



# JOIN THE RANKS OF WOMEN IN ENGINEERING.

BY BARBARA WOODWORTH

**I**N ADDITION TO CHOOSING ENGINEERING AS A CAREER—and the Federal Aviation Administration (FAA) as their employer of choice—Jennifer Duffy and Holly Cyrus are strong advocates of a career in the public sector.

Raised in a small farming town in central Illinois, Duffy graduated with a bachelor's of science degree in electrical engineering from the University of Missouri in 1987. The same year, Albuquerque, NM, native Cyrus earned a bachelor's of science degree in mechanical engineering from the University of New Mexico.

Starting at the FAA right after college, Duffy spent seven years at the Southwest Regional office in Fort Worth, TX. An installation engineer before transferring to the FAA William J. Hughes technical center in Atlantic City, NJ, she is now a test director for the display systems in-service management team. At the technical center since 1987, Cyrus is project manager, research and development, airport runway safety.

While the scope of their duties differ, Duffy and Cyrus have worked together on projects and both enjoy the stability, flexibility, benefits, opportunities, and challenges a career in the government offers. They are also pleased with the increased diversity in the workforce, noting that it is good for business and for generating differing viewpoints and opinions. Says Duffy, "There's been a definite shift since I was hired. Having been one of few female engineers, the mix of women and members of minority groups to white males is now closer to 50/50. The whole engineering field, in fact, has shifted. FAA contractors now employ a more diverse workforce as well."

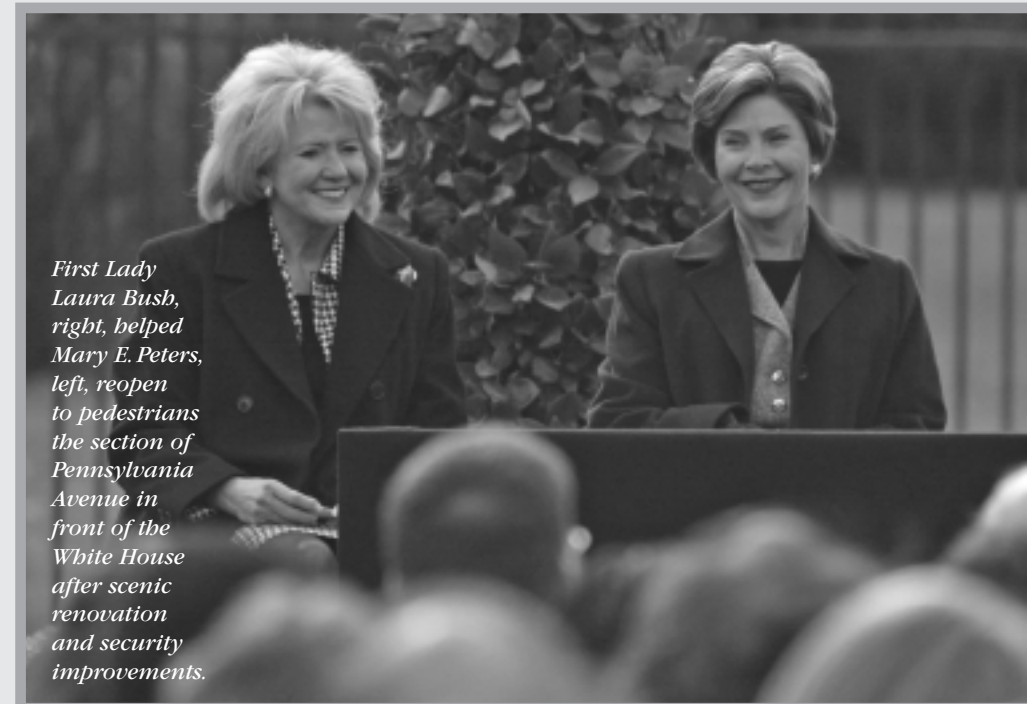
As test director, Duffy provides oversight to two of the prime contractor test programs. But in addition to reviewing project status, schedules, and budgets, she oversees a team of 13 engineers and technicians while handling the deployment of

test equipment to FAA sites throughout the nation. "The two interrelated five-year projects I manage have a combined cost in the \$300 million range," she mentions, adding that she also manages her individual annual budget of \$1,500,000.

For Cyrus, the fact that she perceives the public sector to be more ethical than private industry is important. "What I most love about my work is knowing that my research makes a difference in the safety of the flying public," she says, citing her "Widening Of Paint Lines" project, for which she received an award. "This project proved to lower the instances of runway incursions," she says, explaining that a project of this size would typically take one year or two to complete and that she was recognized for meeting a three-month deadline.

