Washington State Department of Transportation

PMG
Statewide Program Management Group

Workforce Analysis Task

Draft Report

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1. SYNOPSIS

The Washington Department of Transportation (WSDOT) is facing the challenge of implementing a capital construction program in excess of $15 billion over the next fifteen years. This challenge is further complicated by two issues: (1) an increasingly competitive marketplace for engineering and other technical staff and (2) a mounting risk of losing experienced personnel because by 2015 40% of WSDOT's staff will be eligible to retire. Of even greater concern, these retirements could include more than 60% of executive and mid level managers. In addition, WSDOT is also facing a reduction in force mandate requiring it to eliminate 131 middle management positions by June 2007.

With the Highway Capital Program Delivery staff being charged with the implementation of over 400 new projects since 2003, this has created an exponential increase in workload with the associated complexity in managing internal and external resources throughout the state. The Program Delivery staff is divided into the Project Delivery and Project Support teams and is distributed across the regions as well as supported by headquarter functions such as project control and reporting, statewide planning, environmental preservation, and real estate certification.

As part of their efforts to sustain a high performance Highway Capital Program Delivery team, WSDOT retained the Statewide Program Management Group (SPMG) to analyze the status of the Program Delivery workforce and to develop strategies for recruitment and retention while maintaining and enhancing the core skills necessary to maintain a strong owner role. SPMG assessed all of the efforts currently underway by WSDOT, gathered and analyzed all available data from WSDOT, evaluated national and statewide trends in employment, interviewed WSDOT personnel along with staff from other departments of transportation and administered a survey to all Program Delivery personnel. All the research verified an important fact, WSDOT is not alone in its challenge for retention and recruitment of the talent it needs, and therefore is in competition with other local and state agencies, as well as the private sector.

As part of the analysis, the technical core competencies essential to the WSDOT's overall success were identified. These areas emphasize both the WSDOT management principles and the key elements of project milestones. They include:

- Construction management
- Design - Bridge
- Design- Highway
- Environmental documentation and preservation
- Executive leadership
- Information Technology
- Program/Project management
- Planning
- Traffic analysis and management
- Right-of-Way acquisition

Besides these technical skills, other skills that important to Program Delivery and could be acquired in other arenas and transferred successfully into Highway Capital Program Delivery include:

- Communication
- Contract Management
- Data gathering and analysis
- Legal services management
- Negotiation
- Project status reporting
- Project budgeting and financing
- Public information management
- Resource management/delegation
- Risk assessment
- Scheduling
- Staff assessment, evaluation, and development
- Team building
- Familiarity with WSDOT policies, procedures, and internal and external resources (institutional knowledge)

This report outlines 18 strategies in support of recruitment, retention, and use of external talent to sustain a high performance statewide program delivery team. Many of these strategies are aggressive and will not be easily approved or implemented. However, the significant challenges to maintaining the high caliber of WSDOT's work force call for bold action. A few brief highlights of these strategies are listed below and are further detailed in the report.

Strategy # 1: One Program Delivery Team
Reinforce the culture of One Program Delivery Team. To effectively implement a program of the magnitude facing WSDOT requires that the message and tools be oriented to working as a united team to deliver a successful program. This concept needs to be the underlying foundation for every strategy developed and implemented.

Strategy # 2: Identify Critical Experience Requirements
Create a tool for the creation and retention of knowledge within the organization by more formally defining the critical experience that is required in the organization over the next 15 years.

Strategy # 3: Define Outsourcing
Develop a clear policy and procedure around how outsourcing will be utilized within the Department and vet with all relevant stakeholders.

Strategy # 4: Re-evaluating the Basic Requirements
Evaluate which positions must carry a Professional Engineer requirement. Identify additional critical disciplines to target and develop enhanced certification programs such as Project Management, Construction Management, and Project Controls.

Strategy # 5: New Targeted Recruitments
Implement a two-fold strategy of targeting the retiring pool of employees and non-civil engineering personnel.

Strategy # 6: Selling the Value Proposition
Enhance the ability to attract job candidates by development of the WSDOT Brand and benefits to use in promoting employment at the Department.

Strategy # 7: Create a Flexible Recruitment
Expand the level of flexibility in hiring positions that are difficult to fill by using programs similar to the existing "in-training" concept.

Strategy # 8: Employer of Choice
Combine strategies 5-7 to create a clear picture of the WSDOT advantages and aggressively market to job candidates.

Strategy # 9: Employee Development as Key Attractor
Translate the WSDOT willingness to train employees on relevant systems, software and professional development into an approach to attract top talent that may be overlooked by other employers.

Strategy # 10: Leveraging Outsourcing
Use WSDOT staff's opportunity to work closely with experts in various fields (such as through integrated teams) as an opportunity to exploit that expertise and increase the WSDOT knowledge base.

Strategy # 11: Avoid the Exodus
Assist in retaining valuable employees by creating a modified retirement approach that accommodates less traditional work arrangements.

Strategy # 12: High Performance Mentoring
Create a comprehensive mentoring program.

Strategy # 13: Communicate—Communicate—Communicate
Enhance internal communication approaches with a focus on enhancing the commitment of existing staff.

Strategy # 14: Train that Brain
Take the existing training program to the next level with an expanded focus on career tracks, opportunities for temporary or permanent cross-training and enhanced knowledge management systems.

Strategy # 15: Set Expectations and Recognize Accomplishments
Augment the existing performance evaluation process to be a communication tool and measurement against performance standards.

Strategy #16: Increased Compensation Based on Performance
Develop a program to increase critical salaries with performance and work load based enhancements.

Strategy # 17: Implement Incentive Programs
Create a targeted incentive program in conjunction with development of clearly defined performance objectives.

Strategy # 18: Create New Career Tracks
Enhance retention of experienced program delivery personnel by creating career tracks for individuals based on their career goals.

These strategies are being proposed for WSDOT consideration. After initial review, the next step is an interactive workshop to evaluate the pros and cons of each strategy, determine which are most appropriate for implementation and then add tactical actions to this document.

Each of these strategies by itself may incrementally reduce the challenge that WSDOT Program Delivery team faces; however, a comprehensive evaluation and bundling of these strategies is the most effective implementation approach. To produce the maximum benefit, it is recommended that a new "Workforce Enhancement Program" be created that includes an approach to simultaneously roll out the highest ranking of these strategies.

Regardless of the solutions chosen, WSDOT, and more specifically the Program Delivery staff, will be undergoing many changes in workload and workflows in the immediate future. It is essential for the success of any strategies that all affected groups participate in a comprehensive change management program as part of the implementation approach.

2. BACKGROUND AND UNDERSTANDING

The Washington Department of Transportation (WSDOT) is charged with the implementation of a capital construction program in excess of $15 billion over the next 15 years which includes the addition of 400 new transportation projects since 2003. Washington State's transportation program is one of the largest in the country and is in need of national and international capabilities to supplement existing WSDOT expertise in program delivery, strategy development, program management, program and project monitoring, forecasting, and reporting. With a program of this magnitude, WSDOT, in a strong ownership role, intends to maintain its focus on delivery, accountability and reporting. While WSDOT intends to increase the current project delivery team by about 15% to deliver this program, this is only a fraction of the doubling that would be needed to handle the increased workload in house. The focus will be to organize the program to assure WSDOT maintains its core expertise and technical capabilities plus add critical new expertise in managing General Engineering Consultant teams. WSDOT must also focus on developing project managers and team leaders through "on the job" training and by working in partnership with industry experts on challenging projects.

WSDOT has tasked the Statewide Program Management Group (SPMG) with preparing a Workforce Analysis regarding the challenges of recruitment and retention of a high performance Highway Capital Program Delivery team during the implementation of this capital construction program. This analysis is focused exclusively on the approximately 2,400 employees responsible for the delivery of the Highway Capital Program. This Workforce Analysis considers several key questions:

- What are the key challenges of simultaneously maintaining and enhancing core skills within WSDOT and simultaneously supplementing with a major outsourcing program?
- What are the major factors and trends shaping WSDOT's workforce over the next 15 years and beyond?
- What steps are being taken, and what more should be done to address the gaps in the workforce in order to meet WSDOT's strategic goals for delivery of the program?

2.1 WSDOT MISSION

In order to propose a program to effectively assist WSDOT in the implementation of its capital program it is important to understand WSDOT's organizational motivators. These motivators are usually captured in the organization's mission statement. The Mission for WSDOT can be simply summarized as follows:

Keep people and businesses moving by operating and improving the state's transportation system which is vital to taxpayers and to communities.

To achieve this mission, WSDOT has adopted the following management principles:

Leadership
WSDOT is committed to provide strategic vision and leadership for the state's transportation needs.

Delivery and Accountability
WSDOT manages the entrusted resources from the taxpayers and the legislature for the highest possible return on value. WSDOT is disciplined in their use of both time and money. WSDOT is accountable for all achievements, shortcomings and challenges to citizens, to elected officials, and to other public agencies.

Business Practices
WSDOT encourages progressive business management practices in delivering cost-effective and efficient transportation services. The quest for short-term cost savings and business process improvement shall be balanced by the long term need to preserve and improve the state's transportation systems through sound fiscal planning and asset management.

Safety
Concern for the health and safety of the people who use and work on in the transportation facilities is of paramount value in every area of WSDOT's business.

Environmental Responsibility
WSDOT incorporates the principles of environmental protection and stewardship into the day-to-day operations of the department as well as the on-going development of the state's transportation facilities.

Excellence and Integrity
WSDOT employees work in a culture of workplace excellence and diversity that encourages creativity and personal responsibility, values teamwork, and always respects the contributions of one another and of those with whom WSDOT does business. WSDOT adheres to the highest standards of courtesy, integrity and ethical conduct. WSDOT encourages and recognizes the employees' professionalism and their career growth.

Communications
WSDOT stresses the importance of sharing clear, concise and timely information with its employees, elected officials, community leaders, businesses, citizens and taxpayers, others in the transportation community, with the press and other media. WSDOT strives for the effectiveness of all the employees in meeting WSDOT's communications standards.

2.2 WSDOT HIGHWAY CONSTRUCTION PROGRAM DELIVERY

This Workforce Analysis is focused on the Highway Capital Program Delivery staff. There are two major teams within the Program Delivery: Project Delivery and Project Support which includes project controls and reporting. The Project Support and Project Delivery teams interface with various internal resources to fulfill their responsibilities.

The Project Support team provides valuable service to secure approval for project scope, budget and schedule as well as adequate priority for the associated funding. The Project Support team at the Headquarters (HQ) office in Olympia also provides other support functions such as development of policies, procedures, standard specifications, and standard contracts; Statewide transportation planning; project budgeting and finance; and statewide project control, coordination, and reporting.

The Project Delivery teams are responsible for the program management, planning, design, and construction of the projects and provide a key role as the points of contact for these projects. Project delivery teams in each region use the HQ support services to facilitate the implementation of their projects. Besides the functions identified above, the regional offices' project delivery teams are responsible for design, environmental documentation, and real estate acquisitions and work with the HQ offices to coordinate on environmental, ROW, and design requirements.

2.2.1 Program Delivery Functions and Skills

2.2.1.1 *Project Delivery Team*

The roles and responsibilities of the Project Delivery team include the following five major areas:

1. Developing project management plans that include communication and risk management plans in addition to project scope, schedule, cost, and resource needs based on "Managing Project Delivery" document;
2. Leading the initial chartering sessions while involving key project stakeholders;
3. Assigning work elements to functional staff within WSDOT or to Consultants based on resource availability;
4. Coordinating work performance throughout the project life cycle, monitoring project performance, and taking corrective action where

necessary to adhere to the scope, schedule, and budget and reporting the status of the project to management and for departmental reports; and,

5. Acting as the chief point of contact and spokesperson for the project, both within the Department and to external stakeholders.

2.2.1.2 *Project Support Team*

The roles and responsibilities of the Project Support team include the following four major areas:

1. Working with the Legislature to coordinate planning and development of overall programs and projects.
2. Developing policy and standards to guide development of projects.
3. Providing specialized technical expertise across the range of engineering, environmental, and legal disciplines required for design and construction of complex transportation facilities and services.
4. Overseeing and controlling established programs and budgets.

The Project Support teams utilize several software applications for tracking the projects which fall under four categories:

1. Project Development
2. Project Funds Management
3. Project Change Management
4. Project Reporting

An essential element of successful Program Delivery is the use of Project Control and Reporting as a tool to manage individual projects and programs with the goal of implementing projects on time and within budget. WSDOT recently published the new Project Control Manual that outlines the principles of project control and reporting as follows:

1. A “no surprises,” early warning approach, which is critical to the Department’s ability to act early and aggressively to prevent or minimize changes in project scope, schedule, or budget.
2. Frequent, consistent, data-driven project and program performance reporting on a regular schedule, as opposed to discretionary, ad hoc self-reporting.
3. Increased independent access to information on WSDOT program and project management performance.

2.2.2 Common Skills

After reviewing the roles and responsibilities of all parties contributing to the project delivery process, it becomes clear that the Project Support and the Project Delivery teams rely on similar non-technical skill sets. These skills include the following:

1. Communication (presenting information both orally and written, providing feedback, and receiving input)
2. Data gathering, analysis and reporting
3. Problem solving
4. Negotiations

The most important of these skills is communication. These two groups must work and communicate effectively together and with others in order to streamline the implementation of WSDOT's vast capital program during the next 15 years. Therefore, of utmost importance is the effective use of communication skills to assure trust and respect which are the cornerstones of high performance teams. Other characteristics of high performance teams are a deep feeling of ownership of the final product, a common understanding of goals and objective, sense of value for each team member, mutual support and long-term work-life balance.

2.2.3 Program Delivery Milestones and Related Skills

WSDOT tracks 11 milestones for the implementation of traditional projects, which are the parallels to the basic sense of accomplishment for all who participate in the project delivery process. These milestones and their associated skills are described below. A non-traditional delivery approach would vary from these specific milestones and some of those variations are noted below.

2.2.3.1 *Project Delivery Milestones*

Milestone 1. Project Definition Complete
Project definition entails determining the function, limits, and boundaries of the project at hand, providing enough information so that a preliminary cost estimate can be established.

Skills: The skills involved in this phase are the capability to define and solve a problem at a conceptual level. Team members with creative thinking and regional perspectives and experiences add value to the problem definition and corresponding innovative solutions.

Milestone 2. Begin Pre-construction Engineering
A project schedule is usually broken into three general phases, the pre-construction phase, the right of way phase, and the construction phase. Pre-construction involves design, and environmental activities. Beginning the pre-construction engineering marks the start of the project design and is usually

the first activity in delivering the project. The level of design prepared prior to procurement of a construction contractor will be significantly less if a design-build approach is used.

Skills: The skills involved in this phase vary greatly depending on the scope and intent of the project. If the project is designed using internal staff, detailed technical expertise is needed in all areas. These numerous areas of expertise are available in WSDOT and constitute the core assets of the organization. The expanded WSDOT capital program will involve a significant increase in outsourcing, particularly through the use of General Engineering Consultants. However, WSDOT will need to keep sufficient challenging design elements in-house to assure the design technical competence is maintained and sufficient skills exist to effectively manage consultants. If the project is designed by consultants, then the project engineers with consultant management skills are needed to ensure the effective implementation of the pre-construction engineering phase. The technical experts are needed in the quality assurance and quality control functions during the submittal review process. Design-Build implementation strategy can be used to minimize the demand for design services from WSDOT staff.

Milestone 3. Environmental Documentation Complete

Most projects involve environmental processes requiring NEPA documentation and approvals prior to advertisement. These activities occur parallel to and are coordinated with the design process. This milestone is a good indicator of whether decision makers from other agencies will have the necessary information to make a decision on permits on a timely basis to keep the project on schedule. Regardless of the method used for construction, the environmental approvals will remain the responsibility of WSDOT.

Skills: The skills required to prepare environmental documents and interface with other regulatory agencies encompass many areas of expertise and may vary geographically. For example, a biologist or an archeologist in the Eastern Region must have detailed understanding of the challenges and areas of concern specific to that region whereas, design parameters for adding a lane to a highway are regulated by WSDOT through its design standards. Furthermore, this phase of the project requires multiple interfaces with various agencies that benefit from consistency, trust and familiarity. Strong relationships with external stakeholders in this phase of the project can facilitate and expedite project delivery significantly. This requires effective interpersonal communication skills, along with detailed technical expertise in well-defined areas.

Milestone 4. Right of Way Certification

In most cases, WSDOT projects require purchasing right of way. The Right of Way (ROW) Certification marks the point in time that several right of way requirements are met and the process is complete for advertisement. The

timing on this could vary if a design-build approach is used where ROW delivery is not required until a specified time after the notice-to-proceed.

The WSDOT ROW team is divided into the regional and HQ groups. Regional staff leads the ROW acquisitions and the HQ staff support the regions by coordinating all activities across the state as well as issuing the required ROW certifications for both State and Federal projects. These activities include, but are not limited to, preparing appraisals, identifying just compensation, preparing and submitting the offers, negotiating a purchase price, in some cases exercising the power of eminent domain and leading the condemnation process, occasionally relocating businesses, and engaging in property management activities such as short term leasing.

Some outsourcing of appraisals, preparation of just compensation, and submittal of offers may occur on large projects but overall responsibility for securing the necessary ROW will remain with WSDOT staff, particularly as it relates to any eminent domain actions.

Skills: The skills for securing ROW are narrowly defined by the requirements of each state per their licensing boards. Some land surveyors and licensed civil engineers specialize in supporting land acquisitions. Two key skills required for ROW activities are the ability to perform/review appraisals and make offers. Condemnation experience is most rare and valuable as the ROW staff experienced in this area, have retired or are expected to retire in the near future. Furthermore, to gain experience in supporting and defending a condemnation procedure takes time and requires employment with other public agencies that have similar rights. Similar to the environmental documentation process, the Real Estate expertise must rely on local knowledge to best deliver its objectives of securing ROW for the projects.

Milestone 5. Advertisement (Ad Date)

This is the date that WSDOT schedules to publicly advertise a project for bids from pre-qualified contractors. When a traditional design-bid-build project is advertised, it has a completed set of plans, specifications, along with an estimate prepared by the Department of what the work should cost. At this point, the Department will have obtained all necessary permits, right of way, and funding. During the advertisement period, prospective contractors review the bidding documents very closely in order to prepare their bid. This intense scrutiny may identify errors, omissions, or ambiguities in the plan and specifications. If these occur, the Department will issue an addendum to the plans and specifications to address corrections or clarifications to be included in the competitive bidding process. If a design-build approach is used, this milestone will be a Request for Proposal step with a more detailed proposal document but a lower level of design work complete. An RFP approach that is not on a strict low-bid approach will require a more detailed evaluation and contract negotiation process as well.

Skills: A multitudes of teams with varying skills will have to work together to meet this milestone, especially right before and during the bid phase. Project

development and implementation teams with varying technical expertise play a key coordination role in this phase to keep communication lines open internally and to respond to all clarifications and corrections that are requested/identified. As identified above, a design-build process brings in the need for an additional set of skills in proposal preparation, contract evaluation and negotiations. Project management and project tracking skills are both essential to delivering a high quality contact packet on a timely basis and with budget.

In some organizations, the Ad Date is also a transition time when the design teams handoff the project to the construction teams. The Ad Date is perceived as a major milestone and is celebrated as the point of accomplishment by all involved. Therefore, strong leadership skills are necessary to keep the teams focused on the tasks that demand detail attention and prompt and clear responses. Also, strong communication skills are essential to managing the required internal and external coordination.

Milestone 6. Bid Opening

This is the date when the competitive bids for a traditional design-bid-build project are received and publicly read. Typically advertisement periods range from 6 to 8 weeks, depending on the size and complexity of the project. If addenda are necessary for the contract late in the advertisement phase, the bid opening may be delayed in order to give potential bidders adequate time to incorporate the changes into their bid. If this is a design-build contract not procured on a low bid basis, this will be a proposal receipt date followed by an evaluation and negotiation process.

Skills: Strong organization and communication skills are essential to managing the required internal and external coordination during this phase which required a strict adherence to various rule of procurement. Analytical skills are important for evaluating the data provided and making the contractor selection based on a predetermined set of criteria which were communicated to the potential bidders. If the Design-Build implementation strategy is utilized under the best-value authority, negotiation skills will play a strong part in securing the contractor that provides the best long-term solution for the project.

Milestone 7. Award

This is the date when the contract is awarded to the lowest responsible bidder. The Department typically can award the contract within a week of the bid opening, but has up to 45 days for review before awarding the contract. Once the contract is awarded, the contractor has an additional 20 days to obtain insurance, bonds, and return the signed contract. For a design-build RFP, after evaluation there would typically be a notice of intent to award followed by a contract negotiation phase.

Skills: The skills required for this milestone include procurement, legal, risk assessment and contract management. If Design-build procurement methodology is selected to deliver a project, then design reviews and proposal

evaluation skills become essential. Either way, project scheduling and contract review skills are recommended to assess the adequacy of the insurance and bonds based on the contractors proposed implementation schedule.

Milestone 8. Execution
This is the date when the Department signs the actual contract with the contractor. This typically occurs within 21 days following contract award. If it is a design-build RFP process this would typically be completion of contract negotiations and approval of the contract document.

Skills: The skills required to achieve this milestone varies greatly depending on the type and size of the project. If Design-build procurement methodology is selected to deliver a project, then contract negotiation skills become essential. Public information skills may be required for sensitive projects during the execution phase, preparing the necessary documentation to support the decision making process.

Milestone 9. Construction Start
This is the date when work actually starts on building the project and activity might be seen on the site. Each contract specifies the number of working days the contractor has to complete the work. The working day clock starts on the tenth calendar day after execution by the Department. Work beginning on the site will depend on the weather and the nature of the work that needs to be performed. For a design-build contract there are normally requirements for guaranteed completion dates and failure to meet those dates will results in liquidated damages.

Skills: This should be an automatic milestone after the Execution step, unless project implementation risk factor such as ROW and various permits are still outstanding. The ten days could be used as effective transition between the design and construction teams where project coordination, documentation management, project control and reporting skills are essential.

Milestone 10. Operationally Complete
This is the date when the intended end user (the public in the case of facilities such as highways, WSDOT employees in the case of facilities) has free and unobstructed use of the facility. In some cases, the facility will be open, but minor work items may remain to be completed. Between Construction Start and being Operationally Complete the construction management, oversight and inspection activities must be completed by WSDOT personnel. Under a design-build contract the oversight responsibilities will include design review and approval as well as contract management and oversight that may be outstanding obligations for WSDOT that must still be carried out such as completion of ROW purchases.

