



Engineering & Capital Projects Director

Job Description

The Director is responsible for developing, managing, and supervising engineering and construction of capital projects. As the manager of the project responsible for controlling the project's finances, quality of work, and timeline. Capital projects create new facilities or improve existing ones for the company or city.

Salary

Entry — \$156,000
Middle — \$198,000
Top — \$255,000

Core Tasks

- Manages the design, development, and completion of assigned engineering and infrastructure improvement projects.
- Develops project objectives, work scope, cost estimates, approval processes, and schedules.
- Coordinates infrastructure projects, monitors job sites to assure work quality and effective use of resources, and resolves discrepancies between field conditions and design plans.

Workplace / Environment

- Work hours
Approx. 40 hours a week
(may include overtime in emergency situations)
- Environment
Majority of time is spent in an office environment, some in the field to assess site conditions or fix infrastructure issues.
- Travel
Some **travel is required** to project sites within jurisdiction

Education / Prerequisites

Education Level

Typically a 4-year degree in a related field

Licensing

Drivers license
PMP Certification (Project Management Professional)
PE (Professional Engineering)

Pre-Job Preparation

Around 10 years Engineering Experience, including project leadership experience

Experience

Soft Skills

- Leadership and Team Management
- Communication
- Critical Thinking

Technical Skills

- Engineering and Design Knowledge
- Risk Management
- Budgeting and Cost Management



Career Path: Henry Chen

About Me

Director of Engineering and Capital Projects at Cascade Water Alliance

B.S. in Civil and Environmental Engineering

Early Life Interests

"In middle school and high school, I was always **a curious person**. I wanted to know how things worked. When I first came to the United States, I was 12 and a half years old, and I started middle school here. When I got off the airplane in San Francisco, **I saw skyscrapers**. Back where I came from, we only had one story building, and the tallest I'd seen was two stories. And now seeing one that's like 20 stories tall, I was like *'How did they design those? How'd they do it?'*"



"My dad, he's an architect, not for skyscrapers, just residential like homes and one to two story hotels. He worked for an architecture firm, and later I saw his drawings, blueprints and stuff, and got exposed to how it works. I really appreciated it and was just **amazed that humans could do that**."

"He told me a story, he said, 'Henry, when you look at a building and think "what's the difference between architecture and engineering?" the outside of the building, it's like the skin of the building, the outside beauty, that's architecture. But engineers, you make sure to **design strong bones**, to hold up the building. But, architects work with you guys too. That's how the building gets designed, and built.' I'm not as artistic as my dad. He can visualize and make things pretty. I am more of a mathematical and physics person. That's my strength, and **that's how I got into a civil engineering career**."

College Choices



"At the time I was more into Computer Science. My dad said 'come study architecture, engineering,' but I was more resistant. And over time I realized that computer software development/computer science is more **behind the scenes**. And you don't interact with nature, either. People use the software, that's rewarding but in terms of your work environment you don't go in the field, you're always on your own. My sophomore year, I was still between the two, but **that made me switch over to engineering**, and I decided to declare civil engineering and put my focus on that."

Into the Real World

"My junior year I was able to **secure an internship** with the City of Seattle, in their department of transportation. When I graduated they hired me on as a permanent employee and I was with them for 25 years, before I came to Cascade Water Alliance. At the time construction managers provided service to all major city departments in Seattle Public Utilities. When **I was reorganized to SPU** they had water, drainage and wastewater, and solid waste engineering services groups. That's how I merged into the SPU where I **focussed on engineering in water** and wastewater instead of transportation. Now, my job is to make sure all infrastructure owned by Cascade is operated, maintained, and repaired in the proper way. **Very high level responsibilities.**"

About My Job

"I get to design, construct, maintain, and operate stuff that performs an essential function for people: drinking water."

Pros

- "I like solving **complex infrastructure problems.**"
- "I **get to do everything**, from small design work and paperwork to making large big decisions. So that's a really rewarding variety of jobs."

Cons

- "We don't have a lot of support staff, so we can't be **specialized in one area.**"

Fieldwork

- "I spend about 10-15% of my time **in the field.**"
- "We occasionally get a call from a private operator that something broke. So **we need to respond to urgent** and emergency breaks or failures. So my team and I need to troubleshoot and come up with a solution in a **very short amount of time.**"

Office Work

- "So my typical day is reacting to things that just came up and then also doing a lot of **event planning** work related to **preserving our infrastructure.**"
- "There are things that come with the job and you **can't just do stay in the office** and expect to understand issues without, you know, physically observing things."

Skills

- "Be **curious** and **observe** and **listen**."
- "It's not always the case, but you have a higher chance of success if **you're strong in math and science**. Because you can do many different jobs if you have those core skills."

Education/Experience

- "I would say **study math and science**. If you are a pretty good math person, you can adapt to different careers."
- "Natural life sciences are **important** too: physics, chemistry."

The Future of **Civil Engineering**

"But I think the speed of which we have to change is going to increase tremendously."

"I really appreciate the **advancement in artificial intelligence**. AI really accelerates the speed of getting things done. It's like when the internet was being invented, Wikipedia replaced almost all encyclopedias so you don't need to go to the library and look at things. With AI, it can go out there and do all this research for you to figure out the **best way to repair or replace infrastructure failures**."

"So civil engineers we are kind of stuck in the old days, we don't embrace technology much. We are very conservative, meaning we don't like to take risks and so on. When Windows 3.1 came out I had to work really hard to get my supervisor to trust Excel. To trust that the graph that was generated by the computer actually matches your manual calculations. **We build buildings, we build bridges, we build dams, we don't want to take too much risk because life is at stake**. But I think the speed of which we have to change is going to increase tremendously, with AI, and you're going to see a lot of changes in the future."

About Sustainability Ambassadors

We are here to **RAPIDLY ADVANCE A SUSTAINABLE FUTURE**. Empowering **YOUTH** to catalyze community sustainability, **TEACHERS** to integrate rigor with relevance for real-world impact, **COMMUNITY** to drive collective impact.

We support a year-round training program for over 60 highly motivated middle and high school youth, a Teacher Fellows Program, City-County CAP internships, and college-level interns, and work with hundreds of educators to design new models of problem-based, place-based learning around **a shared vision of educating for sustainability**.

Your Green Jobs Future

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Find career opportunities near you now! Use [Career Connect - Washington's](#) tool to find programs to build your career skills.

Interested in a future in solar? Take a look at the [Solar Jobs Census](#) to track solar job growth nationwide.

Explore [RVC's opportunities](#) to work with organizations led by communities of color.

Dive into the [Center of Excellence for Clean Energy's](#) robust career tools in the sustainable energy sector.

Grow your professional sustainability skillset with the [Seattle Youth Good Program](#).

See Seattle's [Clean Energy Resources Map](#) to examine what the city is planning for a greener energy future.

Check out the [U.S. Green Building Council](#) to explore the sector's current opportunities. :

Funder Acknowledgement



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