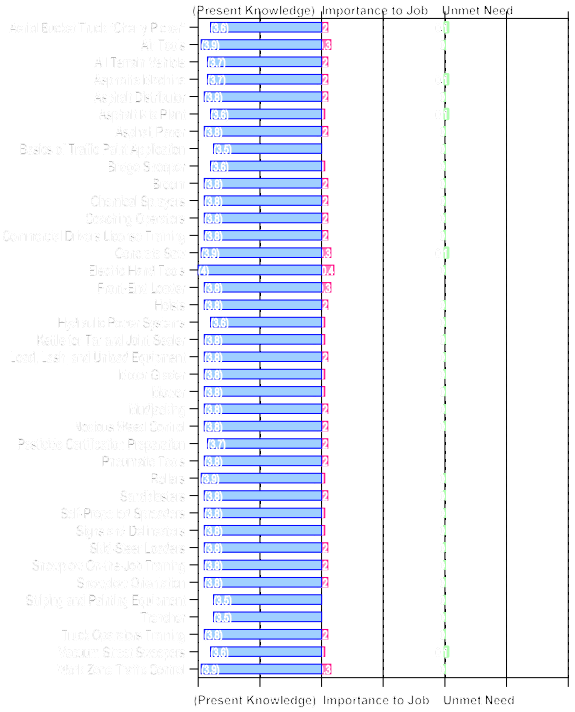

Figure 169: Equipment Operation: Specialist

Equipment Operation: 0-5 Years

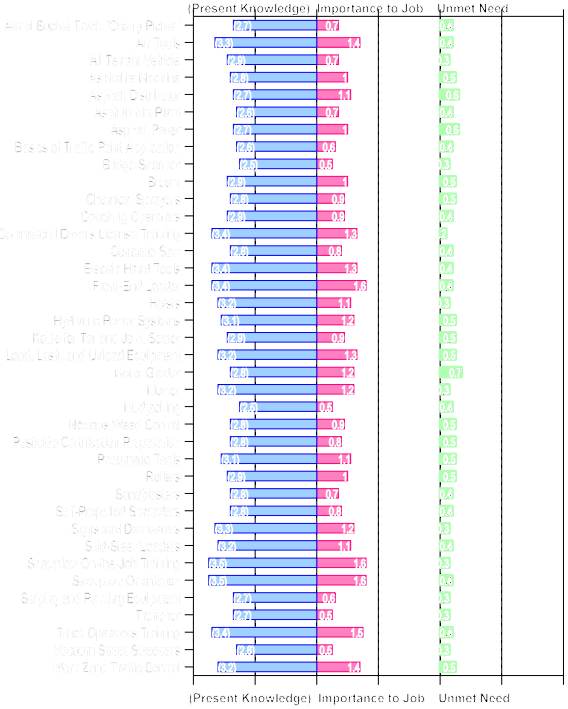

Figure 170: Equipment Operation: 0-5 Years

Equipment Operation: 6-10 Years

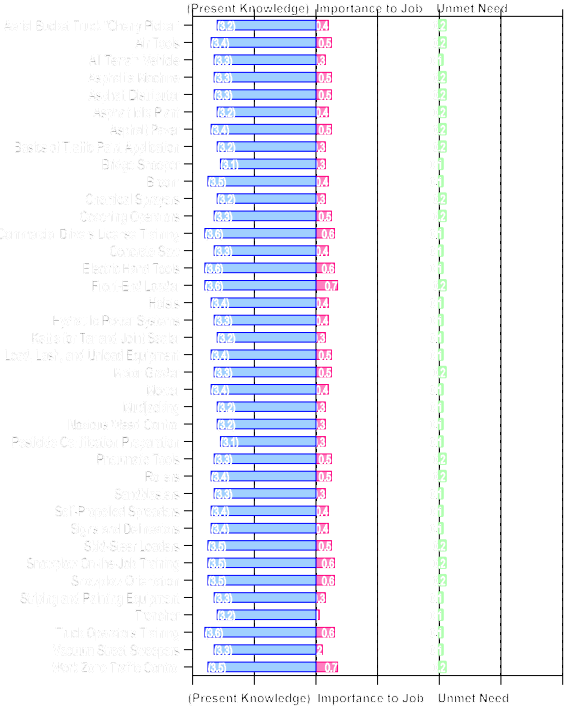

Figure 171: Equipment Operation: 6-10 Years

Equipment Operation: 11-20 Years

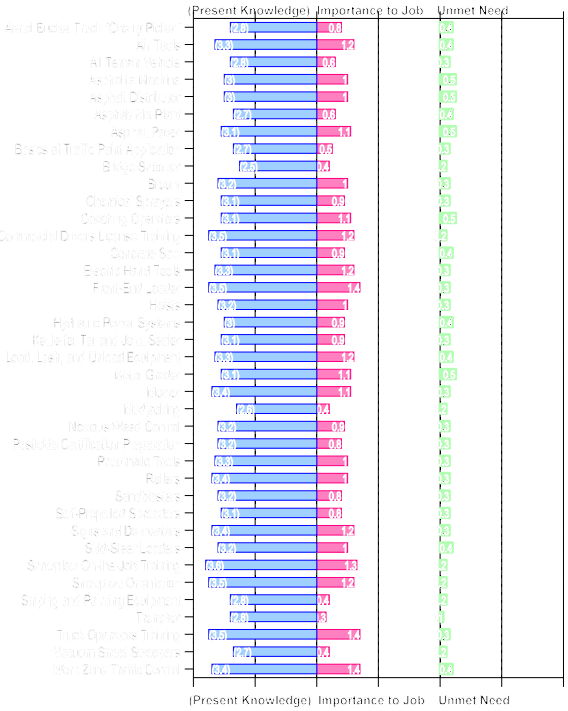

Figure 172: Equipment Operation: 11-20 Years

Equipment Operation: >20 Years

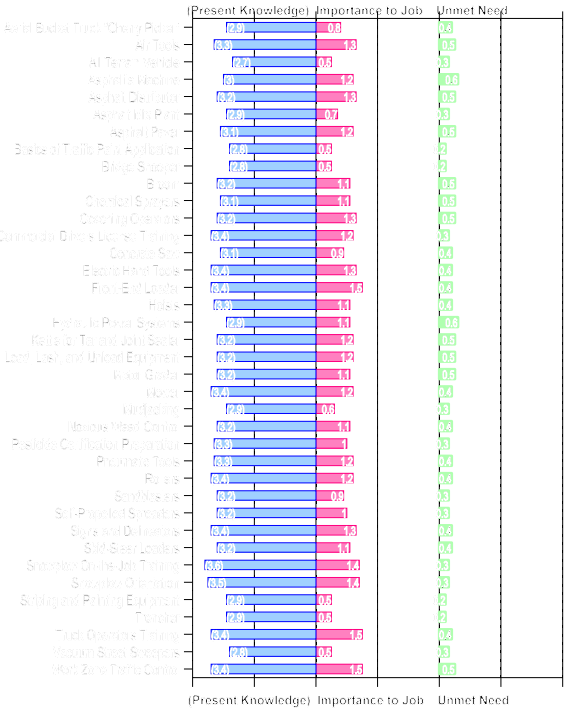

Figure 173: Equipment Operation: >20 Years

7.13 Finance

Overview

The Department as a whole indicated that employees have a high degree of Present Knowledge in the *Finance Domain*. The Support, Supervisor—Maintenance, and Supervisor—Engineering job groups all indicated the highest Importance to Job, and also indicated the greatest Unmet Need in this domain. Table 23 lists the top knowledge areas within this domain whereby employees of specific job groups identified the need for additional training. The Engineering, Maintenance, Specialist, and Manager job groups indicated a very low Unmet Need coupled with a low, to very low Importance to Job. The Part Time & Seasonal job group feels this training is not necessary for the work they do.

Table 23: Finance Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Purchasing Process	3.6	0.5	0.2
SDDOT Accounting Policies/Procedures	3.6	0.5	0.2
Budget Develop. And Management	3.6	0.4	0.2
SDDOT Finance Manual	3.5	0.4	0.2

All SDDOT

Figure 174 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Finance Domain* for All SDDOT. Most of the employees indicated this domain has little Importance to Job and that they have sufficient Present Knowledge. The Unmet Need ratings suggest that some training is needed, as again reflected in Table 23. However, the need is considered low.

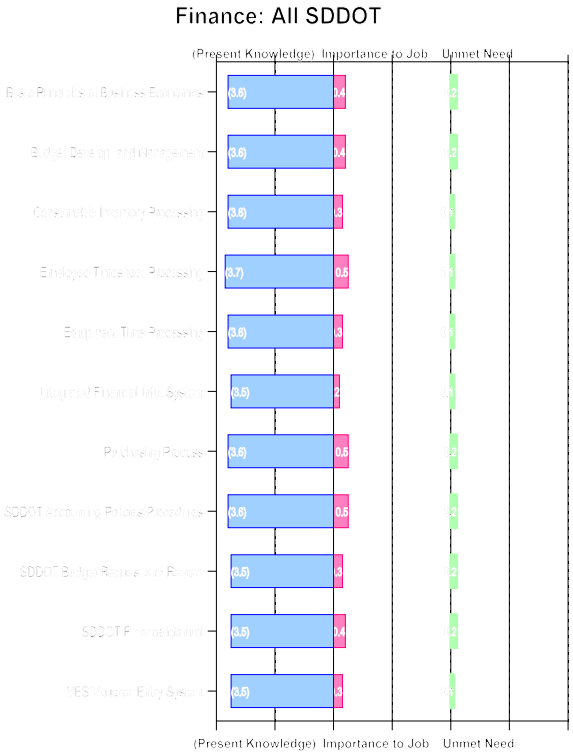

Figure 174: Finance: All SDDOT

By Location

Figures 175 through 179 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Finance Domain* for All SDDOT by location. The rankings closely match those for All SDDOT and location-specific analyses, and across all regions and the central office. There are minor differences between the regions, but no significant differences between the comparative rankings.

By Job Group

Figures 180 through 187 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Finance Domain* for All SDDOT by job group. The rankings closely match those compiled during All SDDOT reviews. However, only the Support, Supervisor—Maintenance, and Supervisor—Engineering job groups indicate the highest need for training in this domain.

By Tenure

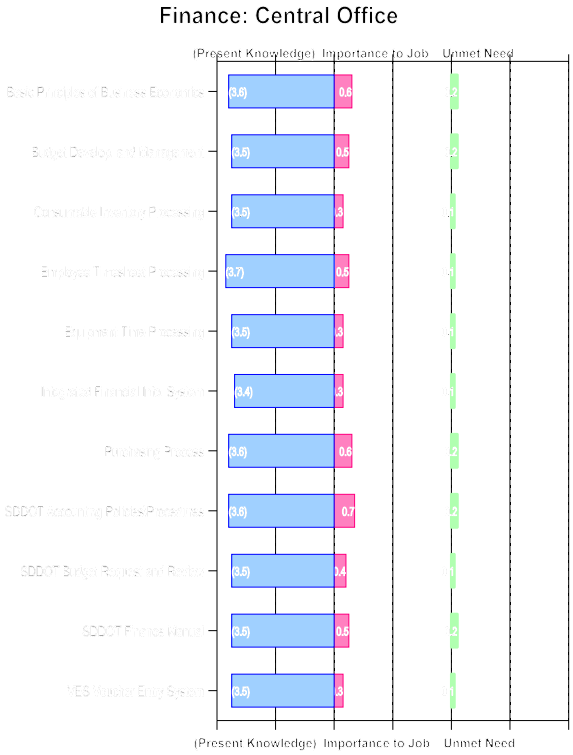

Figure 175: Finance: Central Office

Figures 188 through 191 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Finance Domain* for all SDDOT by tenure. The results closely match the rankings compiled from All SDDOT reviews. It is interesting to note the Importance to Job ratings tend to increase as tenure with the Department correspondingly increases. This may be explained by the fact that the longer an employee is with the Department, the more the employee becomes involved with related issues.

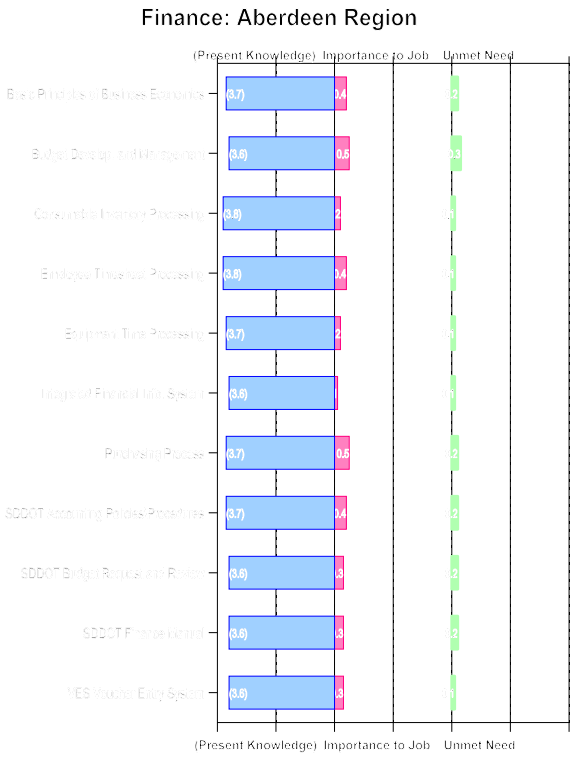

Figure 176: Finance: Aberdeen Region

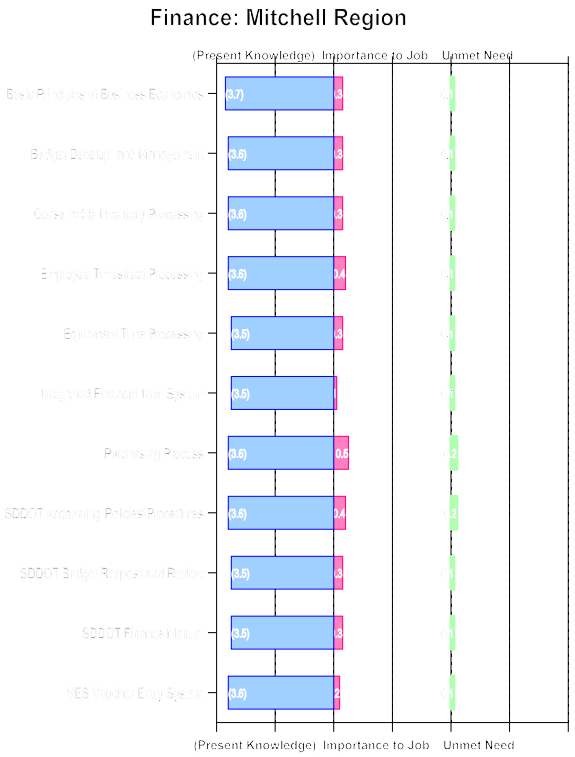

Figure 177: Finance: Mitchell Region

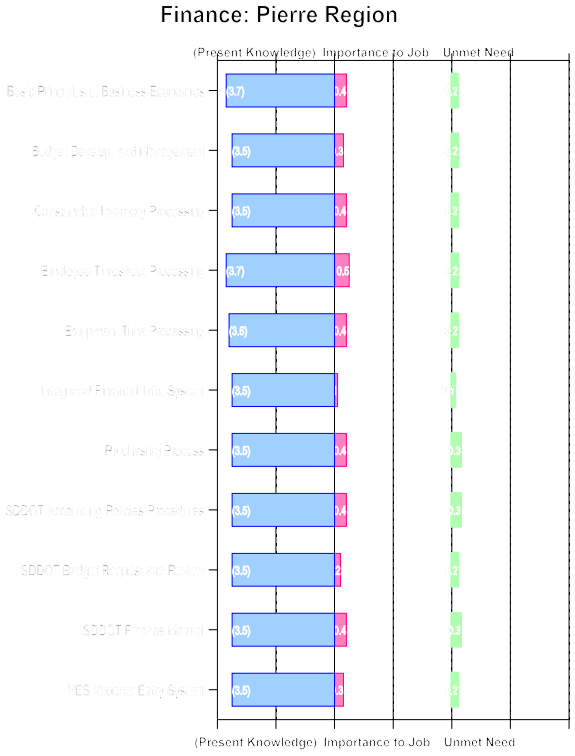

Figure 178: Finance: Pierre Region

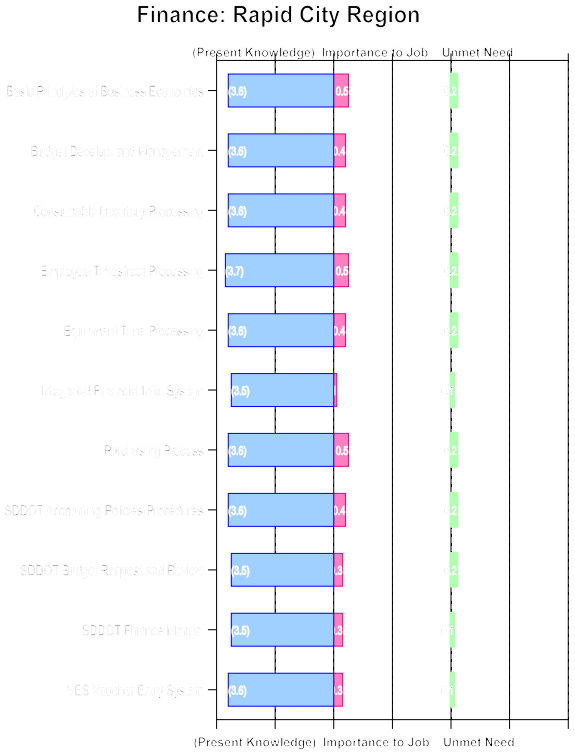

Figure 179: Finance: Rapid City Region

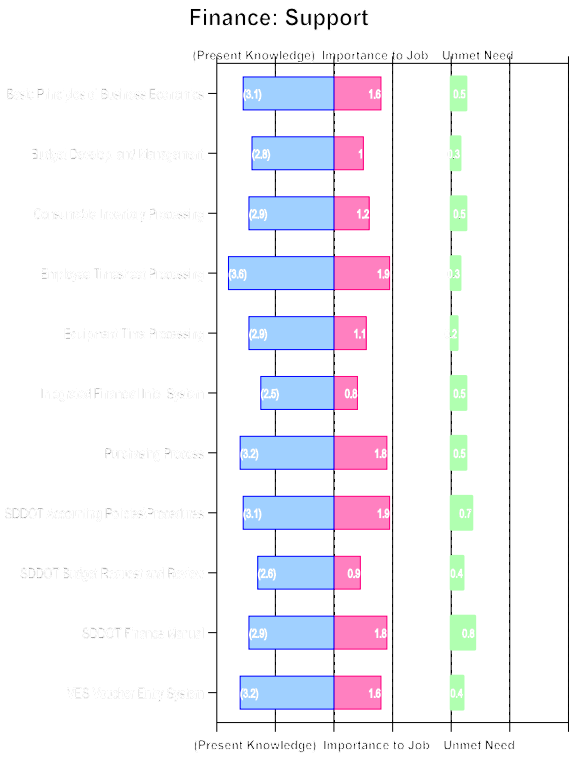

Figure 180: Finance: Support

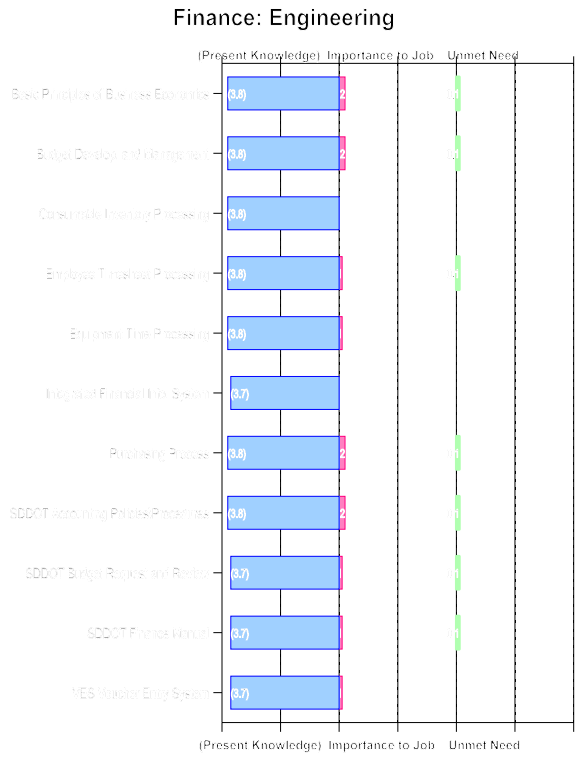

Figure 181: Finance: Engineering

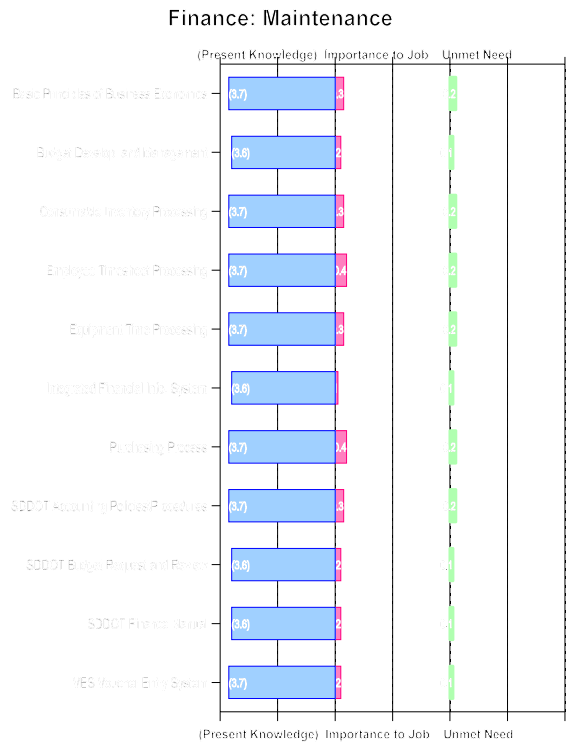

Figure 182: Finance: Maintenance

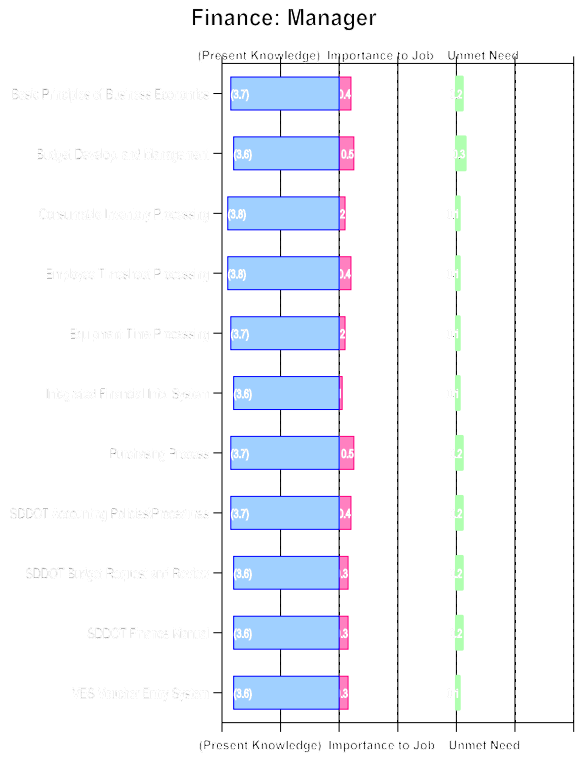

Figure 183: Finance: Manager

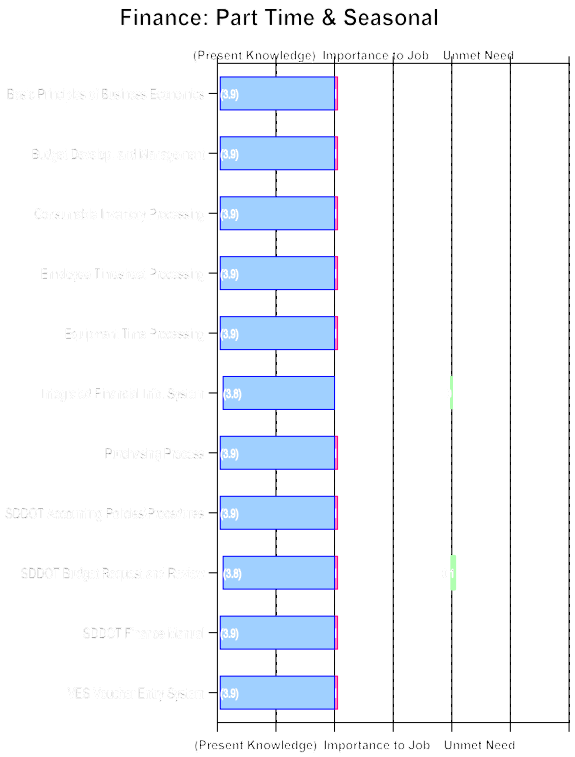

Figure 184: Finance: Part Time & Seasonal

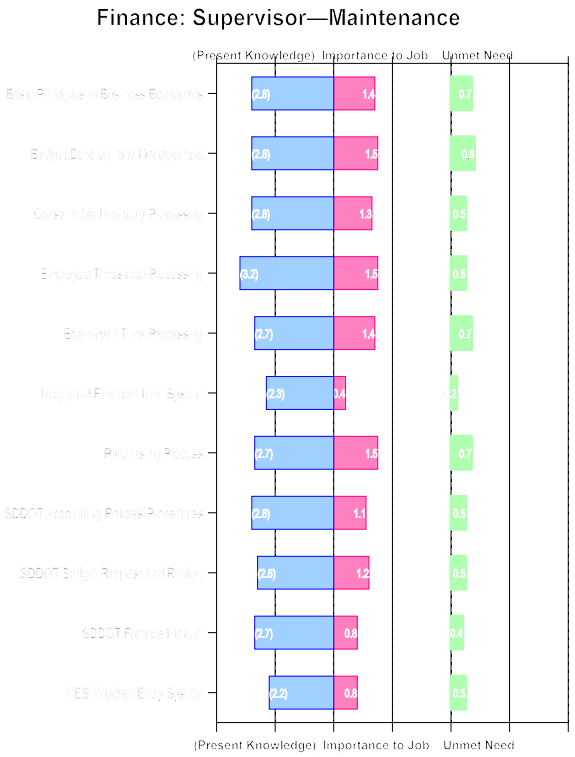

Figure 185: Finance: Supervisor—Maintenance

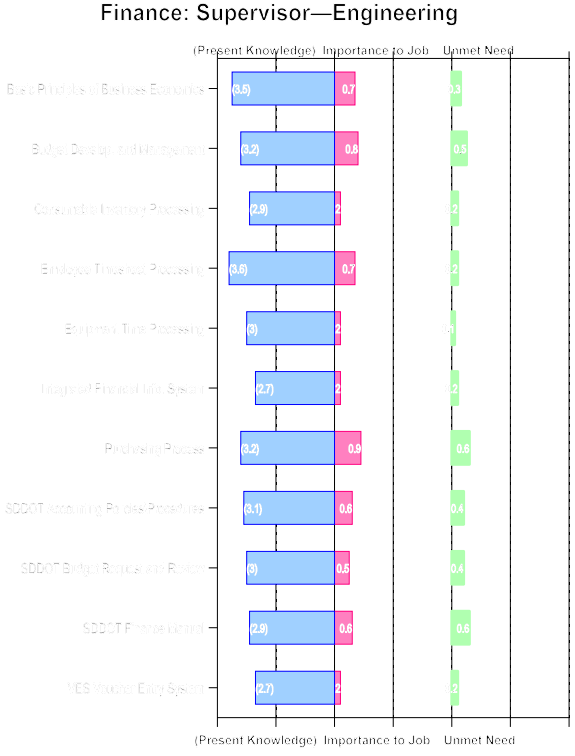

Figure 186: Finance: Supervisor—Maintenance

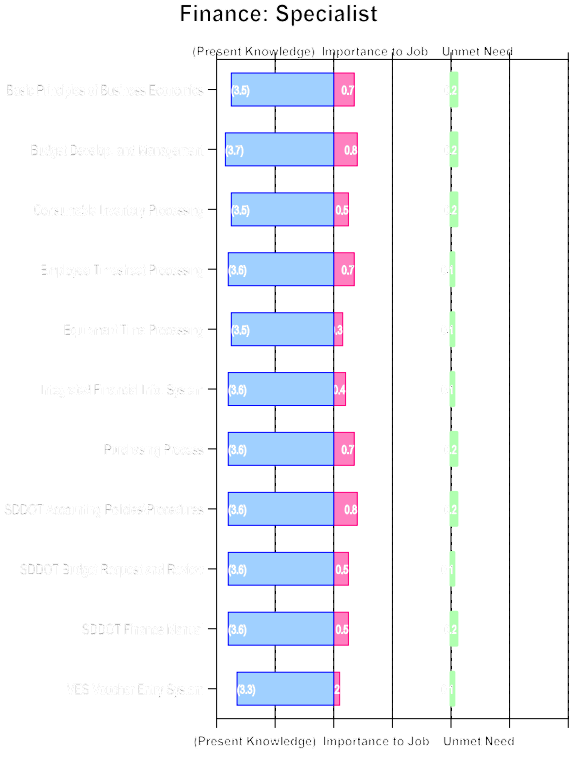

Figure 187: Finance: Specialist

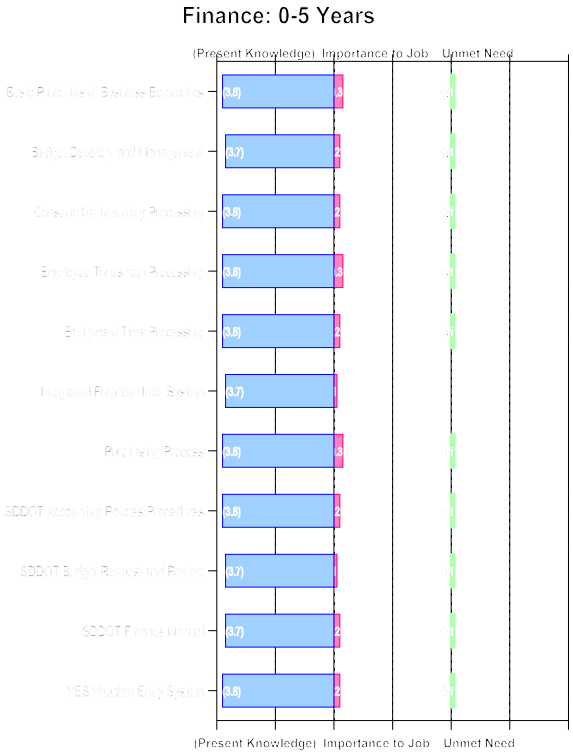

Figure 188: Finance: 0-5 Years

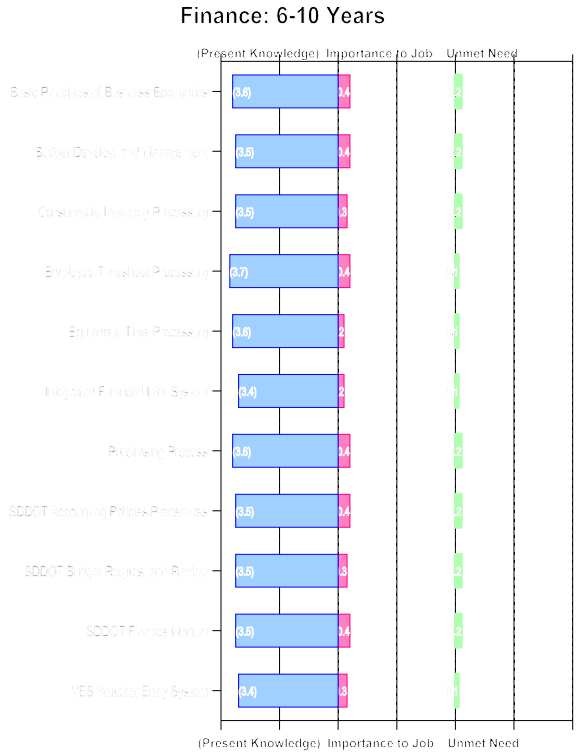

Figure 189: Finance: 6-10 Years

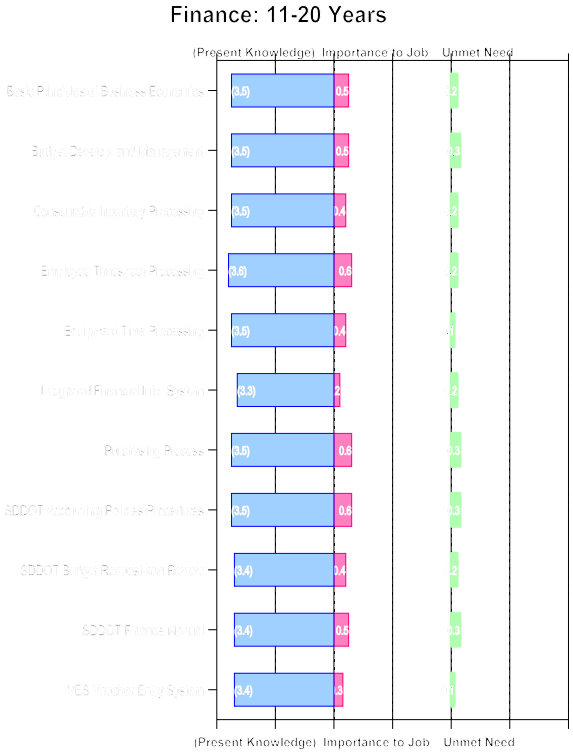

Figure 190: Finance: 11-20 Years

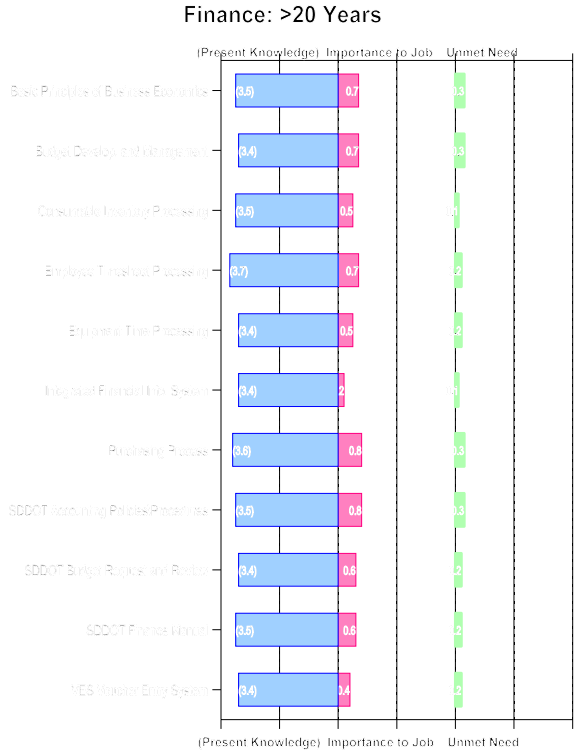

Figure 191: Finance: >20 Years

7.14 General Computer

Overview

Table 24 lists the top five knowledge areas indicated by employees from all job groups Department-wide where training is needed. However, there is a Unmet Need indicated in all knowledge areas within the *General Computer Domain*. E-mail training, both basic and advanced, were identified as having the highest Unmet Need by all job groups.

Table 24: General Computer Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
E-mail Advanced Features	1.8	1.8	0.9
Laptop Computer Literacy	1.7	1.7	0.9
Create, Edit & Store Digital Images	1.3	1.3	0.9
Using Microsoft Windows Features(basic)	2.4	2.3	0.8
E-mail (Basic)	2.6	2.7	0.8

All SDDOT

Figure 192 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *General Computer Domain* for All SDDOT. Department-wide, employees indicated a need for training in many of the knowledge areas in this domain. E-mail is used by many of the Department's employees and, as indicated, there is a strong Unmet Need for E-mail training. Training in this knowledge area would be of great use by many of the Department's employees.

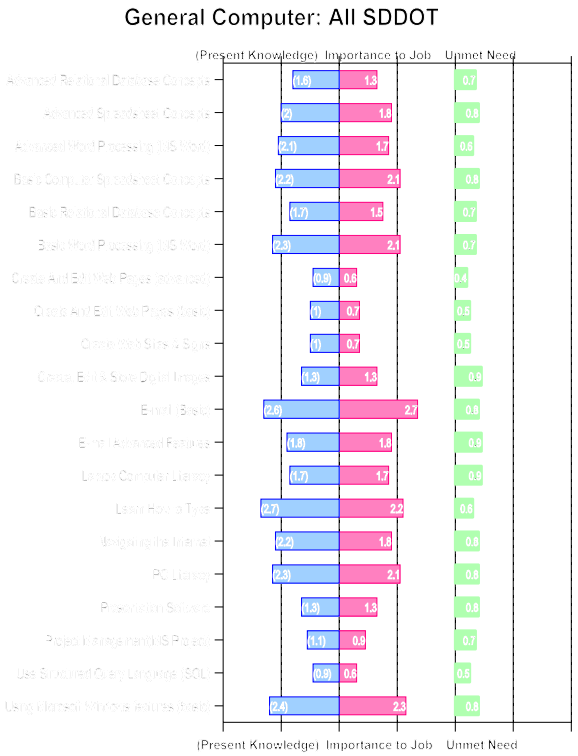

Figure 192: General Computer: All SDDOT

By Location

Figures 193 through 197 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *General Computer Domain* for all SDDOT by location. The results are nearly identical for all regions and the central office. Although a higher Unmet Need was indicated for *E-mail*, *Internet*, and *Basic Computer Training*, a need exists for many of the other knowledge areas within this domain as well.

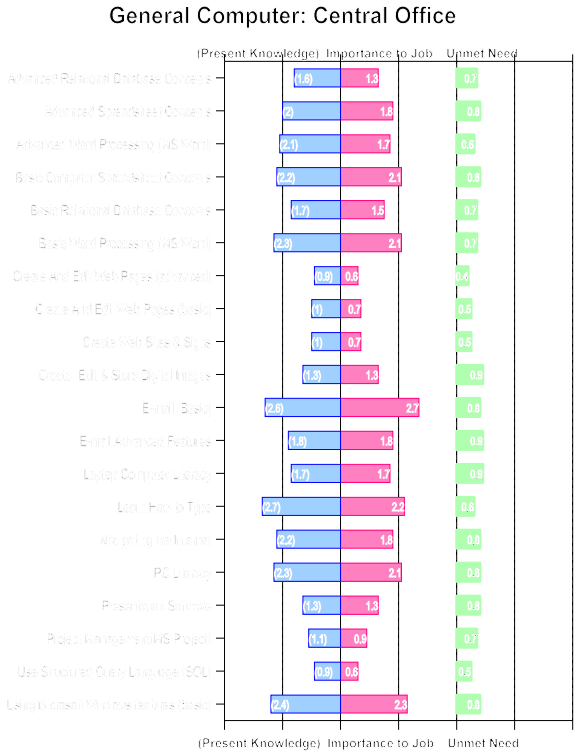

Figure 193: General Computer: Central Office

By Job Group

Figures 198 through 205 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *General Computer Domain* by job group. The results are nearly identical to the results obtained from the All SDDOT analysis for the various locations. All job groups indicated similar Unmet Needs, but because their assigned duties do not normally involve much access to computers, the Part Time & Seasonal job group did not express as great a need as the other job groups. However, they still indicated some need for computer training.

By Tenure

Figures 206 through 209 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *General Computer Domain* by tenure group. Some differences exist between tenure groups. *E-mail* and *Create, Edit and Store Digital Images* ranked high among all tenure groups. All tenure groups are similar to the results obtained from the All SDDOT analysis.

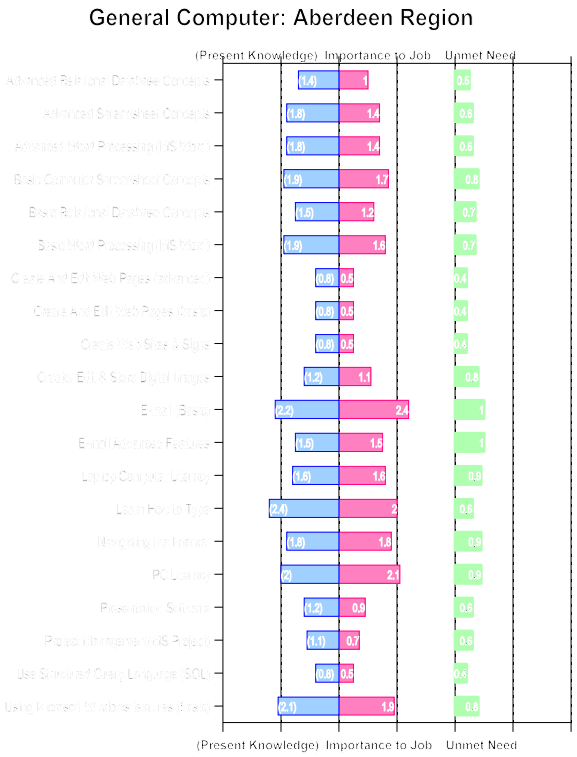

Figure 194: General Computer: Aberdeen Region

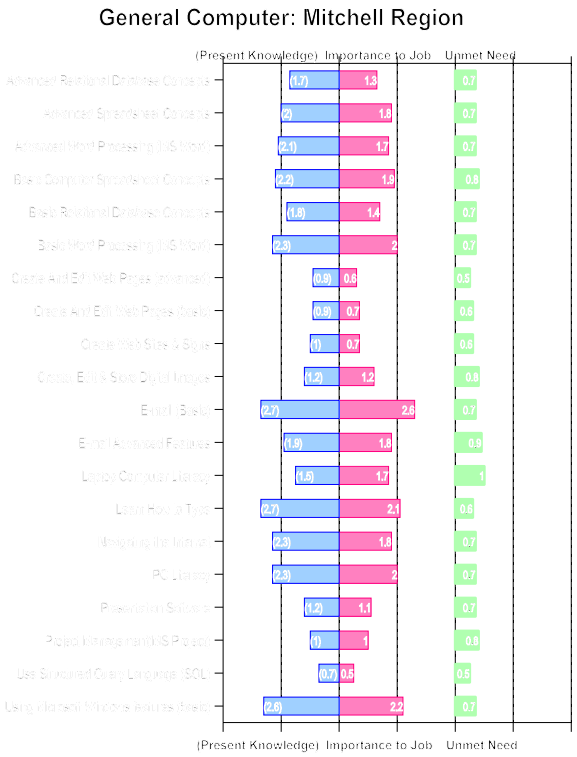

Figure 195: General Computer: Mitchell Region

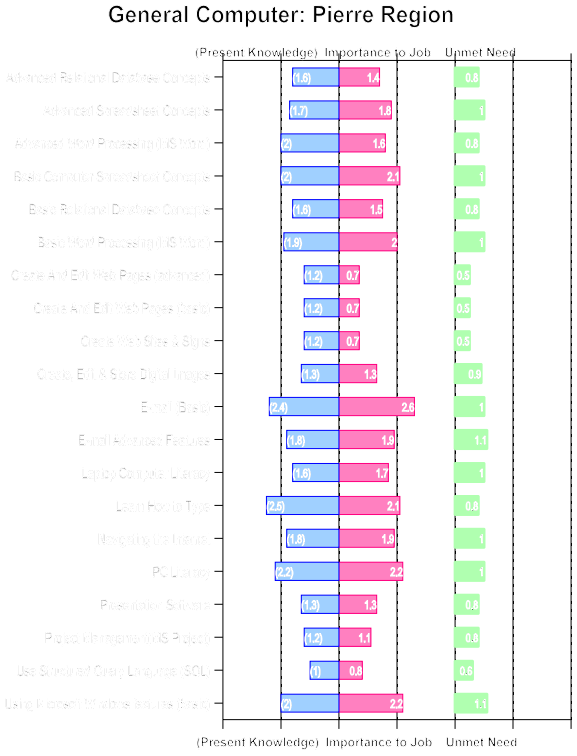

Figure 196: General Computer: Pierre Region

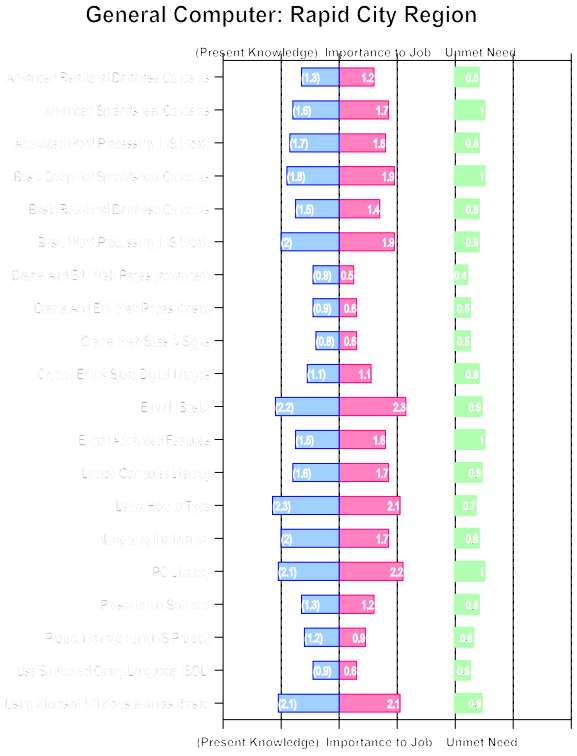

Figure 197: General Computer: Rapid City Region

General Computer: Support

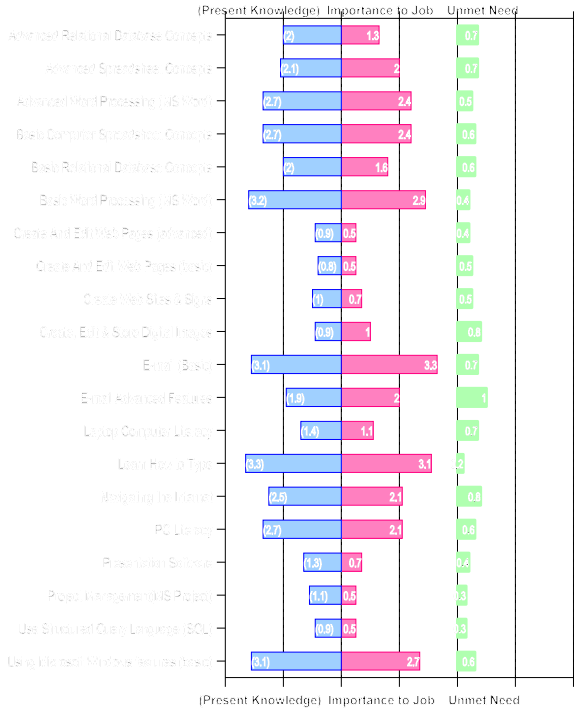

Figure 198: General Computer: Support

General Computer: Engineering

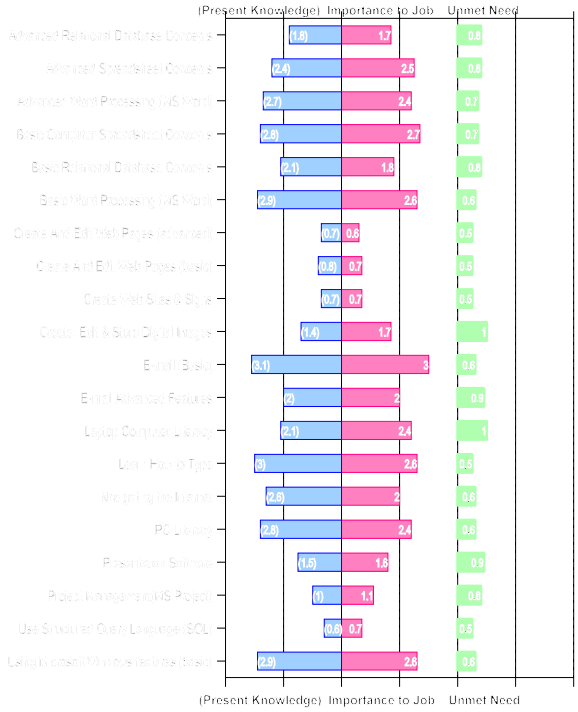

Figure 199: General Computer: Engineering

General Computer: Maintenance

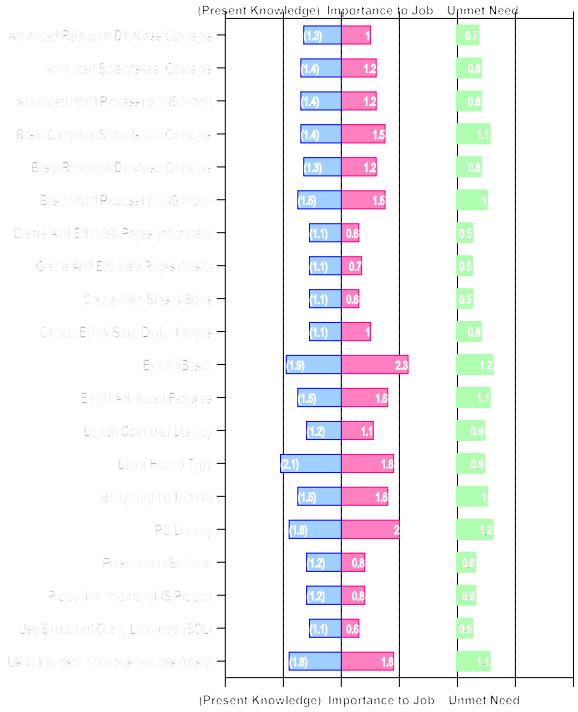

Figure 200: General Computer: Maintenance

General Computer: Manager

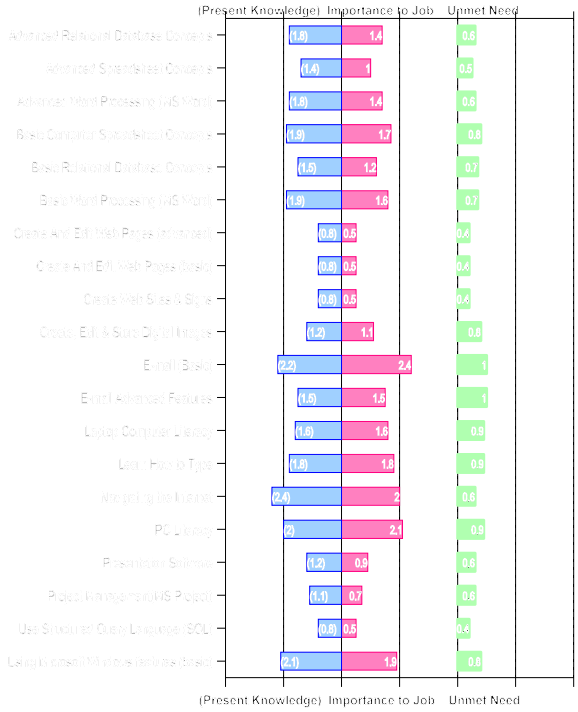

Figure 201: General Computer: Manager

General Computer: Part Time & Seasonal

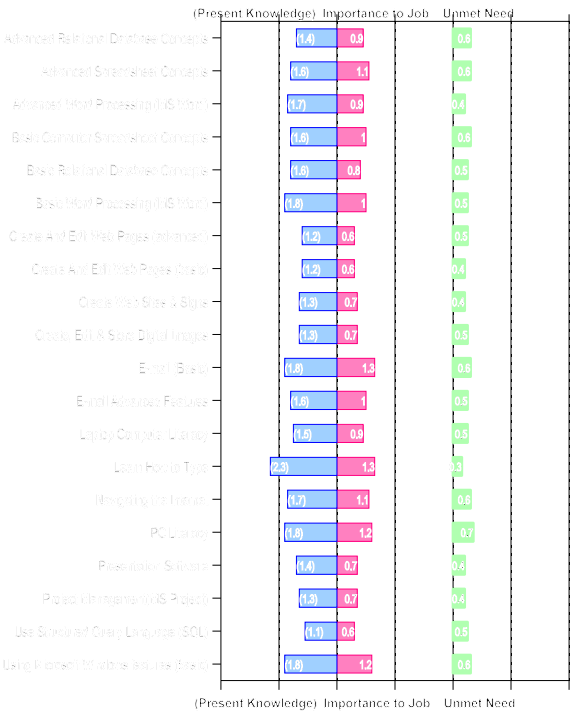

Figure 202: General Computer: Part Time & Seasonal

General Computer: Supervisor—Maintenance

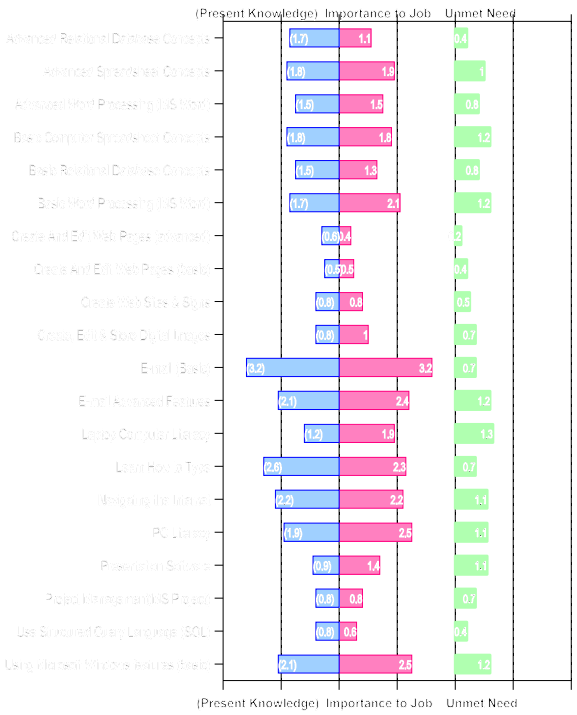

Figure 203: General Computer: Supervisor—Maintenance

General Computer: Supervisor—Engineering

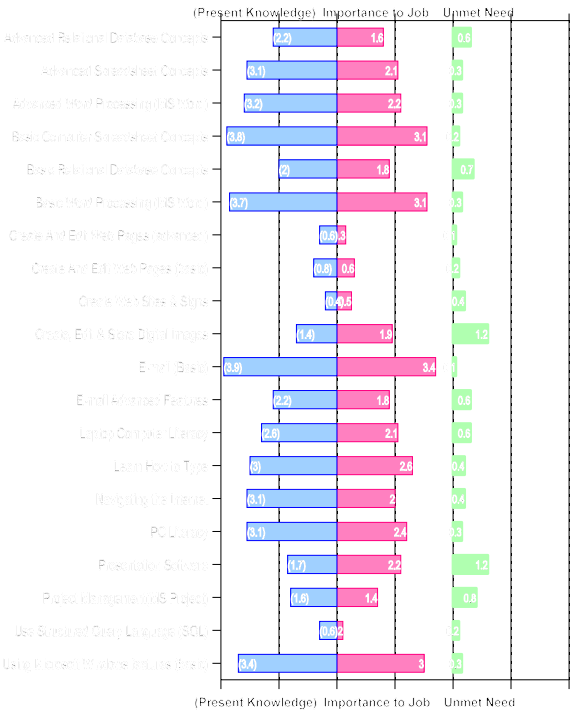

Figure 204: General Computer: Supervisor—Engineering

General Computer: Specialist

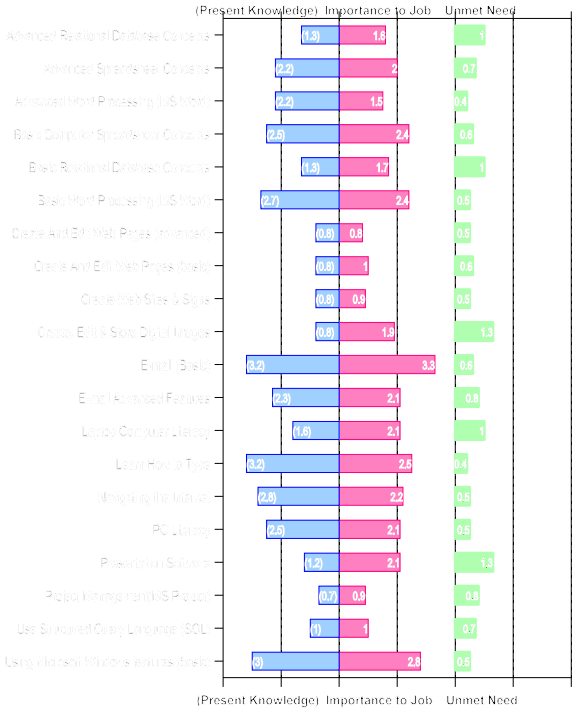

Figure 205: General Computer: Specialist

General Computer: 0-5 Years

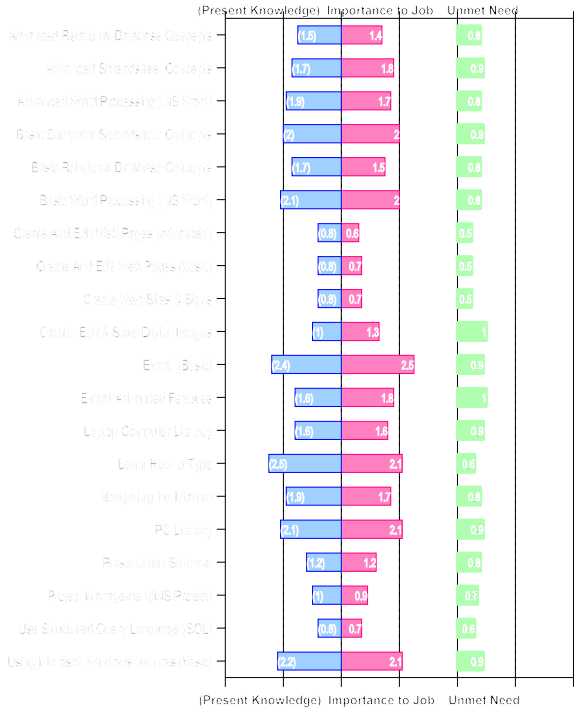

Figure 206: General Computer: 0-5 Years

General Computer: 6-10 Years

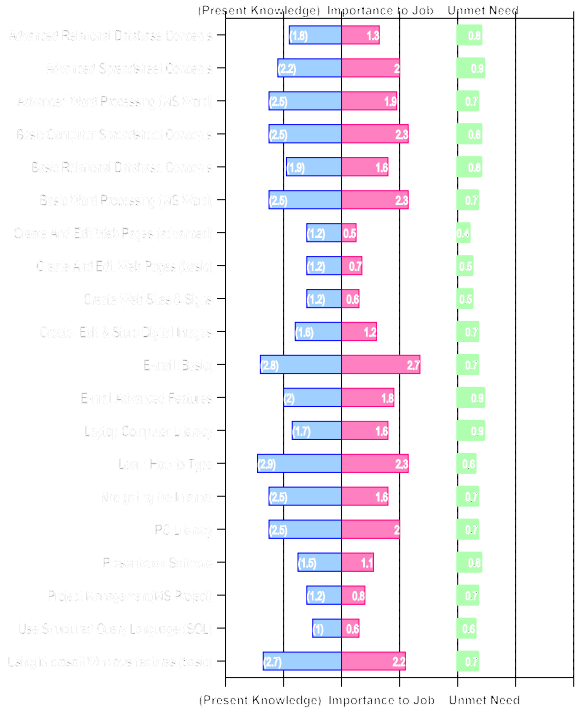

Figure 207: General Computer: 6-10 Years

General Computer: 11-20 Years

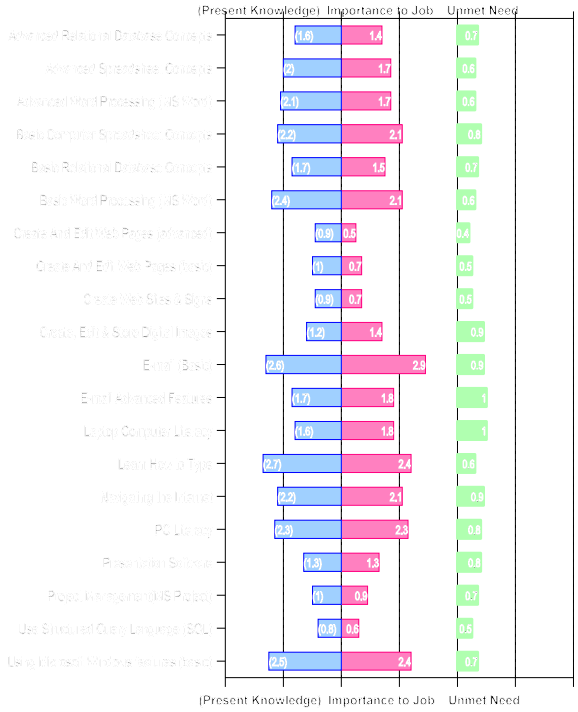

Figure 208: General Computer: 6-11 Years

General Computer: >20 Years

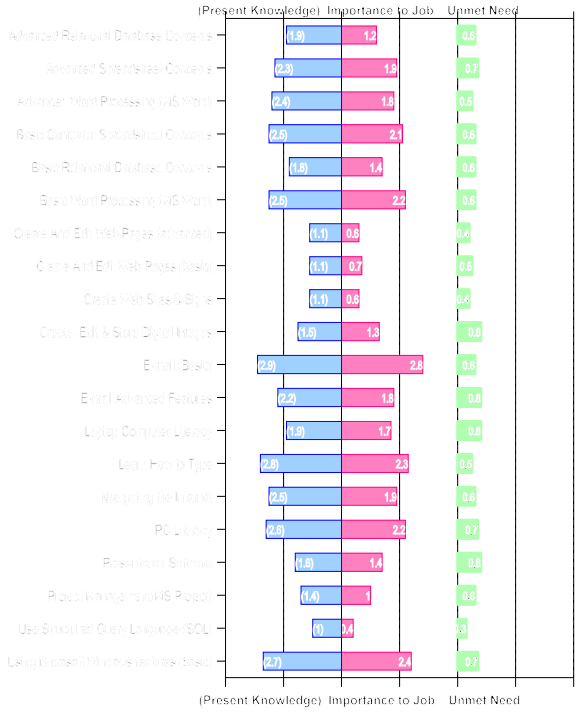

Figure 209: General Computer: >20 Years

7.15 Geotechnical

Overview

Table 25 lists the top Knowledge Areas indicated by the employees Department-wide needing training in the *Geotechnical Domain*. The Unmet Need for training in this domain is very low. Across the Department the Engineering, Supervisor—Engineering, and Manager job groups indicated some need for training in this domain. All other job groups indicated a very low Importance to Job and Unmet Need in this domain. Need for knowledge and training in this domain exists primarily among staff with geotechnical and bridge responsibilities.

Table 25: Geotechnical Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Drilled Shafts	3.5	0.6	0.3
Mechanically Stabilized Earth (MSE) Construction & Inspection	3.5	0.5	0.3
Driven Pile Foundations	3.6	0.6	0.2
Basics of Foundation Engineering	3.5	0.5	0.2
Driven Pile Foundations	3.5	0.5	0.2

All SDDOT

Figure 210 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Geotechnical Domain*. Department-wide, the Unmet Need is very low. The results indicate a very high Present Knowledge and an associated low Importance to Job ranking.

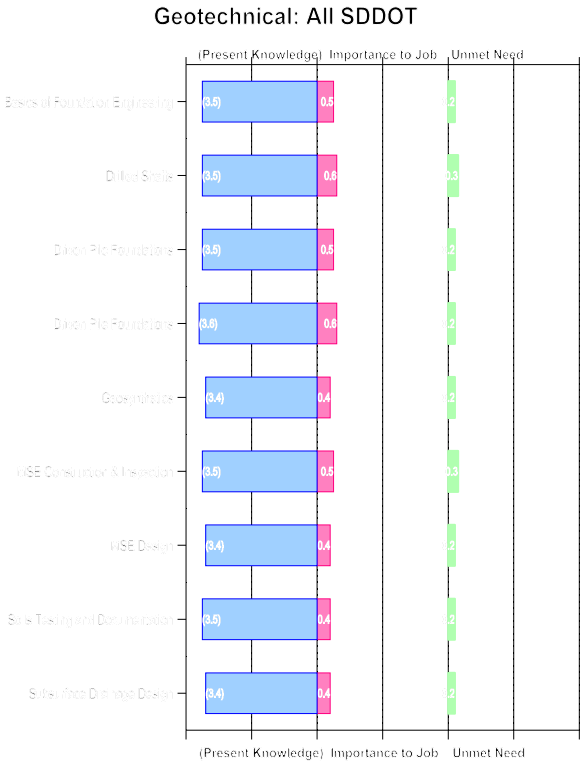

Figure 210: Geotechnical: All SDDOT

By Location

Figures 211 through 215 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Geotechnical Domain* by location. The central office and the Pierre Region indicated sufficient Present Knowledge and no need for training in this domain. The Aberdeen, Mitchell, and Rapid City Regions indicated some existing needs for training in this domain, although those needs are low.

