MORNING SESSION
Friday, November 2, 1990

REPORT ON RECRUITMENT AND RETENTION OF TRANSPORTATION PROFESSIONALS AND CIVIL ENGINEERS

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Good Morning. I hope everyone has found the 27th Transportation Forum as interesting and as informative as I have. Calvin, you and your staff have done another superb job of organizing this year’s program. I have been asked to bring you up-to-date on the progress of AASHTO’s efforts to enhance recruitment and retention of civil engineers and other transportation professionals.

Almost two years ago, then-AASHTO president, Jim Pitts of Michigan, announced that during his tenure, emphasis was on the recruitment and retention of transportation professionals, particularly civil engineers. I was fortunate to be appointed to a task force charged with studying the problem of recruitment and retention and making recommendations for long- and short-term solutions. As a result of this committee’s findings, current AASHTO president, Kermit Justice, of Delaware also has adopted this as a priority area.

When I first joined the task force, which was made up of engineers, administrators, and personnel officers from all regions of the country, I was skeptical that a problem of this magnitude existed nationwide. I knew Kentucky was experiencing problems with a lack of civil engineers in our engineering schools because of the curtailment of the Transportation Cabinet’s scholarship program and the depressed coal market, which was sagging Kentucky’s economy. The number of civil engineering graduates at the University of Kentucky was declining each year. The number of graduates at the University of Louisville decreased to single
digits. I thought that Kentucky's experience was unique. I found out it wasn't.

A survey conducted by the committee found that 22 of the 41 highway agencies responding indicated that they also are experiencing recruitment problems. All of the states that indicated they had recruitment problems identified civil engineering graduates as the main discipline within the transportation profession where the problem was the worst. Our task force set out to gather and analyze nationwide data and statistics regarding civil engineering graduates. The statistics are alarming.

If you compare the number of civil engineering students graduating nationally with bachelor's degrees in the mid-1980s with the number in the late 1980s, you will see a significant drop. In 1984 and 1985, the number of graduates at the bachelor's level were somewhere between 10,000-11,000. As of 1988, that number had dropped to under 8,000.

If you extrapolate that trend, it is even more alarming. The long-term situation seems to be a declining enrollment in engineering in general with a declining share for civil engineering. There have been some excellent studies performed by the Transportation Research Board, universities, and others that looked into the future. While the demand for civil engineering in the future is not what you would call explosive, clearly the long-term trend is for an expanded supply and a need for enhanced quality.

We found that we are dealing with both quality and quantity of civil engineering students coming into the engineering job market and coming into the transportation industry in particular.

Because of the problems being experienced by state transportation agencies nationwide, the charge was given to the task force to develop an AASHTO guide that would address the problem of recruitment and retention. The goal of the task force was to present a draft guide at the November, 1989, annual meeting of AASHTO. To achieve this, a five-person working group of individuals involved in engineering recruitment was formed. This group met in Baltimore in July, 1989, and developed a first-cut of a guide. In four short months, the guide was ready for its presentation at the annual meeting of AASHTO. Dealing with the AASHTO guide issue was just the first--the most pressing--but just the first part in what seems to be a bigger problem. We quickly came to the conclusion that the AASHTO guide would be aimed at enhancing each state's individual position at competing for civil engineering students coming out of college. We also concluded that if everyone in the state transportation agencies and everyone in the industry that recruits civil engineers became equally proficient at adopting the new techniques that are offered in the guide, we would all end up with the same relative position in the end, and the problem would not have been solved by any means. The second part deals with the broader issue of civil engineering careers and the need to increase the supply and the quality of civil engineers. The third part deals with the need for AASHTO to adopt this as a long-term, ongoing emphasis area.

It is not the kind of problem that lends itself to intermittent flashes of intense activity, where a lot of work can be done and then go on for a period of years not getting into another intensive level of activity until a
new generation arrives with a new set of problems. The problem with civil engineering students coming out of the schools is an annual problem and is a rapidly changing problem. Again, if you look at the numbers and the decline we’ve experienced in just a short period of time, it’s not something that could be addressed with intermittent flashes of intensive activity. So a long-term commitment is essential.

