



Sloan Career Cornerstone Center

Profiles of Civil Engineers



Michael W. Dawson, P.E.

**Civil Engineer
Parsons Brinckerhoff
Sacramento, CA**

Education:

B.S. Civil Engineering, University of California-Davis
M.B.A. Finance, Golden Gate University

Job Description:

"As a Civil Engineer, I am involved in transportation design, public service, public relations, marketing, and business development. I currently manage a website for a large bridge design project which allows me to learn about the project, manage documents, and utilize new technology."

Advice to Students:

"Civil engineering students should focus on getting a well rounded education. Include English, communications, and business courses in your electives. Consider an MBA degree which provides additional opportunities within engineering if you are not a "technical" person. Professional Societies are the best way to stay current, contribute to your community, network with other professionals, and have fun."

Video Transcript 1:

"Networking has really helped me out a lot in my career, not only in finding new jobs, but in meeting contacts and helping out with marketing in my company."

Video Transcript 2:

"Students that are interested in working overseas and working in other countries can do a lot of different things to prepare themselves. I try to stress to students that have different cultural backgrounds that if they speak a different language that's something they can really use to promote themselves. So languages I think are very important. It's difficult for entry level students and engineers to find jobs in the global market, the people that go overseas are senior management or very technical people that have been in the field for 10, 15, 20 years."

Video Transcript 3:

"Our goal really is to provide cost-effective services in a very ethical manner for our clients, whether that be a local agency, a large agency, or maybe a little recreation department. Without civil engineers, the standard of life would be very different. You wouldn't have roads. You wouldn't have running water. You wouldn't be able to use our toilets and the sewer systems and bridges and airports."

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Interview:

My name is Michael Dawson. I'm 28 years old. I'm a civil engineer with Parsons Brinckerhoff in Sacramento, California. I decided to study civil engineering after I had been in college about a year. When I was in high school, I was very interested in architecture and drafting. I took a few classes in that. Once I got into college, I actually got into chemical engineering. I took a few undergraduate classes in civil engineering and decided to go and switch my major to that.

Q: What about civil engineering, what about chemical engineering was bad?

Dawson: I decided to go after civil engineering instead of chemical engineering mainly because of the architecture side of it. I like doing the drafting. I like to work in CAD. I took a few classes in organic chemistry and decided that wasn't my strong point. Civil engineering really appealed to me. I like doing the drafting, specifically with AUTOCAD, and I liked calculus and math and engineering is basically a lot of math.

Q: Where did you go to undergraduate?

Dawson: I went to undergraduate at the University of California in Davis. And I'm still affiliated with the university, and I still live in Davis. So I'm still very connected with the school.

Q: What about your undergraduate studies themselves? Why did you decide to zero in on a specialty?

Dawson: I decided once I'd been in school for about two or three years, I wanted to pursue structural engineering. As it turns out that's exactly the opposite of what I'm doing now. But when I was in school, I did some research for my professors and it happened to be in the area of structural engineering, dealing with concrete and structural design, and a lot of my peers were also taking structures. At that time, the California Department of Transportation had a lot of jobs available in structures and in transportation, so it made good sense to study that field because that's where the job openings were.

Q: Let's talk about the transition from school to work. Did you have co-op relationships while you were in school?

Dawson: When I first started school, I was able to get a job at a local restaurant, and I worked there full-time. However, in the summers for my junior and senior year, I was able to get two internships. One was with the Army Corps of Engineer. The other job was with a large construction company doing estimating, and the transition from work was pretty difficult. When I graduated, a lot of my peers had been hired the previous year, and so the job market was kind of flat. I was able to get some leads from a couple of professors. And eventually got a job with Caltrans about six months out of school. The transition wasn't too difficult. A lot of things that you learn on the job far surpass what you learn in college. College teaches you the basics, but once you get on the job, you're going to learn the specifics for your new position. Caltrans has a great program. They have the two-year rotation where when you come in, you rotate through four six-month assignments. When I started off, I started off in design, worked on a lot of road and highway projects, designing freeways and bridges throughout California. My second rotation, actually was combined with my third rotation. I was in construction for a