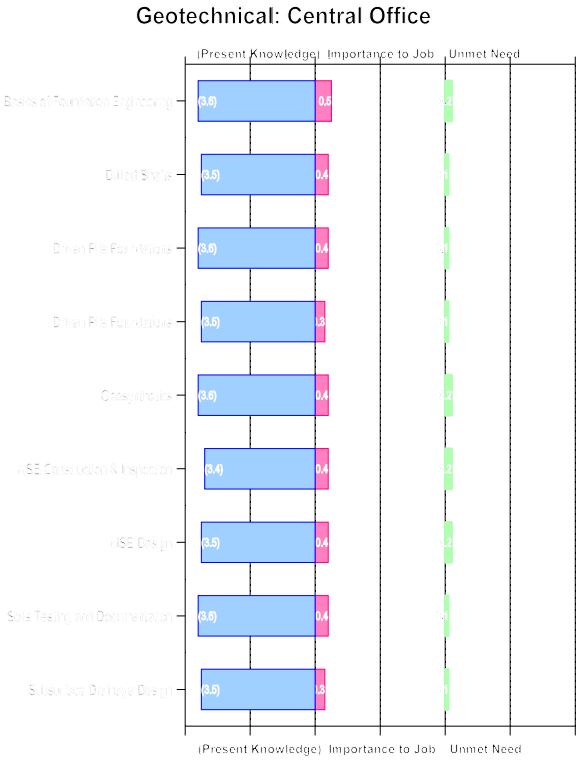

Figure 211: Geotechnical: Central Office

By Job Group

Figures 216 through 223 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Geotechnical Domain* by job group. The Engineering, Supervisor—Engineering, and Manager job groups indicated a Unmet Need. Training in *Geosynthetics* and *MSE Construction and Inspection* rank as having the highest need among these job groups. The other job groups indicated no need for training in this domain as their work does not typically involved geotechnical projects.

By Tenure

Figures 224 through 227 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Geotechnical Domain* by tenure. The 6-10 Years Tenure group indicates more need for training than the other groups. However, the need is very low for all tenure groups and the >20 Years Tenure groups has the least amount of need among all. The Knowledge Areas with the most Unmet Need are nearly identical to those identified by the entire Department. Table 25 lists the top five Knowledge Areas with the most need Department-wide, which are nearly identical to the rankings outcome of the tenure analysis.

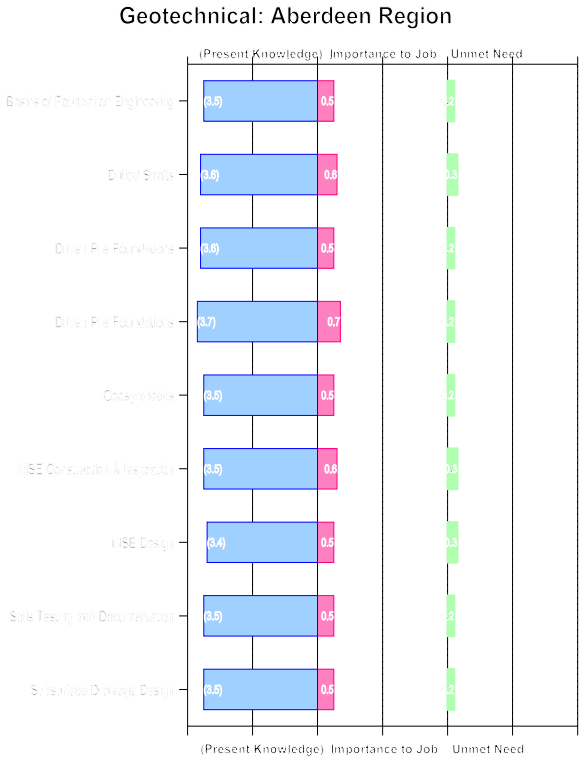

Figure 212: Geotechnical: Aberdeen Region

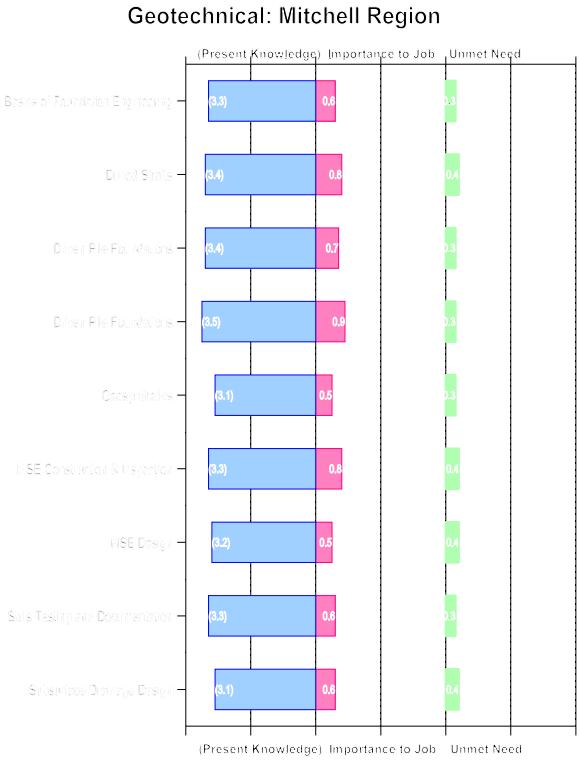

Figure 213: Geotechnical: Mitchell Region

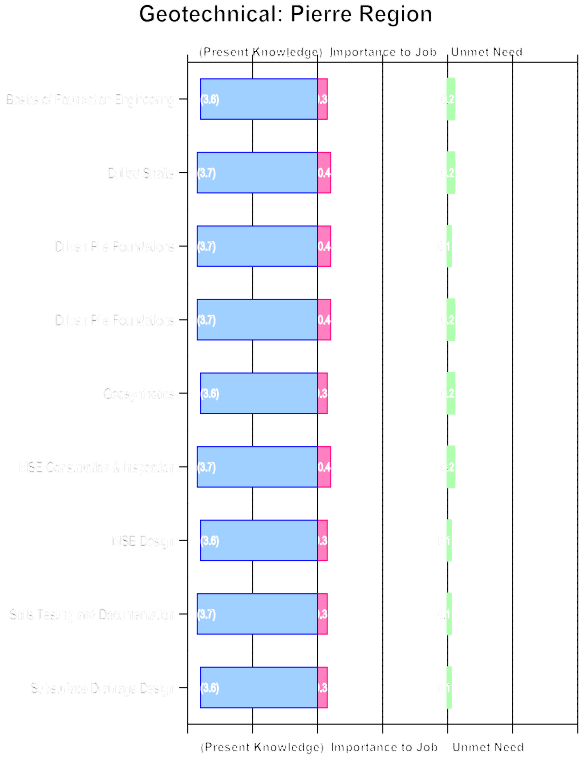

Figure 214: Geotechnical: Pierre Region

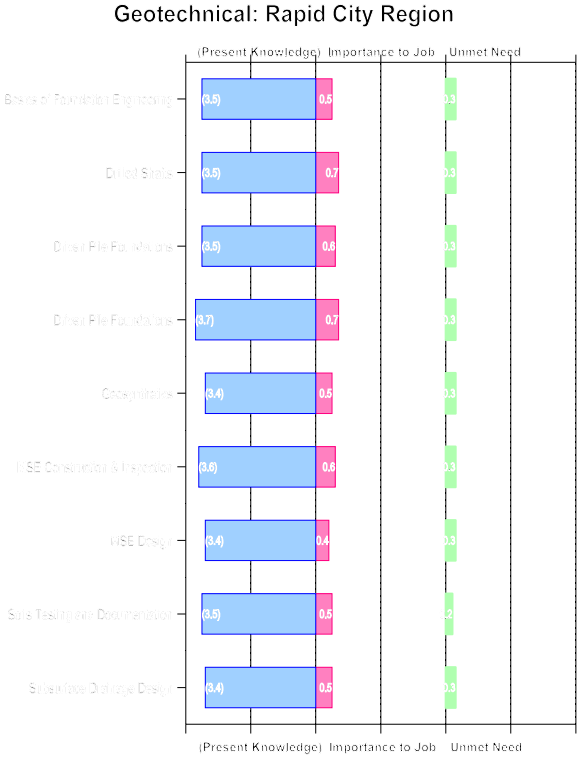

Figure 215: Geotechnical: Rapid City Region

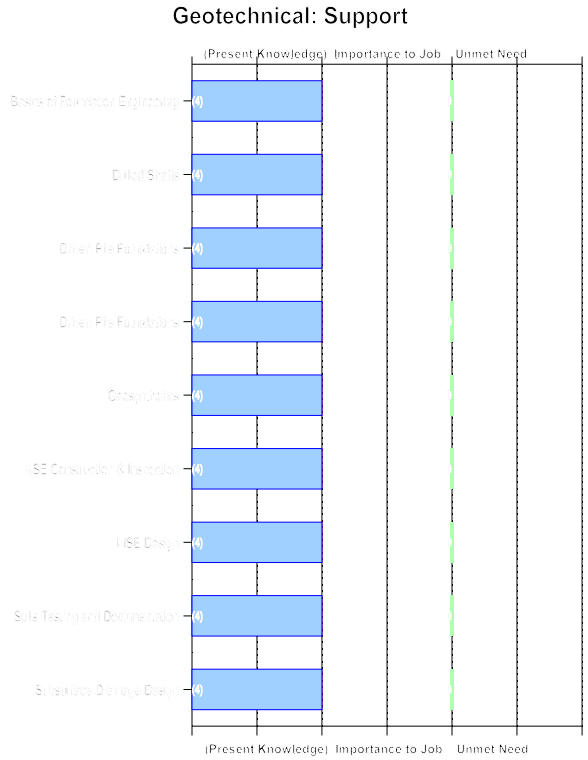

Figure 216: Geotechnical: Support

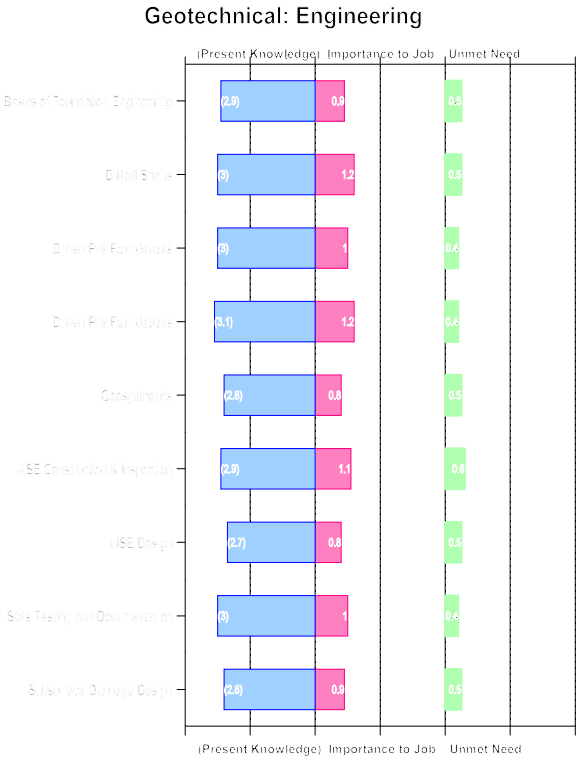

Figure 217: Geotechnical: Engineering

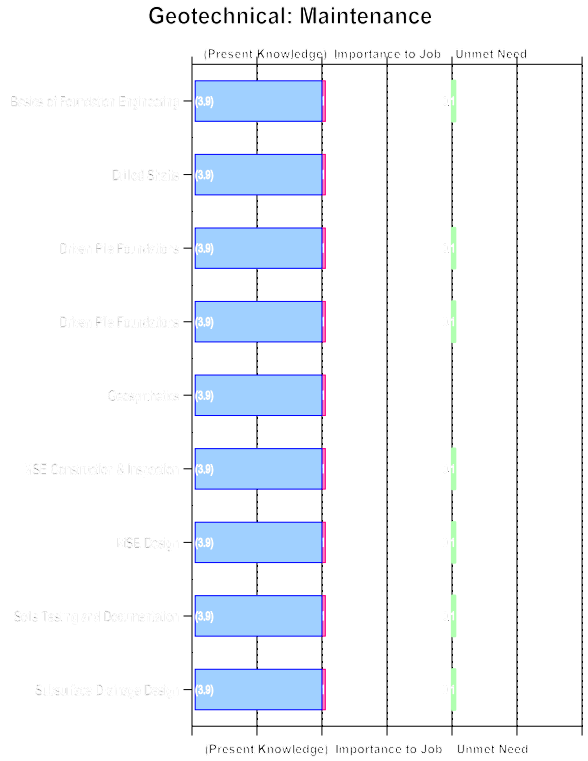

Figure 218: Geotechnical: Maintenance

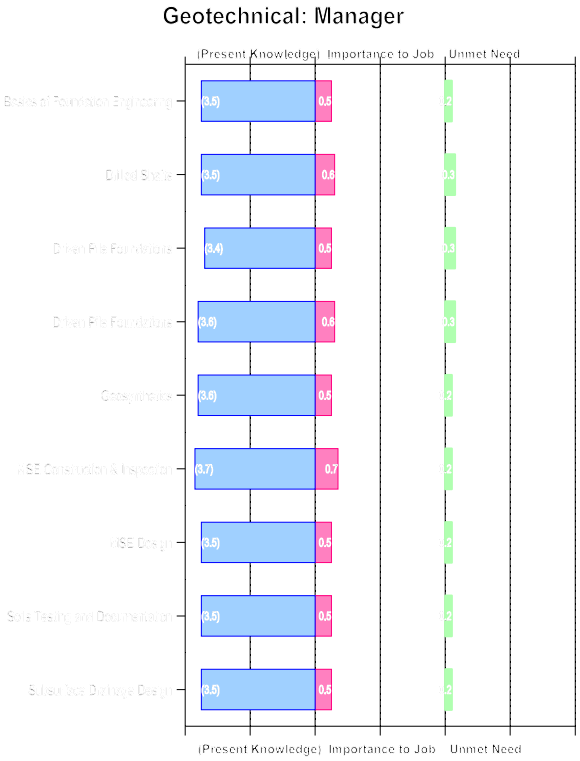

Figure 219: Geotechnical: Manager

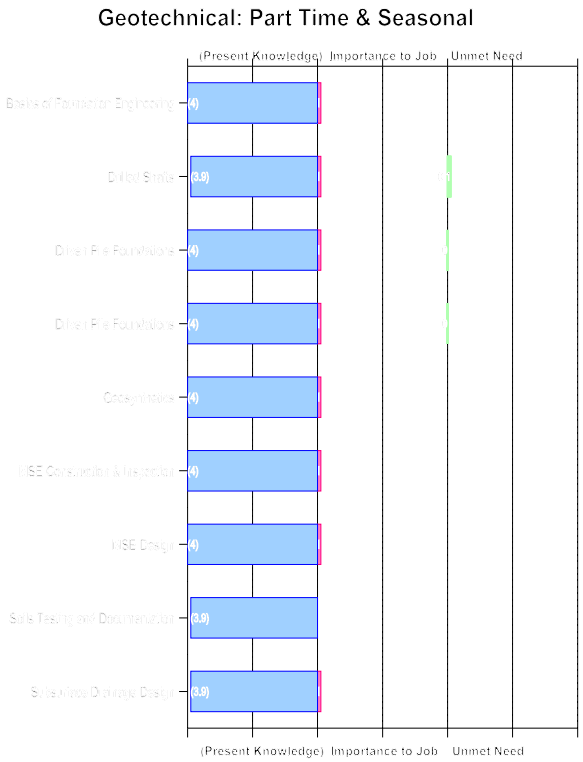

Figure 220: Geotechnical: Part Time & Seasonal

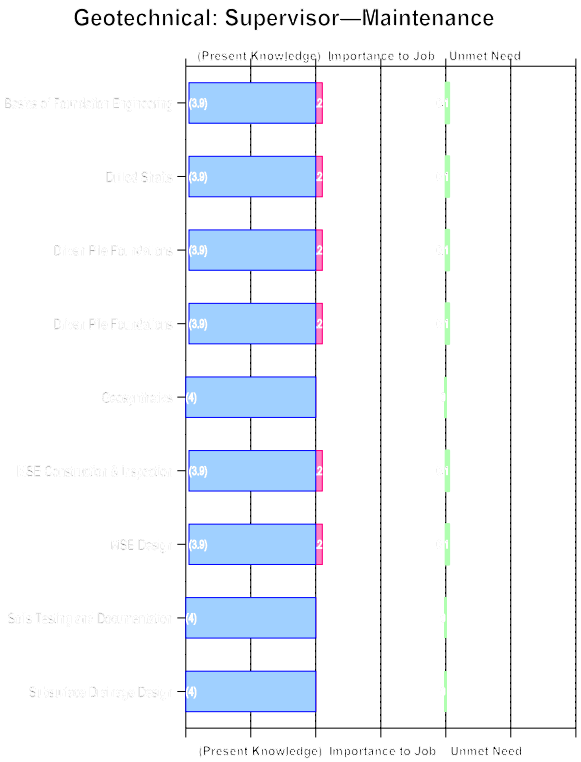

Figure 221: Geotechnical: Supervisor—Maintenance

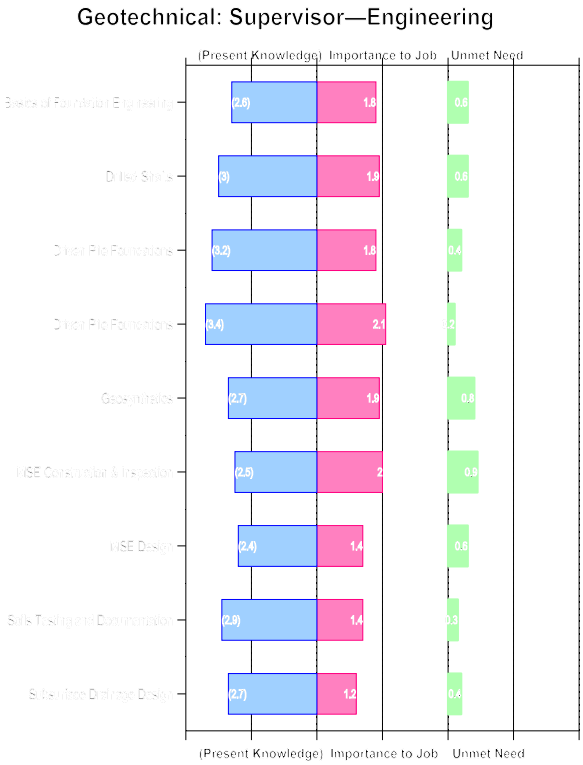

Figure 222: Geotechnical: Supervisor—Engineering

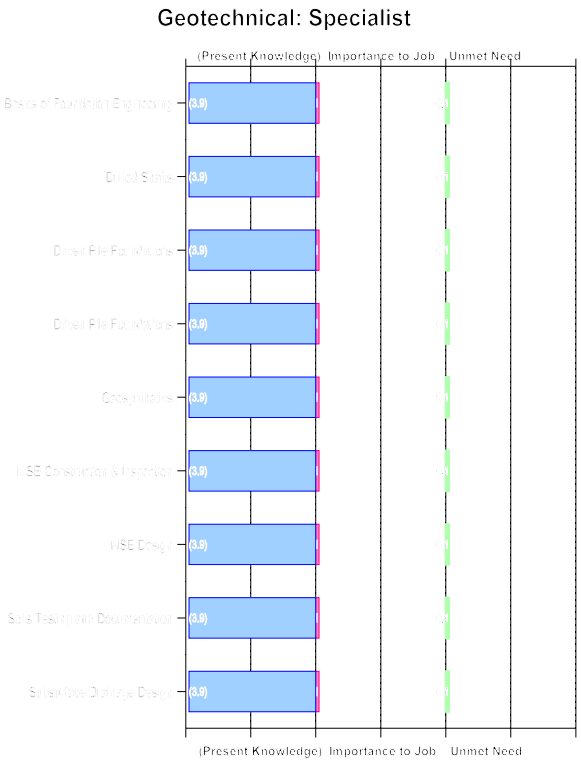

Figure 223: Geotechnical: Specialist

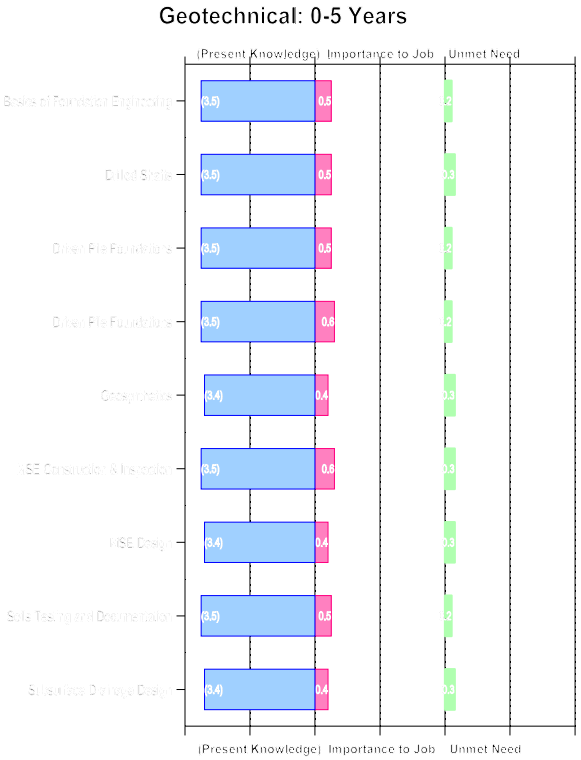

Figure 224: Geotechnical: 0-5 Years

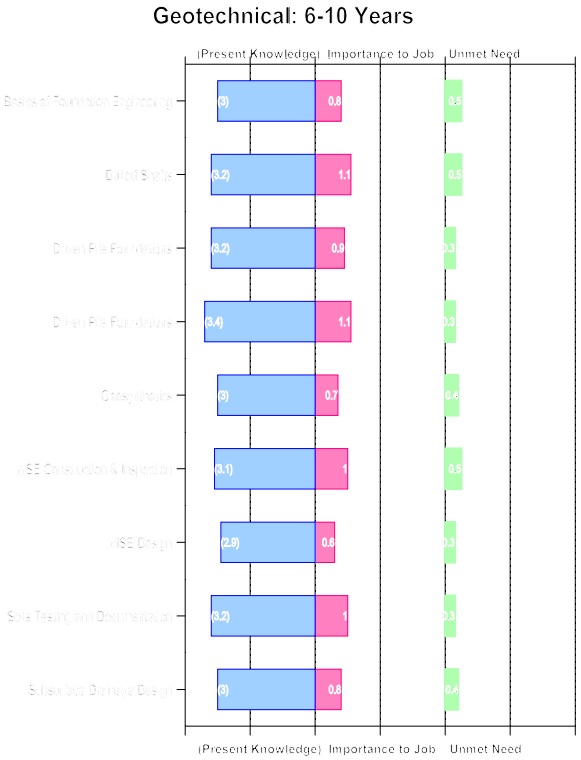

Figure 225: Geotechnical: 6-10 Years

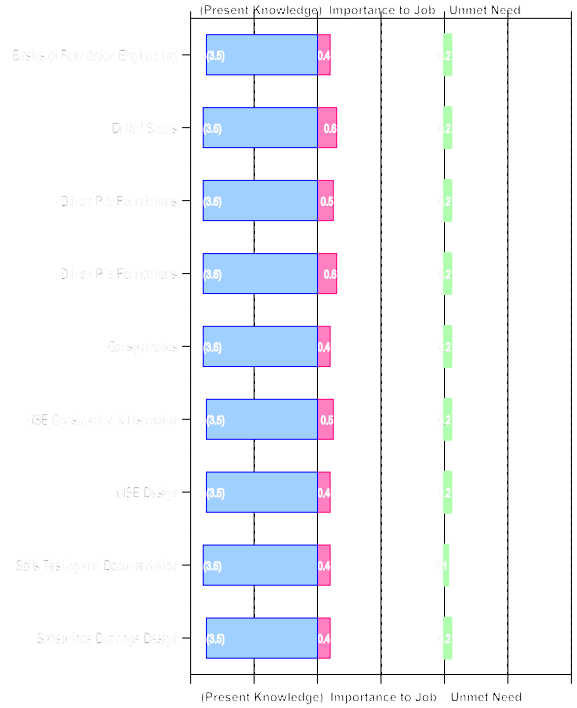

Figure 226: Geotechnical: 11-20 Years

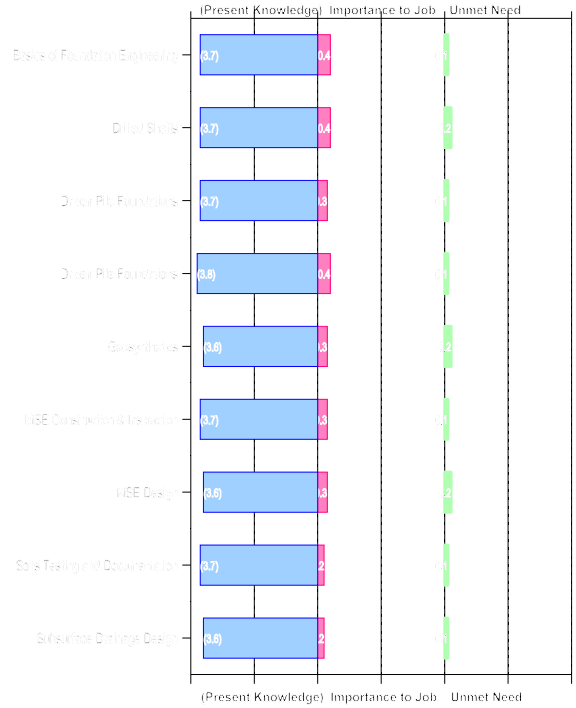

Figure 227: Geotechnical: >20 Years

7.16 Hydraulics

Overview

Department-wide, there is very little Unmet Need in the *Hydraulics Domain*. Table 26 lists the top five Knowledge Areas where some benefit could be derived by additional training for the Engineering and Supervisor—Engineering job groups. These job groups indicated they have sufficient Present Knowledge, moderate Importance to Job, and low Unmet Need in this domain. Training in this domain is primarily limited to those involved with hydraulics in the department and is probably a small number of employees. Central office employees indicated slightly more Unmet Need and Importance to Job than region employees. All other job groups indicated this domain has very little importance to their jobs with an associated very low Unmet Need.

Table 26: Hydraulics Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Design Procedures for Culverts	3.7	0.4	0.2
Erosion and Sediment Control	3.7	0.4	0.2
Introduction to Highway Hydraulics	3.7	0.4	0.2
Urban Drainage Design	3.5	0.3	0.2
Open Channel Flow Equations	3.7	0.3	0.1

All SDDOT

Figure 228 illustrates Present Knowledge, Importance to Job, and Unmet Need for the *Hydraulics Domain*. Department-wide, the Unmet Need is very low. The results indicate very high Present Knowledge and an associated low ranking on Importance to Job.

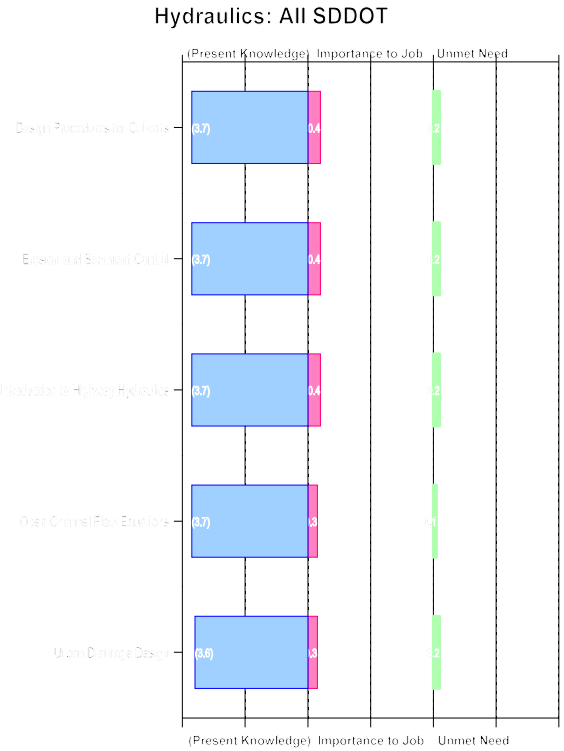

Figure 228: Hydraulics: All SDDOT

By Location

Figures 229 through 233 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Hydraulics Domain* by location. The results are very similar to the All SDDOT rankings whereby the Present Knowledge ranking is very high and the Importance to Job is low. Only the Mitchell and Rapid City Regions indicate a slight need for training in this domain. Their associated Importance to Job is also slightly higher than the other locations.

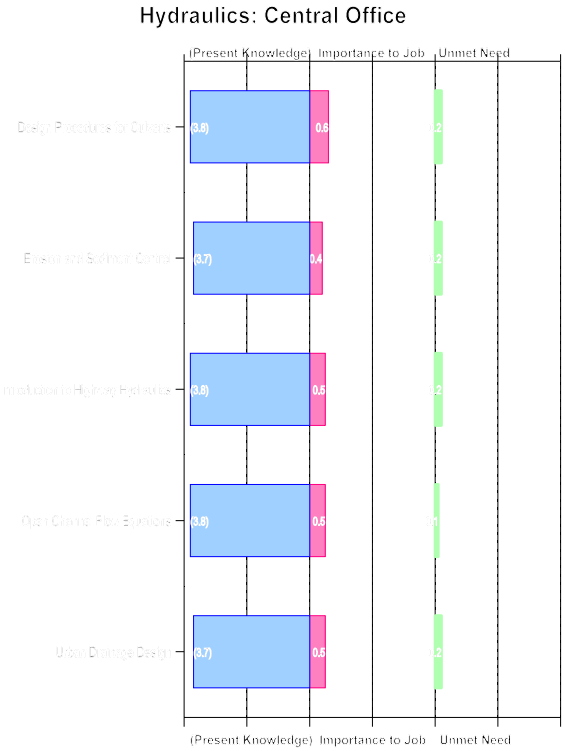

Figure 229: Hydraulics: Central Office

By Job Group

Figures 234 through 241 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Hydraulics Domain* by job group. The Engineering and Supervisor—Engineering job groups indicated some need for training in this domain. The Present Knowledge is very high for these groups. This, coupled with the Unmet Need outcome, indicates there is not much need for training in this domain.

By Tenure

Figures 242 through 245 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Hydraulics Domain* by tenure. The results by all tenure groups are nearly identical. It also confirms that the need for training in this domain is very low.

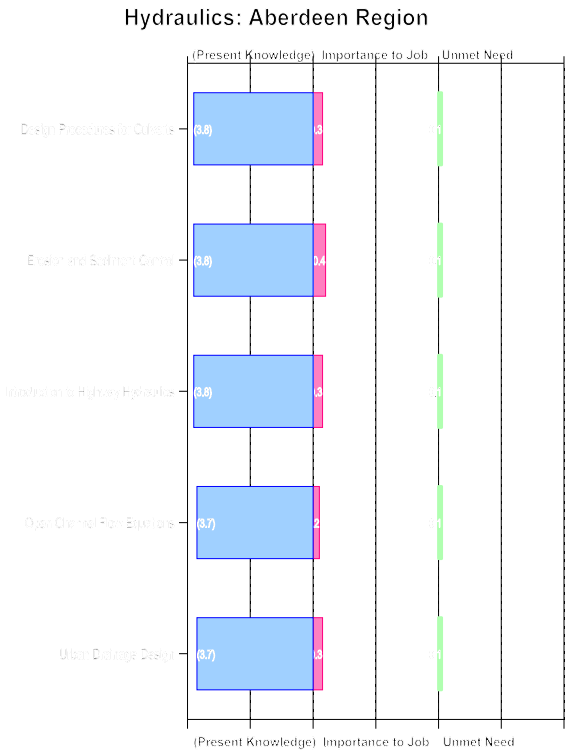

Figure 230: Hydraulics: Aberdeen Region

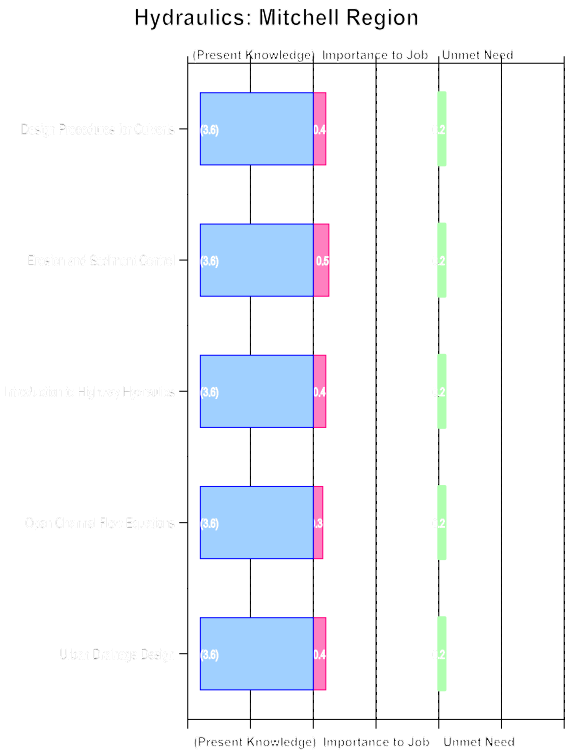

Figure 231: Hydraulics: Mitchell Region

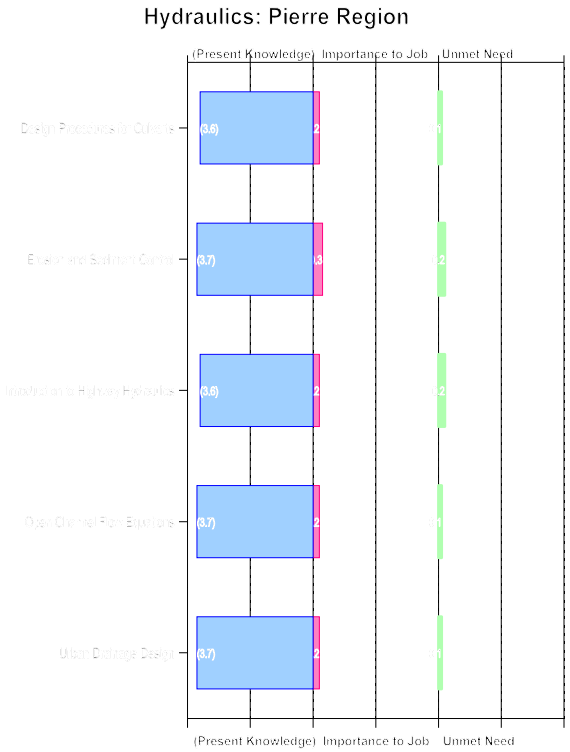

Figure 232: Hydraulics: Pierre Region

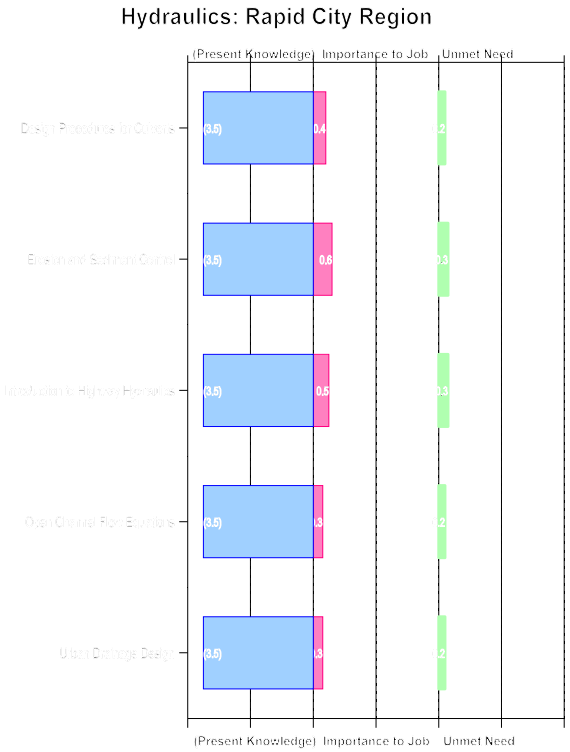

Figure 233: Hydraulics: Rapid City Region

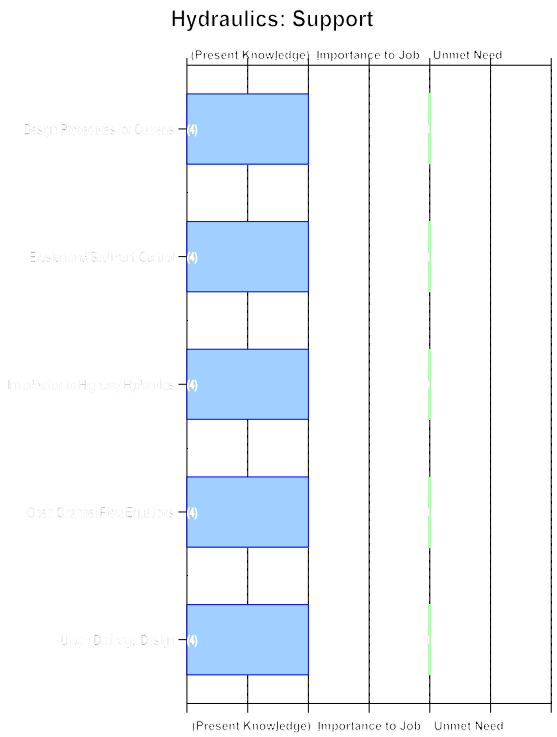

Figure 234: Hydraulics: Support

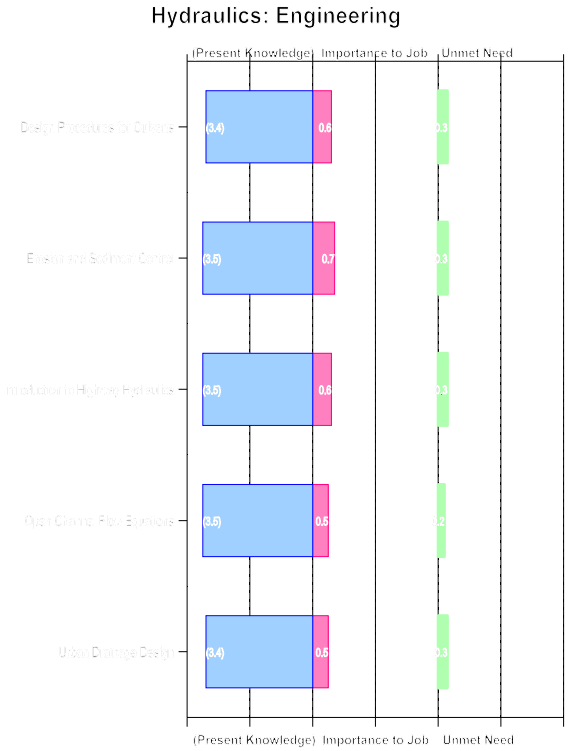

Figure 235: Hydraulics: Engineering

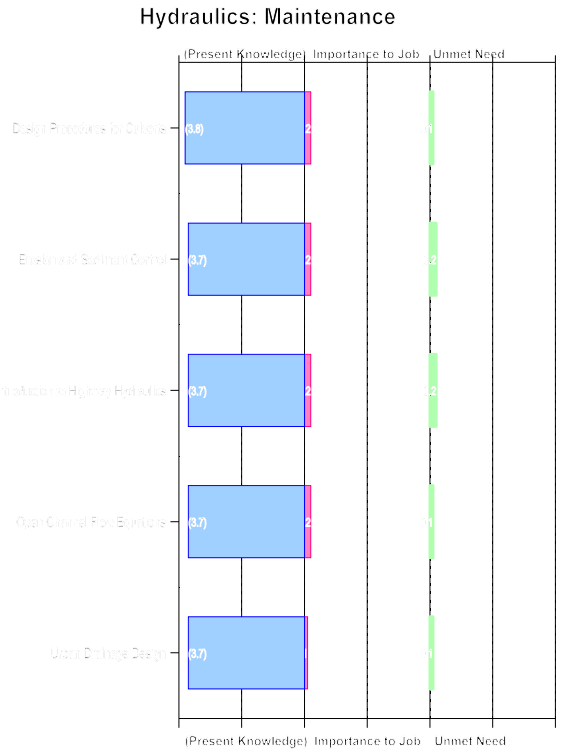

Figure 236: Hydraulics: Maintenance

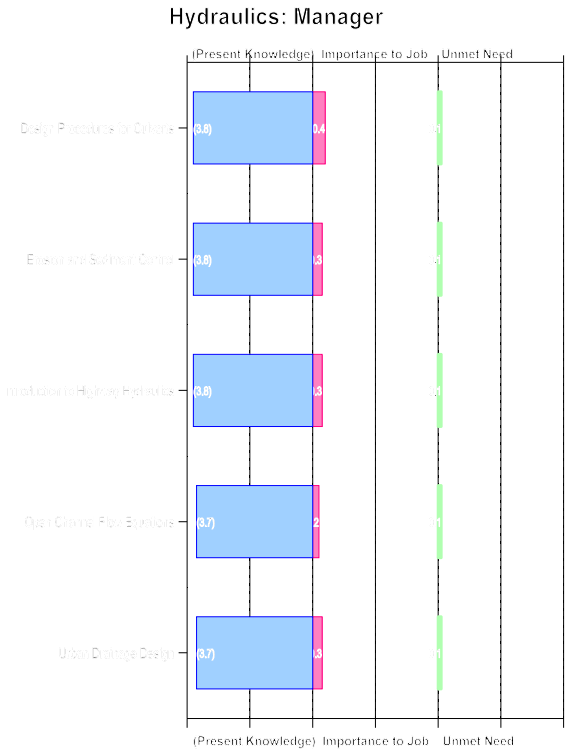

Figure 237: Hydraulics: Manager

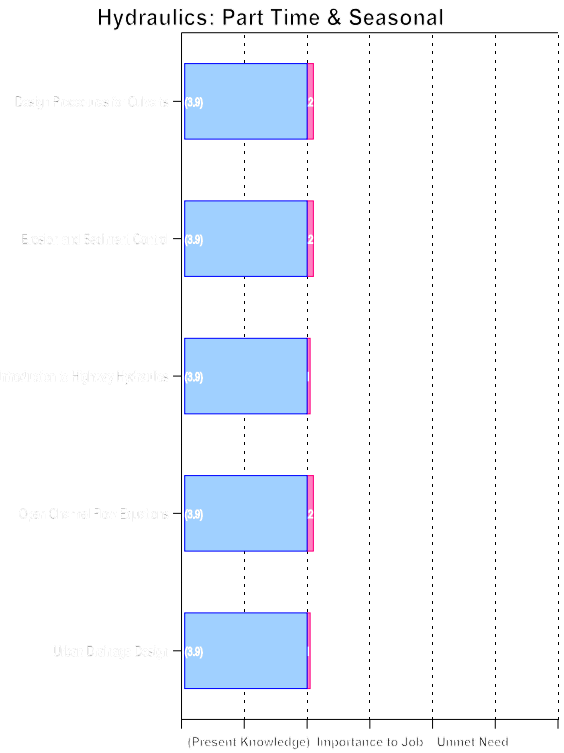

Figure 238: Hydraulics: Part Tim e & Seasonal

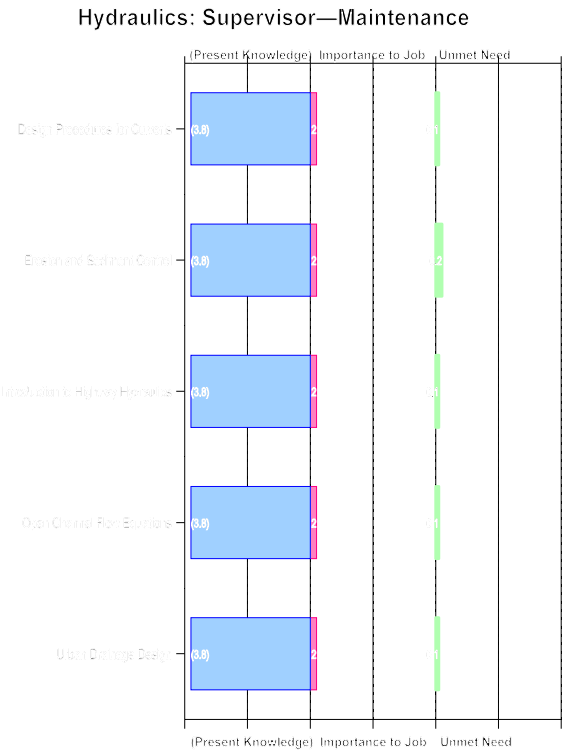

Figure 239: Hydraulics: Supervisor—Maintenance

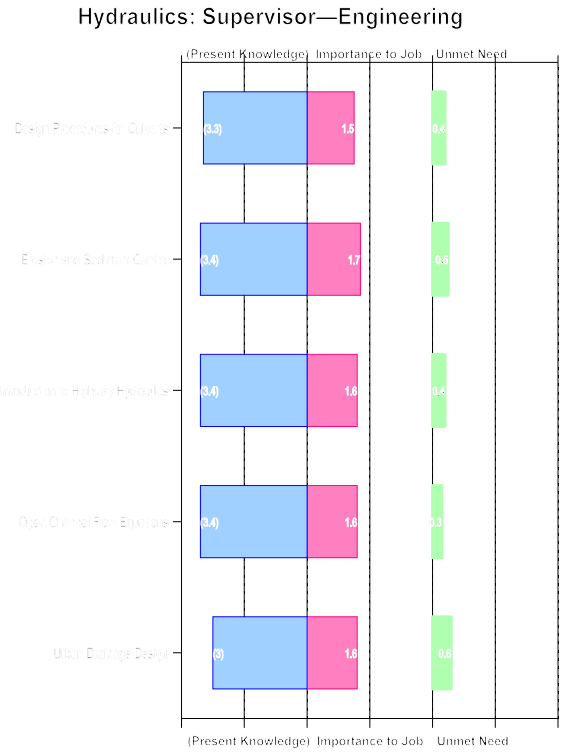

Figure 241: Hydraulics: Supervisor—Engineering

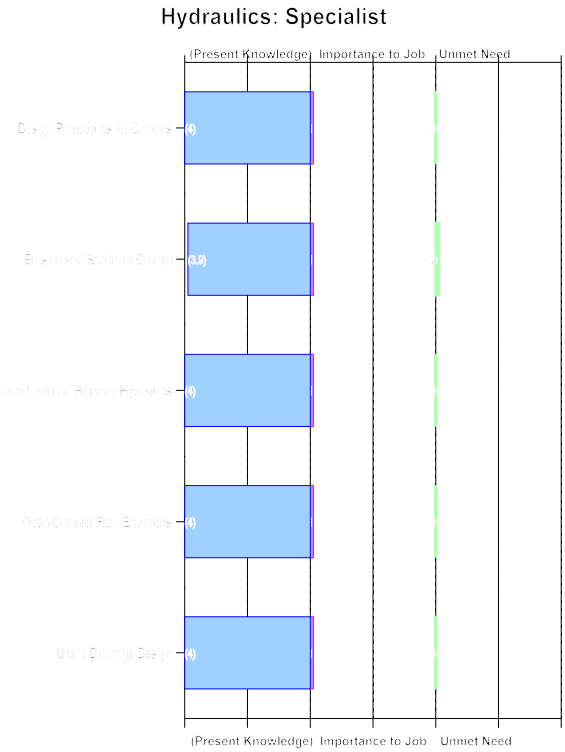

Figure 240: Hydraulics: Specialist

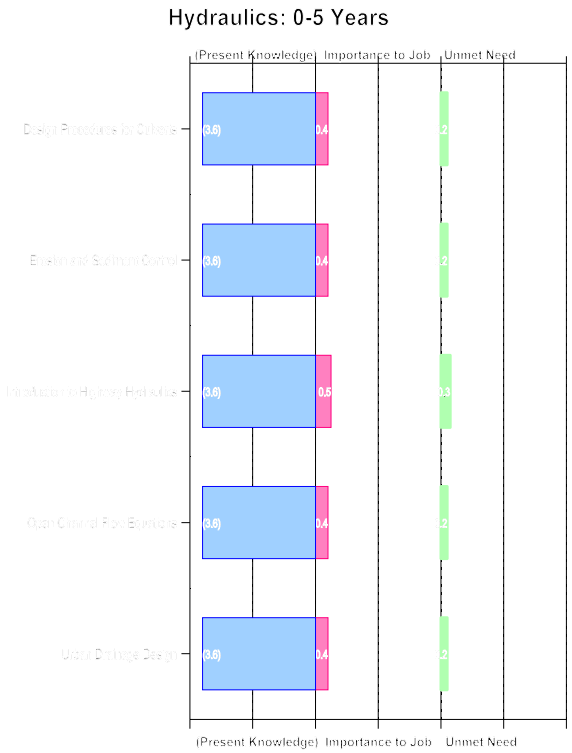

Figure 242: Hydraulics: 0-5 Years

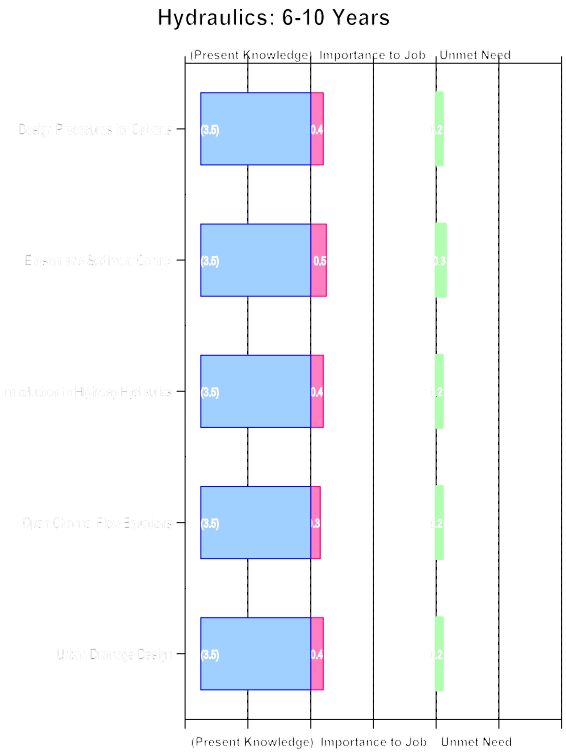

Figure 243: Hydraulics: 6-10 Years

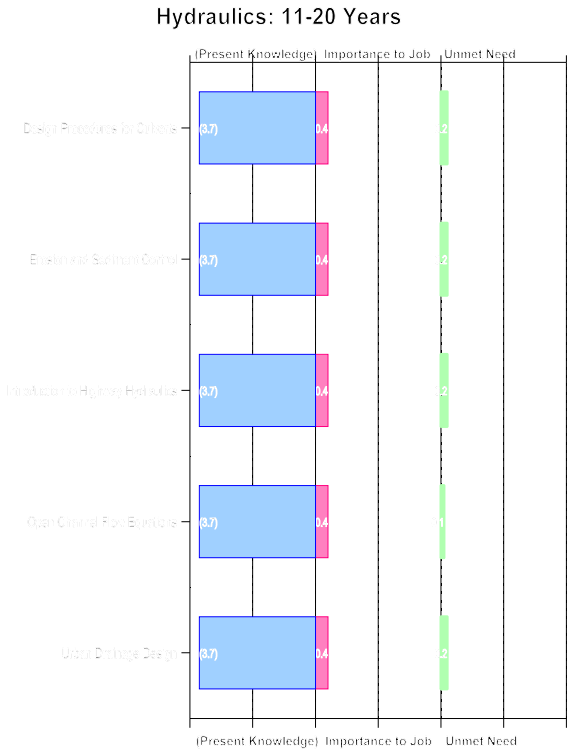

Figure 244: Hydraulics: 11-20 Years

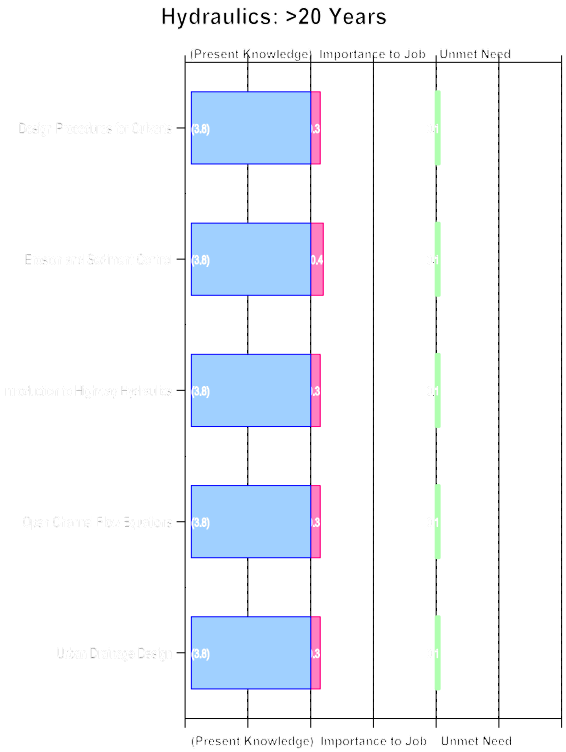

Figure 245: Hydraulics: >20 Years

7.17 Leadership

Overview

Table 27: Leadership Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Techniques for Streamlining Paperwork	1.8	2.3	1.3
Developing Leadership Skills	2.1	2.4	1.1
Develop Skills to Motivate Others	2.0	2.3	1.1
Decision Making	2.2	2.3	1.0
Persuading, Influencing and Negotiating	1.9	2.1	1.0

Department-wide, the *Leadership Domain* ranks as one of the top five in terms of Unmet Need for training. Table 3 lists the top five Knowledge Areas where some benefit could be derived by additional training for SDDOT employees, especially in the Supervisor—Engineering, and Supervisor—Maintenance job groups. These job groups ranked leadership as high in Importance to Job. However, all job groups ranked the *Leadership Domain* as having moderate to high Importance to Job, and feel leadership skills are important. The employees also indicated they have some knowledge in the *Leadership Domain* but could benefit from more training. There were no significant trends identified in the location or tenure analysis.

All SDDOT

Figure 247 illustrates Present Knowledge, Importance to Job, and Unmet Need for the *Leadership Domain*. Department-wide, the Unmet Need for this Domain ranks in the top five of all domains. Table 28 lists the top five Knowledge Areas where employees indicate that additional training is required within the *Leadership Domain*. The Importance to Job rankings range from 1.7 to 2.4 indicating that Department-wide leadership capabilities are important to the departmental employees.

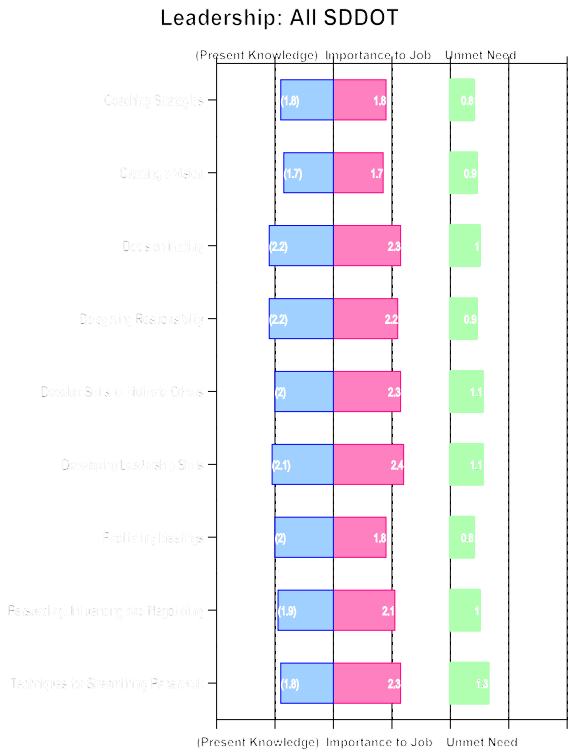

Figure 246: Leadership: All SDDOT

By Location

Figures 247 through 251 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Leadership Domain* by location. The results are nearly identical to the rankings output from the All SDDOT Analysis. The Aberdeen and Pierre Regions ranked *Delegating Responsibility* slightly higher than the other locations.

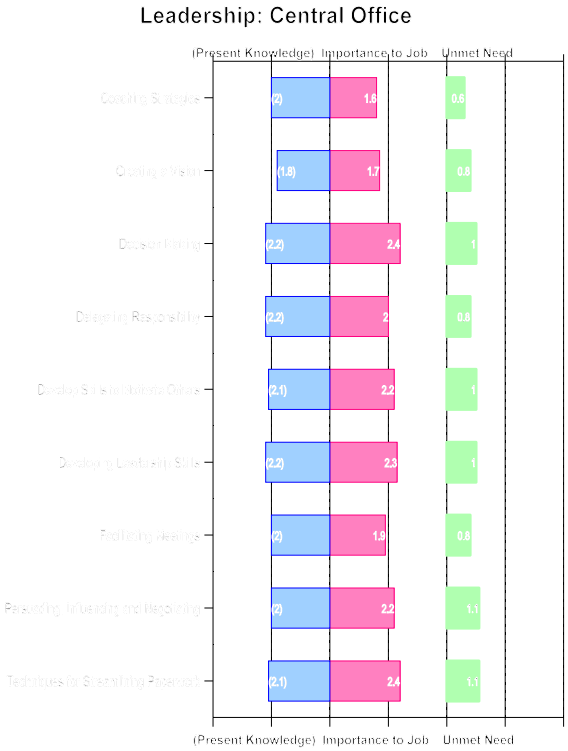

Figure 247: Leadership: Central Office

By Job Group

Figures 252 through 259 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Leadership Domain* by job group. The rankings are nearly identical to those coming out of the All SDDOT and location analyses. Differences in the Importance to Job ranking values occur between job groups. Importance to Job is ranked moderate, to high for all job groups. The Supervisor—Engineering and Supervisor—Maintenance ratings for Importance to Job are 2.5 to 3.8. The remaining job groups rankings for Importance to Job range from to 0.6 to 2.5. All job groups feel leadership skills are important to their job. Employees indicate their Present Knowledge is in the moderate range.

By Tenure

Figures 260 through 263 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Leadership Domain* by tenure. The rankings for each tenure category are nearly identical to the results obtained from the All SDDOT analysis. There are no distinguishable trends between the tenure groups. They indicate there is some Present Knowledge, leadership skills are important to their job, and some Unmet Need exists.