I am going to briefly discuss the work of the task force in each of these areas.

The production of the guide was our most urgent agenda item. We started our work last April and the guide is finished now and has been distributed by AASHTO. The guide has been extremely well-received by all who have reviewed it. Since the guide is applicable to all segments of the public sector, including counties and cities, let me give you a brief rundown of its contents and how it may apply to you. The first chapter is aimed at identifying the problem individually in each state before simply plunging into the recruitment program. What we found in the task force is that not every state’s problem is the same. It’s not just a matter of brute force in the recruitment of civil engineers. In some areas there are certain specialty disciplines where recruitment problems exist. Some states are not experiencing a severe problem, and other states are. It was clear that a strategy approach was necessary to fashion and customize each state’s recruitment program before they jumped into it.

The second chapter talks about producing effective recruitment marketing materials. The word “marketing” was carefully chosen here as something that has to be adopted by those who are involved in recruitment. Engineering and marketing are two words that are not often considered within the same train of thought but here is a case where we have to sell ourselves as an agency, as a profession, and as an industry. If we are going to attract young people in today’s competitive marketplace, producing effective recruitment material to promote the engineering profession is very critical. It’s something that perhaps we have not always been as good at as we could have been, but something we must now learn to be.

The third area is a section on cultivating university contacts since a vast bulk of recruitment takes place on university campuses. This chapter discusses some of the finer points in doing that—how to cultivate the faculty and the college administrators—finding out who runs the show in each school. It isn’t always the same individual and it isn’t always found in an organizational chart. The recruiter must find who is really the key individual, and make those contacts.

Chapter 4 has to do with recruitment tactics. Again, subtle areas are often overlooked in terms of a personalized approach to recruitment, particularly in public agencies where we recruit people through forms and bureaucracies. Most of those tend to be barriers and they are not attractive measures that lure people into our organizations. Quite frankly, this section is aimed at beating these barriers back and humanizing the recruitment process down to a personalized one-on-one type of situation.

Chapter 5 is the retention area. There are some good suggestions about the problem of retaining those who are eligible to retire as a way of recruiting talent. If they don’t retire as quickly, the recruitment need
isn’t as severe. Dual career tracks for engineering specialists and engineering managers also are discussed. The Department of Highways is reviewing this as a retention method and an option to improve our management staffing.

Chapter 6 is an inventory of best practices. As I have said, we surveyed the United States and received a really good sampling of what’s happening in the recruitment arena. We have taken the very best in terms of materials and included them right into the guide.

The format of the guide is more of a kit than a guide. The guide is very informal and user-friendly. It was written in a style and a tone that’s reflective of the kinds of styles and tones that we need to put into our recruitment materials. It was felt that we could not adopt engineering recruitment techniques in a formal style and tone within the guide and at the same time encourage people to produce market materials oriented toward today’s students.

In May, 1990, the Michigan Department of Transportation hosted a two-day conference that unveiled the guide to personnel directors and administrative people from 32 states. This conference was a great success. I have a 15-minute videotape that summarizes the workshops and highlights the speakers. It is available for loan so anyone desiring to borrow this can contact me. Copies of the recruitment manual are available from AASHTO headquarters in Washington.

Part two of the mission of the task force gets into what I consider to be the greater part of the challenge. Producing the guide was a challenge and a lot of fun, but now we are getting to the root causes of the problem. The root causes of the problem are: Why aren’t our young people going into engineering?... Why aren’t they choosing Civil Engineering?... and Why aren’t civil engineers coming to work for the transportation agencies? That’s a simplistic way to look at it but, to really attack that problem, we have to start influencing our young people at a fairly early age.

In part two of the task force’s work, we are addressing another broad-based marketing program aimed at increasing the overall supply of civil engineers. The first component of that is a National Cooperative Highway Research Program project statement. I have been asked to participate in that group also. About half of the NCHRP panel is represented by the task force members. The purpose of this group is to research what works in attracting young people to engineering--to civil engineering and to transportation--and to take an approach in attracting people similar to that of private industry. This is a very exciting challenge.