Skills: The skills to achieve this milestone may depend on the visibility and sensitivity of the project. The fundamental skill necessary for this phase is construction management, project oversight as well as project control and

reporting. However, public information and community outreach activities may require the use of special skill sets. Negotiation, communication, and team building skills have been identified as keys to successful implementation of construction projects. Communication and negotiations as well as documentation and reporting skills are essential for change order management which is an area of concern for parties involved in large construction activities due to its impact on schedule and overall project delivery costs.

Milestone 11. Final Contract Completion
This is the date when the contract is finalized. All contractual work will have been completed and all payments to contractors will have been completed.

Skills: The skills to achieve this milestone may depend on the visibility and sensitivity of the project. The fundamental skill necessary for this phase is construction management, project oversight as well as detail understanding of contract close-out procedures. Negotiation, communication, documentation and scheduling skills necessary for successful settlement of outstanding claims.

2.2.3.2 *Project Delivery Skills Summary*

Different groups within WSDOT may be responsible for taking a project to different milestones, depending on project size, region and resources available. For example, an Engineer 3 in the Eastern Region may be responsible for planning, designing, and even oversight of construction activities for a mid-size project, whereas, an Engineer 3 in the Urban Corridors office may work along with several other engineers on the planning, or design, or construction of a single large project. Therefore, there is not a consistent set of management competencies or skills that are required or acquired at each engineering level across the state. In some areas, engineers move to different positions frequently and in others they do not shift their responsibilities for a long time. The fact remains that for those who seek job security in a challenging environment, with flexibility and good benefits, WSDOT provides many attractive opportunities.

A number of technical core competencies are essential to the WSDOT's overall success. These areas emphasize both the WSDOT management principles and the key elements of project milestones and are as follows:

- Program management
- Planning
- Traffic analysis and management
- Highway design
- Environmental documentation and preservation
- Bridge Design
- Real estate acquisition
- Construction management
- Computer programming and network management

Exhibit 1 demonstrates an approximate distribution of the engineering staff across these areas based on the WSDOT Roster information on various organizational units. This information is approximate at best, and represents a desired data categorization which is a recommended capability for any future information gathering and reporting system that WSDOT is considering.

Exhibit 1
Approximate Distribution of the Engineering Staff Based on the WSDOT Roster Information

	TRANSP ENG 1	TRANSP ENG 2	TRANSP ENG 3	TRANSP ENG 4	TRANSP ENG 5	TRANSP TECH 1	TRANSP TECH 2	TRANSP TECH 3	WMS BAND 1	WMS BAND 2	WMS BAND 3	WMS BAND 4	Total
BRIDGE	3	11	8			5	3	4	1	4	7	13	59
COMPUTER		3	6	4			1			20	13		47
CONSTRUCTION	33	227	117	33	1	12	80	108		26	32	16	685
DESIGN	16	62	42	25	6	2	24	17		11	22	27	254
HYDRAULIC/ENVIRON	1	11	9	9			2	2		10	10	5	59
NON-CIVIL ENG		2									1		3
MAINTENANCE/ OPERATIONS			6	3		1	1	2	2	31	14	9	69
PLANNING		19	20	3			4	2		9	9	7	73
PROGRAM MGMT	2	16	28	22	2		5		2	12	39	17	145
PROJ ENG/ AREA SUPPORT	18	200	92	9		7	68	67		29	27	3	520
RIGHT OF WAY/ REAL ESTATE		8	10	6			2	7	4	17	3	2	59
SURVEY		3	1	2		1	3	3			1		14
TRAFFIC	7	55	61	16	3	2	10	11	1	14	22	3	205
UTILITIES		19	12	1				5		1	1		39
WashDOT Total	**80**	**636**	**412**	**133**	**12**	**30**	**203**	**228**	**10**	**184**	**201**	**102**	**2231**

Besides these technical skills, other skills that could be acquired in other arenas and transferred successfully into Highway Capital program delivery include:

- Communication
- Negotiation
- Contract management
- Scheduling
- Resource management/delegation
- Public information management
- Risk assessment
- Legal services management

- Data gathering and analysis
- Project status reporting
- Project budgeting and financing
- Staff assessment, evaluation, and development
- Team building
- Familiarity with WSDOT policies, procedures, and internal and external resources (institutional knowledge)

The last skill dealing with knowledge of WSDOT is key to the productivity and efficiency of the program delivery staff and can only be gained from WSDOT experience.

2.3 Summary of Workforce Assessment Focus and Process

2.3.1 Overview of Program Delivery Workforce

The Highway Construction Program utilizes approximately 2,443 FTE's statewide, with 884 FTE's in the Northwest Region/Urban Corridors, 89 in the North Central Region, 430 in the Olympic Region, 176 FTE's in the Southwest Region, 185 in the South Central Region, 174 in the Eastern Region, and the remaining 505 FTE's at the headquarters office in Olympia.

The approximately 2,400 engineering staff currently employed by WSDOT work in various regions, at different levels of responsibilities (see **Exhibit 2**). According to the budgeted FTE information provided for the Program Delivery staff, (2,443 FTE's in total) Transportation Engineers and, Transportation Technicians and Bridge Engineers combined make up over 66% of the Department's engineering resources. Other significant categories include Management personnel (WMS) at 12.5%, ROW at 8%, Planning at 6% and Administrative and Support personnel are approximately 7% (see **Summary Table 1**).

The areas of significant challenge for recruitment are engineers of all levels, ROW personnel, and experienced Project Management staff. New skills will be needed in management of large consultants programs such as General Engineering Consultants and expanded project controls roles. WSDOT needs to retain existing staff and recruit more than 450 additional employees to support its implementation of the aggressive capital program. WSDOT must do all this while it simultaneously develops future leaders for the organization to ensure its long-term viability and effectiveness in serving the State of Washington taxpayers and various communities. The demands and challenges on WSDOT are significant.

Exhibit 2
Total of Engineers by Class

	TRANSP ENG 1	TRANSP ENG 2	TRANSP ENG 3	TRANSP ENG 4	TRANSP ENG 5	TRANSP TECH 1	TRANSP TECH 2	TRANSP TECH 3	WMS BAND 1	WMS BAND 2	WMS BAND 3	WMS BAND 4	Total
REGION 58	6	35	20	4		1	10	10	1	11	14	12	124
REGION 46	7	52	28	7		4	12	33	3	20	9	3	178
REGION 45	12	54	27	3			23	19	4	22	11	4	179
REGION 44	12	61	38	8		4	13	18	4	16	13	4	191
REGION 43	11	137	87	12		7	37	40	5	41	25	10	412
REGION 42	8	20	20	4			7	15	4	12	10	2	102
REGION 41	21	233	162	13	1	9	76	75	7	54	47	18	716
Regional Sub-Total	***77***	***592***	***382***	***51***	***1***	***25***	***178***	***210***	***28***	***176***	***129***	***53***	***1902***
HQ (<41)	*3*	*44*	*30*	*81*	*11*	*5*	*25*	*18*	*24*	*78*	*91*	*69*	479
OTHER (>58)				1					5	2	4	6	18
WashDOT Total	**80**	**636**	**412**	**133**	**12**	**30**	**203**	**228**	**57**	**256**	**224**	**128**	**2399**

Summary Table 1
Project Delivery Staff Summary by Job Class

	Number	% of Staff
Transportation Eng 1	82	3.4%
Transportation Eng 2	530	21.7%
Transportation Eng 3	336	13.8%
Transportation Eng 4-5	105	4.3%
Transportation Tech 2	191	7.8%
Transportation Tech 3-5	240	9.8%
Bridge Engineers	93	3.8%
WMS 1-2	158	6.5%
WMS 3-4	146	6.0%
Transportation Planning	144	5.9%
ROW Agents	111	4.5%
Administrative/Support	176	7.2%
Other	131	5.4%
Total	2,443	

2.3.1.1 *Hiring/Separations/Terminations*

According to a recent tracking by WSDOT, the total number of engineers employed at the Department has decreased every month either due to retirement or separation/termination (see **Exhibit 3**). This statistic is a significant indicator of the challenges WSDOT is faced with in retaining existing staff let alone recruiting additional employees to implement this large capital program. Please see table below.

Exhibit 3
New Hire versus Termination by Month

	Jul-05			Aug-05			Sep-05			Oct-05		
	Perm.	Temp.	Seas.	Perm.	Temp.	Seas.	Perm.	Temp.	Seas.	Perm.	Temp.	Seas.
Hired												
Engineers	18	16	0	7	7	0	4	15	0	6	5	1
Other	9	20	0	10	21	0	8	17	0	12	22	21
Total	27	36	0	17	28	0	12	32	0	18	27	22
Terminated												
Engineers	20	12	1	15	28	0	13	37	0	12	22	0
Other	23	10	1	16	12	1	22	50	1	31	22	0
Total	43	22	2	31	40	1	35	87	1	43	44	0
Net Change	-16	14	-2	-14	-12	-1	-23	-55	-1	-25	-17	22

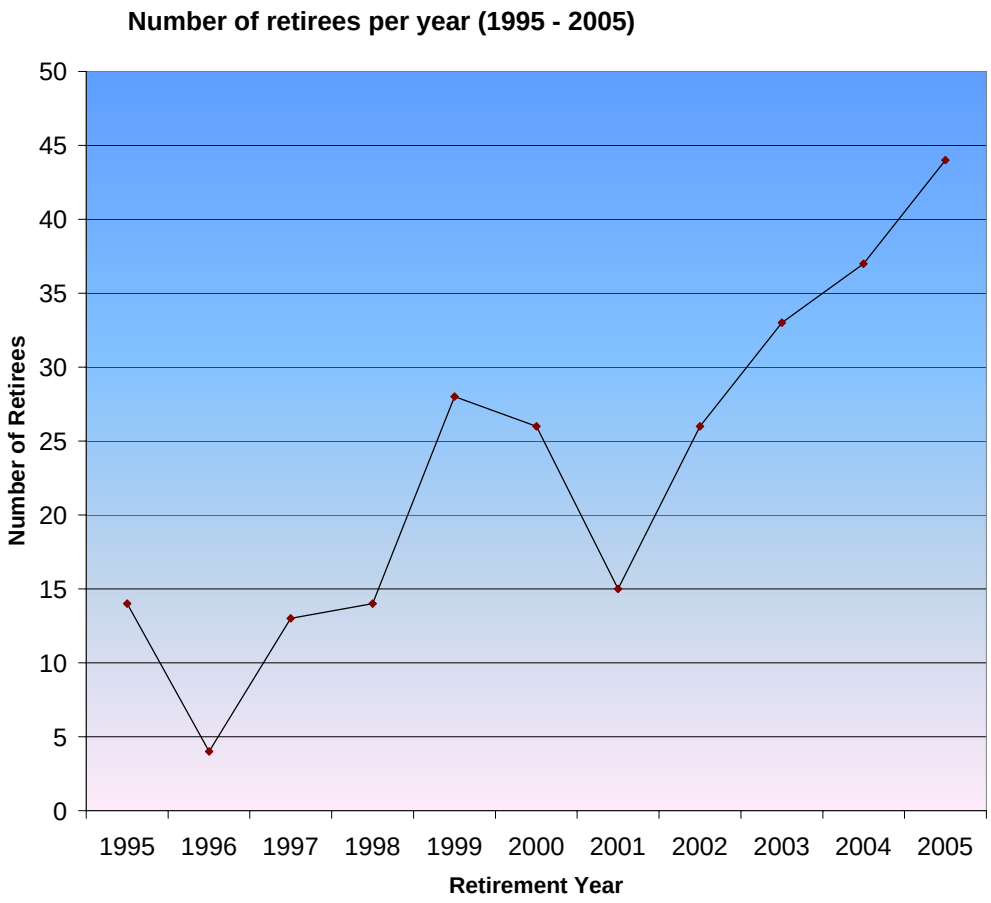
	Nov-05			Biennium to Date		
	Perm.	Temp.	Seas.	Perm.	Temp.	Seas.
Hired						
Engineers	6	2	0	41	45	1
Other	13	121	10	52	201	31
Total	19	123	10	93	246	32
Terminated						
Engineers	16	10	0	76	109	1
Other	17	19	4	109	113	7
Total	33	29	4	185	222	8
Net Change	-14	94	6	-92	24	24

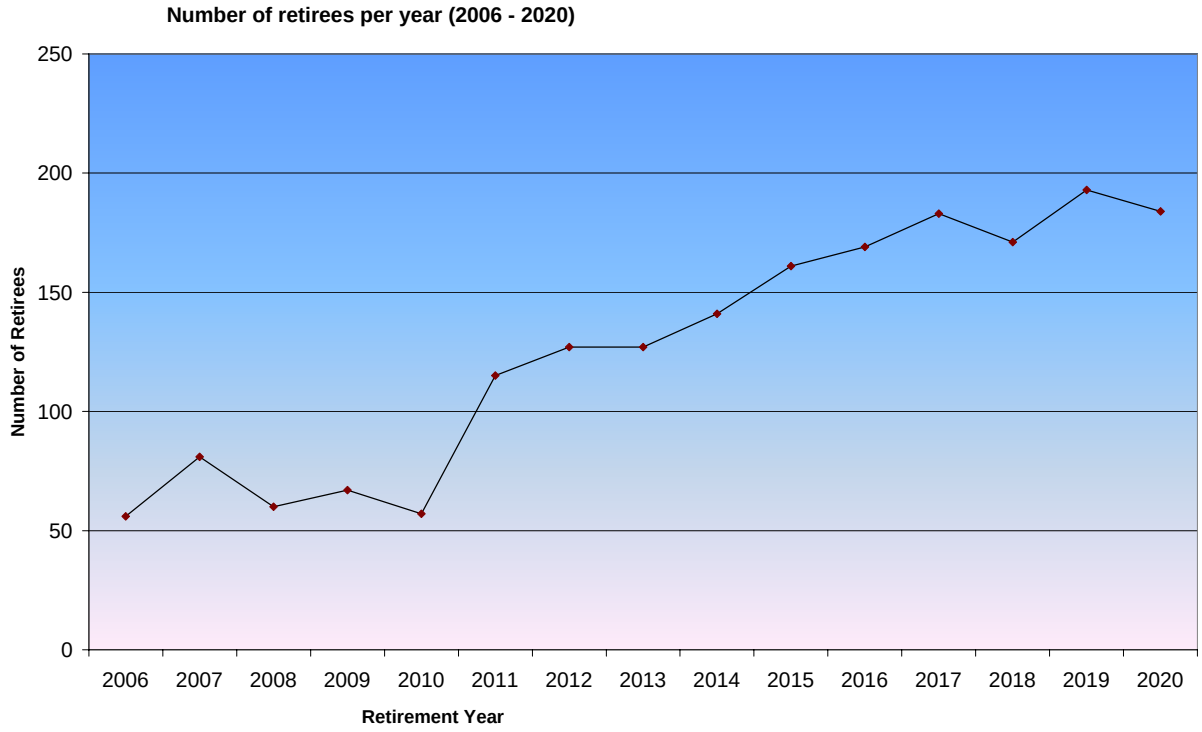
2.4 AVAILABILITY OF SKILLED RESOURCES

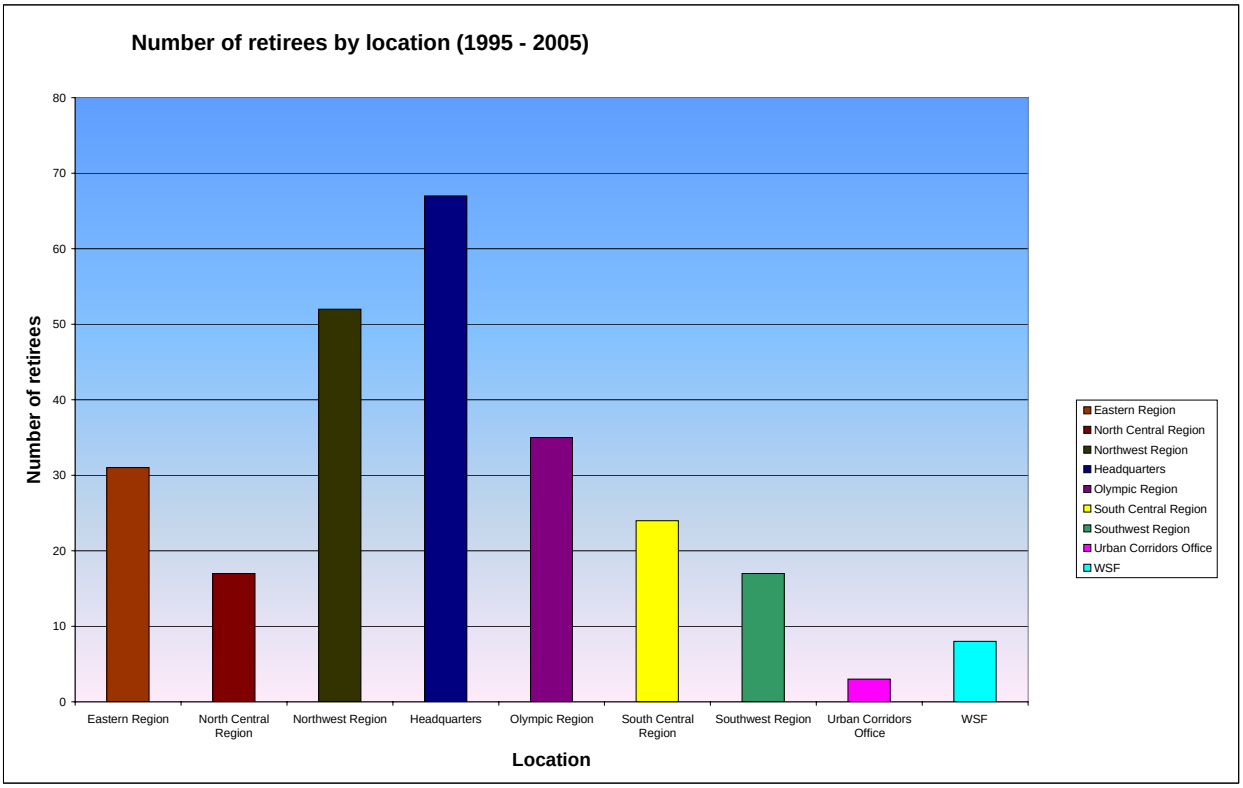
In order for WSDOT to meet its goal to deliver its aggressive capital/construction program, the issues that could hamper meeting its strategic goals must be assessed. With the available funding in place, one of the key issues that could affect the Department's ability to meet its strategic goals and objectives is the status of the workforce needed to deliver the anticipated capital program. By focusing on assuring the availability of needed skilled staffing resources, WSDOT can take important steps to avoid the untenable situation in which it would have the financial resources for the program, but does not have all of the tools necessary to deliver it. WSDOT has identified that it will need to recruit over 450 additional program delivery staff at various levels in order to deliver this capital program. This challenge is particularly daunting at a time when WSDOT knows that a large number of

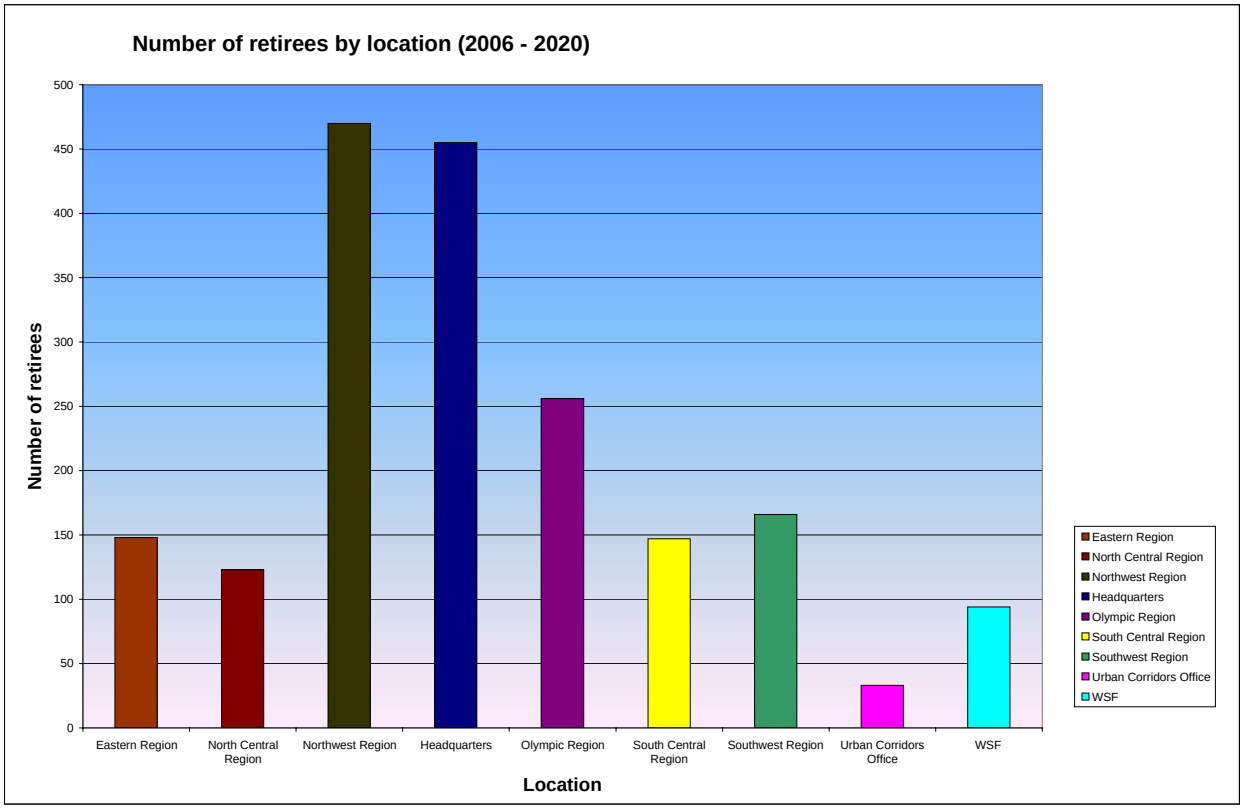
the existing employees will become eligible for retirement in the next ten years and the supply of engineers is dwindling.