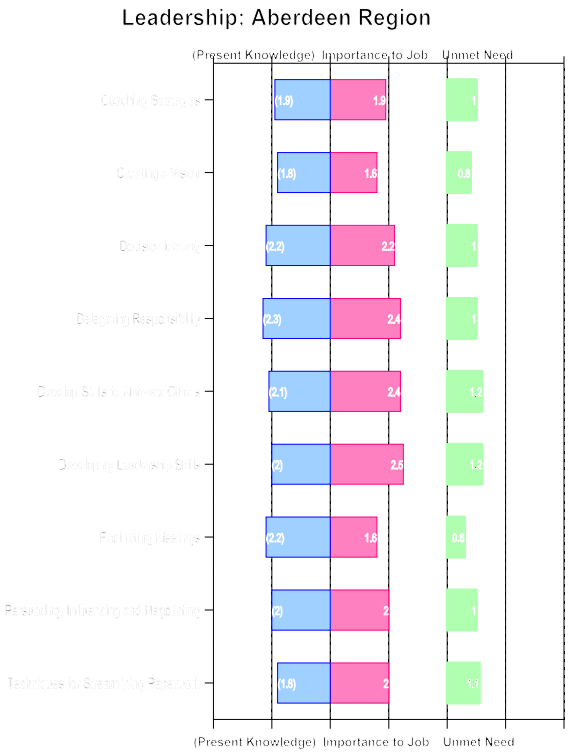

Figure 248: Leadership: Aberdeen Region

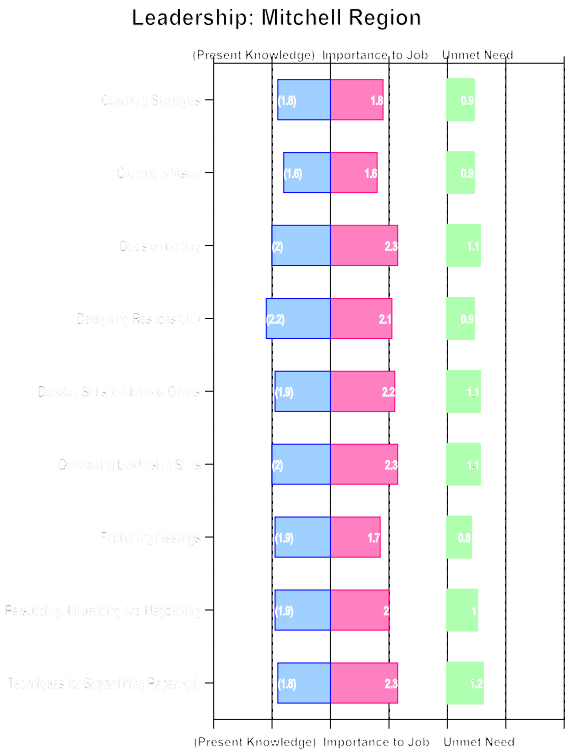

Figure 249: Leadership: Mitchell Region

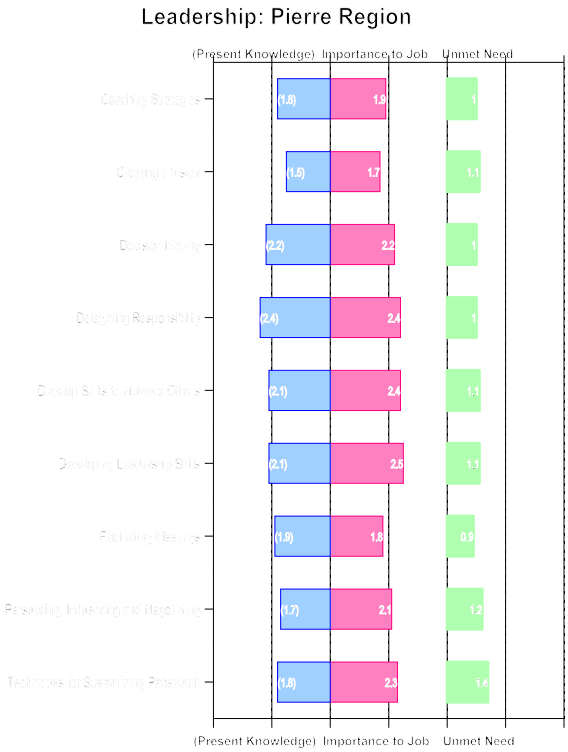

Figure 250: Leadership: Pierre Region

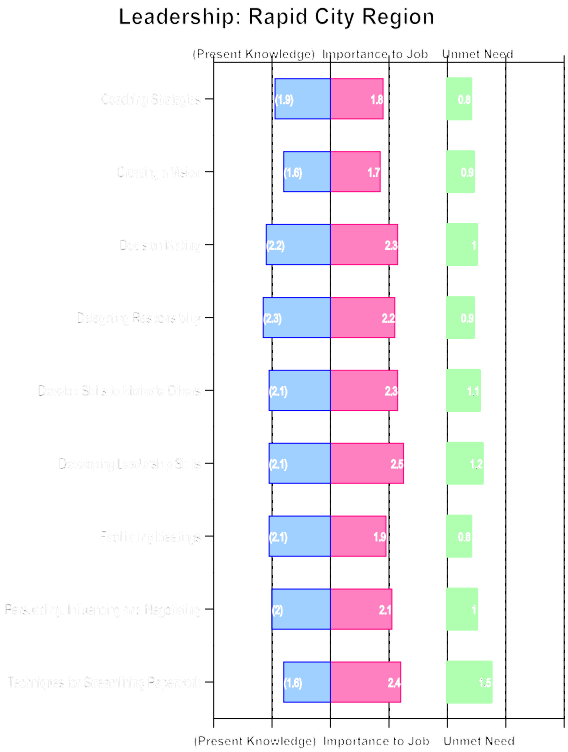

Figure 251: Leadership: Rapid City Region

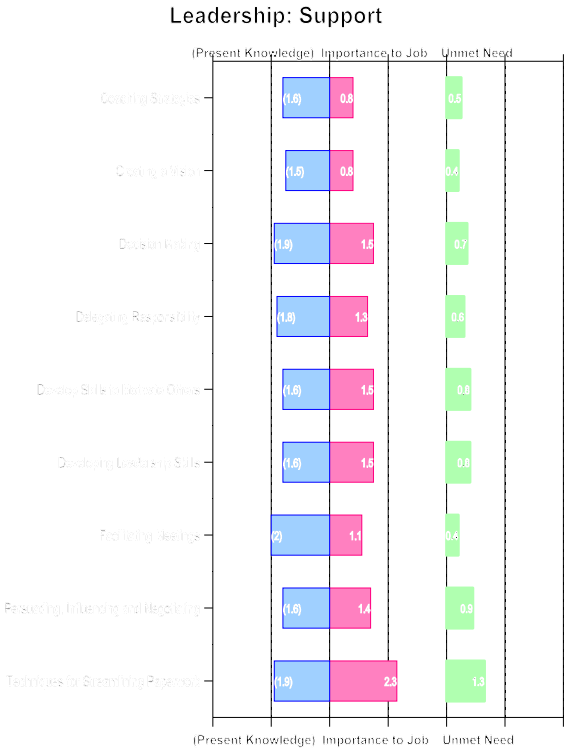

Figure 252: Leadership: Support

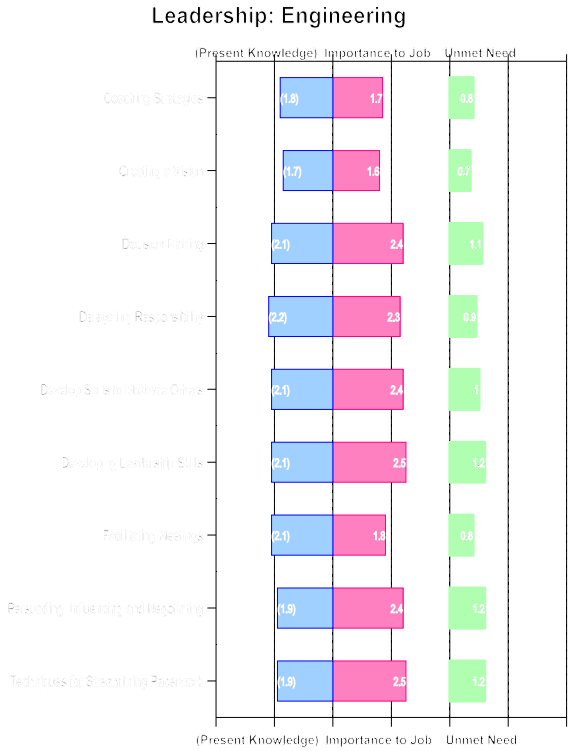

Figure 253: Leadership: Engineering

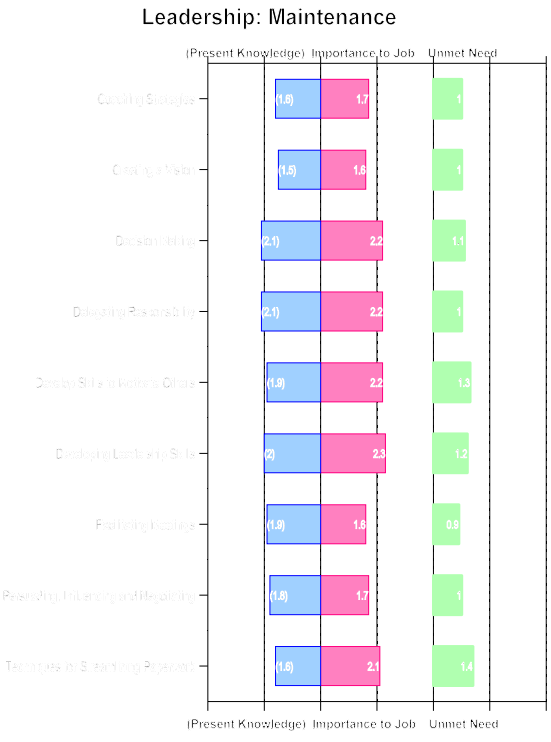

Figure 254: Leadership: Maintenance

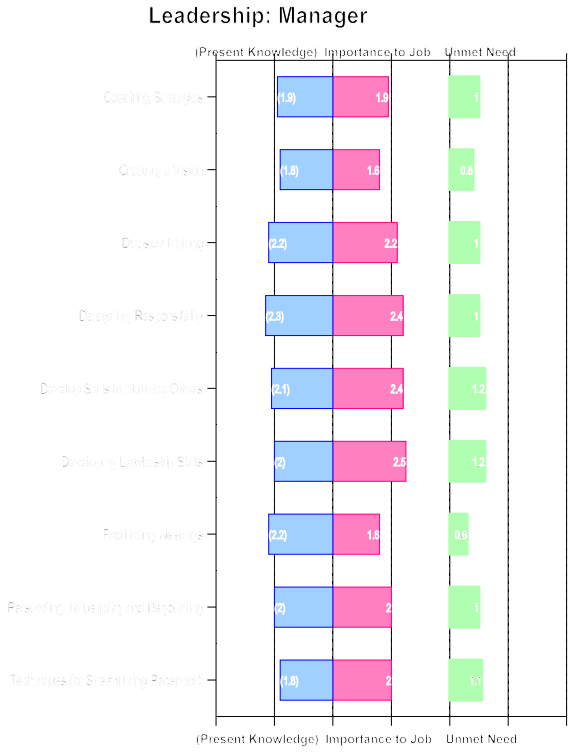

Figure 255: Leadership: Manager

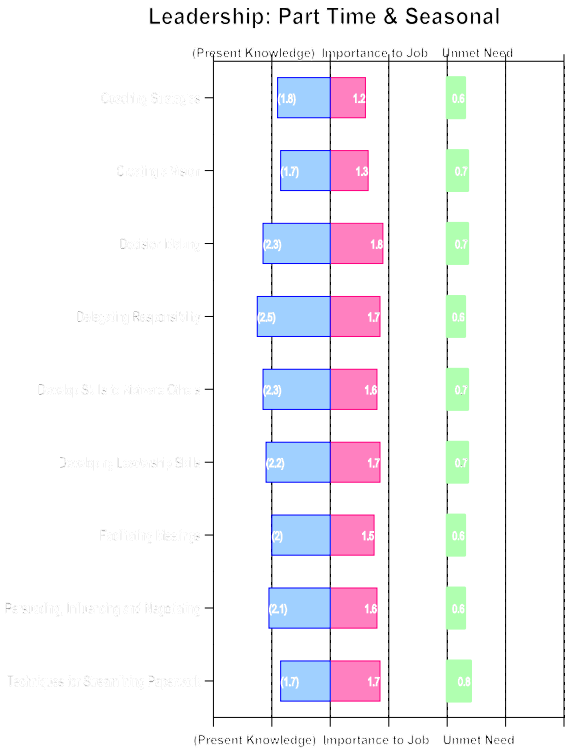

Figure 256: Leadership: Part Time & Seasonal

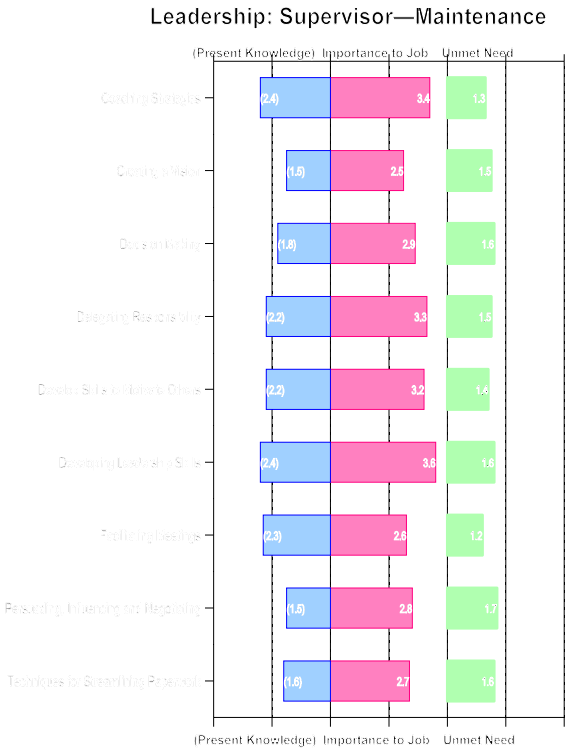

Figure 257: Leadership: Supervisor—Maintenance

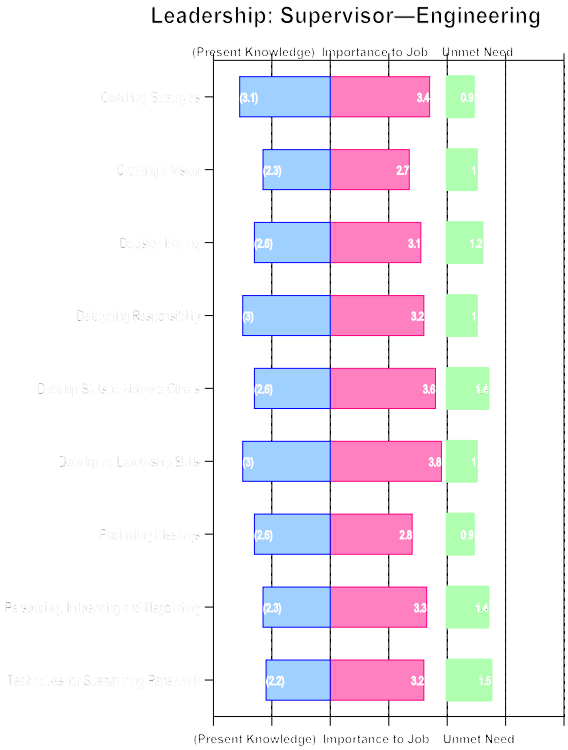

Figure 258: Leadership: Supervisor—Engineering

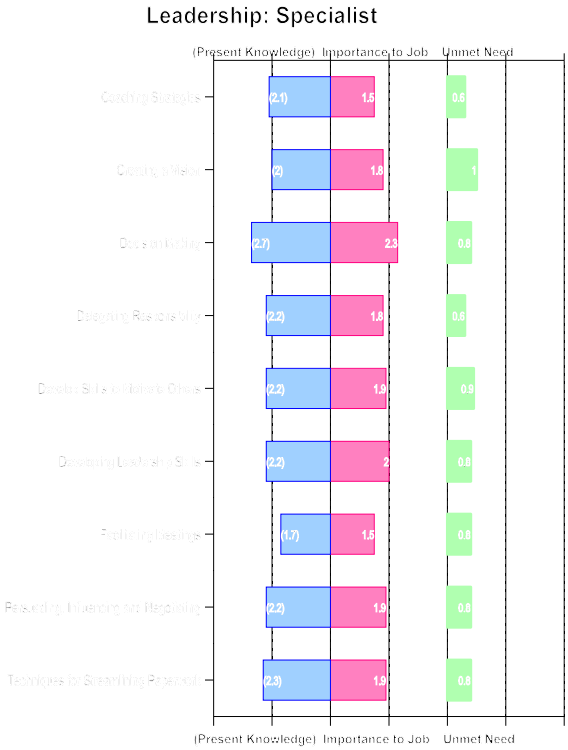

Figure 259: Leadership: Specialist

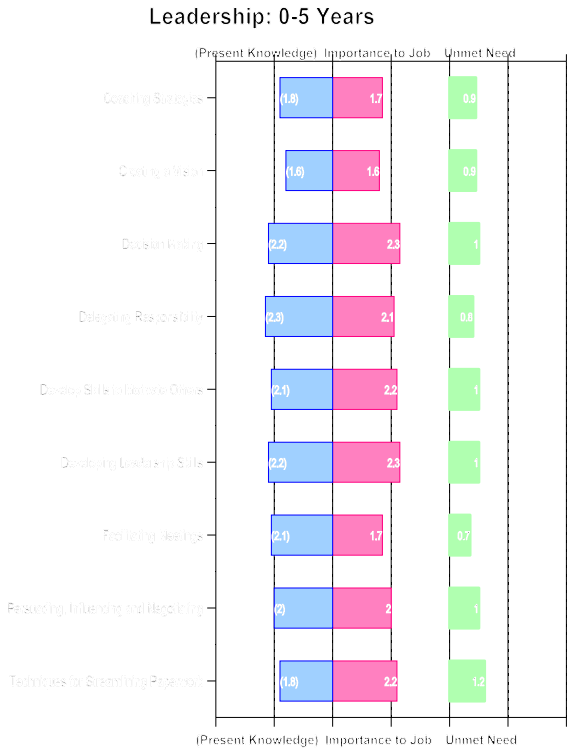

Figure 260: Leadership: 0-5 Years

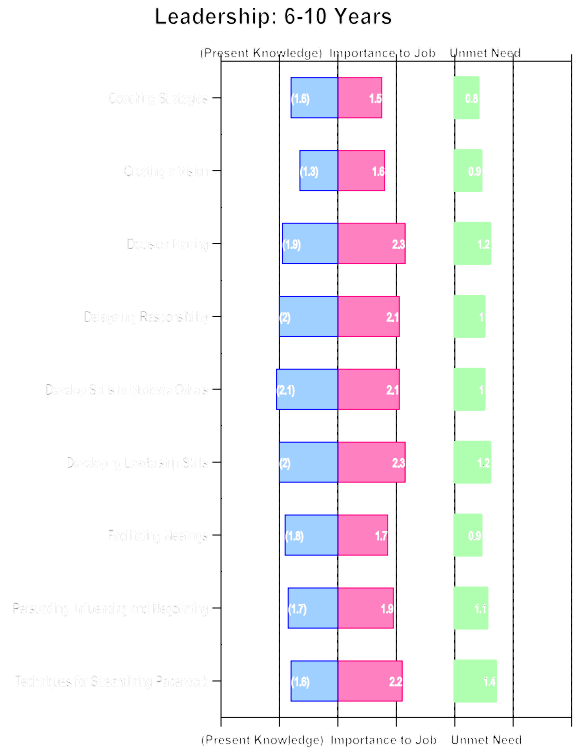

Figure 261: Leadership: 6-10 Years

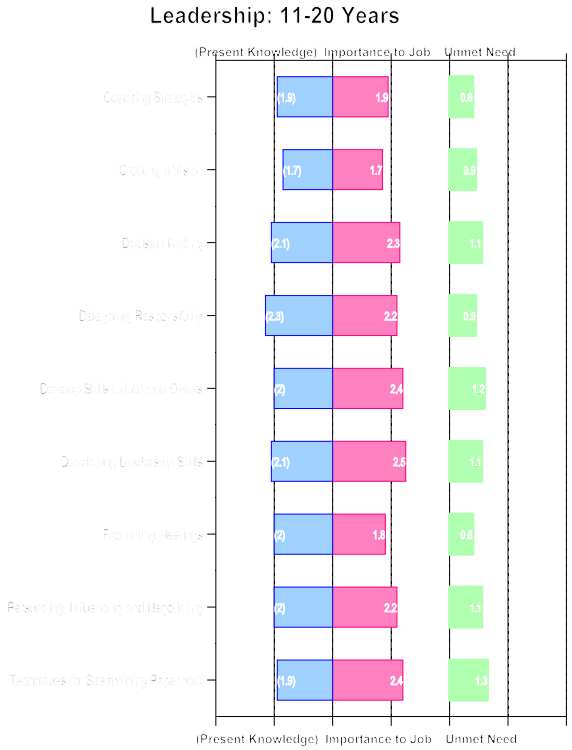

Figure 263: Leadership: 11-20 Years

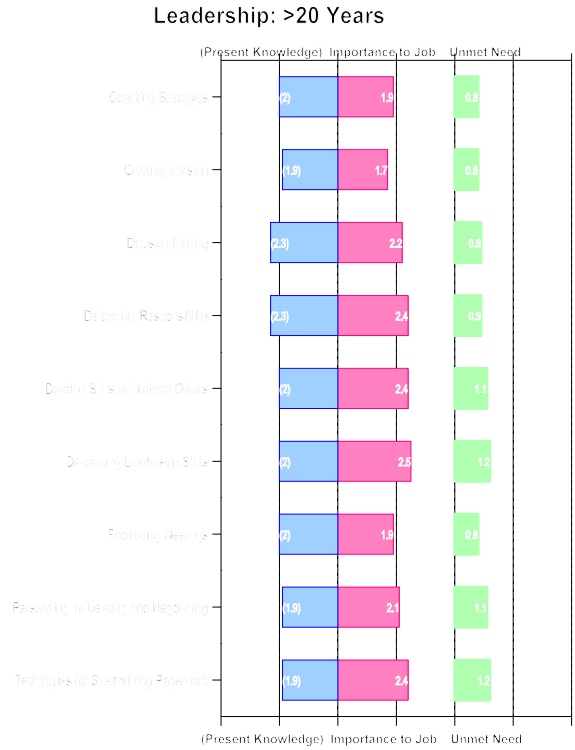

Figure 262: Leadership: >20 Years

7.18 Maintenance

Overview

Table 28: Maintenance Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Training Need
Flagger Certification—Instructor Training	3.3	1.1	0.4
Flagger Certification Training	3.5	1.2	0.4

Table 28 lists the top five knowledge areas where some benefit could be derived by additional training for SDDOT employees, primarily in the Maintenance and Supervisor—Maintenance job groups. Other groups indicating some Unmet Need for training in this domain are the Engineering, Part Time & Seasonal, Supervisor—Engineering, and Manager job groups. Also, employees in the 0-5 Years Tenure group indicated slightly more of a Unmet Need in this domain than the other tenure groups. Employees involved with construction and maintenance projects require knowledge in this domain. The overall Unmet Need indicated by the Department's employees for this domain is considered low. The Department has emphasized and provided training in this domain and should continue providing training to those involved with construction and maintenance activities.

All SDDOT

Figure 264 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Maintenance Domain* for All SDDOT. Department-wide, there is sufficient Present Knowledge of the *Maintenance Domain*. The associated Importance to Job and Unmet Need are ranked low. Across the Department there is little need for training in this domain.

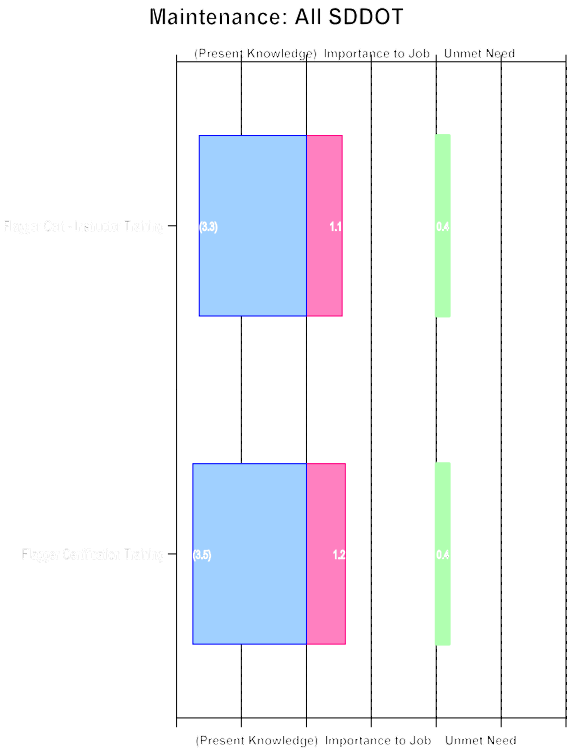

Figure 264: Maintenance: All SDDOT

By Location

Figures 265 through 269 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Maintenance Domain* by location. The rankings are nearly identical to those coming out of the All SDDOT analysis. The central office indicated almost no Importance to Job or Unmet Need for the *Maintenance Domain*. The regions indicate there is a need for additional training in this domain, although it is very low. Construction and maintenance activities in the regions require that employees receive training in this domain. However, there is not a high need for training.

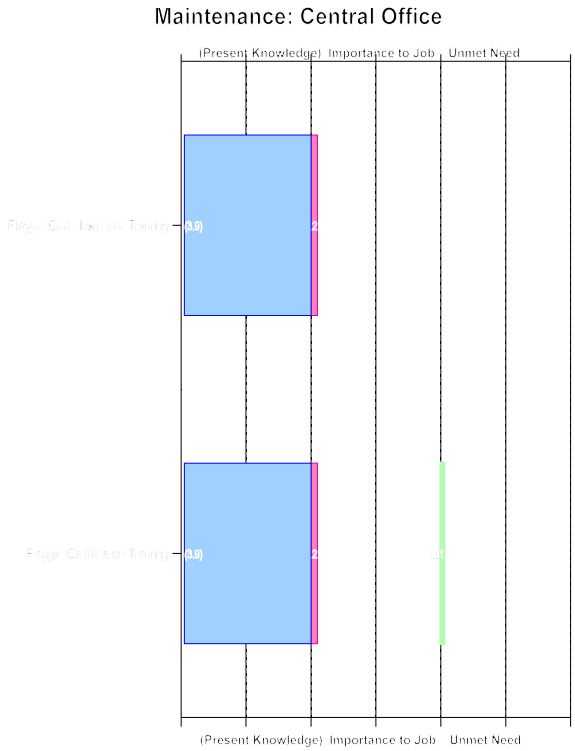

Figure 265: Maintenance: Central Office

By Job Group

Figures 270 through 277 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Maintenance Domain* by job group. Those employees involved in construction and maintenance require knowledge in this domain. The Engineering, Part Time & Seasonal, Supervisor—Engineering, and Manager job group rankings indicate low Importance to Job and low Unmet Need. The Maintenance and Supervisor—Maintenance job groups indicate moderate Importance to Job with an associated low Unmet Need.

By Tenure

Figures 278 through 281 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Maintenance Domain* by tenure. The rankings are nearly identical to those found through the All SDDOT analysis. There is a slight increase in Unmet Need for the 0-5 Years Tenure group when compared to the other tenure groups. However, all tenure groups rank the need for training as low.

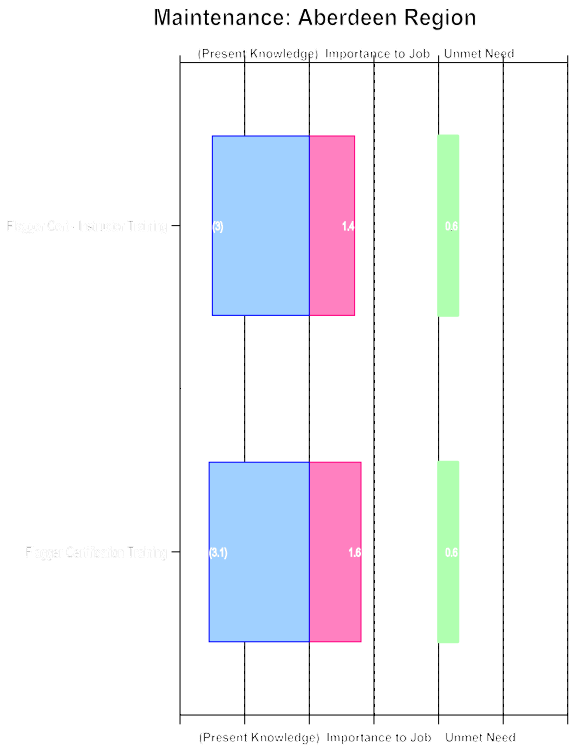

Figure 266: Maintenance: Aberdeen Region

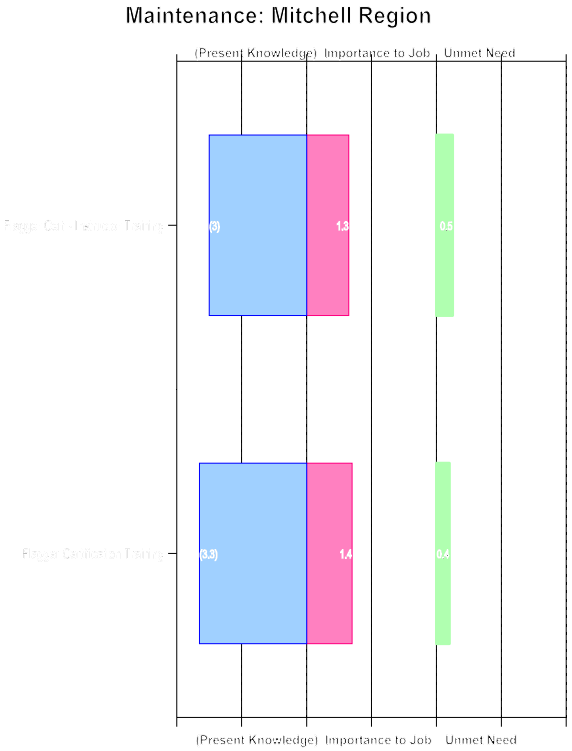

Figure 267: Maintenance: Mitchell Region

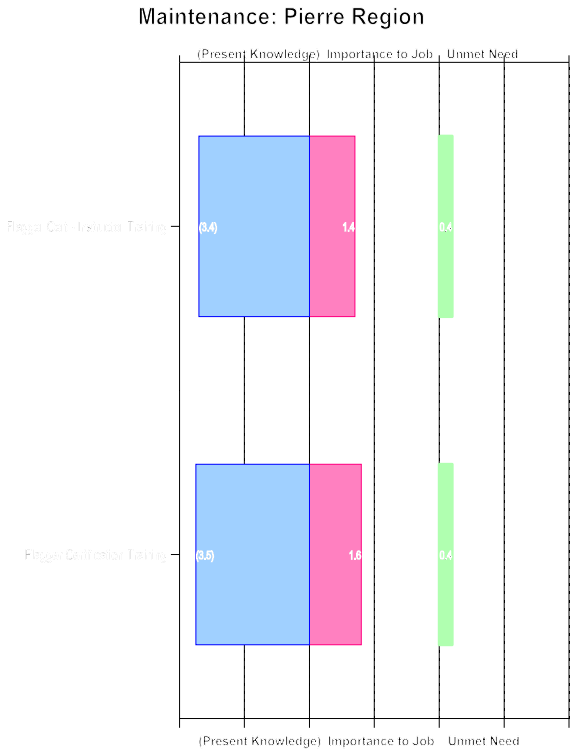

Figure 268: Maintenance: Pierre Region

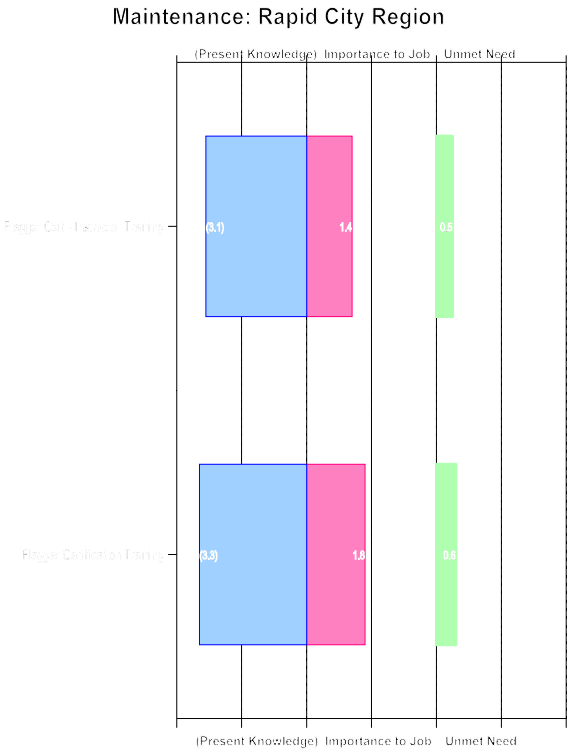

Figure 269: Maintenance: Rapid City Region

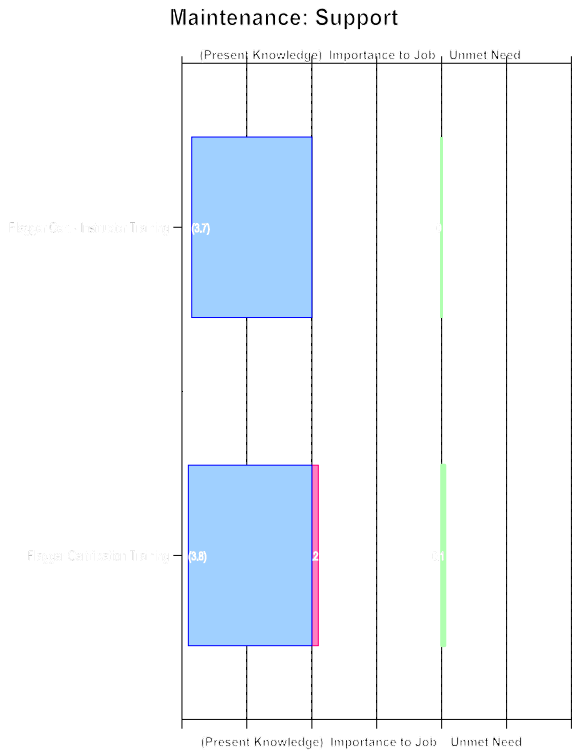

Figure 270: Maintenance: Support

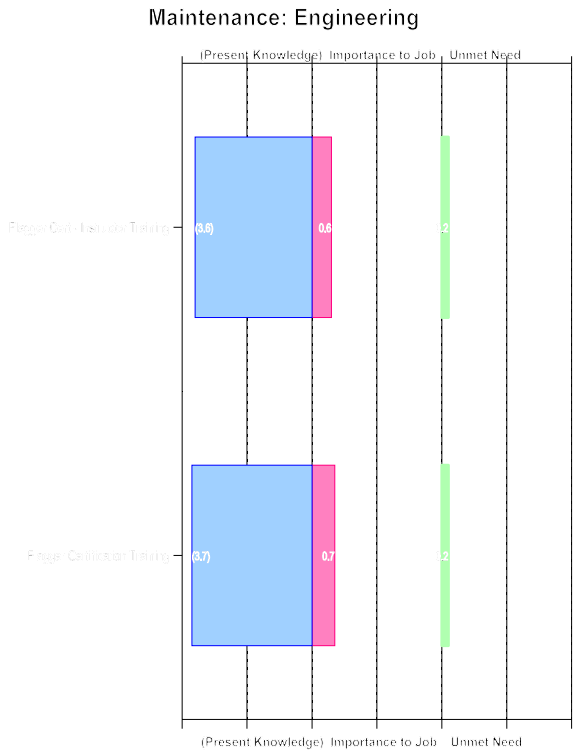

Figure 271: Maintenance: Engineering

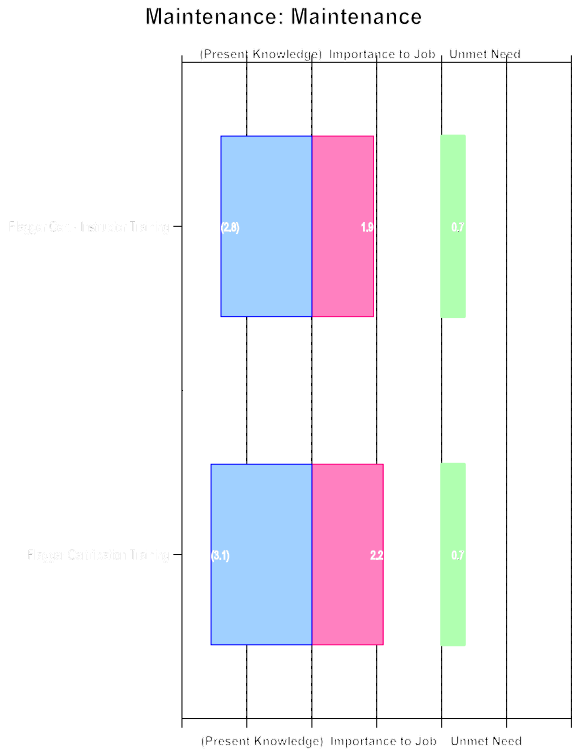

Figure 272: Maintenance: Maintenance

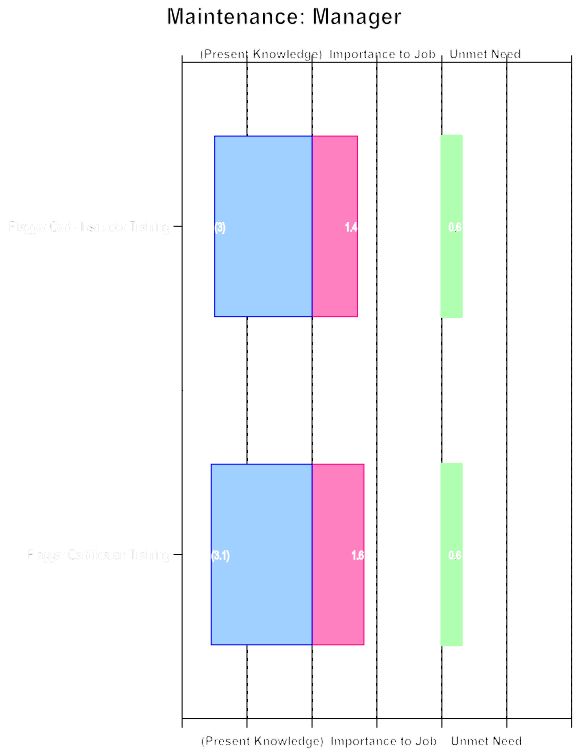

Figure 273: Maintenance: Manager

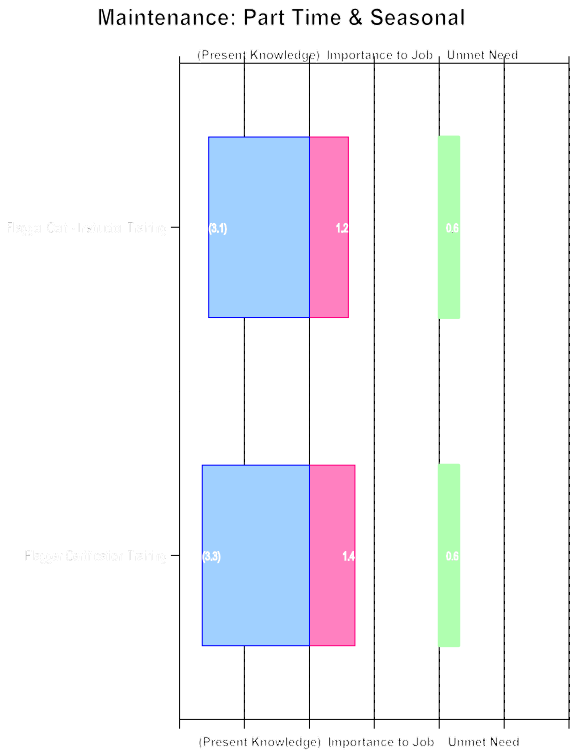

Figure 274: Maintenance: Part Time & Seasonal

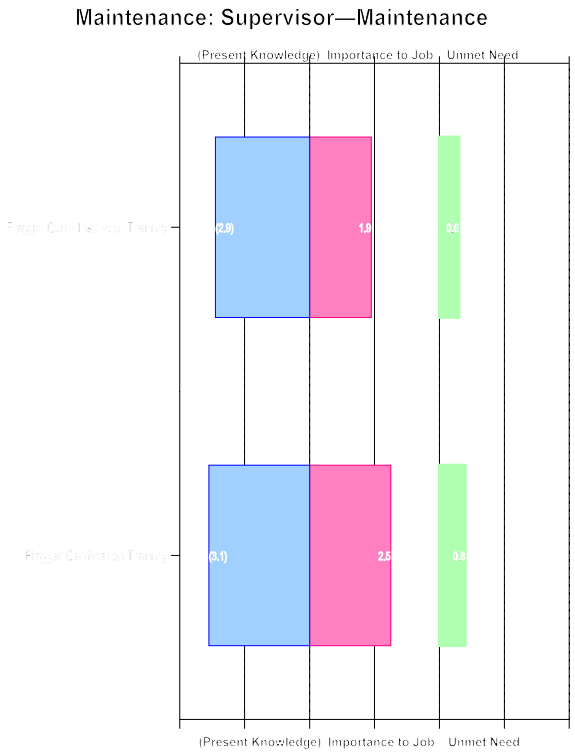

Figure 275: Maintenance: Supervisor—Maintenance

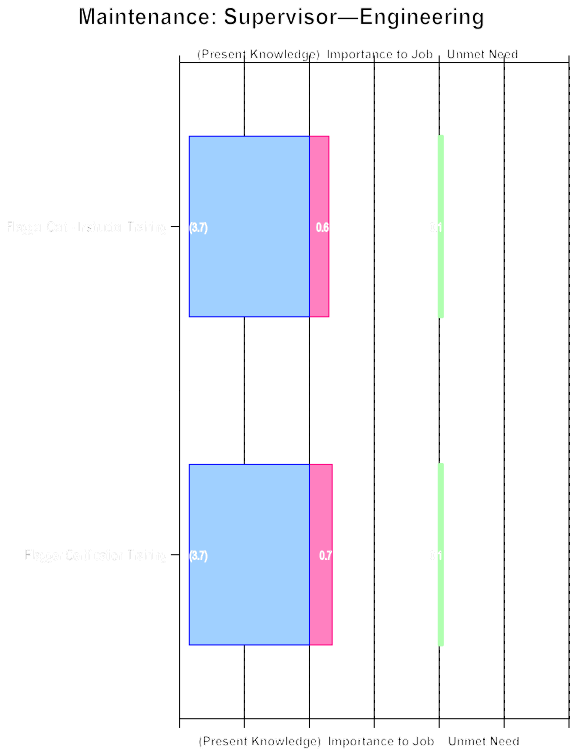

Figure 276: Maintenance: Supervisor—Engineering

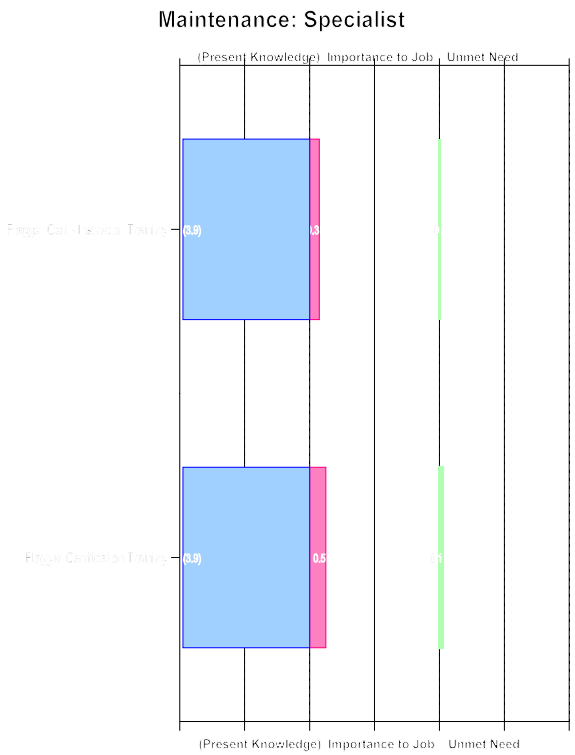

Figure 277: Maintenance: Specialist

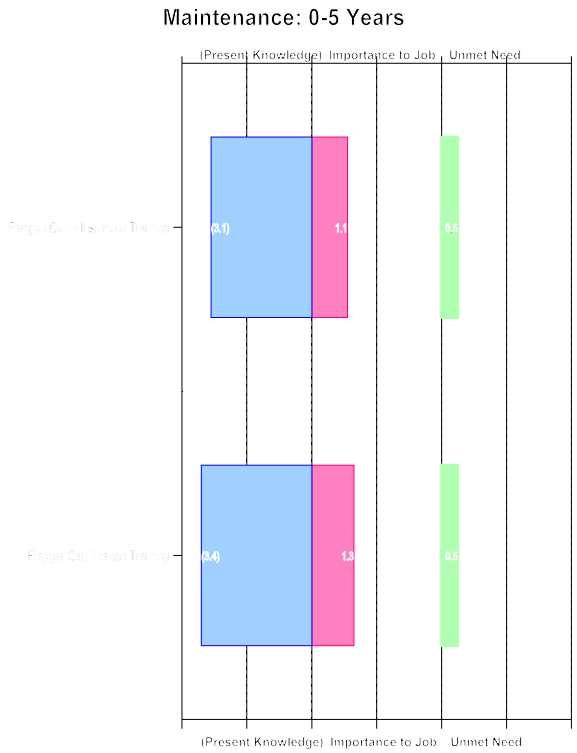

Figure 278: Maintenance: 0-5 Years

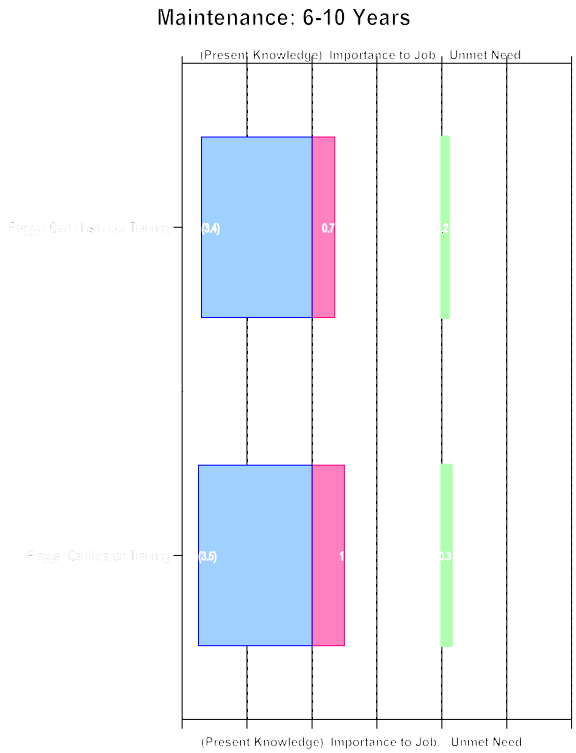

Figure 279: Maintenance: 6-10 Years

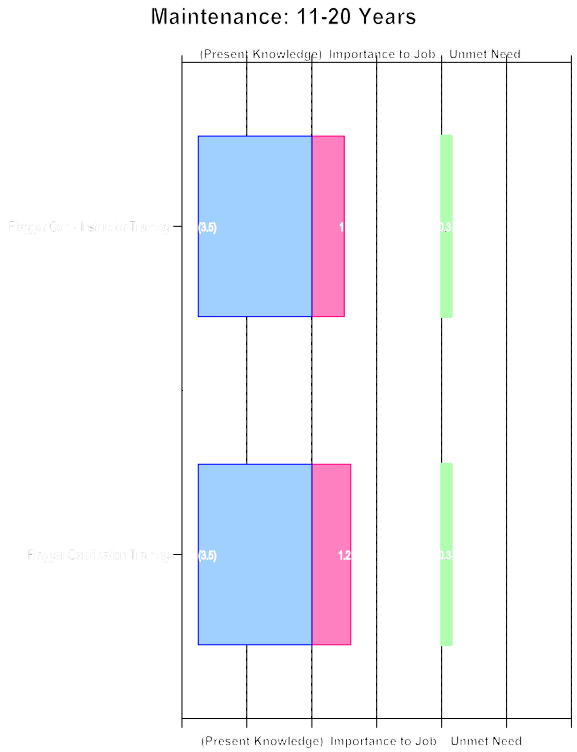

Figure 280: Maintenance: 11-20 Years

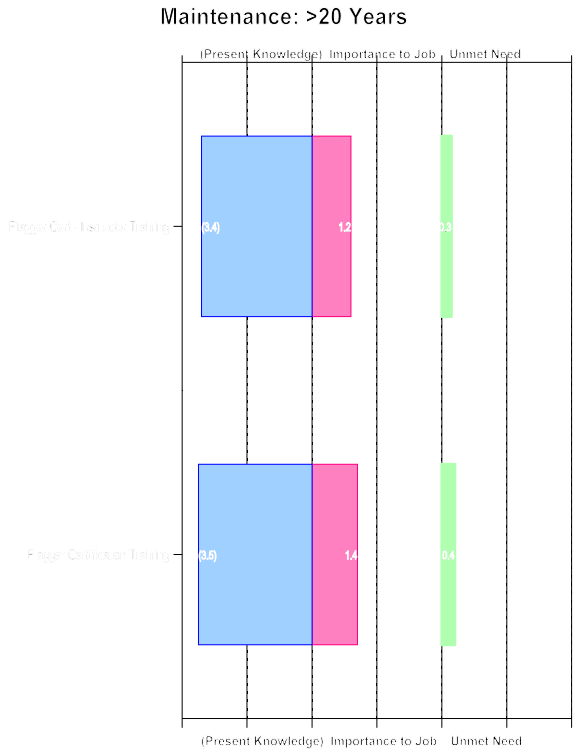

Figure 281: Maintenance: >20 Years

7.19 Materials

Overview

Overall, the Department's employees indicated they have a high degree of knowledge in the *Materials Domain*. The associated Unmet Need is very low, which might be expected since the Department emphasizes training in this domain. Table 29 lists the top five knowledge areas where some benefit could be derived by additional training, primarily for the Engineering, Supervisor—Engineering, and Manager job groups. The Importance to Job rankings indicate training in this domain is still necessary and should continue.

Table 29: Maintenance Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Training Need
Materials Control & Acceptance	3.8	0.8	0.2
Laboratory & Plant Inspection	3.7	0.7	0.2
Radiation Monitoring	3.6	0.5	0.2
Sampling & Testing of Aggregates	3.8	0.8	0.1

All SDDOT

Figure 282 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Materials Domain* for All SDDOT. Department-wide, employees have indicated they have sufficient knowledge in the *Materials Domain*. The associated Importance to Job and Unmet Need are ranked low.

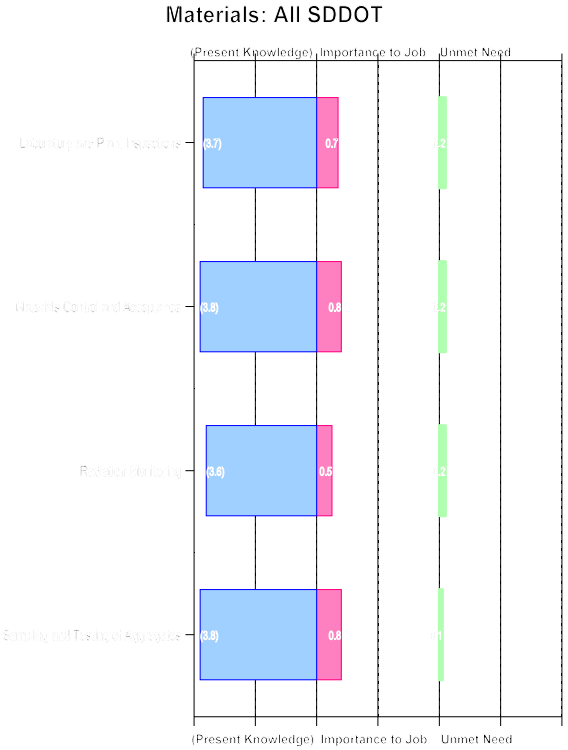

Figure 282: Materials: All SDDOT

By Location

Figures 283 through 287 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Materials Domain* by location. The results nearly match that found through the All SDDOT analysis and indicate there is a high level of Present Knowledge in the *Materials Domain.* Employees in the central office indicated that the *Materials Domain* has a very low importance in relation to their jobs. The regions ranked the *Materials Domain* as having a higher importance to their jobs and a higher Unmet Need. However, the rankings are still low, which indicates there is not an immediate need for additional training in this domain.

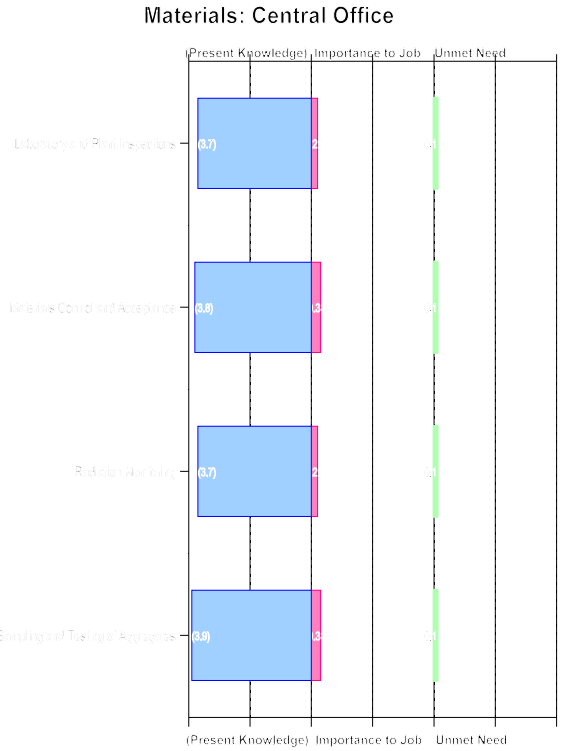

Figure 283: Materials: Central Office

By Job Group

Figures 288 through 295 illustrate Present Knowledge, Importance to Job, and Unmet Need for the *Materials Domain* by job group. The results indicate that the Engineering, Supervisor—Engineering, and Manager job groups rate the *Materials Domain* of moderate Importance to Job and there is a low Unmet Need in this domain. The associated Present Knowledge for these job groups is high, which corresponds to the low Unmet Need.

By Tenure

Figures 296 through 299 illustrate the Present Knowledge, Importance to Job, and Unmet Need within the *Materials Domain* by tenure. The rankings are nearly identical to the All SDDOT analysis. It is interesting to note that employees with 6-10 Years Tenure indicated a higher Importance to Job and a slightly higher Unmet Need than the other tenure groups.

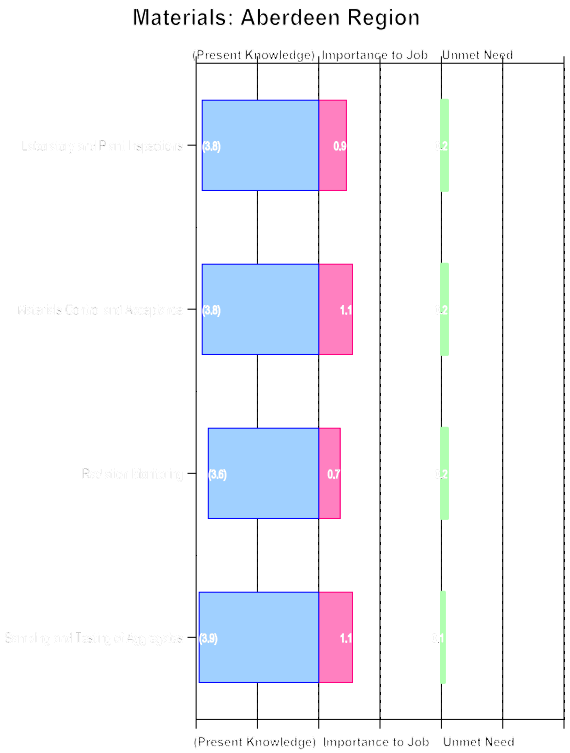

Figure 284: Materials: Aberdeen Region

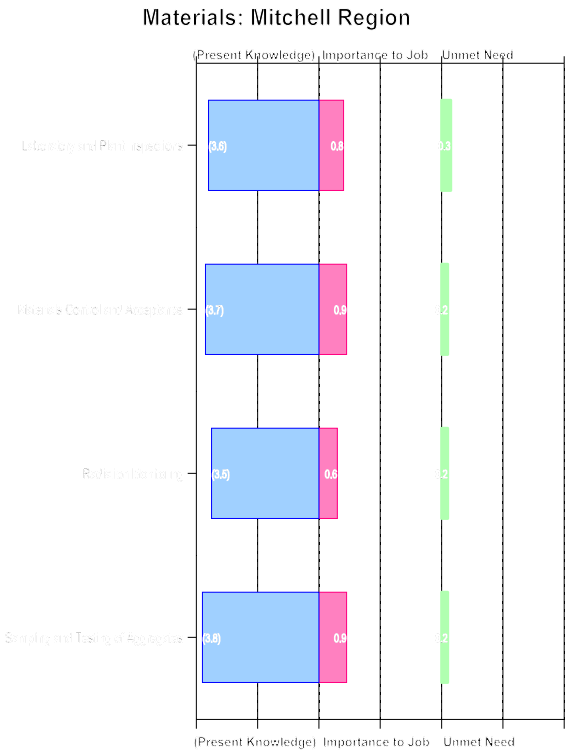

Figure 285: Materials: Mitchell Region

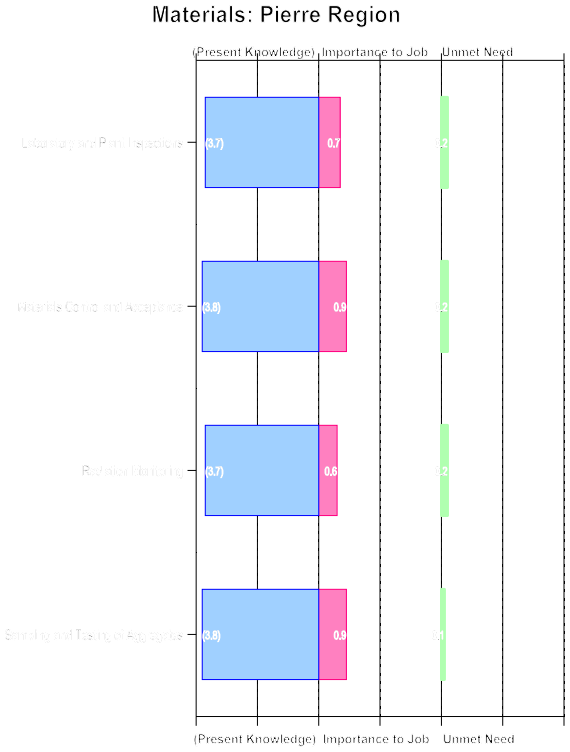

Figure 286: Materials: Pierre Region

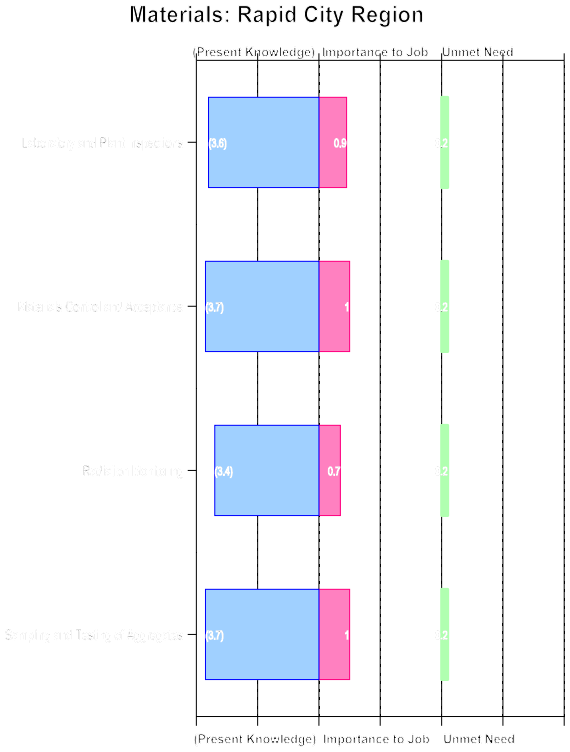

Figure 287: Materials: Rapid City Region

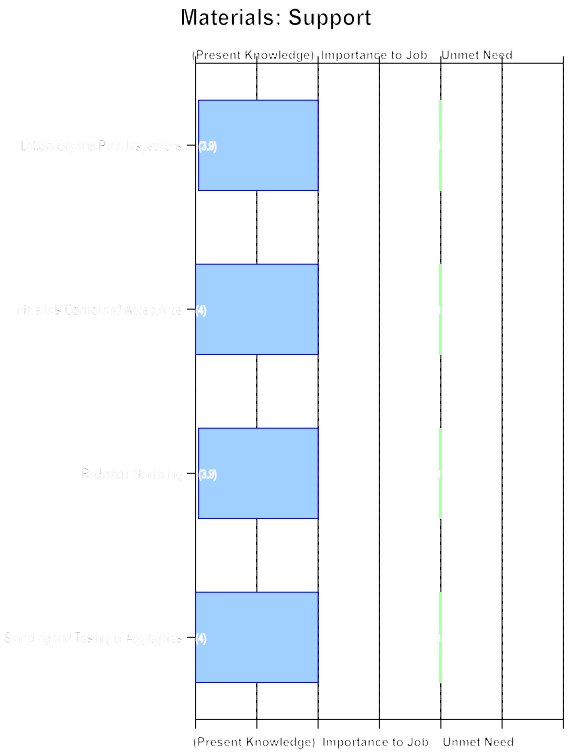

Figure 288: Materials: Support

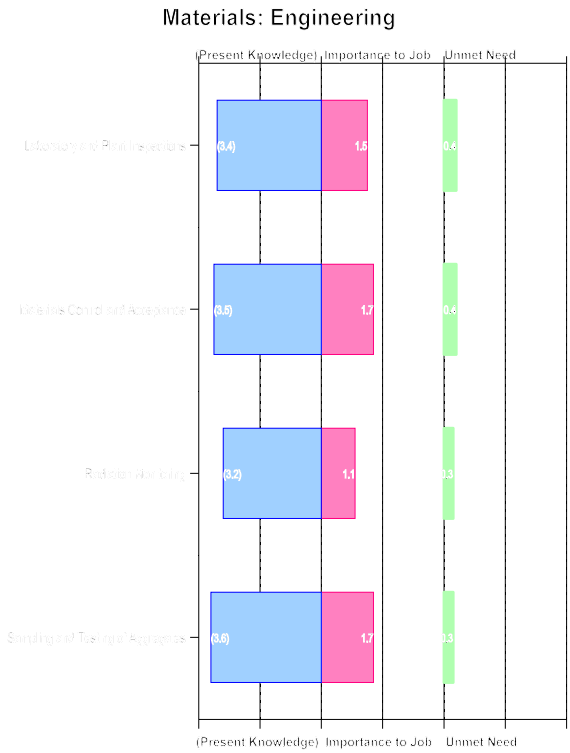

Figure 289: Materials: Engineering

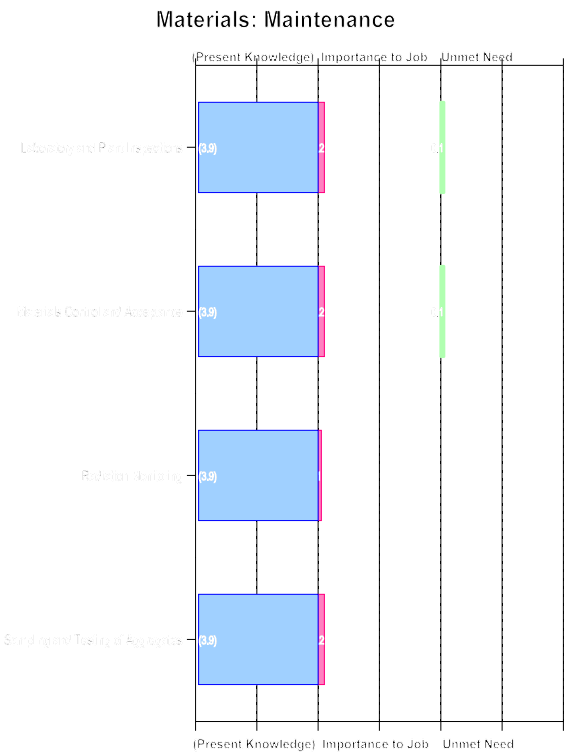

Figure 290: Materials: Maintenance

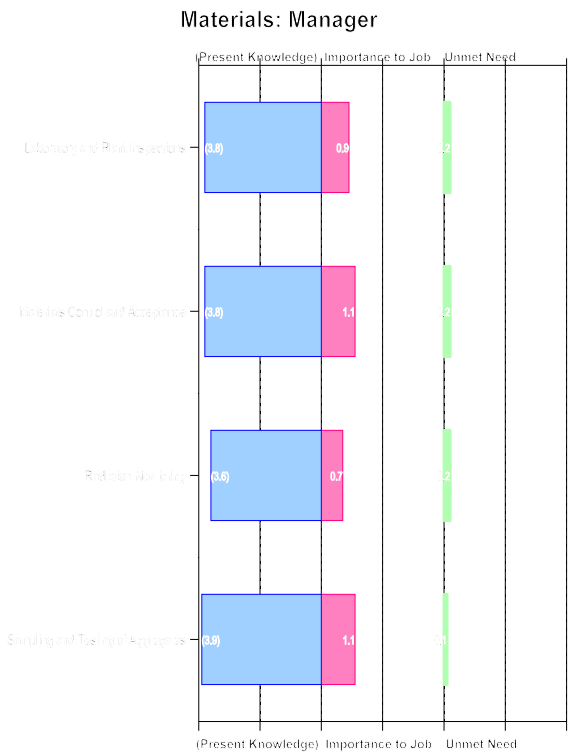

Figure 291: Materials: Manager

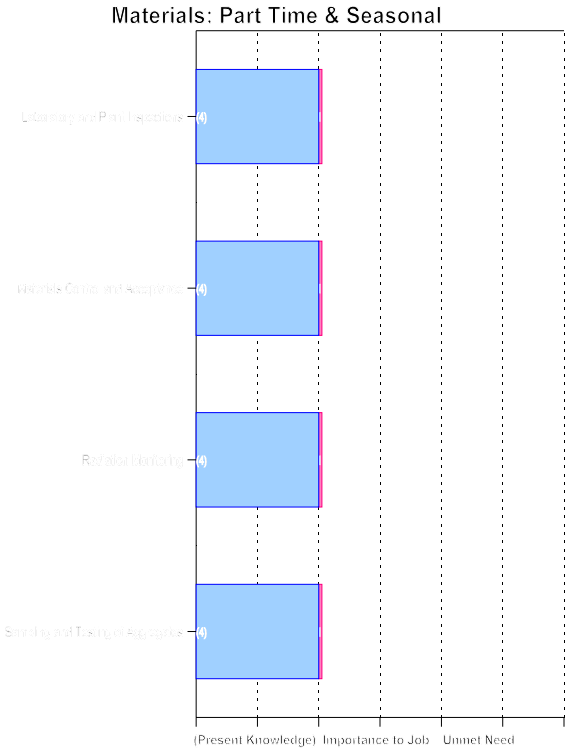

Figure 295: Materials: Part Time & Seasonal

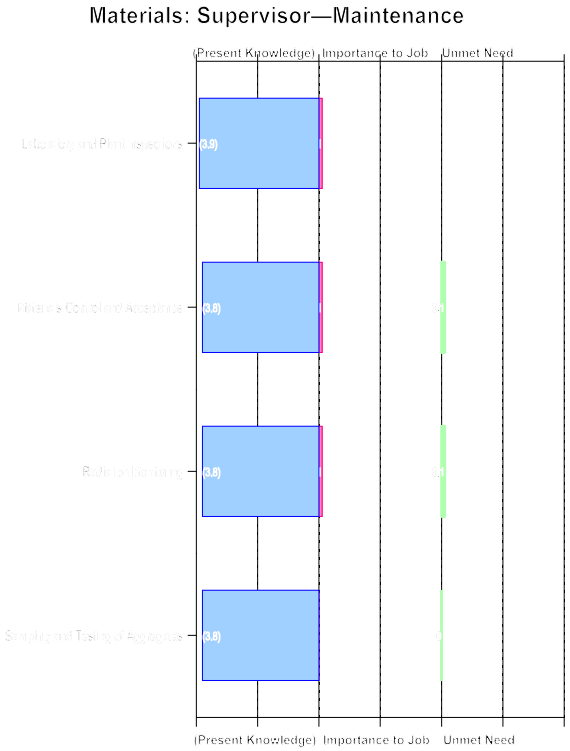

Figure 292: Materials: Supervisor—Maintenance

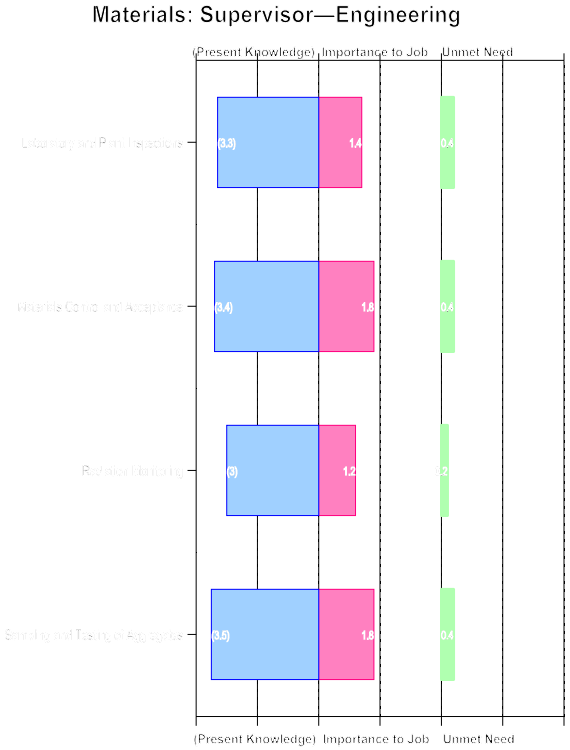

Figure 294: Materials: Supervisor—Engineering

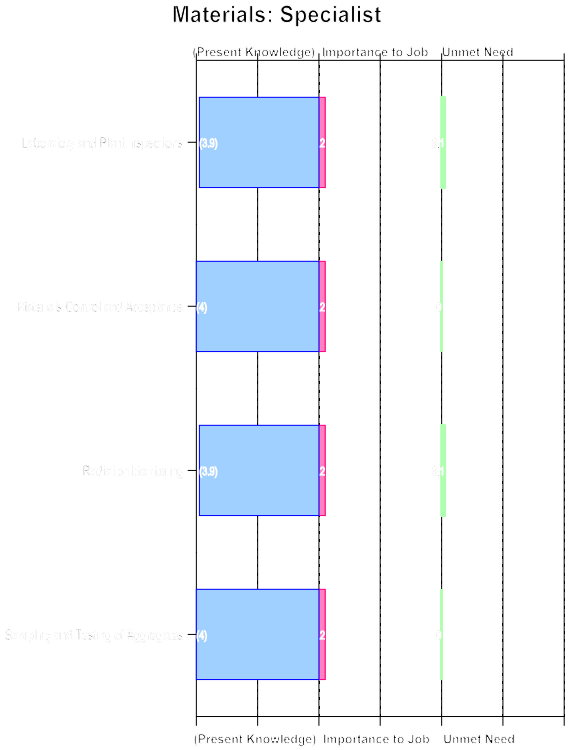

Figure 293: Materials: Specialist

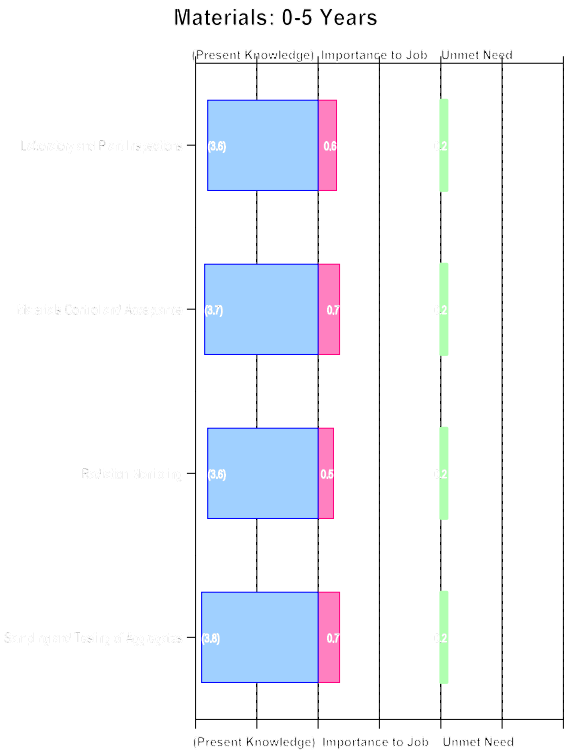

Figure 296: Materials: 0-5 Years

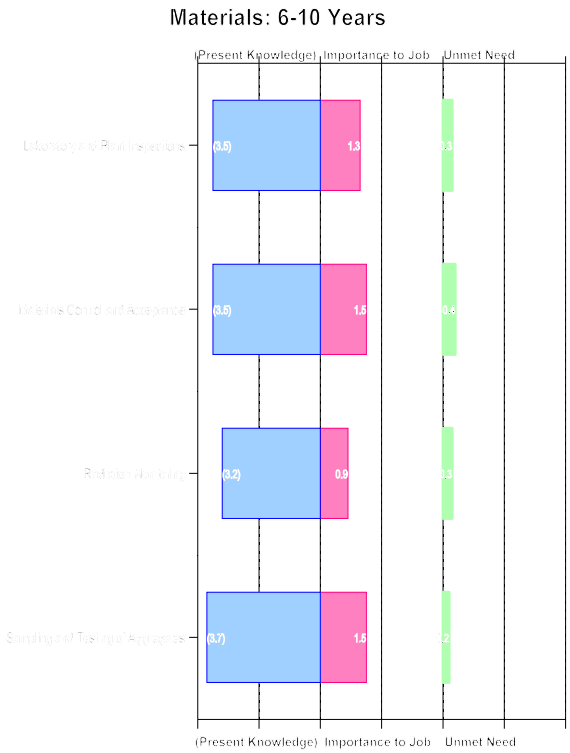

Figure 297: Materials: 6-10 Years

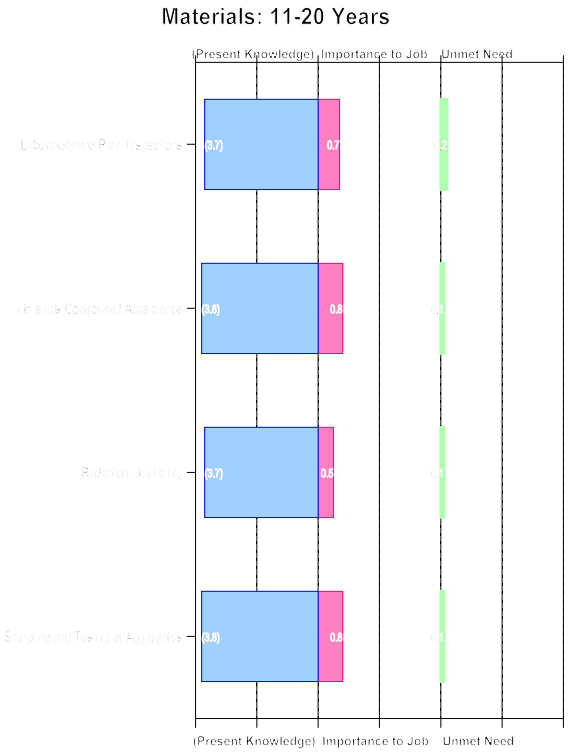

Figure 298: Materials: 11-20 Years

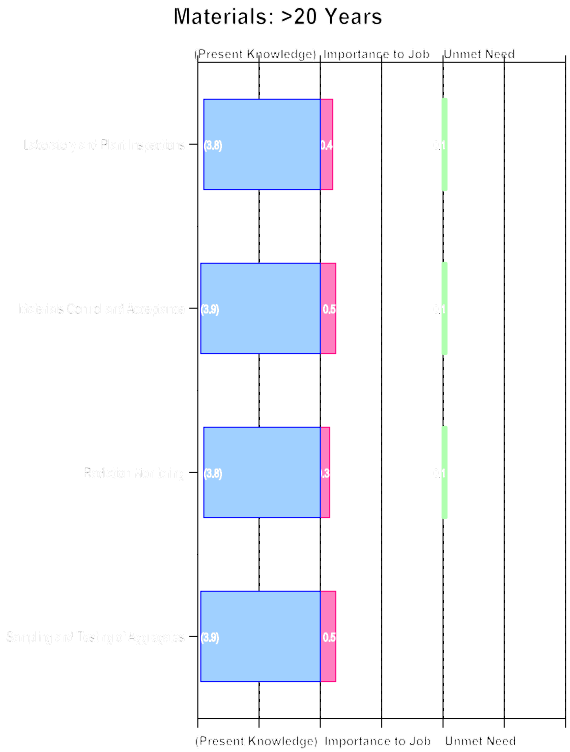

Figure 299: Materials: >20 Years

7.20 Math

Overview

Table 30: Math Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Training Need
Statistics in Transportation	3.3	1	0.2
Review of Math Techniques	3.5	1.2	0.3
Review of Basic Math	3.6	1.3	0.2

Department-wide, employees have sufficient Present Knowledge in the *Math Domain*. Nearly all job groups indicated knowledge in this domain is of fairly low Importance to Job and the associated Unmet Need is also low. Math skills are required for most jobs in the Department, but most employees have learned the necessary skills from high school and secondary schools. They also learn the necessary skills from other training classes directly related to their job skills. Table 30 lists the top five knowledge areas where some benefit could be derived from additional training for SDDOT employees in all job groups. Training in this domain should continue. However, with the limited need indicated by the employees, training in this domain should not receive a high priority.