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full year in Santa Rosa, which is just north of San Francisco. I was on a big highway project, five miles of brand-new highway through the wine country. There were lots of new bridges and some railroad work. So I got to see the project from beginning to end. That was really exciting. After I left that assignment and returned to Caltrans in Sacramento, I worked in the hydraulics department with Cathy Crosset, and learned a lot about fluid hydraulics and streamflow and things like that. Caltrans is a good experience, because it gave me a well-rounded experience, enough for my first two years. After my Caltrans job, I decided that I wanted to move into private industry, and through my contacts and professional societies, I was able to follow the lead to my job where I am now, which is at Parsons Brinckerhoff, and it was a natural transition because Parsons specializes in transportation and that directly related to my experience that I had with Caltrans.

Q: Let's talk some about networking.

Dawson: Networking has really helped me out a lot in my career, not only in finding new jobs, but in meeting contacts and helping out with marketing in my company. When I left Caltrans and decided to go into private industry, I was very involved in one of the local professional societies, American Society of Civil Engineers, and through one my contacts in that organization, I was able to find a job and move into private industry.

Q: Could you talk about courses that you had when you were in school?

Dawson: Undergraduate work was very challenging. You'll find that in four years of college, you can only take so many classes. There's a lot of things that once you move into the professional world you realize, gosh, I wish I could have taken that class in college. I had to work full-time during school which a lot of people do. I was able to graduate in just a little over four years. I didn't have to take summer school once. Basically, I worked full, and certain times of year, like Springtime, it's a little more difficult to stay in the books. But for the most part, it was very challenging, a lot of homework, lots of tests, and lots of projects. So you have to really be dedicated to school because it's very important when you get out that you've really got a good comprehensive view of engineering.

Q: How about being guided towards a particular specialty? Did you have a lot of guidance?

Dawson: UC Davis in particular, we have a big career counseling center. You can go there, and they will give you ideas about what's available as far as jobs. As far as guidance, most of the professors at our school, and I know many of the other universities, are really open. They have open-door policies where you can go in and talk to them. They can give you ideas of what courses you need to take, what the job outlook is like.

Q: But in terms of deciding what you wanted to do?

Dawson: As far as my choice, especially, I kind of picked information from different sources, through my involvement in my professional society, through my professors, and some of it through my own research. It seems that you don't get a lot of that when you're in school. You find out once you get out in the professional world that there are so many other specialties, and other disciplines that you can go into. The one thing I can recommend is there's a lot of

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good engineering magazines out there, that are available at the libraries, on campus, or through the professional societies. And if you go through those, you can read a lot about the different disciplines that may excite people. Traditionally, at school, there's four or five disciplines. Water, sewer, soil mechanics, structural engineering and transportation, and students tend to focus in on one of those. But they don't realize that there's a lot of subspecialties under those that might be appealing to someone. So do a little research, go to the library, maybe reading some of the periodicals and journals will help you get a better idea of what's out there.

Q: How about other engineering activities that you took part in in school?

Dawson: As far as engineering activities, I worked full during school, so it was real difficult for me to participate as much as I wanted to, and now that I'm out of school, and I'm still affiliated with the engineering students at Davis, I try to kind of make up for that. I was a member of the American Society of Civil Engineers and also the Structural Engineers Association of California, and they do two main events throughout the year. One is the Concrete Canoe Competition, which many civil engineering students will know about because that's kind of a nationwide project, and also the steel-bridge competition. I was able to work on those a little bit. I wish I had had more time because it really teaches you a lot about working in teams, working with other students, working your professors, working with other professionals, and requires you not only to do a technical project, but you have to public speaking and writing that's really important when you get out into the field. A lot of employers are looking for well-rounded individuals, not just someone that can sit and crunch numbers all day.

Q: Can you talk a little bit more about how your undergraduate -- or do you think undergraduate civil engineering prepares you for a life in the real world?

