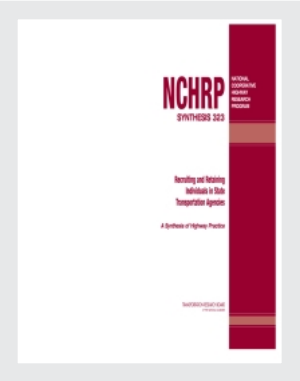

Recruiting and Retaining Individuals in State Transportation Agencies

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Recruiting and Retaining Individuals in State Transportation Agencies

A Synthesis of Highway Practice

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP SYNTHESIS 323

Recruiting and Retaining Individuals in State Transportation Agencies

A Synthesis of Highway Practice

CONSULTANT

THOMAS R. WARNE, P.E.
Tom Warne and Associates, LLC

SUBJECT AREAS

Planning and Administration

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in Cooperation with the Federal Highway Administration

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The project that is the subject of this report was a part of the National Cooperative Highway Research Program conducted by the Transportation Research Board with the approval of the Governing Board of the National Research Council. Such approval reflects the Governing Board's judgment that the program concerned is of national importance and appropriate with respect to both the purposes and resources of the National Research Council.

The members of the technical committee selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and, while they have been accepted as appropriate by the technical committee, they are not necessarily those of the Transportation Research Board, the National Research Council, the American Association of State Highway and Transportation Officials, or the Federal Highway Administration of the U.S. Department of Transportation.

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FOREWORD

By Staff
Transportation
Research Board

Highway administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to highway administrators and engineers. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire highway community, the American Association of State Highway and Transportation Officials—through the mechanism of the National Cooperative Highway Research Program—authorized the Transportation Research Board to undertake a continuing study. This study, NCHRP Project 20-5, "Synthesis of Information Related to Highway Problems," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an NCHRP report series, *Synthesis of Highway Practice*.

The synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

This report of the Transportation Research Board will be of interest to state departments of transportation (DOTs) management and personnel, as well as to other professionals in both the public and private sectors, who deal with the issue of recruitment and retention at the professional level. Work-force issues are at the forefront of discussions occurring within the ranks of public agencies and throughout corporate America.

This Transportation Research Board synthesis contains information culled from survey responses from transportation agencies and selected state employees. Surveys were sent to the 50 states and affiliate members of the American Association of State Highway and Transportation Officials, and 13 Canadian provinces to assess the various strategies currently in practice, as well as gather data about a variety of agency characteristics. A second survey of state employees in Maryland, Nebraska, and Utah was undertaken in an attempt to validate, in both utility and effectiveness, the strategies identified by the states. This information is combined with and reviews applicable literature to yield a compendium of successful practice, including those that might have the greatest potential for success and implementation in other state and province DOTs.

A panel of experts in the subject area guided the work of organizing and evaluating the collected data and reviewed the final synthesis report. A consultant was engaged to collect and synthesize the information and to write this report. Both the consultant and the members of the oversight panel are acknowledged on the title page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

CONTENTS

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This study was managed by Donna Vlasak, Senior Program Officer, who worked with the consultant, the Topic Panel, and the Project 20-5 Committee in the development and review of the report. Assistance in project scope development was provided by Stephen Maher, P.E., and Jon Williams, Managers, Synthesis Studies, and Amelia Mathis. Don Tippman was responsible for editing and production. Cheryl Keith assisted in meeting logistics and distribution of the questionnaire and draft reports.

Crawford F. Jencks, Manager, National Cooperative Highway Research Program, assisted the NCHRP 20-5 Committee and the Synthesis staff.

Information on current practice was provided by many highway and transportation agencies. Their cooperation and assistance are appreciated.

RECRUITING AND RETAINING INDIVIDUALS IN STATE TRANSPORTATION AGENCIES

SUMMARY

Employees are the most valuable resource of any organization. Correspondingly, the issues of recruitment and retention at the professional level have become two of the most challenging that transportation professionals are facing in the 21st century. It is vital that these issues be addressed if state departments of transportation (DOTs) are to deliver the transportation systems needed to sustain the economic and mobility needs of our nation. Maintaining a competent and skilled work force will require an aggressive effort on the part of state DOTs.

The literature reveals the widespread nature of this issue in both public- and private-sector organizations. Other professions, including the medical profession and technology, face similar challenges. Studies on work-force development reflect the need to understand employee concerns today and into the future as demographics change. Successful programs designed to address recruitment and retention issues in state government must be developed to address the unique needs of potential and current employees.

In summer 2002, a survey was undertaken to assess the recruitment and retention efforts of the states. Twenty-seven agencies responded to this survey, offering significant insights into their individual programs. Although state DOTs share many attributes and activities, they also contain many differing elements. Size, staff makeup, jurisdictional responsibilities, political organization, services rendered, demographic characteristics, geography, turnover rates, and professional profile all contribute to the diversity of these agencies. An agency must consider all of these elements when designing a recruitment and retention program.

States offer a variety of recruiting programs to fill their ranks with professionals, which include engineers, engineering technicians, and information technology professionals. These programs have many similarities, including excellent benefits packages comprised of health, retirement, and vacation plans, and special training programs and compensation packages. Programs focused on information technology professionals are more often directed toward specialized compensation plans.

Bringing qualified employees into the work force is only one step in addressing the complicated issues facing state DOTs. With the continuing competition for the most qualified and skilled individuals, states have been aggressive in establishing retention programs consisting of training, schedule flexibility, reclassifications, and recognition activities. In some cases these retention programs face external challenges, such as lack of funding, that can impact their effectiveness. The failure of legislatures to fund compensation packages, benefits, and bonus programs can have a significant affect on retention efforts.

To validate and complement the information provided by the states, a second survey was sent to DOT employees in Maryland, Nebraska, and Utah. More than 950 professionals responded with a wealth of valuable information. These employees represent an educated,

dedicated, and experienced, although aging, work force. A significant number have been in their current positions for 10 years or more. The survey results further confirmed the uniqueness of each state's own circumstances and the need to design programs accordingly.

The employee survey sampled opinions and attitudes toward recruiting. Key factors that first attracted employees to a state DOT included stable employment, and health, retirement, and vacation benefits. In some cases, however, these desired advantages contrast with current state recruiting programs that emphasize schedule flexibility, professional development, training programs, educational assistance, and special compensation. Although the issues of stability and benefits in state recruiting programs are a part of virtually every state recruiting program, they are not necessarily seen as critical.

Employee retention was the second issue raised in this part of the survey. Approximately 25% of the respondents indicated that they were considering leaving state service. They identified future salary opportunities that were an improvement on their current salary opportunities and more opportunities for promotion as the most attractive factors of the private sector. These concerns differ somewhat from the major attributes of the retention programs as reported by the states. In some cases individuals return to state service, having been recruited back by the same advantages of benefits and stability that previously attracted them to the DOT.

Employees were also asked to offer insights into their job-related attitudes and working characteristics. Most such employees work a 40-hour week, but frequently take work home. They generally feel good about their contributions and the value this brings to their agency and community. However, these employees express concern about promotion and compensation practices in their agencies, apparently believing that performance is not always rewarded nor that the most deserving employees are always the ones promoted. They reported "average" ratings for morale, but "good" ratings for their feelings of pride in being state employees.

One of the goals of this project was to identify "Successful Practices" in recruiting and retention. The recruiting process should feature those attributes that appear to contribute to success in this area, including highlighting the stable work environment, communication of benefits, special training programs, and compensation packages. Retention strategies must address major factors identified by the employees, including current and future salary plans and promotional opportunities. Diligence in addressing these attributes in recruitment and retention programs should lead to greater success.

Recruitment and retention programs for professionals are vital to the success of a state DOT. Carefully designed and executed programs will have a significant impact on these crucial work-force issues of the 21st century. The vitality of our nation's transportation system and economy will be determined in great measure by how well the states address this situation.

CHAPTER ONE

INTRODUCTION

BACKGROUND

U.S. society is changing in many ways. Urban areas continue to grow as the young and the unemployed leave the rural agricultural regions of the country for promised opportunities in the cities. Our national demographics continue to evolve, bringing significant growth in many groups, with notable increases in Hispanic and Asian populations. There are different expectations, dreams, and ambitions. Life in the United States is also different today on a personal level, in the family setting, and in terms our professional lives.

Work-force issues are at the forefront of discussions occurring in corporate America and within the ranks of public agencies. Public- and private-sector organizations throughout the region are struggling to fill their ranks with individuals who possess the right sets of skills to deliver products and services to their customers. Unemployment levels in the last decade have further exacerbated this problem, with relatively low employment rates across the country and acutely low rates in high-demand markets or professions.

The nature of the work force is changing as baby boomers age and move into retirement. Those moving out of the work force are being replaced with a new generation of workers possessing their own set of ideals and expectations. Loyalties have changed as much as the work force. Gone are the days when an individual would seek employment with a firm or organization and remain for his or her entire professional career. Similarly, gone are the days when an individual could expect to be retained by a company through good times and bad for the duration of his or her working life.

There are probably very few industries where work force concerns are more acute than in the transportation industry. Challenges cross all modes, encompass virtually all skill sets, and appear to be more difficult to address with each passing year. The future state of affairs is not just a public-sector dilemma. The private sector, called on to deliver more and more services for public agencies, is facing similar challenges.

Many efforts have been undertaken to understand the problems pertaining to work-force recruitment and retention. In fall 2001, professionals from throughout the transportation community gathered in Washington, D.C., to launch the National Workforce Development Framework. The Framework initiative focuses on gathering data and advancing work-force development issues on behalf of the highway and transit industries. Additionally, in May 2002, the FHWA, FTA, and Research and Special Programs Administration cosponsored the National Workforce Summit in Washington, D.C., to further highlight the themes of work-force development and future needs facing the transportation industry. Participants in the National Workforce Summit came away with an appreciation for the complexities of the challenges that lie ahead and the absence of easy solutions. Efforts are now under way to advance what was only begun at the National Workforce Summit.

Many discussions on recruitment focus on filling the "pipeline." This refers to moving potential candidates through the educational system to the point where they are qualified and interested in a career in the transportation industry. However, most examiners of the work-force topic have come to appreciate that there is no singular pipeline through which to funnel potential employees into transportation organizations; rather, multiple conduits exist with connections among and between them. For example, a student who is interested in technical subjects could for a period of time follow the pipeline leading toward an engineering degree. At some juncture, he or she may decide to change course and obtain a credential in an information technology (IT) field. Ultimately, the student could end up working in a critical job class within a transportation organization, but arrive there by two very different paths.

Again, those engaged in the work-force discussion have come to realize the complexities of the challenge; it is multidimensional as well as multimodal. Strategies that address recruitment and retention issues for engineers are different from those for transit operators. What works for IT professionals does not necessarily address the issues that face engineering technicians. Individuals and organizations engaged in studying work-force dynamics are motivated by the realization that the industry will be unable to deliver products and services in the next decade without aggressive, deliberate actions today.

State departments of transportation (DOTs) have not been immune to the challenges of recruitment and retention. Nearly every state has expressed concerns about its ability to staff positions throughout the agency. State DOT demographics are changing in the same ways as in the work force at-large. When President Dwight D. Eisenhower signed the original

Interstate Highway Act almost 50 years ago, there was an upsurge in hiring at the state DOTs to meet the demands of this historic program. Through the ensuing decades, and even into the 1990s, this Interstate work force helped deliver a world class transportation system for our country.

The aging of this Interstate era work force has resulted in an employee exodus in the last decade at a rate similar to that of the increase experienced in the 1960s. State DOTs are now faced with replacing seasoned veterans of many highway projects with less experienced, although capable employees. This transition is happening in almost every state.

In many states, recruitment is also a concern—a problem with many facets that states are trying to deal with by using a variety of tools. Twenty years ago, a student with an interest in mathematics and the sciences would likely become an engineer and choose between becoming a civil, mechanical, or electrical engineer. Today, a university student with the same interests is just as likely to end up majoring in computer engineering, computer science, or some other IT field. Hence, the competition for qualified personnel begins long before a potential applicant even considers future employers.

Often the issue of recruitment and retention is further complicated by regional and demographic issues and situations; what works in Milwaukee may not work in Los Angeles. A union state will have different issues than a "right to work" state. Language issues become more and more challenging as immigration continues to bring many highly qualified new citizens to this country.

The work-force challenges are further complicated by external forces in the market and economy—forces in the form of high or low unemployment, national and world economic conditions, and the variances in highway funding. The fluctuation in demand for IT professionals is a good example of how the economy can affect a state DOT. As recently as 5 years ago there was significant competition for IT professionals, because the technology industry was experiencing historic growth and profits. Today, with the demise of many high technology companies the demand has moderated, and the recruitment and retention issues relating to these professionals has changed.

One of the challenges of performing this study is that it reflects the employment circumstances of summer 2002 and may not be an indication of what might occur 2 years hence. Impacts on the economy following September 11, 2001, higher unemployment, and stock markets in historic declines are all factors that influence the job market and those seeking employment. Thus, the reader should consider the information gathered for this report and the conclusions made in light of those circumstances.

PROJECT SCOPE AND OBJECTIVES

A high level of interest in recruitment and retention activities for professionals employed by state DOTs prompted the states to request this study through the NCHRP. Originally focused on engineers alone, the study was expanded to include other technical professionals and paraprofessionals. The objective of this project is to document existing recruitment and retention practices and implementation techniques used by the state DOTs. Of particular interest are programs and practices reported as most effective, as well as those that have proven to be less effective. Where information exists, the synthesis documents lessons learned and identifies relevant gaps. The vast majority of information received for this synthesis was derived from the responses received from state DOTs. Information specifically addressing the concerns of the Canadian provinces will be noted where applicable.

STUDY PROCEDURES

The process for completing this synthesis consisted of performing a literature review of the relevant works on recruitment and retention. Additionally, a survey was prepared to assess various strategies within the states relating to this subject. This survey was sent to the 50 states and affiliate members of AASHTO, and 13 provinces. Distribution was through TRB representatives in each state, who then turned to the Human Resources (HR) professionals of their organizations to complete the survey. Appendix A contains the complete survey. A listing of the 27 states and provinces that responded is found in Appendix B.

Analysis of the survey results prompted a review of how strategies identified by the states could be validated in both utility and effectiveness. A second survey of state employees was conducted in three states: Maryland, Nebraska, and Utah (see Appendix C). That survey was distributed to more than 1,600 professionals, and 952 responses were received, providing a wealth of additional information on the issues of recruitment and retention. This information is included in chapters four, five, and six and is compared with data provided by the state's HR professionals. The response rate for the second survey was Utah at 47%, Nebraska at 56%, and Maryland at 67%.

ORGANIZATION OF SYNTHESIS REPORT

The synthesis report is divided into seven chapters.

Chapter one provides background on the problem of recruitment and retention, along with the project approach and report organization.

Chapter two summarizes findings of the literature review, documenting common themes and observations. Included in this discussion are practices from other industries, as identified through the literature review, which appear to have application to the transportation industry.

Chapter three presents a demographic overview of the state transportation agencies, with an emphasis on the attributes that would influence their recruitment and retention practices. The discussion includes a review of the various and unique circumstances of job classifications that represent recruiting and retention challenges for state DOTs.

In chapter four, the status of recruiting efforts within the state DOTs is presented, including historical trends, internal and external factors affecting recruiting, plus the general effectiveness of their efforts to recruit professionals into their organizations. Featured are the results of the employee survey and an analysis of the significant recruiting issues from both the employer and employee perspectives.

Chapter five presents the status of the retention efforts within the state DOTs, including historical trends, internal and external factors affecting retention, and the general effectiveness of their efforts to retain professionals in their organizations. This chapter also contains data from the employee survey and an analysis of the contrasting viewpoints between employee and employer on effective retention strategies.

Chapter six provides a summary of the survey data—the project findings relating to general employee attitudes about their work places and environments.

Chapter seven summarizes the best practices and program characteristics based on the data gathered for this project with appropriate conclusions.

Finally there are the following five appendixes:

Appendix A—Employer Survey,
Appendix B—States and Provinces Responding to the Survey,
Appendix C—Employee Survey,
Appendix D—Recruitment: Narrative Responses, and
Appendix E—Retention: Narrative Responses.

CHAPTER TWO

LITERATURE REVIEW

Recruitment and retention are problems that pervade many industries and exist across the region. Examples of industries dealing with these problems include health care (Buchan 2002) and IT professions (DeMers 2002). TRB began to publish research on this topic in 1985 (*Special Report 207*) and more recently, in 1990, published a synthesis, *Innovative Strategies for Upgrading Personnel in State Transportation Departments* (Poister et al. 1990), which dealt with the growing concern over recruitment and retention issues. Another resource for people interested in recruitment and retention issues, also published in 1990, was *The AASHTO Guide to Recruitment and Retention of Civil Engineers*. More recently, many other articles and studies have been published on this subject. The current research hopes to build upon and update these studies.

Because of the current state of the American work force, recruitment and retention of employees are important issues. In their book, *Workforce 2020* (1997), Judy and D'Amico examined workers in the United States and predicted how the work force will change over the coming years. The authors noted that one of the main changes will be the aging of the population. Where now there are four workers for every retiree, there will soon be only two workers for every retired person. The percentage of Caucasians in the work force is expected to drop from 76% to 68%, whereas the percentage of African Americans will remain at 11%, that of Hispanics will increase from 9% to 14%, and that of Asians will increase from 4% to 6%. However, Judy and D'Amico explain, "the aging of the U.S. workforce will be far more dramatic than its ethnic shifts." Overall, professional and related fields are expected to grow faster than other occupational areas in the coming years, gaining 7 million workers. About 6% to 7% of these jobs will be in engineering and management services. In general, government jobs are expected to grow more slowly in comparison with those in the private sector ("Occupational Employment Projections to 2010" 2001).

Recruiting new employees can be expensive. The average cost to replace an employee has been determined to be 25% of the employee's annual salary plus 25% of the benefits package. These percentages include the cost of administrative time and paperwork, training costs, lower initial productivity, customer/client uncertainty, and lower return on investment. Turnover also affects organizations in other ways, including "loss of institutional memory, diversion of management focus, diversion of peers to train new hires, damage to the organization's image and poor morale among remaining workers" ("Occupational Employment Projections to 2010" 2001). The transportation industry has a hard time with retention as well. According to one survey, those in the transportation and automotive industries were most likely to indicate an area-wide retention problem. These same industries also had the highest turnover rate of employees who had been employed for 6 months or less (Jardine and Amig 2001).

One survey on the issues of retention is the Society for Human Resource Management's 2000 Retention Survey. This survey of HR professionals in the United States found that in organizations with 1,001 to 5,000 employees, the voluntary annual turnover rate was 21%. In organizations with more than 5,000 employees, the turnover rate increased to 26%. The most common reasons for leaving were career opportunities elsewhere, which was cited by 78% of respondents, and a better compensation/benefits package, cited by 65%. The highest turnover rates were found among professionals, followed by office and clerical workers. According to this survey, highly effective retention tools included health care benefits, competitive salaries, competitive salary increases, and competitive vacation and holiday benefits. The least effective retention tools included telecommuting, noncompete agreements, and concierge services (Thomas Staffing 2002).

One article uses the term "employer of choice" to describe an organization that is able to attract top performing employees. This employer of choice must provide an employee with opportunities for learning, growth, and challenge. It must also allow for employee participation in decisions and empowerment. Furthermore, top performing employees switch jobs more often than their coworkers because of boredom and their need for more opportunities for growth. Such job switching should not be interpreted as disloyalty to an organization, but rather a reflection of interest in new challenges. An employer of choice will be flexible with its employees and allow them to balance their work and family life to create an atmosphere of greater productivity (Society for Human Resource Management 2000).