All SDDOT

Figure 300 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Math Domain* for All SDDOT. Department-wide, employees have indicated they have sufficient Present Knowledge in this domain. The associated Importance to Job and Unmet Need are ranked low.

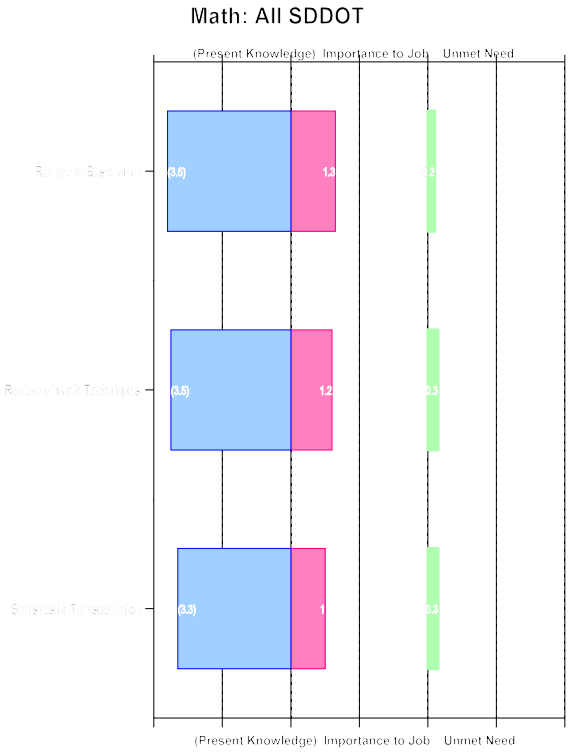

Figure 300: Math: All SDDOT

By Location

Figure 301 through 305 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Math Domain* for All SDDOT by location. The regions and central office rankings are nearly identical to those found through the All SDDOT analysis. There is some Importance to Job indicated, but with very little Unmet Need indicated by the rankings.

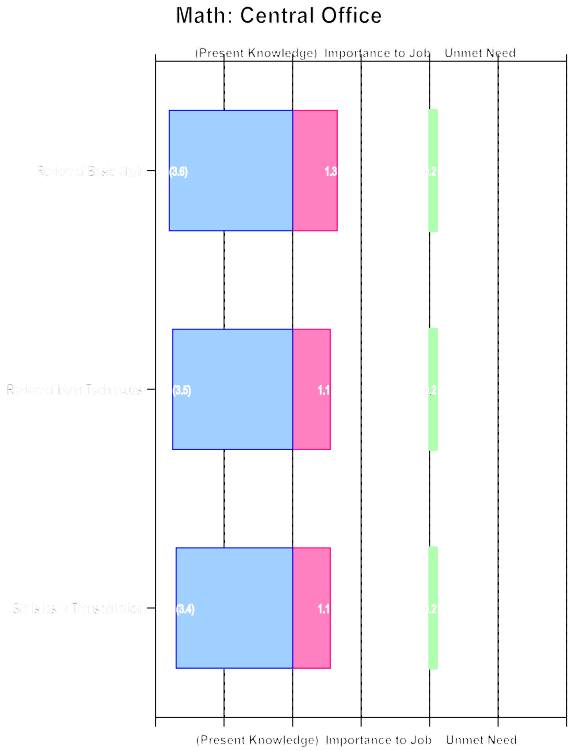

Figure 301: Math: Central Office

By Job Group

Figures 306 through 313 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Math Domain* for All SDDOT by job group. All employee job groups indicated that they have sufficient Present Knowledge in the *Math Domain*. Support, Maintenance, and Part Time & Seasonal job groups indicated skills in the *Math Domain* have very low Importance to Job. The remaining job groups indicated slightly higher Importance to Job and the Engineering and Supervisor—Engineering job groups indicate the highest importance. The overall Unmet Need is still very low.

By Tenure

Figures 314 through 317 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Math Domain* for All SDDOT by tenure. The rankings by tenure are nearly identical to that found through the All SDDOT analysis. The 6-10 Years Tenure group indicates a slightly higher Importance to Job than the other groups. However, the Unmet Need for all groups is very low.

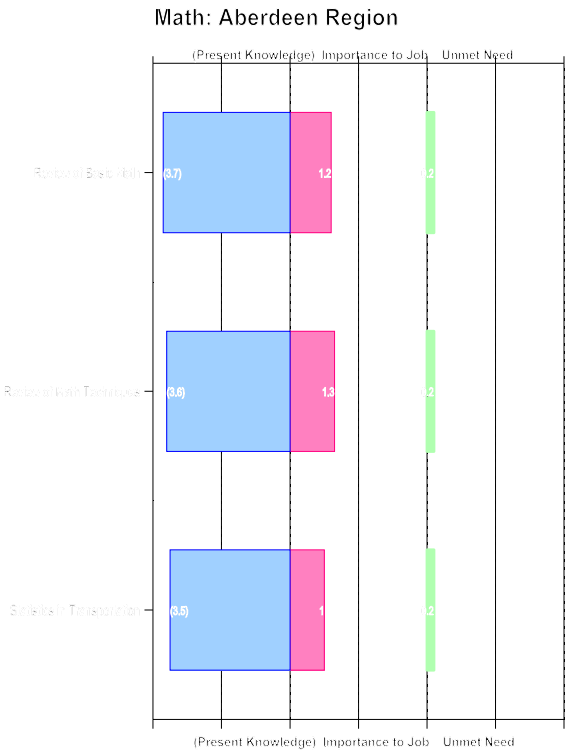

Figure 302: Math: Aberdeen Region

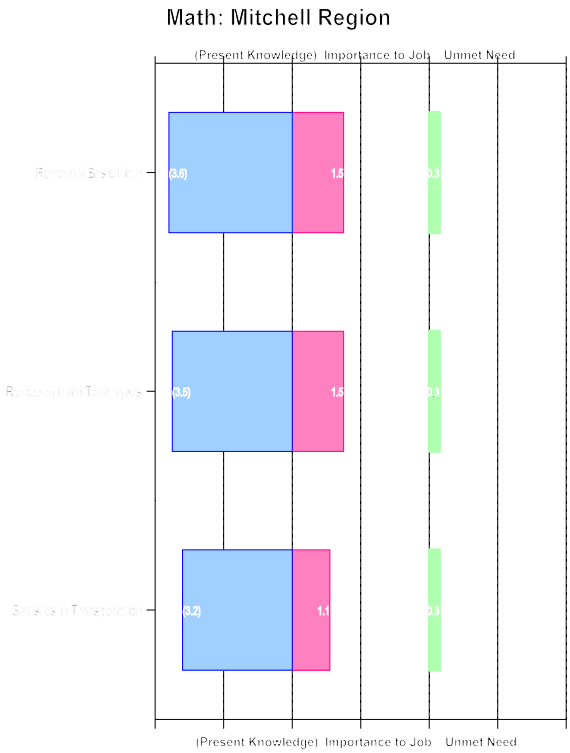

Figure 303: Math: Mitchell Region

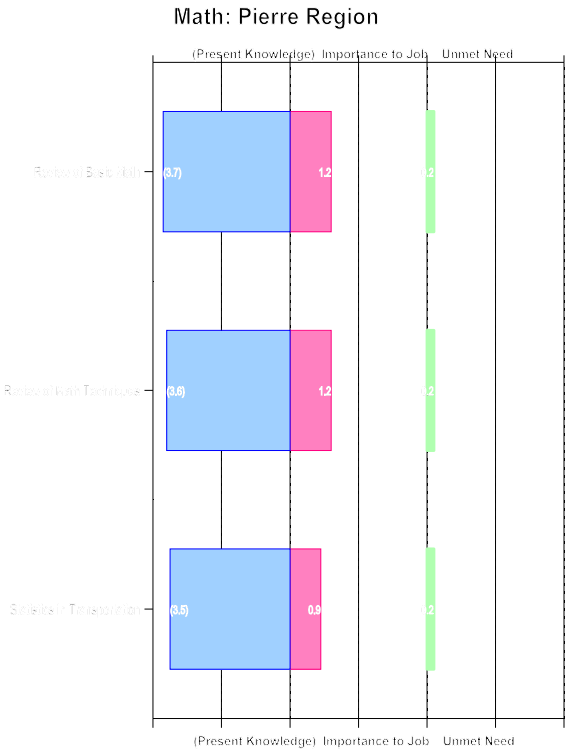

Figure 304: Math: Pierre Region

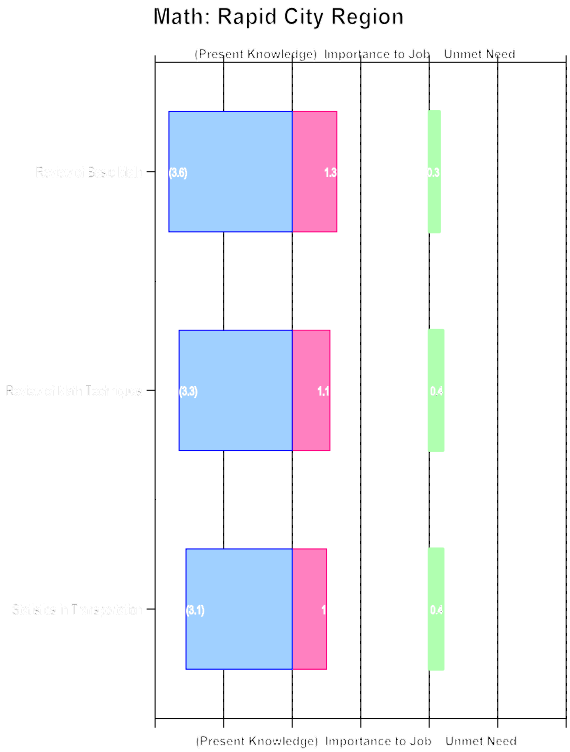

Figure 305: Math: Rapid City Region

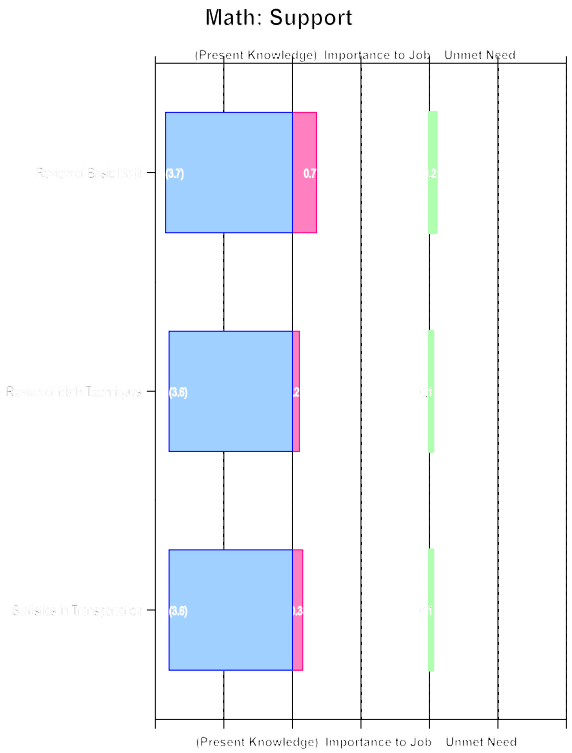

Figure 306: Math: Support

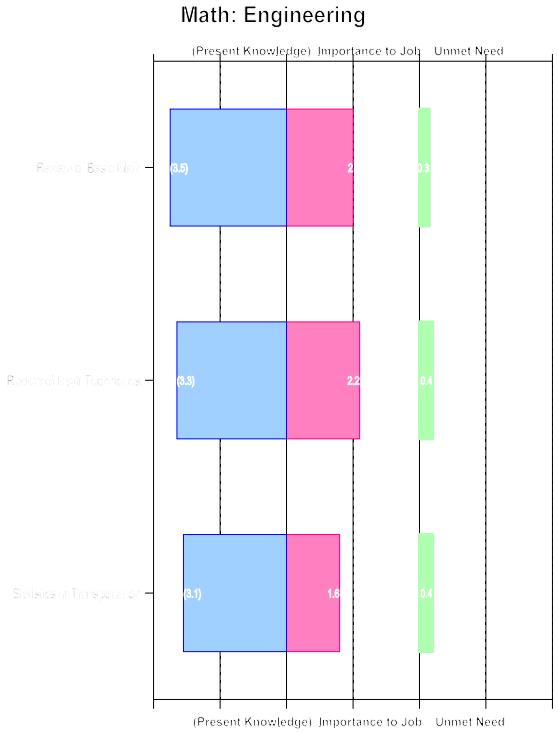

Figure 307: Math: Engineering

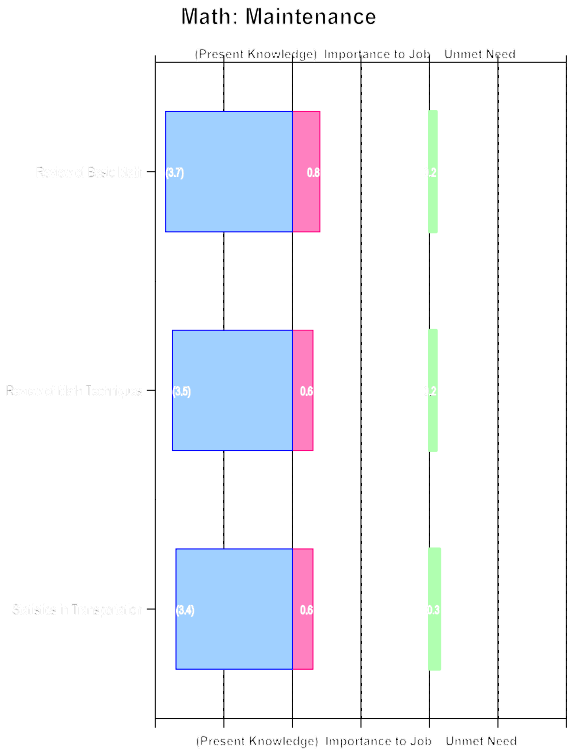

Figure 308: Math: Maintenance

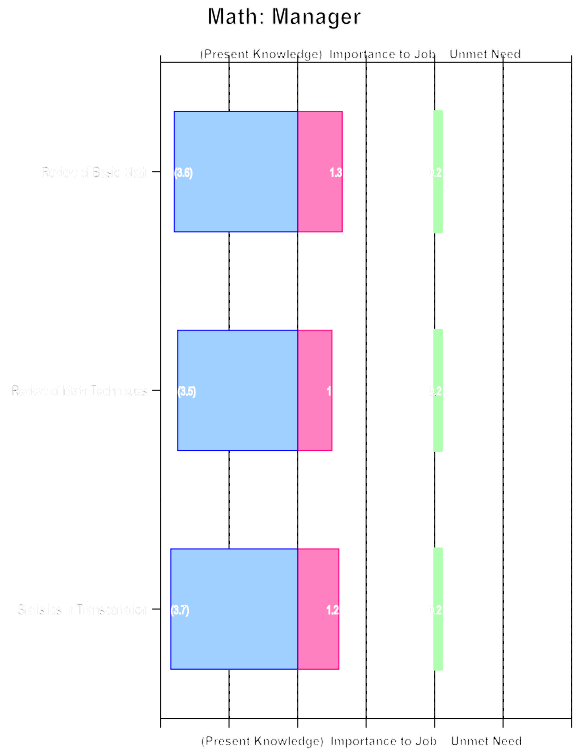

Figure 309: Math: Manager

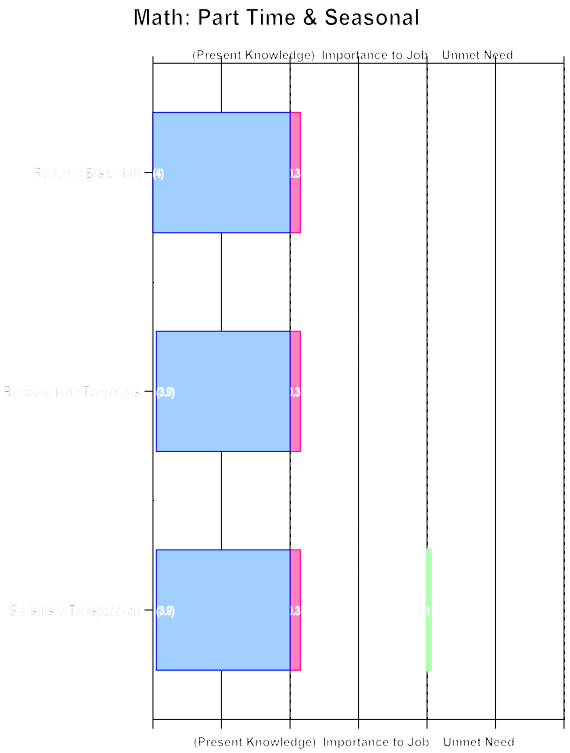

Figure 310: Math: Part Time & Seasonal

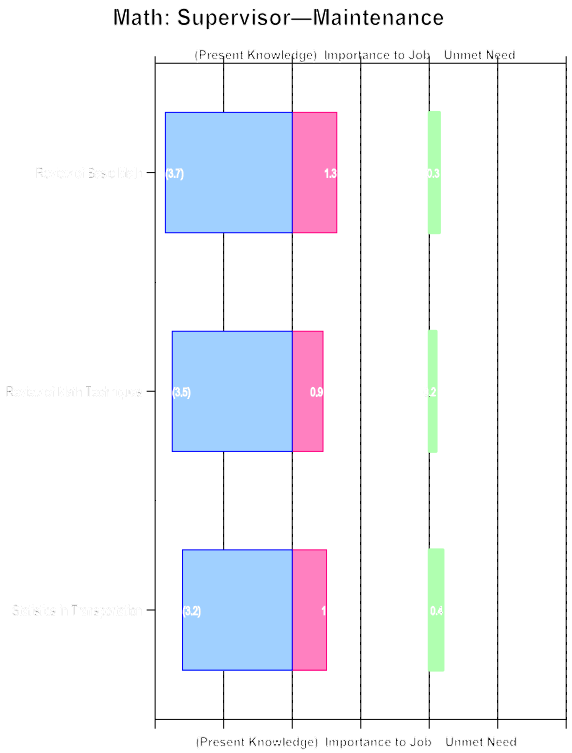

Figure 311: Math: Supervisor—Maintenance

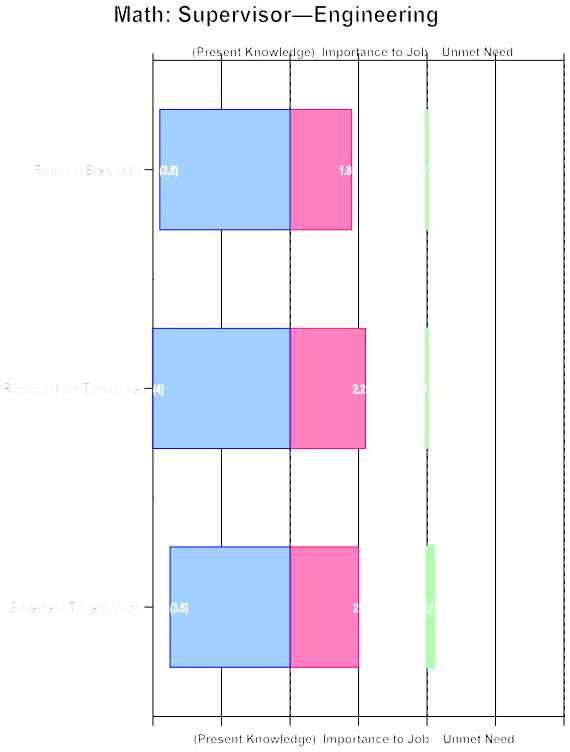

Figure 312: Math: Supervisor—Engineering

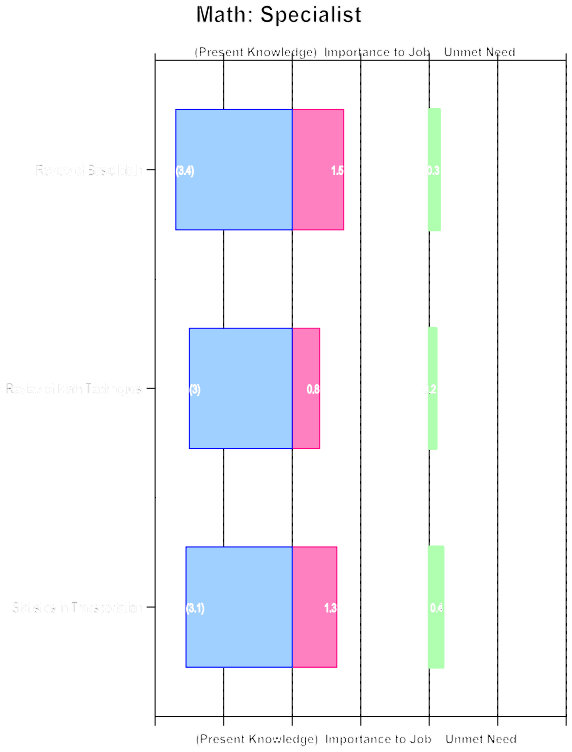

Figure 313: Math: Specialist

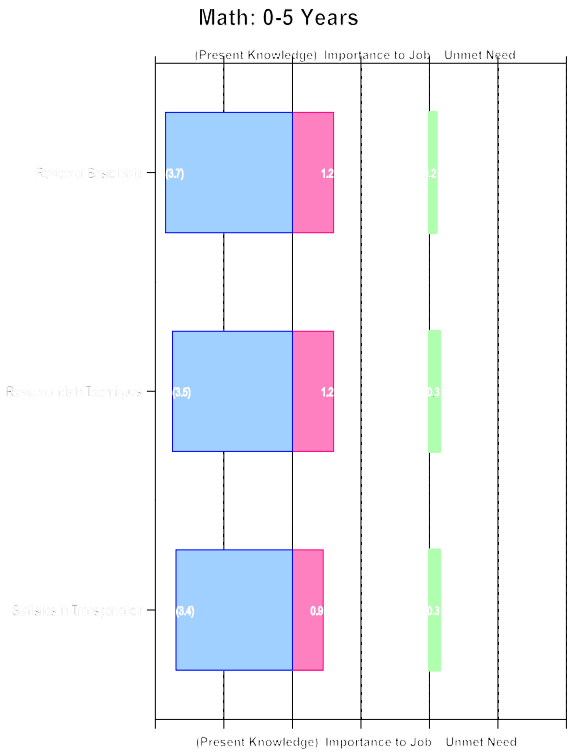

Figure 314: Math: 0-5 Years

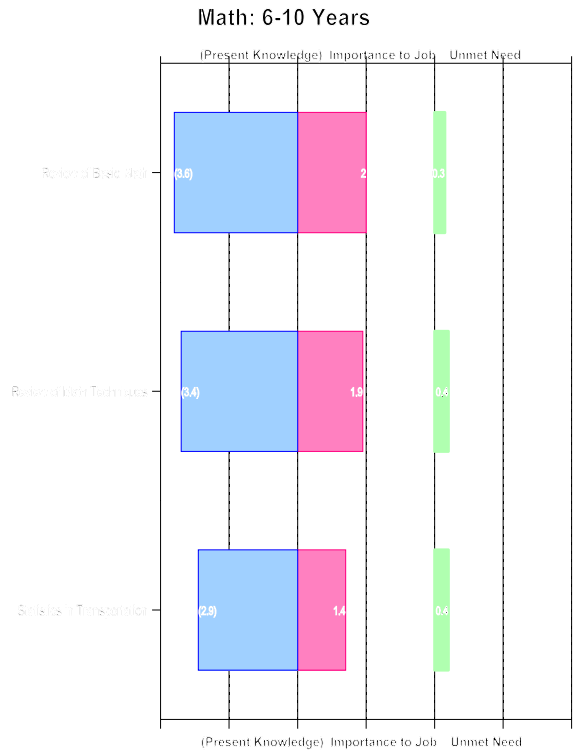

Figure 315: Math: 6-10 Years

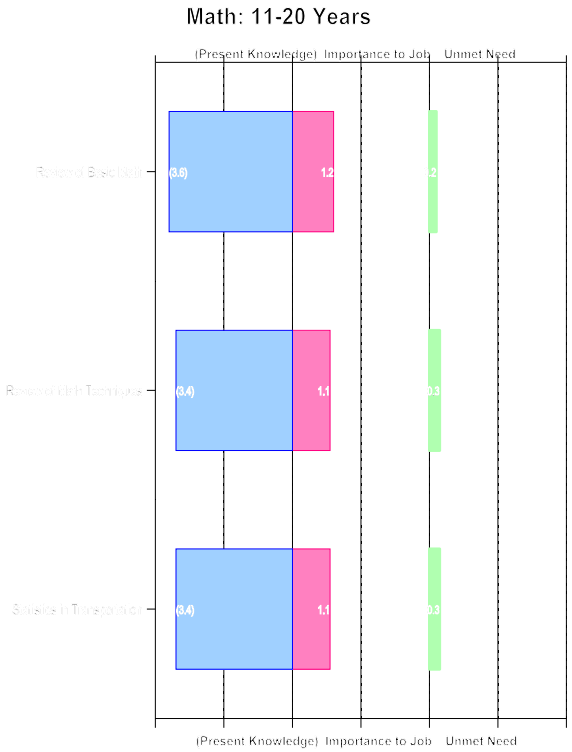

Figure 316: Math: 11-20 Years

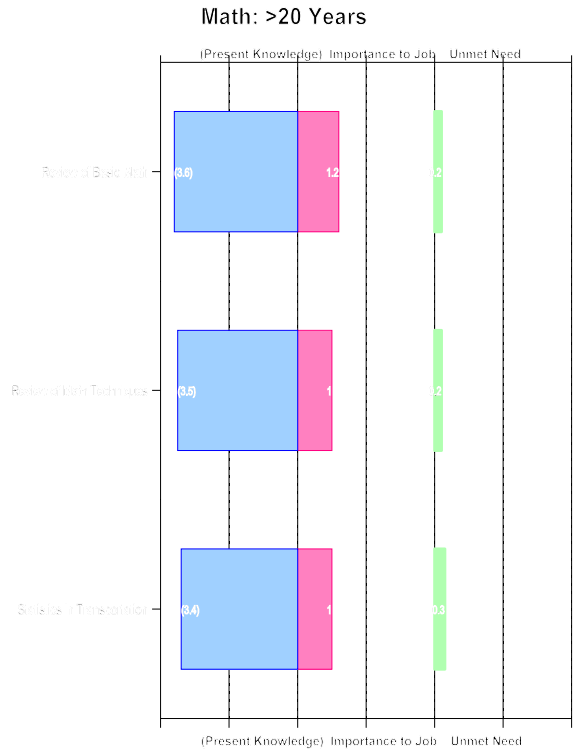

Figure 317: Math: >20 Years

7.21 Pavement Management

Overview

Table 31: Pavement Management Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Training Need
Basic Overview of SDDOT PMS	3.5	0.6	0.3
Pavement Rehabilitation Techniques	3.5	0.6	0.3

Department-wide, employees feel they have sufficient knowledge in the *Pavement Management Domain.* Table 31 lists the top knowledge areas where some benefit could be derived from additional training for the Engineering, Specialist, Supervisor—Maintenance, Supervisor—Engineering, and Manager job groups because indications are that this domain has some Importance to Job. Overall, the Unmet Need is low for the Department, also regardless of the analysis. The Importance to Job indicates training in this domain is necessary for those in the job groups mentioned above.

All SDDOT

Figure 318 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Pavement Management Domain* for All SDDOT. Department-wide, employees have indicated they have sufficient Present Knowledge in the *Pavement Management Domain*. The associated Importance to Job and Unmet Need are ranked low. Most employees do not need training in this domain for the work they do.

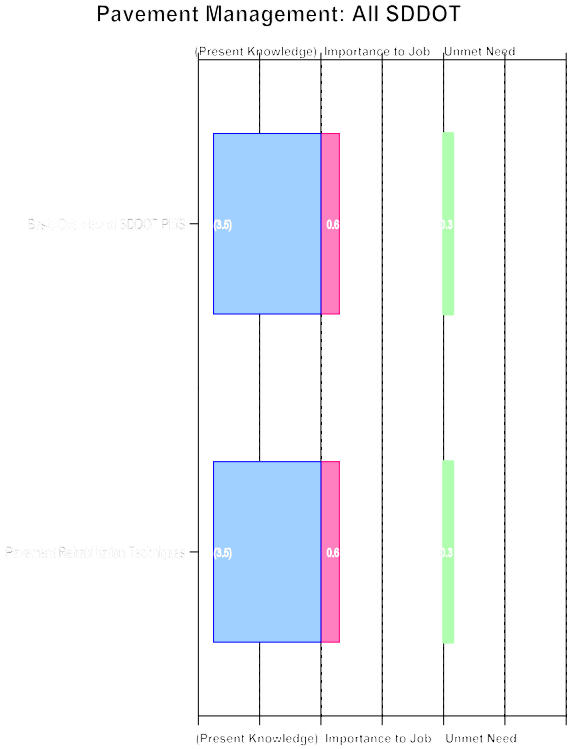

Figure 318: Pavement Management: All SDDOT

By Location

Figures 319 through 323 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Pavement Management Domain* for All SDDOT by location. The regions and central office rankings are nearly identical to those found through the All SDDOT analysis. The employees indicated they do not have much, if any Unmet Need in this domain.

By Job Group

Figures 324 through 331 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Pavement Management Domain* for All SDDOT by job group. The Engineering, Specialist, Supervisor—Maintenance, Supervisor—Engineering, and Manager job groups indicated that this domain has some Importance to Job. The associated Unmet Need is very low.

By Tenure

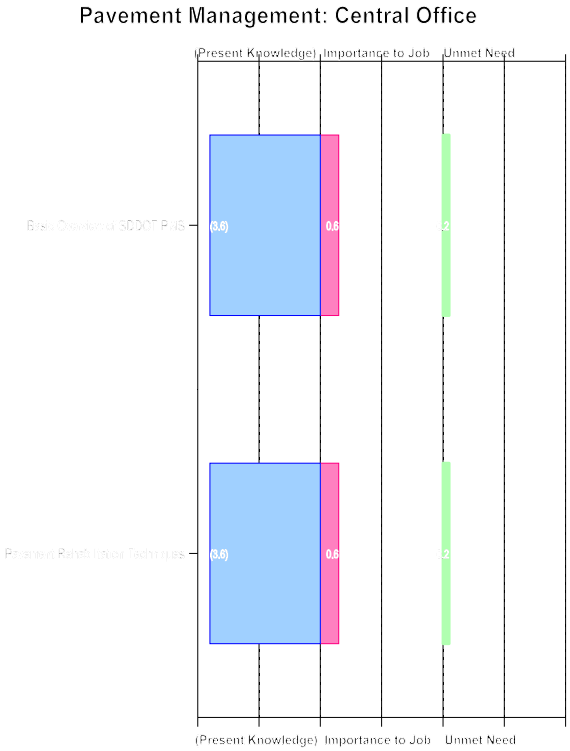

Figure 319: Pavement Management: Central Office

Figures 332 through 335 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Pavement Management Domain* for All SDDOT by tenure. The rankings are nearly identical to the All SDDOT analysis and there is not difference between tenure groups. The employees' Present Knowledge is high, and the associated Importance to Job and Unmet Need are low for all tenure groups..

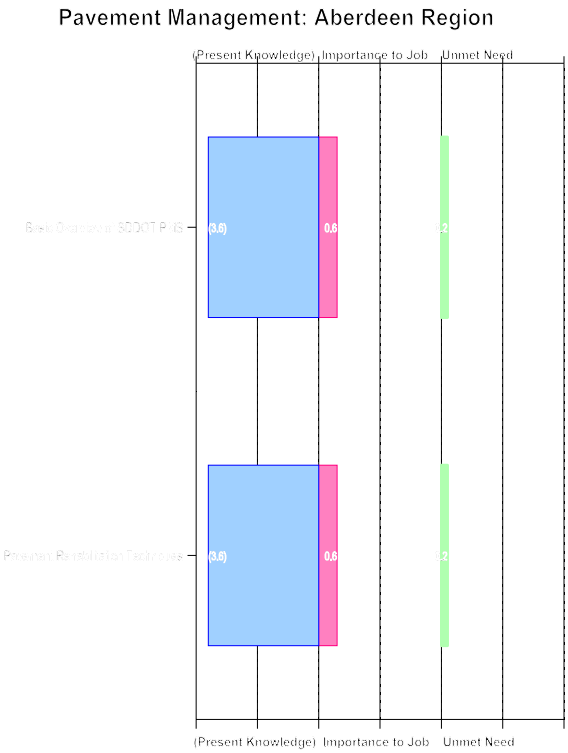

Figure 320: Pavement Management: Aberdeen Region

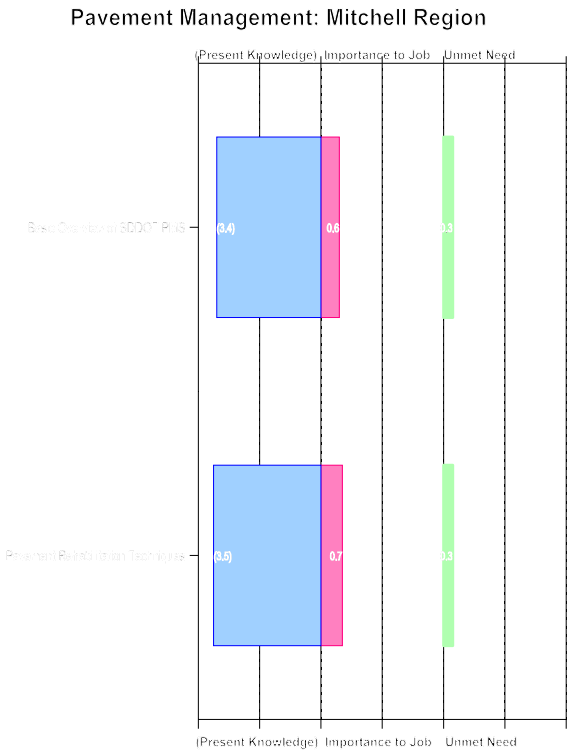

Figure 321: Pavement Management: Mitchell Region

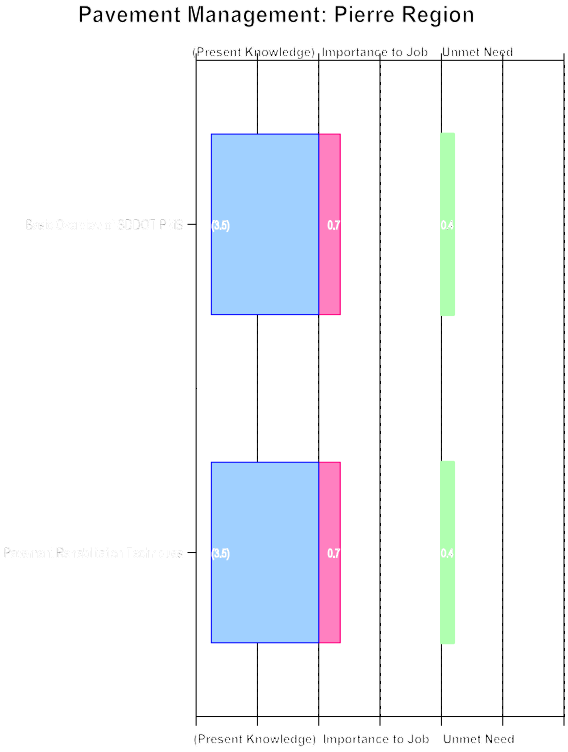

Figure 322: Pavement Management:

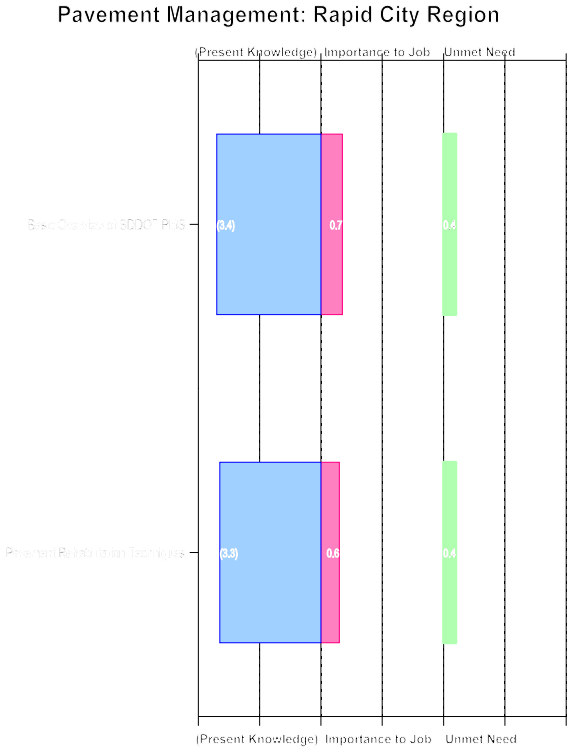

Figure 323: Pavement Management:

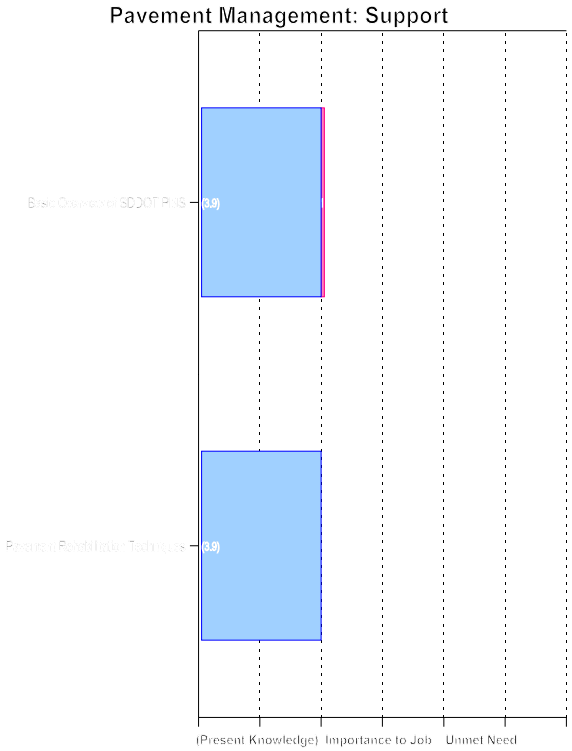

Figure 324: Pavement Management: Support

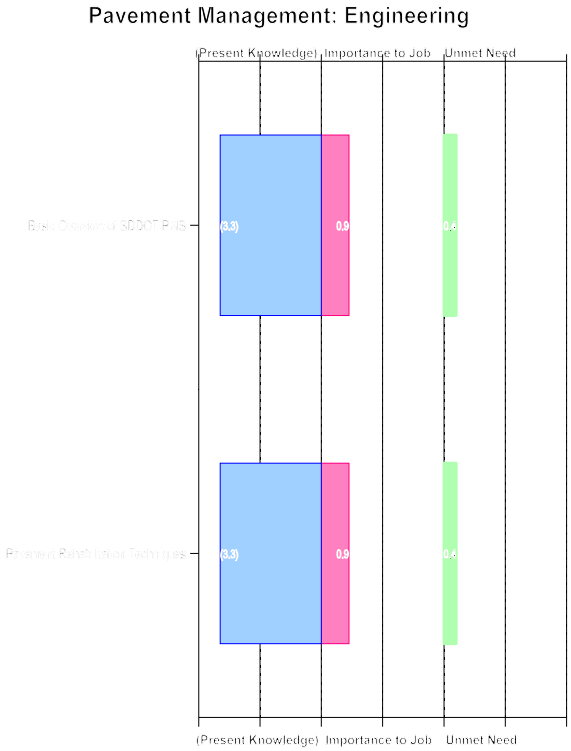

Figure 325: Pavement Management: Engineering

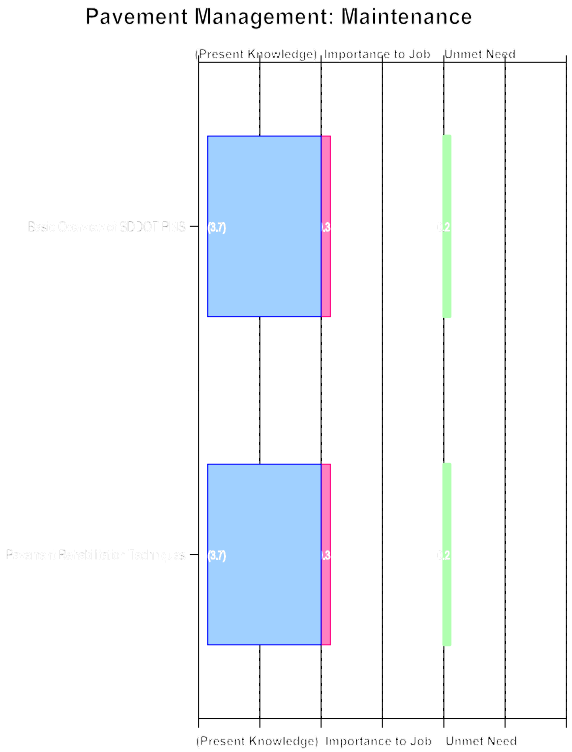

Figure 326: Pavement Management: Maintenance

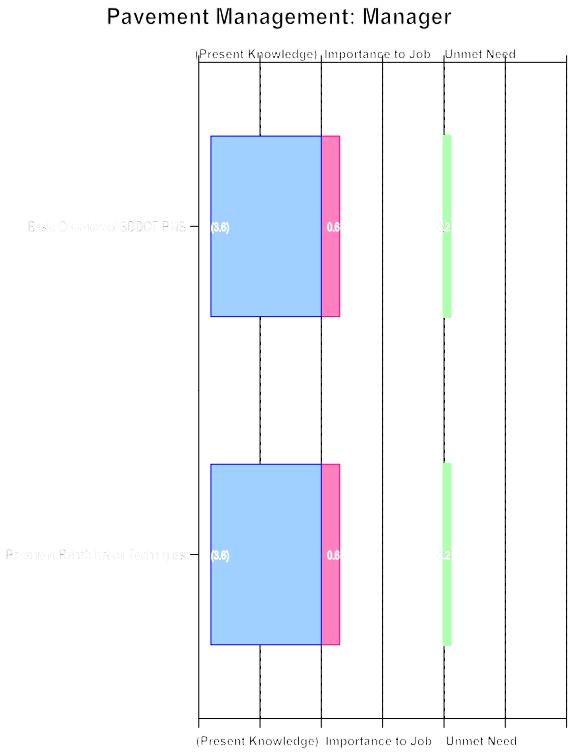

Figure 327: Pavement Management: Manager

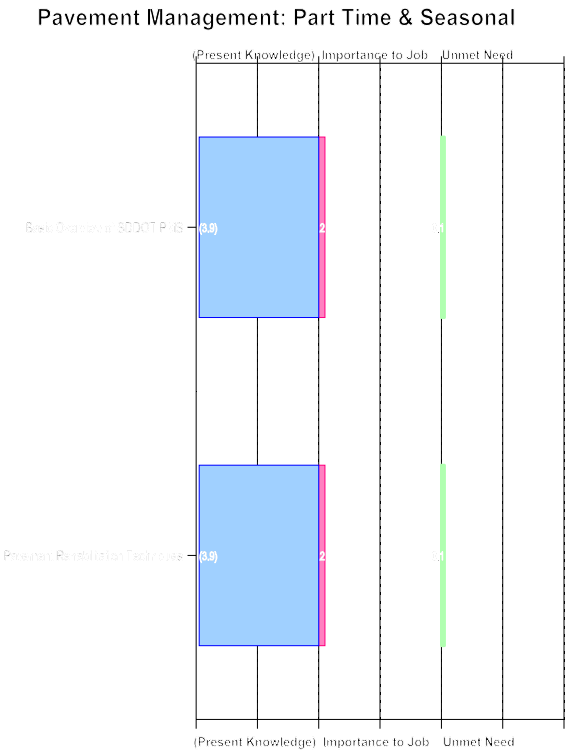

Figure 328: Pavement Management: Part Time & Seasonal

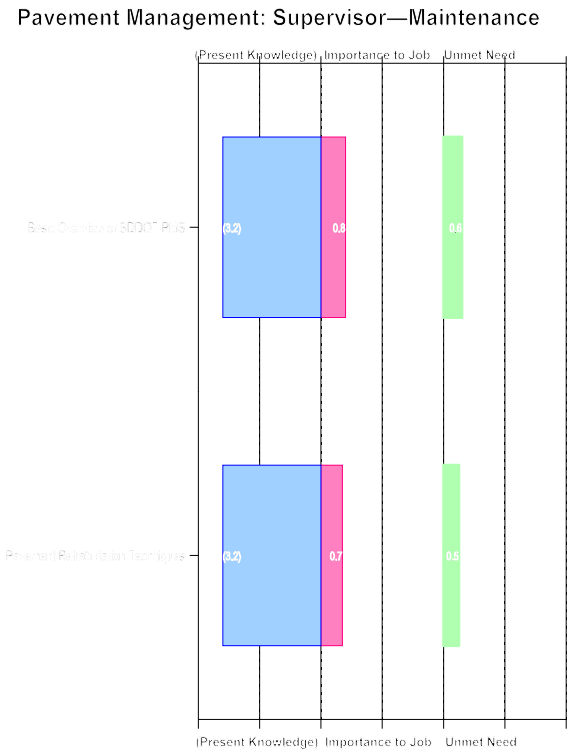

Figure 329: Pavement Management: Supervisor—Maintenance

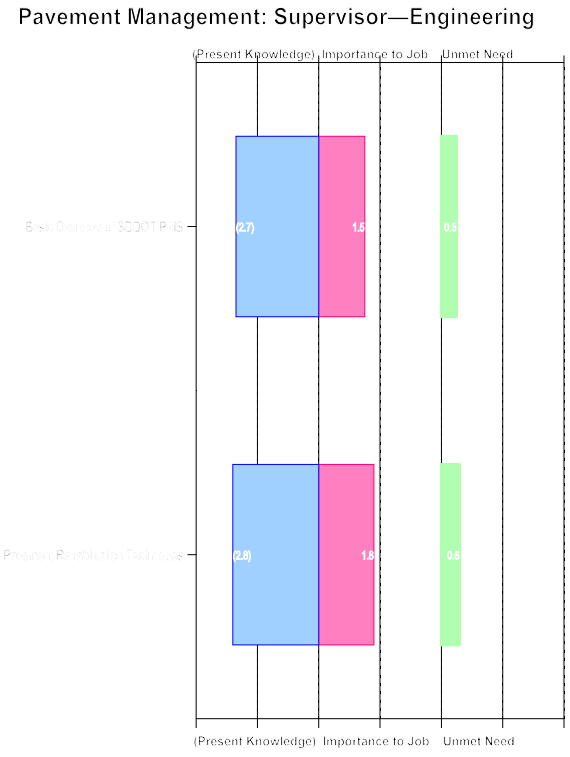

Figure 330: Pavement Management: Supervisor—Engineering

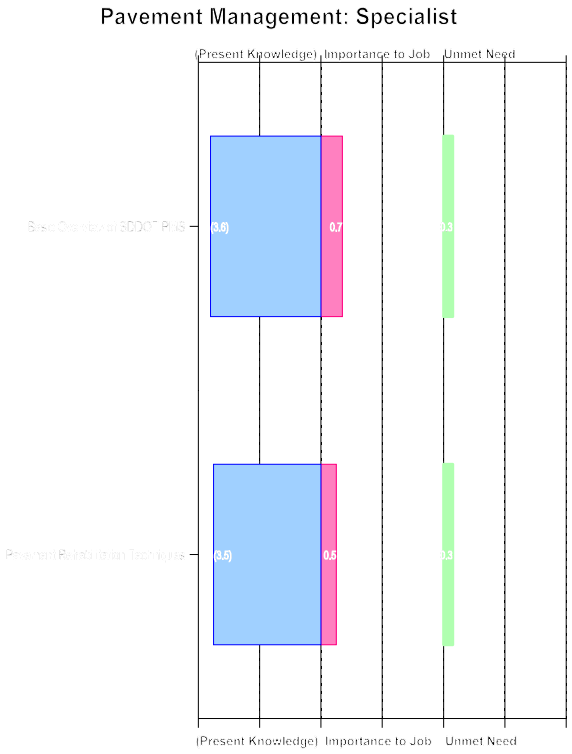

Figure 331: Pavement Management: Specialist

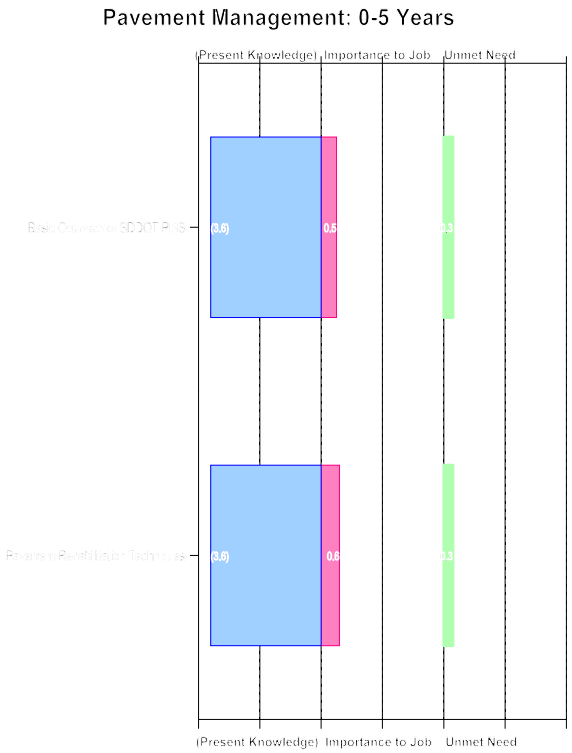

Figure 332: Pavement Management: 0-5 Years

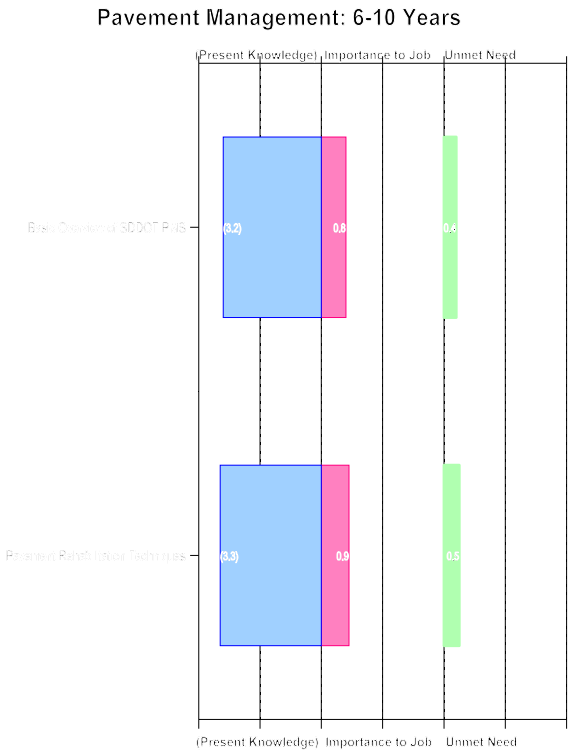

Figure 333: Pavement Management: 6-10 Years

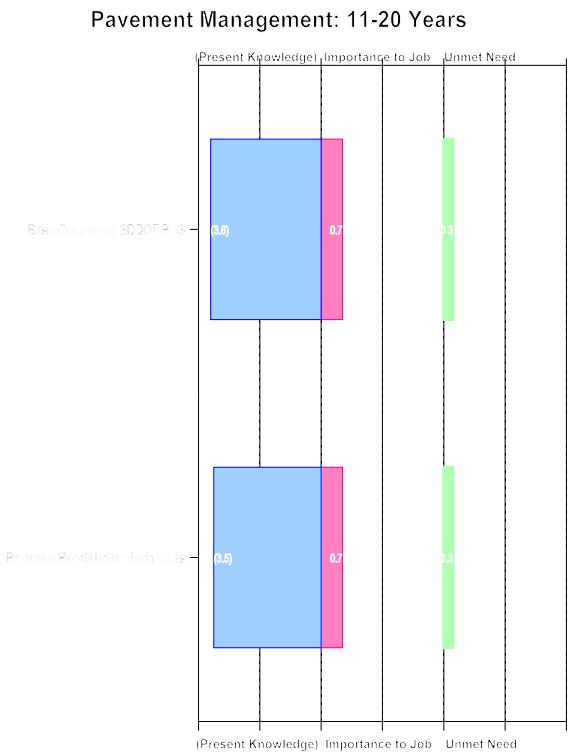

Figure 334: Pavement Management: 11-20 Years

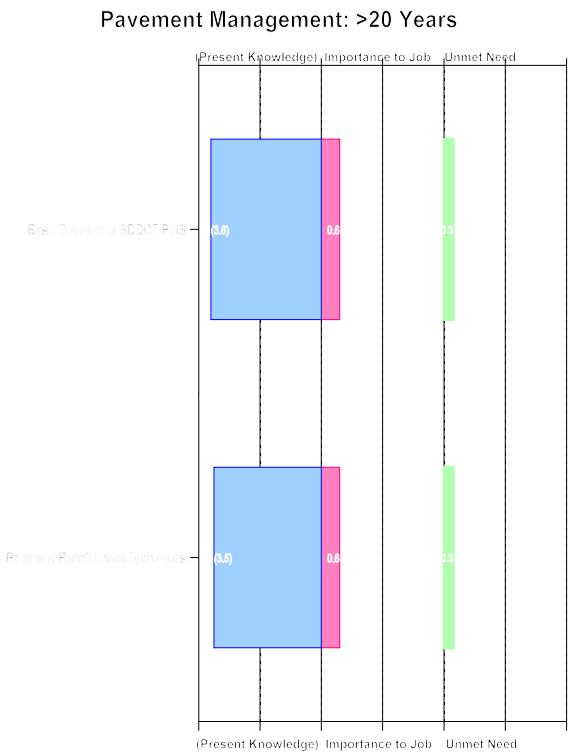

Figure 335: Pavement Management: >20 Years

7.22 Portland Cement Concrete (PCC)

Overview

Table 32: PCC Knowledge Areas in Need of Training in All SDDOT

Knowledge Areas	Present Knowledge	Importance to Job	Training Need
Concrete Surface Repair	3.5	1.0	0.3
Concrete Paving Inspection & Testing	3.6	1.0	0.3
Silicone Joint Sealing	3.5	0.9	0.3
Concrete Mobile Mixers	3.4	0.8	0.3
PCC Mix Design	3.4	0.8	0.3

Table 2 lists the knowledge areas of the *PCC Domain*. Department-wide, the employees indicated that they have a very high level of Present Knowledge in the *PCC Domain*. The associated Importance to Job and Unmet Need are low, to very low for this domain. The Engineering, Maintenance, Supervisor—Maintenance, and Supervisor—Engineering job groups indicated a higher Importance to Job and a higher associated Unmet Need than other job groups. These results are consistent for the regions except that the Pierre Region indicated a higher Unmet Need for *Concrete Surface Repair* than the other regions.

All SDDOT

Figure 336 illustrates Present Knowledge, Importance to Job, and Unmet Need within the PCC Domain. Table 32 lists the main knowledge areas where employees indicated that additional training is required within the *PCC Domain*. The Importance to Job rankings range from 0.8 to 1.0, indicating that Department-wide knowledge in the *PCC Domain* is necessary. However, the employees indicated that they have a high level of Present Knowledge in the *PCC Domain*, and most also feel that they have sufficient Present Knowledge. The associated Importance to Job and Unmet Need are low, indicating little need Department-wide for training in this domain.

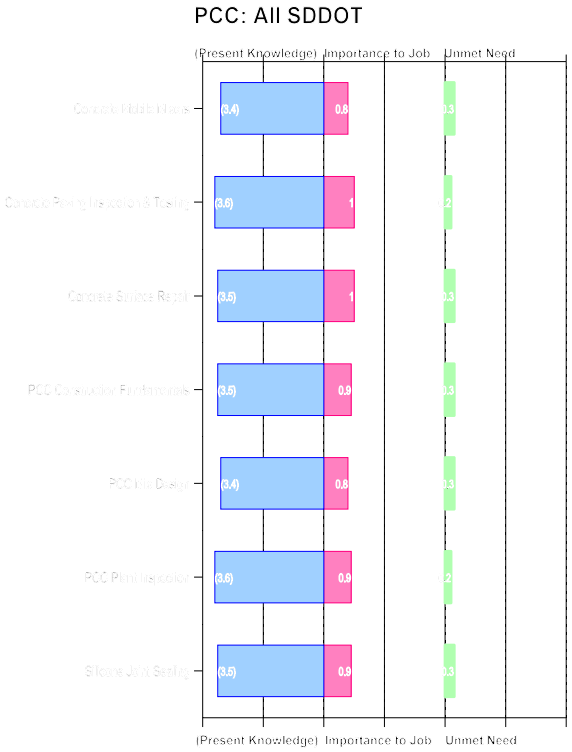

Figure 336: PCC: All SDDOT

By Location

Figures 337 through 341 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *PCC Domain* by location. The results are nearly identical to the rankings found through the All SDDOT Analysis. The regions indicated a higher Importance to Job than the central office. Region employees are more involved with construction and maintenance than employees in the central office. All locations indicate they have a high level of Present Knowledge. However, the associated Unmet Need for the central office is very low. The Unmet Need for the regions is low, although it is higher than the central office. The Pierre Region indicated a slightly higher Unmet Need for *Concrete Surface Repair*.

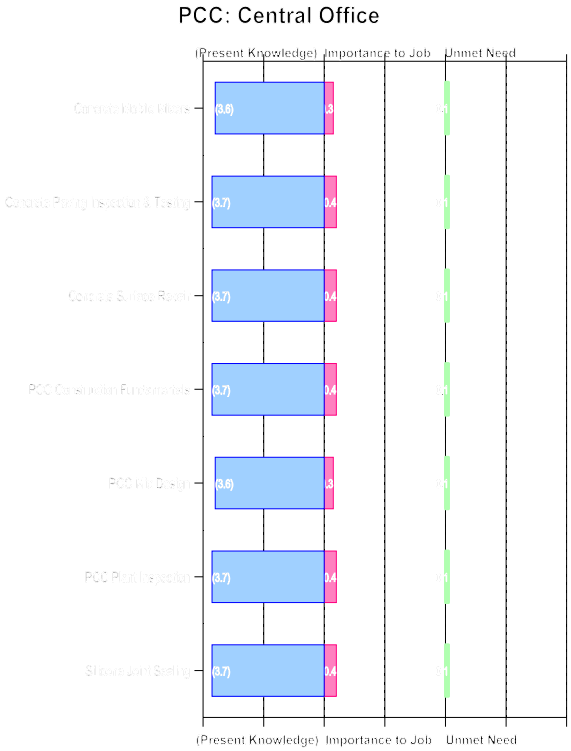

Figure 337: PCC: Central Office

By Job Group

Figures 342 through 349 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *PCC Domain* by job group. All job groups indicated that they have a high level of Present Knowledge. The Engineering, Maintenance, Supervisor—Maintenance, and Supervisor—Engineering indicated that this domain has some amount of low Importance to Job. It is interesting to note that the Supervisor—Maintenance and Supervisor—Engineering job groups indicated a higher Unmet Need for *Concrete Surface Repair* and *Silicone Joint Sealing*.

By Tenure

Figures 350 through 353 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *PCC Domain* by tenure. The rankings for each tenure group are nearly identical to the results derived from the All SDDOT analysis. It is notable that the >20 Years Tenure group indicated that they have very little Unmet Need in this domain. Unmet Need for the other groups is nearly identical to that shown by the All SDDOT analysis.