Dawson: As far as being prepared, once you get out into the real world, civil engineering, it's very challenging, and it's a very dynamic field. It's changing a lot. Traditionally, engineers were very technically-oriented. They're very analytical people and they're used to doing a lot of number-crunching. Well, today's engineer is very different. Engineers today have to be well-rounded. You have to learn to deal with your clients, whether that's public or private clients, and the curriculum at most schools is so focused on the technical side that you very rarely have a chance to learn good public speaking skills or good writing skills. I did a little bit of that. Some of my electives were mostly in rhetoric and communications. So I felt that I needed a better balance of my writing skills. But there's only so much you can study in four years. The thing I can recommend to students is that professional societies will really help you with that, whether it's a civil engineering society, a community service organization, your church. Those are the things that are going to help you work on other little projects, deal with people, help your network, good public-speaking skills, and things like that.

Q: What's the most helpful part of your undergraduate experience that really effects you day to day here?

Dawson: The thing that my education gave me the most in my day to day work is a basic knowledge of how to find things. It may sound kind of strange, but there are a lot of different people that can memorize vast amounts of knowledge and can quote formulas. But what engineering taught me is to be resourceful. I don't have all my textbooks memorized, but I

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have the ability to look something up if I need it. So if I'm posed with a problem, say a transportation problem, or I'm designing a freeway, and I need to know a requirement on a lane width, I know where to go, and college really taught me that, is to be resourceful, to find the information I need to be productive and efficient in my job.

Q: Let's talk about your job, the current job that you have now. First of all, how did you find it? How did you get from Caltrans to here?

Dawson: Yes, well, a lot of luck. A lot of luck. How I found my current job? Well, actually, there's a lot of luck involved with that. I was trying to leave Caltrans as they were downsizing at the time, and as I mentioned before, I had a personal contact that worked at Parsons Brinckerhoff, and this young lady called me up on a Thursday night and said I'm leaving, and they're looking for someone to fill this position. So I was very excited because I had been looking for a job for about two months. I was able to get an interview the following Monday, and by chance, the timing worked out, and I got hired the following day, on Tuesday. So a lot of it was luck and good timing. But a lot of it was also being prepared and doing my homework. I had written a good resume and I had distributed it, and after a few months, I finally hit the right timing, and was able to get my job here.

Q: Can you describe your job here?

Dawson: My current job is as a transportation engineer for Parsons Brinckerhoff. We're a large civil engineering firm that specializes in transportation, whether that be roads, bridges, transit, airports, any kind of transportation you can think of. My job has actually changed a lot. I've been with the company for two years now. When I first started, I was hired to work on a flood-control project, doing plans and estimates and also helping manage a large database for the client. As the two years have gone on, I've worked on lots of different projects, which is very exciting for me. I've worked on railroad projects, I've worked on planning projects. I've worked with structural engineers doing seismic retrofit, and the thing I enjoy the most, is working with the marketing staff. I've worked on some proposals and helped do some presentations and some interviews and also my company is very supportive of community service. So we do a lot of outreach, and I'd been on one of the committees to help educate students in the local community in the role of civil engineers and how important we are in today's society.

Q: What is your typical day?

Dawson: A typical day at work usually involves checking my e-mail first. With the Internet, it's very convenient to send e-mails to people for your day-to-day business. Of course, checking your messages. And it all depends on the time of year. Certain times of year I'm working on a certain project. Other times of year, I'm working on other projects. Typical day would involve coming in, probably checking with the other person that I'm working with, see what we've got planned, maybe working on some drawings, working on AUTOCAD or Microstation. We have regular team meetings on the different projects I work on. So once a week, we may have a lunch meeting and talk about the progress of our project and what we need to get done. I also work a lot with interns. We have several interns from the local universities. So I help them find work and give them some things to do. We also do a lot in our office with ISO 9000 with his

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Quality Control, so we're working on developing systems to improve our work and to be cost-effective. So a lot of those things combine, in different times of year, what I do.

Q: In terms of your team role, what are your responsibilities within a team?