As for their views of engineering as a career now and in the future, Duffy and Cyrus agree on its importance but cite a bit less demand than in previous years. They do, however, point out the many avenues available to engineers—especially compared to other professions. "Although hiring at the FAA is limited, recruitment by FAA contractors is on the

# GOVERNMENT CAREERS ARE WORTH INVESTIGATING



*First Lady Laura Bush, right, helped Mary E. Peters, left, reopen the section of Pennsylvania Avenue in front of the White House after scenic renovation and security improvements.*

rise,” says Duffy. And Cyrus, who views engineering as a wonderful career, cautions about the possibility of outsourcing, which takes a toll on the industry.

But far from discouraged, Duffy and Cyrus continue to familiarize students with engineering. “Even though my dad was an engineer, it was a visit to my high school by college students that prompted me to study engineering,” says Cyrus, who has been involved in mentoring since her college days. Active in aviation education within the community, she participates in career fairs, conducts workshops, and advocates engineering as a career through her participation in professional organizations such as Women in Engineering (WIE), Institute of Electrical and Electronic Engineers (IEEE), Illuminating Engineering Society of North America Aviation Lighting Committee (IESALC), and as president of a local Toastmasters group.

A full-time working mom with a three-year-old daughter, Duffy also recognizes the value of introducing young students, particularly girls and members of minority groups, to engineering. “Many youngsters don’t really know what engineers do,” says Duffy, stressing the technical center’s active presence in the community. When addressing students, Duffy and Cyrus are enthusiastic about the enjoyment they derive from their work. Knowing each day of work is different, interesting, and never repetitive excites and challenges them.

## GRATIFYING WORK

A fourth-generation Arizonian, Mary Peters graduated from the University of Arizona, attended Harvard University’s John F. Kennedy School of Government’s Program for State and Local Government Executives, and in 2001 was

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appointed by President Bush as Federal Highway Administrator. For Peters, working in the public sector—especially at the U.S. Department of Transportation (DOT)—is particularly gratifying. “The work of this agency has a practical and positive impact on our everyday lives,” she says, underscoring the President’s belief in the importance of transportation to the country’s economy.

Director of the Arizona Department of Transportation (ADOT) before joining the Federal Highway Administration (FHWA), Peters served in other capacities as well. “I literally worked my way up from the bottom of the ladder,” she says, noting that she was initially hired as a secretary. “The perspective I gained helps me maintain my focus to improve our transportation system for the people who rely on it everyday for their livelihoods, families, and quality of life.”

While at ADOT, Peters earned the “Most Influential Person In Arizona Transportation” award by the *Arizona Business Journal*. The Women’s Transportation Seminar, a national organization of transportation officials, honored Peters with the 2004 “National Woman Of The Year” award. A major agency within the U.S. Department of



*Mary E. Peters*

Transportation, the FHWA provides financial and technical assistance to state and local governments to construct, preserve, and improve the 160,000-mile national highway system, which carries 40% of the country’s highway traffic. In her role, Peters oversees the federal-aid program that distributes funds and assistance for state highway construction and maintenance, ensures that Americans get the best return on their investment in the nation’s highway systems, and represents the agency as the “face” of the FHWA.

Peters frequently visits highway and bridge construction projects around the country, talking with engineers about the challenges they face and seeing firsthand how innovative techniques speed construction, save money, and deliver a better product. “As part of the President’s goal to make sure Americans receive the best return on their tax dollars, I place special emphasis to find new and more cost-effective ways to invest in road and bridge improvement.”

Noting that as recently as two decades ago it was difficult for women to find other females in the transportation industry, Peters is pleased that this is no longer the case. “As women, we found we were able to raise a family and accomplish significant achievements in the workplace. We rose to the challenge, learned to work smarter, and managed to share power and housework,” says this mother of three grown children.

With the transportation industry—especially the highway construction profession—now undergoing a major change, Peters stresses the many opportunities available for young people eager to join a dynamic field. Drawing attention to the approaching retirement of many FHWA employees, she recommends those interested in the profession pursue formal training in specific transportation specialties as well as garner various work-related experiences early in their careers. “The FHWA,” mentions Peters, “has numerous programs designed to encourage high-school and college students to enter the transportation industry.”

The “Summer Transportation Internship Program For Diverse Students” provides opportunities for college students to work for ten weeks in the U.S. DOT. In addition,



the Eisenhower Fellows program provides grants that help university students complete studies in transportation fields.

## AN EXCITING BEGINNING

Another proponent of the public sector is professional engineer Peggy Ann Harding. Having worked in the field of dam safety since graduating with a bachelor's degree in civil engineering from the University of Minnesota in 1980, Harding is today the Chicago regional engineer of the division of dam safety and inspection for the Federal Energy Regulatory Commission (FERC).

