

21st Century Transportation Workforce Summit

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Interviews

Five telephone interviews were done to solicit information from state agency leaders who have experience in dealing with the workforce issues. Three were agency heads: Deb Miller, Kansas DOT; Rhonda Faught, New Mexico DOT; and Neil Pedersen, Maryland Highway Administration. Two are people who are involved in activities that represent the type of change that will impact the industry: Roberta Broeker, Missouri DOT CFO; and Phil Russell, TXDOT Assistant Executive Director for Innovative Projects.

The questions were designed to solicit their views on areas of change and the impact of that change.

Deb Miller, Secretary Kansas Department of Transportation

Secretary Miller pointed out that Kansas is about to begin a number of big projects, projects in the \$200 to \$500 million range. Each of those projects will have to have a unique financing mechanism. This raises the importance of finance as a skill for public agencies. Agencies have to have people who understand tolling, public-private partnerships, and debt. Each agency may need only a few such people, but they could determine the success of that agency.

Project management is another skill area that is something of a mindset change. Designers have to view themselves as the managers of projects, rather than as designers. They have to take responsibility for developing the overall project plan and for ensuring that others understand the schedule and work to support it.

Public communications is another skill area with growing importance. For example, KDOT is about to begin an online community to foster communication with its public. While this tool is widely used in other arenas, they had great difficulty in finding technical skills in the consulting world to help them. They also have difficulty in finding people inside the agency who understand the concept and are comfortable in dealing with the public in this fashion. An agency should have a core group of people who can deal with this type of communication.

An online community may be a special type of communications, but speaking and presentation skills are critical for transportation professionals. Students should have some training in this area in schools. They should also be exposed to political science in school because civil engineers and planners will probably work directly for public agencies or for consultants who do the work of public agencies. Those professionals need to understand how governments work.

Even basic technical skills are changing so rapidly that some retraining existing employees may be needed.

To meet some of these needs, KDOT has done some in-house training and is developing relationships with their universities. For example, they have on-going research relationships with universities that allows needed work to be done while offering students

an opportunity to work on transportation issues. This may get more students interested in transportation.

Retention has not been a major issue for KDOT. The agency was the ASCE employer of the year. In part this reflects a very active young engineers group that offers support and contacts for younger employees. KDOT has also been able to make some changes in compensation to make the agency more attractive. More positions have been moved to unclassified status. This has offered more opportunity to get the right people in the right place. Planners have been the greatest challenge. KDOT has begun a rotational program that seems to have made the agency more attractive to planners.

**Rhonda Faught, Secretary
New Mexico Department of Transportation**

Secretary Faught pointed to a number of things that are changing in the transportation world:

- Green house gases are a problem. In part because of that problem, we have to have an energy policy. An energy policy will affect how we tax and the revenues available for transportation. It will also influence the investments that we make in our existing infrastructure. The issue also relates to congestion and safety. To address it, we will have to work with many new partners.
- Because of the global nature of the economy, we are looking at a global network, regardless of mode. States are looking at facilities from a regional basis. New Mexico is even looking at Mexico for a deep seaport south of San Diego, which could mean significant changes in border issues and in transportation requirements in the state.
- Sustainability as it relates to energy and land use is also a relatively new issue. In New Mexico has developed several new commuter train services. Transit friendly development is required around train stops. Some state-owned land will be redeveloped to be transit friendly.
- Land use and transportation is a priority of the Governor. To be able to deal with the issue, the agency is trying to build partnerships with MPOs and RPCs to find land use planners. Currently an agency employee is housed in their largest MPO, serving as a link between the agency and the MPO.
- Accountability and transparency are the two concepts that are much more than buzzwords. The state has made a major effort to make its processes understood by all stakeholders. The effort has resulted in support from the public and the legislature.

When asked about previous efforts that the state has made in outsourcing, Secretary Faught said those efforts have had a negative effect on employees who fear their jobs will be outsourced. This is a symptom of the problem that public engineering agencies have in responding to change. They tend to be conservative, using proven methods. In many cases, they have to be encouraged to approach issues differently and to take risks.

Another issue that may be somewhat unique to New Mexico is the number of tribal governments with which the state must cooperate. Given the large number of sovereign nations, communications can be complex. Communication skills are thus important.

To begin dealing with these issues, the state works well with its universities. Universities provide many specialized services to the state such as bridge inspection, pavement

management and demolition. They have also worked with the universities to promote more hands-on experience as a part of the undergraduate program.

Another innovative program is a cooperative training program that includes the state, its contractors and consultants. Private industry has been very supportive. If the agency had had more time to dedicate to the effort it would have gone further.

**Neil Pedersen, Administrator
Maryland State Highway Administration**

Administrator Pedersen contrasted the situation facing agencies today with what existed thirty years ago. At that time, engineers and construction dominated transportation agencies. Planning was done largely in support of new construction. Now the focus has changed to operating existing systems and the challenge is to maintain and rebuilt those systems under traffic.

Agencies also face challenges in the environmental area. Green house gases and climate change are issues that will have to be addressed. Similarly, dealing with sustainability and sustainable development will force agencies to examine how their actions influence land use and development patterns.

