

H. Christopher Frey, Ph.D.

Associate Dean for Research, College of Engineering, and Futrell Distinguished University Professor, Department of Civil, Construction, and Environmental Engineering

North Carolina State University  
Raleigh, NC

**Join date:** 1989

**Section/Chapter:** SASS/RTP

**Education and professional credentials:**

- Ph.D., Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA, May 1991.
- Master of Engineering, Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, May 1987.
- B.S., Mechanical Engineering, University of Virginia, Charlottesville, VA, May 1985.

**Biographical summary:**

Dr. Chris Frey is the Associate Dean for Research and Infrastructure of the College of Engineering, and the Glenn E. and Phyllis J. Futrell Distinguished University Professor of environmental engineering in the Department of Civil, Construction, and Environmental Engineering, at North Carolina State University. He provides strategic and administrative leadership for the research enterprise of the College of Engineering, which has over \$230M in research expenditures. His research includes measurement and modeling of human exposure to air pollution, measurement and modeling of vehicle emissions, probabilistic and sensitivity analysis methods, and probabilistic assessment of power generation environmental technologies. He has led over 70 research studies, published over 150 peer reviewed journal papers, and delivered over 200 invited talks nationally and internationally. He has taught courses on air pollution control, air quality, environmental exposure and risk assessment, transportation energy and emissions, civil engineering systems, and sustainable infrastructure. Dr. Frey has been on the faculty at NCSU for over 30 years.

Dr. Frey was on leave from NCSU from February 1, 2021 to September 30, 2024 to serve at the U.S. Environmental Protection Agency. He served as Deputy Assistant Administrator for Science Policy and subsequently in the Presidentially-nominated and Senate-confirmed role of Assistant Administrator for Research and Development of the U.S. EPA. He led the EPA Office of Research and Development, with an annual budget of over \$500M, over 1500 Federal FTE, and 12 locations across the U.S. with a mission to develop and translate science to inform decisions within the Agency and of Agency partners including states, Tribes, local and territorial governments, and communities. He also served as the Agency's Science Advisor. Dr. Frey was a AAAS/EPA

Environmental Science and Engineering Fellow at ORD's National Center for Environmental Assessment in 1992 and served a one year IPA assignment as exposure modeling advisor in ORD's National Exposure Research Laboratory from 2006 to 2007. He was a member of the EPA FIFRA Scientific Advisory Panel (2004 to 2006), a member of the EPA Clean Air Scientific Advisory Committee (CASAC) (2008 to 2012), chair of CASAC (2012 to 2015), and a member of the EPA Science Advisory Board (2012 to 2018). He chaired CASAC reviews of lead, nitrogen dioxide, and ozone, and has served on CASAC review panels for all criteria pollutants regulated under the National Ambient Air Quality Standards. He was a member of the CASAC Particulate Matter Review Panel that was dismissed in 2018: under his leadership, the panel reconvened as the Independent Particulate Matter Review Panel.

Dr. Frey has had numerous other science advising and expert roles, including serving on National Research Council (NRC) committees, on the NRC Board of Environmental Studies and Toxicology, on a World Health Organization (WHO) working group on uncertainty in exposure assessment, as a contributor to the U.S. Department of Transportation report to Congress on Transportation's Role in Reducing U.S. Greenhouse Gas Emissions, as a contributor to NARSTO reports on emission inventories and air quality management, and as an expert and lead author on uncertainty for the Intergovernmental Panel on Climate Change (IPCC) Guidelines on National Greenhouse Gas Emissions. He was a member of the Transportation and Air Quality Committee (ADC20) of the Transportation Research Board and the Publications and Critical Review committees of the Air & Waste Management Association. In 2018, he wrote and delivered the 48th Annual A&WMA Critical Review on "Trends in Onroad Transportation Energy and Emissions."

Dr. Frey is a Fellow of the Air & Waste Management Association (A&WMA) and of the Society for Risk Analysis (SRA), served on the A&WMA Board of Directors (2015-2018), and was President of SRA in 2006. He received the Chauncey Starr Award from SRA in 1999, the Lyman A. Ripperton Award from A&WMA in 2012, and the Frank A. Chambers Award from A&WMA in 2019. He has a B.S. in mechanical engineering from the University of Virginia, a master of engineering in mechanical engineering from Carnegie Mellon University, and Ph.D. in engineering and public policy from Carnegie Mellon.