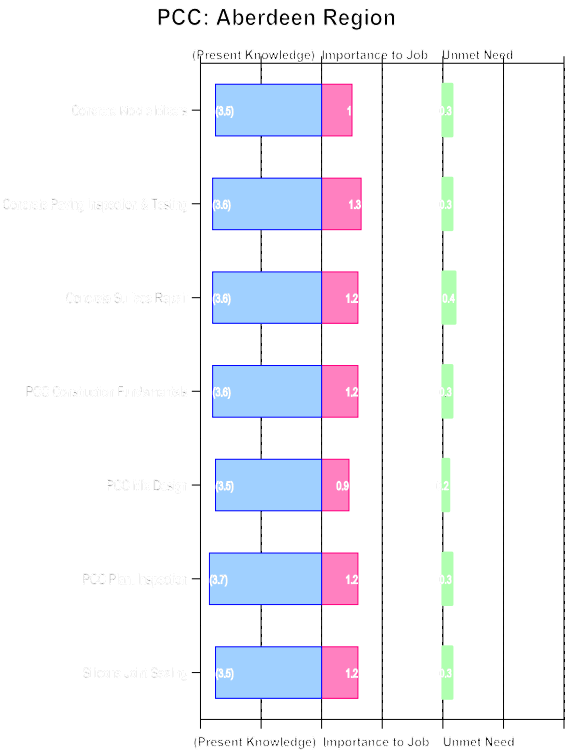

Figure 338: PCC: Aberdeen Region

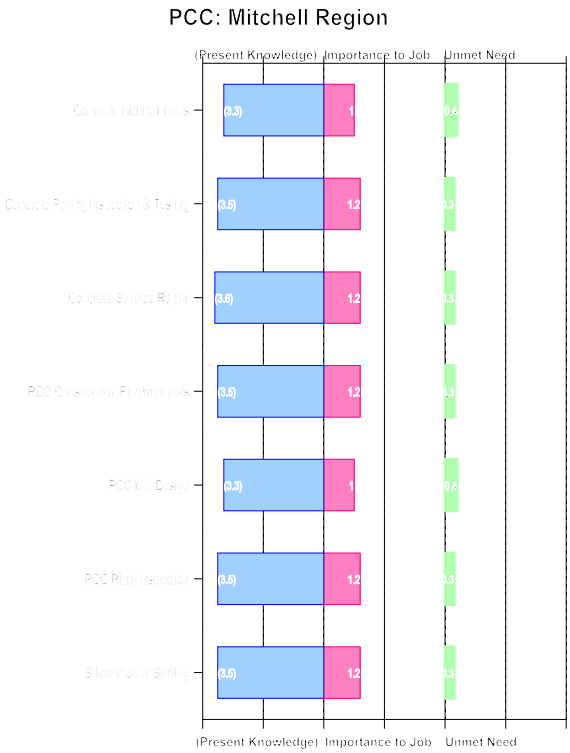

Figure 339: PCC: Mitchell Region

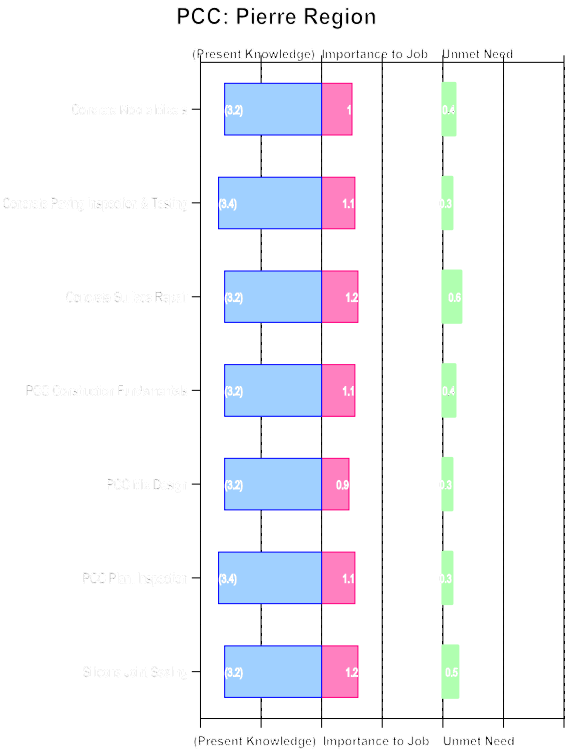

Figure 340: PCC: Pierre Region

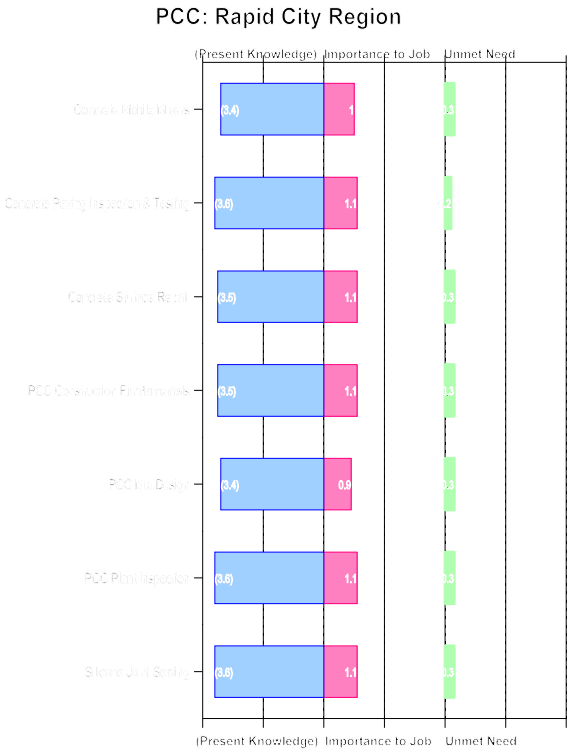

Figure 341: PCC: Rapid City Region

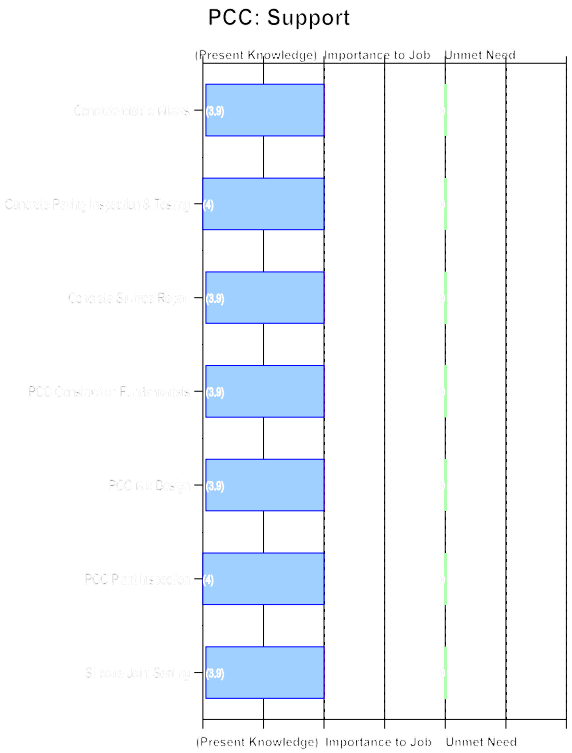

Figure 342: PCC: Support

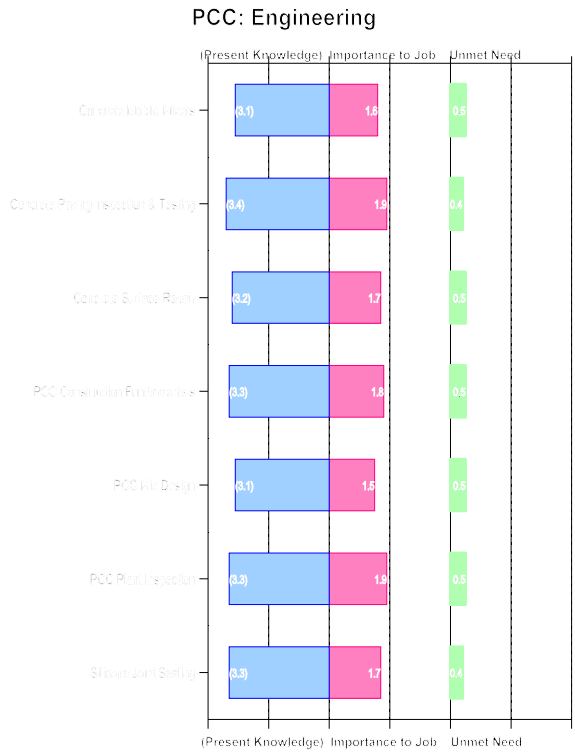

Figure 343: PCC: Engineering

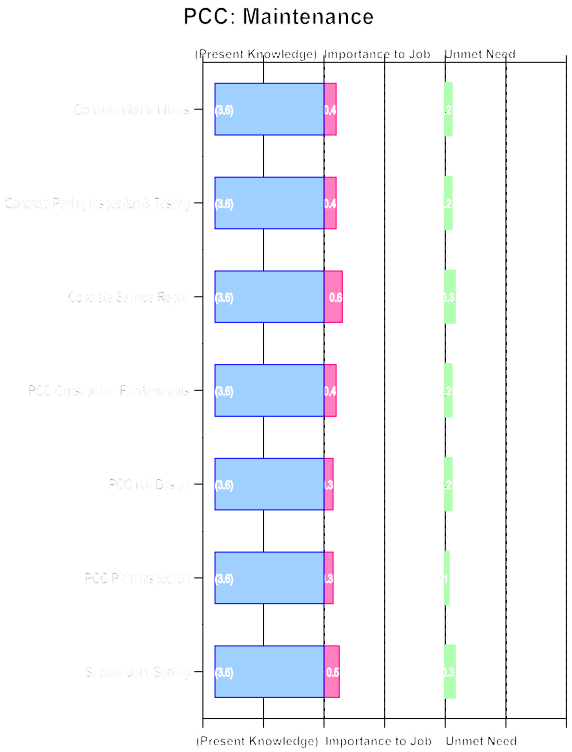

Figure 344: PCC: Maintenance

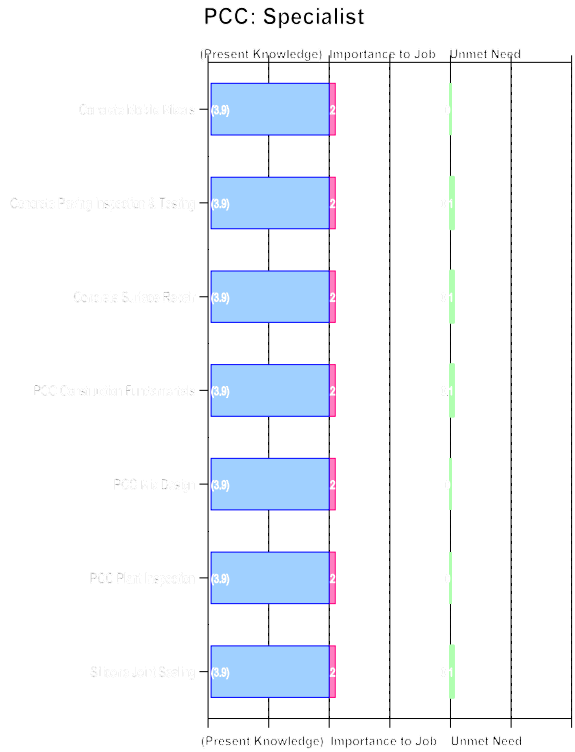

Figure 345: PCC: Specialist

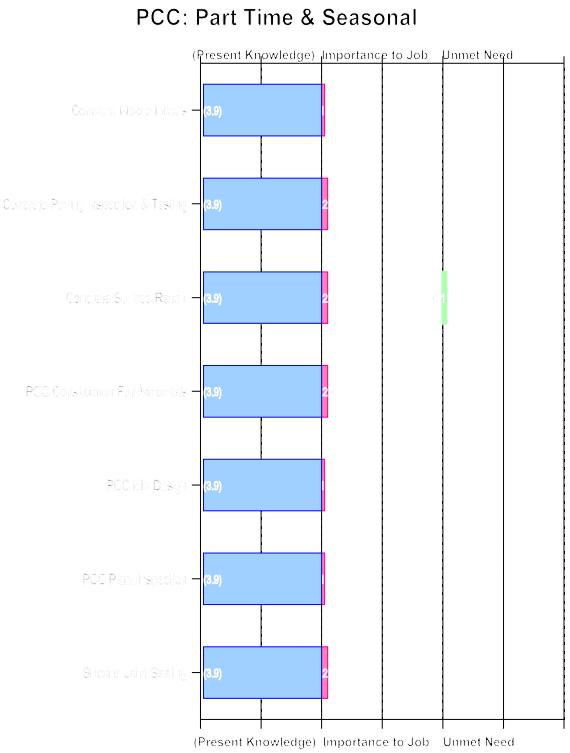

Figure 346: PCC: Part Time & Seasonal

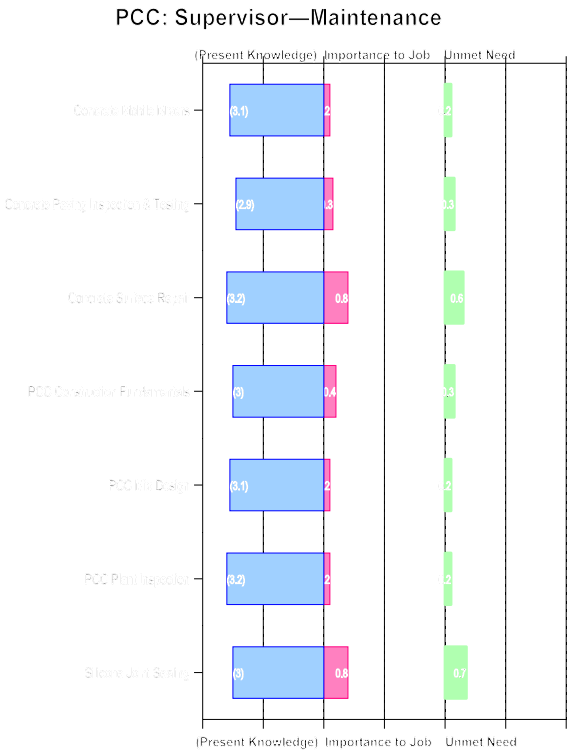

Figure 347: PCC: Supervisor—Maintenance

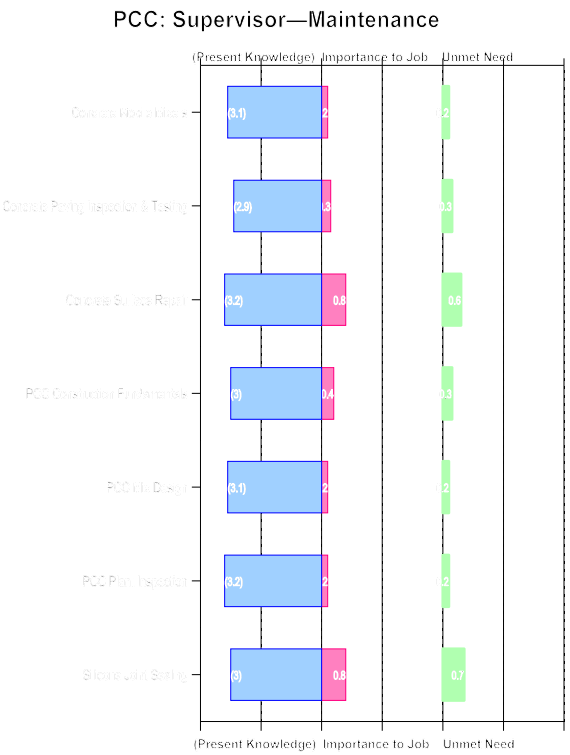

Figure 348: PCC: Supervisor—Engineering

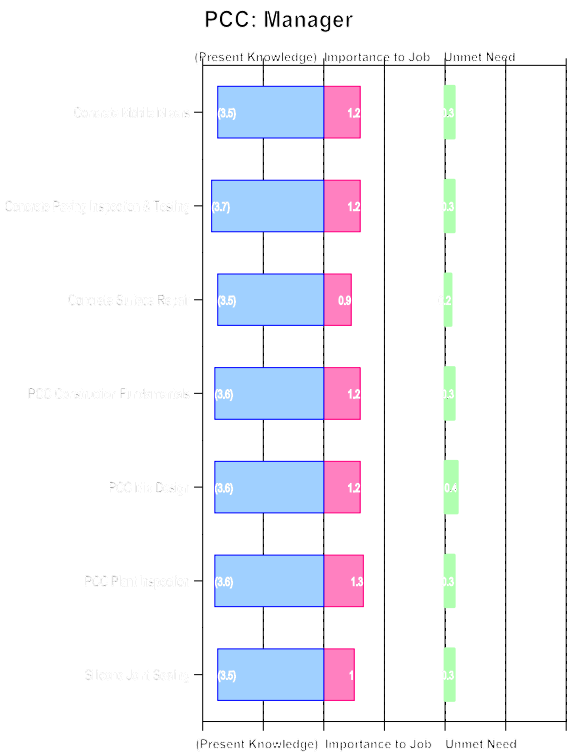

Figure 349: PCC: Manager

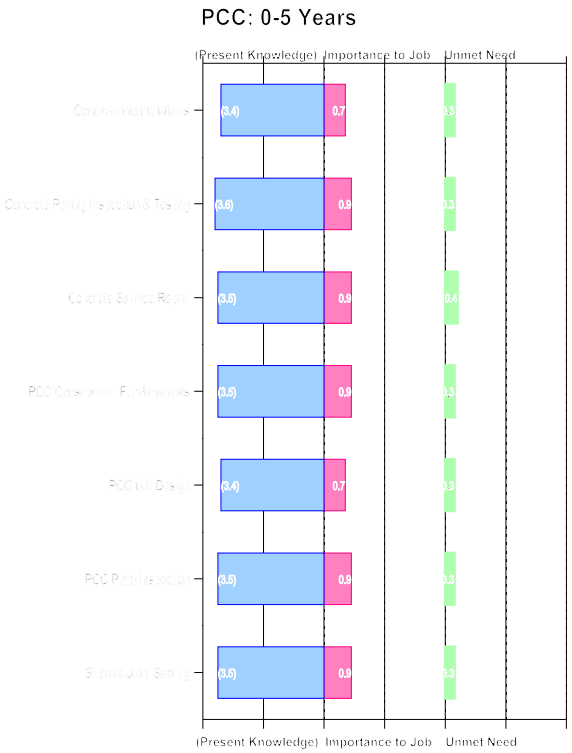

Figure 350: PCC: 0-5 Years

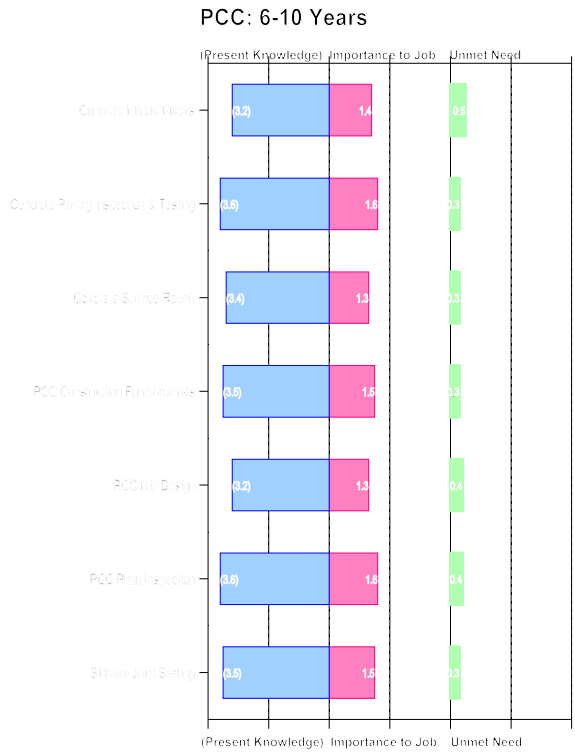

Figure 351: PCC: 6-11 Years

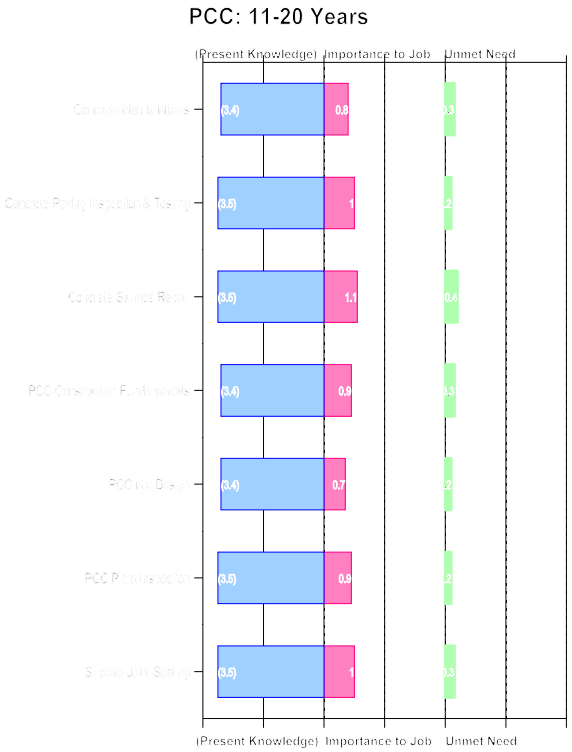

Figure 352: PCC: 11-20 Years

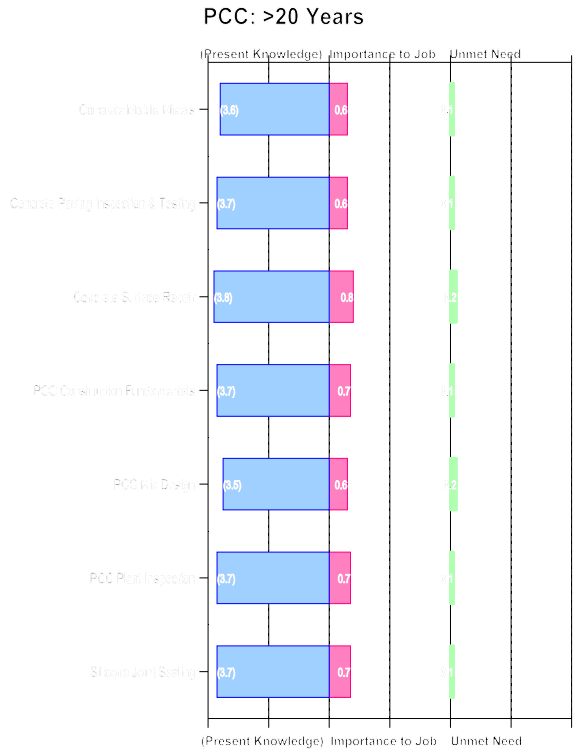

Figure 353: PCC: >20 Years

7.23 Personnel

Overview

Table 33: Personnel Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Areas	Present Knowledge	Importance to Job	Training Need
Planning for Retirement	1.9	2.7	1.5
Dealing with Difficult People	2.0	2.7	1.4
Stress Management	2.0	2.6	1.3
Self-Awareness of Personal Style	2.0	2.5	1.3
Conflict Resolution	2.0	2.4	1.3

Department-wide, employees ranked the *Personnel Domain* as one of top five domains where additional training would be beneficial. The rankings were nearly identical regardless of location, job group, or tenure, indicating consistency Department-wide. Table 33 lists the top five knowledge areas within the *Personnel Domain*. Department employees ranked all knowledge areas in the *Personnel Domain* as being Important to Job with an associated high Unmet Need. However, employees indicated they could benefit from training in all knowledge areas within this domain.

All SDDOT

Figure 354 illustrates Present Knowledge, Importance to Job, and Unmet Need within the *Personnel Domain*. Department-wide, employees indicated that they have a moderate level of Present Knowledge in the *Personnel Domain*. The associated Importance to Job is medium to high and the Unmet Need is in the moderate range. This domain ranks in the top five of all domains in Unmet Need for all employees.

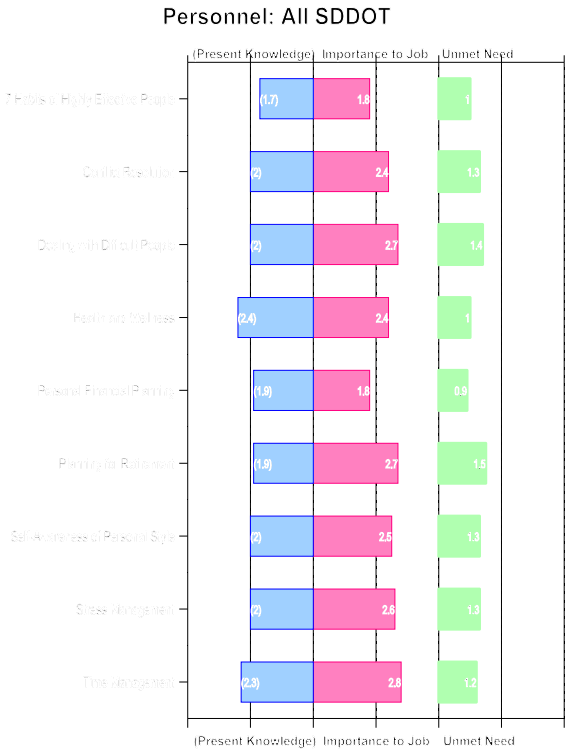

Figure 354: Personnel: All SDDOT

By Location

Figures 355 through 359 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Personnel Domain* by location. The results are nearly identical to the rankings coming out of the All SDDOT analysis.

By Job Group

Figures 360 through 367 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Personnel Domain* by job group. Rankings for all job groups are nearly identical to the results of the All SDDOT analysis.

By Tenure

Figures 368 through 371 illustrate Present Knowledge, Importance to Job, and Unmet Need within the *Personnel Domain* by tenure. The rankings for each tenure group are nearly identical to all other analyses performed for this domain.

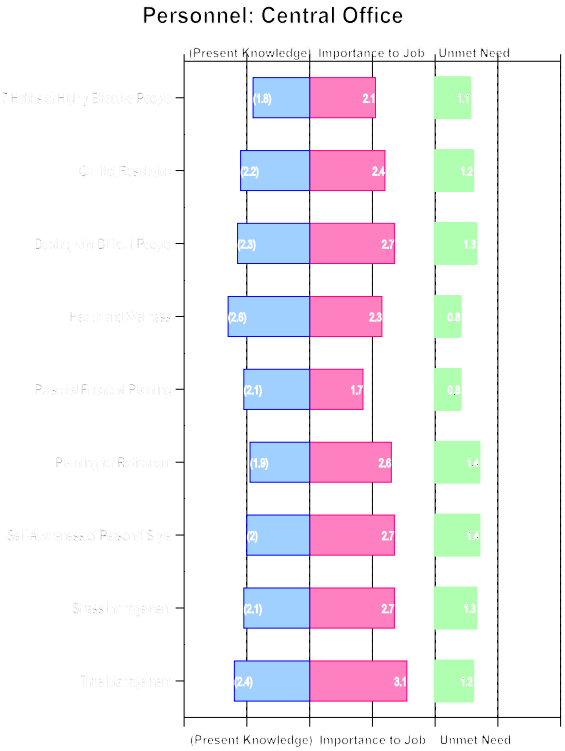

Figure 355: Personnel: Central Office

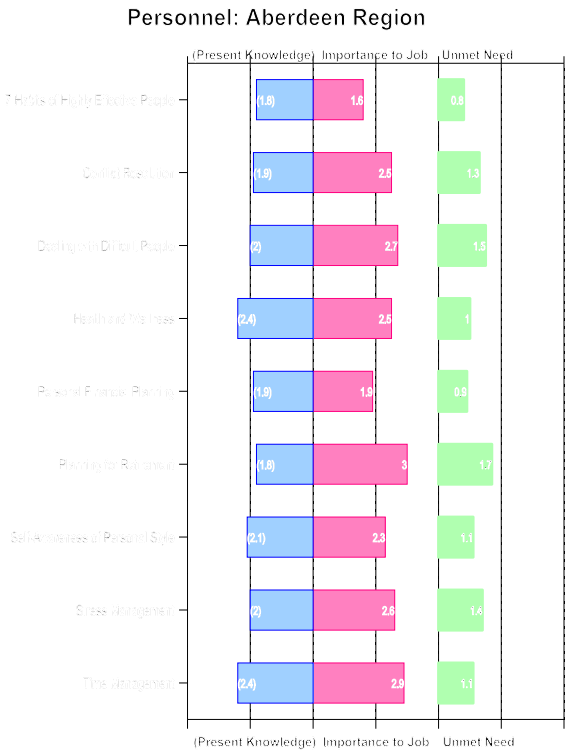

Figure 356: Personnel: Aberdeen Region

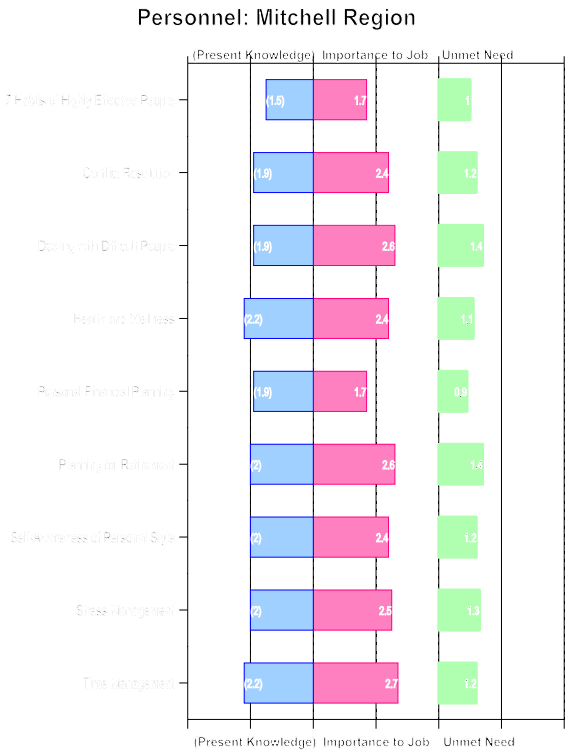

Figure 357: Personnel: Mitchell Region

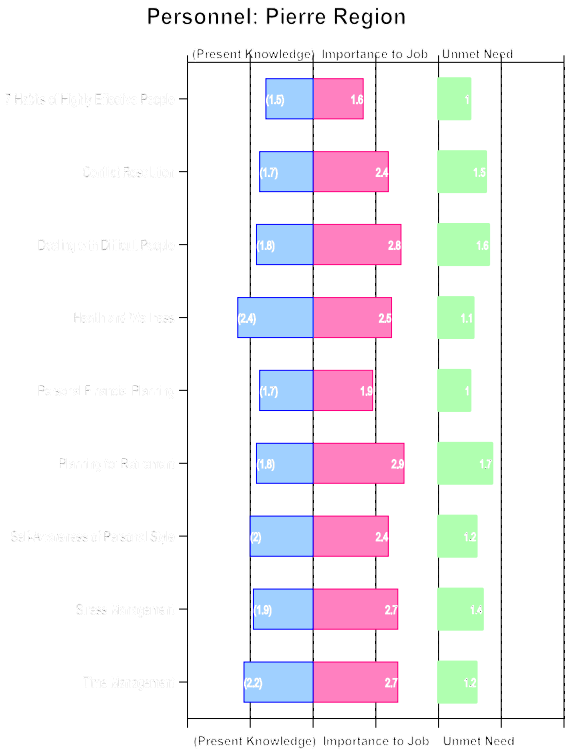

Figure 358: Personnel: Pierre Region

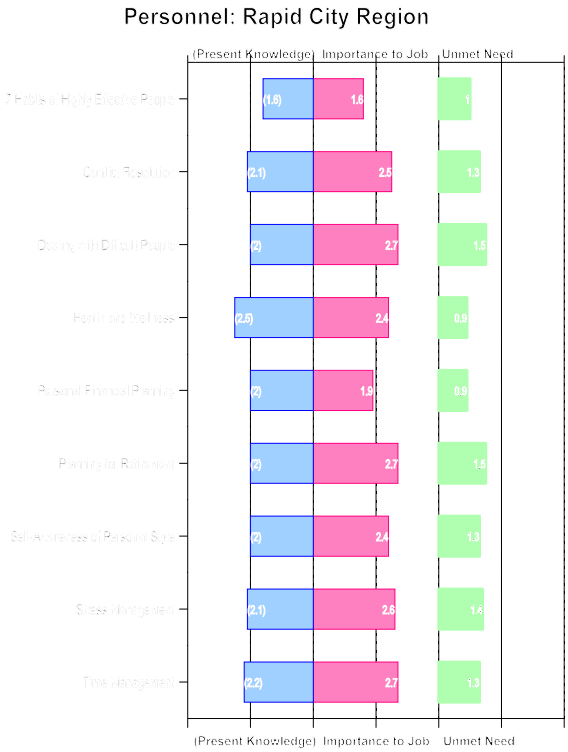

Figure 359: Personnel: Rapid City Region

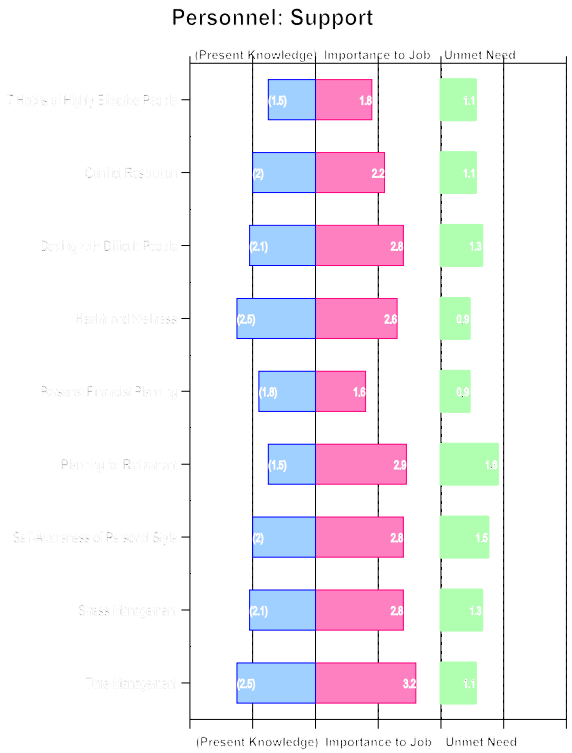

Figure 360: Personnel: Support

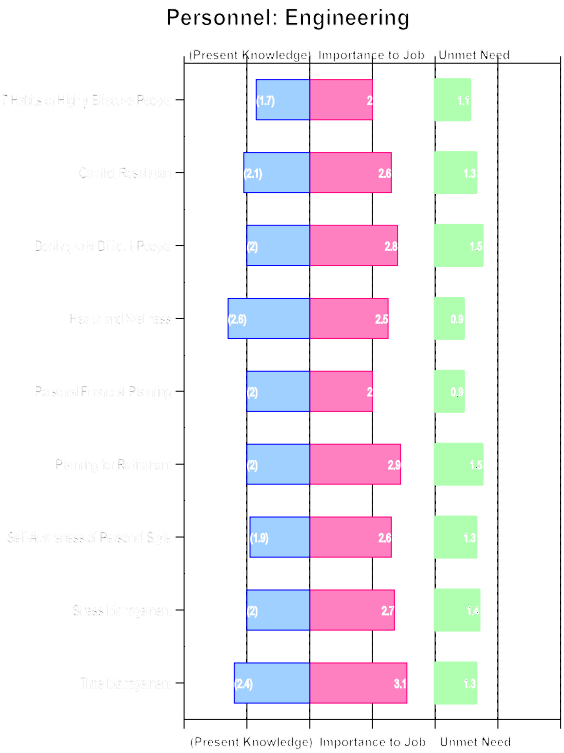

Figure 361: Personnel: Engineering

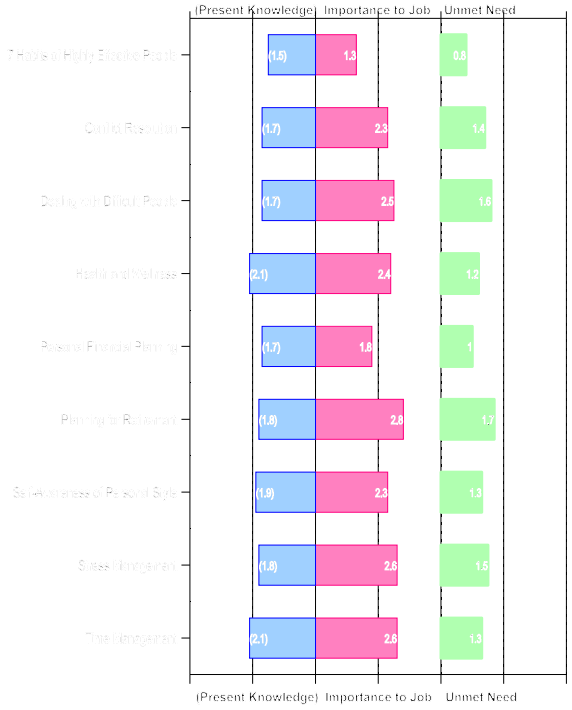

Figure 362: Personnel: Maintenance

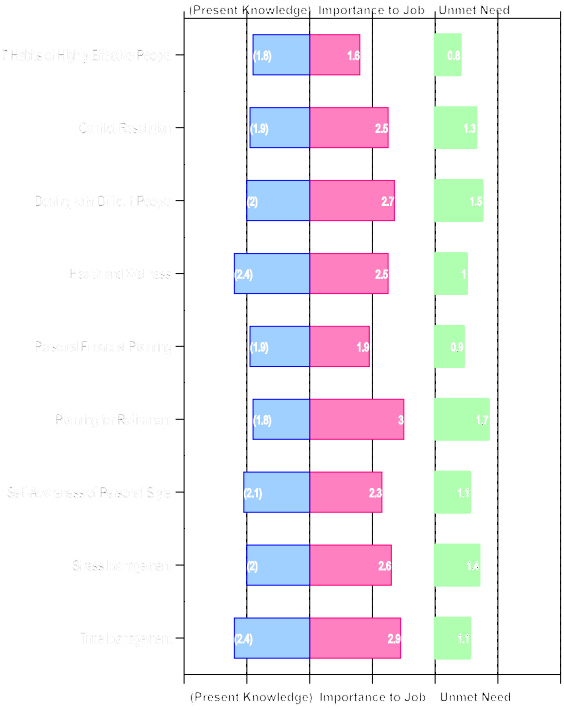

Figure 363: Personnel: Manager

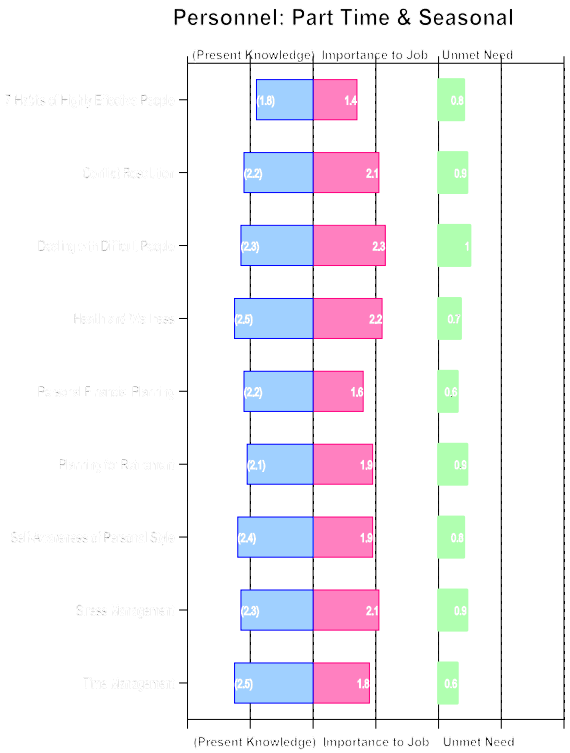

Figure 364: Personnel: Part Time & Seasonal

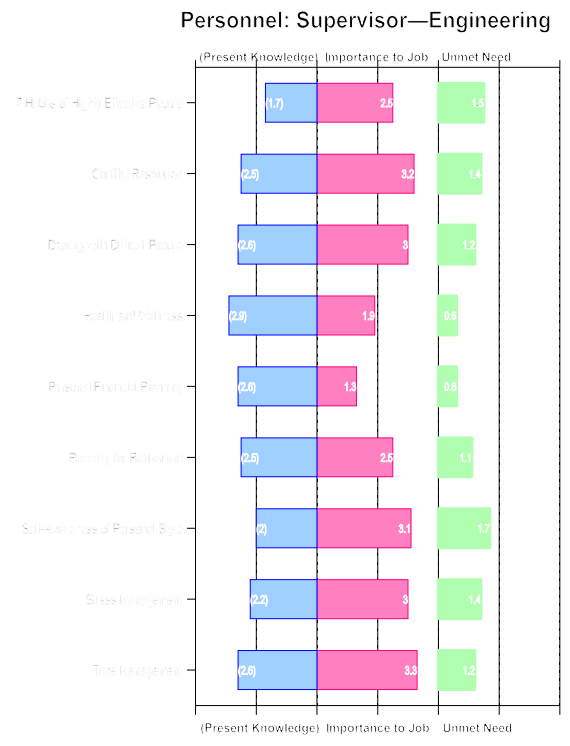

Figure 365: Personnel: Supervisor—Engineering

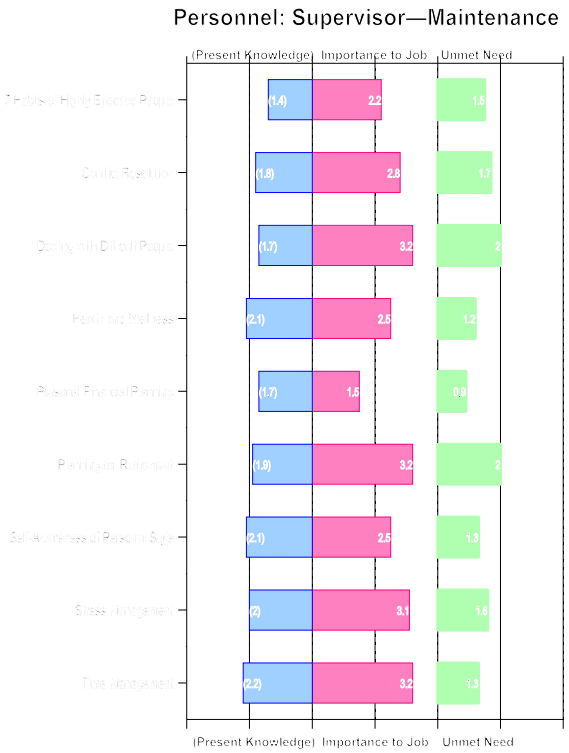

Figure 366: Personnel: Supervisor—Maintenance

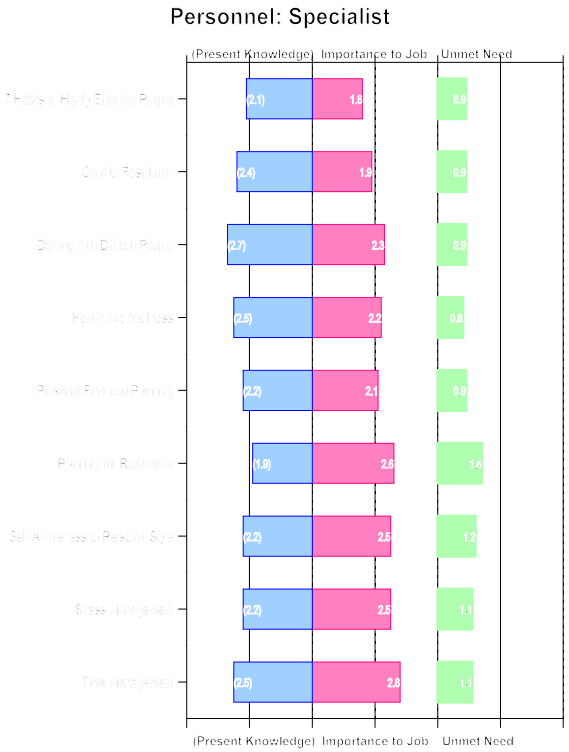

Figure 367: Personnel: Specialist

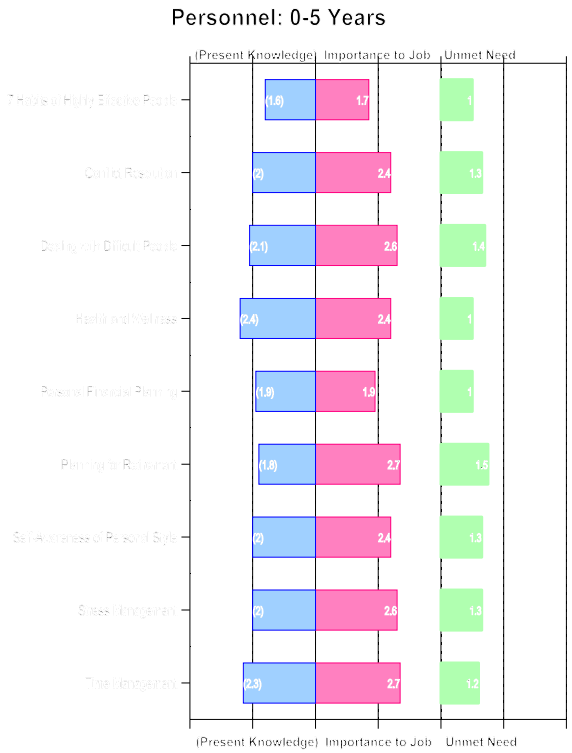

Figure 368: Personnel: 0-5 Years

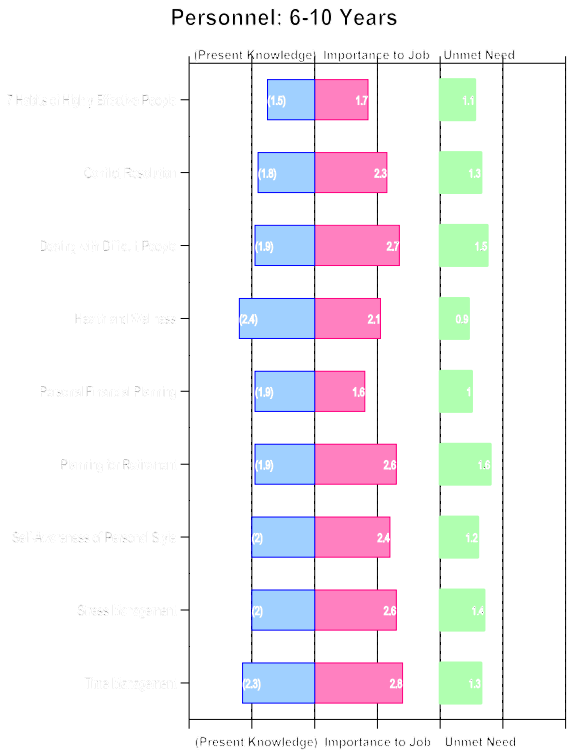

Figure 369: Personnel: 6-10 Years

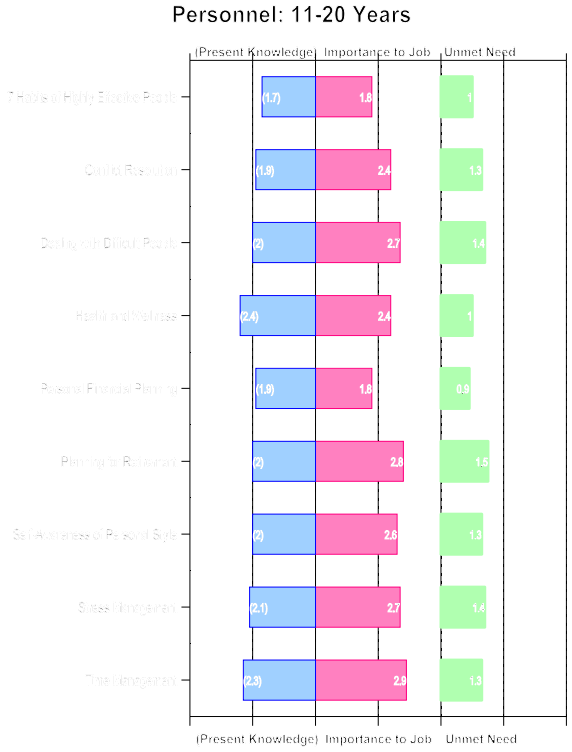

Figure 370: Personnel: 11-20 Years

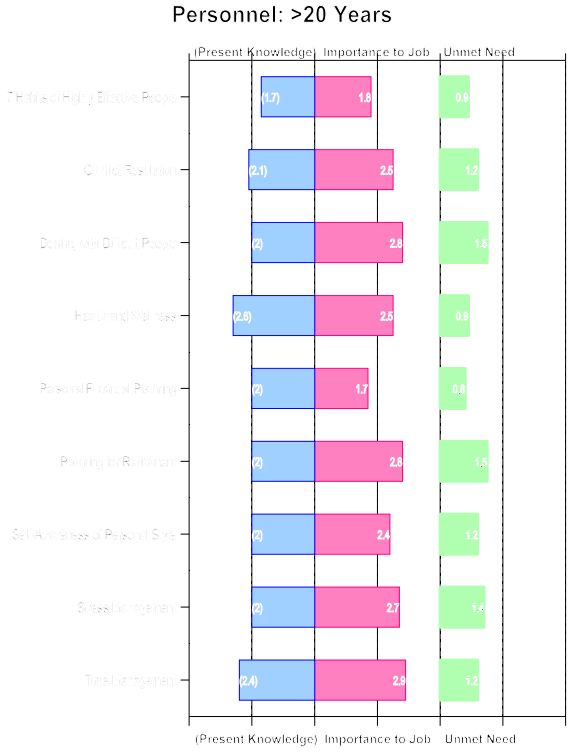

Figure 371: Personnel: >20 Years

7.24 Planning

Summary

Department-wide employees feel they have high Present Knowledge with the associated Importance to Job and Unmet Need very low. However, additional training would be beneficial for employees in the Engineering, Specialist, Supervisor—Maintenance, and Supervisor—Engineering job groups. The Mitchell Region, Rapid City Region and Central Office employees in the Engineering, Specialist, Supervisor—Maintenance, and Supervisor—Engineering job groups indicated the most Unmet Need of training in this domain. Still, the ranking values of Unmet Need are low indicating the Department is providing adequate training in this area and should continue. Training in the knowledge areas listed in Table 34 would provide the most immediate benefit to the department in this domain. Of particular note is a need for additional training in *Geographic Information Systems* expressed by the Specialist and Supervisor—Engineering job groups.

Table 34: Planning Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Statewide Transportation Improvement Program	3.7	0.5	0.2
Geographic Information Systems	3.5	0.2	0.2
Professional Engineering Examination Review	3.6	0.3	0.1
Administration of FHWA Planning Grants	3.5	0.2	0.1
Traffic Monitoring Guide	3.5	0.2	0.1

All SDDOT

Figure 372 illustrates Present Knowledge, Importance to Job and Unmet Need for the Planning Domain. Table 34 lists the top five knowledge areas employees indicated that additional training is required within the Planning Domain. Department-wide employees indicated they have a high level of knowledge in Planning Domain. The associated Importance to Job and Unmet Need is generally low.

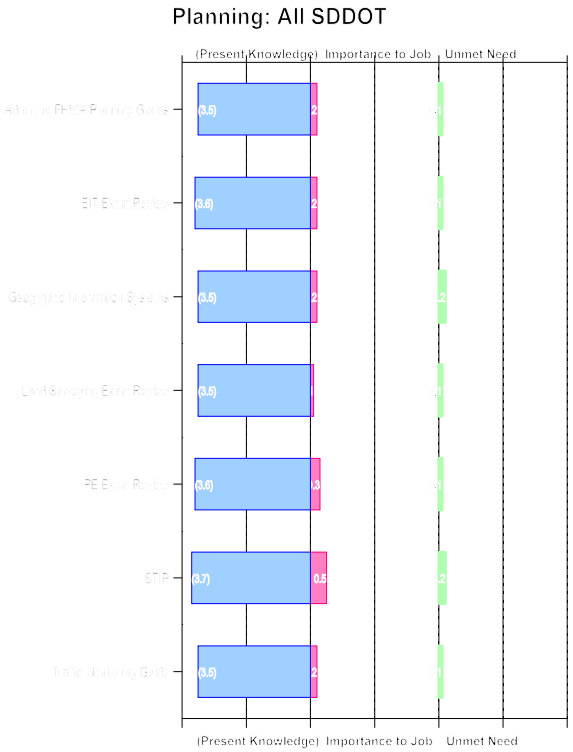

Figure 372: Planning: All SDDOT

By Location

Figures 373 through 377 illustrate Present Knowledge, Importance to Job and Unmet Need for the Planning Domain by Location. The results are nearly identical to the rankings of the All SDDOT Analysis. The Pierre Region indicated very little or no Importance to Job or Unmet Need in this domain. The Mitchell Region indicated the highest Unmet Need although the ranking values are still very low.

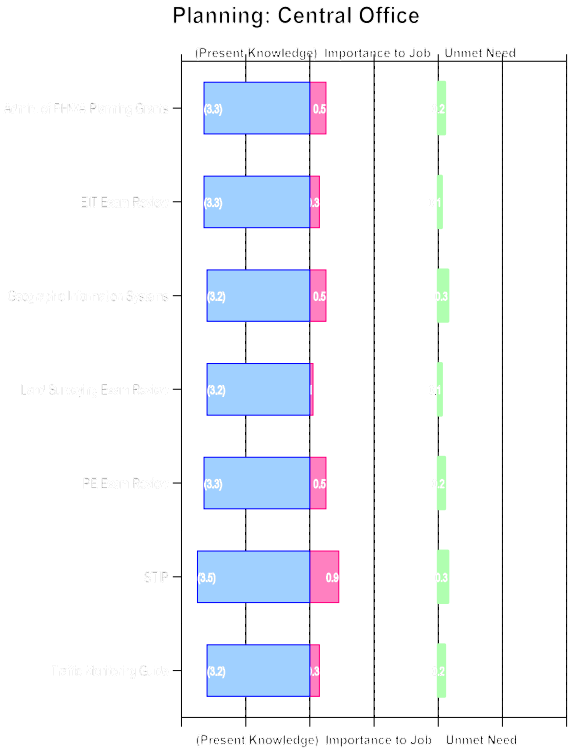

Figure 373: Planning: Central Office

By Job Group

Figures 378 through 385 illustrate Present Knowledge, Importance to Job and Unmet Need for the Planning Domain by job group. The Engineering, Specialist, Supervisor—Maintenance, and Supervisor- Engineering job groups indicate very low need for training in this domain. They correspond to the knowledge areas listed in Table 34, with the exception of an Unmet Need for Training in *Geographic Information Systems* expressed by the Specialist and Supervisor—Engineering job groups.

By Tenure

Figures 386 through 389 illustrate Present Knowledge, Importance to Job and Unmet Need for the Planning Domain by Tenure. Employees in the >20 Years Tenure group indicated only three areas where additional training would be helpful: *Statewide Transportation Improvement Program*, *Geographic Information Systems*, and *Administration of FHWA Planning Grants.* The rankings for the other Tenure groups are nearly the same as the All SDDOT analysis and the top five listed in Table 34.

