

## **Roxann Mackenzie Hayes, P.E.**

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### **EDUCATION**

University of Colorado-Denver

Department of Civil Engineering, College of Engineering & Applied Science

**Major:** Civil Engineering, Traffic Engineering Specialty

**GPA:** 4.00/4.00

**Attended:** August 2007 – May 2011

**Graduated:** Masters of Science, May 2011

**Scholarships:**

2009 Institute of Traffic Engineers CO-WY Section Graduate Scholarship

2009-10 Women's Transportation Seminar Colorado President's Legacy Scholarship

2010-11 Rocky Mountain Section Society of Women Engineers Pioneer Scholarship

2011 ASCE Colorado Section Scholarship

**Master's Report Title:**

Transit Signal Priority Implementation: A Case Study in Boulder County, Colorado

Advisor: Dr. Bruce Janson

Colorado School of Mines

Division of Engineering

**Major:** Engineering with a Civil Specialty

**Minors:** Environmental Engineering

Public Affairs (through Guy T. McBride Honors Program)

**GPA:** 3.55/4.00

**Graduated:** Bachelor of Science, December 1995

### **TEACHING EXPERIENCE**

University of Colorado-Denver

Department of Civil Engineering, College of Engineering & Applied Science

**Senior Instructor of Civil Engineering, Clinical Teaching Track**

CVEN 3602 – Traffic Engineering: F'18, F'17, F'16, F'15, F'14 (2 sections), F'13

CVEN 4602 – Highway Engineering: S'18, S'17, S'16, S'15, S'14, S'13, F'12

CVEN 5602 – Advanced Street and Highway Design: S'18, S'17, S'16, S'15, S'14, S'13, F'12

CVEN 5621 – Highway Capacity Analysis: F'18, S'17, F'15, F'13, F'12, F'11

CVEN 5612 – Traffic Impact Assessment: S'16, S'15, S'14, S'13, S'12

CVEN 5800 – Special Topics: Urban Street Design: F'17

CVEN 3121/MECH 3043 – Mechanics of Materials: S'18

College of Engineering & Applied Science

**Continuing Engineering Education Program Faculty**

NCES 8044 2141 - Professional Engineer – Civil Depth Refresher for Transportation

F'15, F'14, S'14, S'11

## Colorado School of Mines

Division of Engineering

### **Adjunct Lecturer & Faculty Advisor**

EGGN 491- Senior Design

F'11, F'11, F'12

EGGN 491 – Senior Design II

S'11, S'12, S'13

EGGN 320 – Mechanical of Materials/Strengths

S'07, F'06 (two sections of 70+ students), F'05

Undergraduate teaching duties include lecturing two days a week, 1.25 hours per lecture. Lectures include board work/examples, PowerPoint presentations, discussions, videos, current events and topics. All classwork currently run through Canvas Learning Management System, with previous work on Blackboard. Homework assignments only submitted through Canvas, as well as course notifications. Completely on-line version of CVEN 3602 in Fall 2014. In-class exams given three times per course. I handle all exam preparation and grading. Design courses and graduate level classes include design projects, presentations, and research paper submissions. TA's may handle homework grading for larger classes, but I provide guidance and supervision to the TA. Graduate teaching duties include one three-hour lecture, once a week. I complete all grading for homework and other projects. I provide at least two hours of "open" office hours for my students, but will meet by appointment. Grading is usually a mix of exams, participation, attendance, homework, research papers and/or design projects.

## **ADMINISTRATIVE EXPERIENCE**

University of Colorado-Denver

### **Undergraduate student advisor**

Civil Engineering Department (Aug 2011 – Present)

- Initial transfer advising, credit review and approval for engineering and non-engineering coursework
- 30-hour checks & Graduation plans
- Career and academic advice
- Technical advisor to Civil Engineering Senior Design teams (ASCE Steel Bridge 14-15, 15-16, 16-17, 18-19, & Concrete Canoe 15-16, 16-17)

Engineering Student Services Center – ESSC (Jan 2013 – Present)

- New-student advising (incoming freshman admitted to the college, including First-Year Seminar students)
- Pre-engineering student advising
- Recruitment Activities/New Student Orientations/Outreach
- Undeclared engineering student advising
- Early-Alert advising
- Suspension/probation
- Identifying resources for academic success, including: scholarship information, internship opportunities through the CU Denver Experiential Learning Center, tutoring opportunities through the CU Denver Learning Resource Center, career services through the CU Denver Career Center
- Student engagement activities
- Student organization meeting space
- Training of new CEAS advisors

## **PROFESSIONAL LICENSES**

Licensed Professional Engineer

State of Colorado (#35171)

Issued Jan 2001

## **SERVICE/CAMPUS ACTIVITIES/PROFESSIONAL DEVELOPMENT**

### **Awards**

- 2014-15 College of Engineering and Applied Science (CEAS) Non-Tenure Track Excellence in Teaching Award

### **President's Teaching and Learning Collaborative (PTLC): Scholarship of Teaching & Learning**

Selected as PTLC Cohort for CU-Denver 2014-2015

- Offers faculty from all campuses an opportunity for professional development and the experience and intellectual practice of work in two scholarly endeavors: teaching and research.
- Seeks to promote the practice of inquiry in teaching and measuring student learning.
- The Collaborative assists University faculty in developing scholarly research projects on teaching and learning intended for refereed publication.