**A&WMA activities and offices held:**

- 2016–2018, **Director (Member), Board of Directors,**
- **NCSU Student Chapter**, founding Faculty Advisor, 1995-2020
- **ET-1, Transportation Committee: On and Off Road Mobile Sources:** Vice Chair 2008-2011, Chair 2011-2014
- **EE-1 Health Effects and Exposure Committee:** Secretary 2000-2001, Vice Chair 2001-2002, Chair 2002-2003
- **Publications Committee**, Member, 2012-2021

- **Critical Review Committee**, 2018-2021
- Served on **Local Host Committee** and **chair of the student program** for the 2015 Annual Conference and Exhibition in Raleigh, NC.
- Member of organizing committee, Air & Waste Management Association (A&WMA) Specialty Conference on **Freight & Environment**: Ports of Entry, October 23-24, 2019, Newark, NJ
- **Chaired sessions** (numerous) at ACEs
- Selected as the featured speaker for the **48th Annual A&WMA Critical Review**, 111th Annual Conference and Exhibition, Air & Waste Management Association, Hartford, CT, June 26, 2018. Topic: “Trends in Onroad Transportation Energy and Emissions.”
- Published **19 papers** in the **Journal of the Air & Waste Management Association**
- Published **10 papers** in **EM**
- Presented **115 papers** at **Annual Conferences and Exhibitions**, including in 1990, 1992-2018, 2020-2023
- Presentation at 2017 ACE on how to get a faculty job, as part of Education Council.
- Presented at A&WMA **Emission Inventory Conferences** in 1997, 1998
- Presented at **Research Triangle Chapter** of A&WMA, e.g., 2005, 2017
- **A&WMA Webinars**: Clean Air Scientific Advisory Committee, 2014; Critical Review in 2018
- Presentation at 2017 **specialty conference** on Finding Common Ground on **Climate Change** Mitigation and Adaptation
- Presenter at **A&WMA Information Exchange**, 2020, 2021
- Keynote at **A&WMA Information Exchange**, 2022
- Invited Plenary Speaker, AWMA **PFAS Meeting**, 2024
- Selected as a “**Best Reviewer**” for 2012 for the Journal of the Air & Waste Management Association.
- March 2008. **Fellow**, Air & Waste Management Association
- 2012 **Lyman A. Ripperton Environmental Educator Award** from the Air & Waste Management Association (conferred June 2012 at the Annual Meeting)
- 2019 **Frank A. Chambers Excellence in Air Pollution Control Award**, Air & Waste Management Association

**Goals/vision for the organization:**

A&WMA should be the premier “go to” organization for exchange of information between stakeholders and experts on matters pertaining to environmental science, engineering, management, law, policy, and related areas, with particular focus on air and waste management. A&WMA provides leadership when it serves as the first forum, and the forum of choice, for addressing complex challenges. AA&WMA has a responsibility to be an “honest broker” to bring parties together to address and explore complex policy relevant issues with the goal of engaging the best science and technological knowledge to appropriately address societal needs. This is a mission that has been integral to my own career path in academia and government.

My recent experience as EPA Assistant Administrator of Research and Development, which included extensive engagement with EPA headquarters and regional offices, states, Tribes, local governments, and communities, as well as support for collaborations with industry and resources to spur innovation and entrepreneurship for new environmental technologies, provides me with recent and broad perspective on scientific research priorities, the development and translation of science to inform decisions, policy issues and the needs for policy-relevant science of many stakeholders.

I have previously served as President-Elect, President, and Past-President of the Society for Risk Analysis (SRA). From experience leading a professional organization, I learned two key lessons: one is that time flies by and second, by implication, is that it is important to start with a clear vision from the start to guide priority setting.

The opportunities for international leadership by A&WMA are substantial and represent a potential growth area for the Association. For example, many countries in Asia, Africa, and Latin America are grappling with air and waste management issues that are as, or more, challenging than those faced historically in the U.S. Thus, there is the opportunity to not merely leapfrog to state-of-practice solutions, but to advance the state-of-the-art. As science advances, our understanding of existing or emerging problems increases and often becomes more complex, such as regarding impacts of climate change on air quality, and impacts of contaminants of immediate and emerging concern on waste management.

A&WMA needs to have an adequate reserve fund to cover at least a full year of operations in the event of an economic catastrophe. I will work with the Executive Director and the Board of Directors to promote the long-term sustainability of the organization.

A&WMA has done a good job of promoting the association to Young Professionals. YP's bring energy and excitement to the Association. We need to be proactive in recruiting and retaining YP's and to continually evaluate and improve approaches. This includes recruiting members early – as students. As

a faculty advisor of a student chapter at a major university, and as a mentor to many undergraduate and graduate students, I am well-positioned to provide insight on factors that could attract students into the profession and our Association.

As a long-time active member of A&WMA, who has had numerous roles with the Association, I am familiar with the journal, EM, webinars, annual conferences and exhibitions, specialty conferences, the Critical Review, awards programs, student programming, Technical Council, Education Council, Young Professionals Advisory Council, and sections and chapters. As a member of the Board of Directors from 2016-2018, I am aware of the importance of the Association's executive director, staff, finance and budget, event planning, membership services, courses, career center, leadership training academy, and special projects such as the NSR manual and workshop.

A&WMA should foster the profession and the professional growth of its members. There are several key ways in which the Association provides value to its members, including leadership opportunities, recognition and awards, serving as a forum for exchange of information and ideas, publishing a leading research journal and practice-oriented magazine, webinars, short courses, and others. Even during tough financial times, the reputation of the Association is critically dependent on maintaining the quality of its ongoing enterprises and on developing new products and services. The unique role of A&WMA is needed now more than ever.