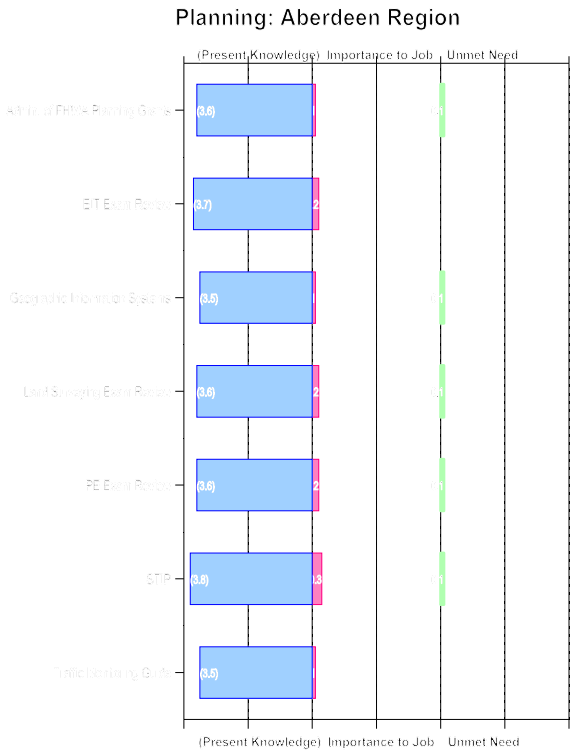

Figure 374: Planning: Aberdeen Region

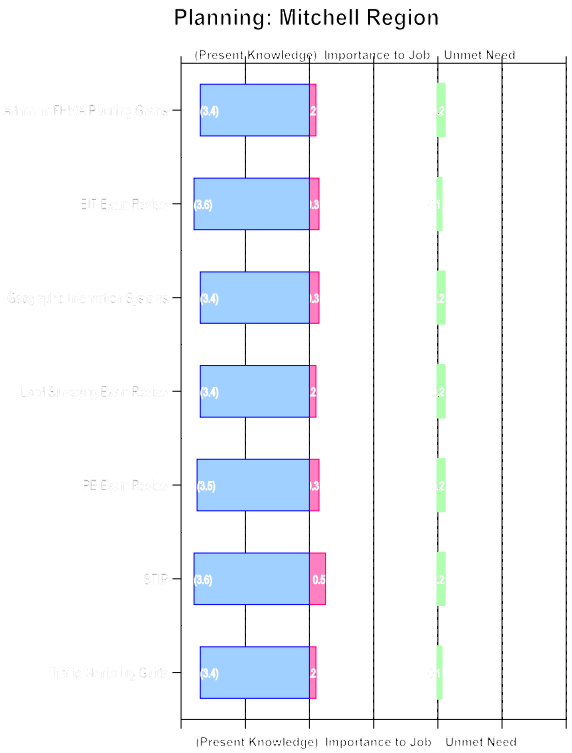

Figure 375: Planning: Mitchell Region

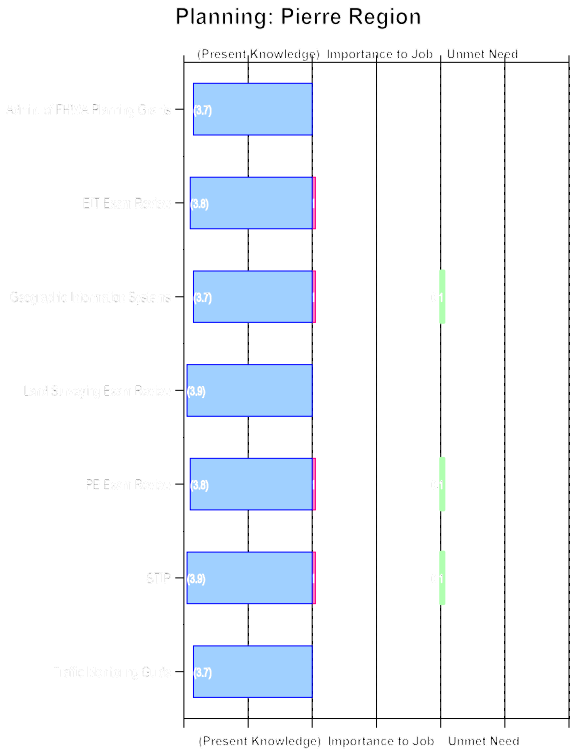

Figure 376: Planning: Pierre Region

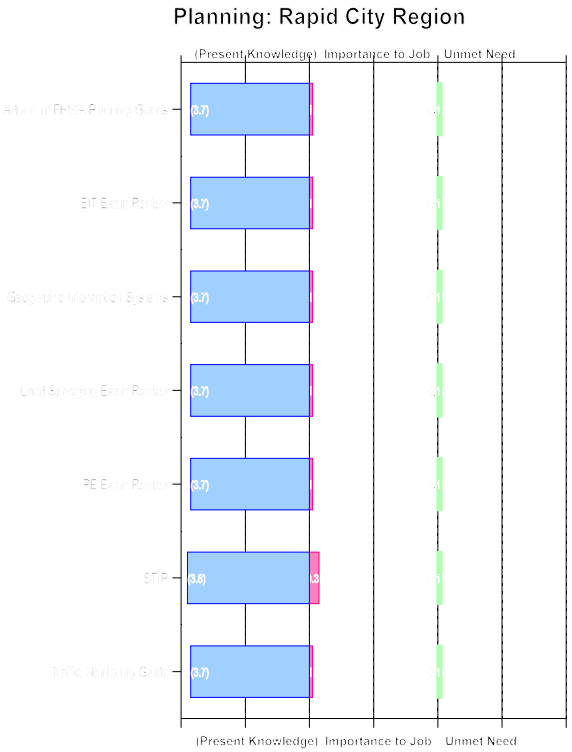

Figure 377: Planning: Rapid City Region

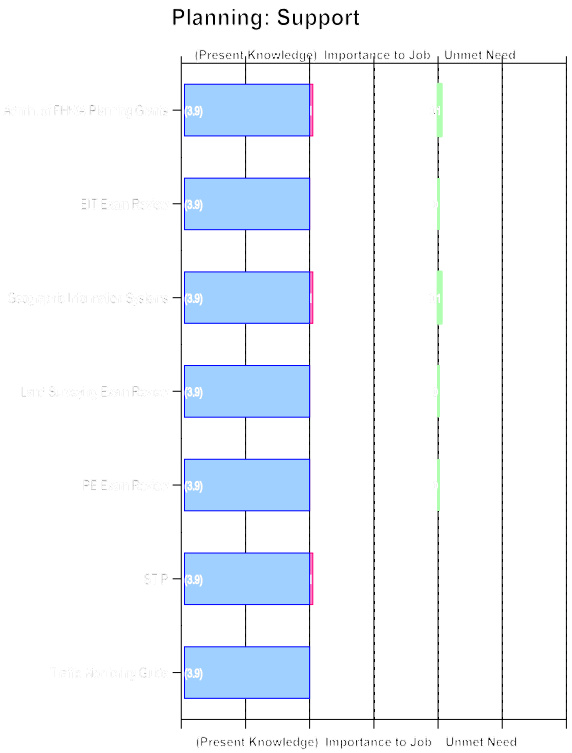

Figure 378: Planning: Support

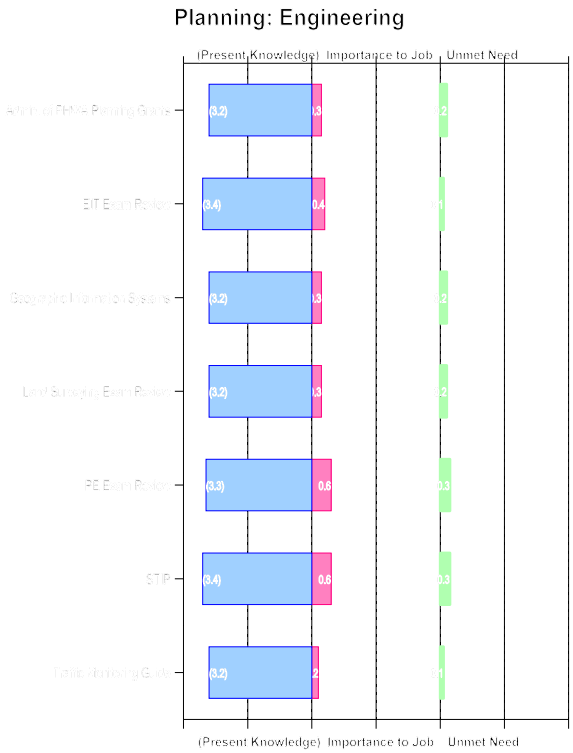

Figure 379: Planning: Engineering

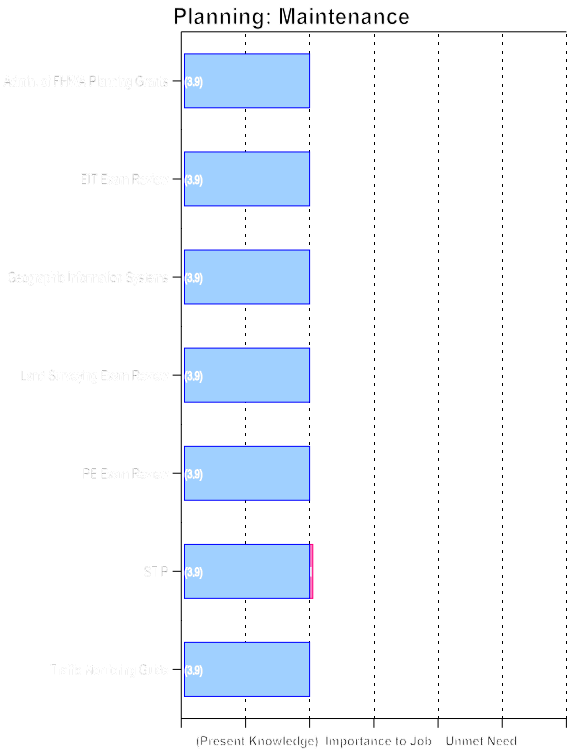

Figure 380: Planning: Maintenance

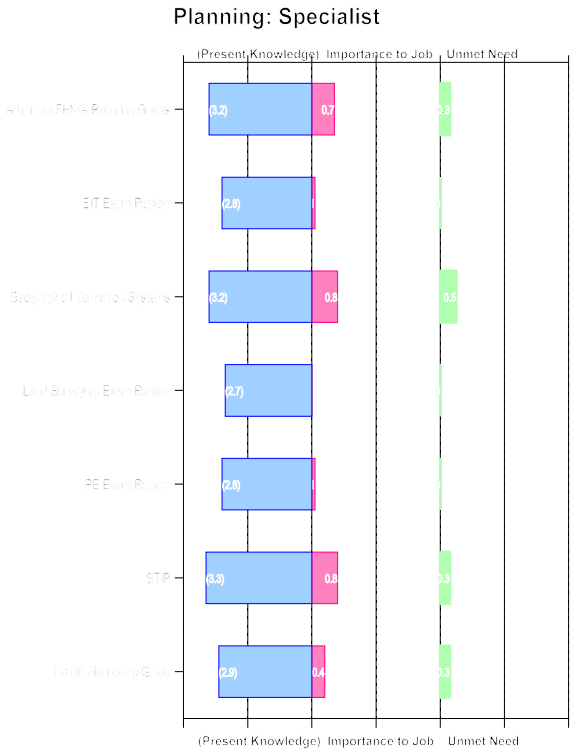

Figure 381: Planning: Specialist

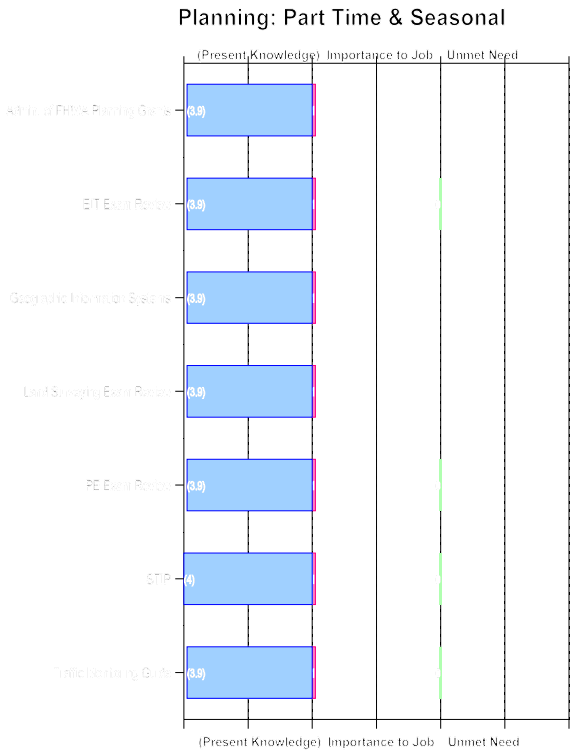

Figure 382: Planning: Part Time & Seasonal

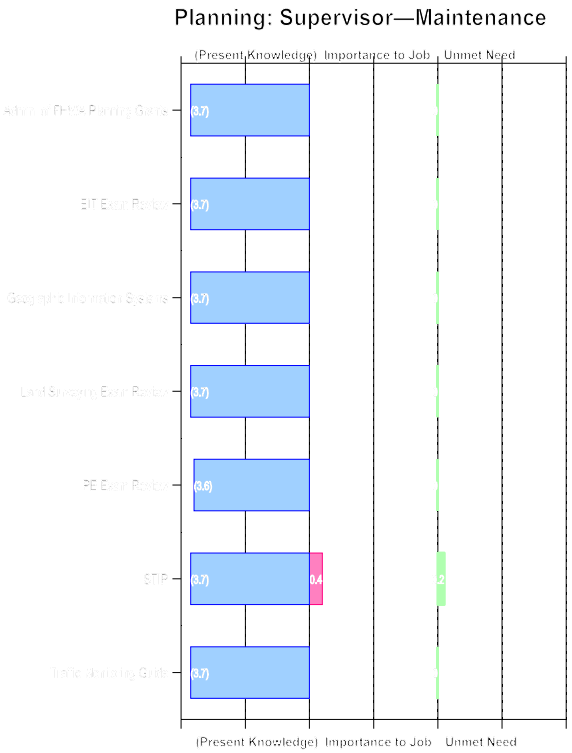

Figure 383: Planning: Supervisor—Maintenance

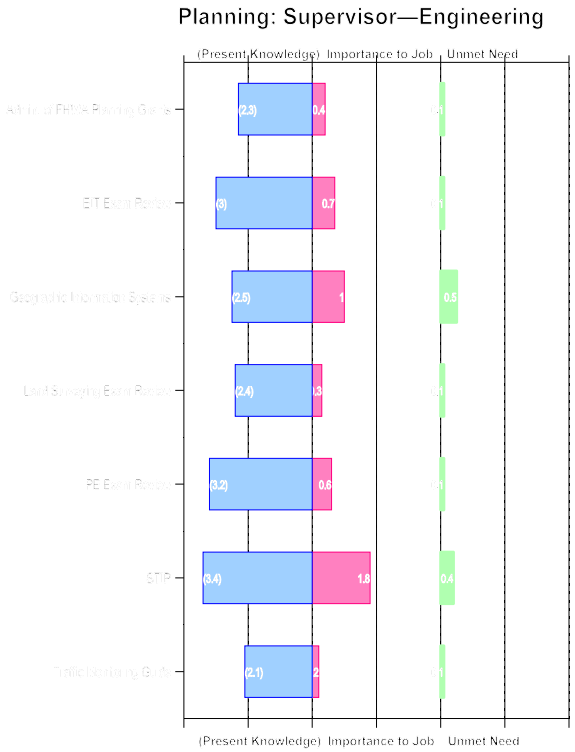

Figure 384: Planning: Supervisor—Engineering

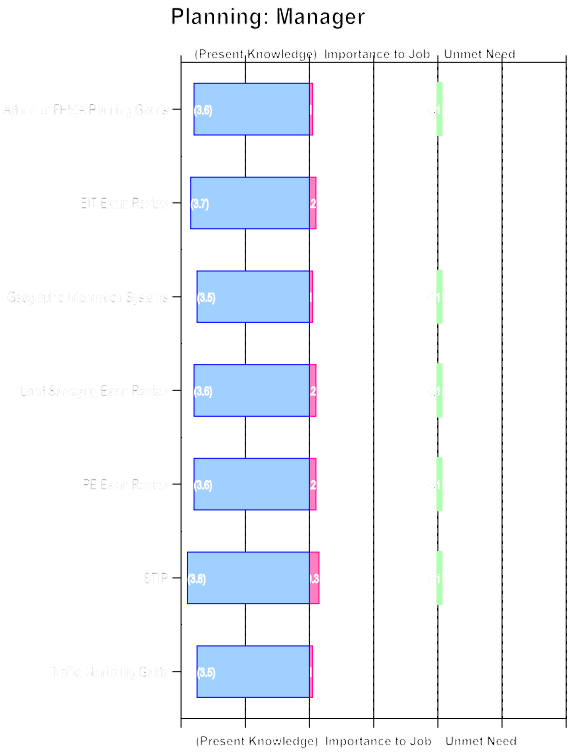

Figure 385: Planning: Manager

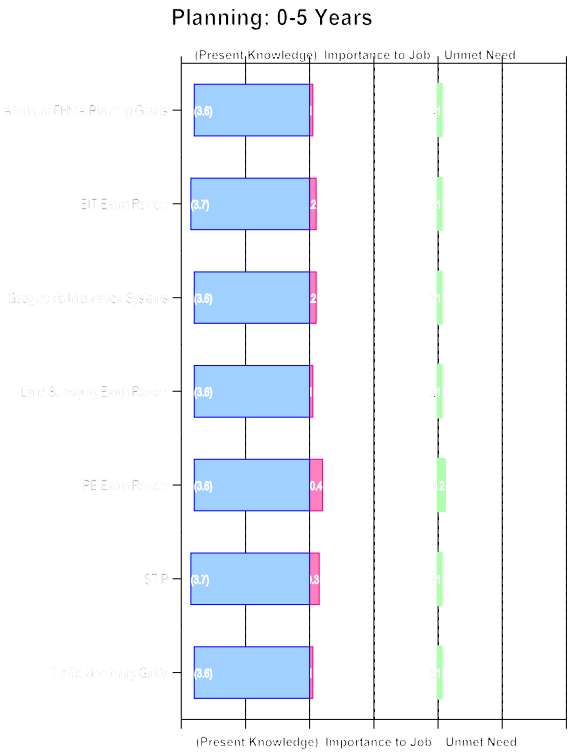

Figure 386: Planning: 0-5 Years

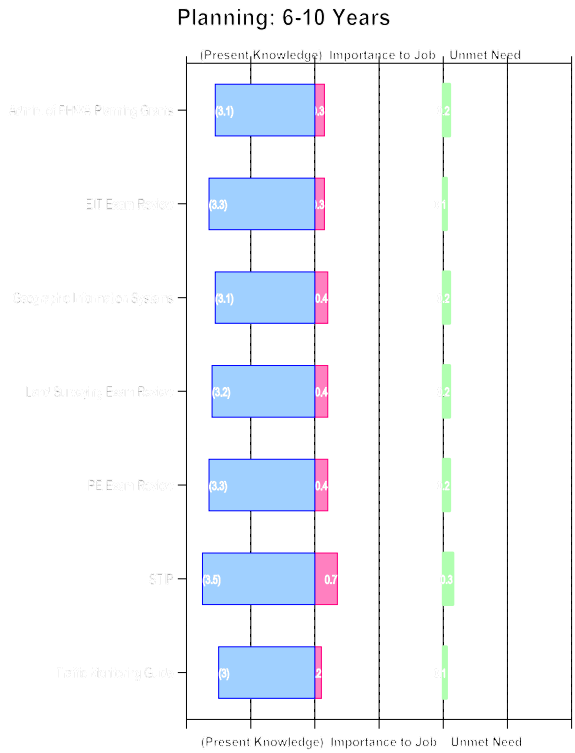

Figure 387: Planning: 6-10 Years

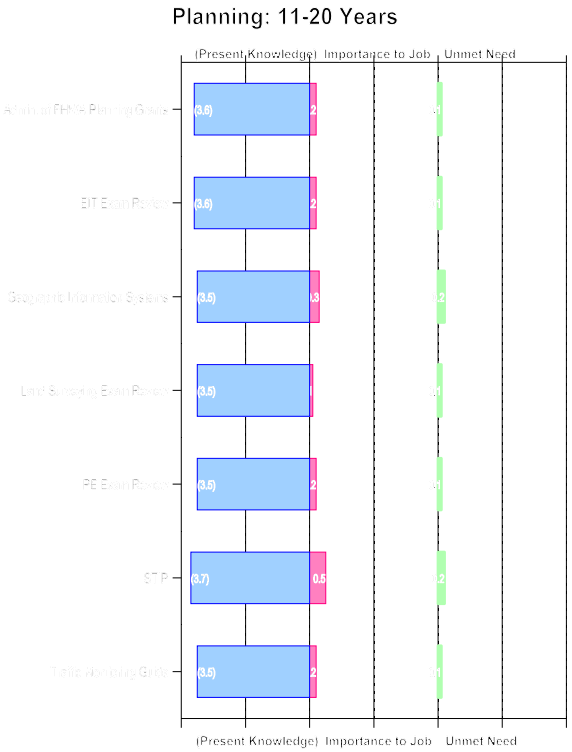

Figure 388: Planning: 11-20 Years

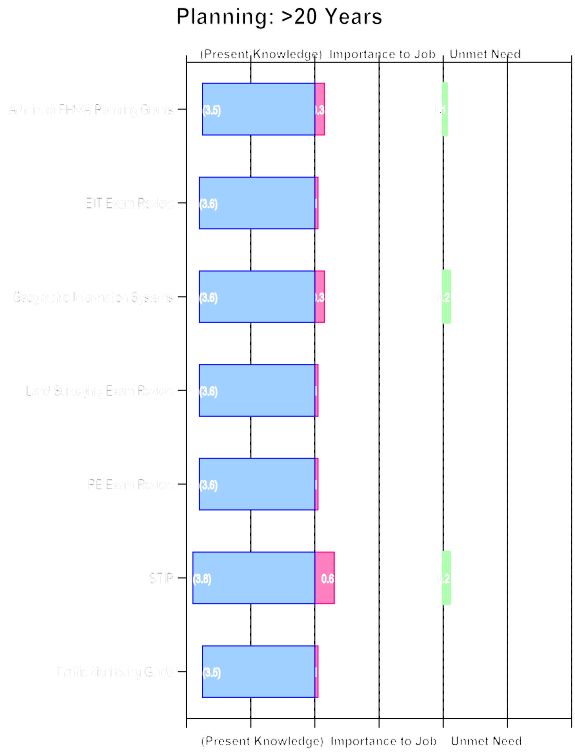

Figure 389: Planning: >20 Years

7.25 Quality Improvement

Summary

The *Quality Improvement Domain* ranked among the top five in terms of Unmet Need for training throughout the Department. Employees feel they have a moderate level of Present Knowledge, and the Importance to Job rankings are also in the moderate level. Employees indicated they have some additional need for training in this domain. Table 35 lists the knowledge areas for the Quality Improvement Domain. It is interesting to note that the knowledge area *Improving Work Processes* was ranked having the highest Unmet Need by nearly all job groups regardless of location or tenure.

Table 35: Quality Improvement Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Improving Work Process	2.2	2.0	1.1
Managing Change	2.1	2.0	1.0
Problem Solving	2.5	2.6	0.9
Resource Acquisition	1.7	1.9	0.8
Performance Measurement	1.9	2.3	0.8

All SDDOT

Figure 390 illustrates Present Knowledge, Importance to Job and Unmet Need for the Quality Improvement Domain. Department-wide employees indicated they have a moderate level of knowledge in Quality Improvement Domain. The associated Importance to Job rankings are in the moderate range and the Unmet Need is in the low range. Employees ranked this domain in the top five of all domains where additional training is required.

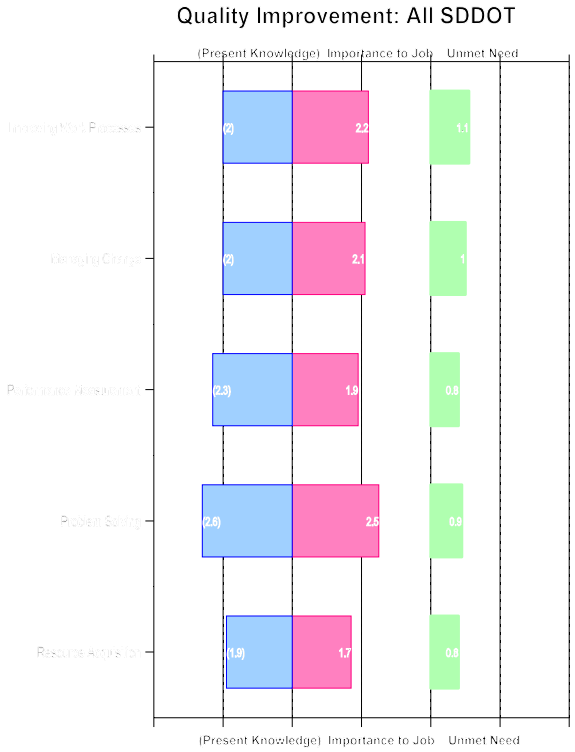

Figure 390: Quality Improvement: All SDDOT

By Location

Figures 391 through 395 illustrate Present Knowledge, Importance to Job and Unmet Need for the Quality Improvement Domain by Location. The results are nearly identical to the rankings of the All SDDOT analysis. The Regions and Central Office all ranked the knowledge areas of this domain nearly identical.

By Job Group

Figures 396 through 403 illustrate Present Knowledge, Importance to Job and Unmet Need for the Quality Improvement Domain by job group. The results are nearly identical to the rankings of the All SDDOT analysis. The results indicate there is some consistency throughout all job groups.

By Tenure

Figures 404 through 407 illustrate Present Knowledge, Importance to Job and Unmet Need for the Quality Improvement Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis.

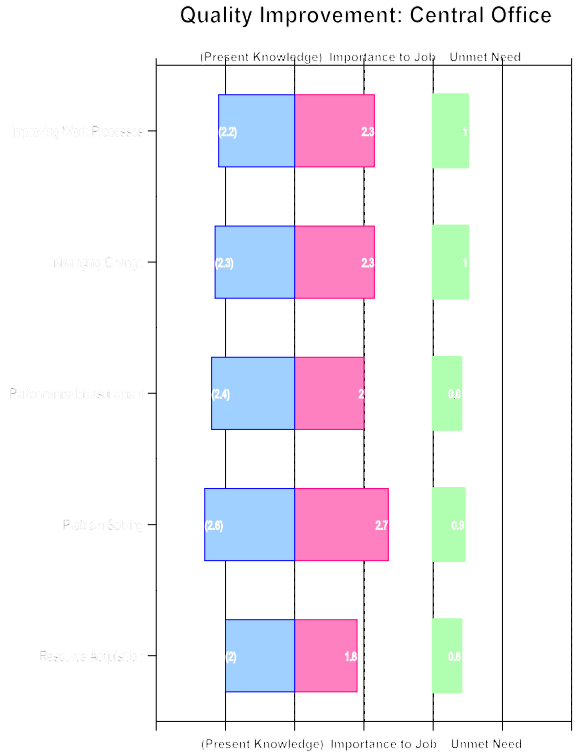

Figure 391: Quality Improvement: Central Office

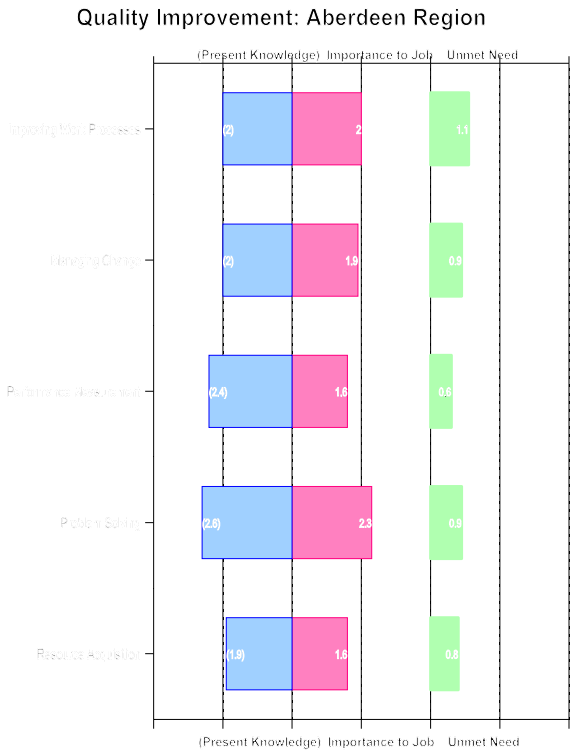

Figure 392: Quality Improvement: Aberdeen Region

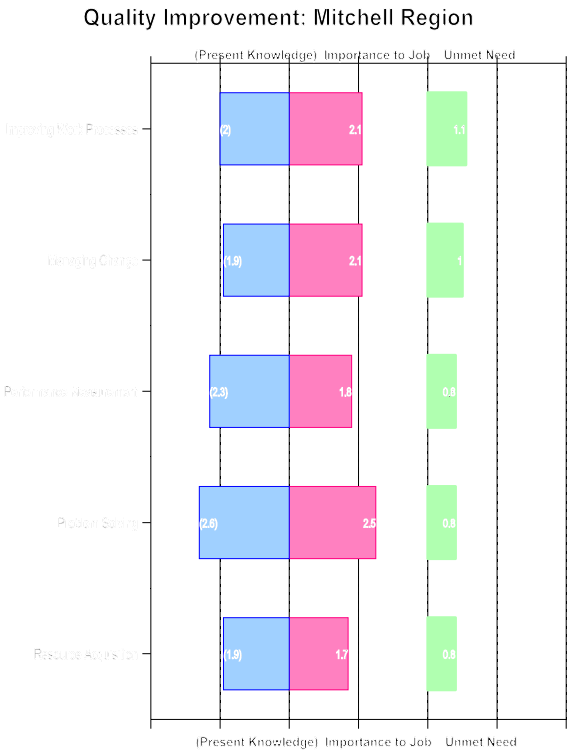

Figure 393: Quality Improvement: Mitchell Region

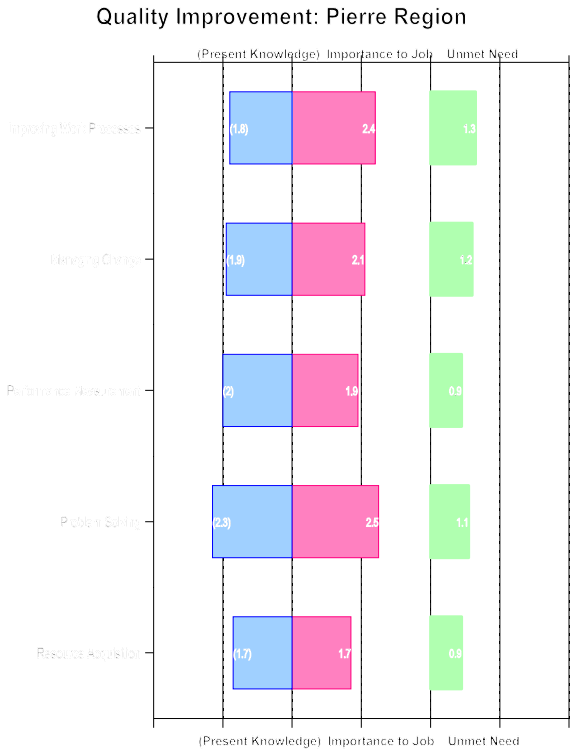

Figure 394: Quality Improvement: Pierre Region

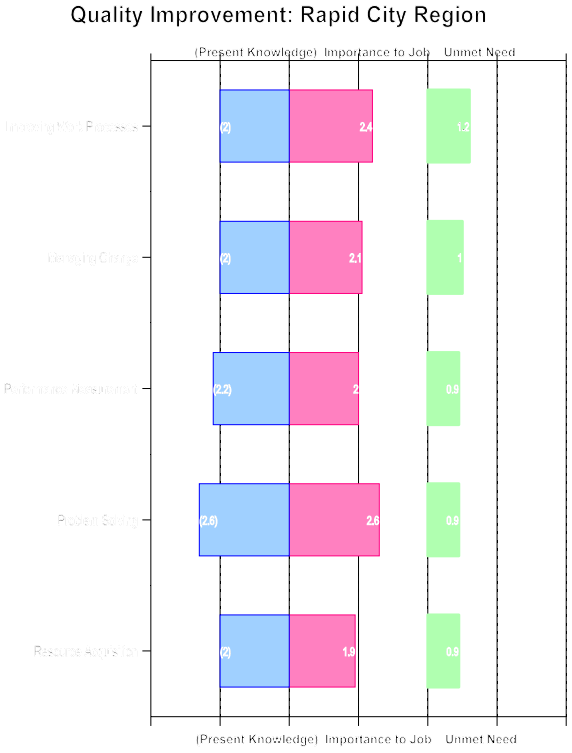

Figure 395: Quality Improvement: Rapid City Region

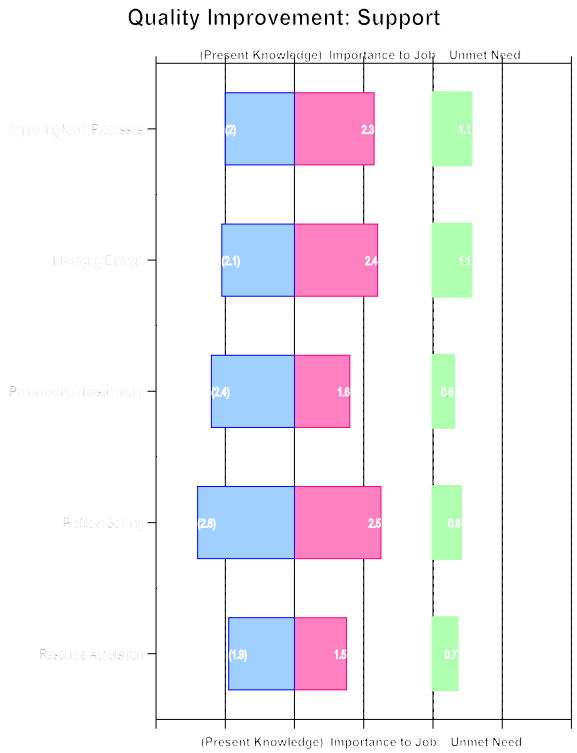

Figure 396: Quality Improvement: Support

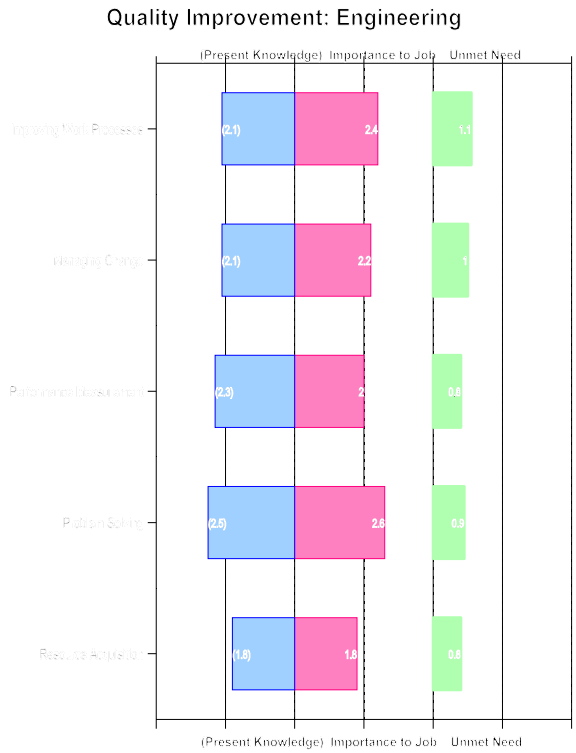

Figure 397: Quality Improvement: Engineering

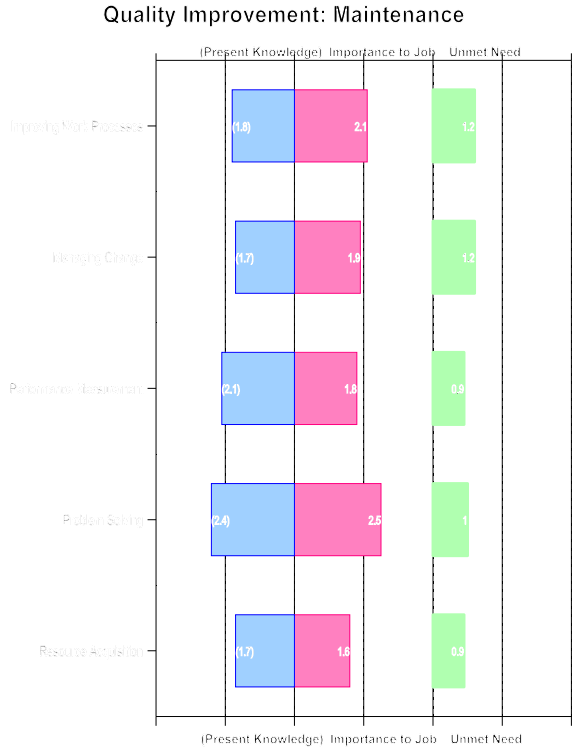

Figure 398: Quality Improvement: Maintenance

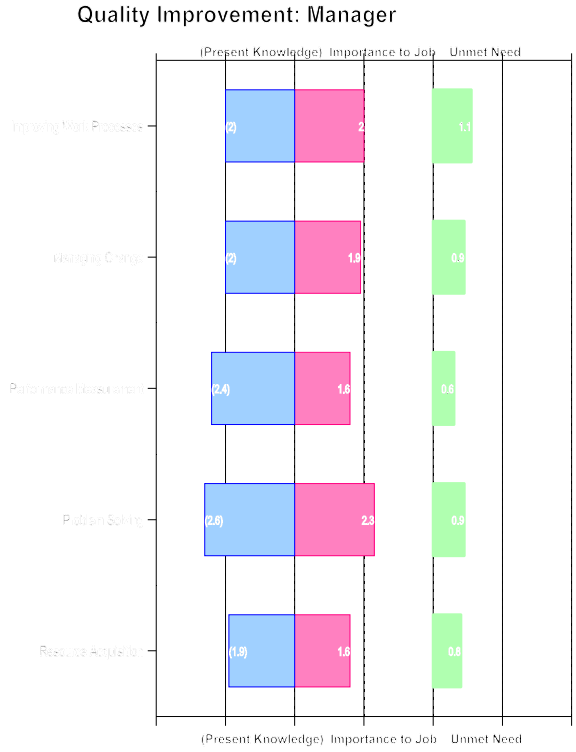

Figure 399: Quality Improvement: Manager

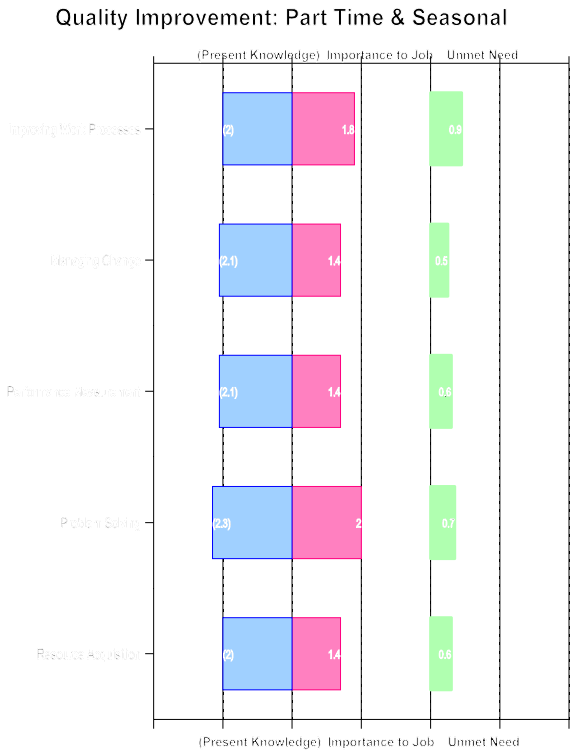

Figure 400: Quality Improvement: Part Time & Seasonal

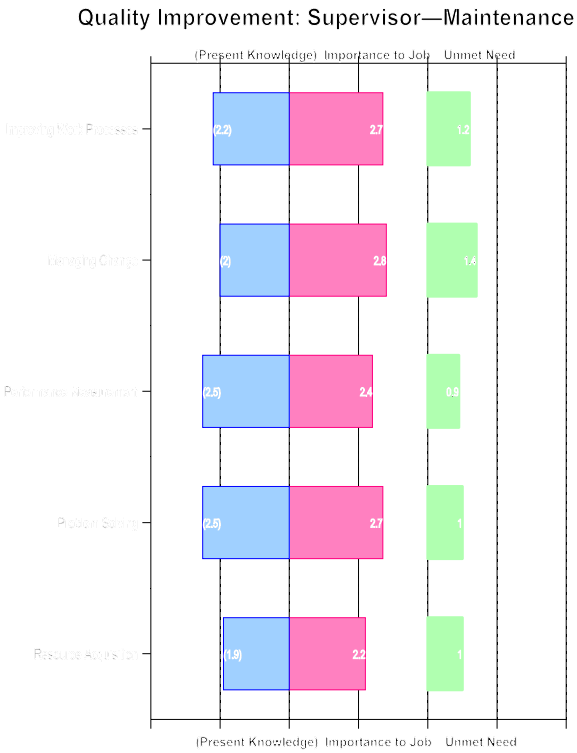

Figure 401: Quality Improvement: Supervisor—Maintenance

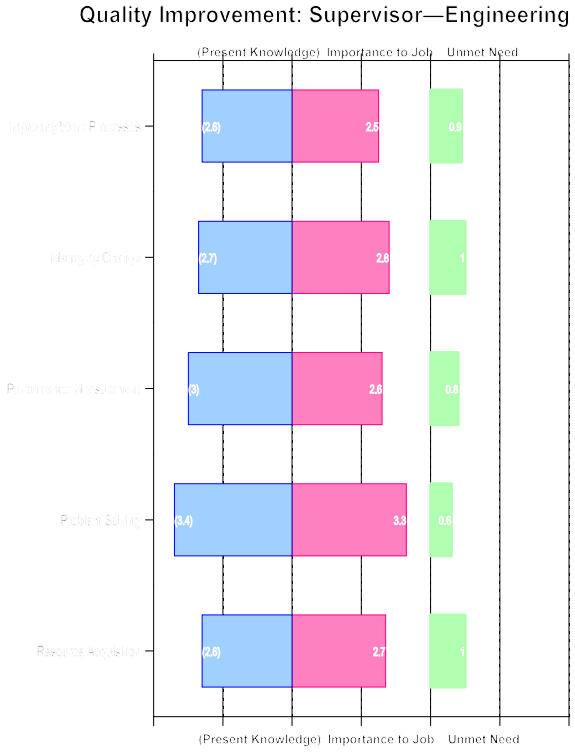

Figure 402: Quality Improvement: Supervisor—Engineering

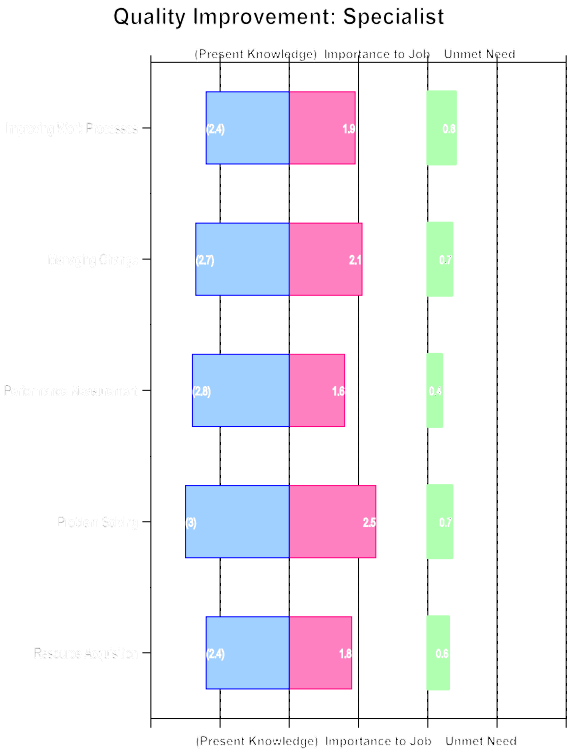

Figure 403: Quality Improvement: Specialist

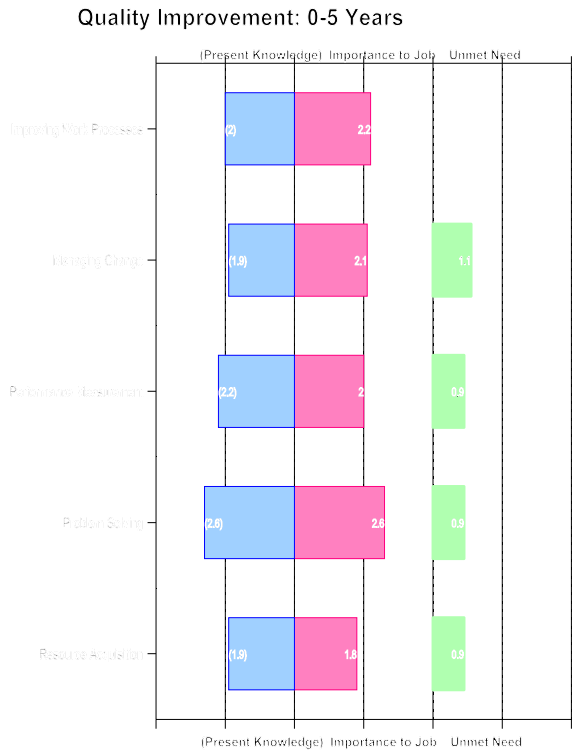

Figure 404: Quality Improvement: 0-5 Years

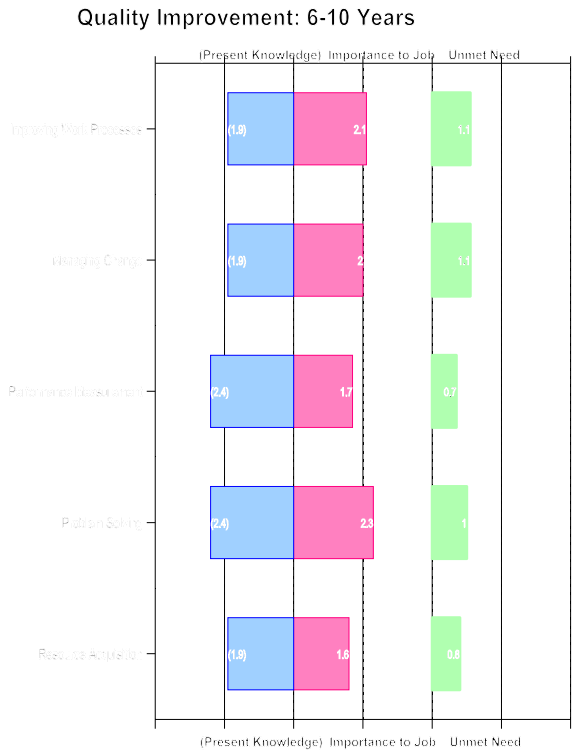

Figure 405: Quality Improvement: 6-10 Years

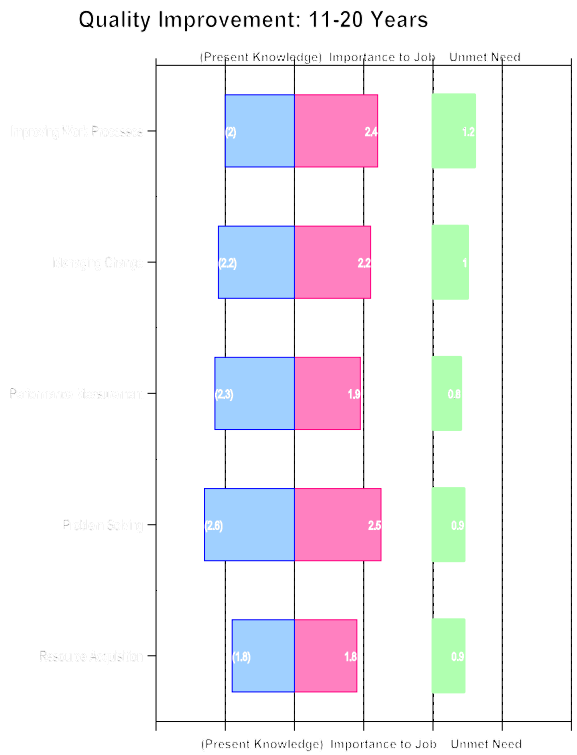

Figure 406: Quality Improvement: 11-20 Years

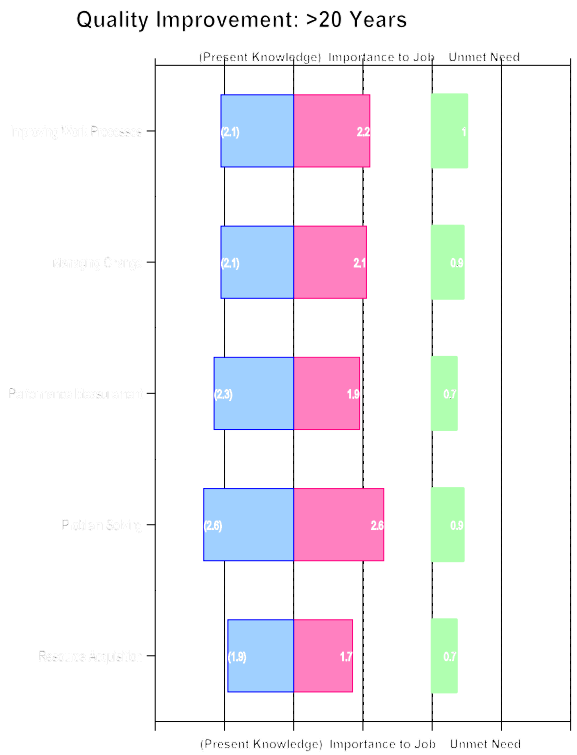

Figure 407: Quality Improvement: >20 Years

7.26 Right-of-Way

Summary

Department-wide employees feel they have a high level of Present Knowledge in this domain. The associated Importance to Job is low, primarily because most of the Department's employees do not require detailed knowledge in the Right-of-Way Domain. Although low there is an Unmet Need for additional training in this domain (Table 36). The Engineering and Supervisor—Engineering job groups indicated some need primarily in the Central Office although there is a smaller need indicated in the Mitchell Region, Pierre Region and Rapid City Region. This may be from a combination of Supervisor—Maintenance and Supervisor—Engineering job groups indicating some Unmet Need. The Supervisor—Maintenance job group in all regions indicated a Unmet Need in *Outdoor Advertising Programs*.

Table 36: Individual Right of Way Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Outdoor Advertising Programs	3.7	0.3	0.1
Property Appraisal & Appraisal Review	3.7	0.2	0.1
Relocation of Persons	3.7	0.2	0.1

All SDDOT

Figure 408 illustrates Present Knowledge, Importance to Job and Unmet Need for the Right-of-Way Domain. Department-wide employees indicated they have a very high level of knowledge in Right-of-Way Domain. The associated Importance to Job rankings are in the moderate range and the Unmet Need is in the low range. Department-wide there is almost no need for training in this domain.

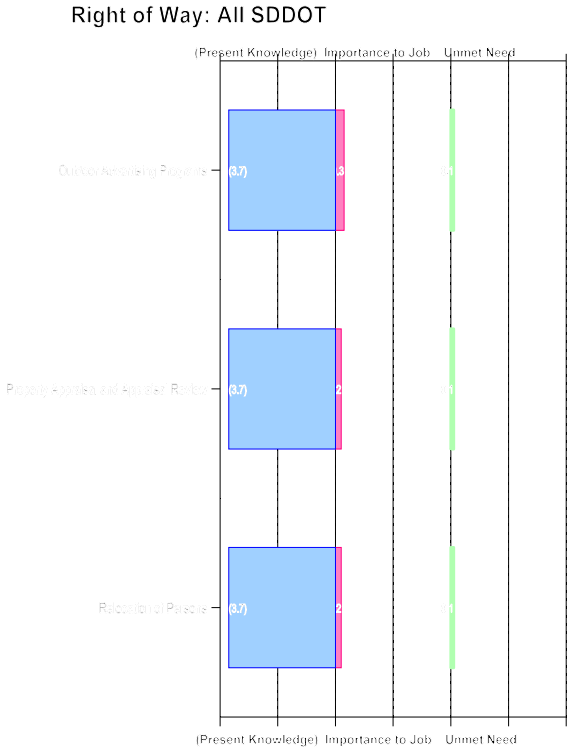

Figure 408: Right of Way:

By Location

Figures 409 through 413 illustrate Present Knowledge, Importance to Job and Unmet Need for the Right-of-Way Domain by Location. The results are nearly identical to the rankings of the All SDDOT analysis. The Regions and Central Office all ranked the knowledge areas of this domain nearly identical indicating almost no Importance to Job and Unmet Need. Although low, a need does exist in all the Regions. The Central Office employees indicated slightly more Unmet Need. Most Right-of-Way activities occur in the Central Office.

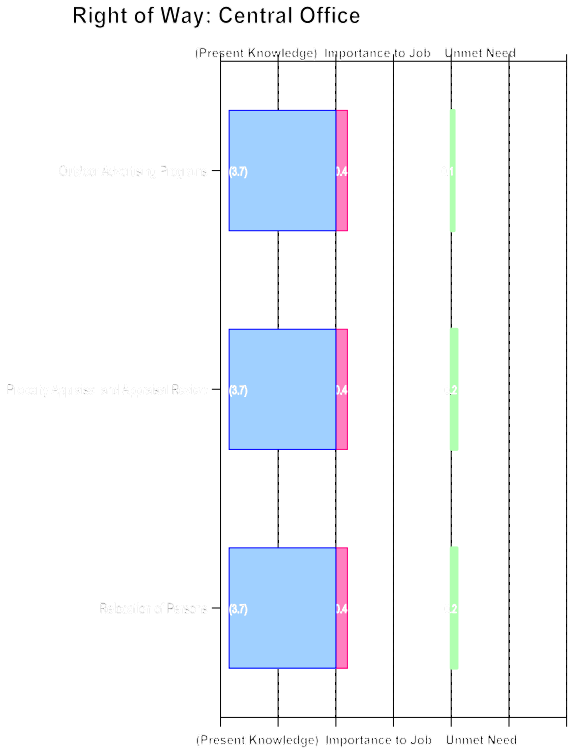

Figure 409: Right of Way: Central Office

By Job Group

Figures 414 through 421 illustrate Present Knowledge, Importance to Job and Unmet Need for the Right-of-Way Domain by job group. The results are nearly identical to the rankings of the All SDDOT analysis. The Engineering and Supervisor—Engineering job groups indicated there is a low level of Importance to Job and Unmet Need. The Supervisor—Maintenance job group indicated a low need for additional training in *Outdoor Advertising Programs.*

By Tenure

Figures 422 through 425 illustrate Present Knowledge, Importance to Job and Unmet Need for the Right-of-Way Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis. The >20 Years Tenure group indicated a Unmet Need in *Outdoor Advertising Programs* and not need in the other knowledge areas. The Unmet Need for the other Tenure Domains are nearly identical with the 6-10 Years Tenure groups indicating a slightly higher Importance to Job and Unmet Need. The higher values are not significant.

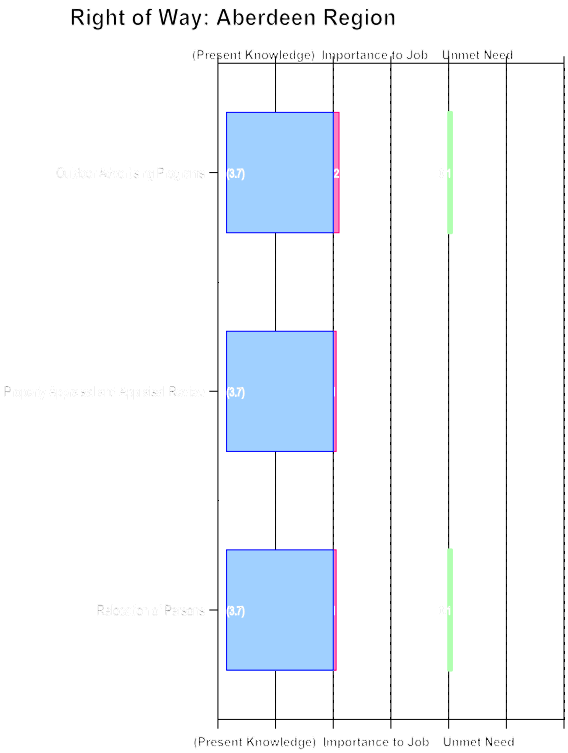

Figure 410: Right of Way: Aberdeen Region

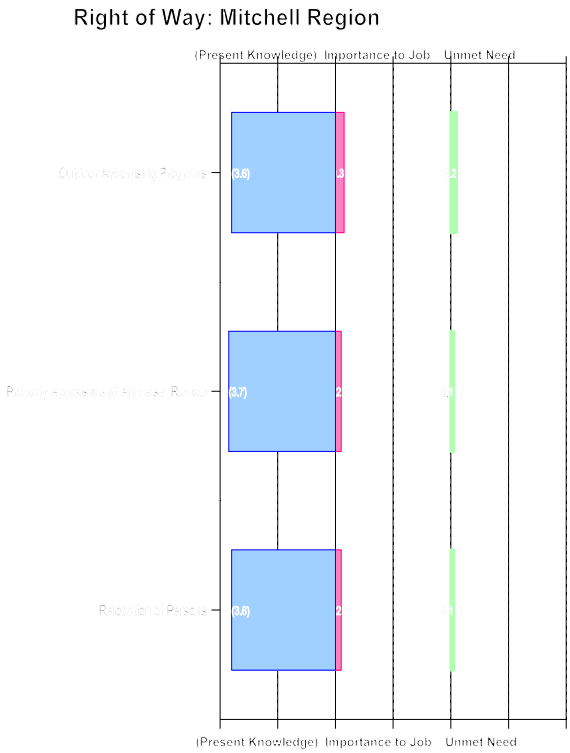

Figure 411: Right of Way: Mitchell Region

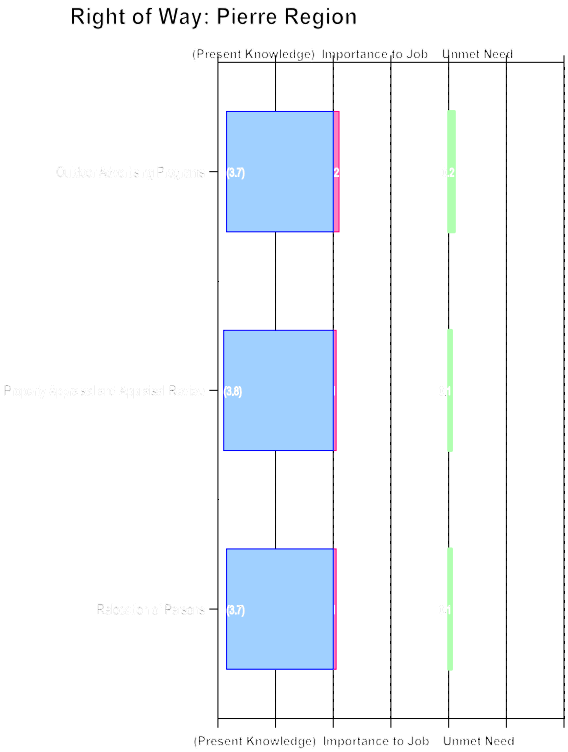

Figure 412: Right of Way: Pierre Region

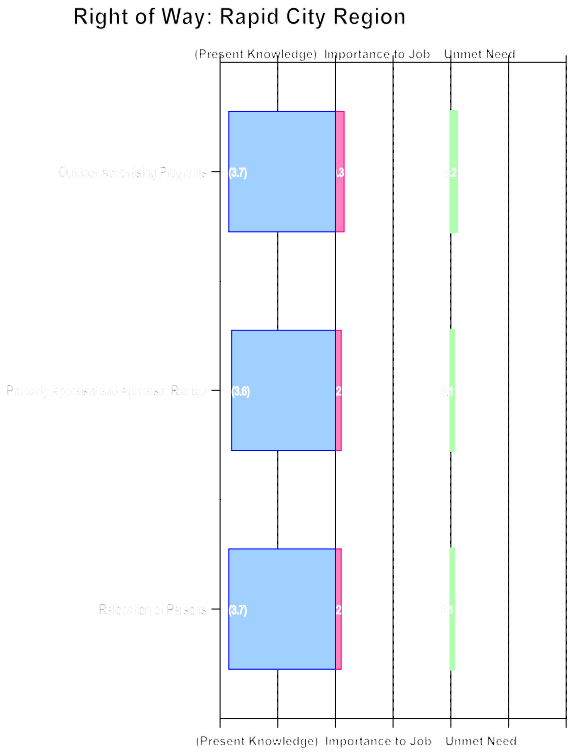

Figure 413: Right of Way: Rapid City Region

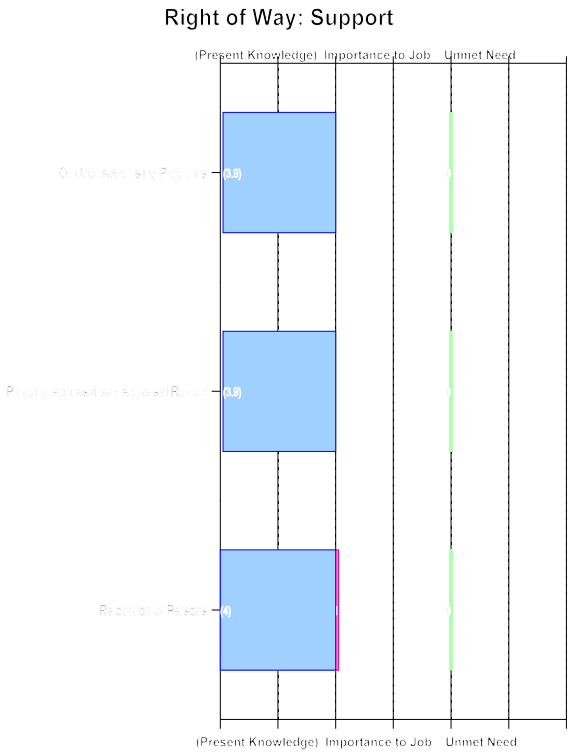

Figure 414: Right of Way:

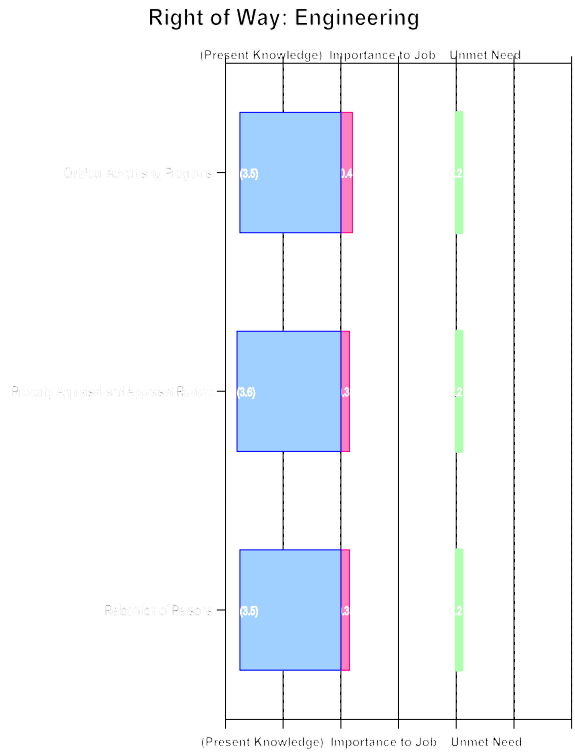

Figure 415: Right of Way: Engineering

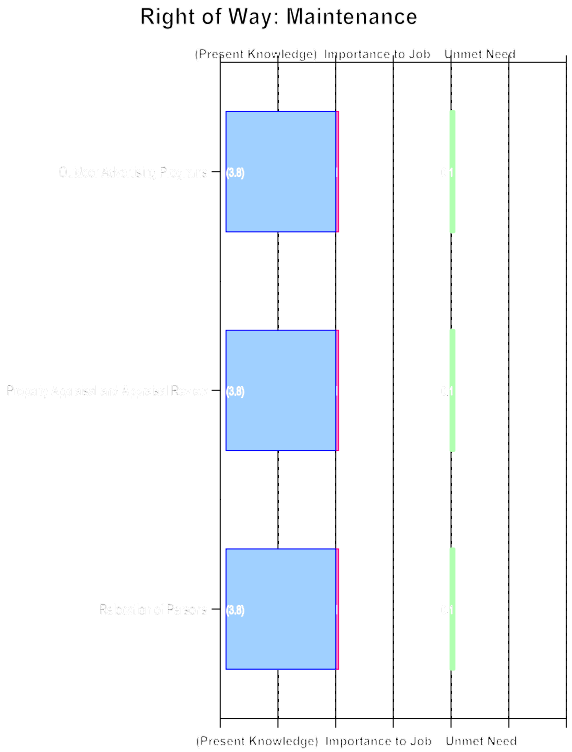

Figure 416: Right of Way: Maintenance

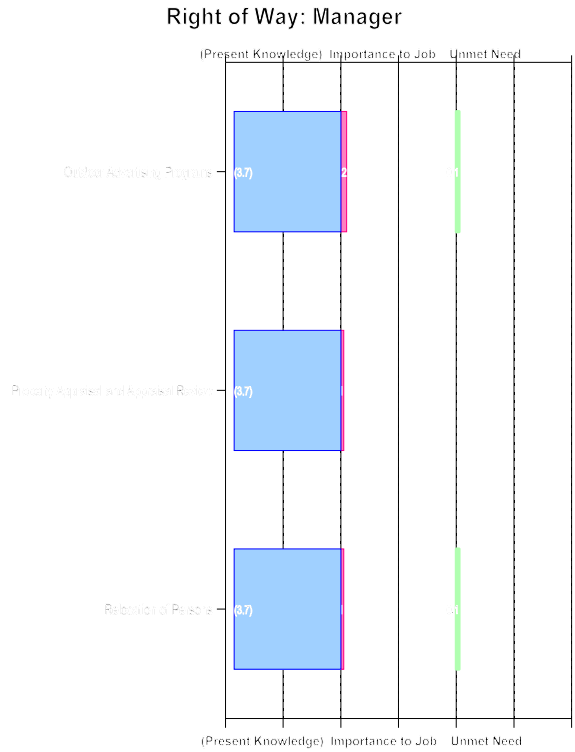

Figure 417: Right of Way: Manager

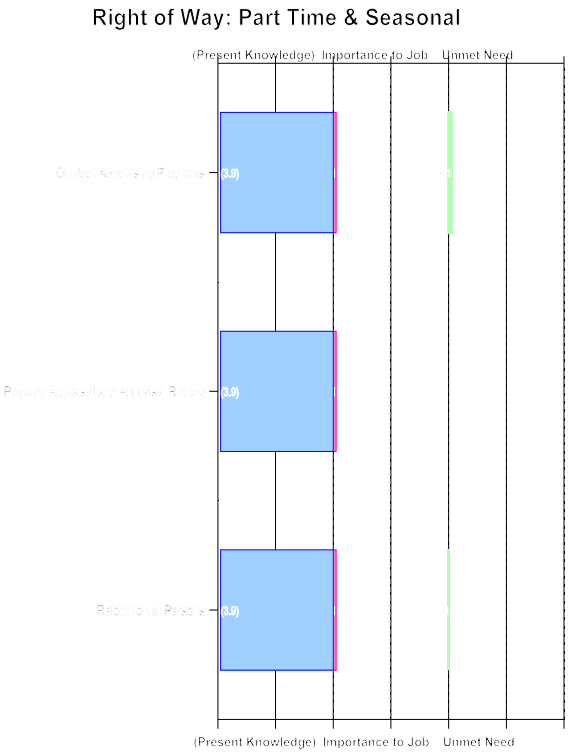

Figure 418: Right of Way: Part Time & Seasonal

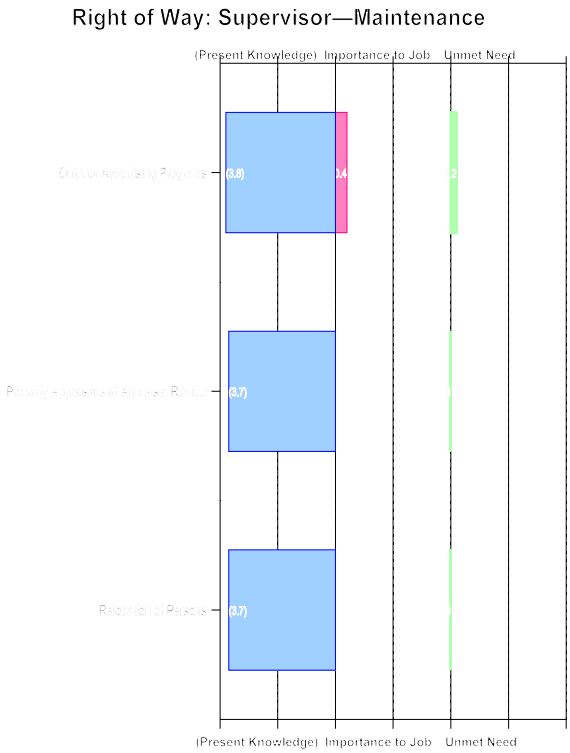

Figure 419: Right of Way: Supervisor—Maintenance

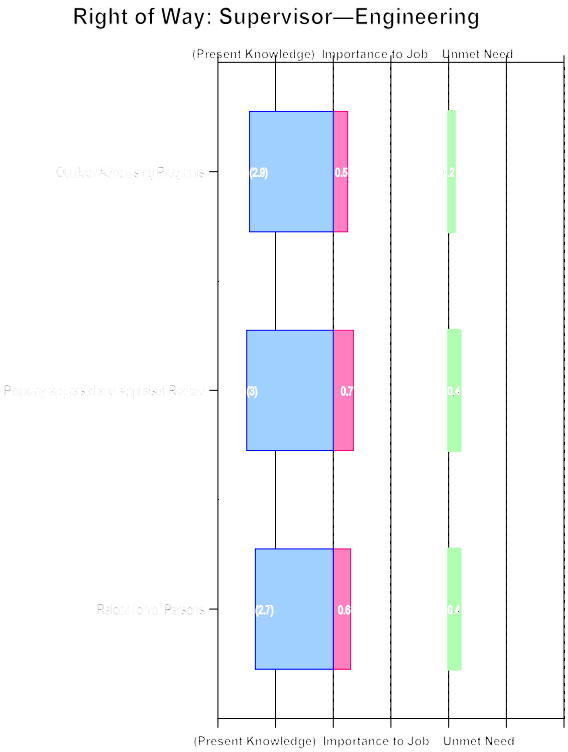

Figure 420: Right of Way: Supervisor—Engineering

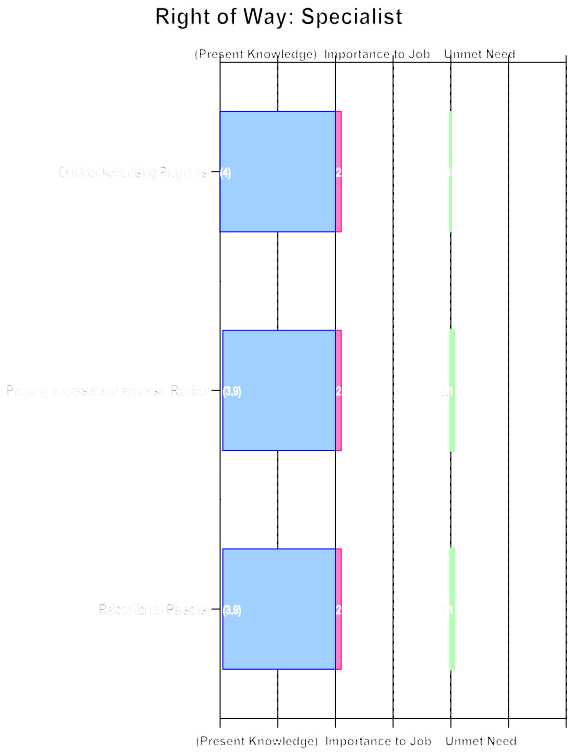

Figure 421: Right of Way: Specialist

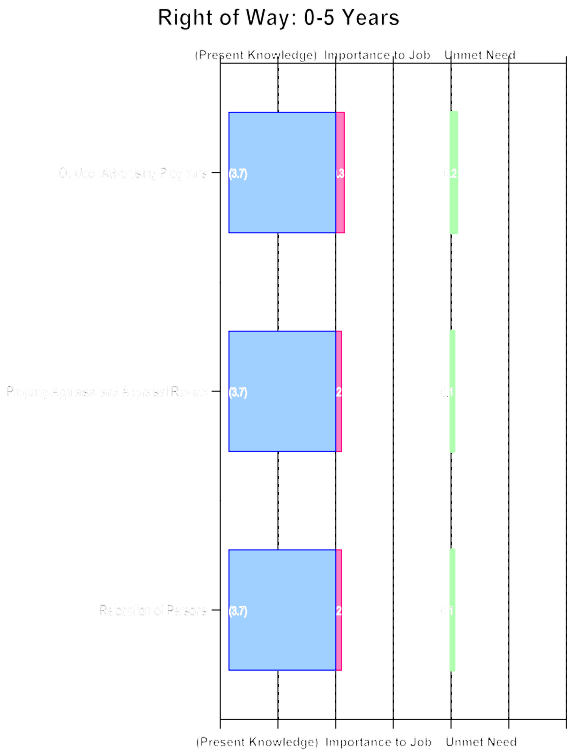

Figure 422: Right of Way: 0-5 Years

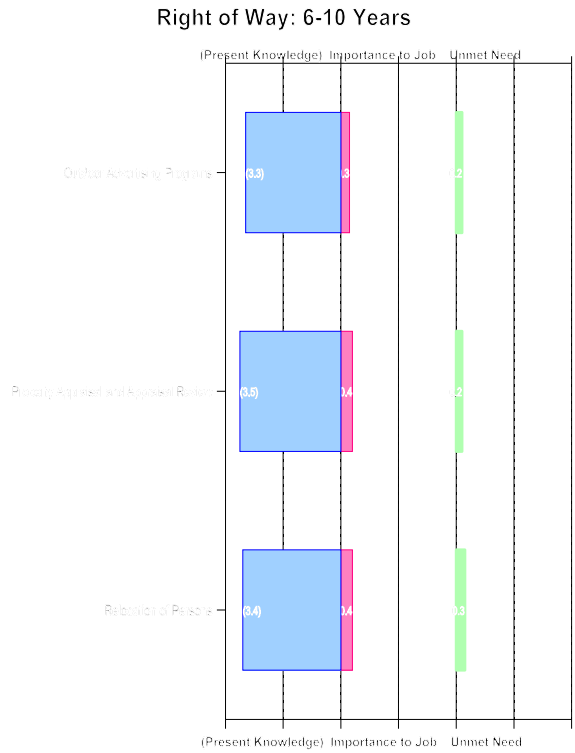

Figure 423: Right of Way: 6-10 Years

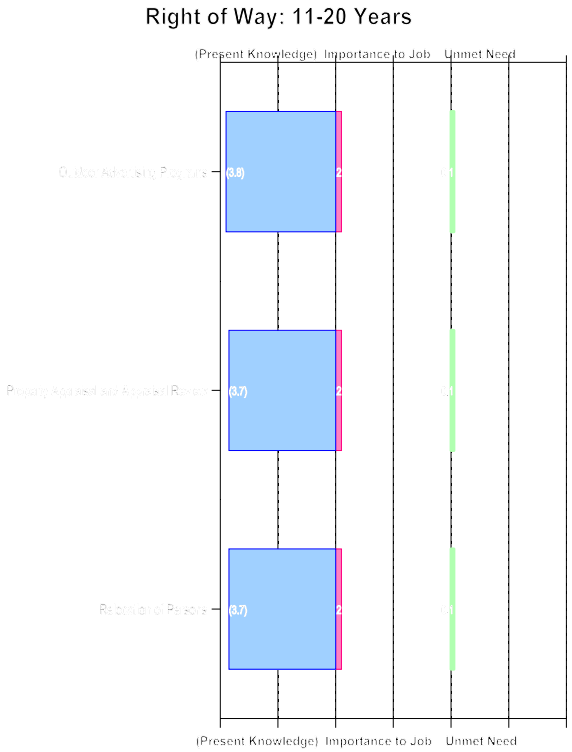

Figure 424: Right of Way: 11-20 Years

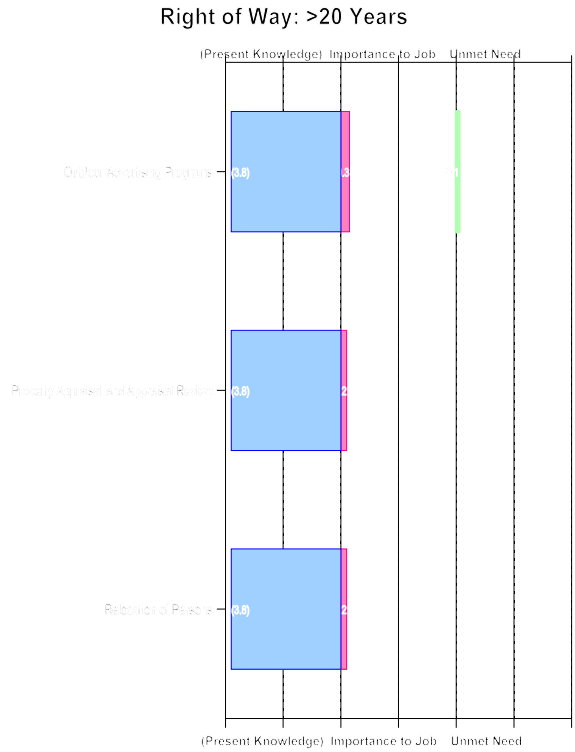

Figure 425: Right of Way: >20 Years

7.27 Road Design

Summary

Table 37: Road Design Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
CAD Software (Microstation Basic)	3.5	0.8	0.3
CAD Software (Microstation Advanced)	3.4	0.7	0.3
Construction Project Scoping	3.4	0.7	0.3
Access Management	3.4	0.6	0.3
INRoads Basic	3.3	0.6	0.3

Department-wide employees feel they have a high level of Present Knowledge of the Road Design Domain. Overall there is a fairly low Unmet Need. Table 37 lists the top five knowledge areas where some benefit could be derived by additional training for SDDOT employees in all job groups except Support and Part-Time and Seasonal. The Engineering, Supervisor—Engineering and Manager job groups indicated the most need for training in this domain. The Maintenance, Specialist, and Supervisor—Maintenance job groups indicated a need for training in *Construction Project Scoping*, *Corridor Preservation*, and *Highway Safety Appurtenances*.