In *TCRP Report 77* (2002), the top five positions for which agencies had a difficult time recruiting and retaining were determined to be mechanics, bus operators, planners, engineers, IT programmers, and systems analysts. Some recruitment methods found to be the most effective by agencies included internal job announcements, newspaper

classified advertisements, and competitive compensation packages. The study also looked at retention methods, which included formal employee orientation, safety incentives, and upward communication and feedback. Another aspect of the study concerned training. Effective training methods included performance-based needs assessment, performance-based instruction, and tutoring (Mure 2001).

One article cited Towers Perrin and the National Association of Colleges and Employers' study and the desires of the most successful employees in an organization. These desires include challenges, change on the job, opportunity for growth with the employer, a rewards system based on performance, and autonomy to complete work assignments. The most undesirable aspects of a job for top performers are rules, regulations, policy manuals, long meetings, and job descriptions and job duties (*TCRP Report 77* 2002).

Another article advocates the strategies of the United States military in recruitment and retention efforts. Those efforts included using outstanding recruiters, hiring for character above skill, offering training, caring for employees, offering rewards, and promoting from within (Langan 2000). A different article listed the reasons for which an employee leaves a company, other than money. They included lack of career development opportunities, "burnout" jobs, difficulty in balancing work and family obligations, and a lack of appreciation (Estell 2001). Another article cited a survey of employees from the American Electronics Association, which found that the top 10 retention strategies for IT workers included challenging work assignments, a favorable work environment, flextime, additional vacation time, support for career/family values, a casual dress code, high-quality supervision and leadership, visionary technical leadership, cross-functional assignments, tuition and training reimbursement, and 401(k) matching (Daniels 2002).

Reporting on a staffing plan survey, Hood et al. (2000) discovered trends in state recruitment and retention. Recruitment and retention issues ranked first and second among state staffing plan priorities. The main recruitment issue facing state agencies is the hiring of information systems personnel. Hood et al. also found that "problems recruiting employees were significantly related to competition with the private sector and low entry-level salaries. Problems in recruiting due to competition with the private sector were significantly related to recruiting civil engineers, staff with skills needed to do the job, and staff with certified technical skills." The most successful recruitment strategies cited by the states were college or technical school campus recruitment and job fairs, internships or tuition reimbursement programs, Internet recruitment, and focused recruitment of women and minorities. This study also found that the average time from a vacancy opening to the day the new individual begins work is 76 days.

Hood et al.'s study also analyzed the relationships among retention factors. Perceived limits on promotion opportunities are related to dissatisfaction with location, salary, and work conditions. Dissatisfaction with the location of the agency relates to uninteresting work and dissatisfaction with supervisors. Lack of job security is related to uninteresting work, with higher than usual turnover in these positions. Dissatisfaction with salary has relationships with limits on promotion, uninteresting work, and dissatisfaction with location and work conditions. Dissatisfaction with supervisors is related to dissatisfaction with location and work conditions. Furthermore, the study found that retention of civil engineers and staff with certified technical skills is difficult because of perceived promotion limits and dissatisfaction with salary. It was noted that staff with certified technical skills were more likely to leave their positions as a consequence of dissatisfaction with supervisors rather than because of their marketability with other firms (Hood et al. 2000).

In her scan pertaining to managing change in state DOTs, Gilliland (2001) declared that retention and recruitment of IT professionals are at a crisis. A solution found for this crisis is the Idaho DOT's practice of training existing employees for 6 months to become IT professionals. The scan also advocates identifying core competencies within the DOT for use in developing a succession plan, such as the Minnesota DOT has done. Another retention tool presented by the scan is reverse mentoring, whereby a younger computer-savvy employee is paired with a member of senior management. In this scenario, the senior manager learns computer skills and the younger employee learns other skills from the senior manager (Gilliland 2001).

In a study aimed at improving recruitment at the DOTs, researchers recommended offering fellowships for postgraduate work, with guaranteed employment after graduation, and recruiting women and minorities into these programs. Researchers also recommended assigning someone to monitor recruitment practices nationwide and to have this person report to management. The study also recommended in-house training programs, mentor programs, and incentives for employees during the critical 2- to 6-year period of initial employment. For employees beyond the critical period, the study recommended career advancement opportunities, such as job rotation, short course attendance, and professional society membership, as well as examining relocation policies to encourage upward mobility (Hoel and Perfater 1995).

As reported in an article on civil engineers, researchers found that 100% of DOTs surveyed use university faculty for recruitment, 88% use co-op/intern programs, and 38% use guaranteed raises. For retention, the DOTs use new employee orientation (100%), professional engineer (PE)

preparation training (67%), paid continuing education (89%), unpaid continuing education (22%), and bonuses (11%). Other retention methods addressed are opportunities for new engineers, job challenges, support for professional activities, employee recognition, mentoring by senior engineers, and relocation support (Glagola and Nicholas 2001).

In 2001, the Kansas Department of Administration conducted a survey of state employees. The survey found that approximately 70% of employees did not believe that they receive a fair amount of pay and 85% believed that they are paid below the amount they could receive in the private sector. These employees also believed that the low level of pay they receive makes them feel unappreciated by the state and their agency. Also, 71% of employees disagreed that "hard work is usually rewarded at my agency," and approximately 76% of these same employees believed that there is too little chance for promotion. Also, 75% agreed that "you have to know the right people to get ahead in the state system." Many employees (65%) believed that they receive the basic training they need to complete their jobs; however, 45% felt they are not offered additional training in the technology advances that affect their jobs. A large percentage of employees (80%) were satisfied with the nature of their work and 75% are "proud to be a state employee." In addition, 74% agreed that their supervisor is competent, and 82% agreed that their supervisor is fair. Approximately 82% of employees surveyed are "currently able and willing to take a better job should one become available," 66% have "thought about looking for a job opportunity outside state employment," and 42% "plan to seek employment outside of the state government within the next year." Those expressing the highest intention to leave were African Americans and Native Americans at 58%, and employees between the ages of 25 and 35 at 56%. The study was not detailed enough to determine the reason for these two ethnic groups to have this tendency ("Employee Retention Survey" 2002).

An important study from the HR Benchmark Group showed that management and HR professionals do not understand why employees are leaving their organizations. The top five reasons employees gave for staying or leaving were quality of relationship with supervisor or manager, ability to balance work and home life, amount of meaningful work, level of cooperation with coworkers, and level of trust in the workplace. The reasons given by HR professionals were opportunities for growth and advancement, quality of compensation package, level of job stress, quality of relationship with supervisor or manager, and the ability to balance work and home life. That study also showed that there are substantial costs associated with turnover in organizations (Bernthal and Wellins 2002).

CHAPTER THREE

STATE AGENCY OVERVIEW

BACKGROUND

The research undertaken for this project included a survey of the states and associate members of AASHTO and Canadian provinces. In addition to soliciting information on recruitment and retention practices within the state DOTs, the survey was designed to gather data about a variety of agency characteristics. Information specifically addressing the concerns of the Canadian provinces will be noted where applicable.

Many view DOTs as a homogeneous collection of transportation agencies with virtually the same attributes and characteristics throughout the nation, but such is not the case. These agencies differ in many areas, as discussed in the following sections.

Geography and Weather

How a DOT is organized is often a function of geography and climate. For example, states along the Gulf Coast and portions of the Eastern Seaboard must contend with hurricanes, and the flooding and damage that result from these events. Conversely, states in the north have significant weather events and deal with snow removal as a major activity in their maintenance organizations. Utah, for example, organizes maintenance crews around optimal snow removal operations and, accordingly, adjusts the schedules of summer work crews

Urban Versus Rural

Some states are largely rural in their makeup, requiring appropriate operational characteristics from their DOT. Many states have medium-to-large urban areas and must address both rural and urban operational functions within their organization. One might assume that urban areas such as Los Angeles, Atlanta, Seattle, New York City, and others dominate the transportation programs in their states, and to some extent this is true. However, each of those states also has large rural expanses that must operate like the most rural states in the country. There is also a misconception that rural areas or states are free from problems or challenges. In actuality, their problems or challenges are just different, but no less significant. For example, long distances and a small number of staff can stretch the ability of a rural maintenance crew to take care of its sections of highways. On the other hand, urban crews deal with huge traffic volumes, night work, and complex traffic situations.

Nevertheless, recruitment and retention issues do affect both urban and rural areas. Enticing employees to move from one type of environment to another is often difficult. In rural areas, an employee may trade high job security for fewer promotion opportunities. An employee in an urban area may have more promotion opportunities without having to relocate to another community.

Program Size

The size of transportation programs differs in each state. Larger states (in geography and population) such as California, Texas, Pennsylvania, and Florida have programs many times the size of smaller states like Wyoming, South Dakota, and Montana. Such a difference is further amplified when one considers that 1-year expenditures in District 12 of the California DOT in Orange County can exceed those of the 5-year Statewide Transportation Improvement Program in smaller states.

Jurisdiction

States vary by the nature of their jurisdiction over roads and highways. Most states must maintain only the Interstate and primary routes, such as those on the National Highway System. However, in Virginia and Missouri, the DOT is responsible for the Interstate and primary routes and virtually every other road in the state, including residential streets in large and small communities. Clearly, jurisdiction makes a difference in how a state DOT is organized and operates.

Authority

Disparity exists among DOTs in how they operate within their state's political structure. The DOT secretary in Washington State is appointed by a commission. The director in Arizona is appointed by the governor and works with a governor-appointed board. The commissioner in Alaska has no board or commission and is appointed by the governor. All of these organizational structures affect the independence of the DOT and its chief executive officer, program funding, and day-to-day operations.

Outsourcing Policy

Policy decisions relating to outsourcing engineering services also influence the agencies and how they pursue work. In some states, the emphasis is on hiring outside consulting firms to provide needed services. These agencies would require more engineers to manage such activities, whereas those with stronger in-house programs would hire and retain more production-level engineers. If state policy is to turn the majority of construction engineering and inspection work over to consultants, then the number of engineering technicians needed to carry out the program is affected.

Each of these factors, along with those surveyed for this project, influence the operations and activities in a state DOT. In reviewing the results of the survey, it is important to keep in mind the context of the survey responses so as to fully understand the complete work-force picture. What happens in one state may have a totally different consequence in another state. Both the lack of homogeneity and the presence of similarities in state DOTs must be considered in examining work-force issues.

AGENCY CHARACTERISTICS

Survey respondents reported overall staffing levels ranging from 785 in the province of Alberta to 14,361 in California. The majority of states/provinces range from 1,500 to 6,000 employees, although Texas (14,525), Pennsylvania (12,351), and Virginia (10,192) all had higher total employee counts than most other states.

The organizational structure within DOTs exhibits some uniformity from state to state. Virtually all have a highways division or a structure functioning in this manner under another name. All have some kind of planning function. Approximately 41% of states responding have an aeronautics group and a transit group. Those with marine divisions are found in states such as Mississippi and Louisiana, where rivers and inland waterways are prevalent, and also in coastal states such as Connecticut and Washington. Virtually every state has an administrative function, whether it is a separate division or incorporated into a larger unit. Some state DOTs, such as Wyoming, are responsible for the Highway Patrol, whereas 41% have responsibility for the motor vehicle title and registration activities. The Texas DOT has a toll authority within its organization, which adds a slightly different approach to its operations. These various elements all contribute to the nature and character of each state DOT and how they operate.

Further information about agency demographics was gathered on the organizational structure for employees within DOTs (Table 1). Employees working on the highway side of the state DOTs outnumber those doing other jobs by a significant factor. This is to be expected, given the focused nature of state DOTs across the country on building and operating highways. However, the sizeable number of employees in the other divisions, including

TABLE 1
DEPARTMENT OF TRANSPORTATION EMPLOYEES BY DIVISION

State/Province	Highways	Motor Vehicles	Aeronautics	Transit	Marine	Rail	Administration
Arkansas	3,378						435
California	12,158		44			52	2,107
Colorado	2,200		15				1,000
Connecticut	2,896		161	65	12	44	430
Delaware	1,288			2			170
Indiana	3,666	270	8	7		6	1,225
Kansas	2,767		3	6		4	467.5
Kentucky	4,897	556	14	21			560
Louisiana	4,572		12		233		271
Mississippi	2,821	201	4	9	2	8	191
Missouri	4,263	0	24				398
Nebraska	2,136						48
Nevada	1,705						158
Oregon	2,841	1,182		13		29	791
Pennsylvania	10,513	1,195	54	57	0		532
South Carolina	4,200						380
Utah	1,298	104	14	22		4	424
Vermont	914	239	7			12	134
Virginia	8,155						2,037
Wisconsin	1,747	887	41	25	145	7	383
Alberta	574	200					11
New Brunswick	355						1,655
Newfoundland	1,300		65		250		
Total	80,644	4,834	466	227	642	166	13,807.5

Notes: Not all agencies responded to every survey question.

TABLE 2
PROFESSIONALS BY CLASSIFICATION

State/Province	Engineers	Engineering Technicians (field)	Engineering Technicians (other)	IT Professionals	Other
Arkansas	255				44
California	5,833	1,037	85	383	1,341
Colorado	393		320	64	496
Connecticut	827	3		49	226
Indiana	460	1,075	25	100	0
Kansas	341	520	175	101	101
Kentucky	455			84	136
Mississippi	350	666		61	11
Missouri	775	666			335
Nebraska	156	301	63	88	298
Nevada	300	294	24	30	31
North Dakota	133	126	66	26	37
Oklahoma	181	233	111	56	46
Oregon	607	237		262	169
Pennsylvania	623	31		214	0
South Carolina	788	520	60	63	140
Texas	953	2,299	1,432	669	767
Utah	274	168	31	64	35
Vermont	91	171		38	0
Virginia	1,152	1,465	213	294	119
Washington	1,362	454	100	170	312
Wisconsin	899	152	72	239	133
Alberta	88	180	10		200
New Brunswick	90	171		28	24
Newfoundland	60	100	15	6	0
Total	16,746	10,869	2,802	3,089	5,001

Notes: Not all agencies responded to every survey question.

administration, reveals a need to address the recruiting and retention issues of professionals in those parts of the agencies.

The states offered data on the number of each type of professional found in their organizations. Table 2 reflects this information and is broken down both by type of professional and by state. Engineers represent approximately 44% of the total number of employees identified. Engineering technicians working in both field and design areas represent 36% of the total. IT professionals held 8% of the positions, with the remaining 12% divided among attorneys, accountants, planners, right-of-way staff, HR staff, scientists, and administration. That 80% of the positions consist of either engineers or one of the engineering technician classifications reflects how heavily state DOTs are weighted toward the engineering profession. Thus, the attention and effort often placed on recruiting into these classifications is justified.

ANNUAL TURNOVER

To assess the effectiveness of recruitment and retention programs it is important to understand turnover trends in state DOTs. Some states provided excellent information on turnover rates among professional classifications. Others were unable to sort through their total data and place them in a grouping of value to this report. Each state was asked to provide turnover rates by percentage for both 1997 and 2001 to allow for searching for possible trends. Table 3 contains the data for 1997 and Table 4 the data for 2001. Data for the Other category have been added, together, because the numbers for each professional classification were not significant enough of themselves to analyze.

The data in these tables provide a snapshot of the turnover experienced by state DOTs. For example, in Table 3 we find the loss of engineers fluctuating between very low numbers in Delaware, Utah, Kansas, and South Carolina (3% or below) to high numbers in California, Oregon, and Connecticut where the loss is around 10%. A low turnover rate for engineers does not guarantee a low rate across the board for all professionals, as evidenced in Utah and South Carolina. The data show a more stable work force in 1997 in California in nonengineer positions. Overall, however, in 1997, engineers had the highest turnover rate of all classifications queried.

Further analysis of the 2001 data in Table 4 reveals several interesting points. Connecticut's retention rate for engineers has improved greatly from 1997, but the loss rate for engineers in Utah and Missouri has gone up. Oregon's loss rate remained high in both years. Again, in 2001,

TABLE 3
EMPLOYEE TURNOVER RATES—1997

State	Engineers (%)	Engineering Technicians (field) (%)	Engineering Technicians (other) (%)	IT Professionals (%)	Other (%)
California	10	5	3	6	4
Colorado	5	5		8	8
Connecticut	10			20	21
Delaware	2	5			
Kansas	3	9			
Kentucky	6	6	6	6	
Missouri	7	6	6	9	
Nebraska	8	6	10	5	
North Dakota	7	17	8	15	6
Oregon	10	10	10	15	12
Pennsylvania	8			7	7
South Carolina	3	10	25	6	7
Texas	7			11	8
Utah	3	5	13	9	
Washington	4			40	
Wisconsin	7	8	4	10	9

Notes: Not all states responded to every survey question.

TABLE 4
EMPLOYEE TURNOVER RATES—2001

State/Province	Engineers (%)	Engineering Technicians (field) (%)	Engineering Technicians (other) (%)	IT Professionals (%)	Other (%)
Arkansas	5			4	
California	9	6	3	5	3
Colorado	6	6		9	9
Connecticut	5			4	7
Delaware					1
Kentucky	8	9	8	8	
Missouri	12	12	12	9	
Nebraska	6	16	14	8	
North Dakota	5	7	3	4	11
Oklahoma	10	4	5	24	8
Oregon	9	9	9	4	14
Pennsylvania	4			8	13
South Carolina	5	8	3	0	3
Texas	6	8	10	10	9
Utah	6	7		6	
Virginia	7	6	6	8	13
Washington	4			12	
Wisconsin	4	7	8	7	8
Alberta	5	8			
Newfoundland		6			

Notes: Not all agencies responded to every survey question.

TABLE 5
EMPLOYEE TURNOVER RATE COMPARISON 1997–2001

Year	Engineers (%)	Engineering Technicians (field) (%)	Engineering Technicians (other) (%)	IT Professionals (%)	Other (%)
1997	9	7	9	11	10
2001	8	8	7	8	12

Notes: Not all agencies responded to every survey question.

engineers had nearly the lowest turnover rate of the four major professional classifications, at 6.44%.

A comparison of turnover rates for both 1997 and 2001 is informative (Table 5). Engineer turnover rates of the two survey years are nearly unchanged. In the case of IT professionals, however, the rate has dropped considerably, from 11.08% to 7.66%. Here the effects of dotcom failures are being felt, perhaps restricting the willingness of IT staff to leave the secure employment at a state DOT.

On the surface, state DOTs appear very much the same. They all provide engineering, construction, maintenance, and other services to the citizens of their states. Below the surface they have many unique qualities and characteristics that must be understood if agencies are to design an effective recruitment and retention program. Programs should be tailored to the specific challengers of each state, to recruit and retain the very finest individuals into key professional positions.

CHAPTER FOUR

RECRUITMENT

Thorough recruitment is perhaps the most important element for creating an effective work force, for both public and private organizations. Failure to attract the right kind of individuals with the necessary skills can render an organization ineffective in its purpose and mission. Recruitment is multidimensional and complex; no single strategy works for all job classifications. In preparing the survey instrument, every attempt was made to look beyond the engineering field and gather information about a variety of professional positions.

The states were cooperative in sharing details about recruitment in engineering as well as those of other professional classifications. However, their focus is clearly on engineers and IT professionals, whereas engineering technicians and other professional classifications are not as highly emphasized. The result may be short-sighted strategies that ultimately neglect significant professional roles within the DOT. In the end, it takes a whole suite of professionals to deliver a transportation program to the citizens of any given state.

RECRUITMENT STRATEGIES

The following four job classifications were offered in the survey and were followed throughout the query on recruitment:

- Engineers,
- Engineering technicians,
- IT professionals, and
- Other.

Within the "Other" category, a variety of additional professional positions were described and reported on including accountants, attorneys, scientists, administrative staff, planners, right-of-way staff, and HR staff.

