

• **NEXT STEP** •*Advice from Young Engineers Moving Forward in Their Careers*

## Get It on Paper—And Then Get Moving!

**C**HRIS ENRIGHT, P.E., M.ASCE, has been with the Colorado Department of Transportation for just over two years, starting as an intern and moving up through three levels of engineer-in-training until he earned his professional engineer license in the spring. He was then promoted to P.E. I, where he leads some of the largest projects on CDOT's schedule, including bridge replacements, interchange reconfigurations, and a massive planned passenger rail service. He is also a lieutenant with the Golden Gate Fire Protection District, an experience that he says has given him a "bias toward action."

### How does being a P.E. I for CDOT differ from an EIT III?

A lot of my work now is project management, leveraging big teams and juggling lots of moving parts. I am the designer for the Front Range Passenger Rail Project, which is a plan for a 190 mi long passenger rail system (from Fort Collins at the north end, through Denver, and continuing south to Pueblo). This is at the early feasibility level.

I'm also working on a bridge and interchange project at Speer Boulevard and 23rd Avenue, in the heart of Denver. The bridge that carries Speer Boulevard over I-25 is the lowest-clearance structure on all of I-25 — not just in Colorado but on the entire highway, from Wyoming to New Mexico. It was built in the 1950s, and it's not unsafe, but it's not in the best shape. So we're going to get rid of that and do an interchange reconfiguration at the same time. On another project, we're moving BNSF's rail lines to add capacity to rail and to I-25 in downtown Denver at the same time.

### How did your previous roles prepare you for your new job?

Before coming to CDOT, I worked briefly in rail design. I did yards, spurs, and small track sections. It was similar to the Front Range project but on a much, much smaller scale. And it's actually easier to design larger rail projects; you can make the curves fit more easily in the final design. And I worked on other projects as an EIT III.

### What specific skills did you learn in school that have helped you in this position?

I did my graduate work in mining engineering, specifically tunnels and emergency management. Then as an intern at CDOT, I worked in tunnel and safety research. I designed a directional egress sign for our tunnels that glows in the dark for a few hours.

I also learned Excel and Word, which are in the same category as (computer-assisted design) in terms of how much you use them as an engineer. Competence with the features that are buried in those programs is key, and figuring that out in college saved me a lot of headaches.

Also, we did a lot of group presentations in college, and I took debate in high school. Those helped me learn to speak in front of groups, which is a critical skill that not all engineers have.

### How did you learn to manage people and projects?

I volunteer at a fire department; I serve as a company officer for one of the stations. I have direct-line authority over a handful of firefighters as well as facilities, vehicles, and equipment. That gave me the opportunity to get started with personnel management and what it takes to balance competing interests.

I also had the opportunity at CDOT to take on project management roles early but on smaller projects. I did a \$1 million traffic signal project. It was pretty trivial in the grand scheme of all we do at CDOT, but it gave me the opportunity to get the steps right. You can make mistakes on a smaller project and it's okay; that's how you learn.

### What personal traits or characteristics have helped you succeed?

I have experience with public speaking, as I said, and in writing, and I can do them with a degree of confidence. That's important because as an engineer, I can look at the black-and-white lines on a piece of paper and see what's going on, but I have to be able to explain it to people who can't. For example, the environmental specialists on our team may not be 100 percent clear on what I am designing, so I need to be able to explain it very clearly so they can see the same thing I'm seeing. With the public, that skill set is even more critical, especially with these major projects, where we have to talk with the media



**Chris Enright,  
P.E., M.ASCE**

#### **CURRENT POSITION**

*Professional Engineer I,  
Colorado Department of  
Transportation*

#### **PREVIOUS POSITION**

*Engineer-in-Training III*

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and local interest groups. When I say we're going to use a braided off-ramp, that makes sense to most civil engineers but not to the local newspaper reporter.

I also have a tendency to sketch out a concept and get it out there; I prefer to come up with something and let people respond to it, instead of asking, 'What should I do?' For example, on a project we are doing that is shifting railroad tracks, we had a roll of plot paper, where we all sketched out ideas. Instead of leaving it at that, I drew up a plan and got it in front of people and asked for their feedback. It makes progress quickly. You can always debate the last 20 percent of a project, but I want to get that first 80 percent out there quickly.

That is a bias toward action that I developed with the fire service. When we get a call, we have to just go. We don't know what we'll need to do when we get there, but we know we need to go there. We just get in the truck! And figure out the rest on the way.

## Who have been your best role models?

My CDOT supervisor Steve Sherman, P.E., is an excellent role model and a good leader who stands as an example for us. In the fire service, I had one especially great chief who was fantastic on the people-management and the tactical side. One of the quotes he used — abused, really — was, 'Either tell someone what to do or how to do it but not both. Both is micromanagement.' Give people the end state, and they will get there. That's why you hired and trained them.

## What types of positions would you consider next?

It's hard to say what the positions of the future will look like. We have so

many routes that exist at CDOT that I don't even know them all. I might be interested in operations, or the Division of Emergency Management. Or if the Front Range Rail project really takes off, that could be really cool to work on.

## What advice do you have for other younger engineers or recent graduates starting their careers?

My genuinely actionable advice is show up to everything with a pen and paper — or a digital notepad if you prefer, but you need to show up capable of taking notes — otherwise there is no point in you being at that meeting. Write stuff down, even if there is nothing contentious going on but especially if there is — or even if you just have an uneasy feeling about something. You will wish you had been taking notes when it all got started.

Also, take the initiative to get ideas out there. You got into civil engineering for a reason. You have a hair-brained scheme? Put it on paper, draw the sketch, and show someone else — maybe not your direct supervisor but the more experienced engineer. Maybe it will be actionable and when there is funding, it will be ready.

And when you encounter problems, write them down too, and think

of how to fix them. The new person who is complaining is not the person the rest of the team is listening to. The new person who has a suggestion for fixing something that has been bothering everyone else for a while is.

## Where do you see the profession headed?

Not to be too political, but people don't seem to be taking expertise — the learned professions with licensure — very seriously anymore. We have licenses because we are entrusted with public safety and we know how to uphold that. Yet there seems to be a decrease in the role of the professional in general. I think that's a risk for us.

And technology is a huge moving target. Horizontal construction has been behind vertical on the 3D and building information modeling side of the house, but we are starting to use them more. That ability to visualize a design in 3D is critical because that is how you catch the errors.

And from the project owner's perspective, I see engineers being less specialized as we go because of the increased workload we all have. We'll do the specs and the design, the drafting and detailing, the project management, the public relations, and the schedule and budgets. It's more work than we have ever done before because we can do everything more efficiently through automation. It's a weird time. But we have the opportunity to get a lot done. —LAURIE A. SHUSTER

*Are you a younger member who has recently taken the next step in your career? We'd like to hear from you. Email [cemag@asce.org](mailto:cemag@asce.org) using the subject line "Next Step."*

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