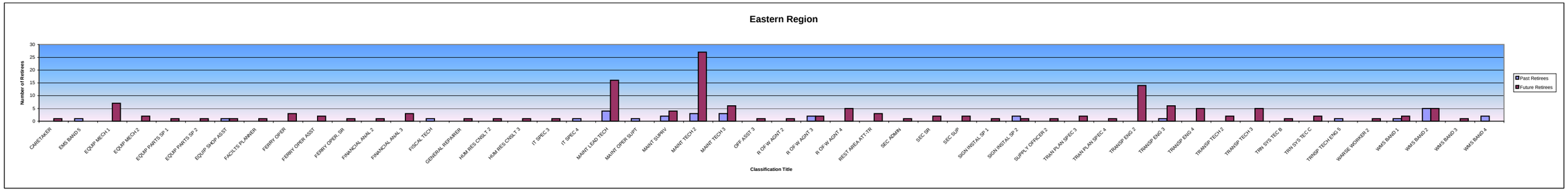
The WSDOT challenge to recruit and retain Program Delivery staff is exacerbated by the fact that WSDOT personnel are expected to retire in droves in the next 10 to 15 years as evidenced by the retirement projections shown in **Exhibit 4**.

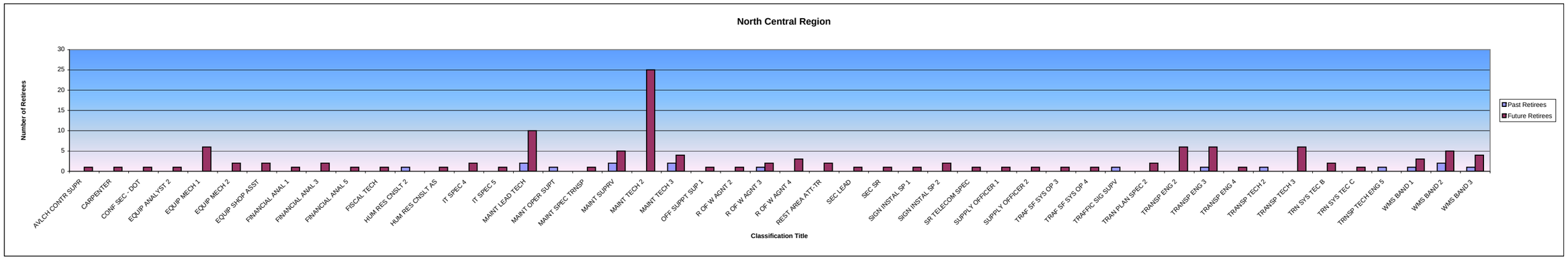

Number of retirees per year (1995 - 2005)
Number of Retirees
0
5
10
15
20
25
30
35
40
45
50
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Retirement Year

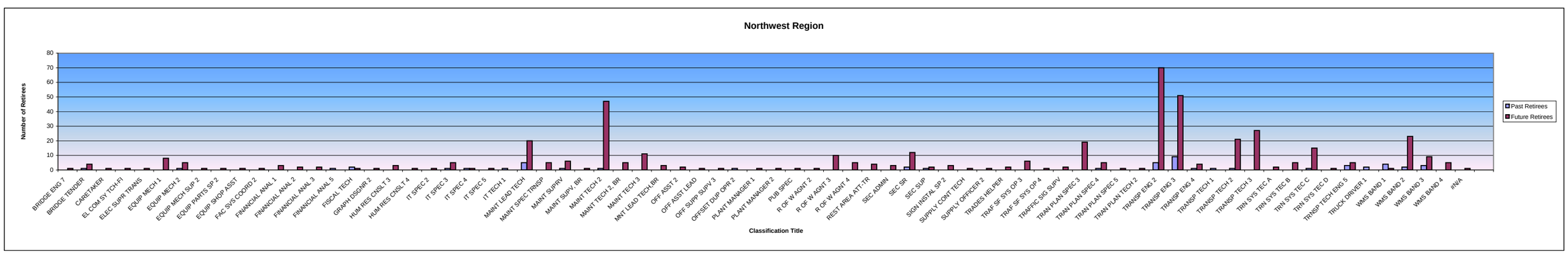

Number of retirees per year (2006 - 2020)
Number of Retirees
0
50
100
150
200
250
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Retirement Year

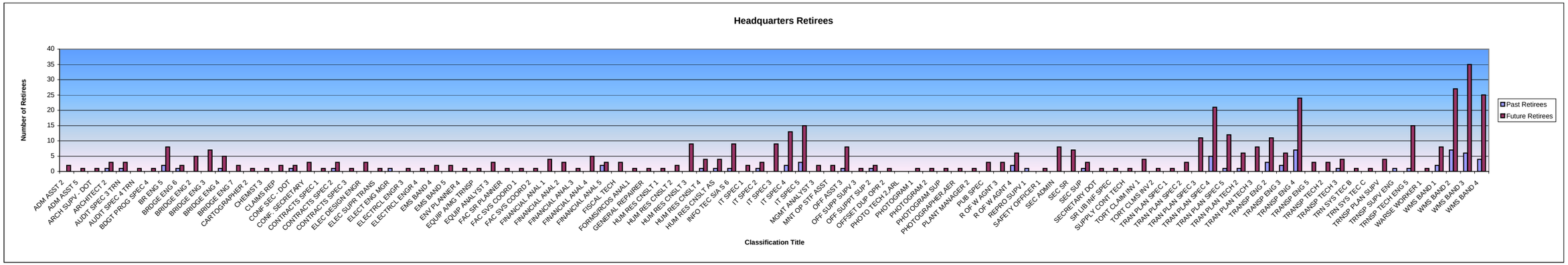

Number of retirees by location (1995 - 2005)
Number of retirees
0
10
20
30
40
50
60
70
80
Eastern Region
North Central Region
Northwest Region
Headquarters
Olympic Region
South Central Region
Southwest Region
Urban Corridors Office
WSF
Location
Eastern Region
North Central Region
Northwest Region
Headquarters
Olympic Region
South Central Region
Southwest Region
Urban Corridors Office
WSF

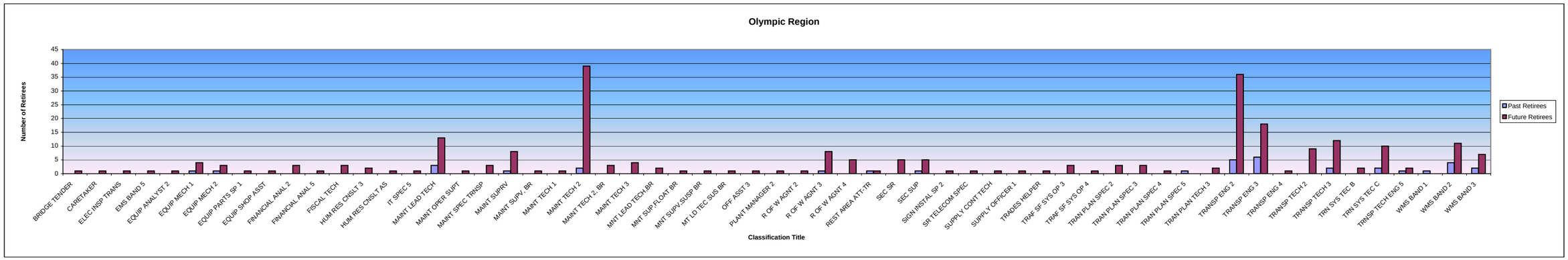

Number of retirees by location (2006 - 2020)
Number of retirees
0
50
100
150
200
250
300
350
400
450
500
Eastern Region
North Central Region
Northwest Region
Headquarters
Olympic Region
South Central Region
Southwest Region
Urban Corridors Office
WSF
Location
Eastern Region
North Central Region
Northwest Region
Headquarters
Olympic Region
South Central Region
Southwest Region
Urban Corridors Office
WSF

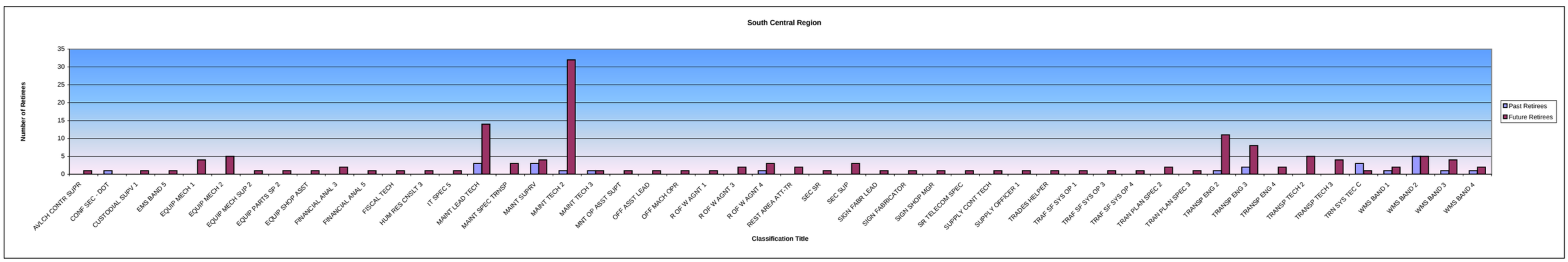

Eastern Region
Number of Retirees
30
25
20
15
10
5
0
CARETAKER
EMB BAND 5
EQUIP MECH 1
EQUIP MECH 2
EQUIP PARTS SP 1
EQUIP PARTS SP 2
EQUIP SHOP ASST
FACILTS PLANNER
FERRY OPER
FERRY OPER ASST
FERRY OPER. SR
FINANCIAL ANAL 2
FINANCIAL ANAL 3
FISCAL TECH
GENERAL REPAIRER
HUM RES CNSLT 2
HUM RES CNSLT 3
IT SPEC 3
IT SPEC 4
MAINT LEAD TECH
MAINT OPER SUPT
MAINT SUPRV
MAINT TECH 2
MAINT TECH 3
OFF ASST 3
R OF W AGNT 2
R OF W AGNT 3
R OF W AGNT 4
REST AREA ATT-TR
SEC ADMIN
SEC SR
SEC SUP
SIGN INSTAL SP 1
SIGN INSTAL SP 2
SUPPLY OFFICER 2
TRAN PLAN SPEC 3
TRAN PLAN SPEC 4
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRANSP TECH 2
TRANSP TECH 3
TRN SYS TEC B
TRN SYS TEC C
TRNSP TECH ENG 5
WARSE WORKER 2
WMS BAND 1
WMS BAND 2
WMS BAND 3
WMS BAND 4
Past Retirees
Future Retirees
Classification Title

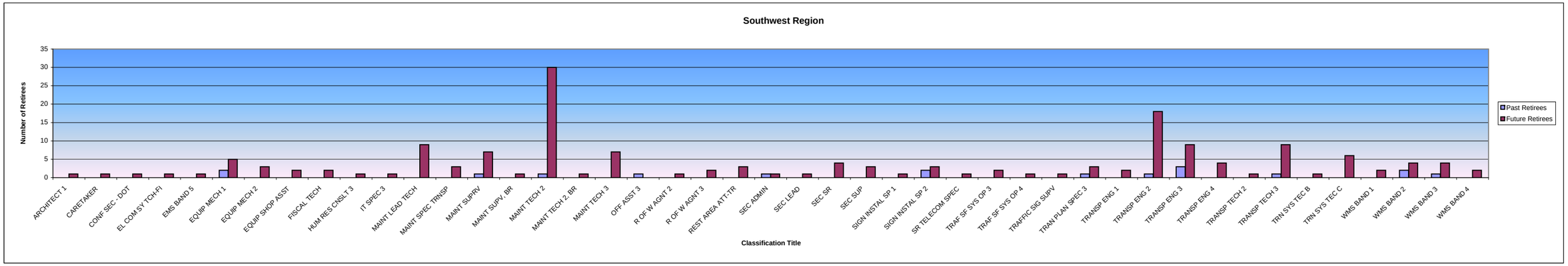

North Central Region
Number of Retirees
30
25
20
15
10
5
0
AVLCH CONTR SUPR
CARPENTER
CONF SEC - DOT
EQUIP ANALYST 2
EQUIP MECH 1
EQUIP MECH 2
EQUIP SHOP ASST
FINANCIAL ANAL 1
FINANCIAL ANAL 3
FINANCIAL ANAL 5
FISCAL TECH
HUM RES CNSLT 2
HUM RES CNSLT AS
IT SPEC 4
IT SPEC 5
MAINT LEAD TECH
MAINT OPER SUPT
MAINT SPEC TRNSP
MAINT SUPRV
MAINT TECH 2
MAINT TECH 3
OFF SUPPT SUP 1
R OF W AGNT 2
R OF W AGNT 3
R OF W AGNT 4
REST AREA ATT-TR
SEC LEAD
SEC SR
SIGN INSTAL SP 1
SIGN INSTAL SP 2
SR TELECOM SPEC
SUPPLY OFFICER 1
SUPPLY OFFICER 2
TRAF SF SYS OP 3
TRAF SF SYS OP 4
TRAFFIC SIG SUPV
TRAN PLAN SPEC 2
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRANSP TECH 2
TRANSP TECH 3
TRN SYS TEC B
TRN SYS TEC C
TRNSP TECH ENG 5
WMS BAND 1
WMS BAND 2
WMS BAND 3
Past Retirees
Future Retirees
Classification Title

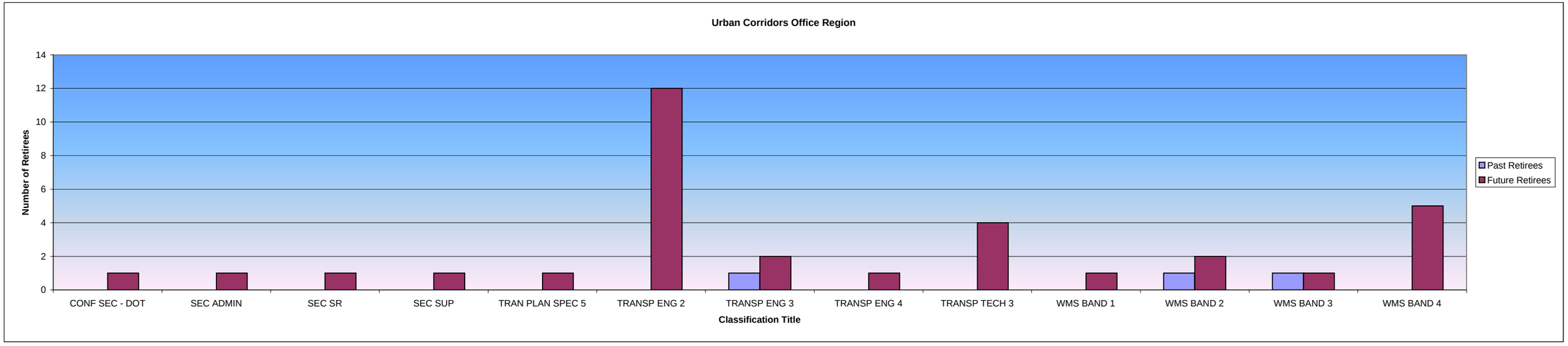

Northwest Region
Number of Retirees
80
70
60
50
40
30
20
10
0
BRIDGE ENG 7
BRIDGE TENDER
CARETAKER
EL COM SY TCH-FI
ELEC SUPR TRANS
EQUIP MECH 1
EQUIP MECH 2
EQUIP MECH SUP 2
EQUIP PARTS SP 2
EQUIP SHOP ASST
FAC SYS COORD 2
FINANCIAL ANAL 1
FINANCIAL ANAL 2
FINANCIAL ANAL 3
FINANCIAL ANAL 5
FISCAL TECH
GRAPH DSGNR 2
HUM RES CNSLT 3
HUM RES CNSLT 4
IT SPEC 2
IT SPEC 3
IT SPEC 4
IT SPEC 5
IT TECH 1
MAINT LEAD TECH
MAINT SPEC TRNSP
MAINT SUPRV
MAINT SUPV. BR
MAINT TECH 2
MAINT TECH 2, BR
MAINT TECH 3
MNT LEAD TECH BR
OFF ASST 2
OFF ASST LEAD
OFF SUPP SUPV 3
OFFSET DUP OPR 2
PLANT MANAGER 1
PLANT MANAGER 2
PUB SPEC
R OF W AGNT 2
R OF W AGNT 3
R OF W AGNT 4
REST AREA ATT-TR
SEC ADMIN
SEC SR
SEC SUP
SIGN INSTAL SP 2
SUPPLY CONT TECH
SUPPLY OFFICER 2
TRADES HELPER
TRAF SF SYS OP 3
TRAF SF SYS OP 4
TRAFFIC SIG SUPV
TRAN PLAN SPEC 3
TRAN PLAN SPEC 4
TRAN PLAN SPEC 5
TRAN PLAN TECH 2
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRANSP TECH 1
TRANSP TECH 2
TRANSP TECH 3
TRN SYS TEC A
TRN SYS TEC B
TRN SYS TEC C
TRN SYS TEC D
TRNSP TECH ENG 5
TRUCK DRIVER 1
WMS BAND 1
WMS BAND 2
WMS BAND 3
WMS BAND 4
#N/A
Past Retirees
Future Retirees
Classification Title

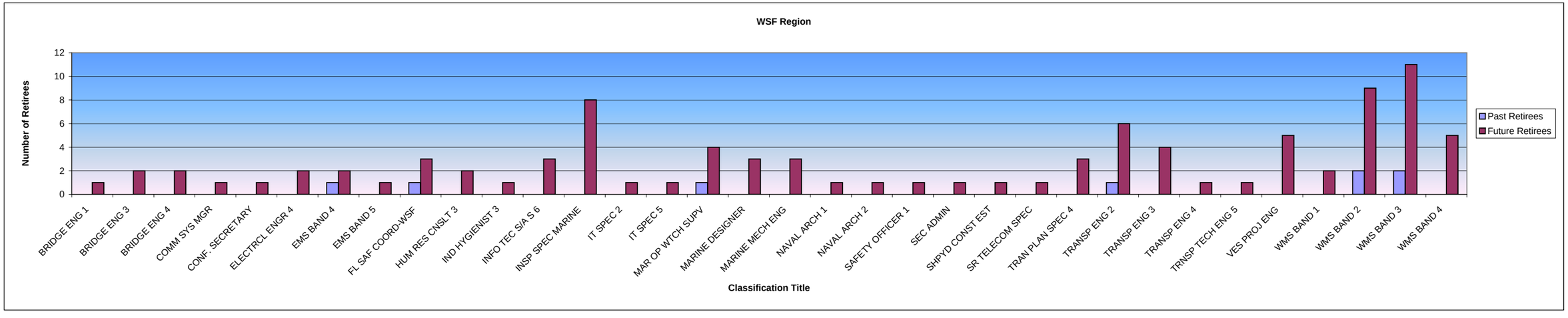

Headquarters Retirees
Number of Retirees
Classification Title
Past Retirees
Future Retirees


Olympic Region
Number of Retirees
Classification Title
Past Retirees
Future Retirees


South Central Region
Number of Retirees
Classification Title
Past Retirees
Future Retirees


Southwest Region
Number of Retirees
35
30
25
20
15
10
5
0
ARCHITECT 1
CARETAKER
CONF SEC - DOT
EL COM SY TCH-FI
EMS BAND 5
EQUIP MECH 1
EQUIP MECH 2
EQUIP SHOP ASST
FISCAL TECH
HUM RES CNSL T 3
IT SPEC 3
MAINT LEAD TECH
MAINT SPEC TRNSP
MAINT SUPRV
MAINT SUPV, BR
MAINT TECH 2
MAINT TECH 2, BR
MAINT TECH 3
OFF ASST 3
R OF W AGNT 2
R OF W AGNT 3
REST AREA ATT-TR
SEC ADMIN
SEC LEAD
SEC SR
SEC SUP
SIGN INSTAL SP 1
SIGN INSTAL SP 2
SR TELECOM SPEC
TRAF SF SYS OP 3
TRAF SF SYS OP 4
TRAFFIC SIG SUPV
TRAN PLAN SPEC 3
TRANSP ENG 1
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRANSP TECH 2
TRANSP TECH 3
TRN SYS TEC B
TRN SYS TEC C
WMS BAND 1
WMS BAND 2
WMS BAND 3
WMS BAND 4
Classification Title
Past Retirees
Future Retirees


Urban Corridors Office Region
Number of Retirees
14
12
10
8
6
4
2
0
CONF SEC - DOT
SEC ADMIN
SEC SR
SEC SUP
TRAN PLAN SPEC 5
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRANSP TECH 3
WMS BAND 1
WMS BAND 2
WMS BAND 3
WMS BAND 4
Classification Title
Past Retirees
Future Retirees


WSF Region
Number of Retirees
12
10
8
6
4
2
0
BRIDGE ENG 1
BRIDGE ENG 3
BRIDGE ENG 4
COMM SYS MGR
CONF. SECRETARY
ELECTRCL ENGR 4
EMS BAND 4
EMS BAND 5
FL SAF COORD-WSF
HUM RES CNSLT 3
IND HYGIENIST 3
INFO TEC S/A S 6
INSP SPEC MARINE
IT SPEC 2
IT SPEC 5
MAR OP WTCH SUPV
MARINE DESIGNER
MARINE MECH ENG
NAVAL ARCH 1
NAVAL ARCH 2
SAFETY OFFICER 1
SEC ADMIN
SHPYD CONST EST
SR TELECOM SPEC
TRAN PLAN SPEC 4
TRANSP ENG 2
TRANSP ENG 3
TRANSP ENG 4
TRNSP TECH ENG 5
VES PROJ ENG
WMS BAND 1
WMS BAND 2
WMS BAND 3
WMS BAND 4
Classification Title
Past Retirees
Future Retirees

2.4.1 Retirement Risks

When analyzing risks in the workforce the issue of retirements becomes a major concern. WSDOT currently has three separate retirement programs under Public Employees Retirement System (PERS) which are identified as PERS 1, PERS 2 and PERS 3. The eligibility for each of these programs varies and is briefly described below:

PERS 1:

One is eligible to retire from active service (still working) at:

- Any age with 30 or more years of service credit, or
- Age 55 with 25 or more years of service credit, or
- Age 60 with five or more years of service credit.

One is eligible to retire from inactive status (not working) at:

- Age 65 with five or more years of service credit, or
- Age 60 with five or more years of service credit with an actuarially reduced benefit, or
- Age 60 or older, if one is separated from service on or after January 1, 2002, with a minimum age of 50 at separation, and has at least 20 years of service credit at that time.