This project will deliver a process in which state transportation agencies, universities, and others can use to go into high schools, junior highs, middle schools, and even our grade schools to expand and stimulate interest in civil engineering.

The second component deals with how we get into the schools. We have a management problem here of the first order. There are approximately 25,000 high schools and junior high schools in the United States. This translates to literally millions of students. If we do our job right, we are going to somehow attract them to civil engineering and transportation.
To address this major management problem, we're exploring various options. One model would be to utilize university transportation centers such as the one here at the University of Kentucky to organize universities on a regional basis. Civil engineering students would be recruited to go into local high schools and junior high schools to present civil engineering as a career choice. Another possible model is to use national professional organizations such as NSPE, ASCE, APWA, ITE and others to take the lead and to work through their state and local chapters to go into local high schools and junior highs. The third option would be for state transportation agencies to take the leadership role.

Our committee has discussed having a pilot program to demonstrate the merits and effectiveness of each model. We hope to finalize our plans by the end of this year. Obviously, this is a major organizational effort. In order to coordinate all of these activities and to provide leadership and assistance to the various organizations involved, the committee is considering the establishment of a non-profit transportation and civil engineers' career center which has been given the acronym "TRACE." Originally, the "TRACE" career center was envisioned to be supported financially by AASHTO with equal assistance from other professional civil engineering organizations who have similar outreach programs. "TRACE" would be a mechanism of coordinating everyone's efforts and pooling resources to spread the message about opportunities in civil engineering into our primary and secondary schools and our universities.

As with any organizational effort, there are obstacles that still must be worked through before this "TRACE" career center approach can become a reality. The committee is in the process of working through these. However, during the interim, the "TRACE" career center could move forward as an arm of AASHTO to serve as a clearinghouse for information and to provide technical assistance on an as-needed basis. Any joining of forces with others would be postponed until the pilot programs of the different models are evaluated.

Finally, part three of the mission of the task force is a recommendation by the task force that AASHTO must stay in this game on a permanent basis. To do this, we are proposing a loaned executive program that would assign personnel from member states to AASHTO headquarters in Washington, for one to two years, to work with the "TRACE" effort in assisting states where help is needed. They would not only be providing support to other states but they could coordinate with other national organizations who have similar efforts underway. This fits in well with one of AASHTO's emerging roles, which is to sponsor what is called joint development programs. This is a program in which, if the state does not have the ability or the resources to put together its own program for recruitment and retention, AASHTO would have a specialist, through the loaned executive program, who would be able to visit the state to provide some direct assistance.

In concert with this AASHTO effort, the Kentucky Department of Highways organized a speaker's bureau in April of this year. The purpose of our group is to start a statewide program that would "sell" young students in Kentucky's high schools, junior high schools, and grade schools on the importance and rewards of engineering, particularly civil and,
more particularly, transportation. Although our program is in its developmental stages, I expect great success from this effort. I think that through this initiative, Kentucky's future generations will not only be encouraged to look at civil engineering as a career opportunity, but will improve their opinions of transportation engineers who work in the public sector.

Let me take time to recognize those involved with this program. Most are young professional engineers who volunteered for this assignment because they recognized the importance of attracting more of Kentucky's students to civil engineering and transportation careers. Those involved are: Sannie Overly, Lynn Soporawski, Tony Huff, David Kratt, Stuart Goodpaster, Kevin Damron, and Keith Damron. These young people have done a tremendous job for us. Tom Layman, who recently retired from the Cabinet, was the coordinator. With his departure, Ralph Wolff of our Covington District Office has assumed the coordinator's role.

As a result of AASHTO's leadership and vision of purpose, the commitment that I see from the civil engineering professional organizations, and the enthusiasm that I see generated within my own department's staff, I am confident that the efforts to enhance the quantity and quality of civil engineers for the nation's transportation program will pay off for our future. Thank you.