The purpose of this part of the survey was to obtain information about what the states are doing to recruit in the specific job classifications as listed. It was also intended to recognize which successful practices could be emulated by other DOTs. Each of these professional classifications will be treated separately in the discussion of recruitment practices. It should be noted that information provided by the states is engineer "heavy," with only modest amounts of information available on the other professional classifications. In addition, within the engineering classification, there is no distinction between civil engineers, who make up the majority of the engineering professionals, and other types of engineers, such as mechanical or electrical.

Recruiting Engineers

As stated, much of the focus in the transportation industry is on recruiting engineers. It is the area in state DOTs that receives the most public exposure and seems to be the rallying point around which many work-force initiatives revolve. The states engage in a variety of practices to attract and ultimately hire engineers into their organizations. The complete text of the state responses is found in Appendix D. Common themes revealed in those responses will be presented in this chapter.

For the most part, DOTs have excellent benefits packages, which represents one of the principal tools the states use to attract new engineers. The response from Nebraska is typical, although not necessarily representing specifics for each state: "State employees are offered a generous package which includes sick and vacation leave, disability insurance, workers' compensation, health, life and dental insurance, retirement program with a 156% match of funds by the state to the employee's contribution, a deferred compensation plan, flexible spending accounts, etc."

The next most common strategy concerns engineer-in-training programs that have been established within state DOTs. Although these programs vary in length, content, and overall execution, they do offer the newly hired engineer a training program that prepares him or her for future assignments. Utah's effort is referred to as a "Rotational Program." Its response to the survey offers some insight into this program: "UDOT offers a rotational engineering program for recent college graduates in Civil Engineering. This is a four-year program that gives the new engineer valuable experience in a variety of civil engineering areas. A year of design and construction are mandatory and then the rotational can choose from various other areas for the remainder of his/her four years on the program." Virginia, Arizona, and Oklahoma, are among those that also reported using this kind of training program as an incentive to recruit new engineers.

Many states reported specific salary plans designed to attract engineers into their agencies. Delaware offers selective pay plans and special recruitment pay rates. Indiana

offers special pay rates with increases for individuals holding advanced educational credentials. Kansas previously used hiring bonuses, but these were not funded last year. However, Kansas employees are offered a $500 bonus for recruiting an engineer into the agency. In addition to their engineer-in-training program, Oklahoma offers a sign-on bonus as an incentive to join its department.

Other strategies focused on attracting engineers include job fairs, university relationships, flexible work hours, and differential pay for those who pursue graduate degrees or obtain their PE license or registration. Although not all of these strategies are applied uniformly throughout the region, there is a clear attempt to aggressively compete for this valuable group of individuals.

Recruiting Engineering Technicians

Strategies employed by the states to recruit engineering technicians are similar to those used for engineers. In addition, some strategies unique to attracting engineering technicians were identified by the states. Detailed responses are found in Appendix D.

Foremost among identified strategies is an emphasis on career path opportunities as technicians achieve increasing levels of certification in their field of expertise. Accompanying these opportunities are salary adjustments and bonuses that further enhance career programs and make them appealing to new hires.

Engineering technicians enjoy the same benefits package that engineers are offered, as well as education assistance programs for those pursuing advanced studies. Strategies used to recruit engineering technicians also include job fairs and relationships with technical colleges or institutes. Perhaps the most notable difference between attracting engineers and engineering technicians is the absence of special hiring rates and bonuses, which are usually offered only to engineers. In addition, the states have not focused reclassification actions on engineering technicians at the same level of effort as they have for engineers.

Recruiting Information Technology Professionals

In some agencies, the challenge of recruiting and retaining IT professionals is every bit as daunting as that for engineers. The major advantages of a state benefits package constitute some of the incentives that can be offered to IT candidates. However, methods to attract these technology professionals appear to focus on monetary aspects, perhaps reflecting the competition in the overall market for IT professionals.

States reported using a variety of financial incentives for recruiting IT professionals. They include Mississippi's special IT compensation plan and Nebraska's adjusted hiring rates for IT professionals. Oklahoma and Oregon offer various combinations of special signing bonuses, overtime compensation, pay differential, and retention bonuses.

In reviewing the recruitment strategies for IT professionals, a clear pattern emerges involving compensation that is much different than in the strategies applied for any other classification queried in this survey. The incentives offered to engineers included such elements as education assistance, professional registration assistance, and flexible work hours. In the case of IT professionals, most of these other elements are not emphasized, because of the apparent focus on the financial package.

Recruiting Other Professionals

In addition to uncovering information about recruiting engineers, engineering technicians, and IT professionals, an attempt was made to discover strategies used for other professionals, such as attorneys and accountants. However, only a few specific responses were received. Responses received varied somewhat from those for the previously discussed job classifications. For example, these responses focused on recruitment methods such as job fairs, internships, Internet recruitment, and on-campus activities. California has an Adopt-a-School program, where the state establishes a relationship with a school and creates an environment to help students understand state service and the opportunities available to them in a variety of professional classifications. Kentucky offers a career ladder option for accountants and auditors similar to what it offers engineers. Pennsylvania offers essentially the same package of benefits and salary options for other professionals as it does for engineers. The standard response to the survey seems to be that the states are concerned about employing other professionals, but they do not have the same challenges in recruiting them as they do engineers. One of the problems facing some of the smaller DOTs is the narrowing of the organizational pyramid for nonengineer classifications as individuals are promoted to higher positions. This situation is not necessarily unique to state DOTs because engineers employed at companies that are largely focused on activities other than engineering face the same circumstance.

ASSESSING RECRUITMENT STRATEGIES

Once states indicated strategies for recruitment within the job classifications cited previously, they were then asked to indicate the effectiveness of their programs. States reflecting positive experiences with their programs offered some valuable insights. The full listing of state responses is

found in Appendix D. Excerpts and brief discussions are offered here.

Arkansas—The Intern Programs have given us the opportunity to "try" an employee before offering a regular position. Interns appear to be more likely to accept regular positions because they have already worked for the Arkansas State Highway and Transportation Department and they know how we operate.

California—The department was able to meet its increased need for engineers for two consecutive years. This state's aggressive program is designed to accommodate the needs of the largest DOT work force in the country. Strategies found to be most effective include using the state's very brightest professionals in recruitment efforts to enhance the ability to bring individuals with similar qualifications into the organization. California has also focused on assisting individuals navigate their way through the "state government" process.

Delaware—The special starting rates and selective market pay plans have increased interest in working with the DOT.

Mississippi—Excellent impact on the EIT (engineer-in-training) plan with regular adjustments in place since 1987.

In addition, North Dakota reported the ability to hire more engineers, Utah believes that it has a sufficient pool to draw on, and Wisconsin reported having sufficient applicants for its program to be self-sustaining.

Some states were unable to report measurable results from their efforts to recruit in the other professional classifications. With the exception of Oklahoma, all respondents stated that they did not have data to substantiate the effectiveness of their strategies, but reported on their improvements from an anecdotal perspective.

RECRUITMENT INCENTIVES

A list of potential incentives offered through recruitment was presented to each state for review and comment (see Appendix A, question 11 of the state survey). The results of the state responses are found in Table 6. The most commonly offered incentives for new recruits were as follows:

- Training, 91%;
- Schedule flexibility, 87%;
- Education assistance, 78%;
- Professional development, 74%;

TABLE 6
RECRUITING INCENTIVES OFFERED BY STATES

State or Province	Special Compensation	Special Bonus	Special Benefits	Education Reimbursement	Schedule Flexibility	Training	Recognition Programs	Professional Development
Arkansas	x			x		x		
California	x				x	x	x	x
Colorado	x			x	x	x		x
Connecticut			x	x	x			
Delaware	x		x	x	x	x	x	x
Indiana			x	x	x	x	x	x
Kentucky				x	x	x	x	x
Mississippi	x			x	x	x	x	x
Nebraska				x	x	x	x	x
Nevada				x	x	x	x	
North Dakota				x	x	x	x	x
Oklahoma		x				x		x
Oregon	x	x		x	x	x	x	
Pennsylvania				x	x	x	x	x
South Carolina				x	x	x	x	x
Texas		x		x	x	x	x	
Utah				x	x	x	x	
Virginia	x	x	x	x	x	x	x	x
Washington				x	x	x		x
Wisconsin	x			x	x	x	x	x
Alberta								x
New Brunswick			x		x	x	x	x
Newfoundland					x	x		x
Total	8	4	5	18	20	21	16	17
Average Use	35%	17%	22%	78%	87%	91%	70%	74%

TABLE 6 (*Continued*)

State or Province	Professional Dues	Mentoring	Employment Issues	Relocation Assistance	Reclassification	Succession Planning	Recruitment Program	Diversity
Arkansas			x					
California	x	x		x				
Colorado					x	x	x	x
Connecticut								
Delaware	x	x		x	x	x		x
Indiana			x	x	x			
Kentucky	x	x			x	x		x
Mississippi					x	x		
Nebraska	x			x	x			
Nevada			x	x				x
North Dakota				x	x			
Oklahoma					x			
Oregon	x			x	x			x
Pennsylvania		x	x		x			
South Carolina								x
Texas	x	x	x		x		x	x
Utah				x	x			x
Virginia	x	x		x	x	x	x	x
Washington		x		x				
Wisconsin		x		x	x			x
Alberta	x	x		x	x	x		
New Brunswick	x	x			x	x		x
Newfoundland		x		x	x	x		
Total	9	11	5	13	17	8	3	11
Average Use	39%	48%	22%	57%	74%	35%	13%	48%

Notes: Not all agencies responded to every survey question.

- Reclassification, 74%; and
- Recognition programs, 70%.

Those incentives least offered by states were:

- Assistance with employment issues, 22%;
- Special benefits, 22%;
- Special bonuses, 17%; and
- Recruitment programs, 13%.

When asked to rank the most effective incentives, the states were given the option of naming three from the previous list. The results of this question are contained in Table 7. Here we may see what the states believe to be the most useful benefits for an individual joining their agencies.

- Schedule flexibility, 52%;
- Professional development, 48%;
- Training programs, 38%;
- Education assistance, 38%; and
- Special compensation, 33%.

This list coordinates well with the kinds of efforts being offered by states. The one exception would be special compensation, which was offered by only 35% of the states and yet is ranked as one of the top five incentives for recruiting purposes. Special compensation can include being hired at higher than the minimum salary rate or in a different range.

TABLE 7
MOST EFFECTIVE INCENTIVES OFFERED

Incentive	Total Responses	Percentage of Agencies
Training programs	8	38
Reclassification	3	14
Schedule flexibility	11	52
Recognition programs	1	5
Special compensation	7	33
Education reimbursement	8	38
Signing bonus	2	10
Mentoring	1	5
Professional development	10	48
Special benefits	2	10
Relocation assistance	4	19
Diversity	1	5

Notes: Not all agencies responded to every survey question.

Successful recruitment programs seem to be broad in their approach. They do not emphasize single classifications

nor do they limit their efforts to a single venue. Rather, they are engaged in a variety of activities (e.g., campus programs and internships) and they involve established relationships with educators and others. In addition, these successful programs are operating continuously rather than just at specific times of the year.

Hiring the right people into a state DOT is clearly an important element for the success of the agency. Clearly, the whole issue of retention is immaterial unless a DOT has established an effective recruitment program. The effectiveness of the state programs can be measured by examining the trends in retention. Some states have done well by responding to trends. However, there are many opportunities to further assess the effectiveness of the various strategies.

EMPLOYEE SURVEY

Overview

The original scope of work for this project focused on the state DOT perspective only. Both the DOT survey and literature search revealed the extent and depth of state efforts in recruitment and retention. Clearly, a great deal of energy is being expended to address these critical work-force issues in state DOTs.

Analysis of the state data sparked interest in the employee perspective on recruitment and retention. Among the questions considered were the following:

- What were the reasons those employees were attracted to the DOT in the first place?
- Why were they staying?
- If they could leave, would they?
- What would increase the probability of their staying?

It was therefore decided that this project would be incomplete without knowing the employees views of recruitment and retention. Correspondingly, a survey was developed to gather data from employees of state DOTs. It was believed that this information would be invaluable to states as they formulated their recruitment and retention policies. The employee survey is provided in Appendix C.

To obtain a representative sample of employees from across the country, three states were chosen. Maryland, Nebraska, and Utah were selected based on their demographics, regional dispersion, and general differences. The individual and collective responses would also provide insights into differences that might exist because of agency size, geography, proximity to other employment markets, and other factors. A total of 1,627 surveys were sent to professionals in all three states. In all, 952 (59%) were received and became part of the data set used for the comparison presented in this report. Because not every employee in each of the three states could be surveyed efficiently, it was decided that only engineers, accountants, planners, IT professionals, and other professionals would be asked to respond.

Employee Characteristics

The purpose of the initial questions in the survey was to gather demographic information on the professionals responding; therefore, each employee was asked to identify personal circumstances, including

- Professional role,
- Level of education,
- Supervisor or technical position,
- How long he or she had been in their current position,
- How long he or she had been an employee of the agency,
- Gender,
- Age, and
- Years to retirement.

Using these data, it is then possible to establish the individual characteristics and analyze the findings for any significant trends.

Tables 8 through 12 show the breakdown, by state, of respondents for professional classifications, education level, gender, age, and years to retirement. Significant disparities appeared in the results from the three states. For example, 82% of the professionals in Utah are engineers, whereas in Maryland and Nebraska 67% and 41%, respectively, of the professionals are engineers (see Table 8). The large number of Others reported in Nebraska may be the result of differences in job titles or position descriptions and does not necessarily reflect a major variation in engineering staffing levels. It was not surprising that engineers average more than 63% of all professional positions in these three states.

TABLE 8
PROFESSIONAL CLASSIFICATIONS

	State		
Profession	Utah	Maryland	Nebraska
Engineer	82%	67%	41%
Accountant	7%	7%	6%
Planner	0%	6%	7%
IT Professional	10%	9%	13%
Other	1%	11%	34%

Education levels also differed by state. In Nebraska, 49% of the professionals have a college degree, whereas in Utah and Maryland 90% and 62%, respectively, have degrees (see Table 9). Overall, 67% of the professionals in those three states have at least a college degree—a clear reflection of how highly educated state DOT professionals are.

TABLE 9
EDUCATION LEVEL OF PROFESSIONALS

	State		
Education Level	Utah	Maryland	Nebraska
High school	0%	9%	15%
Some college	10%	28%	36%
College graduate (4-year)	42%	37%	34%
Some post-graduate	25%	7%	7%
Graduate degree	23%	18%	8%

TABLE 10
PROFESSIONALS BY GENDER

	State		
Gender	Utah	Maryland	Nebraska
Male	91%	78%	78%
Female	9%	22%	22%

TABLE 11
PROFESSIONALS BY AGE

	State		
Age	Utah	Maryland	Nebraska
18–30	12%	15%	4%
31–40	35%	23%	20%
41–50	32%	36%	32%
51–60	18%	20%	31%
61+	3%	6%	14%

TABLE 12
YEARS TO RETIREMENT

	State		
Years	Utah	Maryland	Nebraska
0 (already eligible)	9%	18%	15%
1–5	6%	16%	12%
5–10	10%	14%	15%
10–20	37%	24%	33%
20+	38%	28%	24%

Most of these professionals (82%) are male. Maryland and Nebraska each have a 22% female component in their work forces, whereas Utah's proportion is much lower, at 9% (see Table 10).

Age of professional is also an area with substantial differences among states (see Table 11). A look at the work force for the three states shows that Nebraska has the fewest workers age 40 and under with 24%, followed by Maryland with 38% and Utah at 47%. Although the overall age characteristics of the three states resemble a bell curve as shown by the bar chart in Figure 1, individual states differ in ways that will ultimately affect their work forces. For example, the higher percentage of older professionals in Nebraska provides benefits as a result of the high levels of experience these individuals bring to their positions. The

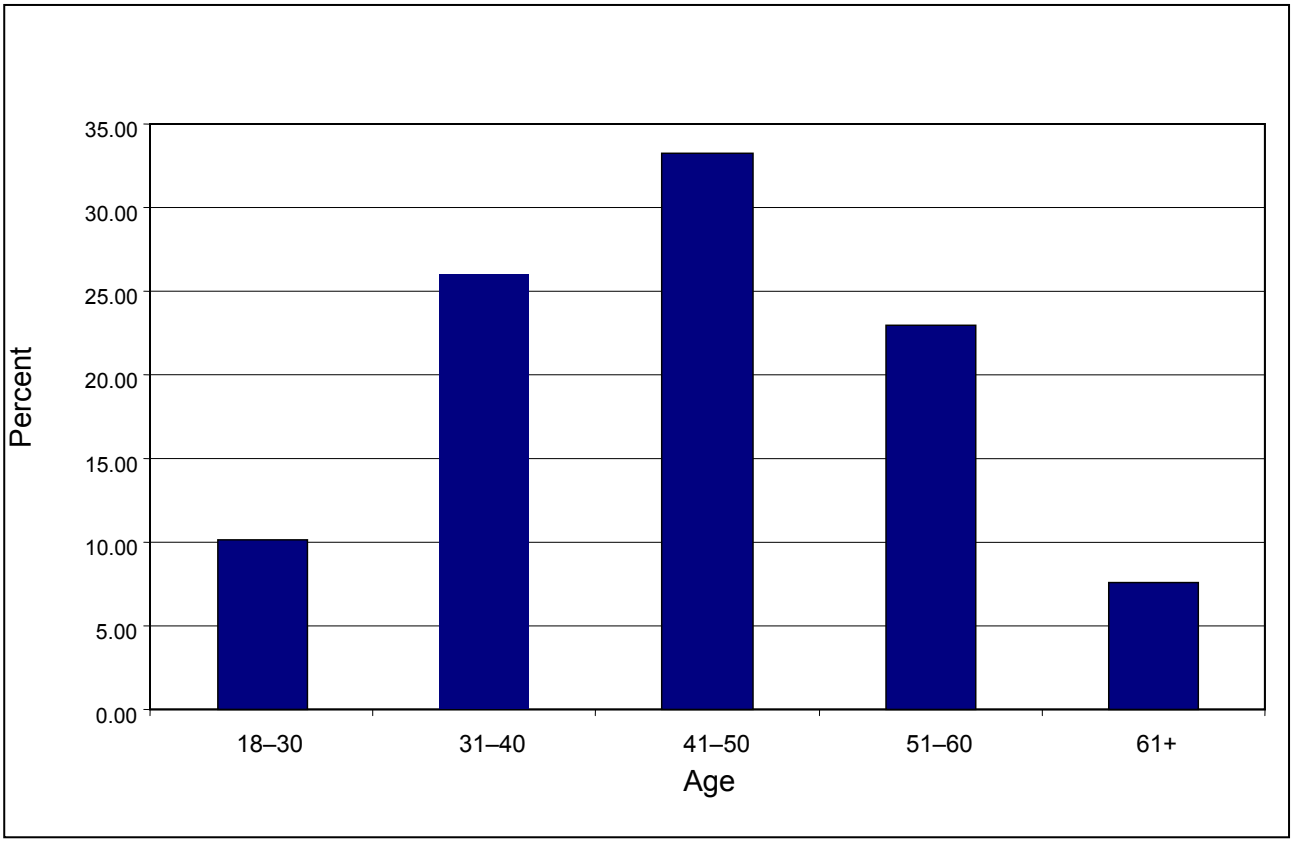

FIGURE 1 Average age distribution of professional state DOT employees for Maryland, Nebraska, and Utah.

downside may come when these individuals retire and are replaced by younger, less experienced employees. Utah clearly has the younger work force, which was apparently precipitated by the recent retirements of large numbers of senior employees.

The age characteristics delineated in the previous paragraph also reflect the responses received to the question on how many years it would be before the professional could retire (see Table 12). An average of the overall trend in all three states shows that 25% of the state DOT professionals could retire within the next 5 years, whereas almost 61% are at least 10 years from retirement.