PERS 2:

One is eligible to retire if one is:

- Age 65 or older and have at least five service credit years, or
- At least age 55 and have at least 20 service credit years. If one retires before age 65, benefits will be reduced.

PERS 3:

One is eligible to begin drawing unreduced defined benefit if one is at least age 65 and has:

- at least 10 service credit years; or
- five service credit years, including 12 service credit months that were earned after age 54; or
- five service credit years that were earned under Plan 2 and transferred to PERS Plan 3 before June 1, 2003.

One may retire with a reduced benefit if one is at least age 55 and has:

- at least 10 years of service credit (benefits will be "actuarially reduced"); or
- 30 or more service credit years (benefits will be reduced by 3 percent per year for each year before age 65).

Based on the data received from the WSDOT human resources department, as of January 31, 2006, 639 of the total WSDOT staff is currently eligible for retirement. Please see breakdown in **Summary Table 3**:

Summary Table 2
Retirement Eligibility by Region

Retirement Program	HQ	NW (41)	NC (42)	Olympic (43)	SW (44)	SC (45)	Eastern (46)	UCO (58)	Other (63)	Total by Retirement Program
PERS 1	94	67	14	36	17	24	33	5	2	**292**
PERS 2	74	60	22	36	31	26	27	5	2	**283**
PERS 3	17	8	7	4	3	13	10	2		**64**
Total no. of staff eligible for retirement	**185**	**135**	**43**	**76**	**51**	**63**	**70**	**12**	**4**	**639**

There are 292 active employees under the PERS 1 program that are eligible for full retirement. Out of the 283 active employees eligible for retirement under PERS 2, 39 are currently eligible for full retirement. There are an additional 64 employees eligible for retirement under PERS 3, but only one employee is eligible for full retirement currently. Please see Appendix L for a detail breakdown of the employees eligible for retirement under each of the PERS programs.

Further analysis of the data received from the WSDOT human resources department, reveals more specific information about the retirement risks for those within several key job classifications. 66 (10%) of the 636 Transportation Engineer 2's, 54 (13%) of the 412 Transportation Engineer 3's, and 21 (16%) of the 133 Transportation Engineer 4's at WSDOT are currently eligible to retire. Also worth noting is that 47 (18%) of the 256 WMS Band 2, and 35 (16%) of the 224 WMS Band 3 classifications are eligible for some

form of retirement. Please see the breakdown in **Summary Table 3** for retirement eligibility in various job classifications.

Other job classifications of interest and the corresponding retirement eligibility rates include the Property Acquisition Specialists who are responsible for securing and certifying the Right-of-way for various capital projects. A total of 16 of these specialists department wide are eligible to retire with 5 currently qualifying for full retirement benefits.

Also worth noting is the various maintenance team members of which a total of 120 are eligible for retirement. 30 transportation planners may also retire in various classes.

As the data clearly indicates, retiring staff will most likely pose a major risk to WSDOT's ability to implement its capital program. However, the retirement data received was not specific to the Program Delivery group, and includes all of WSDOT. Furthermore, the data for EMS and WMS bands does not carry appropriate attributes to identify engineering, planning, property acquisition, or any other areas of expertise. Such attributes as area of expertise would allow the use of common management titles while clearly associating functions to each individual EMS or WMS band employee. This would in turn allow WSDOT to evaluate any management classification and the corresponding area of expertise, such as engineering or planning separately.

Despite the large number of employees that qualify for full retirement, WSDOT enjoys a long-term employee commitment in most areas. A detailed discussion of employee turn-over rates is presented in Chapter 4, the Current Situation.

Summary Table 3
Retirement Eligibility by Job Class

Job Class Title	Total number of eligible staff by Job Class
EMS Band 4	**1**
EMS Band 5	**5**
Fiscal Analyst 1	**2**
Fiscal Analyst 3	**4**
Fiscal Analyst 4	**1**
Fiscal Analyst 5	**7**
Fiscal Tech 2	**5**
Info Tech S/A S 6	**6**
IT Spec 2	**3**
IT Spec 3	**3**
IT Spec 4	**10**
IT Spec 5	**4**
Transportation Engineer 2	**66**
Transportation Engineer 3	**54**
Transportation Engineer 4	**21**
Transportation Engineer 5	**1**
Transportation Tech 1	**1**
Transportation Tech 2	**11**
Transportation Tech 3	**19**
Transportation Supv Eng	**1**
Transportation Tech Engineer 5	**18**
WMS Band 1	**9**
WMS Band 2	**3**
WMS Band 3	**3**
WMS Band 4	**11**

2.4.2 Middle Management

One of the areas of concern is the middle management. This group consists of WMS1 and 2, EMS1 and 2, Transportation Engineers 4 and 5, and the Transportation Supervising Engineers. **Summary Table 4** shows the distribution of middle managers relevant to other engineering resources (as provided by WSDOT Human Resources). The middle management resource is critically needed to manage the anticipated large capital program throughout the state for WSDOT at the same time as the Governor has mandated an overall reduction of 1,000 middle managers throughout all state agencies by June 2007. The targeted impact at WSDOT would be a reduction of approximately 130.

WSDOT has already eliminated 32 middle management positions toward its total reduction in force mandate, and intends to identify an additional 30 or so other middle management positions to be removed by June 30, 2006. All this development at a time when the organization is charged with delivering one of the largest capital improvement programs in transportation in the nation is of great concern.

Summary Table 4
Relative Experience Levels by Job Classification

Class Title	Total Yrs with DOT from Hire Date	Yrs Experience (rounded up)	Staff Count	Avg. # Yrs Exp with DOT	Avg. # Yrs Exp in Current Appt
PE and Asst PE	1,849.	518.	119	15.54	4.35
TRANSPORTATION TECH 2	1,164.	716.	171	6.81	4.19
TRANSPORTATION TECH 3	2,384.	1,279.	222	10.74	5.76
TRANSPORTATION ENG 1	131.	119.	82	1.60	1.45
TRANSPORTATION ENG 2	8,069.	3,891.	614	13.14	6.34
TRANSPORTATION ENG 3	6,978.	2,575.	405	17.23	6.36
TRANSPORTATION ENG 4	2,417.	808.	128	18.88	6.31
TRANSPORTATION ENG 5	207.	58.	12	17.25	4.83
TRNSPORTATION TECH ENG 5	1,266.	292.	63	20.10	4.63
TRNSP SUPV ENG	52.	16.	3	17.33	5.33

2.4.3 Unions at WSDOT

The International Federation of Professional and Technical Engineers Local 17 is the union representing all Transportation Technicians 1, 2 and 3 as well as all Transportation Engineers 1, 2 and 3. On July 2005, financial analysts, budget management, IT, and other administrative staff have joined the

Federation/wall-to-wall union which traditionally represented the maintenance staff at WSDOT. The Federation members represent employees that could help WSDOT meet their resource challenge by restructuring and reassigning responsibilities, so that the engineers are focused on project delivery.

Both the Federation union and Local 17 will start their next round of negotiations with WSDOT as of April 2006.

2.5 ASSESSMENT APPROACH

To help WSDOT develop a program to recruit, retain and develop the resources it needs, we need to assess the hiring, training, compensation, and staff development practices of WSDOT. The first step was to study and understand the existing conditions.

To accomplish this task, SPMG, in conjunction with WSDOT, proposed to conduct the following activities:

- Data Collection and Review
- Interviews
- Evaluation of Employment Trends
- Reconciliation of Workforce levels with Workload
- Comparison of WSDOT with other DOT's
- Assessment of outsourcing opportunities

2.5.1 Data Collection and Review

WSDOT faces the same challenges as many DOTs with multiple data application and processing systems that are unable to interface smoothly. A comprehensive list of data requests were submitted to WSDOT which have not been possible to obtain despite considerable efforts on the part of WSDOT personnel. Appendix J reflects the specific data requests and those materials received. Due to the challenges in receiving the needed data in readily usable formats, significant effort was spent to review and decipher data from existing reports and sorts.

It is important to note that WSDOT's staff made every effort to provide any information that was readily available, however, due to the systems and tracking limitations, the visibility into data that was needed for this analysis was greatly impaired. This fact reinforces the need for an information system that provides the Program Delivery staff and all management personnel in the Department the information they need to manage and prepare for the future.

In addition to the existing data requested, as further described in Section III, Interviews and Surveys were conducted of WSDOT Program Delivery Personnel.

2.5.2 Evaluation of Employment Trends

To better understand the situation at WSDOT, our team collected data from other DOT's in job classifications that pertain to engineering and information technology and other related key positions. Whenever possible, the hiring, training, and retention strategies for these DOT's were reviewed to develop a basis for comparison. Research was conducted for other resources such as AASHTO and Salary.com to compare statewide and local data with those forms WSDOT.

Specific DOT retirement data was not available; however, national research data was researched and used for gaining insight into retirement trends.

2.5.3 Reconciliation of workforce levels with workload at WSDOT

The focus of this analysis was, as directed, on the Project Delivery staff and the key tasks needed to successfully implement the upcoming capital program. The skills related to the key milestones for the project delivery team was identified, as well as the skills needed for the Project Support group at the headquarters. However, the lack of commonality between job class titles and responsibilities made it impossible to categorize roles and responsibilities and the corresponding required proficiencies.

3. TRENDS IN PUBLIC EMPLOYMENT

The ability of WSDOT to attract and maintain their highly skilled workforce cannot be fully understood and evaluated without clear knowledge of the current and future labor market for these employees. Employment trends and appropriate benchmarks were created utilizing data from other DOT's nationwide and from national and regional employment and demographic data. The following sections outline national and regional employment trends, emphasize their significance and draw relevant conclusions for WSDOT's workforce assessment.

An interim memo dated January 18, 2006 was prepared that provides additional analysis and details on employment trends and is attached as Appendix K.

3.1 WSDOT SPECIFIC IMPACTS

3.1.1 Washington Trends

Washington Wage and Employment Trends Based on the preliminary national and statewide data analysis, it is evident that since the fall of the "dot com" industry in 2000, higher paying jobs left the State and were replaced with more jobs in lower pay sectors. As shown in **Exhibit 5,** historically, the state had enjoyed a higher average employment (18.74% of national jobs), which reflects the higher average salaries compared to national (both private and public sector) and national state employees in key occupational categories. **Exhibit 6** shows the comparison of Washington vs. National wages.

Exhibit 5
Employment Trends in State of Washington Compared to the Nation

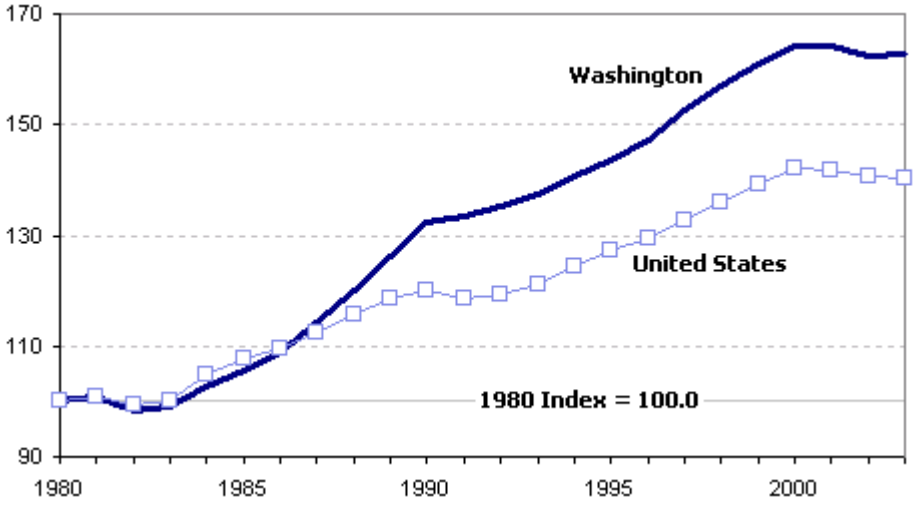
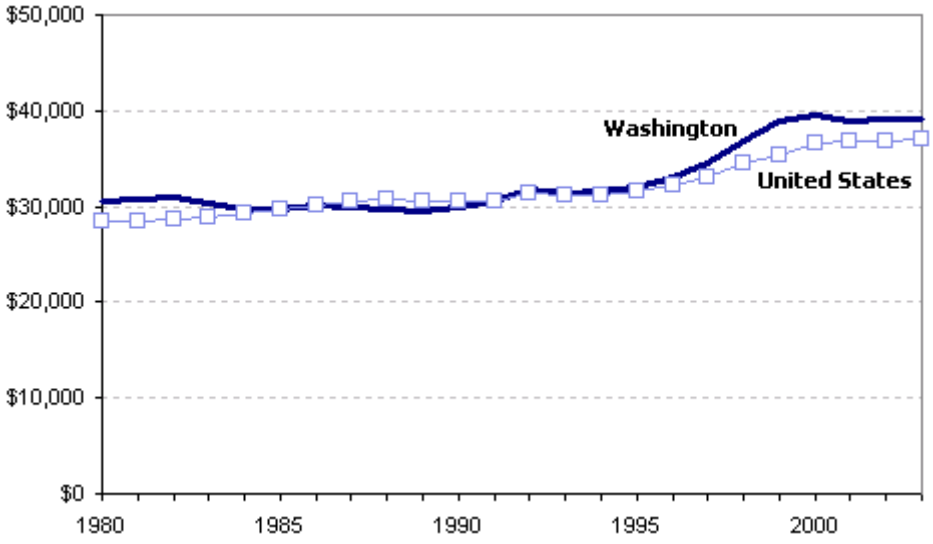


Exhibit 6
Average Wage trends in State of Washington compared to the nation



3.1.2 Technical Resource Pool

It is important to note that there has been a decline in the number of graduates in technical / engineering degrees during the past several decades making it more difficult to recruit and retain skilled civil engineers. Unfortunately, as fewer college students select technical degrees as their field of study, the need for civil engineers continues to grow due to the aging infrastructure, retiring civil engineers with over 30-years of experience, and exiting civil engineers that move into other fields.

3.1.3 Compensation Comparisons

While WSDOT's need to retain and recruit civil engineers is growing due to the significant expansion of its capital program, the WSDOT Retention and Recruitment study shows that the WSDOT civil engineers are paid less than their local government counterparts as well as private sector employers. WSDOT monthly salary for entry level engineers ranges from $3,059 to $3,916 where the average for all the local cities and counties ranges from $3,461 to $4,217 for the same employment category. The State Department of Personnel's 2000, 2002 and 2004 Salary Surveys list the Transportation Engineer classes lagging in salary by 25, 27.5 and 31.5 (after a Engineering Series catch-up of 2.5%) percent respectively. Providing more attractive compensation for relevant classifications is key to successful, effective and cost efficient program delivery.

It is imperative to understand the condition of the workforce at WSDOT as it will shed light on its ability to retain and recruit the skilled workers it needs to deliver the projects in its capital program.

American Society of State Highway and Transportation Organizations (AASHTO) prepared a 2004 salary survey where it compared the salary of each job classification across various states to the national average. **Summary Table 5** shows that employees in the state of Washington have continued to enjoy above average salaries with the exception of two categories; the State Highway Engineer and the Entry Level Civil Engineer. These are two of the categories that WSDOT is most interested in hiring into the Program Delivery organization. Also important to note is the category of Registered Professional Engineers. This category makes up a significant percentage of the WSDOT staff that are responsible for the development and implementation of large projects.

A major component of total compensation is health benefits. Health benefits in the State of Washington, similar to many other states, are costing both the employer and employees more than ever before. The corresponding retirement health benefits are likely a factor in the decision of when a WSDOT employee chooses to retire. The retirement health benefits data for WSDOT employees was not collected since this data is not available from WSDOT. The retirement benefits are calculated on an individual basis by the Department of Personnel upon each individual's retirement, therefore we were unable to compare that against the benefits offered by other employers in the State that may be attracting/recruiting employees who are eligible for WSDOT retirement but desire to remain in the workforce.

However, this comparison could shed some light on the fact that most of the employees that leave WSDOT do so for jobs with comparable Public Employees Retirement System (PERS) benefits. It is important to note:

- Fringe benefits are a part of total compensation. The amount of value that workers add to an industry plays heavily into benefits offerings.
- Most of the industries that offer benefits at a high rate (as well as pay a higher portion of the cost) require either highly skilled workers or the workforce is largely unionized (or both).

Summary Table 5
Washington State AASHTO Summary

ASSHTO Job Title	Washington State Weighted Avg. Salary	% of Weighted Mean Salary for all States	Comment	WSDOT salary
Division Administrator	$118,704	133%		
Information System Manager			$88,956 - $108,504 (AASHTO)	$65,220
Programmer Analyst	$62,826	108%		
Computer Network Specialist	$49,652	100%		
Safety Director	$65,340	103%		
State Highway Engineer	$101,232	92%		$73,780
Major Division Engineer	$118,704	143%	top of rank	
Bridge Engineer	$97,284	138%		
District Engineer	$107,476	134%		
District Maintenance Engineer	$94,616	131%	4th from top	
Project Engineer	$74,994	118%		$60,530
Graduate Civil Engineer (entry level)	$44,574	97%		
Technical Project Manager	$66,736	128%		
Senior Engineering Technician	$45,772	115%		
Engineering Technician	$38,853	118%		$49,700
Environmental Manager	$101,232	134%	3rd from top	
Environmental Analyst	$55,281	121%	3rd from top	
Director of ROW Division	$95,376	122%		
Review Appraiser	$53,958	111%		
ROW Agent	$48,298	114%		
Transportation Planner	$54,745	105%		
Land surveyor	$51,520	107%		
CADD Designer	$38,853	99%		
Materials Lab Specialist	$38,853	116%		
Registered Professional Engineer	$62,737	99%		

Note:
For comparison, the Information Technology Specialist 5 was used against Information System Manager
For comparison, the Transportation Engineer 5 was used against State HWY Engineer
For comparison, the Transportation Engineer 3 was used against Project Engineer
For comparison, the Transportation Technician 3 was used against Engineering Technician

3.2 GOVERNMENT AND STATE DEPARTMENTS OF TRANSPORTATION TRENDS

Texas, Colorado, and Florida DOTs were contacted to participate in the employment data gathering process. The results of these employment surveys are shown in **Summary Table** . WSDOT's situation and challenges are not unique, but are comparable to those facing many other state DOT's. It is useful to see what other DOT's are doing to compensate and attract potential candidates.

While it is always difficult to compare data across organizations, our analysis of data received indicates that WSDOT's salaries are below those of other DOT's particularly in the at risk categories of entry level engineers and transportation technicians as well as the network administrators and computer programmers The need for various computer expertise has increased at WSDOT since they have adopted the Intelligent Transportation Systems (ITS) traffic management procedures. As WSDOT moves to remedy the project control and reporting requirements by upgrading the data information systems that support those activities the need for computer programmers and network administrators will increase within the organization.

Summary Table 6
Comparison of DOT Wages

Position	WADOT	TXDOT	CODOT	CA DOT	ODOT *	NYC DOT
Engineer 1	$49,700		$61,920	$52,888	$50,196	$69,909
Engineer 2	$54,840	$71,028	$69,768	$70,968	$55,392	$86,190
Engineer 3	$60,530		$76,932	$74,868	$64,164	
Financial analyst	$41,808		$67,128	$62,964	$64,164	
Systems Administrators	$53,520		$76,704		$51,516	$94,000
Network Administrators	$53,520	$45,876	$76,704			$105,000
Transportation Technician	$44,000	$62,772		$53,436	$41,316	

*Data for Oregon DOT is minimum reported salary. All other data reflect top of range salaries.

Furthermore, WSDOT Human Resources department Retention and Recruitment Study identified local agencies such as cities and counties as other local competitors for the high caliber workforce it needs to deliver the highway improvement program throughout Washington State. **Summary Table 7** below shows WSDOT's 2003/2004 salary ranking among these local agencies for entry level engineers and technicians.

Summary Table 7
Comparison of WSDOT Wages to other local Agencies

Agency	Entry Level Engineer			Agency	Entry Level Technician		
	Monthly Salary		Equivalent		Monthly Salary		Equivalent
	Minimum	Maximum			Minimum	Maximum	
City of Tacoma	4537	5517		City of Kennewick	3002	4436	2 yr degree or exp
City of Olympia	3486	4239		City of Everett	3526	4284	AA
Thurston County	3483	4751		City of Kent	3134	3815	AA
Franklin County	3657	5040	BSCE	Spokane County	2375	3205	Equiv. To TT2
City of Kent	4008	4874	BSCE	City of Tumwater	3053	3720	
Kitsap County	3813	4867		City of Wenatchee	3337	3679	
City of Bremerton	4094	4838		Clark County	2853	3642	Engineer Tech.
Spokane County	3687	4282	37.5 hrs	City of Tacoma	2990	3634	
City of Seattle	3991	4652	BSCE	City of Port Angeles	3027	3615	
Mason County	3814	4525		Thurston County	2595	3549	
City of Kennewick	3152	4659	4 yr degree or exp.	Chelan County PUD	3132	3503	
Chelan County PUD	4292	4500		**WSDOT**	**2712**	**3460**	
Skagit County	3567	4386	BSCE	City of Seattle	2891	3372	AA
Chelan County	3778	4374		Douglas County PUD	3167	3333	
Clark County	3302	4214	Engineer 1	Douglas County	2855	3308	
Douglas County	3911	4186		Kitsap County	2582	3296	
City of Wenatchee	3747	4131		Snohomish County	2654	3223	AA
Grays Harbor County	3211	3961		Whatcom County	2227	3180	AA
WSDOT	**3059**	**3916**		Yakima County	2315	3126	2 yr degree
Douglas County PUD	3500	3750		City of Spokane	2359	3083	Equiv. To TT2
City of Port Angeles	3119	3724		Franklin County	2231	3077	HS or Tech Sch
City of Yakima	3023	3630	4 yr degree	City of Yakima	2539	3023	2 yr degree
City of Lacey	2785	3564		Skagit County	2441	3003	AA
City of Spokane	2598	3403	TE1 Equiv.	Chelan County	2548	2949	
Pierce County	2280	2897		City of Olympia	2234	2713	
City of Pasco	2097	2767	Similar to TE1	City of Cashmere	2500	2500	
Average	**3461**	**4217**		City of Pasco	1652	2180	Similar to TT2
				Pierce County	1684	2110	
				Average	**2665**	**3286**	

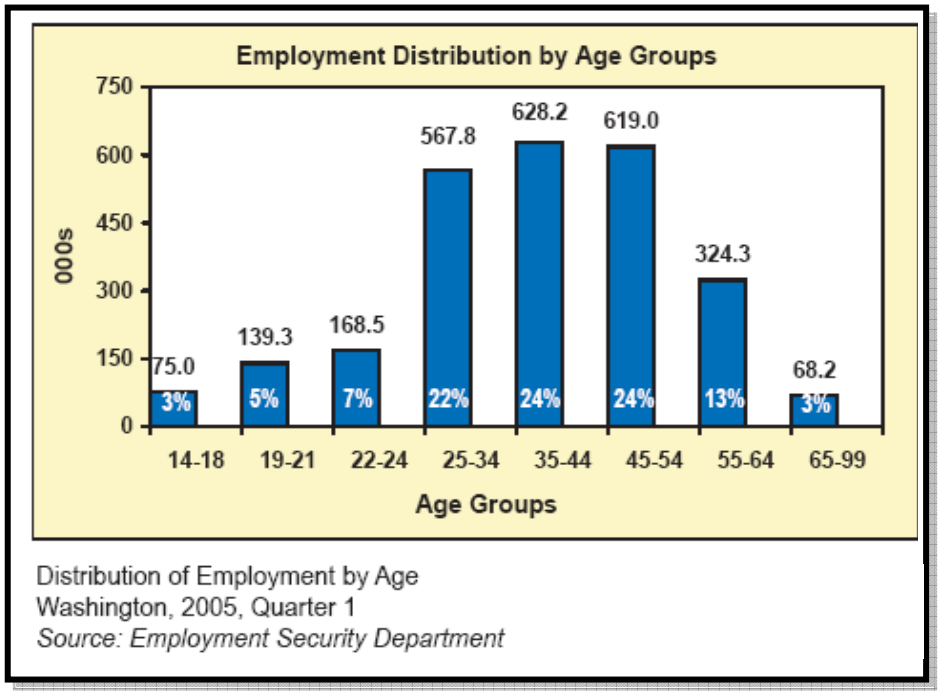
2003/2004 Data

This study confirms that WSDOT's engineering salaries are below average for both the local and national market. It is important to note that relative to other local private competitors such as consulting firms and construction companies, other local agencies provide comparable job stability, pride of ownership, benefits and work-life balance that are the main attractions to WSDOT.