Dawson: A typical project usually starts out with a proposal. A client puts out a listing saying we need a consultant to work on this project, so our marketing staff will put together proposal. We'll send it into the client. If we get selected to do the job, there's usually pre-team meetings, that we all get together and talk with the client, saying, this is what we want to produce. A typical project I'm working on is a highway design project for some high-occupancy lanes here in Sacramento. So we met with Caltrans. Everyone was assigned their tasks. My task in particular, we're doing a lot of the geometric designs. So I do a lot of CAD work, a lot of number crunching, a lot of formulas. We get a schedule which lays out the project. I mean for this particular project, we had about three months. We had to do a lot of the as-built design. We got a lot of files and drawings from previous work that was done, and that's typical of many projects. You build on what's been done in the past. We then proceeded through the design. There's a lot of different steps in between where you interact with the client, and I think that's probably common in most projects. You interact and get comments and feedback. In fact recently we just submitted the first draft of our final product, which is a big report with lots of drawings and lots of cost estimates. That'll then get reviewed by the client. Will come back to us. We'll make some final edits. They'll do one more quick review, and then our final product will go out. So you see most projects are the same. If you're awarded the project, or if you work for the government, or the state agencies, you'll get a project, do a little review at the beginning, find out what direction you want to go in. Are we going to evaluate different alternatives, etc. You do the work, you do a lot of feedback, make sure you're within your schedule, and then in the end, hopefully, you'll have a final product that you'll be proud of, and you can pass on.

Q: So what is this final product? Let me just understand for myself. You're just sort of making recommendations for what they should do and designing it and then you hand it off to someone else to build it, or do you actually do the bit?

Dawson: The final product is going to vary, of course, on what you're doing. The structures people at our office and the planning people and the civil people, like myself, we all do different products. Some of my products are drawings. We produce drawings that may go out into construction. Sometimes we do studies, earlier on, where we're just going to put together a report with some drawings identifying lots of different alternatives. We can build a ramp on this road. We can extend this lane, etc. We do a lot of what's called PS&E's, which are Plans, Specifications, and Estimates, and that's really the final product that would go out to construction. So if you're going to build an overpass or you're going to build a dam, you do the full plans and specs and estimates, and you put it altogether in one package, and that gets handed off, and then the client will take that and send it out to bid for a contractor. So in engineering, really the final product is to prepare those plans so it can go out to construction.

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Q: How about your specialty? Do you think there's a big demand for that? And also maybe is it regional?

Dawson: Very much so. My specialty in particular, at this time, there is a lot of demand, particularly on the west coast. The California Department of Transportation has had a lot of work in the last few years. After the earthquake in 1989, Loma Prieta(?) and North Ridge the last few years, has done a lot for the industry. In particular, there's a lot of seismic retrofit going on, retrofitting bridges to withstanding earthquakes. So a lot of transportation companies are working in that area. My job will vary according to the season, depending on if we have natural disasters or roads get wiped out. It also depends a lot on financing from the government. Certain years, we have more money from gas taxes and other bond issues. So in the last few years, there has been a demand for transportation, but the future is very uncertain. We're not sure if there's going to be more money available or how the legislation is going to come out or if we're going to have another earthquake. So it also tends to be very regional. The west coast has a lot of people, and so there's a lot more money. The east coast also big in transit. Maybe in the mid-west, not quite as much. So it will vary by region, not only in transportation, but in a lot of the other disciplines.

Q: Can you speak to what kinds of demands there are for other specialties?

Dawson: As far as other specialties, there's a lot of different things going on in the United States. Domestically, we're doing a lot of infrastructure work, and infrastructure involves our roads, our bridges, our highways, our sewer systems, our water systems. And so there's still a lot of work in those areas. Environmental engineering is becoming very popular. There's a lot of work that's required by the government, for you to move forward with a project, is to identify environmental impacts. So that's a field that's very up and coming, and a lot of the universities have courses in environmental engineering. I think most of the demand in the future is really going to be overseas. Most of the major companies in the United States have affiliates or have smaller companies in other countries, specifically Third World countries, South America, Asia, Africa, Australia, and a lot of the opportunities and a lot of the demand are really going to be in foreign markets. We know that most businesses are going global, and that really applies to engineering also. So a lot of the big exciting projects are going to be in infrastructure in other countries.