All SDDOT

Figure 426 illustrates Present Knowledge, Importance to Job and Unmet Need for the Road Design Domain. Department-wide employees indicated they have a high level of Present Knowledge in Road Design Domain. The associated Importance to Job rankings and the Unmet Need are in the low range. The Importance to Job and the Unmet Need rankings are nearly the same for all knowledge areas within this domain. The rankings do not indicate there is a deficiency in training in this domain but there is a need for training in this domain. There is very little difference between the individual ranking values for each knowledge area.

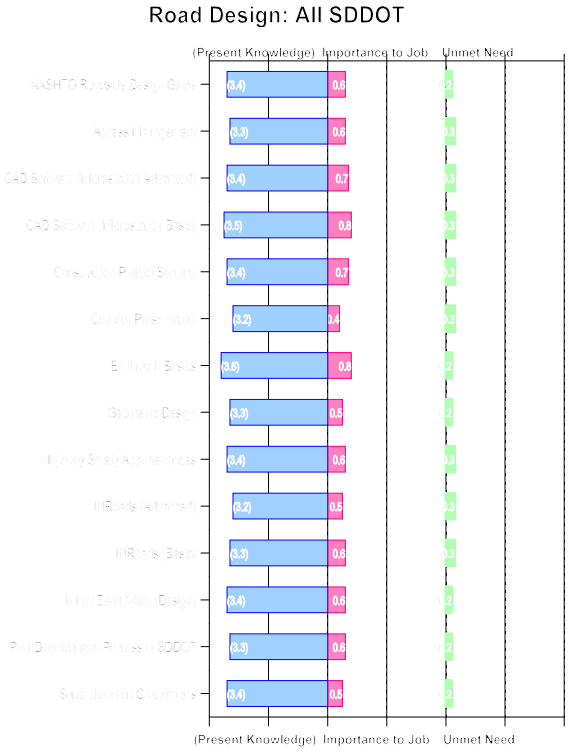

Figure 426: Road Design: All SDDOT

By Location

Figures 427 through 431 illustrate the Present Knowledge, Importance to Job and Unmet Need for the Road Design Domain by location. The results are nearly identical to the rankings of the All SDDOT analysis. The Regions and Central Office all ranked the knowledge areas of this domain nearly identical.

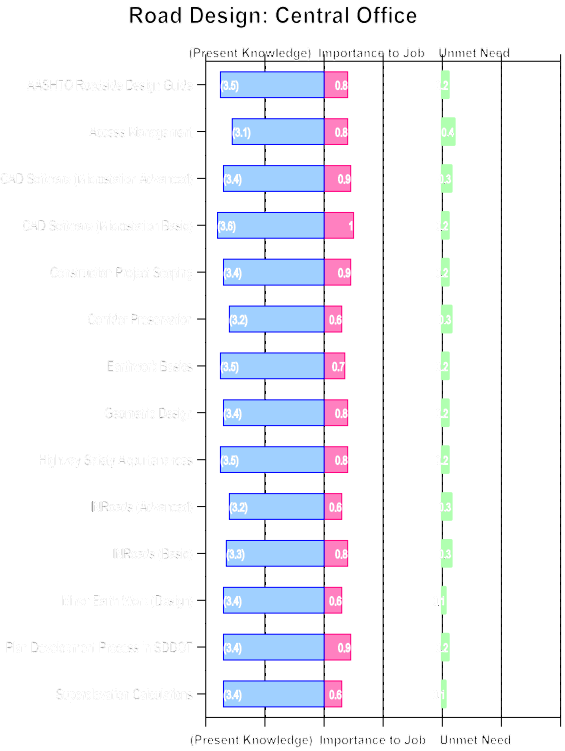

Figure 427: Road Design: Central Office

By Job Group

Figures 432 through 439 illustrate Present Knowledge, Importance to Job and Unmet Need for the Road Design Domain by job group. The Engineering, Supervisor—Engineering and Manager job groups ranked the Road Design Domain as moderate in Importance to Job and low in Unmet Need. Maintenance, Specialist, and Supervisor—Maintenance job groups ranked the Road Design Domain as very low in Importance to Job and very low in Unmet Need.

By Tenure

Figures 440 through 443 illustrate Present Knowledge, Importance to Job and Unmet Need for the Road Design Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis. Employees in the 6-10 Years Tenure Domain indicated a higher Importance to Job than the other Tenure Domains with an associated higher Unmet Need. It is important to note that the overall Unmet Need for all Tenure Domains for the Road Design Domain is low to very low.

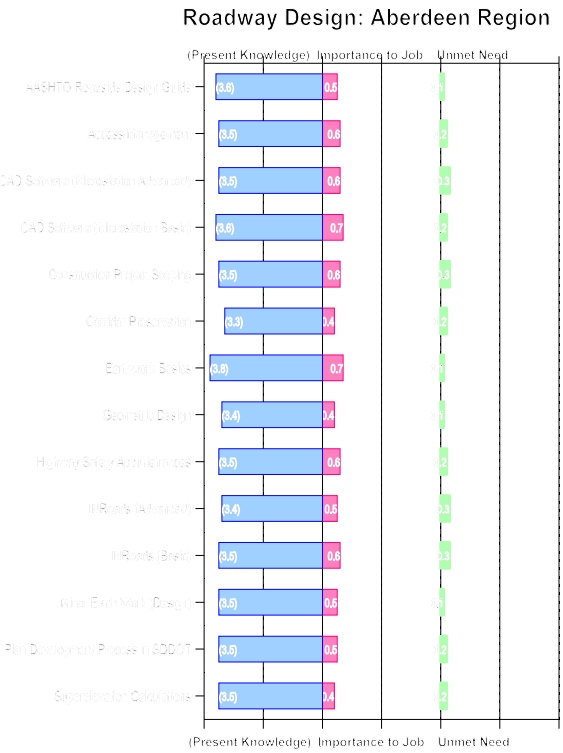

Figure 428: Roadway Design: Aberdeen Region

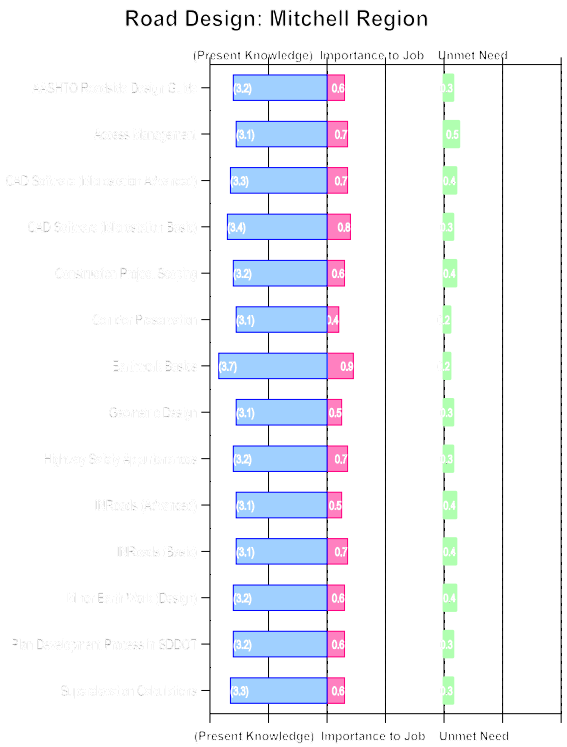

Figure 429: Road Design: Mitchell Region

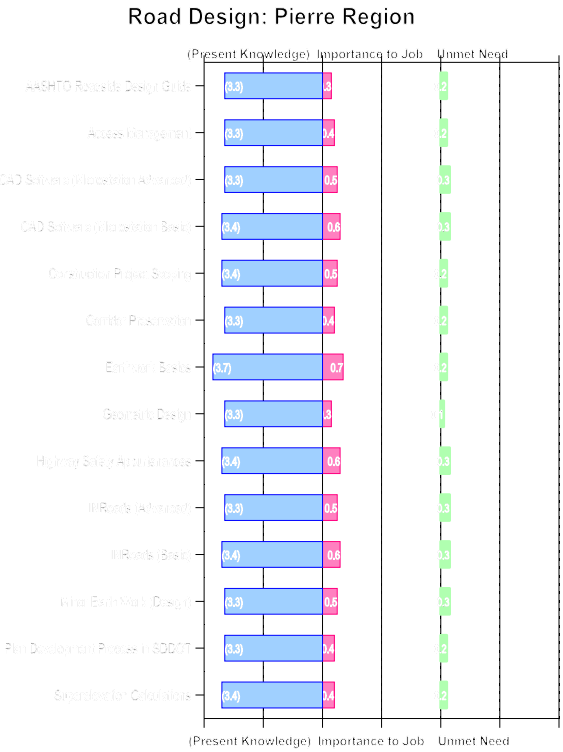

Figure 430: Road Design: Pierre Region

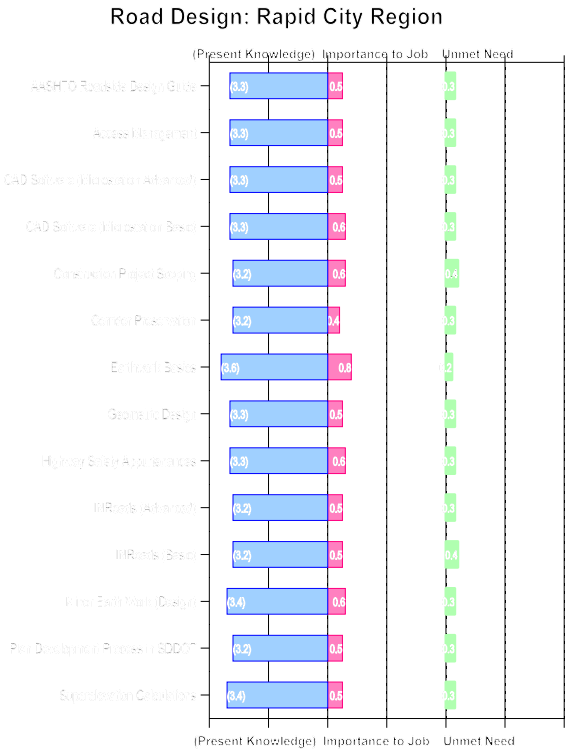

Figure 431: Road Design: Rapid City Region

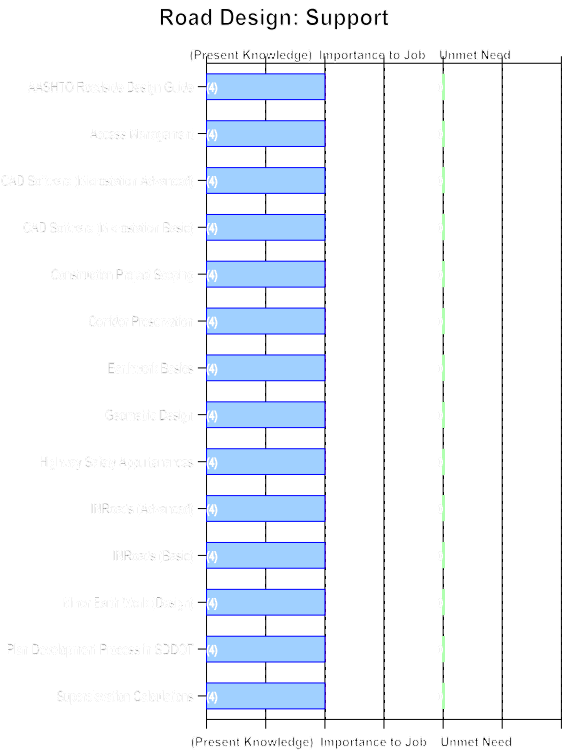

Figure 432: Road Design: Support

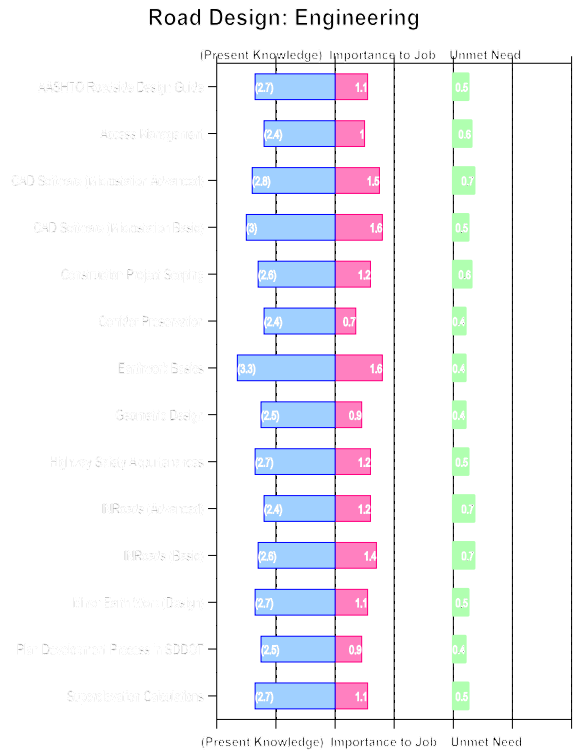

Figure 433: Road Design: Engineering

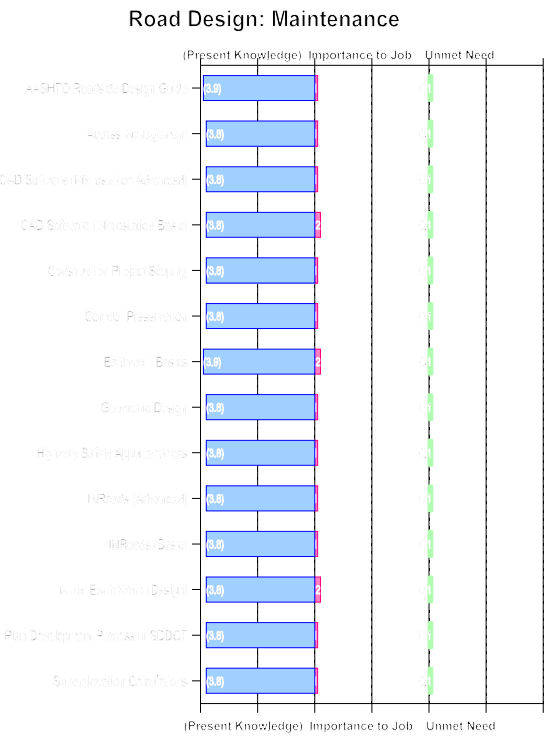

Figure 434: Road Design: Maintenance

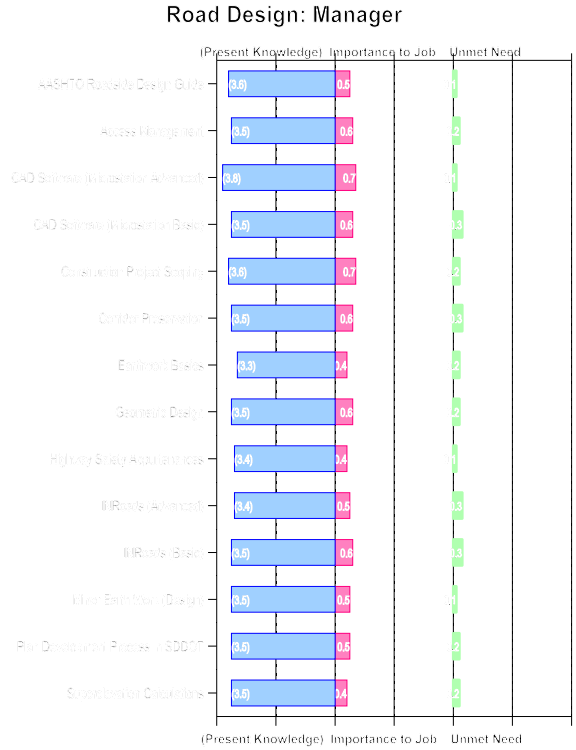

Figure 435: Road Design: Manager

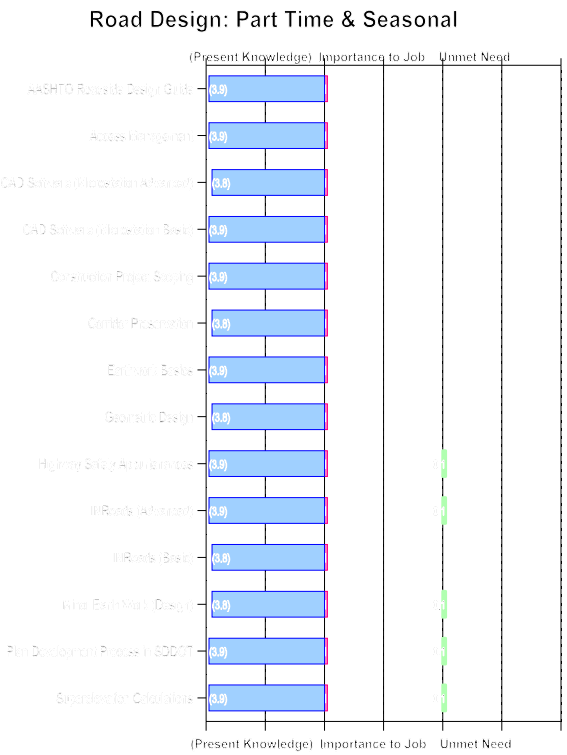

Figure 436: Road Design: Part Time & Seasonal

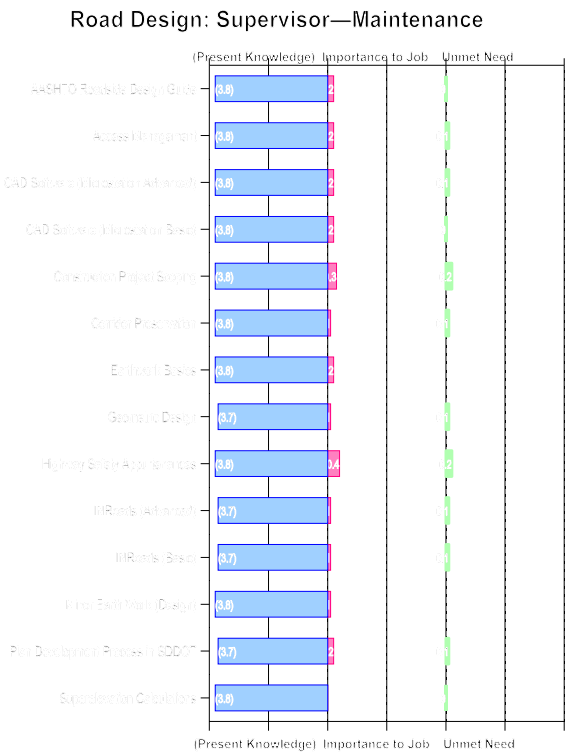

Figure 437: Road Design: Supervisor—Maintenance

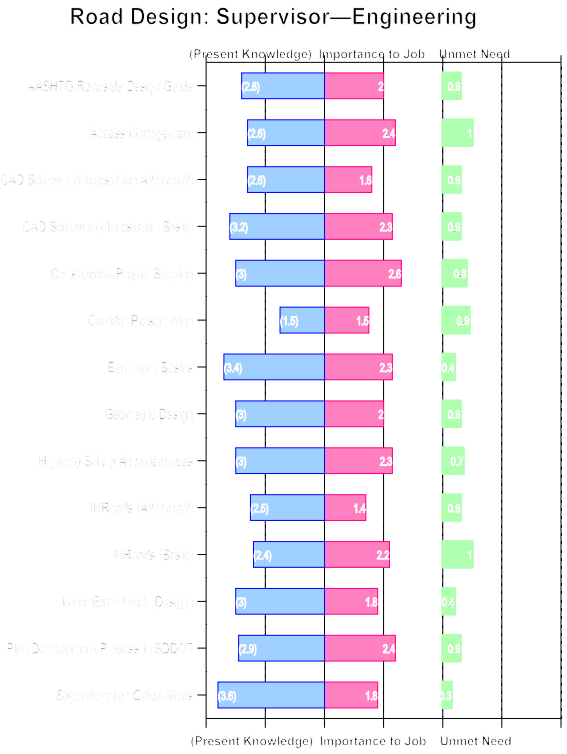

Figure 438: Road Design: Supervisor—Engineering

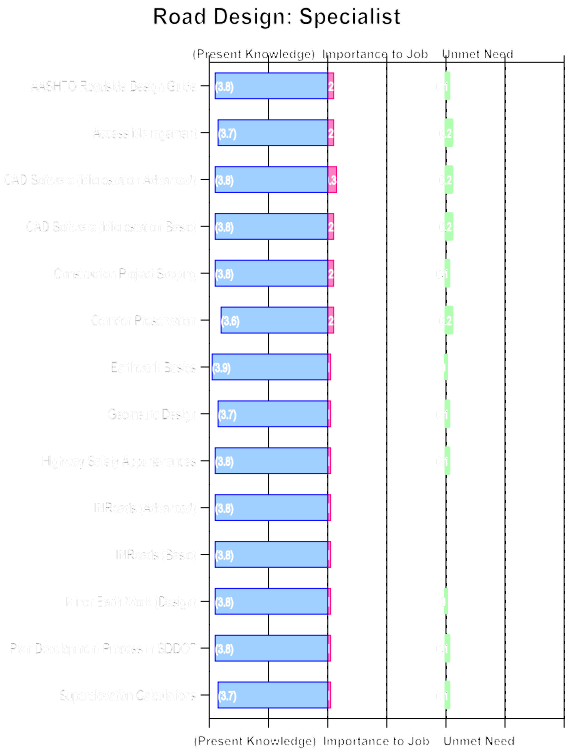

Figure 439: Road Design: Specialist

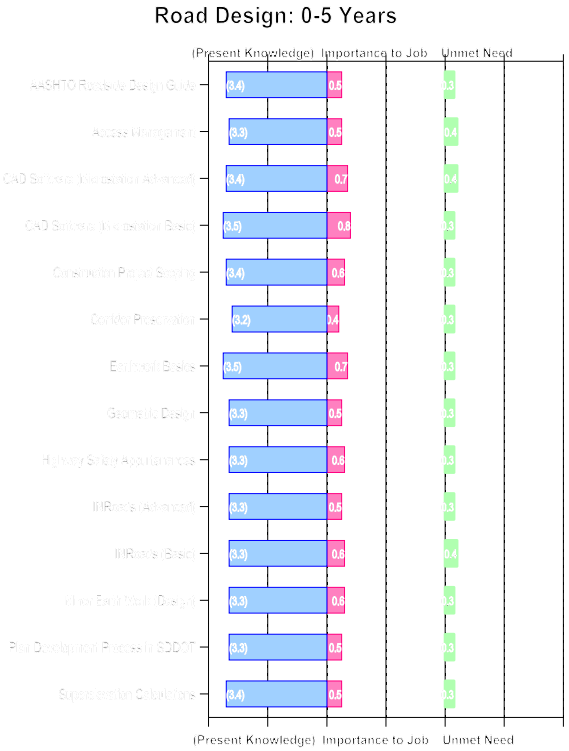

Figure 440: Road Design: 0-5 Years

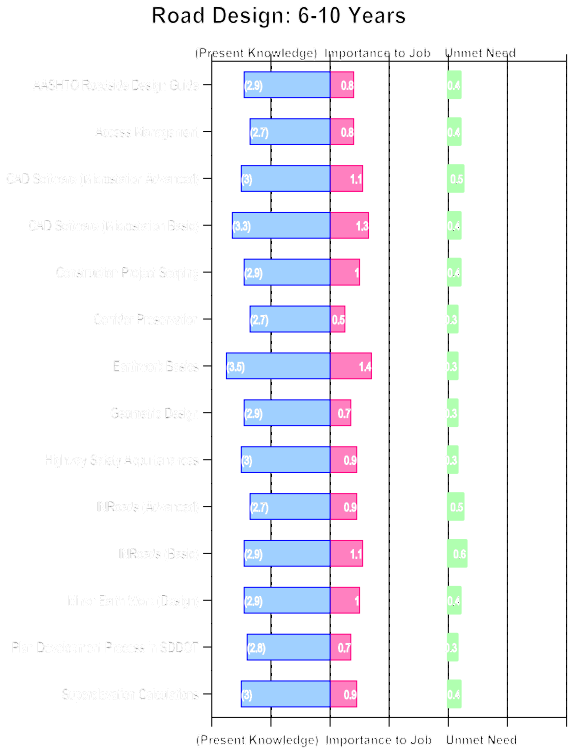

Figure 441: Road Design: 6-10 Years

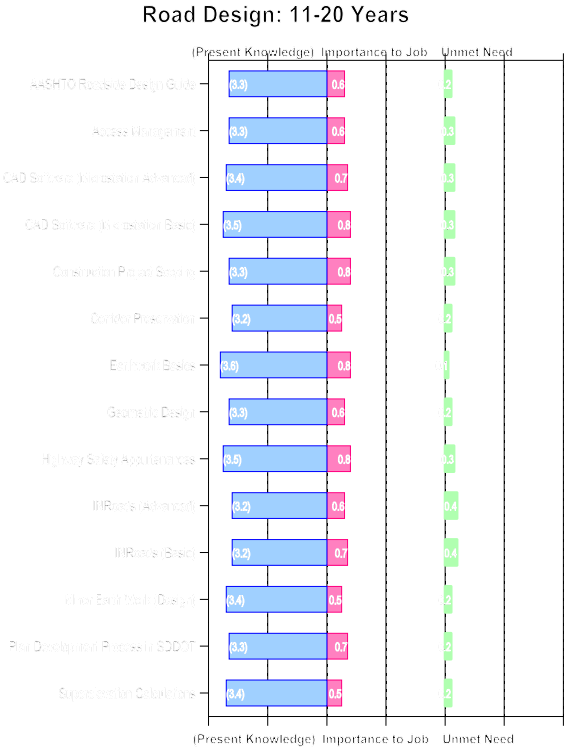

Figure 442: Road Design: 11-20 Years

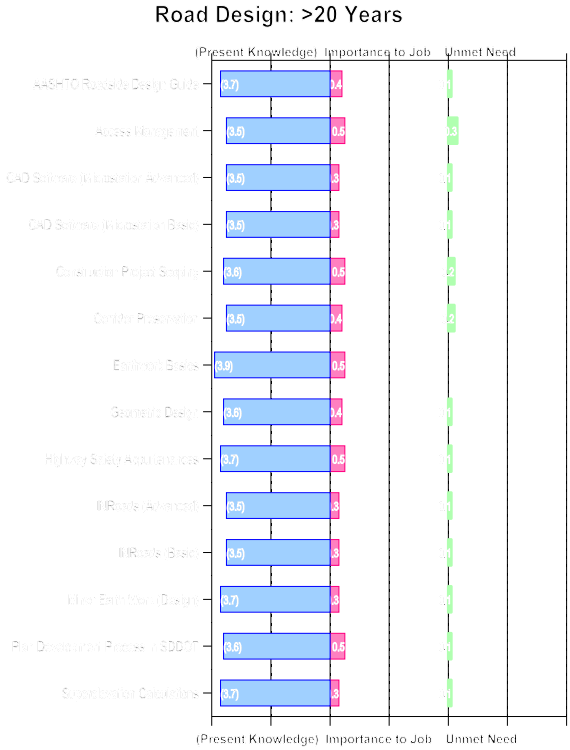

Figure 443: Road Design: >20 Years

7.28 Safety

Summary

Table 38: Safety Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Basic First Aid	3.0	2.9	0.8
CPR	2.8	2.8	0.8
Bloodborne Pathogen Awareness	2.3	2.1	0.8
Safety Awareness On The Job	3.0	3.0	0.7
Back Injury Prevention	2.9	2.6	0.7

Department-wide employees feel they have a moderate to high level of Present Knowledge of the Safety Domain. All job groups indicated a need for training in the Safety Domain regardless of location, job group or tenure. The Maintenance, Part Time & Seasonal job groups indicated a slightly higher Unmet Need than the other job groups. The employees as a whole ranked the Safety Domain as moderate to high in Importance to Job. Table 38 lists the top five knowledge areas based on the ranking values department-wide for this domain, but Department-wide employees indicated there is some Unmet Need in all knowledge areas in this domain. It should be noted that many of these knowledge areas will be addressed in the safety training that the Bureau of Personnel and the Office of Operations Support have recently developed as part of the Department's redefined emphasis on safety.

All SDDOT

Figure 444 illustrates Present Knowledge, Importance to Job and Unmet Need for the Safety Domain. Department-wide employees indicated they have a high level of Present Knowledge in Safety Domain. The associated Importance to Job rankings are in the moderate to high range and the Unmet Need rankings are in the low range. Overall employees indicated safety is important to the work they do. Table 28 lists the top five knowledge areas within this domain.

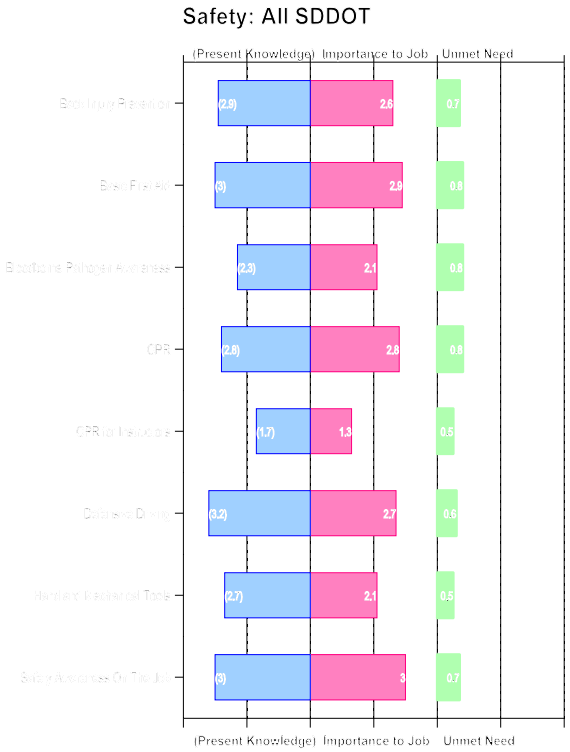

Figure 444: Safety: All SDDOT

By Location

Figures 445 through 449 illustrate Present Knowledge, Importance to Job and Unmet Need for the Safety Domain. The results are nearly identical to the rankings of the All SDDOT analysis. The Regions and Central Office all ranked the knowledge areas of this domain nearly identical. The rankings indicate uniformity across the department by location.

By Job Group

Figures 450 through 457 illustrate Present Knowledge, Importance to Job and Unmet Need for the Safety Domain by job group. The results are nearly identical to the rankings of the All SDDOT analysis. Maintenance, Part Time & Seasonal, and Supervisor—Maintenance job groups indicated a slightly higher Unmet Need than the other job groups. However, all groups indicated a need for training in this domain.

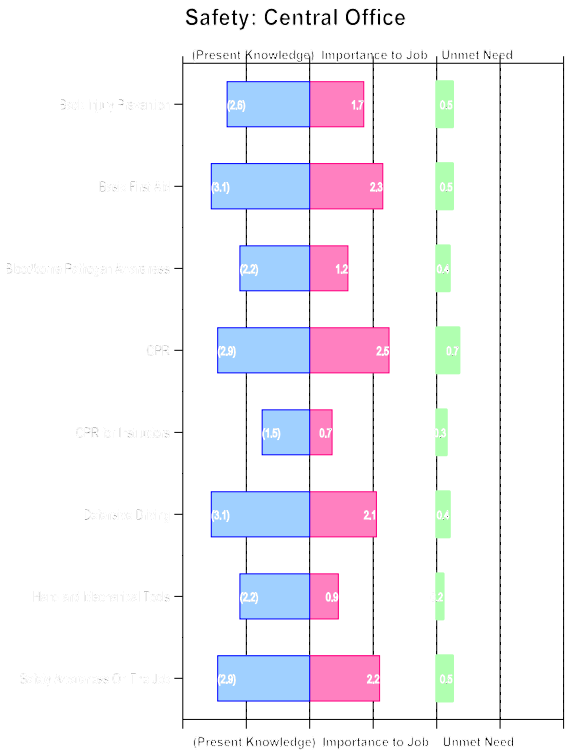

Figure 445: Safety: Central Office

By Tenure

Figures 458 through 461 illustrate Present Knowledge, Importance to Job and Unmet Need for the Safety Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis. The rankings by Tenure Domain are nearly identical for each domain indicating uniformity of need regardless of the years with the Department.

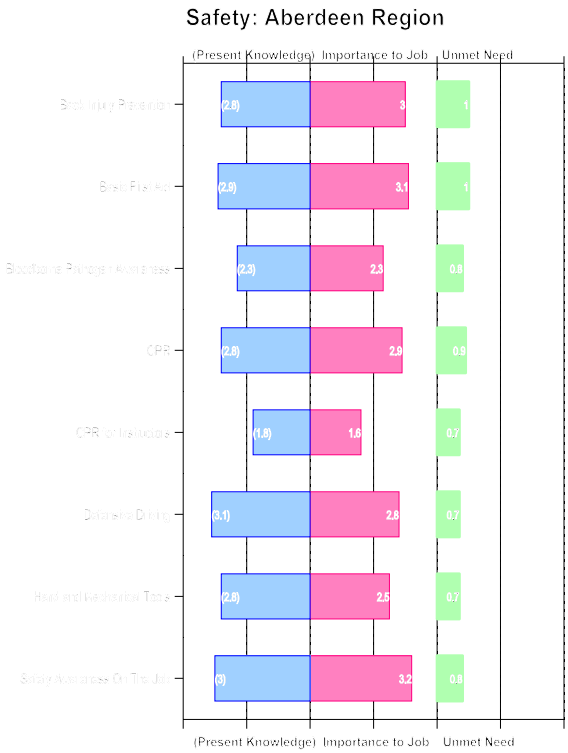

Figure 448: Safety: Aberdeen Region

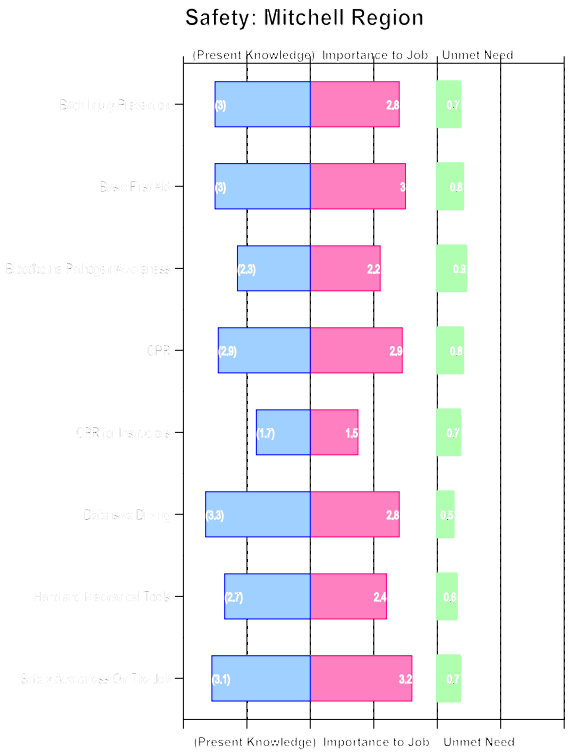

Figure 446: Safety: Mitchell Region

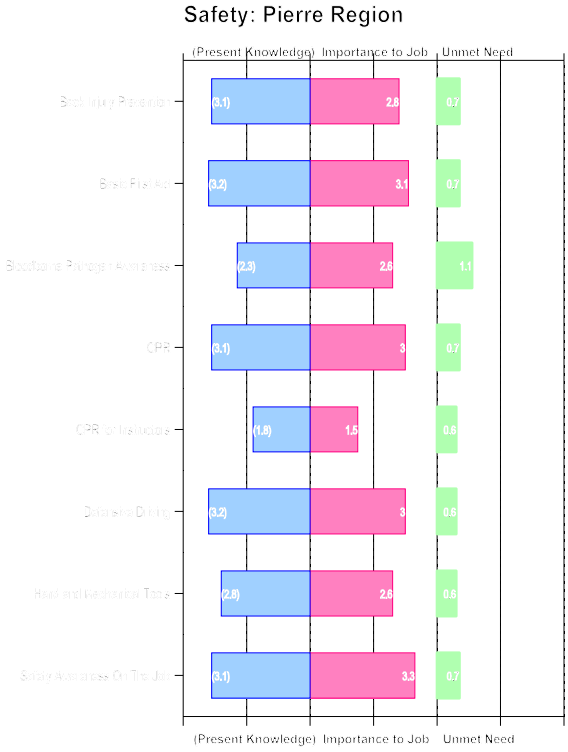

Figure 447: Safety: Pierre Region

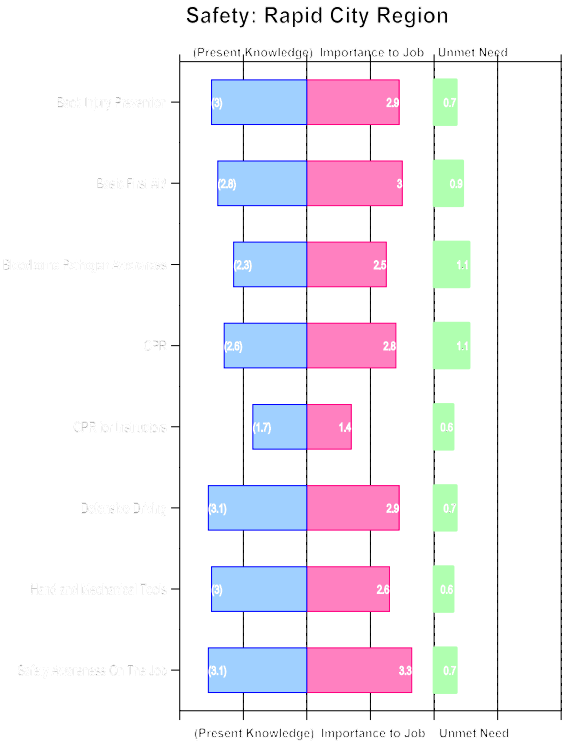

Figure 449: Safety: Rapid City Region

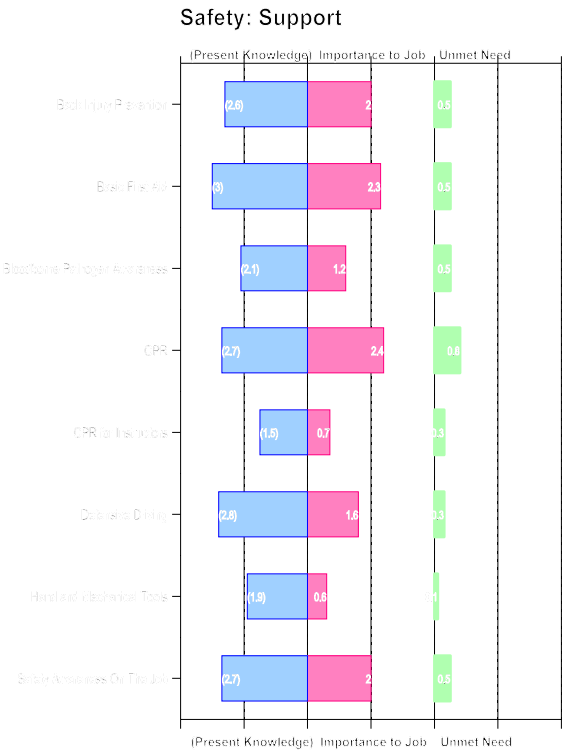

Figure 450: Safety: Support

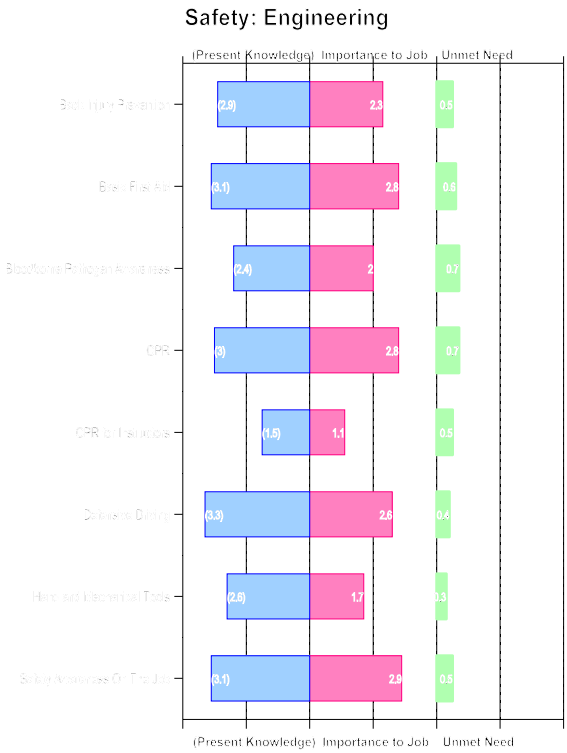

Figure 451: Safety: Engineering

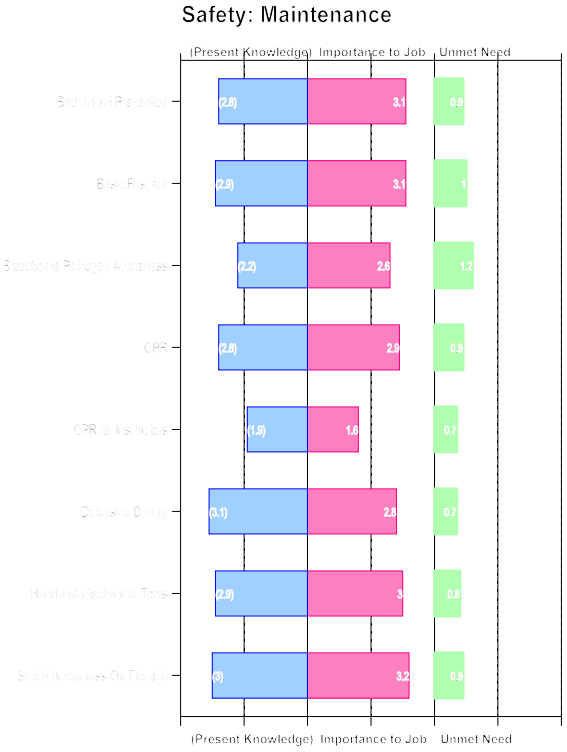

Figure 452: Safety: Maintenance

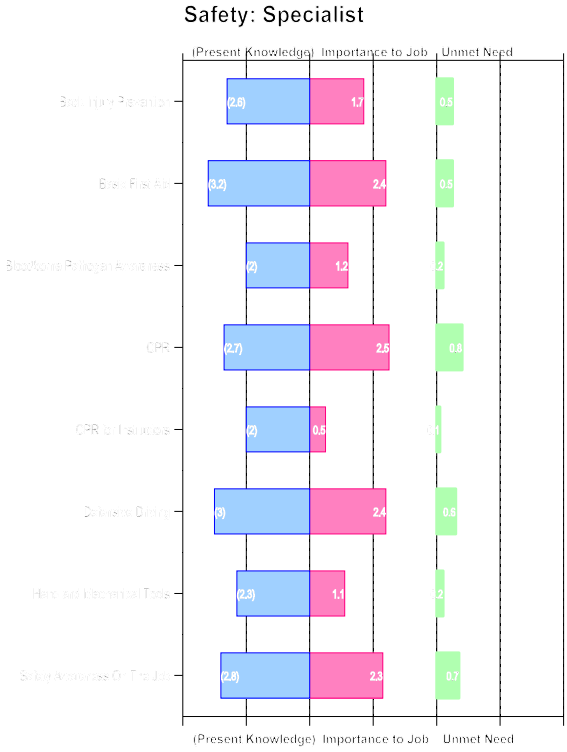

Figure 453: Safety: Specialist

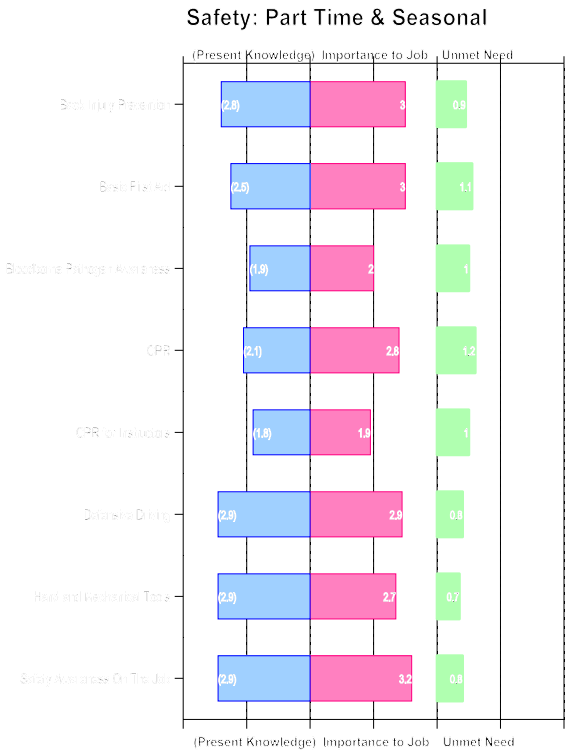

Figure 454: Safety: Part Time & Seasonal

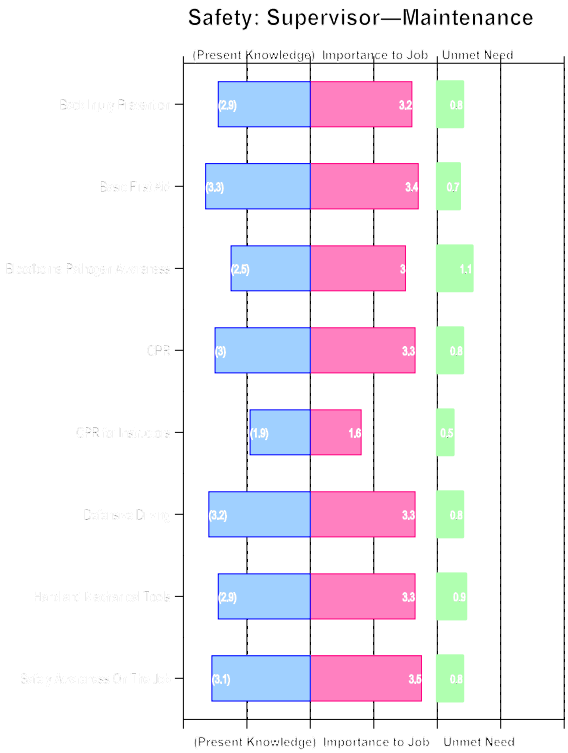

Figure 455: Safety: Supervisor—Maintenance

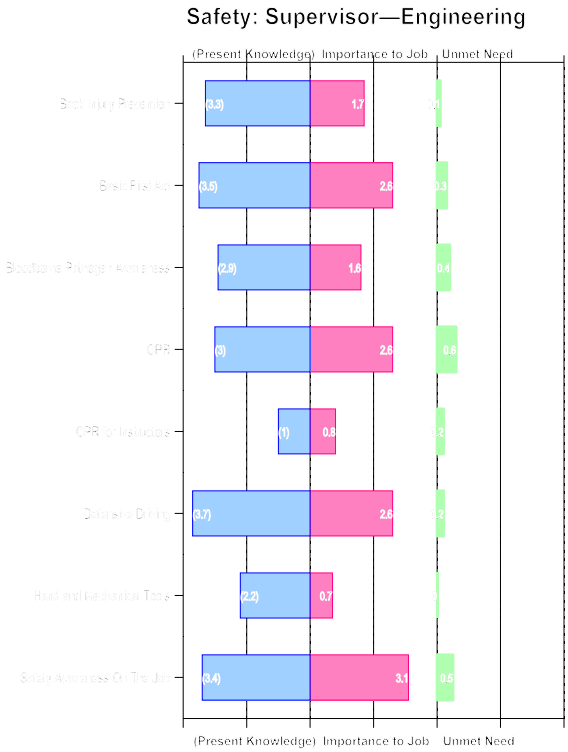

Figure 456: Safety: Supervisor—Engineering

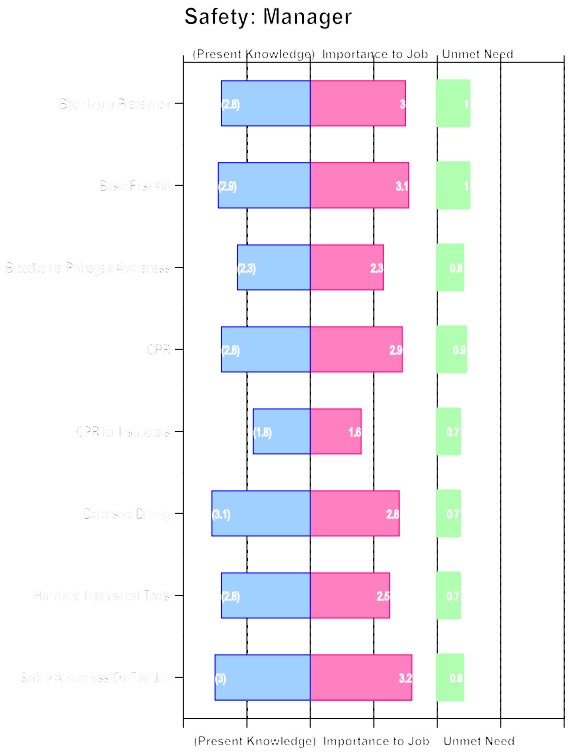

Figure 457: Safety: Manager

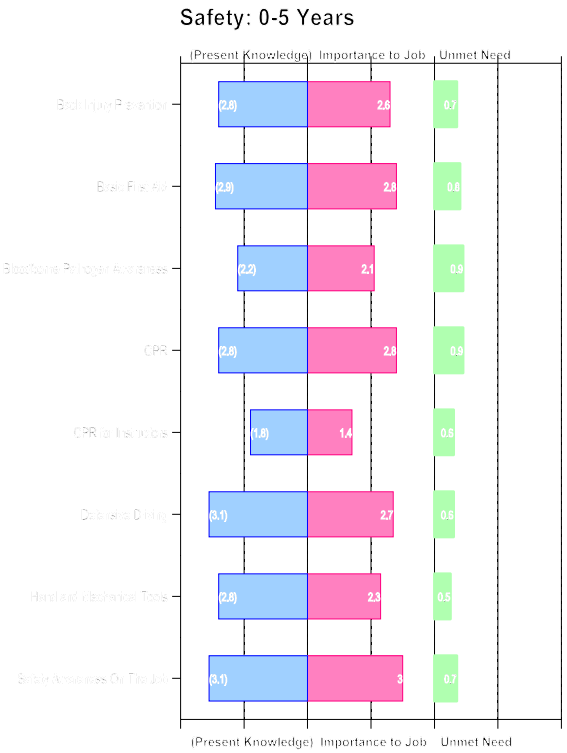

Figure 458: Safety: 0-5 Years

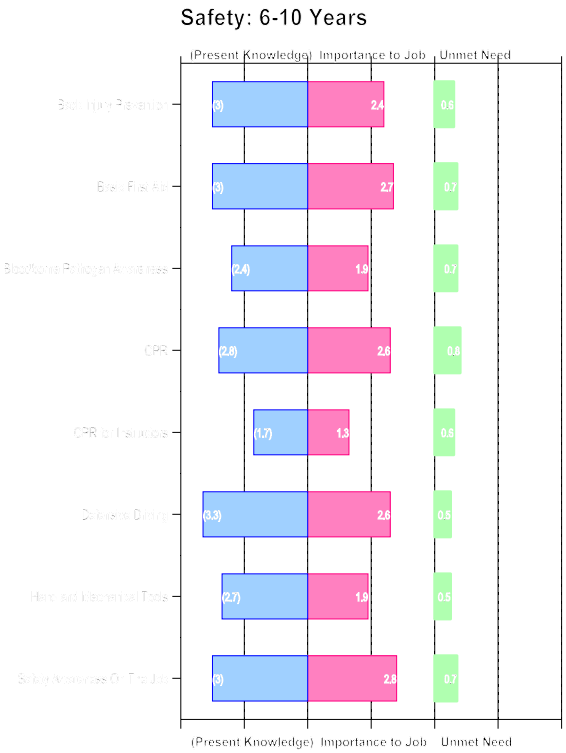

Figure 459: Safety: 6-10 Years

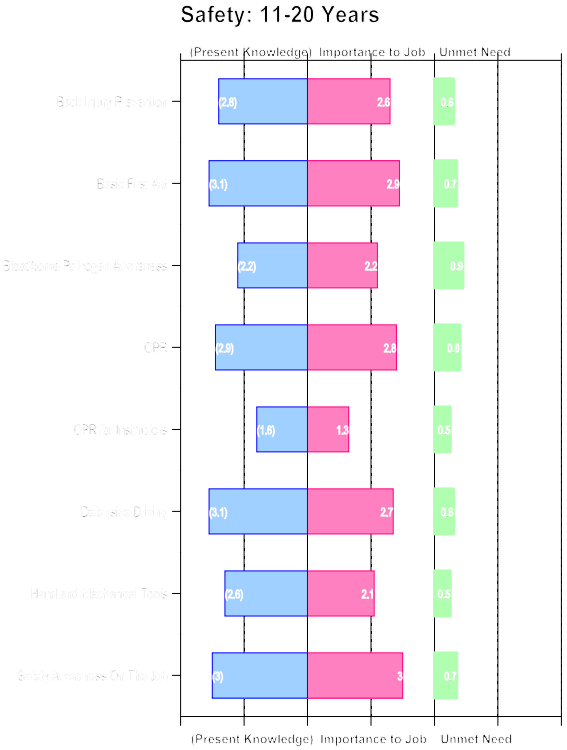

Figure 460: Safety: 11-20 Years

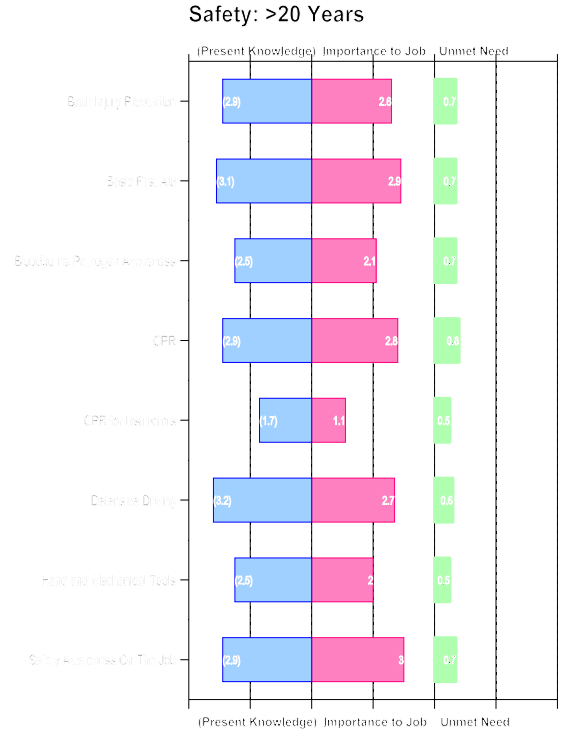

Figure 461: Safety: >20 Years

7.29 Testing & Inspection

Summary

Table 39: Testing & Inspection Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
Profilograph Operation	3.4	0.7	0.3
Pipe Installation	3.7	0.9	0.2
Basic Operation of Mechanical Scale	3.7	0.8	0.1
Checker's Guidelines	3.8	0.8	0.1

Department-wide employees feel they have a high level of Present Knowledge in the Testing & Inspection Domain Table 39 lists the knowledge areas for the Testing & Inspection domain for all SDDOT employees. All job groups, except the Support and Specialist job groups, indicated some Unmet Need for training in the Testing & Inspection Domain, primarily in the Regions. The Engineering job groups indicated the highest Unmet Need for training in the Testing & Inspection Domain. The remaining job groups also indicated a Unmet Need for training in this domain. The Unmet Need rankings are low indicating there is not a large deficiency of training in this domain.

All SDDOT

Figure 462 illustrates Present Knowledge, Importance to Job and Unmet Need for the Testing & Inspection Domain. Department-wide employees indicated they have a high level of Present Knowledge in Testing & Inspection Domain. The associated Importance to Job rankings and the Unmet Need rankings are in the low range.

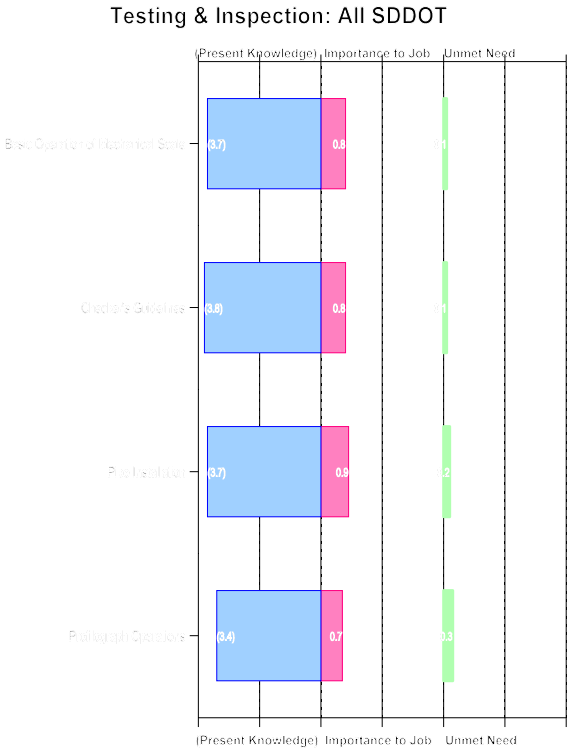

Figure 462: Testing & Inspection: All SDDOT

By Location

Figures 463 through 467 illustrate Present Knowledge, Importance to Job and Unmet Need for the Testing & Inspection Domain. The results are nearly identical to the rankings of the All SDDOT analysis with the Regions indicating a higher Importance to Job and Unmet Need.

By Job Group

Figures 468 through 475 illustrates Present Knowledge, Importance to Job and Unmet Need for the Testing & Inspection Domain by job group. The Support and Specialist job groups indicated this domain has no Importance to Job and no Unmet Need. The Engineering job group indicated the highest Importance to Job and Unmet Need of all job groups. The remaining job groups indicated there is some need for training in this domain. Although there isn't a major deficiency in training in this domain since the rankings are low.

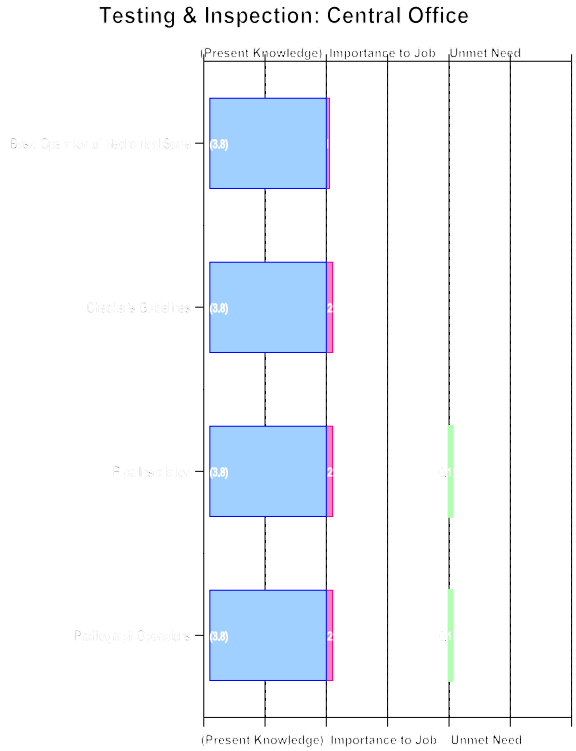

Figure 463: Testing & Inspection: Central Office

By Tenure

Figures 476 through 479 illustrate Present Knowledge, Importance to Job and Unmet Need for the Testing & Inspection Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis. Employees in the 0-5 Years and 6-10 Years groups indicated a higher Importance to Job and Unmet Need than the employees in the 11-20 Years and >20 Years group.