For Nebraska, it was determined that 57% of their professional work force is at least 10 years from retirement and yet, in reviewing the age of their employees, they have the oldest work force of the three states. This discrepancy apparently is because many of these DOT employees joined the state later in their professional careers and therefore must work to a later age to qualify for retirement.

Another factor that influences the age and retirement demographics in the states has to do with the occurrence of periodic layoffs across the region. Often laid-off employees will migrate to other states, as was the case in the 1970s when California dismissed a significant number of engineers—many of whom took jobs in Utah, Nevada, and Arizona. This situation further illustrates the complexity and multidimensional nature of recruitment and retention.

Time in Service

Two questions in the survey were designed to assess how long the professionals had held their current positions and how long they had been with the agency. Tables 13 and 14 show the results for all three states and the compilation of data for all respondents. One interesting observation is that among all three agencies, more than 22% of the respondents had been in their positions for longer than 10 years. The survey did not analyze the reasons, but the information seems to reveal that these individuals could be happy in their positions, may not have any other promotion opportunities, or perhaps live in rural parts of their states and have chosen to forgo promotions or job changes to preserve their homes and lifestyles. Nebraska had the highest number of employees having held their positions for more than 10 years, with 31%; Utah was lowest, with 12%.

Time in service with the agency was the final demographic sampled as part of the employee survey (see Table 14). Almost 19% of the respondents have more than 30 years of service with their DOTs. Add those with more than 20 years service and this number jumps to 38%. Adding in the 10-year veterans bring the total to almost 66%.

TABLE 13
YEARS IN CURRENT POSITION

Year	State		
	Utah	Maryland	Nebraska
Less than 1	7%	2%	2%
1+	26%	14%	5%
2+	17%	10%	10%
3+	23%	21%	23%
5+	17%	29%	30%
10+	8%	20%	21%
20+	3%	3%	6%
30+	1%	1%	3%
40+	0%	0%	1%

TABLE 14
YEARS IN STATE EMPLOYMENT

Years	State		
	Utah	Maryland	Nebraska
Less than 1	1%	0%	1%
1+	7%	5%	1%
2+	5%	4%	3%
3+	14%	12%	7%
5+	28%	10%	14%
10+	29%	25%	28%
20+	7%	26%	26%
30+	9%	14%	21%
40+	0%	3%	9%

These data reflect the seasoned nature of the state DOT work force. Additionally, 37 professionals reporting having more than 40 years of experience, almost 4% of all the respondents.

Earlier in this report, the lack of homogeneity of the states was mentioned, including how each DOT had to be examined in the context of its own unique circumstances. This point is again borne out with the examination of demographic characteristics from the three states. Caution should be exercised in drawing conclusions based on data in the aggregate from many states, without an underlying knowledge of the particular circumstances in a given state.

Recruitment Process

To assess the mind-set of state employees on the subject of recruitment, it was necessary to provide questions in the employee survey to encourage professionals to reflect on why they originally joined the DOT. For many employees it meant recalling a recruitment process that may have occurred more than 20 years earlier. Nevertheless, answers to questions about why employees chose to join a state DOT can help in developing useful strategies for the recruitment of new employees.

A listing of incentives for potential new hires was developed, incorporating many of the same elements from the employer survey. Table 15 shows the results of the question, “What factors attracted you to seek employment

TABLE 15
SIGNIFICANT RECRUITING FACTORS

Factors	State		
	Utah	Maryland	Nebraska
Competitive salary	24%	30%	18%
Health benefits	56%	60%	28%
Vacation benefits	22%	39%	19%
Retirement benefits	46%	40%	16%
Promotion opportunities	18%	17%	12%
Education benefits	12%	13%	6%
Challenging work assignments	29%	17%	17%
Other aspects of the work	9%	8%	7%
Stable employment	73%	61%	38%
Family member already an employee	5%	6%	3%
Desire to perform public service	12%	8%	7%
Location	9%	0%	2%
DOT was hiring	6%	4%	5%

with your agency when you were originally hired?" Responses are presented separately and then in aggregate, owing to the differences in the three states. Results showing the top four factors for each state are listed here.

Utah

- Stable employment, 73%;
- Health benefits, 56%;
- Retirement benefits, 46%; and
- Challenging work assignments, 29%.

Maryland

- Stable employment, 61%;
- Health benefits, 60%;
- Vacation benefits, 39%; and
- Retirement benefits, 40%.

Nebraska

- Stable employment, 38%;
- Health benefits, 28%;
- Vacation benefits, 19%; and
- Competitive salary, 18%.

When these responses were examined as a group, the employees from the three states had the following priorities for recruitment:

- Stable employment, 57%;
- Health benefits, 48%;
- Retirement benefits, 34%; and
- Vacation benefits 27%.

As crucial as the high percentage factors are, much may be learned from those that are conspicuously absent from this list, including "no travel" and "work schedule." Additionally, these factors seem to hold constant regardless of the time period during which the hiring was done. With such knowledge, a DOT might well wish to focus its recruiting attentions on incentives other than the ones they do now.

An attempt was made to determine if there was a difference in the factors cited depending on the employee's time in service. It was thought that perhaps employees with many years of service might not recall why they were attracted to the agency in the first place or their values may have changed since joining the agency. An analysis was done using a filter on length of service; one of 5 years. Ultimately, there was virtually no difference between these results and those of the original analysis. Time in service apparently did not skew the memory of why individuals originally joined the state DOT.

EMPLOYER AND EMPLOYEE: RESPONSES COMPARED

A comparison of current recruitment strategies or practices of state DOTs with the information gathered in the employee survey can provide valuable insight. According to the results presented earlier in this chapter, the most effective incentives offered by state DOTs are as follows:

- Schedule flexibility, 52%;
- Professional development, 48%;
- Training programs, 38%;
- Educational assistance, 38%; and
- Special compensation, 33%.

These factors can be set against the employee survey responses in terms of their impact on recruitment. For example, schedule flexibility ranked first in the employer survey, but 11 out of 12 in the employee results. Professional development, training programs, and educational assistance are the next most important incentives offered by

DOTs, but they are cited below educational benefits in the employee survey, with a ranking of 8 out of 12. Special compensation ranked fifth in both the employer and employee surveys.

In summary, it is important to learn from these employee responses in crafting a recruitment program for state/province DOTs. Alignment of the elements that are attractive to potential employees with that which is offered by the agency is critical to the success of a recruitment program. Most states have excellent benefits packages and offer stable employment, which appear to be important inducements to potential new hires. They should not be overlooked when advancing the recruitment efforts.

CHAPTER FIVE

RETENTION

Even after state DOTs have recruited and hired well, employee retention becomes the second challenge facing the DOTs in their work-force development. All of the strategies and efforts to recruit and train new employees are lost when they leave for other employment. In some cases, such a loss is mitigated if those professionals go to work for outside engineering firms where they perform services similar to that when they worked for the DOT. However, retention is a concern to state DOTs and was included in this project with the hope of finding strategies to address this problem.

When an employee leaves for another job the impact is felt in a variety of ways. Some impacts are obvious, such as the lost investment in training, lost effort from the original recruitment, loss of experience, inefficiencies experienced while filling the vacancy, and the cost of repeating the recruiting and training cycle. Others impacts, although less obvious and more difficult to measure, are programs affected when key leaders leave, critical skill loss when someone with specialized expertise departs, and aspects of morale. Overall, all of these factors, whether obvious or not, contribute to a significant problem for DOTs.

The state survey sought information on state practices to specifically address these retention challenges and observe how successful these practices were. A series of questions examined state strategies with the goal of determining a pattern that would be useful to all the states. In addition, questions were designed to determine if statements made by departing employees in their exit interviews were a validation of the strategies reported by the agencies. Finally, the survey solicited employee's thoughts on the subject of retention, and a comparison is made to assess alignment of the state programs with what the employees acknowledged as important.

STRATEGIES BY PROFESSIONAL CLASSIFICATION

The survey divided state professionals into the same five classifications previously mentioned: engineers, engineering technicians (field), engineering technicians (CADD operator, design technician), IT professionals, and other.

As mentioned in chapter four, the Other category encompassed a wide variety of additional professional job classifications offered by the states, including accountants, attorneys, scientists, planners, administrative staff, right-of-way staff, and human resources.

Sometimes the discussion in the work-force focuses narrowly on engineers. However, knowing that other professional classifications also had retention problems, the survey was designed to elicit this additional information. Inserting the Other category allowed the states to identify these additional classifications that had retention problems in their agencies.

Nevertheless, the challenges of identifying characteristics for strategies addressing recruitment and retention of individuals in the Other category are borne out in the results from this research project. First, there were relatively few positions, in any given agency, of these specific classifications. Second, the data on recruitment and retention activities and successes for engineers are limited and almost nonexistent for the Other category of professionals. Therefore, addressing this Other category of professionals in DOTs is another area where further information is clearly needed to properly address this important staffing issue in the states.

The states were asked to divide their retention strategies according to the job categories as noted. As it turns out, little difference exists between strategies offered for engineers and the other classifications sampled. One distinct difference was the offering of payment by some states for PE registration—fees that would not apply to engineering technicians, unless some kind of technical certification was required for their job duties.

Many states are members of national associations, such as the American Road & Transportation Builders Association, the American Public Works Association, and the Women's Transportation Seminar. In most cases, these associations offer a limited number of individual memberships to top management as part of the fees paid to belong. Other members of a state DOT who would like to participate must absorb their own membership fees as required by the association. In some states, such as California, there is an allowance provided to each employee to defray the cost of membership in an association, either local or national, to encourage participation in professional activities outside the agency.

A review of the state responses indicated significant commonality among strategies for holding the line on the retention problem. Indeed, there is much evidence that

states are treating all professional classifications with the same degree of effort in addressing this work-force challenge. A full listing of the state responses can be found in Appendix E. Excerpts from the survey responses are included here.

Indiana—We have an Engineering Retention Program that gives engineers three levels of raises for achieving different plateaus: (1) after obtaining 1 year of engineering experience with an engineer-in-training (EIT) license the engineer receives a 5% raise, (2) after obtaining 2 years of engineering experience with an EIT license the engineer receives a 5% raise, and (3) after receiving a PE license in the state of Indiana the engineer receives a 13% raise. We also offer a tuition reimbursement program.

Arkansas—The state promotes specialized training, a special salary schedule, and a Master's degree program.

California—The DOT offers tuition reimbursement at a rate of 100% for job-required classes and 50% for related courses.

Colorado—Strategies implemented include reclassification, training, and education assistance.

Nevada—A 10% Special Salary Adjustment was recommended to the governor, which was supported by the legislature and implemented in 2001.

South Carolina—Retention increases of up to 15% were instituted. The state uses reclassification and a 10% pay increase for obtaining professional certification; education, training programs, and educational tuition assistance if funds are available. There are also additional duties/responsibilities increases, additional skills increases, performance pay increases, and temporary salary increases.

Utah—The rotational program helps in retaining engineers because it offers permanent, full-time employment at the Utah DOT once the 4 years has been completed, and enables an engineer to gain the experience required to take the PE exam.

Texas—Strategies include reclassification to higher level positions; sign-on bonuses; a streamlined hiring process; reimbursement of the PE license fee; robust training programs in design, construction signaling, and maintenance of transportation systems; job rotation; and graduate education in part-time or full-time programs.

WHY EMPLOYEES LEAVE

To fully address the problem of retention it is essential to understand the reasons why employees leave. Exit interviews have become common in both public- and private-sector organizations; 83% of the states indicated that they conduct exit interviews with departing employees and 17% said they did not. The individual conducting the exit interview was most often someone from the HR Department or a supervisor. In Nebraska and Pennsylvania, a type of exit interview is conducted through a form sent to the employee's home, which is then returned to the agency. No indication was given on the response rate of these forms. Of the agencies responding, 62% keep statistics on the reasons for employees leaving their employment and 38% reported that they did not.

States were asked to identify the three primary reasons for employees leaving their agencies. Table 16 contains the data from the states and tallies the aggregate responses. Better pay was cited as the most common reason for leaving (56%), followed by retirement (38%), promotion opportunities (31%), and relocation (25%).

TABLE 16
WHY EMPLOYEES LEAVE

Issue	Total Responses	Percentage of Agencies
Better pay	9	56
Retirement	6	38
Relocation	4	25
Other employment	2	13
Personal reasons	1	6
Better benefits	3	19
Promotion opportunities	5	31
Management problems	2	13
Move to private sector	2	13
Change in work	2	13
Move to another state agency	2	13

Notes: Not all agencies responded to every survey question.

WHY EMPLOYEES RETURN

It is not uncommon for individuals to leave state employment and then return. Most such data are anecdotal and must be considered as such in crafting retention programs. Unfortunately, only 18% of the states reported keeping data on why former employees return to state service. Texas probably has the most detailed information in this area, reporting on 82 former employees who have returned. These employees represented a variety of job classifications, including engineers and maintenance personnel.

There is no defining pattern to the reasons given for returning; however, the following factors come from the information provided by the states:

- Work hours,
- Benefits,
- Family,
- Job security,
- Stability,

- Liked state employment better,
- Location, and
- Lifestyle.

Certainly, data from individuals who have left state employment and then returned would bring greater clarity to the issue of work-force retention. Returning employees might be an appropriate topic for future research. Less agency expense and effort go into helping a returning employees become an effective contributor than in training and bringing up to speed a newly hired individual.

STRATEGIES FOR RETENTION

State/province DOTs offer a variety of incentives designed to retain valuable employees and avoid the ensuing recruitment and training process should employees leave the agency. A list of these options was presented in the survey, as shown in Appendix A. One of the challenges of a survey such as this is the unique interpretation made by survey respondents. For example, when citing schedule flexibility, respondents could be referring to work hour flexibility, such as 9/80 or 4/10 schedules, or job sharing and any number of other scheduling issues. Therefore, the reasons must be seen as general and high level in nature, because they may encompass a variety of arrangements.

Table 17 shows the various state/province offerings. A full listing of the state/province responses is contained in Appendix E. The six most commonly offered incentives focused on retention are

- Schedule flexibility, 87%;
- Training, 83%;
- Reclassification, 83%;
- Training, 83%;
- Recognition programs, 74%; and
- Professional development, 65%.

Next, states were asked to rank the most effective of these incentives from among those provided in the survey. Their responses are found in Table 18. Five emerge overall as those believed to be the most effective, whereas the remaining are thought to be of limited or no use. Reported as the most effective were

- Schedule flexibility, 50%;
- Professional development, 50%;

TABLE 17
STATE RETENTION STRATEGIES

State or Province	Special Compensation	Special Bonus	Special Benefits	Education Reimbursement	Schedule Flexibility	Training	Recognition Programs	Professional Development
Arkansas	x			x		x		x
California				x	x	x	x	x
Colorado		x	x	x	x	x	x	x
Connecticut					x		x	
Delaware	x		x	x	x	x	x	x
Indiana	x		x	x	x	x		x
Kentucky				x	x	x	x	x
Nebraska				x	x	x	x	x
Nevada				x	x		x	
North Dakota				x	x	x	x	
Oklahoma	x			x	x	x		x
Oregon		x	x	x	x	x	x	
Pennsylvania				x	x	x	x	x
South Carolina	x			x	x	x	x	x
Texas				x	x	x	x	x
Utah				x	x	x		
Virginia	x	x	x	x	x	x	x	x
Washington				x	x	x	x	
Wisconsin	x			x	x	x	x	x
Alberta		x	x				x	x
New Brunswick	x			x	x	x	x	x
Newfoundland					x	x		x
Total	8	4	6	19	20	19	17	16
Average Use	35%	18%	26%	33%	87%	83%	74%	70%

TABLE 17 (*Continued*)

State or Province	Professional Dues	Mentoring	Employment Issues	Relocation Assistance	Reclassification	Succession Planning	Recruitment Program	Diversity
Arkansas			x	x				
California	x	x						
Colorado					x	x	x	x
Connecticut	x				x			
Delaware	x	x		x	x	x		x
Indiana	x	x	x	x	x			
Kentucky	x	x			x	x		x
Nebraska	x			x	x			
Nevada					x			x
North Dakota				x	x			
Oklahoma					x			
Oregon	x							
Pennsylvania		x		x	x			
South Carolina					x			x
Texas	x	x		x	x		x	
Utah				x	x			
Virginia	x	x			x	x		
Washington		x		x	x			
Wisconsin		x			x			x
Alberta	x	x		x	x	x		
New Brunswick	x				x	x		x
Newfoundland		x		x	x	x		
Total	11	11	2	11	19	7	2	7
Average Use	48%	48%	9%	48%	83%	30%	9%	30%

Notes: Not all agencies responded to every survey question.

- Training programs, 45%;
- Special compensation, 40%;
- Education reimbursement, 35%; and
- Reclassification, 30%.

In comparing incentives offered (Table 17) with the ones deemed most effective (Table 18) an interesting phenomenon can be discerned. A side-by-side presentation of the results of these two tables is offered in Table 19. Note that the top item in both tables is the same: schedule flexibility—a consistency between the top incentive offered and that deemed the most effective. Professional development, offered by 65% of the states/provinces, is considered as effective as schedule flexibility. Training also ranks high in effectiveness and use (45%). Education reimbursement is provided as an incentive in 83% of the states/provinces; however, it was identified as an effective tool in retaining employees by only 35%. Likewise, reclassifications also had an 83% frequency as an incentive, yet was seen effective by only 30%. Such disparity begs the question as to whether states/provinces should correlate their incentive programs more closely with what has been shown as the most productive inducements. In doing so they would be concentrating on strategies that would really make a difference in retaining employees.

TABLE 18
MOST EFFECTIVE RETENTION STRATEGIES OFFERED

Strategies	Total Responses	Percentage of Agencies
Training programs	9	45
Reclassification	6	30
Schedule flexibility	10	50
Recognition programs	1	5
Special compensation	8	40
Education reimbursement	7	35
Signing bonus	0	0
Mentoring	1	5
Professional development	10	50
Special benefits	2	10
Relocation assistance	0	0
Diversity	0	0
Succession planning	1	5
Retention increases	1	5
Professional dues	1	5

Notes: Not all agencies responded to every survey question.

EXTERNAL FACTORS INFLUENCING RETENTION

A series of questions in the survey inquired about what factors, external to the agency, had influenced their employees, by either encouraging them to continue at the DOT or making it more appealing to leave. Often, programs or services such as those mentioned in this report are not wholly

TABLE 19
COMPARISON OF STRATEGIES OFFERED BY STATES VERSUS VIEWED EFFECTIVENESS

	Special Comp. (%)	Special Bonus (%)	Special Benefits (%)	Education Reimb. (%)	Schedule Flexibility (%)	Training (%)	Recognition Program (%)	Prof. Develop. (%)	Prof. Dues (%)	Mentoring (%)	Relocation Assist. (%)	Reclassification (%)	Succession Planning (%)	Diversity
States offering	35	22	26	83	87	83	74	65	48	48	48	83	30	3
Deemed effective	0	40	10	35	50	45	5	50	5	5	0	30	5	0

Note: Not all states responded to every survey question.

within the scope or control of the state agency. Some are established and maintained through the department of administration or its equivalent, whereas other influences may come from a state HR agency or the state legislatures either through legislation or the availability of funding. Despite the best efforts of DOTs, if a program is discontinued or changed through some outside influence, retention efforts may be affected.

The first question posed about outside influences concerned factors occurring during the last 5 years that had a negative impact on the DOT's ability to retain employees. The complete responses received are listed in Appendix E. However, a sampling is provided here for discussion.

California—Factors having a negative impact on employee retention include limited salary increases and no geographical pay differential.

Colorado—Benefits contribution by the state has fallen below that of most private employers. Pay for performance was instituted with a lower funding level than expected. There is a reduced threshold for full retirement.

Delaware—Maintenance review of positions in the IT area has resulted in limits of career ladder levels.