Agencies also tend to be challenged by the concept of customers as partners. For example, agencies seem to focus on capacity issues and assume that customers share those concerns. The first customer survey that Maryland did showed that the customers primary concern was with being able to see pavement markings. Some of the basics for treating customers as partners and for gathering customer input should be taught in schools. Tools like conducting focus groups are too basic to be left to on the job training.

Another area in which schools should be taking a stronger role is in teaching the skills of change management. Leading change is a major role for agencies, but most agency leaders have had neither training in-school nor on-the-job in leading change.

Engineers have tended to be the leaders in transportation. Engineers often have to go through a development process to be good leaders. They tend to want to solve problems directly. They need to learn how to work through others to solve problems.

Maryland has an in-house training program that uses some outside experts as trainers. Most current senior managers have come through this program. Admittance to the program is limited and competitive. Most people who strive to advance to management see the program as needed for that advancement.

Other training programs include a partnership with the University of Maryland for project management. Because of the greater emphasis on accountability, project management has taken on much more importance to the agency.

Agency leaders also feel strongly that making the university experience real is important. Therefore, they take part in an intern program with several of their schools that provides

students with real experience in the agency. The program is treated as a learning experience. About 65 students took part last summer. Students often work on a specific project and present their conclusions to senior management at the close of the project. This tool has improved the learning experience, and it brought students to the agency who otherwise might not have gotten there.

The agency also supports for credit courses for all employees, as long as the courses are job-related. The agency does support public administration programs as well. With people from new disciplines, they try to create career paths. All employees are urged to take training to broaden their skill sets so they can compete.

**Roberta Broeker, Chief Financial Officer
Missouri Department of Transportation**

As Chief Financial Officer of the Missouri Department of Transportation Roberta has been involved in the financial aspects of several innovative projects. She explained the motivations for such innovative approaches: The public expectations of transportation agencies have changed over the last decade or so. Doing a project when its ready and spending what it costs is no longer acceptable. The public expects projects to be delivered quickly and they expect the agency to make the best use of the funds available.

These expectations have several impacts on how an agency does business and the skills needed in its workforce. First of all, financial forecasting is much more important. Particularly in a state like Missouri where funds received are available to the department without legislative appropriation, accurate forecasts of revenues are critical. To deal with this need, MoDOT employs an economist who utilizes a consultant-developed econometric model that has predicted transportation revenues with incredible accuracy even in times of volatility.

The other part of forecasting is the cash flow associated with projects so that the demands for cash can be met. To this end, finance people meet regularly with engineering staff to understand project schedules, the types of projects and the payout patterns expected. This may also place more emphasis on the importance of monitoring a project schedule.

If the state is utilizing public-private partnerships, they must also have some understanding of private sector financial analysis, which can be very complex. For example understanding the analysis underlying a lease agreement can require very sophisticated financial expertise. Even using more traditional 3P arrangements can demand a high level of financial expertise to ensure that the public interest is protected.

Debt financing is also a growing part of the financial system. Understanding the bond market is basic. In Missouri this has not been terribly complex. Bonds are sold for groups of projects. An effort must be made to match the life of the bonds to the life of the constructed facilities, so that the life of the debt does not exceed the life of the facility.

Understanding and using other debt instruments is also useful so that the benefit of equipment and facilities is not totally dependent on the availability of cash. The acquisition

of trucks through a leasing arrangement is an example. Sufficient cash funding was not available to purchase a large number of trucks. Leasing allowed the new equipment to be acquired.

In summary, today's transportation finance professionals are not your father's transportation finance professionals.

**Phil Russell, Assistant Executive Director for Innovative Projects
Texas Department of Transportation**

The Assistant Executive Director for Innovative Projects is involved in a range of innovative projects from design build, to public-private partnerships, to multi-modal corridors. He responded with the following observations in response to this question: What impact do the various types of innovative projects have on the skills required of a transportation professional?

Using design-build approaches requires moving from supervising all of the activities of a contractor to measuring outcomes in a performance specification. This is sometimes difficult for an engineer who has been trained to do things in one right way. They have to adjust to accepting that the outcomes and not the methods are what are important.

In a somewhat similar vein, people have to develop some understanding of the private sector business model. In that model, a bad decision may be preferable to no decision. While doing in-house projects, people are used to being able to take the time to ask another question and find more data and wait until that data becomes available. If a design-build contractor is working on the project, delay may cost money; if it forces a key date to be pushed. It may be better to make the decision and move on. The benefits and risks have to be weighed.

Alternative approaches may also call for the skills outside of the engineering field. Legal and financial skills are often very important in structuring 3P arrangements or even design-build projects. Those skills have to be found, either inside the organization or outside of it. This points to a key skill: the ability to say I don't know and then find someone who does know.

Projects that involve alternative modes also force people to think about things differently. The highway solution may not always be the appropriate solution. When that project is high-profile, like the Trans-Texas Corridor, strong outreach and communications skills are also needed. Departments are usually looking for broader involvement, which means using the right techniques and thinking through the issues so they can be discussed and explained.

All of this points to a cultural change. While a firm grasp of the engineering processes is still required, a broader-based educational background is desirable. The abilities to communicate and take risks are important. Intellectual curiosity is needed. People have to be willing to think about alternative ways of doing business and alternative solutions to problems.