Q: What new technology are you talking about? The CAD drawings and stuff

Dawson: New technology has really changed engineering in the last couple of years, even since I've been out of school in the last five years. One thing that's been very radical in changing what we do is the use of the Internet. A lot of the things we do today are transmitted electronically. Instead of writing a paper report to your client, you're now sending them drawings electronically over the Internet. So many of these companies and agencies are going to a paperless system. Now as far as the global engineering community, a lot of the companies that have affiliates overseas and in different countries are connected electronically. Our firm in particular has a direct connection to our Wide Area Network. Someone in Australia could put something on our network, and within one or two minutes, I can pull that drawing or that memo or that report right off the Internet. So the growth of the technology, the speed of the computers, the size of the programs and all the networks is going to play a very important

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role in making the world much smaller. So instead of dealing just locally, you're going to have to deal globally with a lot of different people.

Q: How about skills that students that have to compete in this marketplace, what kind of things are they going to need?

Dawson: tudents that are interested in working overseas and working in other countries can do a lot of different things to prepare themselves. I try to stress to students that have different cultural backgrounds that if they speak a second language, that's something they can really use to promote themselves. If there's work in China and they happen to be Chinese, they have an added skill that someone else may not have. So languages, I think, are very important. If you know a second language, that's definitely a plus for you because you can really sell that. As I mentioned before, engineering is becoming a more well-rounded field where you're not just required to know the technical aspects of the discipline. You need to be a good writer, so I would recommend taking more writing classes and rhetoric and communications. Also, public speaking is very important because a lot of the work we do is in teams, and it's not as individual as it used to be. So you have to be able to interact with other people, work together on a team.

Q: Do you think that markets around the world are more open to employing Americans than they ever were?

Dawson: Oh, yes, definitely. But not students though. It's more people further on in their career. Look at entry level. It's very difficult for entry-level students and engineers to find jobs in the global market. Traditionally, the people that go overseas are senior management or very technical people that have been in the field for 10, 15, 20 years. Now that is changing. There are a lot of young engineers with big companies, that are finding opportunities overseas, and a lot of that is through job listings or through projects that come up, where they're going to need entry-level engineers as well as some of the more advanced people. Now if I was a student, say, two or three years out of school or I had my first internship, there's a lot of different things that you could do to find out about jobs overseas. A lot of that will deal with the Internet. A lot of jobs are posted on the Internet. Students that are looking for those opportunities can probably find some of that on the Internet. If you're from a certain country and you're interested in going back there, you could look up on the Internet and maybe find some opportunities there. Otherwise, it's going to take a few years of experience before you're qualified enough to really go overseas and work.

Q: Has it gotten global, something that you think you're going to do? Any interest? You have an interest in that?

Dawson I'm very interested in going global. My company has a lot of different offices around the world. When I was a young boy, I was fortunate enough to live overseas for nine years, and I was very intrigued by the cultural differences.

Q: Are you pursuing that aggressively or you just have to wait and see what the --?

Dawson: As I said, I'm very interested in working overseas. However, in order to do that, I need a very good technical base. Technical base meaning the basic skills that I would need to

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work in another country, and I've been out for about five years. I have my professional engineer's license. But even now, there are certain things that I still need to learn to become proficient and effective in what I do. So a couple more years of technical work and I'd be willing to accept an assignment overseas. My firm, in particular as I mentioned, has affiliates all over the world, in a lot of different countries, so there could be opportunities there. If those opportunities don't come up, I'll have to look elsewhere and maybe find a job with another company that will provide those opportunities. You'll find that not only in engineering but in a lot of other disciplines, the people that are very successful are those people that have taken international assignments. Manufacturing and sales and a lot of other disciplines require that their staff go overseas to learn different cultures and to work with different people. So you'll find that if you can pursue those types of opportunities, I think it will really pay off in the long run.

Q: What is the role of civil engineers today?