Indiana—Negative impacts include no salary increases, increases in health care premiums or lack of available health care in certain areas of the state, budget issues, unpaid furlough leaves, hiring freeze, retirement factor continues to drop, and mandatory conversion of vacation and sick time to deferred compensation account.

Kentucky—In concert with the nationwide economic downturn, Kentucky's executive branch budget for 2003–2004 proposes reducing annual salaries for state employees from 5% to 2.7%. Agencies will have to be even more creative to provide employees with incentives to stay. Approximately 40% of our 6,000 employees are eligible for retirement within the next 3 to 5 years. No layoffs are anticipated at this point because of expected retirements.

Oklahoma—Issues working against retention include privatization, a hiring freeze, and no COLAs (cost-of-living increases).

Oregon—There has been a lack of significant salary increases (only low percentage COLAs in most cases offered over the past 4 years), an increase in benefit costs (fewer benefits/more out-of-pocket expenses), and position/budget reductions are resulting in more work by less staff.

Texas—Negative impacts to retention are mostly the salary level when compared with the private sector. There have been no legislative pay raises.

Virginia—There have been limited salary increases, in addition to increased cost in health insurance premiums, budget reductions, and reorganization and focus shifts.

Washington—There has been a reduction in benefits, plus fewer salary increases, state budget crises, and the possibility of RIFs (reductions in force).

There is a disturbing commonality to the external factors reported by the DOTs in this part of the survey. Compensation and benefits are clearly at issue, and agencies have no control over this part of their employee compensation package—a situation often not understood by the average state employee. Many employees believe the agency secretary or director has significant influence on the compensation and benefits package as it is considered in the legislature each year. As discovered, such decisions are often made without consultation with the DOT executive. The significance of these data on retention of state employees will be seen in later chapters, as this report presents information from the employee survey.

Transportation agencies were equally informative about outside influences that help in retention. The following agency statements are offered, many of which contrast with those just presented.

Connecticut—There have been negotiated salary increases.

Kentucky—Continued civil service job protection in a nonunion environment provides a stable career. There has been stronger support for continued education and training. Kentucky's Personnel Cabinet is making a reasonable effort, within current budget restrictions, to evaluate and upgrade as appropriate those job classifications not keeping pace with the markets of the seven surrounding states. Kentucky does not attempt, however, to have state salaries keep pace with northeastern and western states, and the recognizable emphasis in recent years is on entry-level salaries rather than upper range.

Nevada—Positive retention efforts have included special salary adjustments for all engineering classes (a 10% pay increase) and an extra step has been added to the Compensation Schedule.

Oklahoma—The state has increased the benefits allowance for families.

Oregon—Positive retention efforts include the passing of "Family Friendly" workplace policies, as well as workplace diversity policies, telecommuting options, and the availability of special education/leadership programs: Certified Public Management (CPM program, for credit through Williamette University) and Leadership Oregon.

South Carolina—The state has implemented retention increases and bonus increases.

Texas—The state has instituted the reclassification of engineers, which has increased salary ranges. In addition, there have been across-the-board increases, and additional salary levels at the top as well as in the middle of the plan.

Utah—A poor economy limits availability of job opportunities outside of our agency.

Wisconsin—Labor contracts have been negotiated giving employees greater increases for changes in classification and management greater pay flexibility upon hire or movement of employees. Professionals in the engineering bargaining unit were given 1 week of paid time to pursue professional development.

Again, such outside influences become critical in the discussion later in this chapter, where retention from the employee's perspective is presented.

INTERNAL FACTORS INFLUENCING RETENTION

The previous section of the survey asked states to consider what influences had been established in the last 5 years that either encouraged employees to leave or prompted them to stay. Not all policies or directives come from the outside, and it seemed appropriate to sample that information as part of the research. Those factors, which might encourage employees to leave, are presented first. As in previous sections, only a sampling will be presented here; complete responses are found in Appendix E.

Arkansas—There have been no "step" increases.

Colorado—The department really grew in the 1960s, so now many employees have reached retirement age at the same time.

Connecticut—There are presently diminished promotional opportunities resulting from staff downsizing.

Delaware—There have been reductions in levels of technical and IT career ladders without significant increases in assigned pay grades.

Kentucky—Numerous leadership changes have created minor shifts in organizational priorities, although they have not been significant enough to cause massive departures. Higher salaries in the private sector, with less internal flexibility here, are the big draw.

Utah—There is a lack of mobility within the agency.

Virginia—The department has been reorganized, with targeted salary adjustments for critical areas.

Washington—There have been budget reductions and reduction in force activities (downsizing).

Additionally, states were asked what activities they have undertaken to improve their employee retention rate. A sampling of these strategies is provided here.

California—The Bay Bridge Project and the transition to a project manager approach for highway projects have improved retention.

Colorado—Reorganization within the Division of Engineering, which allows more decision making by lower level engineers, and reduction of the bureaucracy has made the jobs more interesting.

Indiana—Engineer and IT classification changes have resulted in salary increases. In addition, there has been the creation of an Alternative Work Schedule Program, increasing personal use of state cars, the use of personal

computers to electronically complete state tax forms, and the creation of an Executive Broad Band Program for executive positions.

Kentucky—Retention has been improved by the formal succession planning initiatives, increased emphasis on continued education and accompanying salary increases for completion of advanced degrees or certifications, and increased empowerment of employees in the decision-making process in program areas.

Nebraska—There is more emphasis on work-force development and providing training to all employees. We have developed either internally or through outside vendors various training modules on computers, leadership, teamwork, etc. If an employee has an interest in a certain area, they only need to contact our HR department to find out what is available for them. Supervisors are also encouraged to identify training needs and submit suggestions to the Training Division in HR.

Oregon—Retention has been improved by the establishment of various work environment policies: the Family Friendly workplace, telecommunicating, flexible work schedules, internal education/training, and information development assignment/rotational employment opportunities. A diversity council has been established, the first of its kind in Oregon government.

Texas—Job security, family time, benefits, and reclassification of salary levels have been promoted in an effort to improve retention levels.

Washington—The state has implemented assignment pay and location pay.

Wisconsin—Recognition of maintaining a quality work force is a key component of our strategic plan.

A key issue in the discussion of retention is the typical career progression option offered to state employees. In many agencies an engineer must continue to be promoted to receive the highest salary opportunities available. This typically means moving into supervisory and management positions, where their technical abilities are supplanted by the need to use leadership and management skills. Therefore, competent engineers must move up to management levels solely to receive salary increases, because the typical HR system does not appear to value technical skills beyond a certain level. Ultimately, this type of personnel system may affect a state's ability to retain very capable professionals in all job classes.

With the emphasis on promotions to receive higher salaries, there is created a need to offer professionals the leadership and management training to prepare them for these new, less technical roles. Until a decade ago, there was little offered or mentioned about leadership or management training for DOT employees. There were programs offered under such titles as "New Supervisor Training" or "Management in State Government." However, these programs were often focused on the rudiments of filling out equipment reports, completing employee appraisals, and performing other administrative tasks required of a new supervisor. What they did not cover was the skill set necessary for one to be a successful leader. Today, this situation is changing, albeit at a slow pace. More and more states are taking advantage of course offerings that go substantially beyond equipment reports and performance appraisals, to teach their professionals leadership skills commensurate with their new management positions.

In spite of the challenges presented by external forces to work-force retention, there is evidence that transportation agencies are doing what they can to encourage employees to stay. Clearly, it is recognized that these programs should be implemented no matter what external impacts surface.

EMPLOYEE SURVEY—RETENTION

Once the employee is hired by the DOT, the challenge is to train him or her well, keeping the best employees for as long as possible. As shown in chapter three, annual turnover rates vary from very low numbers in Delaware, Utah, Kansas, and South Carolina (3% or less) to the high end in California and Connecticut, where turnover is approximately 10%. Given the varied demographics for each of these states, it is not clear why there is no apparent retention pattern. For example, Washington State has many of the urban characteristics that exist in California; however, its retention rate is very different. The success of each agency's program is clearly the result of the interaction of many complex factors.

Many agency leaders cited the attractive nature of the employment opportunities available in the private sector as being a serious problem for DOTs. The second part of the employee survey asked questions about which factors those surveyed believed would be most effective in keeping an employee in state service until retirement. Additionally, questions were asked relating to those factors in the private sector that would influence a state employee who is considering leaving the DOT.

LIKELIHOOD OF RETIRING FROM THE DOT

One indication of an individual's potential for leaving is his or her mindset about staying with the agency until retirement. Table 20 shows the results in three states of the question "What is the likelihood that you will continue in

TABLE 20
LIKELIHOOD OF RETIRING FROM STATE SERVICE

Likelihood	State		
	Utah	Maryland	Nebraska
High	31%	38%	33%
Good	41%	26%	36%
Some	23%	23%	23%
Little	6%	11%	6%
None	1%	3%	2%

TABLE 21
LIKELIHOOD OF LEAVING FOR THE PRIVATE SECTOR

Likelihood	State		
	Utah	Maryland	Nebraska
High	9%	17%	8%
Good	12%	16%	14%
Some	36%	26%	27%
Little	34%	26%	30%
None	9%	15%	20%

state service and retire when eligible?" A large percentage of the respondents (68%) either answered "High" or "Good," indicating a strong propensity to finish their professional careers with their state DOTs. The opposite of this question pertains to the possibility that they will leave for the private sector before retiring. These data are found in Table 21 and show that only 25% said there was a "Good" or "High" chance of their leaving for the private sector. The results are not the exact opposite of the information found in Table 20, but are nevertheless an interesting contrast.

INCREASING RETENTION

Employees who responded to the survey were queried as to which of the 12 factors would influence them to stay with the state DOT until retirement. The results from this part of the survey, for three states, are found in Table 22. The one discriminating factor that far outranked any other category was future salary opportunities, with a high percentage for each state. Although it was mentioned more often in all three states, the frequency of mention in Utah and Maryland is almost twice the rate of that for Nebraska. More promotion opportunities and better retirement benefits ranked two and three, respectively, for all three states.

Next, employees were asked to rank the factors that would most likely cause them to consider employment in the private sector. The results for the three states are found in Table 23. Here consistency was shown in the states for the following three highest rated factors:

- Future salary opportunities, 62%;
- Current salary, 47%; and
- More promotion opportunities, 28%.

Current salary factor should be interpreted as the salary that a given employee would receive when hired by the private sector, and the future salary opportunities are those anticipated by that same employee after leaving.

Comparing these factors with incentives offered by the states can be useful. Earlier in this chapter, the responses from the states regarding the most effective incentives for retaining employees were listed. For reference, it is provided again here: schedule flexibility (50%), professional development (50%), training (45%), special compensation (40%), educational reimbursement (35%), and reclassifications (30%). Each of these factors was ranked by the employees among the 12 offered. Schedule flexibility at 13% was ranked 8 out of 12, whereas professional development (3%), training (3%), and educational reimbursement (3%) were ranked 11 out of 12. There is no direct correlation for reclassifications; however, there is some reason to believe that employees would see this factor as changing their salary situation, so it would have a relatively high ranking in relation to their responses.

WHO INFLUENCES EMPLOYEES?

Incentives are essential to the overall effectiveness of retention programs; however, individuals or groups may also

TABLE 22
FACTORS INFLUENCING RETENTION

Factor	State		
	Utah	Maryland	Nebraska
Current salary	29%	21%	29%
Future salary opportunities	74%	76%	40%
Better health benefits	30%	23%	30%
Better vacation benefits	8%	7%	8%
Better working conditions	14%	12%	16%
More promotion opportunities	41%	43%	26%
Better retirement benefits	42%	41%	1%
Better education benefits	3%	5%	8%
More flexible work schedule	15%	29%	14%
More challenging work	26%	13%	7%
Continued desire for public service	14%	8%	6%
Nothing	7%	4%	2%

TABLE 23
FACTORS INFLUENCING THE DECISION TO LEAVE STATE SERVICE

Factor	State		
	Utah	Maryland	Nebraska
Current salary	58%	51%	31%
Future salary opportunities	70%	72%	44%
Better health benefits	9%	6%	17%
Better vacation benefits	6%	6%	4%
Better working conditions	13%	15%	10%
More promotion opportunities	37%	30%	18%
Better retirement benefits	15%	15%	15%
Better education benefits	3%	3%	1%
More flexible work schedule	12%	22%	7%
More challenging work	38%	25%	10%
Continued desire for public service	0%	0%	0%
Nothing	12%	10%	4%

TABLE 24
WHO INFLUENCES EMPLOYEES TO STAY

Influence	State		
	Utah	Maryland	Nebraska
Peers	14%	10%	12%
Supervisors	25%	29%	26%
Senior management	29%	23%	24%
Governor/legislature	11%	16%	17%
Peers and supervisors	2%	0%	0%
Supervisors and senior management	4%	2%	2%
Senior management and governor	4%	0%	0%
Peers and governor	0%	0%	1%
None	10%	19%	17%

influence whether an employee stays or leaves. Table 24 shows the results for the three states for this survey question. More than any other group, supervisors and senior management were both found to have the most influence on a professional's decision to remain with the agency. This result is consistent for all three states.

Furthermore, it is clear that there are still other internal influences on the retention process. Well-organized and assertive HR managers can provide a broad overview of the whole employment picture in an agency and offer options to employees who considering private-sector employment. Career advice and succession planning programs can also influence the decisions employees make in charting their career choices.

The retention process has many dimensions. In making the decision to stay or leave, an employee takes into account personal circumstances, market conditions, current employment conditions, current salary, and future salary, and then must make the best determination possible. Many circumstances are unpredictable by their very nature, such as salary levels and promotion opportunities. Nevertheless, employees make their best judgments in each of these areas and then decide. The results of the state DOT survey and the employee survey show a disparity that needs to be addressed for retention programs to be successful. There is no reason to offer incentives that have little or no influence on an employee's decision to stay or leave.

CHAPTER SIX

PROFILE OF STATE EMPLOYEE ATTITUDES

PROFILE

Understanding the characteristics of state employees helps in designing recruitment and retention programs that will be effective in achieving an agency's goals and objectives. Accordingly, in addition to the demographic questions in the employee survey, a series of additional questions were included to assess employee attitudes and beliefs about a variety of subjects. The results gathered from three states will be presented in this chapter, as well as totals as appropriate. Agency-specific feedback has been shared with the respective administrators as appropriate and is not included in this report.

Work Hours

Understanding the work week and finding out how many hours employees work was the first inquiry made. Tables 25–27 contain these data. The majority of professional employees (63%) work a 40-h week. Almost 29% work between 40 and 50 h per week, and approximately 8% work more than 50 h. A large number (65%) take work home. Of the group taking work home, almost 32% described doing so daily or weekly, and another 32% report this practice at least monthly.

TABLE 25
AVERAGE HOURS WORKED PER WEEK

Hours	State		
	Utah	Maryland	Nebraska
Fewer than 40	1%	1%	1%
40	61%	60%	67%
40+	16%	14%	16%
45+	14%	14%	12%
50+	8%	10%	5%
55+	1%	1%	0%

TABLE 26
EMPLOYEES TAKING WORK HOME

	State		
	Utah	Maryland	Nebraska
No	34%	30%	41%
Yes	66%	70%	59%

TABLE 27
FREQUENCY OF TAKING WORK HOME

	State		
	Utah	Maryland	Nebraska
Daily	7%	9%	6%
Weekly	27%	27%	19%
Monthly	32%	30%	33%

Contribution and Value

The next series of questions were intended to assess an employee's feelings about their contributions to their agencies and the communities and to determine whether or not they felt their contributions were valued. A scale of 1 to 10 was given, with 10 being the highest possible ranking for each question. Tables 28–32 summarize the data for these questions for three states.

TABLE 28
I MAKE A POSITIVE CONTRIBUTION TO MY AGENCY

Ranking 1–10	State		
	Utah	Maryland	Nebraska
1	2%	2%	1%
2	1%	1%	1%
3	1%	2%	0%
4	3%	3%	1%
5	4%	5%	7%
6	3%	6%	2%
7	9%	12%	11%
8	21%	27%	28%
9	34%	18%	22%
10	22%	24%	26%
Average	8.14	7.86	8.15

TABLE 29
I MAKE A POSITIVE CONTRIBUTION TO MY COMMUNITY

Ranking 1–10	State		
	Utah	Maryland	Nebraska
1	2%	2%	1%
2	0%	2%	2%
3	3%	2%	1%
4	2%	3%	1%
5	4%	7%	6%
6	4%	8%	5%
7	11%	16%	13%
8	24%	22%	29%
9	29%	17%	22%
10	21%	21%	21%
Average	8.02	7.57	7.96

Most employees reported that they felt good about their contributions to their agencies. Table 28 shows that the vast majority give this a 6 or better rating, with the overall average being 8.05. Not surprising was the response these employees gave concerning their community contributions, as shown in Table 29. This point was rated at 7.85—quite close to the previous response about their contributions to the agencies. Although the evidence is anecdotal, there is a sense from these surveys, and in interacting with many state employees, that they have a refreshingly strong feel-

ing about public service. This is reflected in the high rating for community contribution.

TABLE 30
MY WORK IS VALUED BY MY SUPERVISOR

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	1%	2%	3%
2	4%	3%	3%
3	3%	3%	1%
4	4%	3%	3%
5	6%	5%	6%
6	9%	9%	8%
7	14%	12%	12%
8	20%	23%	23%
9	24%	21%	23%
10	17%	19%	17%
Average	7.53	7.56	7.55

TABLE 31
MY WORK IS VALUED BY MY CUSTOMERS

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	1%	8%	3%
2	4%	8%	3%
3	2%	4%	3%
4	7%	4%	6%
5	7%	10%	10%
6	12%	11%	14%
7	22%	15%	18%
8	21%	23%	25%
9	17%	16%	11%
10	7%	14%	6%
Average	6.94	7.20	6.68

TABLE 32
MY WORK IS VALUED BY MY AGENCY

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	2%	3%	4%
2	2%	1%	3%
3	7%	4%	2%
4	5%	5%	3%
5	9%	11%	8%
6	10%	12%	11%
7	15%	13%	16%
8	22%	24%	26%
9	16%	16%	14%
10	10%	12%	13%
Average	6.87	7.05	7.10

Next, employees were asked to rate how their supervisors valued their work, how the customers valued their work, and how they were valued as employees in the agency. Most employees reported that they feel valued by their supervisors, as reflected in the 7.55 average rating they gave this question (Table 30). This is a slightly lower score than the 8.0 given for their contributions, so there seems to be a perception by a portion of these employees that their work is not valued as much as they believe it should be. When asked how they rated customers' valuation of their work, scores were even lower at an average of 6.94 (Table 31). This is probably a reflection of state employees feeling underappreciated for the service they render to their communities and the sacrifices they make on behalf of their customers. Many services performed by state employees go relatively unnoticed by the citizens until for some reason they are not delivered.

Employees were also asked to indicate how significant their work was within their agencies. As shown in Table 32, this rating at 7.01 was a little higher than for the question on customers. In the previous discussion, it was shown that these employees reported a 7.55 rating for the level of value recognition by the supervisor. The difference between that rating and the one on the agency may indicate that employees believe they are more important to the supervisor most familiar with their work, but less valued on the whole because others do not appreciate their contributions to the agency.

Pay and Promotion Opportunities

Chapter five showed that current and future pay and promotion opportunities ranked as the top three factors influencing an employee's decision to leave a DOT for the private sector. The next two questions in the survey related to employee feelings about these factors. Table 33 contains the responses, for the three states, to the statement, "Employees who are more effective get higher pay raises in my agency." The results show a significant decline from the other ratings in this part of the survey, with an average of 3.8 for this question, indicating that employees do not think that effectiveness is necessarily tied to pay raises. This inquiry registered the lowest rating of all the questions asked in the employee survey.