A Wisconsin native from a family of engineers, Harding worked summers as an engineering technician before earning her degree and moving to the home of her husband and his family in Colombia, South America. While living with her in-laws and learning Spanish, she was offered a part-time position designing dams. "It sounded exciting and I accepted," she says of her entry into engineering.

Returning to the United States in 1986, Harding transitioned into the U.S. market by enrolling in a master's program at the University of Wisconsin. Also, while raising two children, she worked part-time for a small consulting firm writing reports for the FERC. In 1989, with a master's degree in mining engineering in hand, she opted to take her career to the next level and applied for a position with FERC reviewing reports.

Beginning as a civil engineer inspector at the Chicago regional office, Harding worked her way up and

now holds a management position. Recalling that she began as the sole woman engineer there, Harding says, "Now out of 18 civil engineers, four are females." She also credits newer, younger engineers with revitalizing the office with their talent, enthusiasm, and dedication to work. "The commission has an active and outstanding recruitment program that allows the agency to find the candidates it needs as well as to increase and maintain a diverse workforce," she says.

As for future hiring, Harding stresses the continued availability of engineering positions, especially with the impending retirement of senior staff. In the 22-person Chicago regional office alone, she expects one-to-three engineers to be hired each year. "There will always be a need for engineers," says Harding, stressing the fact that hers is not a static science. "As infrastructures age, repairs and replacements must consistently be made to maintain and meet growing needs."

As a member of the Association of State Dam Safety Officials and the board of directors of the U.S. Society of Dams, Harding has a busy schedule. In addition to overseeing inspections and safety evaluations of the projects performed by the civil engineering staff, Harding is charged with contributing to the continued development and improvement of dam safety programs. She also mentors other aspiring engineers through the agency's intern and co-op program and believes engineers at FERC do an excellent job of giving back to the profession. "The greatest service our agency provides is balancing the needs of stakeholders while ensuring a safe, reliable, cost-effective source of energy," says Harding.

## ENVIRONMENTAL ENGINEERING AND SCIENCE

An environmental program specialist for the New York State Department of Environmental Conservation (DEC) Division of Water, Diana Heitzman brings a unique perspective to her job. A scientist with an engineering background, Heitzman is well able to blend her knowledge of both industries. She is also well suited to interact with engineers who comprise about half of the professional staff.

A native of Massachusetts, Heitzman began her advanced education at North Adams State College where she studied chemistry for two years before transferring to Rensselaer Polytechnic Institute (RPI), Troy, NY. At RPI, she majored in biology and took courses in chemical and environmental engineering. After graduating in

1980 with a degree in biology, Heitzman remained at RPI, earning a master's degree in environmental studies the following year.

While at RPI, Heitzman interned at the New York State Department of Environmental Conservation ([www.dec.state.ny.us](http://www.dec.state.ny.us)) where, upon graduation, she was offered a position. "I've been here ever since," she says. Discussing her long-term career in the public sector, Heitzman refers to the commitment of her colleagues. "Those who have been with the agency 30 or more years continue to derive satisfaction from the results of their labor. Today, the waters of New York State are far less polluted," she remarks, emphasizing the DEC's mission to address and assess environmental issues and concerns.

Remarking that her role as a scientist involves collecting and analyzing samples of aquatic macroinvertebrates from streams and rivers across the state, Heitzman spends much of the winter identifying these organisms in the laboratory before meeting with other staff members, including engineers, to make water quality assessments for each site. "Once a water quality problem is identified, our joint task is to develop and put into action the best

methods of resolution," she explains. Noting that engineers and scientists often approach solving problems from different angles, she finds this blend to produce excellent results. "For me, it's a particularly good mix. I have the advantage to draw upon both a science and engineering background," she comments.


The mother of two young daughters and a Girl Scout leader for the past decade, Heitzman stresses the importance of teachers and adults sparking the interest of children in science. "I credit my science teachers with promoting my interest," she says, noting that the NYS DEC frequently hosts on-site laboratory visits by high-school and college-age students. The agency is further active in presenting programs at museums, schools, and outdoor environmental education centers.

As for why she particularly enjoys working in the public sector, Heitzman offers two main reasons: job security and the opportunity to see a job through from start to finish. "Environmental work is extremely rewarding," she stresses, remarking that it also offers career advancement possibilities. Challenges are plentiful, as well, for those seeking lateral movement within the agency. ☺



*Peggy Harding is the Chicago regional engineer of the division of dam safety and inspection for the Federal Energy Regulatory Commission (FERC).*

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