3.3 Overall Demographic Changes

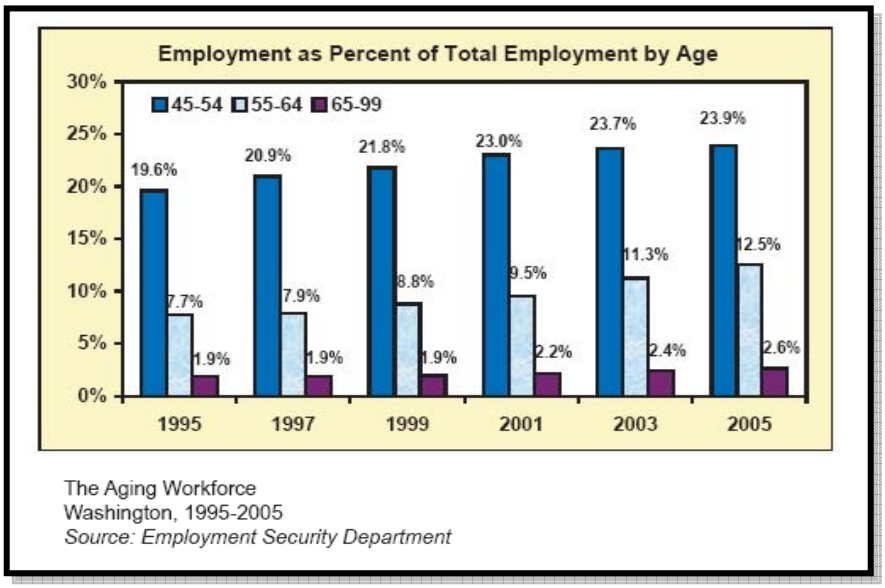
Based on the U.S. Bureau of Census data, a majority of Washington's jobs (70 percent) were filled by workers between the ages of 25 and 54 in 2005, as shown in **Exhibit 7**. The largest age group (35 to 44) comprised nearly 630,000 workers in the state. Young workers (ages 14 to 24) and older workers (55 and older) each accounted for about 15 percent of the state's total employment.

Exhibit 7
Distribution of Employment by Age



The older age groups made up a substantially higher percent of total employment in 2005 than in 1995. While workers in the 45 to54 year old group made up less than 20 percent of the total workforce in 1995, they accounted for nearly 24 percent of the workforce ten years later. Likewise, the 55 to 64 year old age group made up nearly five percent more of the workforce in 2005 than in 1995, while the percentage made up by the oldest age group also increased noticeably in the ten year period (see **Exhibit 8**).

Exhibit 8
Employment as Percent of Total Employment by Age



3.3.1 National Workforce Trends

Three main forces form the relevant national workforce trends: Population demographics, occupational trends and industrial outlook. Population demographics contribute to overall economic health, and therefore marketplace demand, and serve as leading indicators of the supply of desirable employees. This is closely related to occupational trends. The number of college educated individuals and the popularity of degree programs and certifications across disciplines necessarily ebbs and flows, impacting the supply of the corresponding occupations for many years to come. Ultimately, industrial outlook is broadly shaped by future economic growth.

The sectors that drive the industrial outlook coincide with the sectors that experience the most growth in the each state in both private and government employment segments. Each of these factors, population demographics, occupational trends and industrial outlook, help define the demand for the services and skills of potential WSDOT employees.

3.3.1.1 *Population Demographics*

According to the Bureau of Labor Statistics[1], over the next 10 years the annual rate of growth for the U.S. labor force will slow precipitously. The baby boomer cohort (those born between 1946 and 1964) will reach retirement age in droves. In fact, an estimated 64 million baby boomers are poised to retire

[1] Toosi, Mitra (2005) *Laborforce Projections to 2014:Retiring Boomers.* Monthly Labor Review 128:11.

by the end of this decade. Moreover, those boomers on the brink of retirement, will "age" the overall the work force significantly. The growth of the oldest workers (age 50-68) will grow at a rate of 4.1% while the rate for workers aged 25-54 will grow at a rate of .3%. Thus nationally, the workforce will continue to age, even as the "Boomers" leave the labor pool.

In addition, according to a report on the aging and retiring of government employees, the government sector workforce is older than that of the rest of the U.S. workforce.[2] Thus, the governmental workforce will disproportionately experience the exit and significant aging which will happen in general to the American labor pool. This means, not only will the government agencies lose a significant proportion of employees to the call of retirement, but the remaining workers will be poised for a second retirement wave in the not too distant future.

Further, a few additional demographic factors are increasing the pressure on the demands of this sector of the WSDOT labor force. Firstly, government workers tend to retire earlier. Secondly, in general, fewer people are entering public service.[3] Finally, a study by the Society of Human Resource Management on the future of the U.S. labor pool provides further insight into the trends characteristic of the older workforce. The report finds that most individuals do not plan to work after retirement, although a few do plan to work full time and one out of five plans to work part time.[4] Thus, there should now be a sense of urgency in anticipation of this loss of employees.

A further complication in the State DOT market is the lure of higher wages in the engineering consulting market, especially those with the project management skills that are essential to WSDOT project delivery. In Washington State an even greater competitor may be local governments who pay higher wages without the lifestyle balance choices of the consulting market. Even of those engineers that choose to remain long-term DOT employees, many will retire from government service as soon as possible to enable a few years of additional, and often higher, earnings in the consulting market prior to full retirement.

What may pose additional challenges are the differences between the Baby Boomer generation and those that follow. Specifically workers under 40 have very different expectations from their work. Having come into the labor force

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[2] The Center for Organizational Research. (2003). The aging-and-retiring government workforce. Retrieved January 16, 2006, from www.ipma-hr.org/pdf/federal/aging.pdf;

Lockwood, Nancy R. (2005) Talent Management. Society for Resources Management. Retreived January 16, 2006, from http://www.shrm.org/research/briefly_published .

[3] Ibid.

[4] Collison, J. (2005, June). 2005 future of the U.S. labor pool survey report. Alexandria, VA: Society for Human Resource Management.

along with the advent of micro computers and other high tech tools, these employees expect autonomy and flexibility from their work arrangements -- expectations that previous generations never might have even considered. For example, one study found that a substantial 43% of employees under 30 plan to be their own boss someday. In another survey, younger workers in organizations with fewer than 50 employees were happier than their counterparts at organizations with 5,000 or more employees.[5] The more boutique environment of small firms seems to better fit with the desire of the younger generation for flexibility and autonomy. Further, it is speculated that these generations will inherit more from their Baby Boomer parents and seek retirement earlier than previous generations. These characteristics do not easily mesh with large government organizations.

In summary, there will be a large exodus from the workforce in the next 10-20 years and due to the demographic make up of governmental workers, State DOTS along with other state, federal and local agencies will be significantly impacted by these shifts in employment. Furthermore, the generation of workers to follow share little in the way of expectations or desires for government work, preferring small, flexible work environments or owning their own business altogether. In combination, these factors demand planning and action in order to meet these changing workforce demographics and mitigate the potential negative consequences.

3.3.1.2 *Occupational Trends*

Based on data provided by WSDOT, three main occupational areas have been identified where the greatest need is likely to be experienced throughout the organization: Engineering, Information Technology and Maintenance. For the Program Delivery staff, the main relevant category here is engineering including both Technicians and Professional Engineers. Over 66% of the Program Delivery staff holds titles that are engineering-related technicians or engineers. In addition, a significant percentage of the WMS (management) positions in Program Delivery (approximately 12.5% of the work force) require these engineering skills as well. Other occupational areas such as Real Estate, Planning, and specialists such as Biology and Archeology were also identified as areas necessary to support the successful implementation of projects. The Right-of-Way and Planning staff makes up approximately 10.5% of the overall Program Delivery personnel so the quantity of needs is not as great as the engineering disciplines. The Maintenance group as well as the Ferries group were identified as areas outside of this scope of work, and therefore were excluded from the analysis. This information provides a summary of the national trends for these occupations and a sense of the market demands for these occupations in the coming years.

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[5] Families and Work 2005 press release referencing Context Matters: Insights about Older Workers from the National Study of the Changing Workforce retrieved January 16, 2006, from http://familiesandwork.org/press/BCFWIrelease.html

Engineers and Civil Engineering

Overall there has been a steady decline in the percentage of engineering degrees at the undergraduate level. For the last 40 years, each year saw a decline in the percentage of college students who graduate with engineering degrees. In 2001, engineering degrees made up only 6.8% of the degrees awarded to undergraduates in the U.S. This decline in the popularity has affected both engineering degrees in general and civil engineering specifically. Civil engineering degrees now only make up about one-third of all undergraduate engineering degrees. Provided this trend continues unabated, we can anticipate a steady decrease in the proportion of available engineers for hire.

However, according to the Bureau of Labor Statistics, overall engineering employment is expected to grow about as fast as the average for all occupations over the 2004-2014 periods. Engineers have traditionally been concentrated in slow-growing manufacturing industries, in which they will continue to be needed to design, build, test, and improve manufactured products. However, increasing employment of engineers in faster growing service industries should generate most of the employment growth. Thus most of the employment growth will in industries competing for the newly graduating engineers.[6] Growth in other industries that demand civil engineers will grow so significantly that by 2014 only 1/8 of all new engineering positions will be government employees.[7] These statistics indicate that within this occupation, it will be continually more difficult to attract a relatively shrinking pool of potential employees to government service.

Information Technology

The Information Technology (IT) jobs encompass many of the backbone services that are needed to run an efficient organization in the 21st Century. In this case, graduation rates are more optimistic, with a manifold increase in the numbers of computer science graduates. . More and more fields need increased expertise in IT. Although they worked in a wide range of industries, about 23 percent of all computer support specialists and systems administrators were employed in the professional, scientific, and technical services industries, principally computer systems design and related services. In these areas innovation and cutting edge technology can be key to long-term strategic success. These industries often afford the opportunity for continuous learning and maintaining the most up-to-date skills, making them attractive

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[6] Bureau of Labor Statistics 2006-2007 Occupational Handbook. Retrieved January 14, 2006 from www.bls.gov/

[7] Hecker, Daniel E. (2005) *Occupational Employment Projections to 2014*. Monthly Labor Review 128:11.

Science and Engineering Degrees 1966-2001 Detailed Statistical Tables Susan T Hill and Jean M. Johnson Natinoal Sience Foundation March 2004 Retreived January 14, 2006 from www.nsf.gov/

positions to computer specialists.[8] Especially as WSDOT explores expanding the sophistication of the tools used for tracking and managing projects, IT expertise will become more and more important to many positions in Program Delivery.

In short, demand for specialists who are knowledgeable about network, data, and communications security will expand in the next decade across all sectors of the U.S. economy.[9] Knowing that the market for these skills will continue to be tight in the years to come, it is even more critical to plan now and identify ways to attract and retain such valuable employees.

Industry Outlook

Before summarizing this analysis of broad and relevant workforce trends, we must turn to an evaluation of Industrial Growth occurring in the next 15 years. Mainly we want to see where the growth will occur and how that may impact the target workforce for WSDOT.

At the outset, it is important to acknowledge that state government services are expected to experience stable growth between now and 2014.[10] At about 1% per year, services may expand and jobs will be added. As a comparison however, the two general industry categories expected to grow the most in the next decade and a half are Health Care and Professional Business Services. They will add 4.3 million and 4.6 million jobs respectively, both more than twice the jobs to be added by state and local governments.[11] This level of growth far out runs any other industry and therefore represents a major force in the labor market.

Additionally, if we look at industries at an additional level of detail (to the four digit SIC code), the top 4 industries for growth are Computer industries and within the top 20 are Construction and Management, Scientific and Technical Consulting Services. These industries demand exactly the occupations, which were identified above: Computer Support Specialists and Civil Engineers. The same industries that will grow the most rapidly in the coming years will also especially demand the occupations most needed already by WSDOT.

The workforce trends projected to emerge in the next 10-15 years pose several key challenges to attracting and maintaining the required workforce for WSDOT. The challenges are:

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[8] Bureau of Labor Statistics 2006-2007 Occupational Handbook. Retrieved January 14, 2006 from www.bls.gov/

[9] Ibid.

[10] Berman, Jay M. (2005) *Industry Outlook and Employment Projections to 2014*. Monthly Labor Review 128:11

[11] Ibid.

- National retirement wave that will disproportionately affect government and therefore WSDOT's labor pool
- National "aging" of the workforce that will exacerbate the government's older work force situation
- Generational differences that produce a mismatch between likely younger employees and the environment of government work
- Occupational trends that are tightening the demand for employees that are already in short supply
- Industrial trends that will potentially pull these key employee resources and potential employees toward growing sectors

All of these factors demand a strategic approach to workforce maintenance and retention in order to fulfill WSDOT's aggressive program goals.

4. THE CURRENT SITUATION

4.1 WSDOT INFORMATION ASSESSED

4.1.1 Data Review

The following information was reviewed as available to better comprehend the workforce conditions at WSDOT:

- Complete outline of compensation and benefits
- Policies and programs on flex-time
- Telecommuting, mentoring programs
- Leadership training and ongoing education
- Data on succession planning
- Future labor needs

4.1.2 Interviews

In conjunction with WSDOT staff, ten employees were identified that represented a sample of key positions with the Department, who were then interviewed. The list of the interview questions were discussed with and approved by WSDOT staff prior to conducting these interviews. Appendix C reflects the questions discussed. All those interviewed were promised absolute confidentiality to allow for open and frank discussions. A summary of these findings were discussed at the February 6, 2006, executive oversight meeting. The results of those interviews are reflected throughout the body of this report.

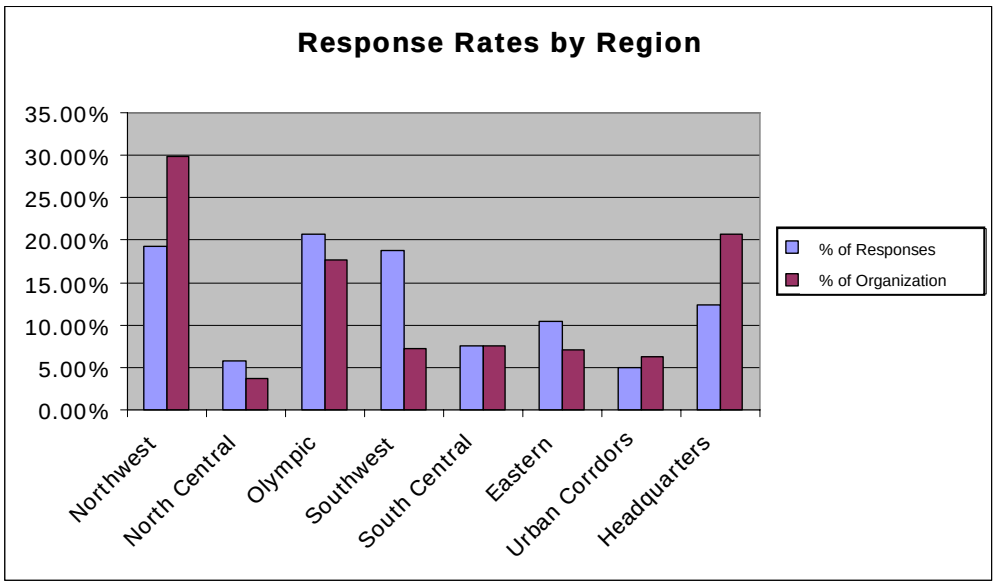
4.1.3 Survey

A survey was made available to all of the Program Delivery staff for WSDOT. Appendix G reflects the questions contained in the survey. The summarized results of the survey are as follows:

In addition to the one-on-one interviews, a survey was sent to all WSDOT Project Delivery personnel, in order to obtain a more complete view of several elements of their job satisfaction. As of February 22, 2006 responses had been received from 362 Project Delivery personnel. Appendix G reflects the list of twelve questions in the survey. The most responses were received from the Olympic Region followed closely by Northwest and Southwest; these

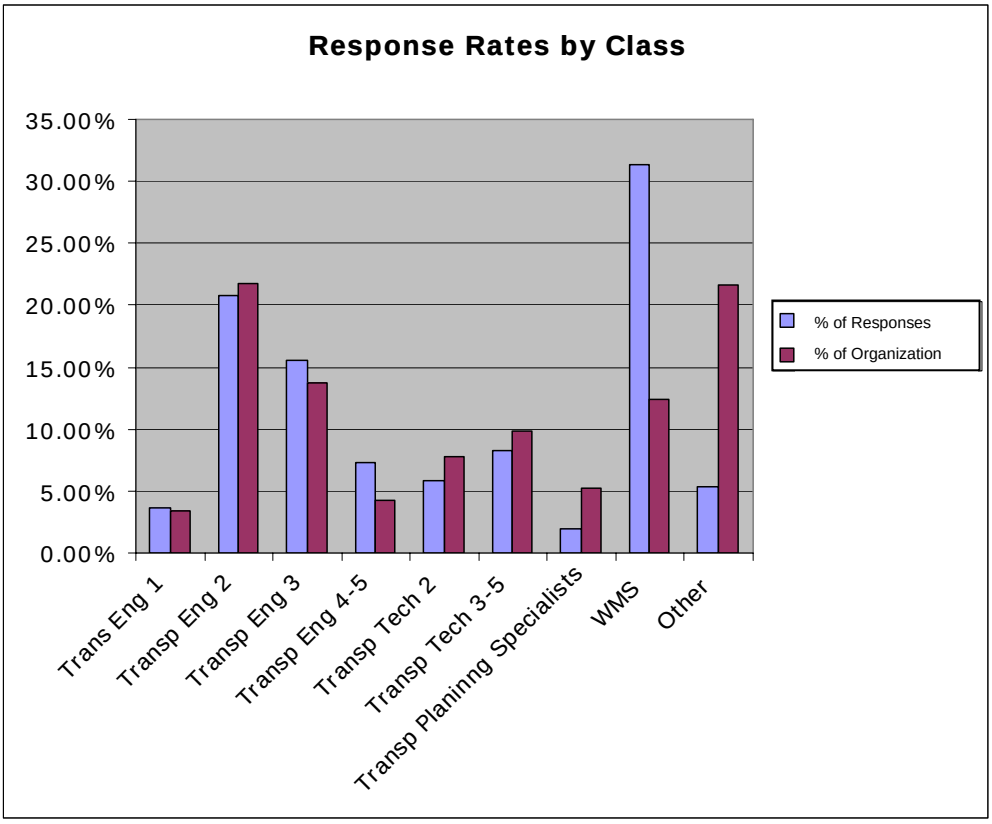
accounted for approximately 60% of the total responses. Headquarters was next at approximately 12% following by Eastern, South Central and North Central. When comparing the participation levels to the percentage of the overall Project Delivery organization, Northwest, UCO, and Headquarters were underrepresented, South Central was approximately the same, Olympic was slightly high while Eastern and North Central were about 50% higher response rate. The Southwest Region showing the highest response rate. **Exhibit 9** compares the survey response rate to the relative organization representation.

Exhibit 9
Survey Response Rates by Region



The distribution of responses by Job Class as compared to their representation in the project delivery group is shown on **Exhibit 10**. When looking at all of the Transportation Engineers and Technicians the percentage of responses were representative of the FTEs. The Transportation Planning Specialists positions were under-represented while the WMS category shows only 12.5% of the FTEs but 31.4% of the responses. As the only information available for the Project Delivery Group is based on the FTE budgets, the comparison of responses is not an exact one to one match with employees. This is particularly true for the Other category as the FTEs include positions that charge to Project Delivery but are not identified as Project Delivery personnel.

Exhibit 10
Responses by Job Class



Overall, the responses indicated that WSDOT has a solid base to the Project Delivery workforce with over 50% indicating they were "Satisfied" with the three questions that covered opportunities to improve skills, the amount of information provided to support their jobs, and the training provided for career development. The range of responses for these three questions ran from "Very Satisfied" to "Very Dissatisfied". For the three questions the "Very Satisfied" responses were 23%, 18% and 14% respectively. The combination of the "Dissatisfied" and "Very Dissatisfied" responses was 11-12% for the three questions with the remainder being "Undecided."