TABLE 33
EFFECTIVE EMPLOYEES GET HIGHER PAY RAISES

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	15%	23%	37%
2	15%	11%	14%
3	17%	11%	13%
4	9%	12%	7%
5	11%	15%	8%
6	10%	12%	8%
7	11%	7%	7%
8	7%	5%	3%
9	3%	2%	1%
10	1%	2%	1%
Average	4.23	4.00	3.16

Next, employees were asked for their rating of the statement, "Employees at my agency are promoted based on their performance." The results for the three states are provided in Table 34. Here the rating, 4.58, is slightly higher than the previous one, although an assessment of

less than 5 indicated strong disagreement with this concept, representing an employee feeling that promotions are not based on performance but rather on favoritism or some other subjective factor.

TABLE 34
EFFECTIVE EMPLOYEES GET PROMOTED

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	14%	12%	23%
2	6%	8%	10%
3	12%	9%	14%
4	12%	12%	8%
5	15%	17%	11%
6	12%	15%	13%
7	13%	11%	12%
8	13%	9%	5%
9	1%	4%	3%
10	1%	2%	1%
Average	4.77	4.84	4.12

Morale

Employees were asked to rank their assessment of morale at their agencies. Results of this ranking are found in Tables 35 and 36. The average for the three states was 4.58, signifying a fair amount of dissatisfaction with the overall state of affairs in the agencies. When asked to respond to the statement, "Morale is higher at my agency today than it was five years ago," employees gave this an almost identical rating (4.57). The lack of contrast between the two rankings indicates progress or the lack thereof in improving morale in these DOTs—a finding that perhaps may be extrapolated nationwide.

TABLE 35
MORALE IS HIGH IN MY AGENCY

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	6%	13%	20%
2	6%	11%	13%
3	10%	15%	14%
4	9%	12%	15%
5	8%	16%	15%
6	24%	12%	12%
7	24%	13%	8%
8	13%	6%	3%
9	1%	2%	0%
10	0%	1%	1%
Average	5.44	4.45	3.86

The final question of the survey asked for employees' responses concerning their pride in being a state employee. Table 37 gives the results, with an average of 7.24.

OBSERVATIONS

Overall, the responses to these questions on employee attitudes offer some interesting observations. First is the contrast in the attitudes toward morale found in Tables 35–37. Generally, one would expect responses on pride to have about the same ranking as did those on morale. Yet the employees are relatively proud of what they do, which is also reflected in the responses about their contributions to their agencies and communities.

TABLE 36
MORALE IS HIGHER IN MY AGENCY THAN IT WAS 5 YEARS AGO

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	12%	16%	29%
2	5%	11%	12%
3	11%	13%	13%
4	7%	7%	11%
5	14%	16%	12%
6	7%	12%	8%
7	11%	9%	9%
8	16%	11%	4%
9	13%	3%	2%
10	3%	3%	1%
Average	5.49	4.58	3.64

TABLE 37
I AM PROUD TO BE A STATE EMPLOYEE

	State		
Ranking 1–10	Utah	Maryland	Nebraska
1	3%	3%	4%
2	2%	3%	3%
3	4%	4%	5%
4	1%	5%	3%
5	6%	13%	8%
6	7%	10%	8%
7	17%	13%	14%
8	21%	21%	18%
9	19%	12%	15%
10	19%	17%	23%
Average	7.48	6.96	7.28

A further observation about these last three survey questions is that the respondents are the educated professionals at the agencies, with more than 60% in supervisory or management positions. It might be expected those in positions of leadership and trust would have a higher level of morale than perhaps the rank-and-file employees. In addition, if these individuals hold supervisory positions, then why do they rank their promotion and pay opportunities as only average? They have obviously been promoted to their current positions and would seem to be able to look forward to further such opportunities. Of concern may be the possible impact that the morale of leaders or supervisory personnel has on subordinates, or the impact of their morale or attitude toward the employer. Still, in spite of perceived problems and the other elements they might be unhappy about, these professionals are still committed to their public service roles and proud of the contributions they make.

With overall morale ratings in the 4.5 to 5.0 range, one could expect a steady exodus to the private sector. However, such is not the case with Nebraska and Utah, which show turnover rates at an average of 6%. In addition, survey results indicate that 68% of the respondents noted that there was a "Good" or "High" probability they would continue in state service until retirement (see Table 20). Some of the results are related to the concept that once an individual passes a certain point in his or her length of state service, he or she is more likely to stay on until retirement, so as not to jeopardize an excellent retirement program.

The issue of morale is clearly complex and influenced by many factors. In some agencies employees are not highly regarded by elected officials. In the last 15 years, one western governor believed that if individuals remained in state service through retirement, then the state was probably offering benefits that were too generous for the public good. It is not uncommon for state legislatures to balance budgets by not giving state employees pay raises. In addition, there is the dimension of morale that is reflected in the responses to the survey questions concerning whether or not employees feel appreciated for their work.

Often unseen by the public is the level of pride and commitment that state employees demonstrate in the performance of their duties. For example, there is a feeling of ownership by maintenance crews for their sections of roadway. They are a part of their communities and often feel a deeper obligation to their neighbors than staff from a private firm might feel. In spite of how they are often perceived by the public or treated by elected officials, state employees continue to offer valued service to their customers and are proud of their contributions to their communities.

CHAPTER SEVEN

CONCLUSIONS

Throughout the course of this research project, the goal has been to examine all of the recruitment and retention practices offered by state agencies to determine which are most successful and which would have the highest potential for success and implementation in other departments of transportation (DOTs). A wide variety of practices have been reported on and considered.

Recruitment is the beginning of the employment process. It is influenced by internal and external factors both within and outside of government. The nation's economy and unemployment levels can significantly contribute to the effectiveness of a recruitment program. In some of the narrative responses, employees indicated that at the time they were looking for work the DOT was the only organization hiring. A tight economy may also result in higher-qualified applicants for positions at state or province DOTs.

It is difficult to declare certain recruitment programs or efforts as "Successful Practices" over all others surveyed. Doing so appears to indicate that some are more successful or are of greater value than others. Yet, in reviewing the factors that influence professionals to join DOTs, there is a clear trend in the efficacy of communicating the excellent benefits offered by state employment. Health, dental, and life insurance, as well as retirement and vacation benefits, are clearly appealing to candidates. Emphasis should also be given to the stability of state employment and the advantages for the employee through good and bad economic times. Most DOTs have better benefits packages than similar organizations in the private sector. However, this information is not always clearly expressed or emphasized to potential employees in ways they will understand and appreciate.

States that offer training programs for newly hired engineers appear to have an edge in their recruitment practices. These programs should include the technical and administrative training that new employees need to become proficient and comfortable in their jobs. Ideally, the training should lead to professional registration, but also must recognize the financial issues facing recently graduated engineers, who may have young families with all the demands that entails. Many of the states surveyed had programs for continuous training of engineers and many had special compensation plans geared toward this special class of employee. States attempting to design such a plan might consider those plans in operation in Colorado, Delaware, Indiana, Kentucky, and Mississippi. However, the impact of outside factors such as state budgets should not be minimized. Current policies in Colorado, Indiana, Kentucky, and Mississippi all reflect budget cutbacks that have had a negative affect on some promising recruitment programs.

The employment of information technology professionals deserves special consideration. The results of the research for this synthesis reflect a need to attract these individuals with competitive salary packages—not only in the initial hiring but also throughout their careers. There is currently a hiatus in the recruitment and retention of individuals into these technical professional positions, because of the economic downturn and the demise of many high technology companies. Nevertheless, this should only be considered a temporary situation and steps should be taken now to recruit professionals with such valuable expertise.

The research data show a wide variety of turnover rates among the states. However, it would be not be advisable to judge the recruitment and retention programs of a state or province with high turnover as being ineffective. It may be that these programs are staving off even greater attrition than might be experienced without these efforts in place. However, states would do well to understand the true nature of their measurements of recruitment and retention strategies in order to accept or modify these efforts.

One of the limitations of this study was the lack of hard data available from which to draw conclusions about specific programs. Some states retain only basic information about their programs and therefore assessments were made largely from the best analysis of the qualitative elements provided by the states. Further research resulting in quantitative information would be a significant step forward in more fully understanding the benefits and drawbacks associated with recruitment efforts at state DOTs.

Employee retention is also a concern. Once hired by a DOT there is always the potential that an employee will leave for a job in the private sector; a departure that is costly for the DOTs in training not used, lost experience, and disruption of day-to-day operations.

There were clear indications from the employees responding to the survey that current salary levels, future salary opportunities, and promotion opportunities were the primary incentives when considering private-sector em-

ployment. States offering special compensation or bonus programs are probably in a better position to retain employees than those where no such options exist, and other transportation agencies would do well to reconfigure their retention activities around such programs. Well-intentioned programs such as flexible work hours, educational benefits, and recognition programs apparently do not have much influence in convincing an individual to stay with a DOT.

Compensation is a also challenge, one over which state DOTs often have little control. Budgets and employee compensation packages are often determined without input from DOT executives and the agency must make do with the results of this process. For information technology professionals it becomes even more problematic, because these individuals share job classifications with others in state government agencies. DOTs often find that even if they have funding, they cannot raise salaries too high for these individuals without upsetting the balance of the state personnel system. It would be helpful if every effort were made to ensure proper classification of employees, with periodic reviews scheduled to uncover changing requirements and conditions in the job market.

One point that should be acknowledged is that some individuals will leave agency employment regardless of any retention activities adopted by DOTs. Whether the move pertains to dissatisfaction with the type of work, the desire for a private-sector experience, or other factors, a certain percentage will ultimately leave state employment. The good news is that a percentage of these individuals eventually return to state service. Others, employed by private engineering firms, return and perform work for the DOT in an outsourcing role. Although no definitive data were available from transportation agencies on returning former employees, this does occur. Such returns are often made for the same reason(s) that employees came to agency employment in the first place, employment stability and the excellent benefits. One of the Successful Practices that states could consider is this pool of already trained potential employees who may choose to return if actively recruited. There appears to be enough anecdotal evidence of opportunity here for states to take this point seriously.

In addition, the substantial differences between retention strategies cited by the state/province DOTs and those considered significant to the employees are important and should be considered with due seriousness.

Some pertinent conclusions can be drawn from this research.

- The state employee work force is aging. This aspect and others, as reported on by state employees, must be taken into account when designing a recruitment and retention program.
- Underlying concerns exist among agency employees regarding how individuals receive promotions and pay raises, revealing a belief that performance is not always fully considered.
- Low morale can be a factor among agency employees; however, it has been determined that they are still dedicated and proud of their roles as public servants.

The synthesis results suggest that data collection remains an important area for further study.

- First, more quantitative information would significantly advance the understanding of the unique facts and nuances associated with recruiting and retention efforts by state DOTs.
- Second, given that financial considerations are a large part of Successful Practices, more complete understanding is needed about how the inadequate control of DOTs in this area can hinder the advancement of even the most well-thought-out and effective retention program efforts.
- Finally, more definitive data about the active recruitment of already trained potential employees who have returned to transportation agency employment might lead to rewarding strategies.

REFERENCES

The AASHTO Guide to Recruitment and Retention of Civil Engineers, American Association of State Highway and Transportation Officials, Washington, D.C., 1990.

Bernthal, P.R. and R.S. Wellins, "Retaining Talent: A Benchmarking Study," *HR Benchmark Group: Developmental Dimensions International*, Vol. 6, No. 3, February 2001.

Buchan, J., "Global Nursing Shortages," *British Medical Journal*, Vol. 324, No. 7340, March 30, 2002, pp. 751–752.

Daniels, I., "How's Your Retention?" *People Management*, Vol. 8, No. 2, January 24, 2002, p. 53.

DeMers, A., "Solutions and Strategies for IT Recruitment and Retention: A Manager's Guide," *Public Personnel Management*, Vol. 31, No. 1, Spring 2002, pp. 27–40.

"Employee Retention Survey," Kansas Department of Administration [Online]. Available: http://da.state.ks.us/ps/subject/retention.htm [2002, June 10].

Estell, L., "Military Intelligence," *Incentive*, Vol. 55, No. 8, August 2001, pp. 63–67.

Gilliland, C.A.W., "Managing Change in State Departments of Transportation: Scan 5 of 8: Innovations in Workforce Strategies," Transportation Research Board, National Research Council, Washington, D.C., May 2001, 54 pp.

Glagola, C.R. and C. Nichols, "Recruitment and Retention of Civil Engineers in Departments of Transportation," *Leadership and Management in Engineering*, Vol. 1, No. 1, 2001, pp. 30–36.

Hoel, L.A. and M.A. Perfater, "Succession Planning at the State DOT Level," *Transportation Research Record 1498*, Transportation Research Board, National Research Council, Washington, D.C., 1995, pp. 51–56.

Hood, J.N., T. Alarid, and D. Albright, "Staffing Plan Survey of State Transportation Agencies," *Transportation Research Record 1729*, Transportation Research Board, National Research Council, Washington, D.C., 2000, pp. 12–20.

Jardine, E. and S. Amig, "Managing Human Capital," *Behavioral Health Management*, Vol. 21, No. 2, March/April 2001, pp. 22–26.

Judy, R.W. and C. D'Amico, *Workforce 2020: Work and Workers in the 21st Century,* Hudson Institute, Indianapolis, Ind., 1997.

Langan, S., "Finding the Needle in the Haystack: The Challenge of Recruiting and Retaining Sharp Employees," *Public Personnel Management*, Vol. 29, No. 4, Winter 2000, pp. 461–464.

Mure, D., "How to: Recruit and Retain the Next Generation of Managers and Supervisors," *Constructor*, Vol. 83, No. 12, December 2001, pp. 31–32.

"Occupational Employment Projections to 2010," *Monthly Labor Review*, November 2001, pp. 57–84.

Poister, T.H., L.G. Nigro, and R. Bush, *NCHRP Synthesis of Highway Practice 163: Innovative Strategies for Upgrading Personnel in State Transportation Departments*, Transportation Research Board, National Research Council, Washington, D.C., 1990, 35 pp.

Society for Human Resource Management (SHRM), *Retention Practices Survey*, SHRM Foundation, Alexandria, Va., 2000.

Special Report 207: Transportation Professionals: Future Needs and Opportunities, Transportation Research Board, National Research Council, Washington, D.C., 1985, 299 pp.

TCRP Report 77: Managing Transit's Workforce in the New Millennium, Transportation Research Board, National Research Council, Washington, D.C., 2002.

Thibodeau, P., "In Survey: Above All Else, IT Workers Need Challenge," *Computerworld*, Vol. 35, No. 3, January 2001, p. 20.

Thomas Staffing, "14th Annual Survey Results" [Online]. Available: http://www.thomas-staffing.com/survey99/retention.htm [2002, June 10].

BIBLIOGRAPHY

Anderson, T., "Pay Attention to Retention, Not Just Recruitment Issues," *Business Journal* (*Central New York*), Vol. 15, No. 12, March 23, 2001, p. 10.

Bart, E., A. Reep, and L. Staes, *Where Are the Future Transit Maintenance Technicians Coming From?* Florida Department of Transportation, Gainesville, 2001.

Ensuring a Strong U.S. Scientific, Technical, and Engineering Workforce in the 21st Century, National Science and Technology Council, Washington, D.C., 2000.

Fletcher, S., M.R. Anderson-Rowland, and S. Blaisdell, "Industry Involvement in Women in Applied Science and Engineering (WISE) Recruiting and Retention Programs," *Proceedings—Frontiers in Education Conference*, Tempe, Ariz., November 1998, pp. 226–230.

Griggs, N.S., "Universities and Professional Associations: Partnerships for Civil Engineering Careers," *Journal of Management in Engineering*, Vol. 14, No. 2, March 1998, pp. 45–55.

Harris, D.H., "Benefits of Exit Interviews," *IEEE Engineering Management Review*, Vol. 28, No. 3, 2000, pp. 63–66.

Henderson, S., "*Minnesota Summit on Civil Engineering Workforce Development*, Minnesota Department of Transportation, St. Paul, 2000.

Jones, R.C., "Technical Personnel Shortages in Construction Industry," *Journal of Professional Issues in Engineering*, Vol. 116, No. 1, January 1990, pp. 16–26.

Patterson, C.J., "Employment Agreements for Senior Personnel: Practical Guidelines," *Journal of Management in Engineering*, Vol. 14, No. 2, March 1998, pp. 17–18.

Slowik, S.M., "Objective Pre-Employment Interviewing: Balancing Recruitment, Selection and Retention Goals," *Public Personnel Management*, Vol. 30, No. 1, Spring 2001, pp. 77–94.

TCRP Research Results Digest 45: Identification of the Critical Workforce Development Issues in the Transit Industry, Transportation Research Board, National Research Council, Washington, D.C., 2001, 23 pp.

Waggoner, K.M., *Recruiting and Retaining Women and Minorities in Public Sector Engineering Positions*, Final Report, Iowa Department of Transportation, Ames, 1995.

APPENDIX A

Employer Survey

General Agency Information

State: _____

Address: _____

City: _____ State: _____ Zip code: _____

Name of person completing the questionnaire: _____

Phone number of person completing the questionnaire: _____

E-mail of person completing the questionnaire: _____

PART I—DEMOGRAPHICS

In order to correlate data about your agency with that of other agencies certain demographic information must be gathered.

1. Total number of employees in this agency: _____
2. Major activities/divisions within this agency:
   Check all that apply
   a. Highways _____
   b. Motor vehicle _____
   c. Aeronautics _____
   d. Transit _____
   e. Marine _____
   f. Rail _____
   g. Administration _____
   h. Other (specify) _____
   i. Other (specify) _____

PART II—EMPLOYEE STAFFING LEVELS

3. How many employees are assigned to each division?
   j. Highways _____
   k. Motor vehicle _____
   l. Aeronautics _____
   m. Transit _____
   n. Marine _____
   o. Rail _____
   p. Administration _____
   q. Other (specify) _____
   r. Other (specify) _____

4. Number of employees by job class:
   a. Engineer _____
   b. Engineering technician (field) _____
   c. Engineering technician (CADD operators, design technicians) _____
   d. IT professional _____
   e. Other professionals (i.e., accountants, planners, etc.)
      Please name
      _____ _____
      _____ _____
      _____ _____

5. Annual turnover by job class in 1997:
   a. Engineer _____
   b. Engineering technician (field) _____
   c. Engineering technician (CADD operators, design technicians) _____
   d. IT professional _____
   e. Other professionals (i.e., accountants, planners, etc.)
      Please name
      _____ _____
      _____ _____
      _____ _____

6. Annual turnover by job class in 2001:
   a. Engineer _____
   b. Engineering technician (field) _____
   c. Engineering technician (CADD operators, design technicians) _____
   d. IT professional _____
   e. Other professionals (i.e., accountants, planners, etc.)
      Please name
      _____ _____
      _____ _____
      _____ _____

PART III—RECRUITMENT

7. Who in your agency is responsible for recruiting professionals?
   _____
   _____
   _____

8. List the strategies (such as specialized training, education, special salary benefits) your agency has employed to recruit professionals in each of the following job classes:
   a. Engineer
      _____
      _____
      _____

   b. Engineering technician
      _____
      _____
      _____

c. IT professional

_____

_____

_____

d. Other professionals (i.e., accountants, planners, etc.)

_____

_____

_____

9. What impact have these strategies had on your recruitment efforts?

_____

_____

_____

10. Do you have data that show trends in these areas? _____ Yes _____No
If "yes," please attach any reports, records, or information substantiating these trends.

