

My MATC Summer Internship Experience



With The Schemmer Associates

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As a MATC intern working for The Schemmer Associates in their Lincoln office this past summer, I gained invaluable experience in transportation engineering that I could have never gained from the classroom. I feel very fortunate to have had my internship with The Schemmer Associates. Schemmer is headquartered in Omaha with offices in Council Bluffs and Lincoln, with the Lincoln branch housing about 15 employees. Working in a smaller office provided me with a variety of projects and tasks to complete. Although I was a roadway design intern by title, I still worked on many projects for the traffic engineering group, exposing me to another side of transportation engineering.

In only three months, I worked on many different projects ranging from road sign inventories to roadway expansions. The first major assignment of my internship was to design the Vintage Heights Retail Center located at S. 84th and Old Cheney Road in Lincoln. I was responsible for updating the plans to meet the client's ever-changing demands. This entailed shifting building locations and adjusting building square-footage as well as providing adequate parking for all buildings while maintaining proper roadway and parking lot dimensions. The project also introduced me to Microstation, a computer drafting application that I would use the remainder of the summer.

I did extensive work regarding rainwater drainage for areas surrounding our roadway projects. On Microstation, I would find the size of drainage areas from contour maps, compute the intensity of rainfall for a 50-year storm for the particular drainage area, and determine the drainage coefficient based on the future use of the land. With this information, I could then compute the flow rate of the water runoff. Using the resulting flow rate, I could determine the dimension of the culvert that would be necessary for passing the rainwater under the roadway. Also, I needed to check that

the culverts were long enough to span the new grading after the expansion of the roadway. To do this, I drew the culverts onto cross sections of the road using Microstation and then extended their length if necessary. If questions came up while working on drainage, I often had to make site inspections to obtain the needed information. Through these site inspections, I learned how to record accurate and descriptive field notes that can be easily understood by other people. During site inspections for other projects, I have done surveying and staking of properties.

Some of the traffic engineering projects that I worked on included taking part in a truck origin/destination study for the town of Florence in north Omaha. The purpose of an origin/destination study is to record when and where vehicles enter and exit a given region to determine if the vehicles are making stops in the region or if they are thru-traffic. Our study was to determine the amount of trucks that were making stops in Florence, and if this number was low enough, we would reroute thru trucks away from the town. I also conducted a three-day parking study and classified crash reports for N. 30th Street, Florence's main road. Back in Lincoln, I carried out a road sign inventory, recording the type, location, and direction for every sign on W. "O" Street from 3rd Street to 10th Street for our Harris Overpass Project. The entire overpass will be replaced in the near future and the signs must be returned to their current location when the overpass is completed. Additionally, I compiled turning count movements for the City of Lincoln.

All of the previous projects led up to the most exciting and challenging project of my internship, the asphalt widening of S. 70th from Yankee Hill Road south past Countryview Lane. I was responsible for almost all of the work on this project. I set the new alignment of the roadway and designed the asphalt expansion. Then I computed

the geometrics, or dimensions, of the roadway, followed by the creation of cross sections for the expanded roadway. Using the cross sections, I computed the drainage and designed the grading that slopes away from the road while making sure to stay clear of wetland areas and staying within the project's right of way. Next, I determined the quantities list, detailing the amount of asphalt needed, length of culvert extensions, lane striping to be removed and repainted, and all the other physical quantities involved in the project. Throughout work on this project, I attended meetings with the clients and made numerous site inspections. I had to make many adjustments to the plans as new issues arose, but I have learned that this is a usual occurrence in engineering. I am looking forward to seeing how S.70th Street actually turns out after it is constructed, knowing that I am responsible for a great deal of the project.

During my internship, I was allowed to sit-in on many meetings, such as a public forum in Norfolk, a pre-construction meeting for the 14th Street and Highway 2 Safety Improvements project, and a supplemental hours meeting for the construction of a South Beltway in Fremont. These meetings will prove to be very beneficial to me in the future, so that when I am responsible for giving the presentation or playing an active role in the meeting, I will already know what to expect and how the meetings are run.

At The Schemmer Associates, I learned much more than just transportation engineering. I also gained insight into how the Lincoln branch operated as a business. I learned how important establishing strong relationships with clients and submitting winning proposals really is to a private consulting engineering firm. Even if I choose not to stay in the transportation engineering field, I will still have gained important knowledge pertaining to operating an effective and efficient private engineering firm.

In addition to working for my sponsoring company, MATC provided many unique opportunities throughout the summer. Along with the other MATC interns and transportation enthusiasts, we celebrated the 50th birthday of the Eisenhower Interstate System at the Qwest Center in Omaha. We were able to see the future of transportation engineering firsthand by riding in a vehicle equipped with GPS and the ability to communicate with traffic signals. When it appeared that the vehicle was going to go through a red light, a warning would flash inside the vehicle prompting the driver to apply the breaks. A couple of months into our internships, all the interns took a field trip to the offices of the other MATC interns where each intern gave a short presentation on our sponsoring company and what we were doing for our internship.

MATC and The Schemmer Associates have taught me so many things about transportation engineering and the business world that I could have never learned in the classroom. My internship has proved to be a wonderful opportunity and I am very thankful to have had this experience.



On the left, I am using Microstation at my desk. On the right, I am explaining my plan sheets during the MATC fieldtrip.