### **CU-Denver Campus-Wide Committees**

- Advising Excellence Success Team Committee: 2017 - 2018
- Chancellor's Strategic Working Group Committee: Advising Action Group - 2016-17
- Curriculum Oversight Steering Committee 2017
- EAB-SSC Specialist 2017

### **College of Engineering and Applied Science Committees**

- CU-Denver and CU-Denver South Engineering Mini-School Instructor 2017
- CEAS Dean's Committee on Clinical Teaching Track Engineering By-Laws Revision 2014
- CEAS Dean's Committee on Freshman Year Design Course 2013-14

### **Civil Engineering Department Committees**

- ABET Program Assessment Task Committee for Civil Engineering 2016-17
- Criterion 5 of ABET Report for CVEN Author/Lead Manager 2017

### **Professional Development**

- Transportation Research Board Annual Meeting & Conference, Washington, DC - January 2017
- American Society for Engineering Education Annual Conference and Exposition, Seattle, Washington - June 2015
- CU Online Skills Mastery Program Appointee F'14
- CU Online Microgrant Award F'14
- 5th Annual First-Year Engineering Experience Conference, Pittsburgh, PA - August 2013

### **Campus Activities**

- Tau Beta Pi Engineering Honor Society  
CU-Denver Student Chapter Chief Advisor 2015-2018
- Institute of Transportation Engineers  
CU-Denver Chapter Temporary Advisor 2016-17
- CVEN Transportation & GIS Master's Presentation Reviewer May 2017
- CEAS Open House CVEN Representative Nov 2016, Feb 2017, Nov 2018  
Event for both undergraduate and graduate prospective students
- CEAS Denver Public Schools GEAR Up Grant CVEN Engineering Presenter Nov 2016

## **PUBLICATIONS/PRESENTATIONS/INVITED PANELISTS/REVIEWER**

- National Council of Examiners for Engineering and Surveying (NCEES) FE Civil Exam Development Committee (2018 – present)
- Hayes, R.M. (2015), Can Flipped Classrooms Be Utilized to Effectively Produce Successful, Engaged Engineering Students? A Comparison of an Online vs. Inverted Classroom through a Junior-Level Transportation Engineering Course, American Society for Engineering Education Annual Conference and Exposition, Seattle, Washington, June 14-17, 2015.
- National Defense Science and Engineering Graduate (NDSEG) Fellowship Panelist 2016, 2017
- National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Panelist 2018
- Institute of Transportation Engineer Traffic Engineering Handbook, 7th Edition, Reviewer of Chapter 4 & 11, 2014
- PPI's Problem Submission – Submitted/Accepted over 50 Transportation Engineering Problems for both PE & FE Exams 2015-2018

## **PROFESSIONAL ENGINEERING EMPLOYMENT**

Feb 2008 – Present

### **Owner/Traffic Engineer**

Roxann Hayes Consulting, LLC

- Sole proprietor of traffic engineering consulting firm.
- Traffic impact studies, report compilation and AutoCAD.
- Work provided for: Turnkey Engineering, LLC (Grand Junction, CO) and Sterling Design Associates (Littleton, CO)
- Sole proprietor of traffic engineering consulting firm.
- Included access issues, signalized and non-signalized intersections, roundabouts. For new development including subdivisions, commercial development, charter elementary schools.

Oct 2008 - Feb 2011

### **GIS Utilities Intern**

Town of Castle Rock, CO

- Tasks associated with the water budget and utilities mapping projects utilizing GIS and GPS technologies.

April 2001 – July 2005

### **Sr. Civil Engineer/Development Services Engineer**

Larimer County, CO

- Evaluated subdivisions, conservation and planned developments, commercial site plans, rural land use center projects, and improvement construction plans for compliance with Larimer County standards and codes. Review includes geotechnical reports, traffic impact studies, drainage & grading plans, asphalt designs, groundwater modeling, access issues, etc.
- Team member of intergovernmental access management plans and transportation planning efforts.
- Update of urban street standards and land use code revisions.

October 1999 – March 2001

### **County Engineer**

Archuleta County, CO

- Acted as Project Manager for Capital Improvement Projects, including bridges, landfill cells, gravel & asphalt roads, trails.
- Approved feasibility studies, prelim engineering reports, construction drawings & specs prepared by consultants.
- Oversaw construction of capital projects, including pay estimates and scheduling; Right-of-way acquisition.
- Ensured construction of development projects met County, State, and Federal design standards; Floodplain administrator.
- Established technical criteria for making engineering and planning related decisions; Implemented and managed GIS.
- Assessed existing drainage, grading & roadway problems, and made recommendations for appropriate corrective measures.