11. Does your agency offer incentives in the following areas in recruiting professionals?
Check all that apply.

_____ Special compensation
_____ Special bonuses
_____ Special benefits
_____ Education reimbursement
_____ Schedule flexibility (e.g., flextime, telecommuting, leave)
_____ Training programs (e.g., structure, delivery systems, required hours, evaluation)
_____ Recognition programs
_____ Professional development, including the availability of technical and management tracks
_____ Professional dues/registration
_____ Mentoring
_____ Assistance with employment issues (e.g., visas, work permits)
_____ Relocation assistance
_____ Reclassification of job titles and salaries
_____ Succession planning
_____ Recruitment program (e.g., a bonus for recruiting other employees)
_____ Diversity/underrepresented groups
_____ Other (specify) _____
_____ Other (specify) _____

12. If you had to rank the three most effective incentives from this list, what would they be?
a. _____
b. _____
c. _____

PART IV—RETENTION

13. Name the strategies (such as specialized training, education, special salary benefits) your agency has employed to retain professionals in each of the following job classes:
a. Engineer

_____

_____

_____

b. Engineering technician

c. IT professional

d. Other professionals (i.e., accountants, planners, etc.)

14. What impact have these strategies had on your retention efforts?

15. Do you have data that show trends in these areas? _____ Yes _____No
If "yes," please attach any reports, records, or information substantiating these trends.

16. Do you have any other special programs focused on retaining professionals?

17. Do you conduct exit interviews with employees leaving employment with your agency?
_____ Yes _____No

18. If "yes," who conducts the exit interviews?

19. Do you keep data on the reasons for professionals leaving your organization?
_____ Yes _____No

20. If "yes," what are the top three reasons for professionals leaving your organization?
a.
b.
c.

21. Do you have any data on employees who leave and then return to employment with your agency within three years?
_____ Yes _____No

22. If "yes," what do those data show?

23. If "yes," what are the top three reasons for a professional to return to your organization within three years?
a.
b.
c.

24. Does your agency offer incentives in the following areas in retaining professionals?
Check all that apply.

_____ Special compensation
_____ Special bonus
_____ Special benefits
_____ Education reimbursement
_____ Schedule flexibility (e.g., flextime, telecommuting, leave)
_____ Training programs (e.g., structure, delivery systems, required hours, evaluation)
_____ Recognition programs
_____ Professional development including the availability of technical and management tracks
_____ Professional dues/registration
_____ Mentoring
_____ Assistance with employment issues (e.g., visas, work permits)
_____ Relocation assistance
_____ Reclassification of job titles and salaries
_____ Succession planning
_____ Recruitment program (e.g., a bonus for recruiting other employees)
_____ Diversity/underrepresented groups
_____ Other (specify) _____
_____ Other (specify) _____

25. If you had to rank the three most effective incentives from this list, what would they be?

a. _____
b. _____
c. _____

26. What has happened in the last five years in your personnel system, from external sources like your state legislature or state HR agency, which might cause professionals to leave your organization (e.g., salary reductions, reduction in benefits, no salary increases).

_____
_____
_____
_____
_____
_____
_____

27. What has happened in the last five years in your personnel system, from external sources like your state legislature or state HR agency, which might increase the probability of professionals staying with your agency?

_____
_____
_____
_____
_____
_____
_____

28. What has happened in the last five years in your personnel system, from internal sources in your agency, which might cause professionals to leave your organization (e.g., salary reductions, reduction in benefits, no salary increases)?

_____
_____
_____
_____
_____
_____

29. What has happened in the last five years in your personnel system, from internal sources in your agency, which might increase the probability of professionals staying with your agency?

30. Does your agency do anything else not previously mentioned in this questionnaire that would be of interest for the synthesis on recruiting and retaining professionals in state DOTs?

APPENDIX B

States and Provinces Responding to the Survey

Arkansas
California
Colorado
Connecticut
Delaware
Indiana
Kansas
Kentucky
Louisiana
Mississippi
Missouri
Nebraska
Nevada
North Dakota
Oklahoma
Oregon
Pennsylvania
South Carolina
Texas
Utah
Vermont
Virginia
Washington
Wisconsin
Alberta
New Brunswick
Newfoundland

APPENDIX C

Employee Survey

1. What best describes your professional competency?
   - Engineer _____
   - Accountant _____
   - Planner _____
   - IT Professional _____
   - Other (describe) _____ _____

2. Please list your highest level of education:
   - High school _____
   - Some college _____
   - College graduate (4-year) _____
   - Some postgraduate _____
   - Graduate degree _____

3. Type of position currently held (check the one that most closely matches your job). _____
   - Managerial (supervisor, some technical work, budget responsibility) _____
   - Technical (largely responsible for only your technical work) _____
   - Other (describe) _____ _____

4. How long have you held your current position (years)? _____

5. How long have you been employed by your agency (total years)? _____

6. Gender: Male _____
   Female _____

7. Age: 18–30 _____
   31–40 _____
   41–50 _____
   51–60 _____
   61+ _____

8. Assuming that you continue employment with your agency, in how many years would you be eligible to retire?
   - 0 (already eligible) _____
   - 1–5 _____
   - 6–10 _____
   - 11–20 _____
   - 20+ _____

9. What factors attracted you to seek employment with your agency when you were originally hired? (Please indicate your top three choices with 1 being the highest, etc.)
   - Competitive salary _____
   - Health benefits _____
   - Vacation benefits _____
   - Retirement benefits _____
   - Promotion opportunities _____
   - Education benefits _____
   - Challenging work assignments _____
   - Other aspects of the work _____
   - Stable employment _____

Family member already an employee _____
Desire to perform public service _____
Other (specify) _____ _____
Other (specify) _____ _____

10. What is the likelihood of your leaving state service for a position in the private sector in the next five years?
High _____
Good _____
Some _____
Little _____
None _____

11. What is the likelihood that you will continue in state service and retire when eligible?
High _____
Good _____
Some _____
Little _____
None _____

12. What factors would improve your likelihood of staying with your agency through retirement?
(Please indicate your top three choices with 1 being the highest, etc.)
Current salary _____
Future salary opportunities _____
Better health benefits _____
Better vacation benefits _____
Better working conditions _____
More promotion opportunities _____
Better retirement benefits _____
Better education benefits _____
More flexible work schedule _____
More challenging work _____
Continued desire for public service _____
Nothing _____
Other (specify) _____ _____

13. What is it about private-sector positions that would make them attractive to you as an employment opportunity?
(Please indicate your top three choices with 1 being the highest, etc.)
Current salary opportunities _____
Future salary opportunities _____
Better health benefits _____
Better vacation benefits _____
Better working conditions _____
More promotion opportunities _____
Better retirement benefits _____
Better education benefits _____
More flexible work schedule _____
More challenging work _____
Nothing _____
Other (describe) _____ _____
Other (describe) _____ _____

14. Who in your agency would have the most influence on your decision to continue employment as a state employee?
    - Peers _____
    - Supervisors _____
    - Senior management _____
    - Governor/Legislature _____
    - None _____

15. What would you change about the SHA that would make it a more desirable place to work? _____

16. How many hours a week do you work? ____

17. Do you ever take work home? Yes _____ No _____

18. If you take work home, is it something you do on a daily basis? ____ weekly basis? ____ monthly basis?____

For questions 19–28, answer on a scale of 1 to 10 with 1 as strongly disagree and 10 as strongly agree.

19. I feel like I make a meaningful contribution to my agency.
    1 2 3 4 5 6 7 8 9 10

20. I feel like I am making a meaningful contribution to my community/state.
    1 2 3 4 5 6 7 8 9 10

21. My work is valued by my supervisor.
    1 2 3 4 5 6 7 8 9 10

22. My work is valued by our customers.
    1 2 3 4 5 6 7 8 9 10

23. I am a valued employee in my agency.
    1 2 3 4 5 6 7 8 9 10

24. Employees who are more effective get higher pay raises in my agency.
    1 2 3 4 5 6 7 8 9 10

25. Employees at my agency are promoted based on their performance.
    1 2 3 4 5 6 7 8 9 10

26. Morale is high at my agency today.
    1 2 3 4 5 6 7 8 9 10

27. Morale is higher at my agency today that it was five years ago.
    1 2 3 4 5 6 7 8 9 10

28. I am proud to be a state employee.
    1 2 3 4 5 6 7 8 9 10

APPENDIX D

Recruitment: Narrative Responses

This appendix features narrative responses to Questions 8 and 9 of the employer survey, which asked the states about their strategies for employee recruitment, as well as the impact of these strategies.

STRATEGIES FOR RECRUITING ENGINEERS

Arkansas—Special salary schedule, engineering intern program, Master's degree program.

California—Implemented a mandatory Rotational Program for all new engineers (civil), hire above minimum for extraordinary qualifications, telecommuting, out-of-state recruitment, Internet testing.

Colorado—Increased salary, promotion opportunities.

Connecticut—Internet posting, on-campus recruitment, career fairs.

Delaware—Selective market pay plan and special starting rates, professional license cost reimbursement for "brush-up" class, advanced starting salary at hire and promotion, education reimbursement, education leave with partial pay, summer internships, job offers before graduation based on prior work with DOT, banner plane over Delaware and Maryland beaches, middle and high school vacation day attendance to start interest early.

Indiana—Job fairs, for engineers—salaries above the minimum, salary adjustments upon hire for Master's degree, education assistance program for obtaining Master's degree and professional engineer review course. We have an Engineering Retention Program that gives engineers three levels of raises for achieving different plateaus: (1) after obtaining 1 year of engineering experience with an EIT license the engineer receives a 5% raise, (2) after obtaining 2 years of engineering experience with an EIT license the engineer receives a 5% raise, (3) after receiving a PE license in the state of Indiana the engineer receives a 13% raise. We also offer a tuition reimbursement program.

Kansas—Hiring and retention bonuses have been used in the past; however, bonuses were not funded for FY 2003 by the legislature. The governor recently issued an executive directive to implement bonuses at a lower amount for hiring and retention, but the guidelines for those programs have not yet been developed. Recruitment bonuses of $500 are available to any current employee who recruits an engineer to KDOT. The bonus is payable to the recruiting employee upon the 1-year anniversary of the engineering employee's hire date. Graduate engineers who have passed their Fundamentals of Engineering exam prior to their hire date are hired at a step above the normal hiring step. Other strategies include a Rotational Training Program for entry level engineers, tuition reimbursement, job security, regular state benefits, automatic promotion from Engineering Associate I (EIT) to EA II for all graduate engineers upon attaining the combination of EIT certification and 1 year of experience, and automatic promotion to EA III for some positions upon an additional year of experience.

Kentucky—Established career path with eight potential levels for promotion; internal program for awarding engineering scholarships with year-for-year service requirement; tuition reimbursement for advanced degrees; no-cap salary ranges, plus 30% add-on salary equivalent for benefits; rehiring of retirees as new employees; dual career track (management and technical); telecommunicating; continuing education training.

Mississippi—EIT special compensation plan (7/1/02); base salary, $38,442 with 5% increase every 6 months to 3.5 years experience; cooperative education program.

Nebraska—Nebraska stresses the following programs to all classifications in order to recruit. State employees are offered a generous package, which includes sick and vacation leave; disability insurance; workers' compensation; health, life, and dental insurance; a retirement program with a 156% match of funds by the state to the employee's contribution; a deferred compensation plan; flexible spending accounts, etc. Nebraska also offers a tuition assistance program that provides up to 100% reimbursement of tuition for completion of job-related courses of instruction with an accredited university or college. Other recruitment tools include flexible work schedules, a nationally known awards and recognition program, training videos, and a work-force development program to enable our employees to obtain training and proceed in a chosen career path. Engineer I and Environmental Engineers have adjusted hiring rates. We have special training videos for engineers who are studying for the Professional Registered Engineer exam. In addition, we do pay the cost of membership dues to professional organizations. The DOT has a work study program that is much like an intern program, allowing students to work part time to gain valuable experience in various fields. Once they graduate, it is our hope that they will apply with the Department of Roads when seeking

permanent employment. We also attend university job fairs and those at PKI and J.D. Edwards, and take current engineers along as a resource to talk to students interested in these types of jobs. University websites are used to recruit and advertise, and we also have a contact person at UNL to post work study positions and jobs.

North Dakota—Increased salaries, increased campus recruiting, offer recruitment bonuses, Internet postings.

Oklahoma—Engineer training program, sign-on bonuses, increase in salaries, on-campus recruiting.

Oregon—Differential pay for PE license; flexible work schedules/family friendly workplace, education assistance (time off and some reimbursement for relevant classes), under-fill opportunities; development/rotational assignments.

Pennsylvania—The commonwealth provides an excellent benefits package including medical, prescription drugs, dental, vision, hearing, life insurance, retirement, annual and sick leave. This package is worth approximately one-third of a newly appointed employee's total salary.

South Carolina—The "team" approach allows engineers already on board with us to share their knowledge and assist with the recruitment of engineers.

Texas—Reclassification to higher level positions; sign-on bonuses; streamlined hiring process; reimbursement of PE license fee; robust training programs in design, construction signaling, and maintenance of transportation systems; job rotation; graduate education part-time/full-time programs.

Utah—UDOT offers a rotational engineering program for recent college graduates in civil engineering. This is a 4-year program that gives the new engineer valuable experience in a variety of civil engineering areas. A year of design and construction are mandatory and then the rotational can choose from various other areas for the remainder of his/her 4 years on the program. We have found that our future leaders are our current rotationals. We also offer educational assistance for all full-time employees, which pays 100% related to the job or 75% for all other classes. Many engineers have gone on to get their Master's degree with this benefit. We visit the local universities and their civil engineering colleges at least twice a year for class presentations and/or career fairs. This past year we invited civil engineering students to attend the UDOT engineer's conference, which was a great success and now many more students are looking forward to attending this conference in 2002. At the conference we allowed students to visit with other consultants/vendors, attend breakout sessions of their choice, provided lunch and dinner, and hosted a bridge breaking competition where students from the universities divided into teams and competed against one another to build the strongest bridge. Current rotationals were responsible for the competition and were able to mingle and answer any questions the students may have had about UDOT and the rotational program.

Virginia—Engineer Development Program—a 24-month development program that offers focused career paths for hands-on experience and training in the areas of design, construction, and maintenance; Engineer Scholarship Program—an annual scholarship stipend of $7,000 is available to rising sophomores, juniors, and seniors; summer employment under the supervision of a mentor; full-time employment with VDOT upon graduation for those who qualify; repayment of scholarship stipend by working for VDOT upon graduation for 6 months of service for each semester of scholarship stipend received.

Washington—Assignment (location) pay, salary increase of 10% in 1999.

Wisconsin—Over the years, the department has established close working relationships with universities/colleges. This relationship has familiarized the professors with our operations, so that they speak favorably of the department and are a positive influence with the graduating engineers. In addition, we promote the hiring of engineering students during the summer. We also have a scholarship program to attract minority engineering students. We are also able to hire more experienced engineers above the minimum starting salary at a rate that is commensurate with their experience.

Alberta—Alberta Transportation actively recruits Engineering Co-op Students from the province's universities. By providing meaningful work experience to these students, Alberta Transportation is a viable employer to those soon-to-be engineering graduates.

New Brunswick—Recruitment directly from universities, hiring of summer students from year to year.

Newfoundland—To date we have not had difficulty recruiting engineers using normal recruitment methods.

STRATEGIES FOR RECRUITING ENGINEERING TECHNICIANS

California—Quarterly testing.

Connecticut—Unsolicited applications.

Delaware—Same as engineers, with the exception of no selective market pay plan, no special starting rates, and no job offers prior to graduation.

Indiana—Job fairs, certified technician program, tuition reimbursement program.

Kansas—Newly hired Engineering Technician Associates (ETAs) (our entry level) in field construction or materials testing and in the land surveying crews have an automatic promotion to the next level of Engineering Technician upon completion of specialized training, certifications, and 1 year of experience. We are hopeful that the central State Personnel Division will allow us to implement this in the next year or two for all ETAs.

Kentucky—Five-level potential career path, continued education and training assistance, tuition reimbursement, salary increase for successful completion, etc., rehiring retirees.

Mississippi—Automatic reclassification with National Institute for Certification in Engineering Technologies (NICET) certification.

Nebraska—Engineering technicians such as Construction Technicians I, II, III, and IV also have adjusted hiring rates of pay.

North Dakota—Increased salaries, increased campus recruiting, offer recruitment bonuses, Internet postings.

Oregon—Flexible work schedules/family-friendly workplace, education assistance (time off and some reimbursement of relevant classes), development assignments.

Texas—Liberal educational assistance programs; construction, maintenance, design, and signal training; access to specialized certification programs.

Washington—Assignment pay.

Wisconsin—The agency has several employees that teach at one of the technical schools in Milwaukee. In addition, we have a number of employees that are well connected to the technical schools that involve certification such as asphalt. This close relationship with the tech schools benefits the agency in attracting qualified applicants.

Alberta—Alberta Transportation provides summer employment opportunities to students from technical colleges.

New Brunswick—No recruitment issues.

Newfoundland—To date we have not had difficulty recruiting using normal recruitment methods.

STRATEGIES FOR RECRUITING IT PROFESSIONALS

Arkansas—Intern program.

California—Internet testing.

Colorado—Increased salary.

Connecticut—Internet posting, career fairs.

Delaware—Job offers before graduation based on prior work with DOT.

Indiana—Job fairs, tuition reimbursement program.

Kentucky—Special entrance salaries, annual classification reviews for competitive salary adjustment, rehiring of retirees.

Mississippi—IT special compensation (1998).

Nebraska—Adjusted hiring rates of pay offered for IT jobs.

North Dakota—Increased salaries, offer recruitment bonuses, Internet postings.

Oklahoma—Sign-on bonuses, pay differential, overtime pay.

Oregon—Hiring bonuses/retention bonuses (Y2K), pay-line exceptions (up to 15% above top salary step).

Texas—Liberal educational assistance programs, access to internal and external training programs, access to industry certification programs.

Washington—Assignment pay salary increase 10% in 1999.

Wisconsin—We have developed an expedited hiring process to get the job offer to desirable applicants before losing them to private industry due to a traditionally lengthy hiring process.

New Brunswick—Co-op program.

STRATEGIES FOR RECRUITING OTHER PROFESSIONALS

California—Campus recruitment combined with frequent testing, Internet testing.

Colorado—Depending on the position, there are increased salary and promotional opportunities.

Connecticut—Internet postings.

Delaware—Job offers before graduation based on prior work with DOT.

Indiana—Job fairs.

Kentucky—Graduate accountants/auditors have established career path, telecommunicating, professional classification series have at least three levels (entry + two promotions).

North Dakota—Offer recruitment bonuses, Internet postings.

Virginia—Intern program—paid internships to students working towards their degree; exceptional recruitment and retention incentive options for positions deemed critical to agency mission, sign-on bonuses, annual leave incentives, provide funds for membership in a professional organization; provide funds for professional and technical certifications or licenses, including renewals; also provide education leave and time to participate in classes and training sessions and/or preparatory classes for exams; use of web-based recruitment for professional and hard-to-fill positions, i.e., Monster.com.

Washington—Assignment pay salary increase for accountants 10% in 2002.

Wisconsin—When we recruit planners, we have management personnel go to the college/university to talk with the class about our jobs.

New Brunswick—Internship and rejuvenation programs offered to engineers and nonunionized professionals.

IMPACT OF STRATEGIES

Arkansas—The intern programs have given us the opportunity to "try" an employee before offering a regular position. Interns appear to be more likely to accept regular positions because they have already worked for the Arkansas State Highway and Transportation Department and they know how we operate.

California—Department was able to meet its increased need for engineers two consecutive years.

Connecticut—Sufficient applicant pool.

Delaware—The special starting rates and selective market pay plans have increased interest in working with the DOT.

Indiana—Due to our limited out-of-state budget, the impact has been low to medium.

Kentucky—Stable retention of professionals over the past 10 years. Recently legislated retirement incentives will greatly affect Kentucky state government in the coming decade; declining levels of expertise and work-force capital.

Mississippi—Excellent impact EIT plan with regular adjustment in place since 1987.

Nebraska—There are no data kept regarding the impact of these strategies.

North Dakota—We have reduced the number of vacancies.

Oklahoma—More hires of engineers.