Not surprisingly, the question that asked employees to rate the amount of pay (categorized from "Very Good" to "Very Poor") saw the highest number of individual responses in the "Fair" category (36.6%) but the combination of "Very Good" and "Good: totaled 40.6%. The Poor & Very Poor total was 22.8% indicating a meaningful number of employees are unhappy with their salaries. The benefits received better results but the "Good" and "Very Good" totaled approximately 55%, "Fair" 36% with the remainder (9%) ranking them "Poor" and "Very Poor."

The next two questions dealt with communications about decisions and performance evaluations. The highest number of WSDOT Project Delivery employees ranked the communications "Good" (41.6%) but the combination of "Fair", "Poor" and "Very Poor" totaled over 52%. The performance evaluation responses indicated only about 29% felt they were "Very Good" or "Good", over 62% said they were Fair or Poor with the remainder showing Very Poor.

A final category dealt with Overall Satisfaction and contained three questions. The first question asked if they would recommend a friend apply for a position at WSDOT. The "Yes, I would" response yielded a 50% result followed by 31.5% "Somewhat Likely." Only less than 9% said they were "Unlikely" or "Would Not" with the remainder "Undecided." The last two questions about satisfaction with opportunities for promotion and overall satisfaction with the job showed the most common response to the "Satisfied" (42.9% and 57.1% respectively) vs. 7.4% and 6.5% for "Dissatisfied." The "Undecided" category was 23.9% on promotions but 15.6% on overall satisfaction. The two ends of the spectrum "Very Satisfied" vs. "Very Dissatisfied" yielded responses of 11.1% and 20.2% respectively for" Very Satisfied" and 7.4% and .6% for "Very Dissatisfied."

4.2 STAFFING REQUIREMENTS

A critical background to the discussion of the current WSDOT work force is the overall estimated staffing needs. As mentioned before, WSDOT is estimating that they need to employ over 450 Regional staff and HQ personnel to implement the projected capital program over the next 15 years. **Summary Table** shows the distribution of these new positions throughout the state. Most of the recruitments are focused on the engineering staff. In our discussions with WSDOT staff these need determinations have been made based on their extensive experience in Program Delivery and reflect in many cases not what they consider optimal staffing levels in many positions based on concerns of ability to recruit necessary technical staff and have sufficiently experience staff internally to promote into project management positions. Additional work that will be conducted by SPMG in a subsequent task will further explore with the Regions their staffing needs. The issues raised in this analysis regarding the steps needed to retain and recruit the identified personnel may create the need for subsequent modifications in these requirements if the necessary activities that require commitments outside WSDOT and cannot be obtained.

Summary Table 7
Project Delivery Staffing Needs

Organization	Number of Positions	Specific Positions
Regions		
Eastern	50+	4 TE4 7 TE3 12 TE2 10 TE1 10 TT2 7 WMS Plus TT3 promotions
North Central	28-30	1 TTE5 10 TE1 4 TE2 4 TE3 1 TPS3 3 TT3/TPS1 2-4 TT2 1 R/W 2 WMS
Northwest	113	13 WMS 5 TE4 24 TE3 25 TE2 15 TE1 3 TPS3 12 TT2 16 Other
Olympic	95	2 TE3/4 13 TE3 30 TE2 18 TE1 18 TT3/2 1 ITS3 13 WMS
South Central	29-36	2 TE4 2 TE5 10-15 TE2/3 10 TE1 4-6 Enviro 1 WMS

continued

Summary Table 7 (cont'd.)
Project Delivery Staffing Needs

Organization	Number of Positions	Specific Positions
Regions (cont'd.)		
Southwest	46	1 TE5/TSE 13 TE3 7 TE2 13 TE1 3 TT3 9 TT2
Urban Corridors	62	2 TTE5 1 TPS5 6 TE4 7 TE3 9 TE2 2 TPS3 1 Agreements 10 TE1 3 TT Various 1 Graphics 20 WMS
E&E Office		
Bridge	0	0
Construction	4	WMS3 WMS3 WMS3 WMS2
Consultant Services	2	TE3 TTE5
Design	4	TE4 TE4 TT3 TE2 or 3
Division Services	0	
Environmental Services	9.5-10.5	1 TPS4 1 TPS4 5 TPS4 1 TPS3 1 TPS2 1 TPS4 1 TPS4 1 TPS3 4 TPS4's
Innovative Project Delivery	1.5	1 WMS 2 5 FTE

continued

Summary Table 7 (cont'd.)
Project Delivery Staffing Needs

Organization	Number of Positions	Specific Positions
E&E Office (cont'd.)		
Materials Lab	14-17	1 TE2-4 1 to 2 TE2-4 1 to 2 TT3's 1 TE2-4 2 TT3's 1 TE3 & 1 TE4 1 TE2 1 TT2-3 1 TT2-3 1 or 2 TT2-3 1 TE4 1 or 2 TT2s or OAs
Real Estate	8	2 FTE's 2 FTE's 2 FTE's 1 FTE 1 FTE
TOTAL	466-479	

4.3 CRITICAL ISSUES FROM INTERVIEWS, SURVEYS AND DATA REVIEWED

4.3.1 Reasons to Work at WSDOT

Based on our discussions with various WSDOT staff, we understand that the current workload is significantly higher than it has been traditionally at the Department, requiring staff to work overtime on a regular basis. Budgeted overtime currently amounts to an additional 125 FTEs, however this does not reflect all of the additional hours that must be put in without additional compensation for all positions above Engineer 3. This increase in workload is very important to note since many WSDOT staff identify the work-life balance as one of the most important reasons for joining the Department. The other factors that have been identified to us as attracting employees to WSDOT are:

- Job security
- Benefits

- Retirement system
- Starting salaries in the entry level positions

The following were identified by employees as additional benefits of continuing the work at WSDOT:

- Life-work balance (but lately due to the workload it is at risk)
- Support within the organization
- Work load well into the future (job security)
- Long-term friendships
- Benefits (life, health, etc.)
- Effective team relationships
- Exciting projects, ownership of the final product
- Public service—helping others and the society

These factors are par with other public agencies and DOT's we interviewed.

4.3.2 Retention Challenges

The need for additional staff is aggravated by the fact that significant retirements are expected in the near future - 60 to 70 % of the senior managers at WSDOT are eligible to retire in the next 4 to 5 years. These two factors combined with the fierce competition for qualified staff in the State of Washington, create a staff retention challenge for WSDOT.

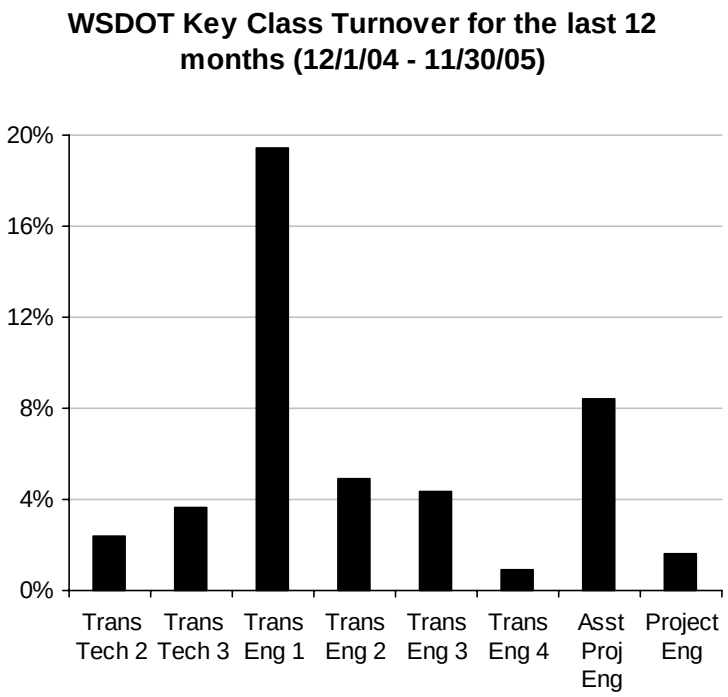
The most recent retention challenge at WSDOT can be categorized in four main areas.

1. **E1 Engineers.** Turnover rates at the E1 level show approximately 18-19% and are indicative of the challenges WSDOT is having in retaining new graduates. This represents two problems. One is a high level of effort recruiting and training entry level personnel only to have them leave. Perhaps of greater concern, is that the E1s are the feeder group for all of the other engineering groups and retaining these engineers is critical to maintaining WSDOT's high quality staff.
2. **Engineers at the E3 level.** Engineers can reach this level fairly quickly, particularly if an "in-training" approach is used. They are required to obtain their professional engineering license before they can move into a higher position of an E4/5 or WMS 1/2. For Program Delivery, relative to the number of engineers at the E3 level (336 FTEs) there are limited E4/5 (98+7) and WMS1/2 (14+145) positions currently. Therefore, once E3's have been in their current positions for a while, unless there is an opportunity for promotion, they will most likely consider employment elsewhere. The E3 turnover rates are slightly below average at approximately 4% as shown in **Summary Table 8** below. The average

number of years an E3 is with the DOT is 17 years and the average number of years in their current position is over 6 years as shown Table Summary Table 3 above.

A further challenge is that moving from an E3 to a higher level position eliminates the possibility for overtime; therefore a promotion within WSDOT could actually result in a salary decrease. Since the salary for this group compared to their counterparts in the other public sectors or private sectors is relatively lower, this is a high risk position to leave for better paying jobs. As the E3 position is one through which much of the future leadership of WSDOT much pass, it is critical to have a strategy for both identifying and retaining the "at-risk" E3s.

Summary Table 8
WSDOT Key Class Turnover

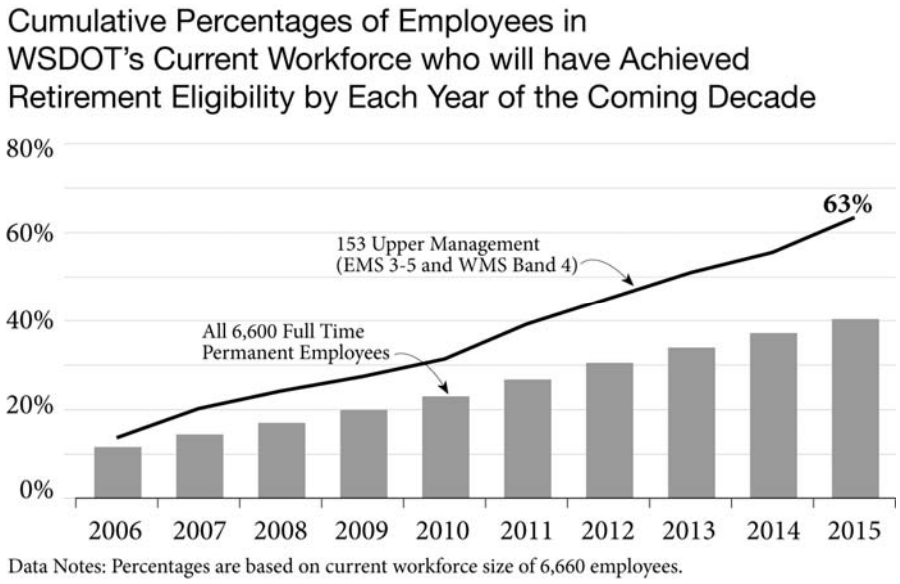


3. **Middle managers with 10 to 15 years of experience.** Based on several discussions, it is clear that retention and development of this group is essential to WSDOT's long-term organizational health and agility. WSDOT currently spends a significant amount of time and resources in training their staff to become effective project and middle managers although a specific cost for this investment was not available. This sector provides leadership and contributes significantly to the productivity of the Department as a whole. However, due to the increase in workload, it is the group under the most pressure to meet project delivery objectives and milestones. When examining turnover rates for middle management levels, the Assistant Project Engineers shows a turnover rate in excess of

8% as shown in **Summary Table 8** above. Specifically in the project control and reporting arena, WSDOT salaries fall significantly below of those competing of those competing for the same talent in the state. Recent succession planning efforts for senior staff have identified approximately 23 people to move into top leadership. However, the question is whether the next layer of staff is ready to move into those employees' positions when they are promoted? There is a significant risk to WSDOT of losing their future top leadership who can readily find better paying position with less responsibility.

4. **Senior and Executive Staff.** 63 percent of the current Senior and Executive staff will be eligible for retirement within the next ten years as shown in Summary Table 8. This will leave a tremendous void in the Department's leadership if this group retires. There could also be a situation where if certain key individuals leave this may result in others senior staff deciding they do not want to deal with the uncertainty of new leadership.

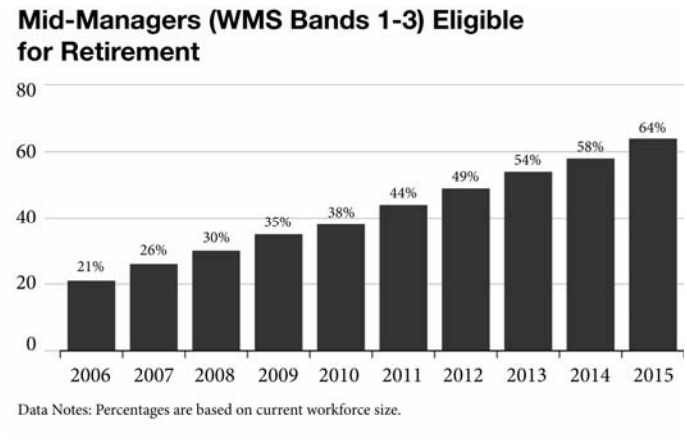
Summary Table 9
Retirement Eligibility



WSDOT has taken the important step of developing and implementing a succession planning for the top 23 positions. It is anticipated that these positions will be filled internally This will potentially create a domino effect of significant promotions and is likely to result in positions being filled with individuals that have considerably less experience than is currently the case. This is particularly exacerbated by the fact that the 64% of mid-level managers will also be eligible to retire in the next ten years as shown in

Summary Table 10. As previously discussed, a significant portion of the expertise needed to deliver projects rests with the mid-level management.

Summary Table 10
Mid-Manager Retirements



4.3.3 Other Important Factors

WSDOT faces other challenges as it prepares to implement the vast capital program discussed earlier.

1. In order to manage their resources, various teams are working to better understand workforce that is needed for various projects based on project schedules that are resource loaded by all groups involved in project delivery (estimated 10 +/- percent deviation on the current projections).
2. Other teams have identified how they can use consultants to manage the workload but are confronted with such challenges as the need to provide access to consultant to WSDOT data that is designated for internal use only, the need to manage consultant teams, the level of effort required to negotiate consulting agreements, and the time and coordination necessary to review consultant's work products.
3. The use of available WSDOT staff from other regions present its own challenges such as establishing priorities for work schedules, difficulty to communicate across organizational cultures, and adapting to different delivery methods.

   The key to successful implementation whatever strategy or strategies are selected, will be an effective change management that allows the culture to shift permanently.
4. Similar challenges are experienced in the Real Estate and other project delivery support functions, such as information technology (systems and network administration, computer programming, and data warehousing),

environmental engineering, planning, hydraulics, traffic management, that make up the other core competencies within the Department. It is important to note that within the Real Estate area, Appraisers with eminent domain experience will be in high demand for securing ROW needs for various projects. This area of expertise seems to be difficult to develop quickly and requires long-term development and succession planning.

4.4 COMPARISON OF SKILLS WITH CORE COMPETENCIES

As discussed in Chapter I, the project delivery team at WSDOT enjoys a plethora of experience levels as well as subject areas. A detail study of the core competencies for each class was not within the scope of this report. The Employee Development Department's lists of classes for each of the engineering job classifications were reviewed. However, as we discussed earlier, job functions or expectations vary for each class throughout WSDOT regions. As discussed in Section 2.2.1 an assessment has been made within Program Delivery as to the positions required and it does not appear that a core competency study is needed to effectively assess the workforce issues. The existing staff of 2,400 plus employees will stay in place and perhaps 450+ will be added and the remaining work will be outsourced. The primary issues deal with making sure that the WSDOT work force has the new skills and tools they need as well retaining and recruiting the necessary personnel.

WSDOT provides an extensive training and development program to build the skills it needs from the ground up. These training areas cover both technical and general topics and vary by job classification. Furthermore, due to its open and collaborative culture, WSDOT's young engineers and technicians often benefit from informal mentoring.

Based on our conversations, the most highly desired common skill is effective communication. This skill is considered the most important when large teams work together to accomplish a common objective. Communication style, content, and frequency are demonstrative of emotional intelligence and the most effective tools for building trust, respect, and ownership.

Besides communication skills, technical competencies in project planning, design, and construction; construction management; real estate; and project control and reporting are necessary to deliver projects successfully. New emphasis will be placed on project controls skills and related information technology expertise and overall project management skills as well as the ability to effectively manage large teams of consultants such as will be used in the General Engineering Consultant contracts for many of the project corridors. However, the role of dynamic leadership in creating and fostering ownership and commitment to successful project delivery should also be taken into consideration. High performance teams don't always have subject area experts to aid them in problem solving, but the team members are motivated to collaborate and feel a sense of commitment to deliver the best product

possible to their clients, which in this case is the public including themselves. This is a key motivator in public employment.

4.5 RECRUITMENT AND RETENTION

Whether written or implied, the pay philosophy demonstrates how an employer values its employees through wages, incentive pay, benefits, and other non-cash awards. Total compensation also plays a key role in recruiting the high performing individuals needed to lead and implement WSDOT's aggressive capital improvement program. This is supported by the compensation discussion in Chapter II. The market generally determines the compensation for skills and services, as it was experiences during the boom of the information technology field. However, knowing what we know about the competition in the surrounding markets we believe WSDOT has both an opportunity and a challenge to modify its recruitment and retention procedures to attract the employees that value what it has to offer.

It is important to understand the driving factors for retirement or termination to be able to target the cause and recommend / implement an organizational solution. Therefore, studying these factors may assist in further planning and implementation of a human resource management strategy. These studies may include:

- High retirement/termination rate in permanent staff due to:

  Aging
  Demographics
  Better compensation elsewhere
  Lack of succession planning
  Supplemental benefits/bonus/perks

- Difficulty in recruitment of skilled staff (specially engineers) due to:

  Compensation
  Workload and skills required
  Bargaining unit impacts
  Recruitment strategies

4.5.1 Recruitment

4.5.1.1 *Engineering Gap*

Interviews and data provided by Washington DOT indicate that hiring for several key positions like experienced and entry-level civil engineers poses many challenges.

One key area of interest is to determine if WSDOT is alone in this experience. The answer is a resounding "No." There is ample evidence that difficulty in hiring appropriate engineer professionals cuts across industries, and the public

and private sectors. Furthermore, the challenges in hiring these prized employees are not limited to any particular region of the country.

Businesses have suggested for some time that it is difficult to hire professionals in the engineering arenas and they claim that it may be getting more difficult. In line with these data, government agencies, like Sandia National Laboratories and private industry, like Raytheon, Lockheed Martin and the like struggle to fill positions across the nation.[12] A report published by the National Academy of Sciences last October seemingly confirms that the gap is very real.[13] In Washington State, these same trends seen nationally are apparent in the local job market. Executives from companies, such as Boeing and Smiths Aerospace Mechanical Systems, claim that the shortage of engineering talent is limiting the ability of their businesses to keep up with demand.[14]

There seem to be several reasons that the "real" numbers described by Mr. Teielbaum contradict the experience of those actually dealing daily with the "tight" market for these professions. First, many organizations are preparing for the "Boomers" imminent retirement, projecting workforce needs of the future and hoping to ramp up their hiring now for some of these positions. As recently reported in the Seattle Times, a survey of the employment needs of the largest 15 departments of the federal government in the next two years alone, concluded that the federal government expects to hire 23,800 engineers and other professionals in the sciences in that period. [15]

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[12] Begley, Sharon (2005) Slim pickings – Behind 'shortage' of engineers: Employers grow more choosy; job hunters face long list of requirements as web brings flood of resumes; two hires from 158 applicants. Wall Street Journal November 16, 2005 p. A1.

[13] Clayton, Mark (2005) Does the U.S. face an engineering gap? Christian Science Monitor. December 20, 2005

[14] Ward, Leah Beth (2005) *Valley defense-related work finds engineers scarce*. Yakima Herald-Republic. June 17, 2005.

[15] Superville, Arlene (2005) *Uncle Sam looking for workers with certain skills*. Seattle Times February 2, 2005 Business Section p. E2. [15] Begley, Sharon (2005) *Slim pickings – Behind 'shortage' of engineers: Employers grow more choosy; job hunters face long list of requirements as web brings flood of resumes; two hires from 158 applicants*. Wall Street Journal November 16, 2005 p. A1.

[15] Clayton, Mark (2005) Does the U.S. face an engineering gap? Christian Science Monitor. December 20, 2005

[15] Ward, Leah Beth (2005) *Valley defense-related work finds engineers scarce*. Yakima Herald-Republic. June 17, 2005.

[15] Peterson, Kim (2005) *Gates stresses need for qualified help – Shortage of new computer grads Microsoft feels the pinch.* Seattle Times. July 19, 2005 Business Section p. C1

[15] Begley, Sharon (2005) *Slim pickings – Behind 'shortage' of engineers: Employers grow more choosy; job hunters face long list of requirements as web brings flood of resumes; two hires from 158 applicants*. Wall Street Journal November 16, 2005 p. A1.

[15] Superville, Arlene (2005) *Uncle Sam looking for workers with certain skills*. Seattle Times February 2, 2005 Business Section p. E2.

Second, the technical qualification required of engineers over the last few years have become more stringent. Many employers want specific skills and knowledge and are unwilling to train even an experienced engineer on these applications. Employers are looking for educated engineers and those with the most up-to-date knowledge (skills that are less than 2 years old). This combination of needs seems to be why it is difficult for experienced engineers to fit the needs of employers. Mike Sylvester, an engineer recruiter with AllTek Staffing and Resource Group, put it this way, "A guy who's been working on a 15 year old application is a dinosaur." So, many times a flood of hundreds applications can result in only one or two hires.[16]

Third, there does not seem to be a new wave of engineers and related technical science specialists poised to graduate from colleges and universities which suggests that these challenges will continue into the future and may be exacerbated Les Purce, president of Evergreen state College states flatly "We don't have the proper volume of people who are interested in studying math and science."[17] This means fewer undergraduates are starting or are currently enrolled in engineering and computer science programs. Recently, Lt. Gov Owen stated simply that there are too few engineers coming out of Washington schools.[18]

Finally there will be continued competition from private industry for these prized employees. Regionally, the Pacific Northwest is not immune. The growth of private engineering firm's will continue to stress the market in Washington for desirable engineers and computer science professionals. The pinch is already being felt a result of events like Bilfinger Berger's expansion into Washington State or Schweitzer Engineering Laboratories expanding in Pullman.[19] This is in addition to companies like Boeing and Microsoft which have already been mentioned.

Departments of Transportation all over the U.S. are caught in this same situation. Interviews with HR professions at DOTs confirmed this situation. In the words of an informant in Colorado,

"This isn't a secret to anyone." The only way to address the challenge and complexity of this situation is to create a strategic and ambitious succession plan and secure the required funding to implement it.

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[16] Begley, Sharon (2005) *Slim pickings – Behind 'shortage' of engineers: Employers grow more choosy; job hunters face long list of requirements as web brings flood of resumes; two hires from 158 applicants*. Wall Street Journal November 16, 2005 p. A1.

[17] Kalhoefer, Kevin (2005) *Few degrees given in state, educator says – Shortage of math, science students discussed at summit*. The Olympian. August 13, 2005. Business Section C8.

[18] Ward, Leah Beth (2005) *Valley defense-related work finds engineers scarce*. Yakima Herald-Republic. June 17, 2005.

[19] Staff of The Spokane Spokesman-Review (2005) Schweitzer to add new buildings Engineering firm plans to add office, event center in Pullman. October 1, 2005 p. 10A

It should be noted that a large portion (66%) of WSDOT's Program Delivery engineering resources are transportation technicians and entry level engineers represented by the Local 71 bargaining unit. This group has followed a preset recruitment process set by the union agreements in the past. The new contract that went into effect as of July 2005 increased the flexibility of job specific recruitments. The details of the new recruitment policies and procedures will be the subject of the upcoming negotiations this spring, and it is anticipated that instead of generic responsibilities for the position more specific responsibilities will be advertised to attract the best match.

As discussed earlier, one of the key Project Delivery milestones is Real Estate Certification. WSDOT employs real estate professionals in its Project Delivery teams both at the regional offices and the headquarters. **Exhibit 11** shows the distribution of Real Estate professionals throughout WSDOT.

Exhibit 11
Distribution of Real Estate professionals Throughout WSDOT

	ADM ASST 2	FINANCIAL ANAL 2	OFF ASST 2	OFF ASST 3	R OF W AGNT 1	R OF W AGNT 2	R OF W AGNT 3	R OF W AGNT 4	SEC SR	SEC SUP	TRNSP TECH ENG 5	WMS BAND 1	WMS BAND 2	WMS BAND 3	WMS BAND 4	Total
Eastern Region					1	2	7	5	1				1			17
South Central Region					1	2	4	5	1				1			14
South Western Region						1	2	3	1				1			8
Olympic Region						3	13	7	2				3			28
North Central Region						1	4	3	1				1			10
North Western Region			1	1		7	14	7		1		3	2			36
Regional Sub-Total	***0***	***0***	***1***	***1***	***2***	***16***	***44***	***30***	***6***	***1***	***0***	***3***	***9***	***0***	***0***	***113***
HQ (<41)	1	1		2	1	4	9	13		1		1	7	2	1	43
Real Estate Total	**1**	**1**	**1**	**3**	**3**	**20**	**53**	**43**	**6**	**2**	**0**	**4**	**16**	**2**	**1**	**156**

WSDOT will experience similar demands on Real Estate and Right-of-Way procurement staff due to a growing job market for Real Estate professionals both within the state of Washington and nationwide (see **Summary Table 11**). Therefore, the challenge of keeping the necessary resources for project delivery is not limited to any one category of staff but to all who support every step of the process.

Summary Table 31
Real Estate Occupations

Occupation	Description	Area	2005 Avg. Hourly Wage	Expected Growth 2002-2012
Property/Real Estate Manager	Plan, direct, or coordinate selling, buying, leasing, or governance activities of commercial, industrial, or residential real estate properties. Include managers of homeowner and condominium associations, rented or leased housing units, buildings, or land (including rights-of-way).	Washington State	$30.74	17.4%
Property/Real Estate Manager	Plan, direct, or coordinate selling, buying, leasing, or governance activities of commercial, industrial, or residential real estate properties. Include managers of homeowner and condominium associations, rented or leased housing units, buildings, or land (including rights-of-way).	National	$24.21	9-17%*
Appraisers and Assessors of Real Estate	Appraise real property to determine its fair value. May assess taxes in accordance with prescribed schedules.	Washington State	$25.95	14.4%
Appraisers and Assessors of Real Estate		National	$24.17	18-26%**

*This percentage reflects "about as fast as average" growth as defined by the Bureau of Labor Statistics.
**This percentage is growth that is "faster than average" as defined by the Bureau of Labor Statistics.

Sources:
Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2006-07 Edition*, Property, Real Estate, and Community Association Managers, on the Internet at http://www.bls.gov/oco/ocos022.htm (visited *February 23, 2006*).
Washington State Employment and Security Department, Workforce Explorer, on the Internet at **http://www.workforceexplorer.com (retrieved February 22, 2006).**

4.5.2 Retention

As previously quoted, some 64 million boomers are eligible to retire in the coming decade. WSDOT's own data analysis shows a comparable trend in its own workforce just as organizations in both the private and public sector will do. Those choosing to ignore such a shift in workforce dynamics choose to at their peril. The need is so pressing that IBM has a specialized consulting unit that coaches organizations bracing for the boomer exodus. They advocate two key prescriptions. Note that older employees can and should pass on their valuable information to younger workers. It is key that older workers may be leveraged for their rich experience and firm specific knowledge.[20] Furthermore encourage their continued involvement as long as possible via flexible work arrangements like flex-time, part-time work and ratcheting back responsibilities. These options allow a life style that is not retirement, but does reflect different goals that some workers have at an older age like travel and pursuit of other interests.

Although more flexible work arrangements may seem difficult to execute given the usual rules for DOT employees, it is possible to clearly layout the criteria, develop procedures and match department goals with such a flexible work plan. Colorado DOT has implemented a flexible "space" program (telecommuting) with specifics as to eligibility, procedures, space requirements, and inspection rules. Florida DOT offers flex time as well as telecommuting. These programs are less formal than those in Colorado, only requiring the districts to manage flexible arrangements based on their needs. Further, although these programs are attractive to older employees, other employees (like parents or those with long commutes) may also welcome these arrangements. The flexible work hours offered at WSDOT is currently identified as one of the top job satisfaction reasons for remaining at the WSDOT.

Another key factor in retention is training and development. This topic will be discussed in detail in the following section.

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[20] Moos, Bob (2005) *It pays to make room for boomers at work – Golden opportunity Mature workers add value, experience employers find*. The Seattle Times. December 18, 2005. Job Market Section p. J1.

4.6 SKILL DEVELOPMENT POLICIES AND TOOLS

At WSDOT, supervisors routinely determine and approve training attendance eligibility for their employees. Training is primarily intended for permanent employees and career seasonal employees.

Non-permanent employees are also eligible for training that is required to perform current job duties.

Training employees builds required competencies for the current job as well as provide opportunities for advancement and professional development within the department. At WSDOT, the employee and supervisor cooperatively identify and determine the employee's specific training needs.

At WSDOT, Staff Development organizes training into six programs for the purpose of managing, administering and coordinating training. Program managers and assistant program managers coordinate training activities throughout the Department to assist management, supervisors and employees in identifying and obtaining training to be delivered on time when and where needed.

4.6.1 WSDOT Training Programs

4.6.1.1 *Leadership and Management*

This program includes all skills required by supervisors, managers, and leaders to manage the products, processes, and projects within the department. This training is based on leadership competencies that define leadership and set the standard for managerial behavior.

The Leadership Training is an important part of WSDOT's succession planning program. The Department has developed a comprehensive leadership development program based on leadership competencies that define desired leader behavior and set a standard for department leaders and managers. The program includes traditional Instructor-led classroom instruction, Individual-led learning using Multimedia resources in the WSDOT Library, and developmental opportunities that provide for application of training. The Department believes that Leadership Training, along with improved processes, ultimately reduces construction costs and tort claims, and improves productivity of the entire Department workforce. Unfortunately, this program is chronically under-funded, and its potential to improve retention of middle and senior engineers is not fully realized.

4.6.1.2 *Technical and Professional*

This program includes training primarily related to engineering and technical support. It offers courses to support engineering and related technical areas.

4.6.1.3 *Employee Development*

This program supports the widest range of job classifications within the department while focusing on general skills needed by most employees. This program augments other programs with courses dealing with human behavior and common skills.

4.6.1.4 *Maintenance*

This program focuses on highway and bridge structure preservation and maintenance of the largest fleet of medium and heavy equipment in state government.

4.6.1.5 *Safety*

This program includes first aid, accident prevention and other life-sustaining skills and practices to assist in maintaining a healthy and safe work environment for department employees and the traveling public.

4.6.1.6 *Information Technology*

This program supports the expanding use of personal computers, the increased complexity of technological decision-making and the escalating use of computers in engineering and other areas.

4.6.2 External Programs

Supporting professional development beyond the internally provided training, include tuition reimbursement and licensing costs coverage. Transportation Engineers are normally civil engineers. Licensing for professional engineers involves passing a series of examinations and a minimum of four years of professional experience. Professional engineering license renewal fees are currently $116 every two years. Many of the department's positions require a professional engineering license. The department also needs licensed engineers in "junior engineering" positions who are ready to step up to positions requiring a license as they become vacant. In addition, other licensed positions necessary to deliver the highway construction program include Land Surveyors, Real Estate Appraisers, and Landscape Architects.

4.6.3 Training Program Assessment

The types of courses offered and the goals for the WSDOT training do not appear that different from those at other DOT agencies. However a few critical differences are important to point out.

In other DOT's training is often explicitly seen as a means to succession planning. This entails both cross training to provide many employees with the opportunity and ability to enjoy work in several disciplines and anticipation of future needs in order to place new and therefore relatively malleable recruits into the needed track. Florida DOT has a program that does just this. This is their main training program and is called the P.E. program into which new college graduates enter upon being hired. Over a 2 year time span, graduates

train in each of the different disciplines at FLDOT like Maintenance, Construction or Design. When they have completed the program they are placed in one of these disciplines based on needs of the DOT and in consideration of the employee's own interest.

Texas Department of Transportation also offers programs that include job rotation, cross training, paid training for FE or PE exams and tuition assistance programs. However, what seems more critical here is that supervising managers are called upon to "decide what training, education, licensing or certification best suits their employees' needs and benefits the department."[21]

Training is more than a means to perform current duties, but rather as a manner in which to engage employees, consider their own interests and goals and match these with the goals of the department. It is in this way that training is a method of retaining employees, keeping them interested, maintaining a sense of being valued and potentially keeping them "in the game" by maintaining cutting edge skills. Ultimately all of the efforts devoted to employee development benefit the organization in loyalty and employee satisfaction and these kinds of programs take on strategic value.

It will also be important for WSDOT to look carefully at the current training programs to make sure that sufficient emphasis is being placed on the new and enhanced skills needed for delivery of this aggressive capital program. For example, a focus on Project Management certification and all associated skills will be even more critical if personnel with less experience must step into project management positions of responsibility. This would include issues such a managing programs that have a significant outsourcing component.

Finally, given the current and future state of the job market, any employer who is willing to hire an experienced engineer and then train her/him on the latest applications or technology may successfully and readily fill engineering positions even in this environment.

4.7 KEY RISK AREAS

The main risk area for the continuous operations of the Department can be summed up in one phrase: Loss of organizational knowledge and expertise. Similar to many other engineering based organizations where staff operates on the basis of the project team model; there are advantages and disadvantages in the process of creation and maintenance of organizational knowledge. Inherent in project teams are the subject area experts, who are the library / encyclopedia of organizational history, relevant information and mentors in their fields. It takes time and effort to develop new subject area experts if and

[21] Texas Department of Transportation *HR Manual 2006* p. 7-2 internal, confidential document

when the existing ones leave the Department either due to retirement or better opportunities.

Historically the department of transportation has benefited from relatively low attrition rates. Together the PERS 1 retirement benefits program, competitive salary and benefits packages, and career mobility encouraged employees to complete 30+ year careers with the department. As more state employees are enrolled in the PERS 2 and PERS 3 retirement benefits programs and as salary and benefit packages have become less competitive than local agencies and private industry, employees may no longer be compelled to spend their entire career with the state. As a result, the department may experience higher attrition rates. Just in retirements alone, it is anticipated that by December 2009, 1,476 employees could leave the Department, of which 493 employees are within the engineering and technician ranks as shown in **Summary Table 42**.

Summary Table 42
Retirement Eligible Staff (December 2004 to December 2009)

Category	12/2004	12/2005	12/2006	12/2007	12/2008	12/2009
Agency Total	586	163	162	202	177	197
Engineer Occupational Group	221	69	58	77	65	72
Engineer/Planning Class Series	192	67	55	67	49	63

WSDOT faces a significant challenge. It is essential for WSDOT to focus on how to develop, fund and implement retention and recruitment strategies that could not only keep the valued organizational knowledge within the Department but are essential to delivering the programmed capital program. However, many of these initiatives will require investments of funds and operational changes that are not within the control of WSDOT. So not only must an effective set of strategies be developed but also a successful approach for convincing necessary stakeholders of the crisis situation must be adopted. The multiple levels of oversight to which WSDOT is subjected serve to make this challenge even greater. The message must be that if these elements are not implemented now, WSDOT will not be in a position to meet the required levels of performance set out by these external parties. In order to further develop effective strategies, cross-organizational support and communication will be extremely important. It will be essential to know which class of employees in what regions displays the highest risk of leaving the Department. Then, these risk areas should be prioritized / ranked in severity and compared with the relative value for each class based on their role and responsibility in the project delivery cycle and the opportunity for effective outsourcing of their responsibilities.

Currently, we have identified project planning, design, and construction; real estate; and project control and reporting as the areas that the existing staff will be experiencing an increase in workload in the near future. This increase in workload could cause a reassessment of the staffs' commitment and loyalty to the Department.

5. WORK FORCE ACTION PLAN

Based on the information gathered to-date on the WSDOT's workforce, it is safe to say that the Department will face significant challenges maintaining the necessary workforce to meet strategic goals and deliver the $15 billion program. As other DOT's around the country are finding, this is not a problem that can be "solved," but it can and must be managed. As the Department has already begun, it is imperative to focus on steps to help WSDOT manage this situation, and obtain the necessary support and buy-in from external parties who will have to act in cooperation with WSDOT to address these workforce issues.

The workforce challenge will need to be addressed through a combination of aggressive approaches for recruitment, training, development and retention of WSDOT staff along with an increased reliance on external partners for key skills and resources.

There will be steps that WSDOT can implement on its own, such as training and development programs, and others that will require broader administrative or legislative authority, such as changes to compensation and benefits.

WSDOT has already initiated some programs to focus on the problem as previously identified in Section IV. As additional information is developed from the other tasks under the SPMG's current scope of services, it will be assessed to determine if additional specific recommendations might be appropriate for managing the workforce challenge.

The following are some key findings and recommendations offered as Strategies based on information assessed to date and each includes a suggestion for the first step towards implementation. These are presented as preliminary concepts and the intent is to further develop and refine these strategies in conjunction with WSDOT after WSDOT's initial review of this draft report. Before finalization of this report, an interactive discussion workshop is proposed with the appropriate WSDOT staff to discuss these strategies and then add further tactical action elements. Separate from this Workforce Analysis, for the Strategies that are accepted, detailed implementation plans with schedules and work assignments will need to be prepared.

5.1 WORK DISTRIBUTION AND OUTSOURCING STRATEGIES

5.1.1 New Skill Sets

The growth in the program brings with it the need for not only increased numbers of staff, but also new/emerging skill sets. For example, project and program management skills will be required in growing numbers, as will the need for qualified WSDOT personnel to oversee and manage outsourced staff and integrate blended teams to work together effectively. Additional, re-focused training will be necessary to develop and maintain these new and enhanced skills. This growth in management responsibilities is at odds with mandates to reduce certain management positions within the Department, and clearly is one of issues that must be addressed by policy makers.

5.1.2 Efficiency and Technology

Efficiency must be an element of WSDOT's strategy for managing the workforce challenge. However, efficiency gains alone will not be sufficient to handle a program that is growing by 400 projects and over $15 billion. The most dramatic improvements can come from technology and associated tools that provide new capabilities as well as better and more timely information for decisions and management. As efficiency gains are sought it is essential that effective Program Delivery must be the primary drivers of the systems not technology itself. Technology is making it increasingly feasible and convenient to have work performed from remote locations (and is consistent with previously-cited shifts in work habits/expectations among younger workers). Traditional practices of having geographically-based staff working on projects within their "turf" while often easier may simply not be possible in the future WSDOT environment. Simply put, there is no reason that everyone working on a project in Seattle has to be located there. One opportunity that WSDOT may have to offset lower salaries is the ability to hire and locate staff in lower cost of living areas, while working across regional boundaries on a geographically diverse range of projects as it has begun to do on a few specific projects.

5.1.3 Strategic Outsourcing

A reasoned, strategic approach to the increased use of external support is a necessity. While a preliminary strategy is underway, clear policies and guidelines should be developed for routinely determining the type, scope and scale of work to be outsourced. This will provide greater stability and clarity both within WSDOT and with its external partners, resulting in a more efficient, cooperative deployment of resources.

5.1.4 Strategies

Strategy # 1—One Program Delivery Team
Large, complex organizations such as DOTs often do not have a single culture but become an assortment of "mini-DOTs". The key to a high performance organization is to appreciate the differences and make them work for the benefit of the employees while at the same time assuring that the programs implemented support the behavior and actions desired across the organization. A program of the magnitude facing WSDOT can only be effectively implemented if the message and tools are all oriented to WORKING TOGETHER to deliver a successful program. While this can sound like platitudes that have no real meaning, if every strategy implemented is developed with this concept at the forefront there is a much greater likelihood of achieving the desired outcome.

First Action: Use a series of facilitated work sessions to both identify key areas where Project Delivery employees see conflicts or non-productive activities and propose solutions.

Strategy # 2—Identify Critical Experience Requirements
As we discussed earlier, the creation and retention of knowledge within the organization is extremely important to the Department's long-term success. Therefore, it is recommended that WSDOT executive and middle management staff define what critical experience is required in the organization over the next 15 years.

First Action: This effort can be facilitated by conducting a group workshop where a common understanding of challenges and processes are discussed along with the opportunities and obstacles to implementing a program to promote gaining these critical experiences.

Strategy # 3—Define Outsourcing
As mentioned above, in order to streamline the use of consultants to support WSDOT in achieving its highway construction objectives, a clear policy and procedure should be developed around outsourcing. The elements to include would cover the type of work to be primarily outsourced, optimal duration of contracts, annual budget to be expended on these contracts, and management and reporting requirements. Part of this plan would address how to use consultants to cover short-term gaps if recruitment approaches do not fill needed positions as quickly as desired. We recommend that the draft of this document be reviewed by a representative sample of the consulting community and other interested parties such as the bargaining units before it is finalized. This will provide the opportunity to address any comments that may be received for a more successful roll-out of the outsourcing program.

First Action: Document existing outsourcing plans and use as the basis for a long-term Outsourcing Strategy. This should include a "gap" strategy related to short-term supplementing of staff positions, if needed.

5.2 RECRUITMENT

The challenge of staffing entails both identifying potential candidates, and screening those individuals to provide a pool of candidates that fit the WSDOT culture with skills to match the open positions. In other words what is wanted is the right candidate, a match with the organization and the position, not just any candidate. As covered in earlier sections, there are key roles that are in high demand across the nation and in Washington State as a whole: Civil Engineers, Project Management, ROW, Planning and Computer Specialists. In the case of many of these positions, industry firms and government employers seem to want young employees with cutting edge know-how in very specific areas. Additionally employers are anticipating tremendous loss of employees in the next 10 years when many baby boomers leave the workforce for retirement. Despite the perceived squeeze in the marketplace for these employees there are several best practices for overcoming these strategic issues.

From an incentive standpoint, currently WSDOT has the ability to appoint salaries that are assigned within the Step A through K range of consideration that has been assigned to the particular class. For WMS, the Department has the ability to assign salaries within the approved banding (WMS Band 1, 2, 3 and 4). WSDOT also has the authority to grant relocation lump sum benefits to applicants that are hired into most positions (I am not sure if this is for all positions). The limit currently is outlined in the Relocation Chapter of the Human Resources Desk Manual. The lump sum relocation compensation payment may not exceed ten thousand dollars ($10,000) except in those circumstances where a nationwide recruitment was conducted for executive level positions in which case the payment may not exceed twenty-five thousand dollars ($25,000). This exception may only be approved by the Secretary of Transportation. The funds must come from the budget of the organization filling the vacant position.

Strategy # 4—Re-evaluating the Basic Requirements

At this time, WSDOT requires a professional engineering license for most E4 and above positions regardless of the specific job responsibilities. With the challenges of attracting highly experienced engineers, it is recommended that WSDOT re-evaluate the necessity of the Professional Engineer (PE) requirement for several positions. The goal here is to maximize the use of available PEs to those areas that are absolutely essential. For example, a PE license is not customarily required for performing project control and reporting or most construction management activities. The relaxation of this requirement will create a new track for non-technical engineering managers who focus on other important skills that do not mandate a Professional Engineer license. This should be accompanied by appropriate certification programs in disciplines such as Project Management, Construction Management, and Project Controls.

First Action: In conjunction with the development of more specific job descriptions, a task force should be convened to restructure the specific requirements.

Strategy # 5—New Targeted Recruitments
The targeted recruitment strategy would be two-fold. One is to target the retiring pool of employees and the second is to put together an approach to seek out non-civil engineering personnel.

Target retirees. As mentioned above, the retiring baby boomers are a valuable resource for permanent and temporary part-time workers. WSDOT already tracks the Highway's and Local Programs list of retirees that have made themselves available to work. This resource could prove to be a goldmine when the loss of organizational knowledge is at stake. [The link to this resource is http://www.wsdot.wa.gov/TA/T2Center/Retired.htm.]. In addition, the Pacific Northwest is an attractive area to recruit early retirees from transportation agencies outside Washington.

In order to successfully utilize the retired or retiring staff for part-time employment, WSDOT should create and promote this category of employment as part of its BRAND, as discussed in detail below.

Recruit Non-engineers. Once Strategy #3 is in place, recruitment activities should also focus on non-civil engineering personnel looking in programs that specialize in areas such as Construction Management.

First Action: Convene a group of WSDOT retirees to provide suggestions on what conditions would make it attractive to return to WSDOT.