Dawson: The role of the civil engineer today is very important, not only for people in private industry, but in public agencies. Our goal really is to provide cost-effective services in a very ethical manner for our clients, whether that be a local agency, a large agency, like Caltrans, maybe a little recreation department. Civil engineers are so important, and we don't get the glory that a lot of doctors and lawyers do. But without civil engineers, the standard of life would be very different. You wouldn't have roads. You wouldn't have running water. You wouldn't be able to use your toilets and the sewer systems and bridges and airports. So engineers are very important, in keeping all that stuff running, and I don't see that changing. But it is becoming more global. A lot of the civil engineering is going overseas to countries that don't have those types of things, roads and water and dams. So you'll find that the role of the engineer has kind of expanded, to not only providing those services in the United States, but also passing that knowledge on to other countries, so that they can improve their standard of living.

Q: How about the professional engineers license?

Dawson: The professional engineer's exam is probably one of the most crucial parts of being an engineer. Of course, you're required to take the E&T, which is the Engineer and Training Exam, either after your first two years of college or once you graduate. The next step is to obtain two years of experience and then take your licensing exam. Those requirements are kind of in flux right now. A lot of states are requiring that you have more experience, but once you qualify for the PE exam, it's very important that you study. I spent many months studying for the PE exam, and it's no easy task. But I was able to pass the exam, and that's allowed me to move on in my career. I figure a lot of people that don't have their license, they're going to find it difficult to move up in a company, and move into project management, or into a higher technical career. So the PE exam is very important. A lot of companies and a lot of agencies will support you. They'll allow time off for you to take the exam. There are minor fees involved, a couple hundred dollars, to sit for the exam, and then there's also registration fees every four years. So some companies will offer to pay for those, or do some type of cost-sharing agreement where you pay half and they pay half. So it's a good investment, it's well worth it, and you should definitely invest a lot of time in studying and being prepared for the exam.

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Q: How about your MBA? Why did you decide to go for that?

Dawson: here's two different sides of engineering the way I see it. There's a lot of people that are very technically-oriented. And those people are usually experts in their field. They're very analytical. They work in certain specialties. The other side of engineering are those people that are more involved in marketing and finance, and that's what I'm interested in. I've recently gone back to school and I'm close to completing my MBA, which is a Masters in Business, and I'm concentrating in finance and marketing. I have a lot of friends that are in other disciplines, like sales and stocks and they start talking about an MBA degree and how that would really benefit me, and so I decided to go back to school. A lot of my coursework I had to take over because I wasn't able to take it during my engineering years. I had to take accounting and marketing and behavioral science and those types of things. I found that while it doesn't directly apply to my technical work, it does apply to a lot of my relationships with other people. I go to a lot of society functions, and I find that some of the marketing skills I'm learning in my MBA program are really helping me with my relations with people, and meeting people of other companies and disciplines. So while those people that are more technically-oriented may pursue a Master's in Structural Engineering or Civil Engineering, I've decided to kind of go the other route and get a master's in business so eventually I can move into more of a management role.

Q: How about this balancing and what the hours are like here and do you work on weekends? And it sounds like you guys just had a huge project that had to get done. Is that often? Is this a 70-hour-a-week job? Is this a 300-hour-a-week job?

Dawson: No.

Q: Are you in at 9 and out at 5? And then you're also attending school on top of that. How do you manage all of this work?

Dawson: How do you balance all that? My job is very similar to other people's jobs. We're required to be here basically from 8 to 5. The reason 8 to 5 because that's when many of our clients are open. So if they call and have questions, we have to be available to respond. A standard work schedule, Monday through Friday. But it's also very flexible. Some people like to come in earlier in the morning, leave early in the afternoon, and my company has been very supportive and they're flexible with that. There are times when you're required to work some overtime. It's every couple of weeks, you may have to work a weekend or work some late nights. In my particular firm, in my discipline, I don't think we put in 70 hours a week. It's basically a 40-hour-a-week job. There are a lot of other things that go into that. We do a lot of outreach and a lot of community service with local companies and local foundations. We also do outreach with students from a lot of the local schools. And of course, my involvement in professional societies takes a lot of my time, and on top of that, of course, MBA school is very demanding. So it's very challenging to try to balance that, and the thing that has really helped is my company is very supportive of a lot of my outside activities and my personal activities, and having a flexible schedule is very nice. It makes it much easier to balance those things. Everyone is different. Everyone has different requirements in their life. Some people have significant others or they're married or they have children, and so they have to kind of strike that balance. So if you find an employer that's very supportive and allows you to take time off if your child's sick, or let's you take some time off if you have to take a test, that's something