Oregon—Some increase in candidate pools, more out-of-state and private-sector candidates (family friendly/flexible schedules).

Pennsylvania—We reinforce the benefits package.

South Carolina—The "Team Approach" has allowed our recruiters to reach more individuals and has allowed us to be in the position to have our employees involved and sharing meaningful, job-specific information with recruits.

Texas—More aggressive and competitive recruitment programs.

Utah—We have had many more applicants apply this past season compared to the last 3 or so years. Our efforts to be in more contact with the local universities have paid off and we now have relationships with the civil engineering colleges that allow us to ensure that our rotational and internship opportunities are communicated to the students. We have also had more women apply this year than in recent years because of our recruitment efforts.

Virginia—Not yet determined.

Washington—Help hire in remote locations or downtown Seattle.

Wisconsin—We have been able to attract more applicants than we normally would. Our engineering program is self-sustaining. We have employed a fair number of students in the summer engineering program and they enjoy the experience; consequently, they talk to other students and have positive things to say about the DOT program. Each year, the students inquire about the program and a good number of these students end up working for us.

Alberta—As a government department, Alberta Transportation's recruitment activities for permanent positions are regulated by legislation. Our initiatives to attract new graduates to experience Alberta Transportation have been very positive.

New Brunswick—Very successful.

APPENDIX E

Retention: Narrative Responses

This appendix contains narrative responses to the employer survey pertaining to retention of employees.

STRATEGIES FOR RETENTION

Arkansas—Specialized training, special salary schedule, Master's degree program.

California—Offers tuition reimbursement at a rate of 100% for job-required classes and 50% for related courses.

Colorado—Reclassification, training, education assistance.

Delaware—Selective market pay plan and special starting rates, professional license cost reimbursement for "brush-up" class, advanced starting salary at time of hire and promotion, educational reimbursement, educational leave with partial pay, summer internships, job offers before graduation based on prior work with DOT, banner plane at Delaware and Maryland beaches, middle and high school vacation day attendance to start interest early.

Indiana—We have an engineering retention program, which gives engineers three levels of raises for achieving different plateaus: (1) after obtaining 1 year of engineering experience with an engineer-in-training (EIT) license the engineer receives a 5% raise, (2) after obtaining 2 years of engineering experience with an EIT license the engineer receives a 5% raise, (3) after receiving a PE license in the state of Indiana the engineer receives a 13% raise. We also offer a tuition reimbursement program.

Kentucky—Established career path with eight potential levels for promotion; internal program for awarding engineering scholarships with year-for-year service requirement; tuition reimbursement for advanced degrees; no-cap salary ranges, plus 30% add-on salary equivalent for benefits; rehiring of retirees as new employees, dual career track (management and technical), telecommunicating, continuing education training. Also, if funds are available, performance award of ≤10% of base salary. Incentive award of ≤10% lump sum is also available.

Mississippi—EIT special compensation plan (7/1/02); base salary $38,442, with 5% increase every 6 months to 3.5 years experience; cooperative education program.

Nebraska—We do pay for professional dues/registration for employees to belong to any professional group related to their jobs. Also, as stated previously, the state offers a tuition assistance program; we have a very good rewards and recognition program as well as a work-force development program within our department that offers training for persons interested in furthering their careers.

Nevada—Recommended 10% special salary adjustment to the governor, which was supported by the legislature and implemented in 2001.

North Dakota—Raised salaries, pay overtime for exempt employees, implemented flex work hours, education reimbursement.

Oklahoma—Specialized training (engineer training program), market-based salaries, financial assistance for college tuition.

Oregon—Differential pay for PE license, flexible work schedules/family friendly workplace, education assistance (time off and some reimbursement of relevant classes), under-fill opportunities, development/rotational assignments.

Pennsylvania—The commonwealth provides an excellent benefits package including medical, prescription drugs, dental, vision, hearing, life insurance, retirement, annual and sick leave. This package is worth approximately one-third of a newly appointed employee's total salary.

South Carolina—Retention increases of up to 15%, reclassification and a 10% pay increase for obtaining professional certification, education and training programs and educational tuition assistance, if funds are available. Additional duties/responsibilities increases, additional skills increases, performance pay increases, and temporary salary increases.

Texas—Reclassification to higher level positions; sign-on bonuses; streamlined hiring process; reimbursement of PE license fee; robust training programs in design, construction signaling, and maintenance of transportation systems; job rotation; graduate education part-time/full-time programs. For engineering technicians, access to specialized certification programs.

Utah—The rotational program mentioned above helps in retaining engineers as it offers permanent UDOT employment once the 4 years has been completed, and enables the engineer to gain the experience required to take the PE exam.

Virginia—Exceptional recruitment and retention incentive options for positions deemed critical to agency mission with recruitment and retention programs, retention bonus, annual leave incentives, project-based incentives, compensatory leave incentives, provides funds for membership in a professional organization, provides funds for professional and technical certifications or licenses, including renewals. Also, provides education leave and time to participate in classes and training session and/or preparatory classes for exams.

Washington—Salary increases, assignment pay.

Wisconsin—The engineer is given responsibility to manage their respective project; the strategy is giving them a challenge. Using the leading techniques and equipment to carry out their responsibilities is a strategy. Keeping the pay competitive in relation to hours and (geographic) locations worked is a strategy. Additionally, there is automatic pay progression over a 2-year period that gives the employee a 15.5% increase in salary from the minimum starting rate. One year later, the employee receives an additional 8% of the pay range minimum. Flexibility in allowing/accommodating transfers to different parts of the state as their respective personal situation changes is also a strategy.

Alberta—Mentoring: Alberta Transportation employees are provided the opportunity to gain an understanding (through short work experience) of the business of our private-sector partners (consultants and road builders). Professional Rotation Opportunity Program—new engineers are encouraged and supported to rotate through a number of work areas within the department to enhance their professional engineering experience.

New Brunswick—Training is provided that is required for professional status.

Newfoundland—Specialized training as needed.

IMPACT OF RETENTION STRATEGIES

Delaware—The selective market pay plan reduced our civil engineer turnover rate by 2% the first year, slightly less than 2% in 2001.

Indiana—Fair, but it is difficult to retain employees in hard-to-recruit and retain positions due to our salary scale.

Kentucky—Agency has been very stable compared to local industry and other state agencies.

Nebraska—Data not available.

Nevada—While supporting data are not available, it appears to have had a positive effect.

North Dakota—Reduced number of vacancies.

Oklahoma—Agency turnover decreased from 12% to 7%.

Pennsylvania—The commonwealth's comprehensive benefit package plays a critical role in our retention efforts.

South Carolina—We have had positive results with these initiatives, especially with the ability to make a counter offer to employees that we wish to retain.

Texas—Among the top reasons for staying with the TxDOT.

Virginia—Not yet determined.

Washington—Not documented.

Wisconsin—Very low turnover for our engineers considering, from a pure pay perspective, she or he could earn substantially more in private industry.

Alberta—The above noted initiatives are fairly new; however, feedback to date has been *very* positive.

New Brunswick—Seems to help retain some employees attracted to the private sector.

OTHER SPECIAL PROGRAMS FOR RETENTION

Kentucky—Agency support of individual employee development, including travel to conferences, professional training/networking opportunities, and involvement in professional organizations.

Pennsylvania—We are working toward developing a career development model/strategy.

South Carolina—No, but we are currently evaluating the implementation of a special bonus program for recruiting and retention.

Texas—Support groups, exam refresher classes, consulting to aid engineers in obtaining PE licenses, rotational training for graduate engineer new hires, career ladder advancement.

Washington—Mentoring program.

Wisconsin—Several classifications have pay ranges that are broad banded, meaning that there is greater flexibility in setting the hiring rate as opposed to being fixed at the minimum of the range or a fixed percent increase for promotion.

EXTERNAL INFLUENCES CAUSING PROFESSIONALS TO LEAVE

California—Limited salary increases.

Colorado—Benefits contribution by the state has fallen below most private employers, pay for performance was instituted with a lower funding level than expected, reduced threshold for full retirement.

Connecticut—1997 early retirement incentive, periodic hiring freezes, cyclical budget constraints.

Delaware—Maintenance review of positions in IT area resulting in limits in levels of career ladder.

Indiana—No salary increases, increases in health care premiums or lack of available health care in certain areas of the state, budget issues, unpaid furlough leaves, hiring freeze, retirement factor continues to drop, mandatory conversion of vacation and sick time to deferred compensation account.

Kentucky—In concert with the nationwide economic downturn, Kentucky's executive branch budget for 2003–2004 proposes to reduce the annual salary increase for state employees from 5% to 2.7%. Agencies will have to be even more creative to provide employees with incentives to stay. Approximately 40% of our 6,000 employees are eligible for retirement within the next 3 to 5 years. No lay-offs are anticipated at this point because of expected retirements. Statutory restrictions, when enacted in response to special interests or minority vocalization, can often hamper executive branch professionals in doing their jobs, particularly when mandated without sufficient funding. Legislative interference with executive branch functions can hamstring state agencies for years, requiring extraordinary effort of and creating additional stress for the work force responsible for the programs on a daily, ongoing basis. The legislature has offered a retirement incentive valued at approximately an additional 10% for employees who leave prior to 2008. Other enhancements to the retirement benefits have been changed from the "High 5" to a "High 3" retirement multiplier and the ability to purchase 5 years of retirement time paying full actuarial costs. Employee receipts (salaries, benefits, etc.) have been outstanding up to now. Given the economic downturn, our professionals now prefer to retire from state service, draw their pensions, and then seek full-time employment again. Kentucky does not presently cap salary ranges, but salary capping (red lining) is one strategy being considered for budget control. Also, contrary to HR professionals' preference, legislated retirement bonuses continue to prompt professionals to leave state government—with very little planning toward or control over long-term replacement.

Mississippi—Lack of substantial realignment to starting salaries for EIT and professional engineering classification.

Nebraska—Competitive wages continue to be an issue, and even though public employers have not been as competitive with salaries, so far the generous benefits package has been a saving factor.

Nevada—Change in eligible retirement date, with 30 years of service eligible to retire at any age.

Oklahoma—Privatization, hiring freeze, no COLAs (cost-of-living increases).

Oregon—Lack of significant salary increases (only low percentage COLAs in most cases offered over past 4 years), increases in benefit costs (fewer benefits/more out-of-pocket expenses), position/budget reductions resulting in more work by less staff.

Pennsylvania—Retirement legislation in 1998 amended the State Employees' Retirement Code by permitting a member of the State Employees' Retirement System with at least 30 years of service to retire without a loss in retirement benefits if the employee was less than 60.

South Carolina—Minimum general increases and merit increases, higher premiums for benefits.

Texas—Mostly salary compared to private sector, no legislative pay raises.

Utah—A major construction project that opened more job opportunities with consulting firms.

Virginia—Limited salary increases, increased cost in health insurance premiums, budget reductions, reorganization and focus shifts.

Washington—Reduction in benefits, fewer salary increases, state budget situation and possibility of RIFS (reductions in force).

Wisconsin—The state legislature approves labor contracts; professionals may have left state service because they did not feel the negotiated wage increase was sufficient; classifications have been collapsed, leaving some to feel that their ability to obtain salary increases within the organization is limited.

Alberta—Staff salaries have kept pace with, and may have even risen in comparison to, the private sector in certain areas over the past 5 years.

New Brunswick—Hiring freezes, program service review—downsizing/redeployment, budget constraints lead-

ing to restructuring and downsizing, early retirement packages.

Newfoundland—No or minimal salary increases, downsizing.

EXTERNAL INFLUENCES CAUSING PROFESSIONALS TO STAY

Colorado—Layoffs at other agencies with funding cuts. Transportation has not lost funds in the declining economy.

Connecticut—Negotiated salary increases.

Delaware—Development of occupational job descriptions providing more freedom to move around the department and to other state agencies; that is, under old specifications a transportation planner could only transfer to transportation planner. New specification transportation is now titled planner. We can now move positions.

Indiana—Lack of promotional opportunities due to hiring freeze, inability to pursue reclassifications and reorganizations due to budget issues.

Kentucky—Continued civil service job protection in a nonunion environment provides a stable career; stronger support for continued education and training, Kentucky's Personnel Cabinet is making a reasonable effort, within current budget restrictions, to evaluate and upgrade as appropriate those job classifications that lag behind the market of the seven surrounding states. Kentucky does not attempt, however, to pace state salaries with the northeastern and western states, and the recognizable emphasis in recent years is on entry-level salaries rather than upper range. The present governor is fulfilling his second and final term, the first in state history. Up to now, governors could not succeed themselves. Consequently, state employees can now enjoy 8 years of stability with consistent goals and objectives, rather than just 4. This allows the work force to initiate, develop, and implement many long-term program improvements. State agencies are making a more concerted effort to recognize the contributions of employees, not just take their public service for granted.

Mississippi—7/1/02 legislation mandated realigning engineering salary levels by $10,000 annually.

Nebraska—As stated previously, the state does offer a generous benefits package along with flexible scheduling and educational opportunities that are good recruitment tools to entice and sometimes keep employees within the system.

Nevada—Special salary adjustment for all engineering classes; a 10% pay increase. Extra step added to the compensation schedule.

North Dakota—Ability to give recruitment bonuses, market increases.

Oklahoma—Increased benefits allowance for families.

Oregon—Passing of "Family Friendly" workplace policies, workplace diversity policies, telecommunicating options, availability of special education/leadership programs: Certified Public Management (CPM Program, for credit through Williamette University) and Leadership Oregon.

Pennsylvania—"Stay Invent the Future" is a commonwealth initiative being headed up by the Department of Community and Economic Development. The primary goal is to attract talented young people to Pennsylvania and to retain the state's talented young people. An aggressive marketing campaign to promote Pennsylvania as a great place to live, work, play, and prosper is underway.

South Carolina—Retention increases and bonus increases.

Texas—Reclassification of engineers, increased salary ranges, across the board increases, additional salary levels at the top as well as in the middle of the plan.

Utah—Poor economy, which limits the availability of job opportunities outside of our agency.

Virginia—Implementation of a new compensation system and career development program throughout the state.

Washington—Assignment pay (location pay).

Wisconsin—Labor contracts have been negotiated giving employees greater increases for changes in classification and management greater pay flexibility upon hire or movement of people. Professionals in the engineering bargaining unit were given 1 week of paid time to pursue professional development.

Alberta—There have been regular and reasonable salary increases. There has been an economic downturn in related facets of the private sector.

New Brunswick—Succession planning, wage adjustments, early retirement packages—opening new positions/advancement opportunities.

Newfoundland—Downsizing, lack of challenging work, final constraint.

INTERNAL INFLUENCES CAUSING PROFESSIONALS TO LEAVE

Arkansas—No "step" increases.

Colorado—Department really grew in the 1960s, so now many employees have reached retirement age at the same time.

Connecticut—Diminished number of promotional opportunities resulting from staff downsizing.

Delaware—Reduction in levels of technical and IT career ladder without significant increase in assigned pay grades.

Indiana—Even though we provided salary increases in January 2001, salaries are still low in comparison with other states and private industry.

Kentucky—Numerous leadership changes have created minor shifts in organizational priorities, but not significant enough to cause massive departures. Higher salaries in the private sector, with less internal flexibility here, are the big draw. Improved retirement benefits have allowed individuals to complete their careers earlier and leave for the private sector or return to the state government in other capacities. Increased pressure of additional work loads of more time, more complex money management issues, and increased emphasis on meeting schedules and budgets has been a secondary factor in employee's earlier departure.

North Dakota—Low salaries.

Oklahoma—Salaries higher in private sector or other states, more jobs, more opportunities.

Oregon—Position/budget reductions causing more work by fewer staff, organizational change.

Pennsylvania—Nothing specifically. Approved appointments above the minimum starting salary may cause disparity with other employees.

South Carolina—Monetary caps on promotion and reclassification increases.

Utah—Lack of mobility within the agency.

Virginia—Reorganization, targeted salary adjustments for critical areas.

Washington—Budget reductions and reduction in force activities (downsizing).

Wisconsin—At this point the agency has a very low turnover rate.

New Brunswick—Budget constraints, redeployment, restructuring.

INTERNAL INFLUENCES CAUSING PROFESSIONALS TO STAY

California—Bay Bridge Project.

Colorado—Reorganization within the Division of Engineering, which allows more decision making by lower level engineers. Reducing the bureaucracy has made the jobs more interesting.

Delaware—Selective market pay plan ability to request consideration of advanced salary rates.

Indiana—Engineer and IT classification changes that resulted in salary increases, creation of an alternative work schedule program, increasing personal use of state cars, use of personal computers to electronically complete state tax forms, creation of an Executive Broad Band Program for Executive Positions.

Kentucky—Formal succession planning initiatives, increased emphasis on continued education and accompanying salary increases for completion of advanced degrees or certifications, increased empowerment of employees in the decision-making process in program areas.

Nebraska—There is more emphasis on work-force development and providing training to all employees. We have developed either internally or through outside vendors various training modules on computers, leadership, teamwork, etc. If an employee has an interest in a certain area, they only need to contact our HR department to find out what is available for them. Supervisors are also encouraged to identify training needs and submit suggestions to the Training Division in HR.

North Dakota—Recognition of low salaries by management, which they are trying to address.

Oklahoma—Salaries have become more competitive.

Oregon—Establishment of various work environment policies, family friendly workplace, telecommunicating, flexible work schedules, internal education/training, information development assignment/rotational employment opportunities, establishment of diversity council—first of its kind in Oregon government.

Pennsylvania—An Exit Information Program was implemented in May 2001. This tracking of reasons employees separate will help our agency identify any issues that may arise surrounding discontent in the workplace.

South Carolina—Allowing exceptions for monetary caps and implementing retention program.

Texas—Job security, family time, benefits, reclassification of salary levels.

Virginia—Redistribution of funds to support organizational and employee development initiatives, revised pay practices that provide managers with more flexibility to address their needs.

Washington—Assignment pay/location pay.

Wisconsin—Recognition of maintaining a quality work force is a key component of our strategic plan.

Alberta—Alberta Transportation has initiated and implemented at least two innovative development programs, specifically Mentoring and Professional Rotation Opportunity Programs. In addition, the demographics of the department provide newly hired professionals with opportunities for advancement in the not-too-distant future.

New Brunswick—Management and technical development, reclassifications, promotion criteria enhancements.

OTHER POINTS NOT PREVIOUSLY MENTIONED

Delaware—Participation in college recruitment with alumnus, participation in career programs at secondary schools to promote DOT careers prior to college.

Kentucky—The Kentucky Transportation Cabinet has established and staffed a specific Office of Quality to lead agency efforts in organizational development, particularly process improvement. This focus on professional and informed decision making is welcomed and appreciated by all the employees in the agency. Increasing emphasis on overall employee satisfaction, particularly recognition and inclusion, must replace organizations' outdated response of throwing money at dissatisfaction. Organizational leaders should still recognize, however, that money (and the spending discretion that goes with it) is still the most appreciated tangible reward, rather than plaques, certifications, pins, etc.

Oregon—We are currently building a retention strategy to include not only the exit interview process and database system but the entry interview process (what attracted them to Oregon DOT) with a periodic "check-in" to see why they are still with the Oregon DOT. We are also exploring resume/Internet-based applicant management systems to automate, streamline, and make application processes faster and more user friendly.

Pennsylvania—We are currently contracting with a marketing firm for them to develop a marketing survey and strategic marketing plan for the recruitment and retention of technical and engineering staff.

Alberta—We participated with industry in the production of a video that is now in all Alberta high schools. The video is aimed at the manual trades involved in highway construction. We are also working with our industry partners on the design of programs to attract kids to engineering, and undergraduate engineering students to choose transportation as a career option. Our opinion is that the need is national (or international) and therefore should best be addressed at a national/international level.

Abbreviations used without definition in TRB Publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation