

## **DAVID N. NELSON, P.E.**

Senior Research Engineer – Rail Transportation Program, Michigan Tech Transportation Institute

### **EDUCATION**

MS, Teaching, University of Maine, Orono, 2006 – Concentration in Physics and Mathematics

MS, Mechanical Engineering, Boston University, Overseas Program, 1991

BS, Civil Engineering, University of Illinois, Champaign-Urbana, 1981

### **PROFESSIONAL REGISTRATION**

Colorado Professional Engineer License No. PE.0026119

### **PROFESSIONAL AFFILIATIONS**

American Railway Engineering and Maintenance-of-Way Association (AREMA), Committee 24, Education and Training

Transportation Research Board, Committee AHB60, Standing Committee on Highway/Rail Grade Crossings

### **EMPLOYMENT HISTORY**

June 2013 to Present - Michigan Technological University, Rail Transportation Program, Senior Research Engineer - *Conduct and support research and educational activities for the Michigan Tech Transportation Institute's (MTTI) Rail Transportation Program (RTP) and multi-disciplinary rail education through the Civil and Environmental Engineering Department. The primary functions include developing research and educational proposals, managing research projects and educational activities, supervising a diverse group of students involved in rail educational activities and research projects, publishing research results and developing rail educational materials and teaching rail courses. Active member of AREMA Committee 24 and recently appointed to TRB Committee AHB60.*

2006 – 2013 – High School and Community College Teacher/Instructor in Mathematics, Physics, and Physical Science

2004 – 2006 – Masters student and Teaching Assistant at University of Maine, Orono, pursuing high school teaching certificate.

1996 – 2004 – Maine Dept of Transportation, Office of Passenger Transportation, Office Engineer - I worked with other Maine DOT employees and groups from many other agencies and organizations across Maine to develop and implement non-highway transportation projects. This included work in mass transit, airports, bicycle and pedestrian infrastructure, and facilities for the Maine State Ferry Service. Worked with personnel from the National Park Service, Federal Aviation Administration, Federal Transit Administration, Federal Highway Administration, Federal Railroad Administration, Bureau of the Interior, National Forest Service, Maine Departments of Conservation, Environmental Protection, and Inland Fish and Wildlife.

1981 – 1996 – US Air Force Civil Engineering Officer – Worked at all levels of engineering, from base level to headquarters assignments. Work experience included Chief of Construction Management and Chief of Design, managing both construction management and design offices at base level, Chief of Requirements, managing planning, design, scheduling, and materials for base level maintenance, repair,

and minor construction at base level. NATO Project Manager, Norway Country Manager, and Northern European Region Coordinator responsible for over \$600 million worth of design and construction projects at 13 operating locations across northern Europe. My Air Force tour culminated with an assignment to the Air Force Academy Department of Civil Engineering, where I was the Deputy for Construction Practices. As assistant Professor of Civil Engineering, I supervised course content and instructors for all courses in the Construction Practices Division. Course content included civil engineering fundamentals, development of plans, specifications, estimates, and schedules for construction projects. As course director and instructor for Air Base Design and Performance, a course in Air Force community planning, I was responsible for curriculum development and assessment for a core course required of all cadets at the Academy. I also taught introductory fluid mechanics, surveying, architectural design, and air pollution control design.

## **REPRESENTATIVE PROJECT EXPERIENCE**

With Maine DOT – Project manager for the Bangor-Trenton Transportation Alternatives Study – worked with a diverse group of rail advocates, corridor residents, local, state, and federal government agencies to investigate potential uses for a state owned, but underutilized rail corridor. Provided input for passenger rail and transit portions of state transportation plans.

With Maine DOT – Responsible for preparing and staffing legislative changes to Maine aviation laws and standards. Reviewed plans and contracts for all state supported aviation projects. Participated in public hearings as state DOT representative. Prepared and staffed statewide contracts for acquisition of snow removal equipment for public use, general aviation airports. Inspected airports statewide for compliance with FAA clearance requirements.

With Maine DOT - Assisted the state bicycle pedestrian coordinator with legislative changes that supported bike/ped activities across the state. Filled in as temporary state bicycle pedestrian coordinator for six months while the DOT was working through new hire process.

With Maine DOT – Provided engineering input and design review for Maine State Ferry System projects. Project manager for planning and design of the Captain E. Frank Thompson, a 24 car ferry operating in Maine's Penobscot Bay.

With US Air Force – Project manager for NATO construction activities in four European countries, dealing with military staffs from all four countries as well as NATO and US Air Force staff members. Activities included design and construction of hardened aircraft shelters, runway and taxiway facilities, and hardened command and fueling facilities.

With US Air Force – Base pavements engineer at Tyndall AFB, FL. Responsible for design and construction activities for all base pavements including runways, taxiways, streets, and both aircraft and vehicle parking areas.

With US Air Force – Course Director for Air Base Design and Performance at the US Air Force Academy. Essentially a community planning course designed to prepare cadets for informed future interaction with the base facilities that they might eventually command.

With Michigan Tech – Primary point of contact for research involving rail-highway grade crossings. Member of the TRB committee AHB60, Standing Committee on Highway/Rail Grade Crossings. Primary contact for rewrite of AREMA's Practical Guide to Railway Engineering, Passenger Rail chapter.