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very desirable, and it'll help you not only be productive in your life, but you'll be happy. You'll enjoy coming to work. You know, I enjoy coming to work every day. You know there are some days when number-crunching is a little tedious, but for the most part, I have a good balance in my life, and a lot of that I owe to the support of my company and my employer.

Q: Let's talk about some of the rewards of this position, be they personal, financial, or professional? What are those rewards.

Dawson: There are a lot of things about civil engineering that are very rewarding. Financially first of all, civil engineering is a good profession and a lot of people will find that they'll make more money right out of college than their parents did when they were the same age. So the four-year investment really pays off. Other things that are very rewarding, now that I've been in the field for four or five years, I'm doing more contact with other people instead of the technical events. A lot of the community service we do with our professional society. There's two purposes to that. Part of it is to promote civil engineering and promote our company and the type of work we do. And the other part is really for personal reasons. Those are the types of things that I didn't have the opportunity to do in college. And working for a large engineering company has given me the time to go out and do those types of outreach activities, and really be satisfied that I'm doing things for my community. Other things that are rewarding? When you design something or build something, you can come back 10 years from now and say, hey, I built that, or I designed that, and you're going to have a great sense of pride in what you've done. There's a couple of projects that I've worked on, a freeway project, some flood-control projects, you know, I designed a little pond, and it's close to my office, and when I drive by that, I say, hey, you know, I designed that, and you take a lot of pride in that. So once you've been in the profession for a few years, you'll build up those types of things, and you'll feel a lot of pride in what you do, and it'll make the job seem more rewarding.

Q: How about the future? What do you see for yourself coming up?

Dawson: What are my goals in the near future? My first goal is of course to finish my MBA. And after that, I'm not quite sure exactly what I want to do. I'm still very interested in transportation. But I also like the marketing side and the business side of the profession, and I'm finding that there's a lot of opportunities, not just with engineering firms but with financial investment companies and banks and other agencies that have companies all over the world, and offices all over the world. For now, I really enjoy engineering, and it's very rewarding. But it doesn't leave out the possibility that maybe I'll move onto some other type of career in the future.

Q: Is there anything, looking back at your career, just five years old, anything you'd change? Like your education and your career?

Dawson: There's only one thing I'd really change from my past, and that would be to take out more student loans when I'm in school. I had decided to work full while I was in college and I think that really took away from a lot of my studies and a lot of my learning. So if I could go back, I'd go ahead and take as many student loans as I can, and really apply myself to school. I found that now that I'm in graduate school and I work at the same time, it's much easier because I have more time to do homework and really apply myself. So that's something that I wish I could have done while I was still in school.

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Q: Describe some projects, specifically the flooding project, in as much detail as you can, and your involvement with that.

Dawson: For the past two years, I've worked on a very important project for the Sacramento area. Sacramento lies at the juncture of two major rivers that run north-south and feed a lot of water to Los Angeles. The project that we've dealt with is in the northern part of Sacramento, dealing with flood control. And the project involved building levees, improving the levees that are already there, and building some pump stations to control a lot of the flood waters from these two rivers. One aspect of the project was managing a database for assessing property owners. Basically what that means is in order to build the project, it had to be financed. In order to be financed, someone had to pay for it, and the people that paid for it were other people that received direct benefits from flood protection. So the database that I manage assesses people anywhere from \$5200, depending on the size of their property and whether it's commercial or residential, assesses them similar to a tax every year to pay for the project. So that's one side of the project that I worked on. The other side of the project is actually designing a levee. We went out and did a lot of surveying. We did a lot of hydraulic modeling and flood modeling to figure out where we need to improve our levees. We found several critical areas that would be very difficult to control if we had a major flood. So those were the areas we really focused on. We went out, we built the project, which just happens to be right behind our office here, so I get to look at my project every day. And you could say it's been a great success, and a project really never ends. You're always doing follow-up or improvements or talking to the contractors. So it's been very exciting that I've gone from the beginning of the project, all the way through the financing, through the design, to the final product, and now I'm kind of doing the follow-up on this entire project.