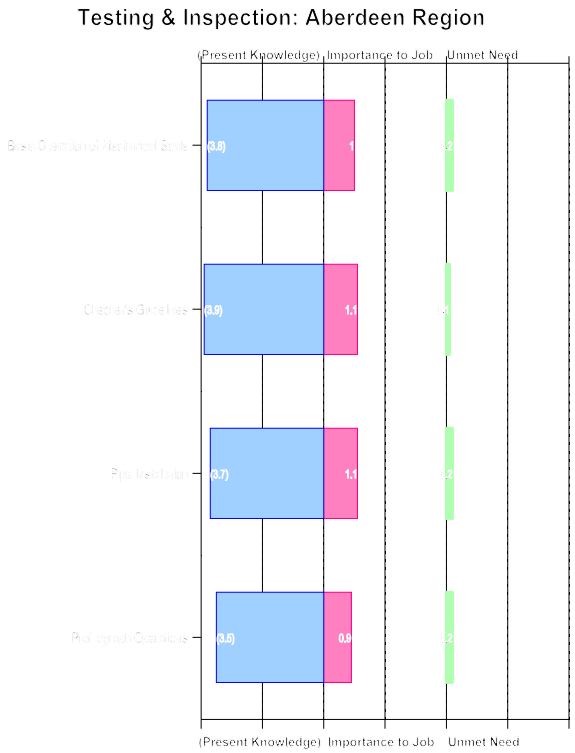

Figure 464: Testing & Inspection:

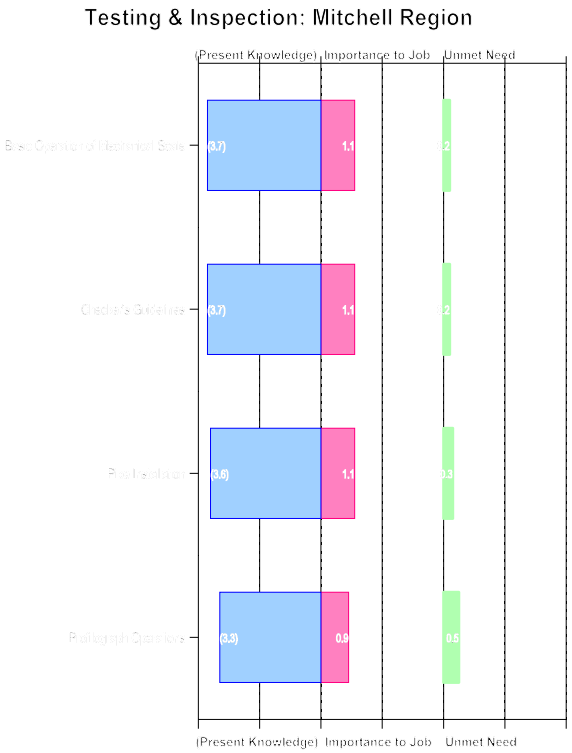

Figure 465: Testing & Inspection: Mitchell Region

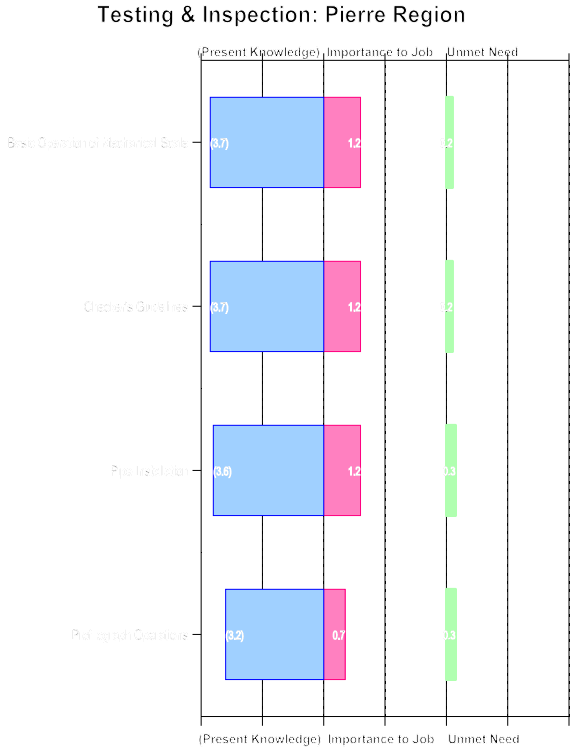

Figure 466: Testing & Inspection: Pierre Region

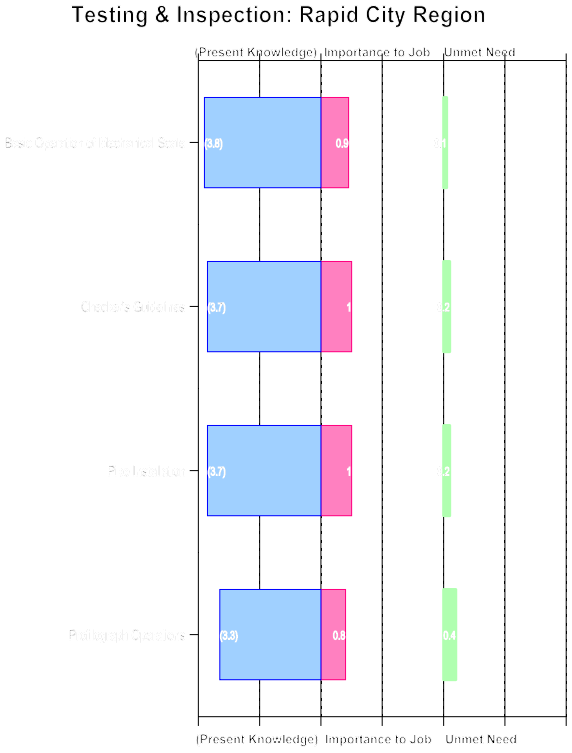

Figure 467: Testing & Inspection: Rapid City Region

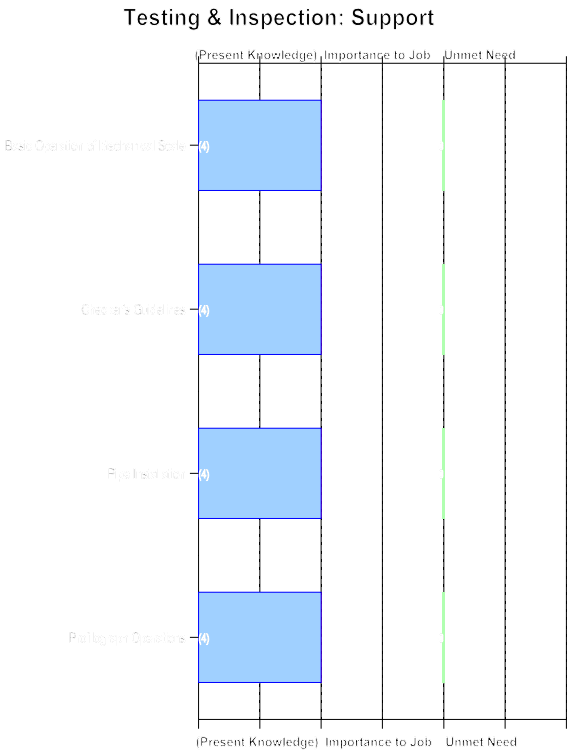

Figure 468: Testing & Inspection: Support

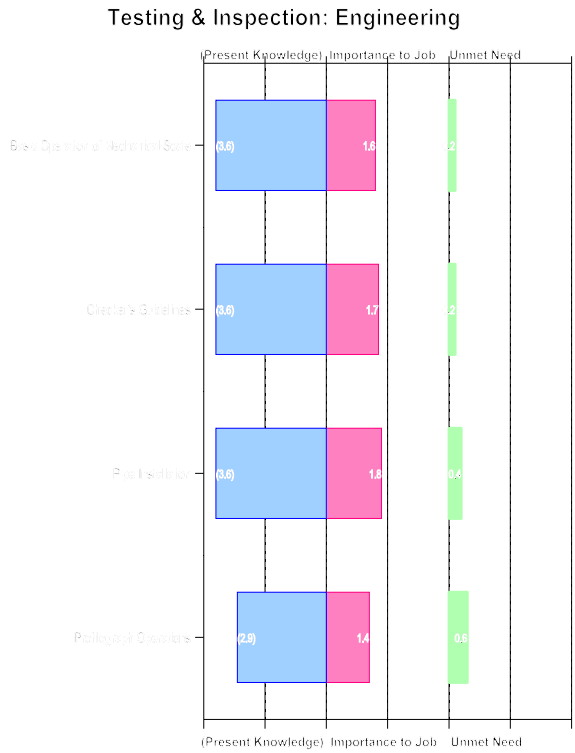

Figure 469: Testing & Inspection: Engineering

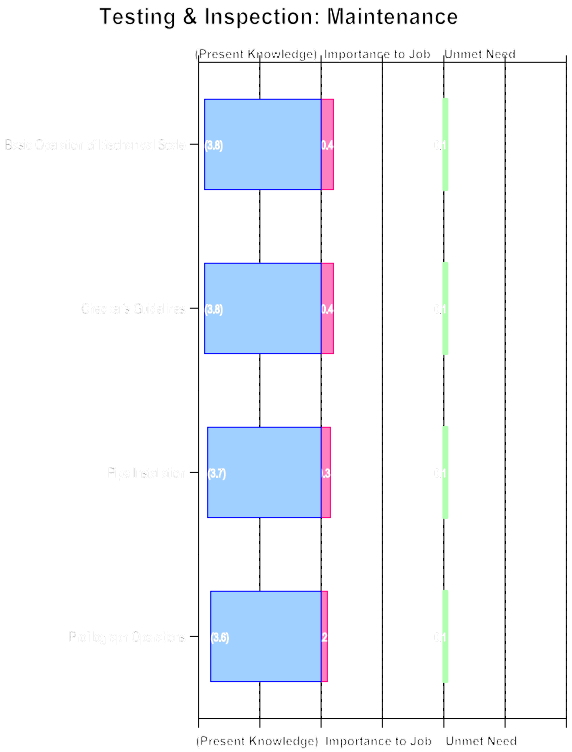

Figure 470: Testing & Inspection: Maintenance

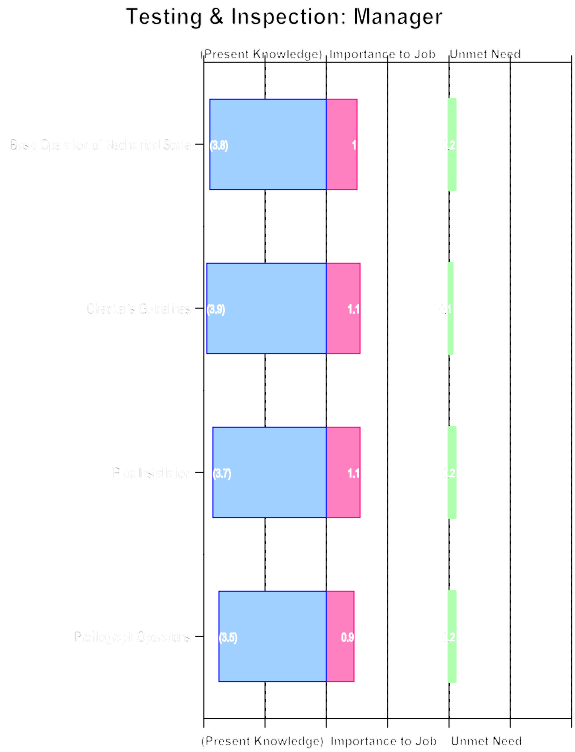

Figure 471: Testing & Inspection: Manager

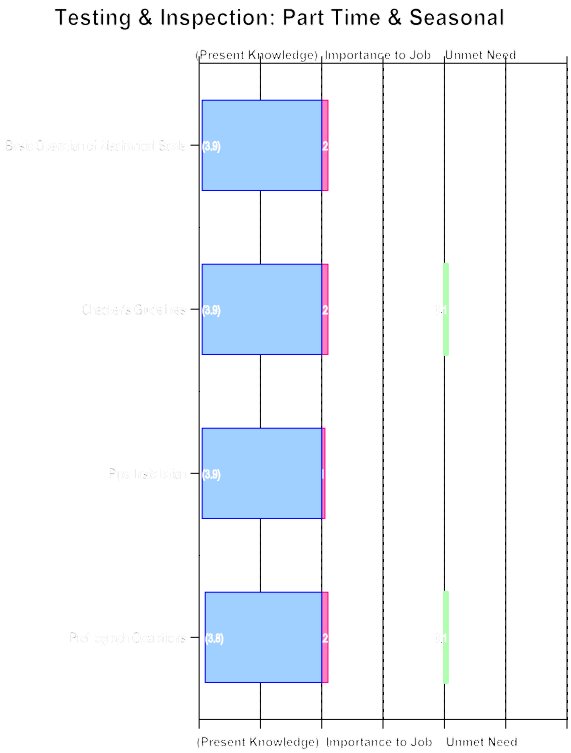

Figure 472: Testing & Inspection: Part Time & Seasonal

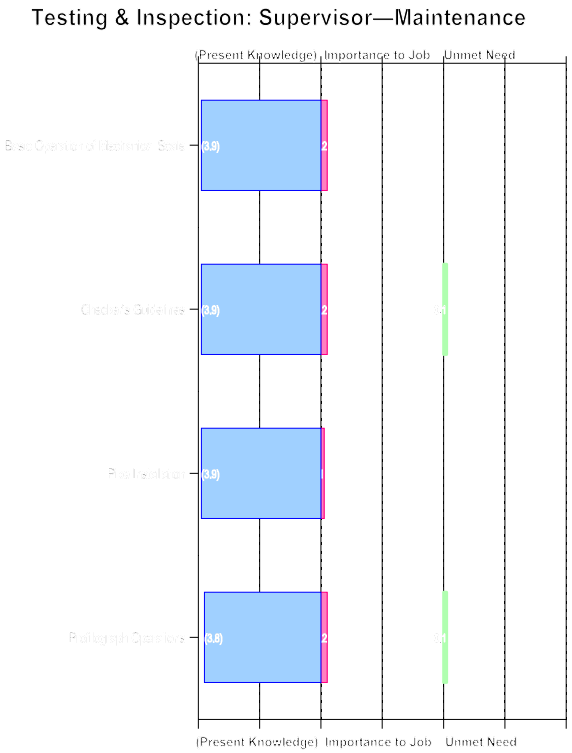

Figure 473: Testing & Inspection: Supervisor—Maintenance

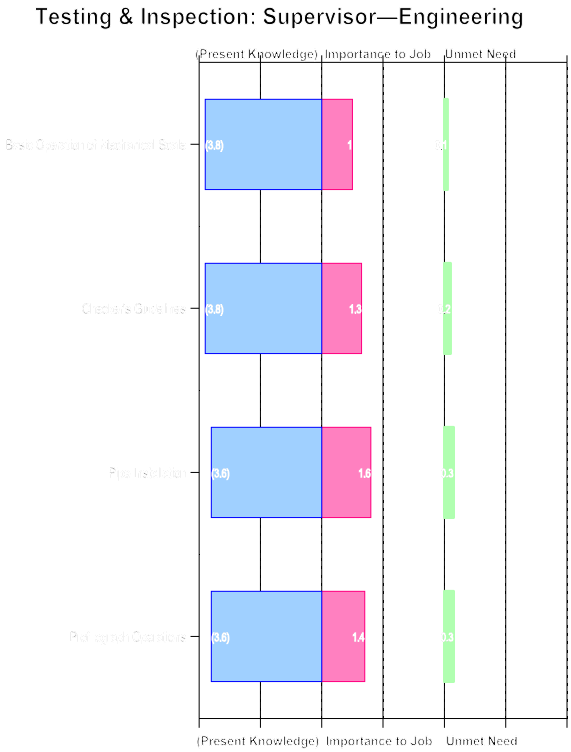

Figure 474: Testing & Inspection:

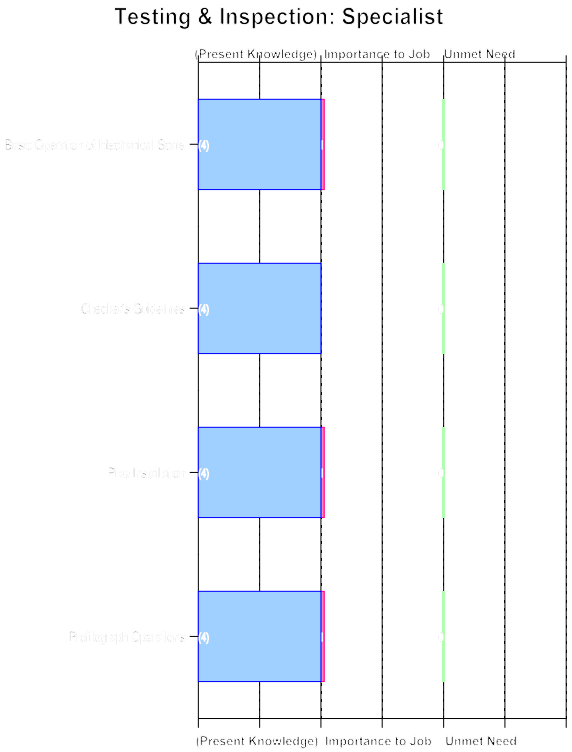

Figure 475: Testing & Inspection: Specialist

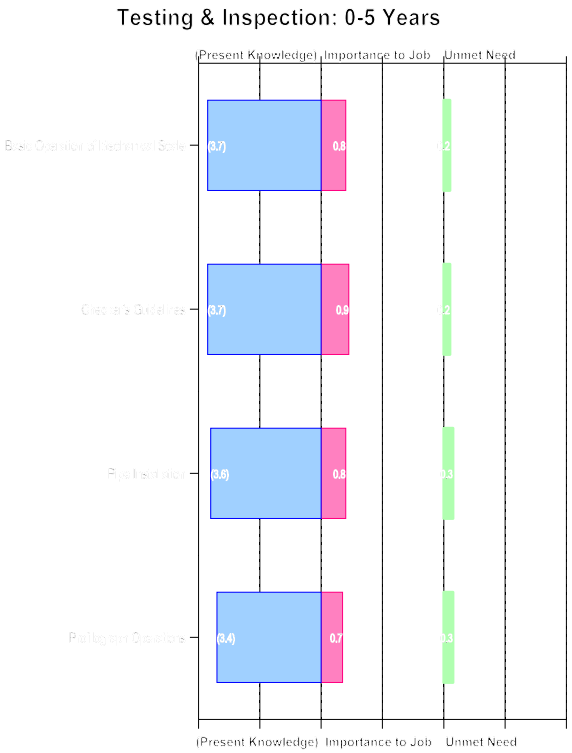

Figure 476: Testing & Inspection: 0-5 Years

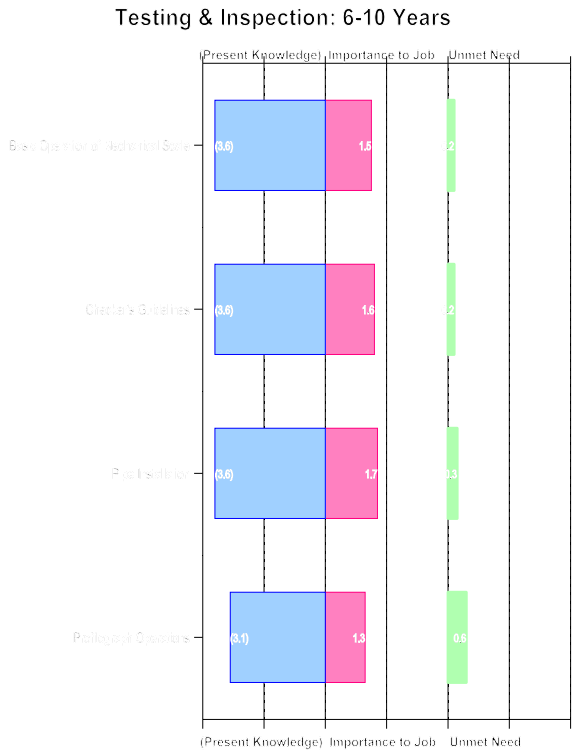

Figure 477: Testing & Inspection: 6-10 Years

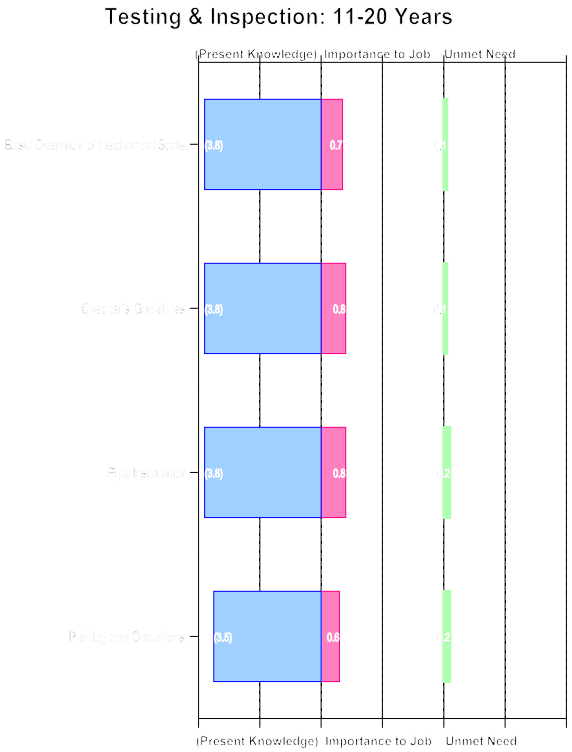

Figure 478: Testing & Inspection: 11-20 Years

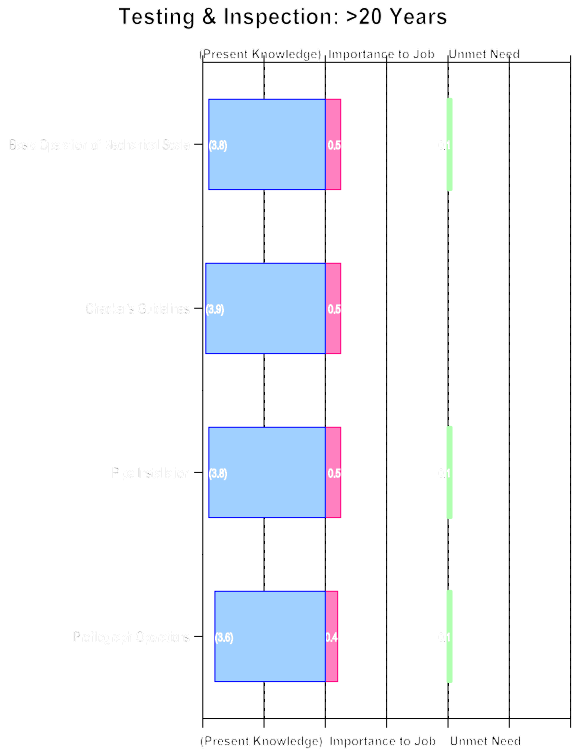

Figure 479: Testing & Inspection: >20 Years

7.30 Traffic Engineering

Summary

Table 40: Traffic Engineering Knowledge Areas Most in Need of Training in All SDDOT

Knowledge Area	Present Knowledge	Importance to Job	Unmet Need
MUTCD	3.5	0.8	0.3
Construction Zone Safety Inspection	3.4	0.8	0.3
Work Zone Traffic Control	3.5	0.8	0.3
Traffic Control Plans and Strategies	3.3	0.7	0.3
Work Zones-Maintenance & Utility	3.5	0.7	0.3

Department-wide employees feel they have a moderate to high level of Present Knowledge of the Traffic Engineering Domain. All job groups indicated a need for training in the Traffic Engineering Domain. The Supervisor—Maintenance and Supervisor—Engineering job groups indicated a slightly higher Unmet Need than did other job groups. The Support and Part Time & Seasonal job groups did not feel this domain was important to their job. Table 40 lists the top five knowledge areas based on the ranking values department-wide. Training in this domain should continue to be provided for those job groups and positions requiring knowledge in this domain.

All SDDOT

Figure 480 illustrates Present Knowledge, Importance to Job and Unmet Need for the Traffic Engineering Domain. Department-wide employees indicated they have a high level of Present Knowledge in Traffic Engineering Domain. The associated Importance to Job rankings and the Unmet Need rankings are in the low range. Overall employees indicated Traffic Engineering is important to the work they do. The Unmet Need rankings range from 0.2 to 0.3. There is not much variation between the ratings. Department-wide employees require training in several of the knowledge areas in the Traffic Engineering Domain.

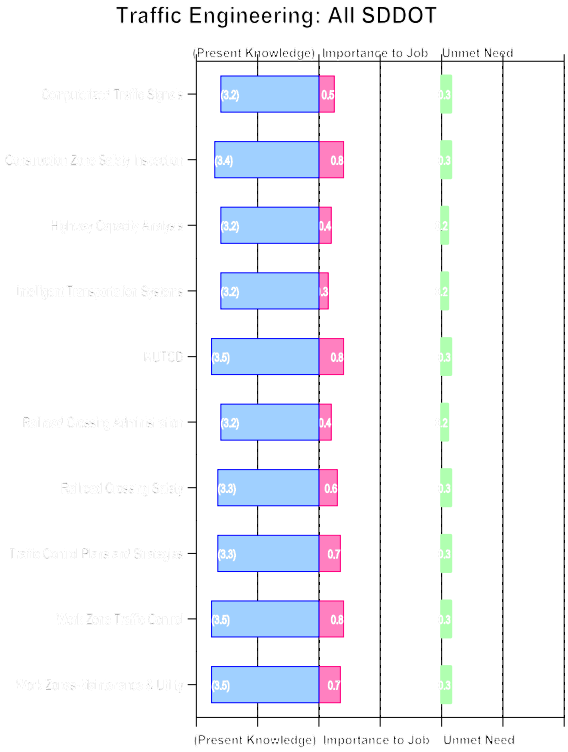

Figure 480: Traffic Engineering: All SDDOT

By Location

Figures 481 through 485 illustrate Present Knowledge, Importance to Job and Unmet Need for the Traffic Engineering Domain. The results are nearly identical to the rankings of the All SDDOT analysis. The Central Office ranked Importance to Job and Unmet Need lower than the Regions. However, the rankings indicate training is needed by employees at all locations.

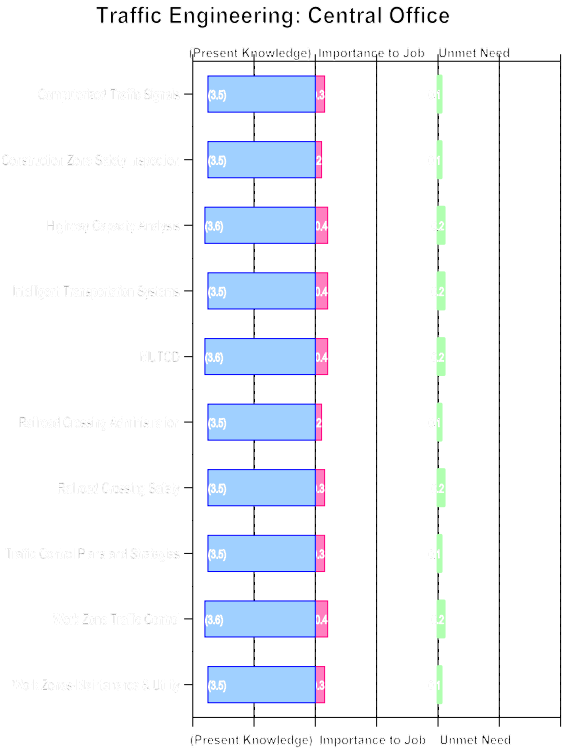

Figure 481: Traffic Engineering: Central Office

By Job Group

Figures 486 through 493 illustrate Present Knowledge, Importance to Job and Unmet Need for the Traffic Engineering Domain by job group. The results are nearly identical to the rankings of the All SDDOT analysis. Maintenance, Part Time & Seasonal, and Supervisor—Maintenance job groups indicated a slightly higher Unmet Need than the other job groups. However, all groups indicated a need for training in this domain.

By Tenure

Figures 494 through 497 illustrate Present Knowledge, Importance to Job and Unmet Need for the Traffic Engineering Domain by Tenure. The results are nearly identical to the rankings of the All SDDOT analysis. The rankings by Tenure Domain are nearly identical for each domain indicating uniformity of need regardless of the years with the department.

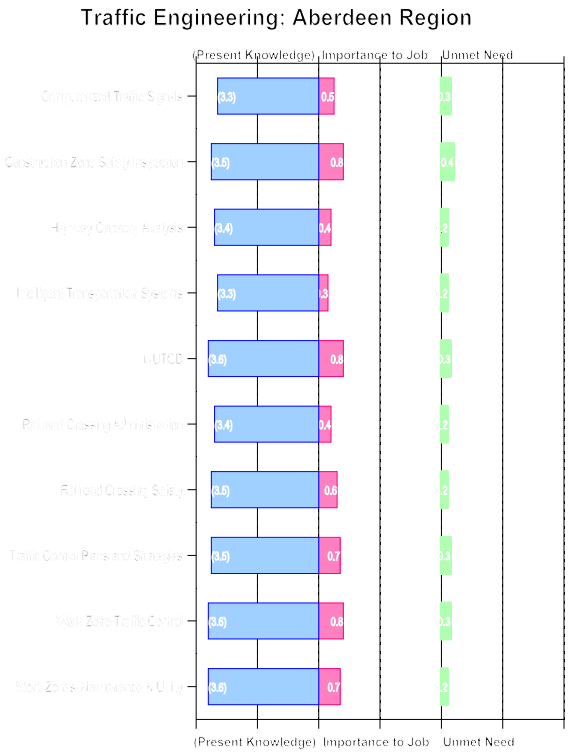

Figure 482: Traffic Engineering: Aberdeen Region

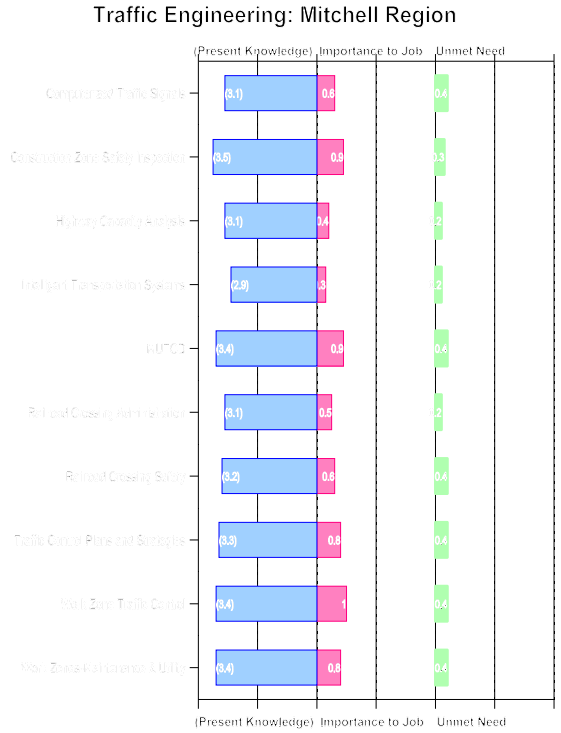

Figure 483: Traffic Engineering: Mitchell Region

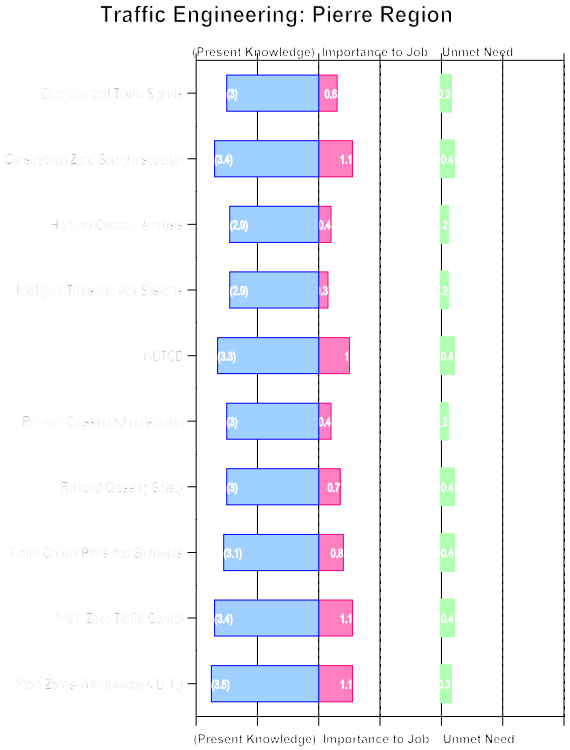

Figure 484: Traffic Engineering: Pierre Region

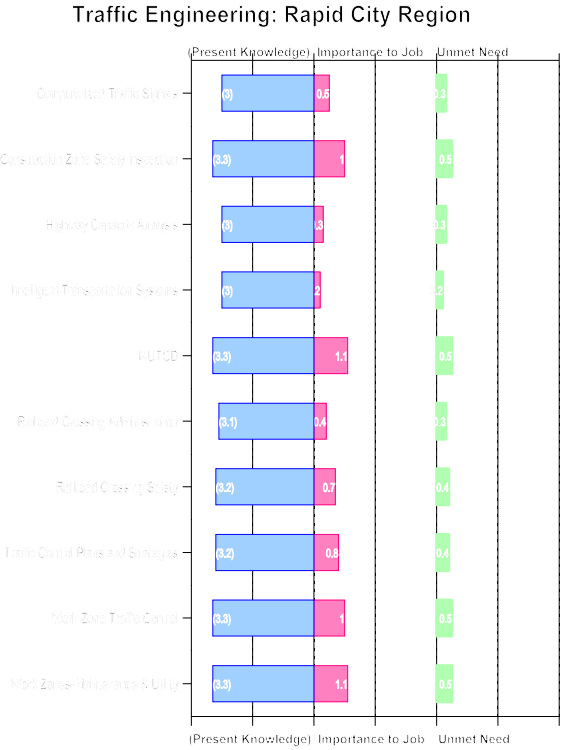

Figure 485: Traffic Engineering: Rapid City Region

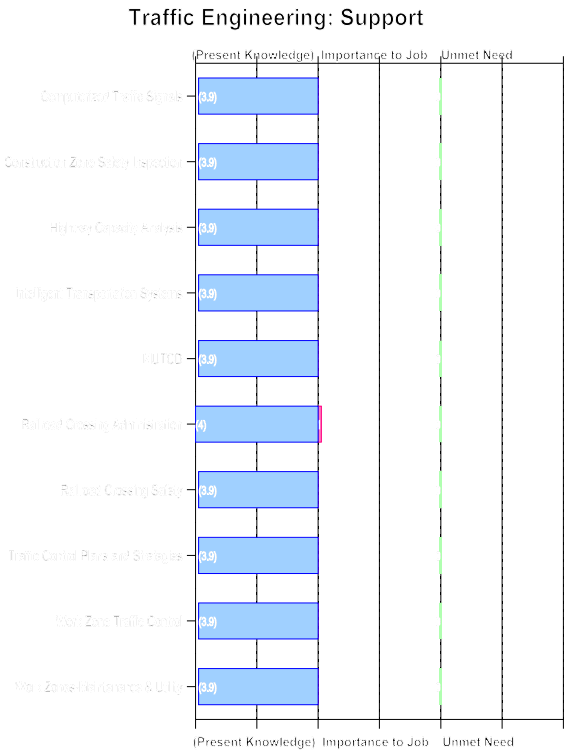

Figure 486: Traffic Engineering: Support

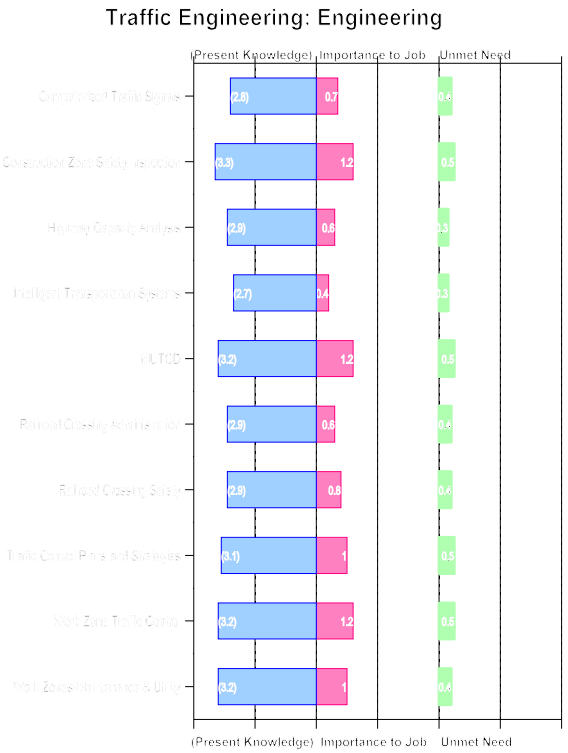

Figure 487: Traffic Engineering: Engineering

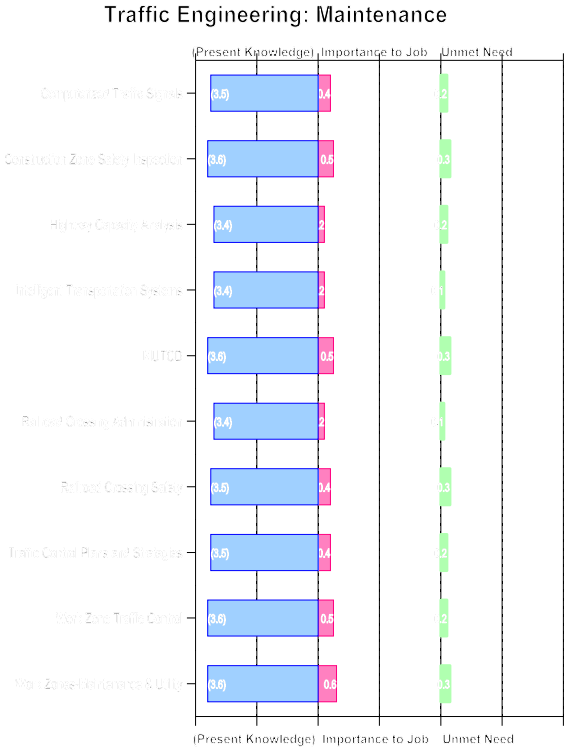

Figure 488: Traffic Engineering: Maintenance

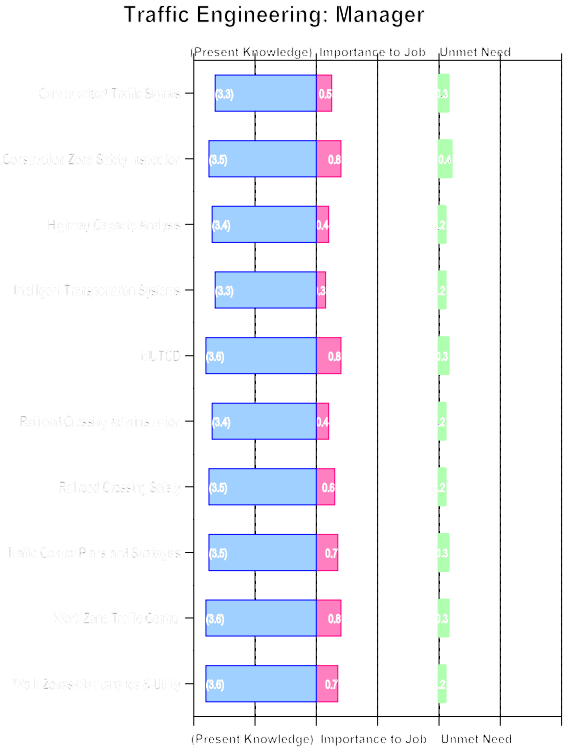

Figure 489: Traffic Engineering: Manager

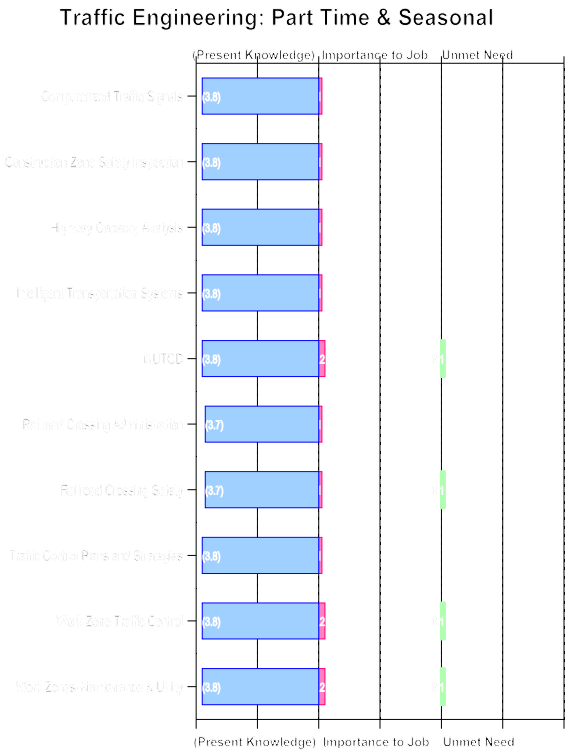

Figure 490: Traffic Engineering: Part Time & Seasonal

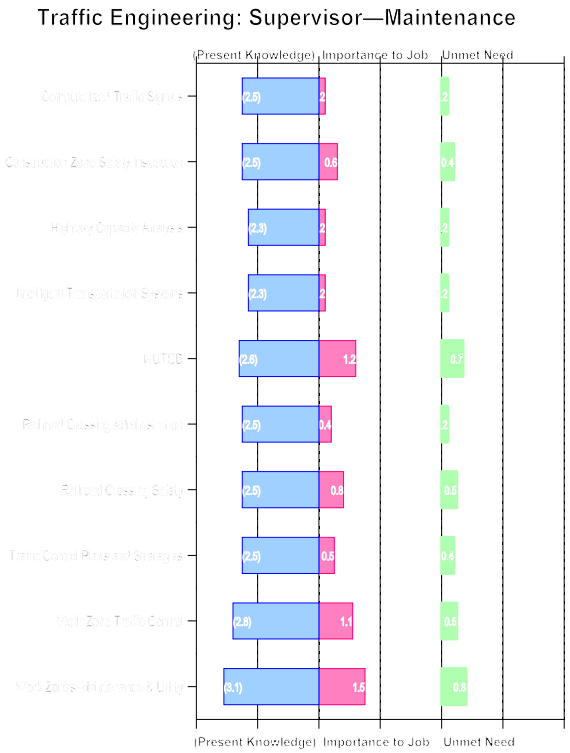

Figure 491: Traffic Engineering: Supervisor—Maintenance

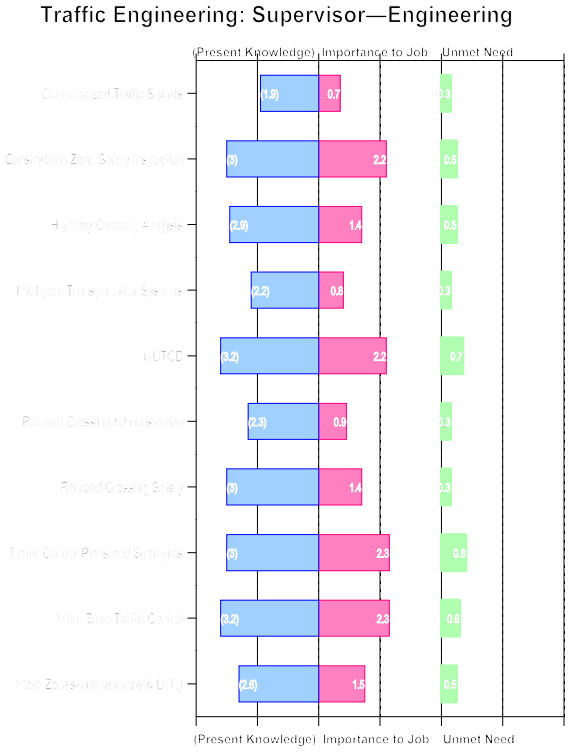

Figure 492: Traffic Engineering: Supervisor—Engineering

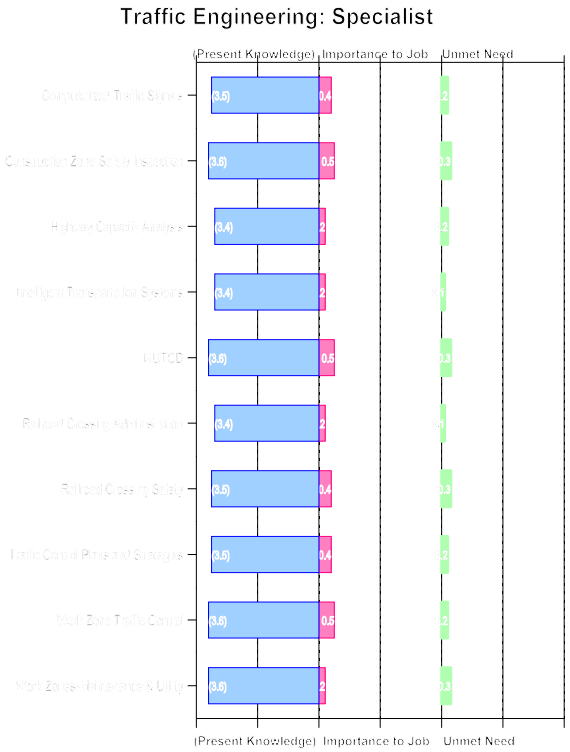

Figure 493: Traffic Engineering: Specialist

Figure 494: Traffic Engineering: 0-5 Years

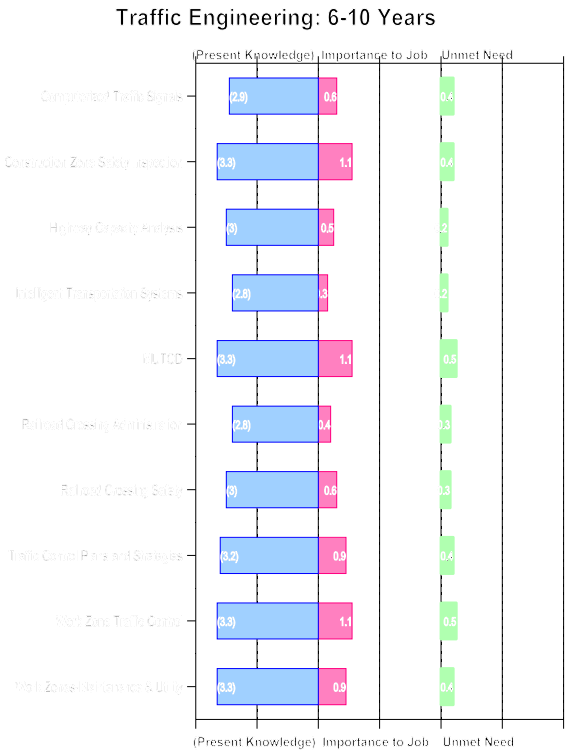

Figure 495: Traffic Engineering: 6-10 Years

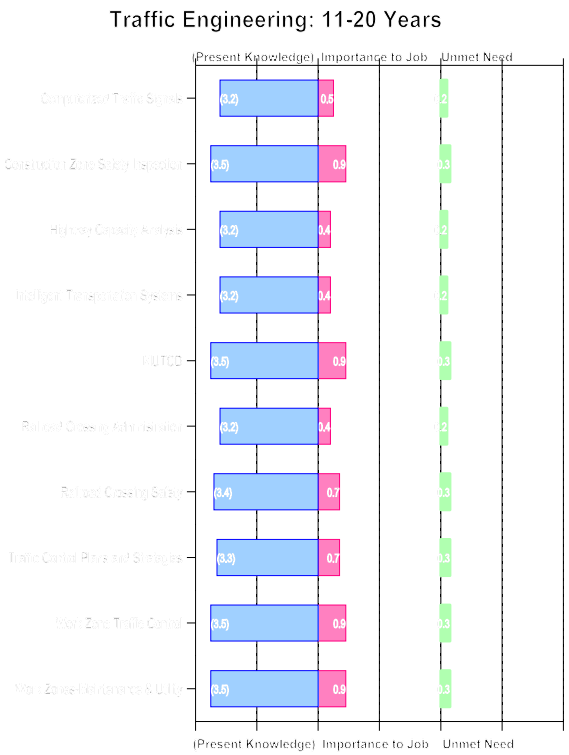

Figure 496: Traffic Engineering: 11-20 Years

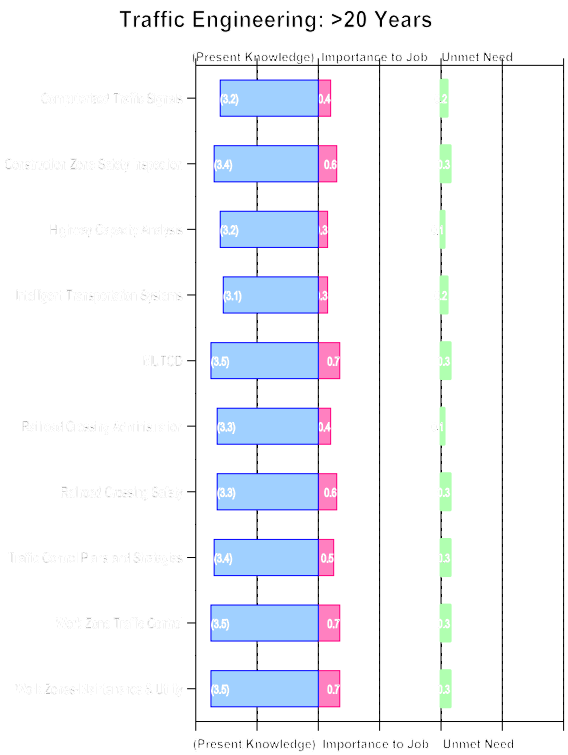

Figure 497: Traffic Engineering: >20 Years

8 CONCLUSIONS

The Department considers training very important. They expended approximately $1.0 million and 44,230 hours during the calendar year 2001. With this considerable expenditure it is very important that the Department direct it’s training to address the needs of the Department and employees.

Analysis of focus group comments and 810 surveys returned by the Department's employees indicated a variety of training needs. Questions concerning the general training environment identified some key areas of concern. A key finding is that most employees do not systematically plan for the training they need. Few employees prepare for a class or even know the course content before attending. Often, the are informed of the training just prior to the anticipated need for the training or just before a course is offered. Supervisors seldom ask if the employee needs training. If asked about training the employees planned at the periodic Performance Planning and Review (PPAR), the employees indicated they rarely receive the requested training. Planning for training usually occurs when the employee or supervisor is made aware a training class has been scheduled.

Short-term planning for training would enable the Department and employees to meet immediate needs. The immediate needs can be met during the periodic PPAR. Discussion between the supervisor and the employee can identify individual needs. This information should be passed to a central location where it can be assembled and can provide invaluable department-wide data for the planning of training. The central training contact and the Department's management can then use the assembled data to develop plans and schedules for formal training programs, and allocations can be made in relation to the requests. The employees requesting training will be identified early in the process so direct contact can be made to customize the course to meet their needs.

Supervisors have the responsibility to promote employee development by using available training resources and plan employee training. Planning employee development is an ongoing process. At least annually, performance training needs should be evaluated at the periodic PPAR.

In conjunction with employees, the supervisor should identify training needs and schedule employees for training. The supervisor is responsible to ensure employees are provided an opportunity to attend needed training as workload permits. They should also identify, prioritize, and communicate the organization's training needs.

Long-range planning centers around future manpower needs. Some changes have occurred in the numbers of employees in specific job groups. Although the composition of the Department's workforce has not changed drastically, some changes can be predicted. Changes in technological developments and attrition are some of the considerations for long-range planning. Future needs for manpower in the various job groups gives an indication

of the long-term training needs. Looking at the nature of the future organization of the department many indicate the magnitude of training challenges.

Many employees felt it is important to have a period of overlap when a position is being vacated and a replacement is hired. It is difficult to learn some positions when there aren't other employees available who are knowledgeable about the duties of the position being replaced. Many employees feel the Department could save time and money and avoid mistakes by having replacements properly trained before the position vacates.

Managers and Support groups indicated no preference to the time of year training should be offered. The other job groups indicated January-February as the best time for training with the summer and fall months generally not the most preferred time for training.

Small groups hands-on training was preferred by most employee job groups. A small class size allows all employees to participate in the class. Computer and maintenance training were identified as sometimes either not directed to the level of all learners or where only one or two employees at a time were able to observe the training being demonstrated. Employees also indicated they would take training delivered in any method appropriate for the training.

Domain level analysis indicated the most significant Unmet Need for training was in non-technical areas (Table 41). This reflects the widespread applicability of these subjects to employees throughout the Department, and possibly a lack of emphasis in these areas in the past. Also, training in the technical domains is already stressed throughout the Department and the analysis indicated that there tends to be sufficient knowledge within those domains. The fact the Unmet Need values are low does not indicate training in those areas can be ignored. This is simply an indication that the Department is providing the necessary training in these areas and should continue to do so.

Table 41: Domains Most in Need of Training in All SDDOT

Domain	Present Knowledge	Importance to Job	Unmet Need
Personnel	2.2	2.2	1.1
Leadership	2.0	2.1	1.0
Employee Development	2.4	2.3	0.9
Quality Improvement	2.2	2.1	0.9
Communication	2.2	2.2	0.8
Safety	2.7	2.4	0.7
General Computer	1.8	1.6	0.7
Maintenance	3.4	1.2	0.4
Asphalt	3.2	1.0	0.4
Equipment Operation	3.1	0.9	0.4
Equipment Maintenance and Repair	3.3	0.7	0.4
Math	3.5	1.2	0.3
PCC	3.5	0.9	0.3
Traffic Engineering	3.3	0.6	0.3
Road Design	3.4	0.6	0.3
Pavement Management	3.5	0.6	0.3
Bridge	3.4	0.5	0.3
Testing & Inspection	3.7	0.8	0.2
Materials	3.7	0.7	0.2
Construction Management	3.4	0.6	0.2
Geotechnical	3.5	0.5	0.2
Hydraulics	3.7	0.4	0.2
Finance	3.6	0.4	0.2
Environmental	3.5	0.3	0.2
Testing & Inspection	3.7	0.8	0.2
Right-of-Way	3.7	0.2	0.1

Finally, Table 42 lists, in descending order of Unmet Need, all of the knowledge areas analyzed in this study. The table provides a quick overview of perceived needs, but is not intended to identify specific training needs within any particular training domain or employee group.

Table 42: Knowledge Areas Ranked in Descending Order of Unmet Need for Training

#	Knowledge Area	Present Knowledge	Importance to Job	Unmet Need	Domain
1	Planning for Retirement	1.9	2.7	1.5	Personnel
2	Dealing with Difficult People	2.0	2.7	1.4	Personnel
3	Employee Development	2.1	2.9	1.4	Employee Development
4	Techniques for Streamlining Paperwork	1.8	2.3	1.3	Leadership
5	Career Development	2.0	2.5	1.3	Employee Development
6	Stress Management	2.0	2.6	1.3	Personnel
7	Conflict Resolution	2.0	2.4	1.3	Personnel
8	Self-awareness of Personal Style	2.0	2.5	1.3	Personnel
9	Legal Issues and the Workplace	2.0	2.5	1.2	Employee Development
10	Time Management	2.3	2.8	1.2	Personnel
11	Project Management	2.3	2.7	1.1	Employee Development
12	Improving Work Processes	2.0	2.2	1.1	Quality Improvement
13	Improving Listening Skills	2.5	2.8	1.1	Communication
14	Develop Skills to Motivate Others	2.0	2.3	1.1	Leadership
15	Assertiveness	2.3	2.6	1.1	Communication
16	Developing Leadership Skills	2.1	2.4	1.1	Leadership
17	Employee Benefits	2.6	2.8	1.1	Employee Development
18	Decision Making	2.2	2.3	1.0	Leadership
19	Persuading, Influencing and Negotiating	1.9	2.1	1.0	Leadership
20	Managing Multiple Projects	2.2	2.5	1.0	Employee Development
21	Managing Change	2.0	2.1	1.0	Quality Improvement
22	7 Habits of Highly Effective People	1.7	1.8	1.0	Personnel
23	Communication Effectiveness w/External Customers	2.6	2.9	1.0	Communication
24	Health and Wellness	2.4	2.4	1.0	Personnel
25	Communicating Effectively with Co-Workers	2.7	3.2	1.0	Communication
26	Problem Solving	2.6	2.5	0.9	Quality Improvement
27	Overview of SDDOT activities	2.2	2.1	0.9	Employee Development
28	Teamwork	2.8	3.1	0.9	Employee Development
29	Work Relationship w/Supervisor	2.7	3.0	0.9	Employee Development
30	Maintenance Management Training	1.8	1.9	0.9	Employee Development
31	Personal Financial Planning	1.9	1.8	0.9	Personnel
32	Creating A Vision	1.7	1.7	0.9	Leadership
33	Laptop Computer Literacy	1.7	1.7	0.9	General Computer
34	Dealing with Multiple "Bosses"	2.3	2.3	0.9	Employee Development
35	E-mail Advanced Features	1.8	1.8	0.9	General Computer
36	Create, Edit and Store Digital Images	1.3	1.3	0.9	General Computer
37	Delegating Responsibility	2.2	2.2	0.9	Leadership
38	Writing Effective Letters and Memos	2.1	2.1	0.8	Communication
39	Facilitating Meetings	2.0	1.8	0.8	Leadership
40	Advanced Spreadsheet Concepts	2.0	1.8	0.8	General Computer
41	Basic First Aid	3.0	2.9	0.8	Safety
42	Using Microsoft Windows Features (Basic)	2.4	2.3	0.8	General Computer
43	Resource Acquisition	1.9	1.7	0.8	Quality Improvement
44	Performance Measurement	2.3	1.9	0.8	Quality Improvement

Table 42: Knowledge Areas Ranked in Descending Order of Unmet Need for Training (continued)

#	Knowledge Area	Present Knowledge	Importance to Job	Unmet Need	Domain
45	Cardiopulmonary Resuscitation (CPR)	2.8	2.8	0.8	Safety
46	Presentation Software	1.3	1.3	0.8	General Computer
47	PC Literacy	2.3	2.1	0.8	General Computer
48	Coaching Strategies	1.8	1.8	0.8	Leadership
49	E-mail (basic)	2.6	2.7	0.8	General Computer
50	Basic Computer Spreadsheet Concepts	2.2	2.1	0.8	General Computer
51	Bloodborne Pathogen Awareness	2.3	2.1	0.8	Safety
52	New Employee Orientation	2.4	2.3	0.8	Employee Development
53	Navigating the Internet	2.2	1.8	0.8	General Computer
54	Pay Issues	2.8	2.7	0.8	Employee Development
55	Safety Awareness On The Job	3.0	3.0	0.7	Safety
56	Presentation Skills	1.9	1.7	0.7	Communication
57	Project Management(MS Project)	1.1	0.9	0.7	General Computer
58	Back Injury Prevention	2.9	2.6	0.7	Safety
59	Advanced Relational Database Concepts	1.6	1.3	0.7	General Computer
60	Basic Business English	2.5	2.2	0.7	Communication
61	PPAR: Supervisor's Role	2.2	1.8	0.7	Employee Development
62	Writing a Request for Proposal	1.4	1.3	0.7	Communication
63	Improving Reading Skills	2.6	2.4	0.7	Communication
64	Understanding Cultural Diversity	2.3	1.9	0.7	Employee Development
65	Basic Relational Database Concepts	1.7	1.5	0.7	General Computer
66	Employee Leave Policy Guidelines	2.7	2.4	0.7	Employee Development
67	Affirmative Action Procedures	2.1	1.9	0.7	Employee Development
68	Basic Word Processing (MS Word)	2.3	2.1	0.7	General Computer
69	Employment & Retention of Women	1.9	1.4	0.6	Employee Development
70	PPAR: Employee's Role	2.9	2.3	0.6	Employee Development
71	Defensive Driving	3.2	2.7	0.6	Safety
72	Advanced Word Processing (MS Word)	2.1	1.7	0.6	General Computer
73	Drug and Alcohol Detection	2.3	1.9	0.6	Employee Development
74	Effective Communication w/News Media	1.3	1.1	0.6	Communication
75	Telephone Communication Skills	2.7	2.4	0.6	Communication
76	Learn How to Type	2.7	2.2	0.6	General Computer
77	Technical Report Writing	1.9	1.7	0.6	Communication
78	Asphalt Surface Treatment	3.4	1.3	0.5	Asphalt
79	CPR for Instructors	1.7	1.3	0.5	Safety
80	Hand and Mechanical Tools	2.7	2.1	0.5	Safety
81	Sexual Harassment Awareness	2.9	2.3	0.5	Employee Development
82	Create Web sites, signs	1.0	0.7	0.5	General Computer
83	Motor Grader	3.0	1.0	0.5	Equipment Operation
84	Asphalt Paver	3.0	1.0	0.5	Equipment Operation
85	Create And Edit Web Pages (Basic)	1.0	0.7	0.5	General Computer
86	Asphalt Distributor	3.0	1.0	0.5	Equipment Operation
87	Asphalite Machine	3.0	1.0	0.5	Equipment Operation
88	Use Structured Query Language (SQL)	0.9	0.6	0.5	General Computer

Table 42: Knowledge Areas Ranked in Descending Order of Unmet Need for Training (continued)

#	Knowledge Area	Present Knowledge	Importance to Job	Unmet Need	Domain
221	Subsurface Drainage Design	3.4	0.4	0.2	Geotechnical
222	Budget Development and Management	3.6	0.4	0.2	Finance
223	Vacuum Street Sweepers	2.8	0.4	0.2	Equipment Operation
224	Hydraulic Design for Bridges	3.4	0.4	0.2	Bridge
225	Materials Control and Acceptance	3.8	0.8	0.2	Materials
226	Radiation Monitoring	3.6	0.5	0.2	Materials
227	Purchasing Process	3.6	0.5	0.2	Finance
228	Superelevation Calculations	3.4	0.5	0.2	Road Design
229	Plan Development Process in SDDOT	3.3	0.6	0.2	Road Design
230	Minor Earth Work (Design)	3.4	0.6	0.2	Road Design
231	SDDOT Budget Request and Review	3.5	0.3	0.2	Finance
232	SDDOT Finance Manual	3.5	0.4	0.2	Finance
233	SDDOT Accounting Policies/Procedures	3.6	0.5	0.2	Finance
234	Geometric Design	3.3	0.5	0.2	Road Design
235	Earthwork Basics	3.6	0.8	0.2	Road Design
236	Highway Capacity Analysis Procedures	3.2	0.4	0.2	Traffic Engineering
237	Intelligent Transportation Systems	3.2	0.3	0.2	Traffic Engineering
238	Railroad Crossing Administration	3.2	0.4	0.2	Traffic Engineering
239	Nondestructive Testing for Steel Bridges	3.3	0.4	0.2	Bridge
240	Bridge Snooper	2.7	0.4	0.2	Equipment Operation
241	AASHTO Roadside Design Guide	3.4	0.6	0.2	Road Design
242	LRFD for Bridge Substructures	3.3	0.4	0.2	Bridge
243	Pipe Installation	3.7	0.9	0.2	Testing & Inspection
244	EEO Contract Compliance Reviews	3.2	0.3	0.2	Construction Management
245	Commercial Drivers License Training	3.5	1.2	0.2	Equipment Operation
246	EIT Examination Review	3.6	0.2	0.1	Planning
247	Admininstration of FHWA Planning Grants	3.5	0.2	0.1	Planning
248	Employee Timesheet Processing	3.7	0.5	0.1	Finance
249	Outdoor Advertising Programs	3.7	0.3	0.1	Right of Way
250	Land Surveyor Examination Review	3.5	0.1	0.1	Planning
251	Integrated Financial Information System	3.5	0.2	0.1	Finance
252	Checker's Guidelines	3.8	0.8	0.1	Testing & Inspection
253	Basic Operation of Mechanical Scale	3.7	0.8	0.1	Testing & Inspection
254	PE Examination Review	3.6	0.3	0.1	Planning
255	Traffic Monitoring Guide	3.5	0.2	0.1	Planning
256	Consumable Inventory Processing	3.6	0.3	0.1	Finance
257	Sampling and Testing of Aggregates	3.8	0.8	0.1	Materials
258	Equipment Time Processing	3.6	0.3	0.1	Finance
259	Bid Analysis Management System	3.1	0.2	0.1	Construction Management
260	Property Appraisal and Appraisal Review	3.7	0.2	0.1	Right of Way
261	Relocation of Persons	3.7	0.2	0.1	Right of Way
262	Open Channel Flow Equations	3.7	0.3	0.1	Hydraulics
263	VES Voucher Entry System	3.5	0.3	0.1	Finance
220	Soils Testing and Documentation	3.5	0.4	0.2	Geotechnical

9 RECOMMENDATIONS

The Department should review the following recommendations developed from analysis of the data and comments obtained from the focus groups:

1. SDDOT should make training and employee development part of Performance Planning & Review (PPAR) for all employees and a supervisory responsibility for supervisors.

An individual employee's role is paramount in identifying training needs and appropriate opportunities. Individuals identify and assess personal development needs; consult with supervisors about development plans and needs; help identify opportunities; and negotiate plans annually. Supervisors are responsible for effective resource development and utilization. Once a individual training and development plan is developed it should be submitted to the training professional for inclusion in the Department-wide training plan.

2. SDDOT should communicate training information by a variety of means so that all employees are aware of opportunities.

E-mail is rapidly becoming the preferred method to become aware of training opportunities for most employees. However, the workplace bulletin board are perceived more useful by Maintenance and Part-time & Seasonal Job Groups. The Bureau of Personnel's Training Catalog is also very useful. Personal contact with the training professional can be very effective in communicating the services and resources available through the training program.

3. SDDOT should recognize training as an integral component of the Department's Strategic Plan.

This linkage communicates the significance of employee training in helping the Department achieve it's missions, goals and objectives. The importance of training is stressed in professional studies. A 1993 Survey by the American Society for Training and Development of the training activities of 19 major corporations revealed that the training function within these companies surveyed had written corporate commitments for training through mission statements and/or strategic plans.

4. SDDOT should develop a yearly training plan to define objectives of the Department's

training program and to develop staffing, facility, and budget requirements.

A training plan must meet the short-term and the long-range needs of the Department. The plan should also address the goals of the Departments strategic plan. The top five training need domains and identified courses should be included in the plan.

5. As SDDOT develops its future training plans, it should focus on providing training in the top five domains identified under Section 7.3 Domain Level Analysis (page {NEED REFERENCE}).

Since the assessment showed that Personnel, Leadership, Employee Development, Quality Improvement, and Communications training is desired by almost all Department employees, the Department must make a concerted effort to provide training on these topics.

6. SDDOT should dedicate a full-time position to the Department's Training Program. This training professional must have the ability to interact with all Divisions and all levels within the Department and the BOP training program.

The training professional should coordinate and oversee all training activities in the Department. Specific duties that should be performed by the training professional would include:

Work with each Division to identify specific training needs.
Develop and track training goals for the Department.
Provide visible support from the Central Office.
Identify and track mandated training.
Use the training database to track all changes of DOT employees and have employees verify the records are correct.

The Department does not have a central contact for employees to address their training needs. When the department eliminated the Training Activity some functionality was lost. Employees at all levels do not feel there is any coordinated training activity within the department. They also feel they are not informed about training activities. Many feel that training provided to them does not address their needs or apply to Department activities. Having one individual who is responsible for overseeing the program will help ensure that the program is on course. This individual will advise and guide management, supervisors and employees on all matters pertaining to training.

7. SDDOT should continue training in all technical training domains.

Department-wide employees feel they have sufficient knowledge in most technical domains. The training need values are typically in the low to moderate range. A low ranking does not mean the training is not needed, but rather that employees feel they presently have sufficient training. The Department should continue training in these areas.

8. SDDOT should periodically conduct training surveys of all Department employees.

The survey should include the questions in Figure 2 of this report. There isn't a need to include questions in each domain since this makes data analysis difficult. The survey could be administered every two years to develop trends of training needs that will enable the department to track the performance of the training program.