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2018 Summer MATC Internship

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My internship at Schemmer Associates has allowed me to learn a lot about road design, while applying the concepts I learned in school. And I am very thankful for it. During my first week I spent my time doing Microstation training. This allowed me to better familiarize myself with the program I would be using all summer. Since I already had a little Microstation experience I was able to begin with a little more intermediate tutorials. These tutorials consisted of designing an intersection, complete with alignments, profiles and surfaces, designing plan and profile sheets and a variety of other tasks. Easing my way in made it easier to adjust to the internship.

One of the transportation engineers was a MATC intern in 2014, so he knew how the program works. My manager thought it would be a great idea for me to work with David because of his experience. The initial work I did was with his guidance, and whenever I ran into trouble and had a question he was willing to help. But after working the first couple of items I worked with a different person on each project.

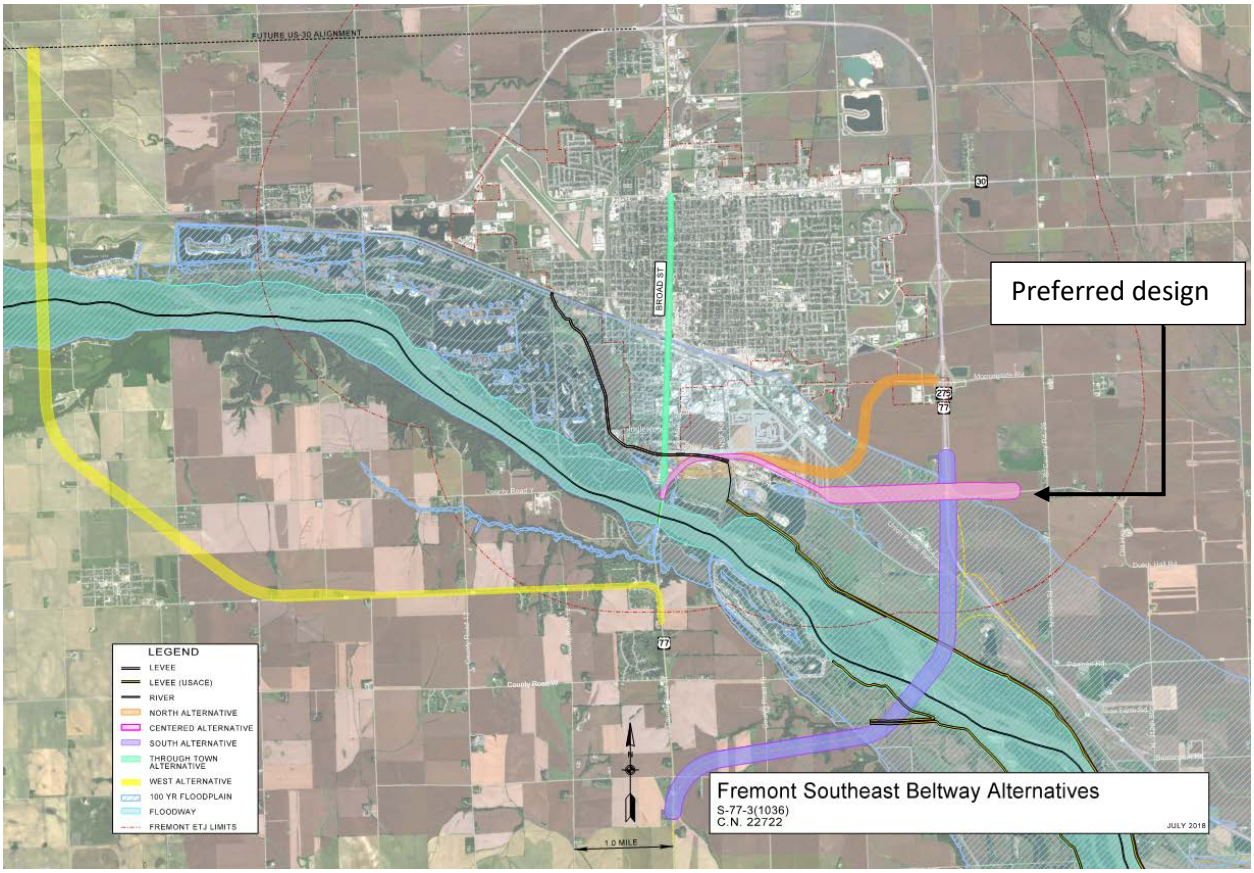
The first real project I worked was a Resurfacing, Restoration, Rehabilitation (3R) project of US-81 in Stromsburg and a few miles north of town. Most of the design work in town was already completed, so I worked on the portion north of town. I drew the centerline, edge of pavement, and shoulder lines, along with intersections, and driveways. After completing these items I was tasked with preparing some of the sheets. I went through the process of creating a motif file, which is basically the parent file of the individual sheets and then cutting the sheets from that. I also did a lot of labeling as well. This consisted of marking the section, township and ranges, road names, adding north arrows, and marking the stations of the driveways and

intersections. The last thing I did on the sheets was add construction notes, where I marked surfaced driveways, intersections, and culvert locations.

Next, I worked on Nebraska Highway 10 near Pleasanton For this project I worked on the Final Erosion Control & Sediment Control. More specifically, I revised redlines, a term referring to corrections, which were received from Nebraska Department of Transportation (NDOT). This portion of a roadway project has major importance; if not done properly, the surrounding ground near the project can wash out or become contaminated from construction or rainfall. I had guidance from a younger engineer named Alex. He was very helpful with this as he knew how it had to be done to the state's specifications. Through this project, I discovered that if you work in the private sector you will still have to work with the public sector One must follow the guidelines set by NDOT, or their respective state's department for all aspects. All work must be submitted to the state so they can verify it and provide any required corrections that need to be done. In fact, there is a NDOT version of Microstation that has their specifications built in. Even if it's a 3R project with no new road, NDOT still has particular guidelines. I thought this was really interesting because even if you choose to work in the public or private sector, you will still have involvement with the other.

Another project I spent quite a bit of time on was the Fremont SE Beltway, which connects US-75 to US-275/US-30 on the southeast side of Fremont. The premise of this project was to reduce truck traffic through the city and to improve connectivity for local traffic in the southeastern Fremont industrial area, where a new Costco facility will be located. For this project I worked on the alternatives design. I modified the already

drawn designs, and added a west bypass and through town option.



I also worked on the estimated quantities for this project. To do this, I created complex shapes over the pavement, shoulder, median, etc., and found the areas they took up. Since some quantities report in square yards, I had to convert from square feet. Some other items are reported in stations, which means that the calculated length needs to be divided by 100. I thought that quantities work was the most beneficial, as I learned so much about how amounts of material are calculated and how specific materials are chosen. This is something that is very important for all road projects, no matter the size.

Besides the typical work environment, Schemmer also had a variety of employee involvement activities. This included birthday parties, retirement parties, and a grill out in

the parking lot. It was really fun to have opportunities to become closer with my coworkers, as it gave me a chance to better know everyone.

Overall, my internship at Schemmer Associates was a very positive experience. I spent my time completing tasks my future job will require. I also expanded my engineering knowledge astronomically. In school I only learned the basics, but here I learned how the whole design process is completed. Every day was spent completing tasks that will be done in my future job. Most of this was done with Microstation, one of the industry standards for roadway designers. I had some previous experience with this software, but only to a more basic degree. With my new experience, I gained a lot of knowledge with the software to a much more proficient level. And I also learned many new components related to roadway projects, such as Erosion and Sediment Control, sheet layout, and many other things. I believe that after this internship I will be much more prepared for my future career as a transportation engineer.