Q: What about some of the things that you are not so rewarded by? Sort of mundane, frustrating.

Dawson: Just like any other job, you're going to find there's a lot of things that aren't a lot of fun to do. One thing in particular, when I was a student and also when I first came to the company, you have to do a lot of photocopying and a lot of filing, and people tend to put that off as much as they can. You end up with big stacks of files on your desk and those are a couple of the things that aren't as fun. But I think in general, the good things outweigh the bad. It's just like any job. There's positives and negatives, and you learn to focus on the positives and realize that the filing and the photocopying are a necessity of the job. They have to get done, and you accept it for that, and just focus on the good things.

Q: Have you ever run into an ethical issue while you were working in your firm?

Dawson: I've only run into one situation personally. The one in particular I had -- and it wasn't really a major ethical decision -- but it was something that made me a little uneasy, when I was working with Caltrans, the last two months of my employment there, I was out looking for a job. I was approached by someone that had received my resume, and this person wanted me to work for them part-time and to do some work for them, similar to what I was doing at Caltrans. Well, there was a little bit of a conflict there, being that the work I did for Caltrans would have been the same work I was doing for this consultant, and I felt I would have difficulty dividing my time up between the work for Caltrans and the work for this client, and I didn't want to provide

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information that might be confidential to Caltrans, to the client, and vice versa. So, it was a tough decision. I decided not to pursue that job. There are a lot of ethical decisions that you have to make. Other decisions, of course, are overseas where you have a developing country and do you sacrifice the safety of the people for improvements in their infrastructure? And there are a lot of other lofty ethical issues. But I think in general, you have to be fair, you have to tell the truth, and as long as you do that, I think you'll be successful and you'll find it very rewarding.

Q: What are your thoughts about diversity?

Dawson: In engineering, you'll find that diversity is really prevalent, and not only with the raging debates over affirmative action, but with the different cultures that we're going to have to deal with in future engineering. A lot of companies have people that have gone to school in other countries, and they speak different languages, and they have an accent. So you need to learn to interact with those people and realize that they have skills that are just as valuable as everyone else. In the schools, you'll find that a lot of the minority students don't realize that engineering is out there. We do outreach to a lot of the local schools for students that are of different ethnic backgrounds, you know, African American, Asian, Hispanic, and these kids have never heard about engineering. They don't know that there's opportunities out there for them, and I think it's every engineer's job to go out and try to do some outreach and teach these kids the importance of engineering, the opportunities that are out there, and what's available for them. A lot of the universities, both in California and throughout the country, have some excellent, excellent engineering programs, where minority students can get in. They have support groups. There's the National Society of Black Engineers. There's the Hispanic Society of Professional Engineers. Those are just a few examples of some of the groups that can help these students move up, get into college, move onto successful careers, whether it's in civil engineering or other disciplines.

Q: And how about women? Do you find that it's a male-dominated field?

Dawson: More and more, you're seeing more women in engineering. I think it's still -- there's still kind of a glass ceiling. You see a lot of upper management is still men. But more and more, you're finding women working in management roles, moving up through the companies, becoming CEOs and vice presidents. We have several area managers in our company that are female, that have been in engineering for 20, 30 years. They have more experience than most of the people. So a lot of the schools really promote women in engineering. The Society for Women Engineers is very popular, and it's also very successful in promoting engineering for women. A lot of the universities, recently, we went to a career fair at UC Davis and at Sacramento State University, and we found that 60 percent of the people that came to give us resumes were women, and it was a shock to see that many women in engineering versus five years ago when I was in school, we maybe had two or three female engineers. So I think it's great. We've made some great progress, and hopefully, as the years go by, men and women will be more equally represented in the companies and the agencies, and we can go on from there.

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