Strategy # 6—Selling the Value Proposition
WSDOT should develop a BRAND and market it through job announcements and project updates on the website and within the communities they serve. This will sell the value of their products and services while they promote/advertise the benefits of employment at the Department.

A key component in employment strategy today is "employment branding.[22]" The idea is to understand who the organization wants to attract and what those individuals as a group find attractive about what is offered by the organization in return. Finally, it is key to clearly communicate this to perspective employees.

As an example, the New York City DOT (NYCDOT) has produced a brochure targeted at potential employees who are civil engineers, recent graduate of engineering programs or are currently training to become an engineer. [http://www.nyc.gov/html/dot/pdf/engbrochure.pdf] This brochure looks like a marketing piece that one might find for any other product: key

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[22] Eisenberg, Bernie, Cydney Kilduff, Susan Burleigh, and Kevin C. Wilson (2001) *The Role Of The Value Propsition And Employment Branding In Retaining Top Talent.* SHRM White Paper

features of the opportunity are described as well as the different “flavors” that engineering jobs can take at NYCDOT. The positions are described as creative, exciting, challenging and forging new directions. The many responsibilities and roles that are possible are detailed, for example Systems Engineering, Ferry Division and the Division of Bridges. The brochure speaks to the common goals that engineers have and matches them with the unique opportunities that NY City supplies.

It is important to see that any agency can sell their value to potential employees. The Texas DOT (TxDOT) demonstrates another case of the same “branding” methodology. In this instance, the website where job vacancies are listed has an entire section lucidly communicating the “hidden” benefits for DOT employees as shown in the **Summary Table 13** TxDOT Total Compensation Chart below. Contending that TxDOT compensation includes more than just a salary, the percentage of non-salary compensation is calculated and graphically illustrated with a pie chart. Furthermore, each part of the benefits package is itemized on a line item basis below showing potential employees the dollars value of the amount of additional compensation that they receive as DOT employees.

Both of these examples show how it is possible to market the key attributes of the organization that are likely to be attractive to the ideal labor pool. Moreover, identifying these attributes will also assist in the retention strategies that follow.

First Action: Using the information obtained in this study and specifics on WSDOT overall benefits, prepare a preliminary Branding message to use on the website and in recruitment.

Summary Table 53
TxDOT Compensation

Example: Engineering Graduate

Typical annual salary for first year engineering graduate	**$36,000**
Hidden Compensation:	
Social Security (7.65%)	$ 2,754
State contribution to retirement fund (6%)	$ 2,160
Vacation (12 days a year)	$ 1,662
Sick leave (8 hours per month)	$ 1,662
State holidays (average 13 per year)	$ 1,800
Medical insurance provided by the State for individual employees	$ 3,787
TOTAL	**$13,825**

So this employee earns $36,000 a year, but their job is actually worth 38% more—or $49,825. And with other value-added programs, the "silent" numbers could be as high as 45%. These salary enhancers include:

- tax benefits of deferred compensation
- pre-tax medical and child care accounts
- training and professional development opportunities
- advanced education assistance

Source: Texas DOT http://www.dot.state.tx.us/employment/hbenefits.htm

Strategy # 7—Create a Flexible Recruitment
Frequently in a marketplace crowded with potential employers for highly qualified employees, the ability to attract an employee requires the agility to meet their most pressing needs. Two factors play a significant role in the need for flexibility; the length of the job search and hiring process combined with the monetary requirements of a potential employee.

All DOTs have procedures that must be met in order to fairly hire employees across these large organizations. These procedures include salary ranges to ensure pay equity and rules about posting times, number of interviews and approvals needed to make a hire. However, in response to the market realities, some DOT's have improved their flexibility and nimbleness, resulting in better and timely placements.

As an example Florida DOT, is completely decentralized in its decision-making processes, leaving Human Resource decisions for the manager in each district. These mangers are held accountable to their budgets, but given the freedom (within guidelines) to work within these budgets. Therefore when it

comes to hiring employees, district managers have the discretion to pay what they can afford within the budget. Similarly, in Colorado, for certain targeted positions, hiring supervisors are able to add a 15% premium onto the usual salary range in order to attract the necessary candidates. As of July, 2005 WSDOT negotiated a new term for recruitment of its employees which allows the Department to advertise the project / position specific needs and requirements instead of a general job class description. This will assist WSDOT in recruiting the individuals with the right skills for its high performance teams.

In Texas, the DOT has a program called Rapid Hire Program that is available to provide an accelerated hiring process to meet critical staffing needs. [23] The program allows a hiring supervisor to interview and conditionally hire a candidate if that job opening has been pre-approved for this program. In this manner, potential candidates are snapped up while other employers, especially other government agencies, are putting them through a number of interviews or bureaucratic hoops.

Regardless of the details of the program, some DOT's enjoy the benefits of flexibility in hiring positions that are difficult to fill. These examples demonstrate that even within the confines of a state agency, with targeted planning and consistent execution, it is possible to move strategically in a tight labor market. WSDOT is moving toward this approach with the use of the "in-training" concept where a higher salary position is offered to entry level engineers that will be trained for the position while at the Department. However, the salary cap is still applicable at WSDOT.

This flexibility is extremely important when the cost of recruitment is factored into the overall project delivery costs. That is why in most private companies employees who help recruit qualified candidates are rewarded financially. While financial rewards are not allowed in the public sector, other non-cash rewards may be used to express gratitude in recognition of staff's recruitment efforts.

First Action: Quickly gather information from each hiring manager and human resource personnel involved in hiring to create a "top ten" list of challenges to rapidly hiring the right people along with suggestions for overcoming them.

Strategy # 8—Employer of Choice

Completing the picture by combining the strategies mentioned above into an effort to brand the organization as an Employer of Choice will ensure that the labor market perceives clear fundamental value in the opportunity to work at WSDOT. This requires evaluating the strengths of the organization, knowing which ones match the preferences of the ideal candidates and openly marketing those aspects to potential applicant (i.e. a friendly place to work).

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[23] Texas Department of Transportation *HR Manual 2006* internal, confidential document.

Incorporating this approach to the staffing process entails creativity and the ability to express how WSDOT may offer top candidates attractive opportunities.

A good example of this was cited earlier when the NYCDOT brochure was discussed. This lively tri-fold flyer calls out the kinds of attribute about NYCDOT that may pique the interests of top talent. It includes photos as well as the many disciplines that civil engineers may be able to work in. Potential attributes of WSDOT to articulate as integral to the ”WSDOT package” are: once in a life time projects and challenges, the state’s unmatched beauty, aggressive project schedule which will require the best engineers in the world, mentorship and training to ramp up quickly and remain in the top of the field.

Additionally, emphasizing the compensation package as a whole (rather than just the base salary) would complement efforts to position WSDOT as an Employer of Choice. The compensation spreadsheets in Appendix D can provide a good base comparison to convey this message.

First Action: Interview all recent hires to create a list of reasons they joined the organization for use in the hiring and marketing process. Implement a follow-up program to contact all candidates who did not choose to join the organization to ascertain the major reasons for their choice.

Strategy # 9—Employee Development as Key Attractor

WSDOT has a very broad and well-supported training program already in existence. The fact that WSDOT is willing to train employees on relevant systems, software and professional development translates into being well-positioned to attract employees who are well-qualified, but may need specific skill enhancement. This places WSDOT in an optimal position to attract top talent that maybe over looked by other establishments without the same commitment to training as WSDOT. Any materials produced in line with the positioning WSDOT as an Employer of Choice should highlight WSDOT’s training program, including specifics about what new and mid-career professional can expect.

First Action: Prepare a concise description of the training opportunities offered by WSDOT to include as part of the information provided candidates.

Strategy # 10—Leveraging Outsourcing

As an extension of employee development, WSDOT can use the staff’s opportunity to work closely with experts in various fields as an opportunity to train future WSDOT staff and increase its knowledge base though integrated teams. Design-build implementation strategies or other innovative project implementation strategies are excellent candidates for leveraging the outsourcing opportunities to train and attract new staff.

First Action: Explicitly include in the General Engineering Consulting contracts the requirement for specific knowledge transfer as part of the work effort.

5.3 RETENTION OF KEY PERSONNEL

Both the training and human resource policies of WSDOT have successfully matched the departments' strategic goals with employee needs and desires. This "win-win" situation results in employees that feel valued and DOT's that may reduce turn-over, even when it seems inevitable.

A "best practice" strategy that will help grow the capital that WSDOT has invested in human resources is the strategic approach to human resources. Many human resources professionals and academics that study the employee-employer relationship share this vision of the role of human resources professionals and the strategic approach to managing those resources[24]. More importantly by aligning human resources practices with organizational goals, managers ensure that efforts for staffing and retention are focused and effective.

What is meant by Strategic Human Resources? There are three key concepts in Strategic Human Resource (HR) management that underscore and support any HR practice. Firstly, HR policies should not be considered in isolation; they are part of a system. Any HR policy should work in concert with other policies and should relate directly to critical organizational goals. The discussion below will describe several best practices, always in the context of how it is aligned with organizational demands. Moreover, each recommendation should slot into the existing system at WSDOT, and not be at odds with other strategically aligned policies.

Second, it is critical that all managers truly believe that human resources are something to invest in, not something to expend. As Baron and Kreps have put it: *General Managers should think of human resources as a form of capital*.[25]

Third, HR strategies are difficult to modify or transform, precisely because they involved the shifting of delicate human capital. Consideration and reflection to ensure the right strategy are important. Research performed in association with this report supplies the foundation for the following best practices both in terms of identifying key organizational requirements to fulfill aggressive goals, but also in finding the ideal strategies to meet those needs whether in the private sector or at other Departments of Transportation.

The key component to employee retention is to maintain an alignment between the needs and desires of the organization's critical human capital and the benefits of employment. These benefits may be programs like deferred

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[24] For a comprehensive view of this approach visit http://www.shrm.org or the very readable text "Strategic Human Resources: Frameworks for General Managers" by James N. Baron and David M. Kreps, John Wiley and Sons, New York, 1999.

[25] From "Strategic Human Resources: Frameworks for General Managers" by James N. Baron and David M. Kreps, John Wiley and Sons, New York, 1999 p. 11.

compensation and health insurance, but more likely they are more targeted programs like professional development and job satisfaction.

One of the highest turnover rates (18-19%) in the Department is the Transportation Engineer 1. Recent interviews with E1s have resulted in recommendations that reinforce this approach. Many of their suggestions are specifically addressed in other strategies such as mentoring, rotation opportunities, compensation and flexible work schedules. Other suggestions highlight other "softer" elements that improve the communication and sense of team such as:

> WSDOT 101 – Increase employees' understanding of their part in the bigger picture of WSDOT.
>
> Regional Information Sharing – Periodic meetings to share information and best practices among the regions.
>
> Coffee with the RA - Regional Administrative Officer periodically randomly selects employees to have a short one-on-one "coffee break."

Strategy # 11—Avoid the Exodus

Many employers believe that their staffing needs will be greatly impacted by the number of baby boomers exiting the job market in coming decades. Much like the customer service mottos – it is less costly to retain an employee than replace them. There is the possibility of stemming the tide, which involves retaining many of these older and experienced employees. As mentioned in the data section, not all baby boomers may want to retire at first possibility. Some boomers may just want an adjustment in their work schedules. If an establishment can accommodate some of these less traditional work arrangements, they will be rewarded with the continuity that retaining valuable employees brings. This results in less disruption, fewer hiring needs and available mentors for new engineers. In fact, the matching of these valuable experienced employees as strong mentors can have a significant positive impact on all parties involved.

Modified retirement or putting off retirement ensures an older employee's continued involvement as long as possible. In this modified role there is often a greater willingness to transfer organizational knowledge as well. Examples of flexible work arrangements include flex-time, part-time work and ratcheting back responsibilities. These options allow a life style that is not retirement, but does reflect difference goals that some older workers have like travel and pursuit of other interests.

Although more flexible work arrangements may seem difficult to execute given the usual rules for DOT employees, it is possible to clearly lay out the criteria, develop procedures and match department goals with such a flexible work plan. Colorado DOT has implemented a flexible "space" program

(telecommuting) with specifics as to eligibility, procedures, space requirements, and inspection rules. Florida DOT offers flex time as well as telecommuting. These programs are less formal than those in Colorado, only requiring the districts to manage flexible arrangements based on their needs. These programs are not specifically targeted to older employees but can be beneficially used in that demographic. Further, although these programs are attractive to older employees, other employees (like parents or those with long commutes) may also welcome these arrangements.

First Action: Interview all employees who have indicated a desire to retire in the next two-three years to determine what type of flexible work arrangements would encourage them to stay with the organization for a longer period of time.

Strategy # 12—High Performance Mentoring

A comprehensive mentoring program has multiple benefits to the organization; passing on the organizational knowledge to the young engineers, engaging mid-managers and increasing their commitment and loyalty by building close ties to their staff, and transitioning new recruits. Specifically mentoring can be a key component of the socialization process for all of the engineers. Thus the mentoring program is a developmental opportunity for mid-career managers and a training opportunity for in-coming hires. Mentoring programs are frequently used by large private firms to enhance performance and loyalty among the ranks as well as retaining the "tribal knowledge" within the organization. The most effective mentoring programs are not between direct reports and are tied to career "tracks."

Instituting a mentoring program can be extremely challenging at a time when work loads are dramatically increasing. As mentioned above, employees that enter a "modified retirement" work schedule can be good candidates. Another way to have mentoring help is to use the folks that have retired for working with the younger engineers.

First Action: Contact all recent retirees to ascertain their interest in providing mentoring.

Strategy # 13—Communicate, Communicate, Communicate

As discussed earlier, communication is the most effective tool available for establishing a high performance team by building trust, respect, and sense of value for all involved. Therefore, we recommend that WSDOT evaluate its internal communication strategies with a focus on maintaining the interest and enhancing the commitment of its existing staff. The key elements of communication are flow, tone (respect and trust; how it is delivered), and content (information, feedback and input). Effective communication remains a key job satisfaction issue, particularly for professionals whose self-image is of a competent self-starter who will get the job done, no matter the circumstances.

While this is often considered a “soft” skill, the modeling of effective communication skills by all management personnel along with setting performance standards in this area can yield significant results.

First Action: Establish standard communication charts for the projects within the Capital Program Delivery domain, clarifying project delivery process and contribution of all involved. Coach managers and leaders in facilitative leadership techniques that enhance staff’s sense of value and commitment to WSDOT.

Strategy # 14—Train that Brain

Professional development is crucial to retaining the employees who want to remain current in technological advances. It is the best way for the organization to continue to support and match its goals with those of its employees. Besides the job specific training that is well established and managed at WSDOT, opportunities for temporary or permanent cross-training should be explored to enhance the technical knowledge of employees and prepare them for future opportunities. A formal job rotation program such as the one at the Florida DOT that focuses on providing a two year opportunity for their new college hires to gain experience in different parts of the organization has proven to be an effective way of placing new hires wherever the Department needs are most urgent.

As WSDOT already has an extensive training program this approach is the “next level.” It would involve enhanced approach on career tracks and making sure that employees have the necessary skills to enhance their job satisfaction or move to their next desired position. There would be an increased emphasis on customization and use of on-line training as well as certification programs including various levels of Project Management.

Institutional knowledge should be captured in a searchable database containing the latest policies and procedures. Any employee can then access this information and need not waste time and energy finding the person who can answer their question about policies or procedures. In addition, information should also be documented of employee specific skills and expertise for those cases where a more in-depth consultation is needed.

First Action: Take the most common training programs and convert them to an on-line format to enhance access.

Strategy # 15—Set Expectations and Recognize Accomplishments

WSDOT measures its performance by tracking and reporting on the milestones for project delivery. However, many of the project delivery team members do not participate in a formal or informal performance evaluation process on a regular basis. The key to increasing the use of this tool is to be able to use it as a communication tool and measurement against performance standards. By establishing regular performance reviews, the staff will be has the opportunity to develop their own performance objectives and gain a sense

of accomplishment when they meet their personal objectives. Recognition of accomplishments by their supervisors and peers has a resounding impact on their job satisfaction and their long-term commitment to the organization. However, the key to an effective performance evaluation program is for it to provide benefit to the employee and supervisor rather than being a box to be checked by photocopying the form from the prior year.

First Action: Solicit volunteers to participate in a pilot performance evaluation program focused on the improving performance and job satisfaction.

Strategy #16—Increased Compensation Based on Performance
While it would be expected that WSDOT salary level might not match those in the private sector, it will critical to retention of the necessary staff to assure effective stewardship of the resources that the overall salary levels be increased to be more competitive with local government salaries. Even though the significant increase in levels of responsibility and stress to deliver this capital program can be seen to justify increases in salary levels it will not be easy to obtain the necessary buy-in from stakeholders. One cost justification is that it will take a certain work force to deliver the capital program and if WSDOT cannot retain and hire necessary qualified staff, the work will be outsourced at even higher costs. The most viable program would likely be one where the salary ranges are raised in addition to inflation over a period of five years but the incremental increases are segregated to be awarded based on work loads and performance. This compensation analysis should include further consideration of additional pay for positions that are located in areas of higher cost of living.

Due to the concerns that salary increases are likely to engender, this would only be a partial solution and would need to be combined with an effective incentive program that does not rely on permanent salary increases.

First Action: Convene a small task force to further detail the key elements of this strategy and determine the specific steps needed to implement at least a pilot performance-based system. This should be combined with Strategy #17.

Strategy # 17—Implement Incentive Programs
Once the performance objectives are clearly defined, a targeted incentive program will be most useful to keep the staff's commitment to WSDOT a long lasting one. The incentive program should be designed to be comparable within the competitive market WSDOT is seeking to attract its new employees and to keep the existing ones. As the critical factor is retaining high performing personnel the incentives must be combined with an effective performance evaluation system and be designed around rewarding employees for remaining at WSDOT and assuring successful delivery of the capital program.

Since this will require additional stakeholder review and approval, it is recommended that all the details of an incentive program be defined and

approved prior to its advertisement either internally or externally. Incentive programs can include training and developmental activities such as executive MBA and membership in professional organizations.

First Action: Convene a small task force to further detail the key elements of this strategy and determine the specific steps needed to implement at least a pilot incentive system. This should be combined with Strategy #16.

Strategy # 18—Create New Career Tracks

It is essential for WSDOT to retain its experienced staff, especially who contribute to the project delivery program. Since the addition of new employee groups to the Federation union, it is most important to develop new job classification clarity and growth opportunities for all. We recommend that WSDOT evaluate the existing job classifications and corresponding responsibilities and identify where commonalities can be identified. Then based on these common areas of responsibilities, create positions that best promote the use of key skills. Career tracks would be identified for individuals based on their career goals. These could include a more extensive Technician track for duties where a PE license is not required or activities such as separating the Construction Management functions that can be accomplished without a PE. Work is already underway to develop the Construction Management track, Individuals who are interested in a long-term career with WSDOT can have an early identification and mentoring to assure they have the skills and experience to maintain sufficient challenges and opportunities for promotion. This can help deal with stress factors in a particular position.

First Action: Use the Construction Management work already underway as a template for creating and identifying additional career tracks.

5.4 NEXT STEPS

5.4.1 Create a Rapid Plan

As indicated above, once WSDOT leadership has had the opportunity to evaluate the proposed strategies, an interactive discussion needs to be held to determine which strategies deserve further consideration and prioritize those. At that point, additional tactical action elements will be added to finalize this report.

As the next step after completion of this Workforce Analysis Report, for the Strategies that are accepted, more in-depth analysis will be needed on the detailed elements, schedules and work assignments to implement these plans. As this work moves forward, it will be important to include all the key stakeholders for the implementation of the new programs.

To produce the maximum benefit, it is recommended that a new Workforce Enhancement Program be created that includes the highest ranking of these strategies to be implemented together. While under normal circumstances a slower and more incremental change process is preferred. In light of the upcoming program delivery demands, WSDOT does not have the luxury of time. A comprehensive workforce management program needs to be further developed and implemented as soon as possible.

5.4.2 Stop Gap Solutions

In parallel with the development of this comprehensive program, there are some short-term solutions that may assist in managing workload and reducing burn-out of the Project Delivery staff. One such opportunity would involve other divisions within WSDOT. For example, to address the immediate staffing problem, look within the WSDOT organization for assistance with the project delivery and support functions. Within the Department's workforce resource, there are classes of employees that could be utilized, either permanently or temporarily, to assist with the implementation of the highway construction program. These resources may include engineering and technicians that currently support operations and maintenance activities. Some maintenance team members are currently participating in the highway construction program already at a limited capacity.

WSDOT should identify the staff that can use their organizational knowledge to quickly transition into the project delivery team, such as transportation technicians. The challenge will be enticing these members to join the highway construction program by creating a career track that facilitates this distribution of resources. In effect, the Department will train their existing staff to perform duties associated with the positions for which they have experienced the most difficulty in recruitment.

Subsequently, the Department can either fill the position which has become vacant or outsource the responsibilities on a temporary or permanent basis.

5.4.3 Training and Development

Other parallel activities would include the development of new training and development tools for the new staff. This area can assist WSDOT goals in several ways. Just in time training can be provided by creating on-line modules from the existing comprehensive training materials. In this way, training in several topics would be accessible at anytime when the staff members need to acquire new skills for specific functions. These self-driven on-line training modules will minimize the requirement for complex scheduling of regional training and can reduce the requirement for engineers as trainers as well as the time required for travel to participate in such training classes.

WSDOT is already engaged in the senior leader succession and development programs. A similar development program for the middle managers is being

considered and developed. It is recommended that WSDOT consider the development of middle managers a high priority. In collaboration with the HR team a "Transitions" program can be developed specifically for the leaders and managers to support these individuals in their journey by providing executive and leadership coaching.

5.4.4 Change Management

Last but not least is the essential need for change management. As discussed earlier, WSDOT will go through many changes in the near future to implement its capital program. If WSDOT is not proactive, change will happen and can easily create more difficulties than imagined. The most effective change management team is built with "champions" in all areas. This should include representatives of unions and the change management process should gain their support before launching the workforce enhancement program. The key areas of this change management will include steps on how to welcome new employees and quickly transition them into productive members of the team, how to work in new ways with flexible schedules and team members living and working in other geographical regions, how to roll out a meaningful mentoring program, how to create a effective incentive program that rewards the behaviors essential to the successful delivery of the capital program, how to work effectively with co-located consultants, and manage outsourcing while keeping the team spirit.

APPENDICES