May 1998 – October 1999

### **Civil Engineer**

City of La Porte, TX

- Responsible for City Capital Improvement Projects from inception to completion.
- Developed construction drawings/specifications using own design calculations, assumptions and investigations.
- Prepared bid documents & executed contracts for construction; project controls.
- Conducted subdivision and land development reviews for conformance with City policies, codes and standards.
- Developed successful Class 8 application to Community Rating System for FEMA National Flood Insurance Program.
- Coordinator of City stormwater and floodplain management/development permit program.
- Supervisor of Engineering Department employees; department budget preparation; managed and operated AutoCAD.

July 1997 – May 1998

**Project Controls Engineer**

Bayer Corporation - Baytown, TX (c/o CDI Eng.)

- Project Coordination team member of Polyurethane Expansion (capital expenditures in excess of \$1.5 Billion).
- Worked with project managers to determine and solve problems concerning staffing resources, budget and cost considerations, interfaces, conflicts and priorities in schedules for 12 major project phases.
- Coordinated activities for expansion projects during March 1998 Shutdown (Special Recognition Award/Bonus received).
- Construction field auditing; change order and schedule analyses; procurement variance reports.

January 1996 - July 1997

**Project & Cost Engineer**

Exxon Chemical Company

- Responsible for project execution, cost and schedule control for 11 projects worth a total of \$4.0 million.
- Compiled detailed cost estimates for chemical plant projects, which included developing material factors, labor multipliers, field labor overheads, capital/expense splits, sales tax, contingency, and direct costs.
- Designed and project engineered \$3.0 Million Facilities Upgrades, including new/renovated buildings for 65 employees.

**PROFESSIONAL ORGANIZATIONS & AWARDS**

**American Society of Civil Engineers**

- Member
- Colorado Section President (2003-04), Vice President, Secretary, Past-President  
*(The Colorado Section was presented the Outstanding Large Section Award in Zone III for the activities conducted during term as President.)*
- National Committee - Transportation Safety Committee of ASCE/T&DI
- Winner of 2005 National ASCE Edmund Friedman Young Engineer Award for Professional Achievement
- Winner of 2005 ASCE Young Government Civil Engineer for Zone III
- Winner of Zone III, Texas Section & Houston Branch ASCE Younger Member 1998 Daniel W. Mead Essay Contest
- Chairman of ASCE Texas Section Civil Engineers in Government Committee, FY 99-00
- Houston Branch Offshore Technology Conference Committee Chairman, 1999
- Student Member, 2010-2011

**American Society for Engineering Education**

- Member 2015-16

**Colorado School of Mines Alumni Association**

- Board of Director (Gulf Coast & Rocky Mountain Region Representative)
- Colorado School of Mines Alumni Association Outstanding Young Alumnus Award – 2004

**Institute of Transportation Engineers**

- Member 2017-19
- Student Member, 2010-2011
- CO/WY Section member (non-active)

**Town of Castle Rock**

- Parks and Recreation Commissioner, 2007-2008
- Colorado Bluebird Project Volunteer, 2009 - Present

**Society of Women Engineers**

- Member (non-active)
- Houston Area Executive Officer

**CSM ACTIVITIES/AWARDS/SCHOLARSHIPS** (*scholarships & work study financed 100% of education*)

Activities:

- Society of Women Engineers Student Chapter
- Section President
  - Regional Student Representative
- American Society of Civil Engineers/Associated General Contractors
- Student Chapter President
- Pi Beta Phi Women's Fraternity
- Vice President of Academic Advancement
- Blue Key National Honor Fraternity
- Tau Beta Pi National Engineering Honor Society

Awards:

- Colorado School of Mines Outstanding Graduating Civil Engineering Student, Dec 1995
- Colorado Engineering Council Outstanding Graduating Engineer  
At Colorado School of Mines for Dec 1995/May 1996
- Order of Omega Greek Honor Society
- Colorado Engineering Council Certificate of Merit and Silver Medal, 1995

Scholarships:

- Society of Women Engineers (National and Rocky Mountain Region)
- National Associated General Contractors Education & Research Foundation Civil Engineering  
(CCC Undergraduate) Scholarship, 1995
- National Association of Women in Construction
- Fluor Daniel Engineering Scholarship for Minorities and Women, 1992-95
- Consulting Engineers Council of America Scholarship, 1993
- National Pi Beta Phi Harriet Rutherford Johnstone Scholarship, 1993
- Jostens Foundation Leader Scholarship, 1991
- American Congress on Surveying & Mapping – Colorado Section Scholarship, 1994
- Von Trotha Educational Scholarship, 1991
- Greeley Kiwanis Club Scholarship, 1991
- Colorado School of Mines
- Presidential Scholarship, 1991
  - Chorus Scholarship, 1992-1994
  - John M. Stoddard Memorial Scholarship, 1991-1994

## **REFERENCES**

Carrie McClelland, PhD, PE  
Associate Teaching Professor  
Colorado School of Mines  
Petroleum Engineering Department  
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