



MATC Summer Intern Report

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This summer I have had the opportunity to work as a MATC summer intern for Felsburg Holt & Ullevig in Omaha, Nebraska. Felsburg Holt & Ullevig is a consulting firm that specializes in all types of transportation engineering as well as environmental services. The main office is in Denver, Colorado, and there are two regional offices in Colorado Springs, CO, and Omaha, NE. There are over 100 people in the Denver office. Our Omaha office is very small. There are ten people working here, including me.

The bulk of my experience was in traffic engineering, however towards the end of the summer I was able to gain some experience in roadway design. Over the course of the summer I was given the opportunity to work on a variety of different types of projects which allowed me to gain a vast amount of knowledge in all the different areas of transportation engineering. The type of projects included a railroad crossing safety study, traffic studies, and a roadway design project.

The first project I worked on was the Windsor, Colorado, Rail Crossing Safety Study. The scope of this project was to analyze all the rail crossings in the area of the town and recommend safety improvements. This project was unique in that the method they wanted me to use to analyze each crossing had not been used by our company before so I had to learn the method by reading the *Railroad-Highway Grade Crossing Handbook*. The method I used was the accident prediction model which combines train and traffic volumes and physical properties of the crossings to predict the number of accidents expected at each crossing. After crunching the numbers, I was tasked with writing several sections of the report. When I thought I was finished writing, my supervisor, Mark Meisinger, would go through what I had written and mark corrections on it with his red pencil. A lot. I fondly refer to it as the "Red Pencil of Shame." By the end of the summer we were able to submit a draft of the report to the town for their review.

Also on this project I was able to track the budget on a spreadsheet to see if we stayed on budget or not. After working on this project for so long I became an expert of sorts on highway-rail grade crossings. I had no idea that there was so much to know about rail crossings and that I would need to know it all.

I also worked on two different traffic studies. The first study was for a proposed water park in La Vista, Nebraska. For that project I had to collect data in the field (i.e. count cars). I then had to analyze the data and determine, with the help of Mark, whether or not a new access road to the water park would need to be constructed. In order to analyze the data I had to learn a new program called Synchro. Synchro is a capacity analysis program that lets you enter the volumes and traffic control attributes of your network and reports back with levels of service and other information about traffic operations. After the data analysis, we wrote a report documenting our findings.

The second traffic study I worked on was for a new medical center in Falls City, Nebraska. For this project Mark and I had to make the trip to the thriving metropolis and stay overnight to count cars. I performed similar data analysis and wrote up the findings in a report. Using knowledge gained from the previous study I performed most of the data analysis on my own. A unique addition to this project was the city wanted to construct an access road from the hospital to the highway. In order to gain access to the highway, a NDOR access permit is required. I had to go online to download a form and find information on the specific legal description of the location of the proposed road.

Later on I was able to work on our company's current largest project, the 144th Street expansion in Omaha. I made some red line changes to the design files and found northing and easting coordinates for several different drainage and sewer objects (curb inlets, manholes, pipes, etc) throughout the project. I was also able to check quantities for construction and removals for the project. This project gave me the chance to learn some basic operations in MicroStation.

During my time here I also worked on small parts of other projects. For our UNO Campus Mobility Study I created all the base Synchro files for traffic analysis of the area. For a traffic study in Vail, Colorado I learned a new program called SIDRA which does capacity analysis for roundabouts. I also learned how to write invoice letters to clients. I checked signal warrants for an intersection in Sarpy County. Any time someone in the office had edits to make to a document, they often came to me.

Of course being an intern means that sometimes you get stuck doing stuff that no one else wants to do. I could always tell when Mark had one of these tasks ready for me because he would walk around the corner to my desk with a big goofy grin on his face. Such tasks included copying and binding reports, making deliveries, buying pop for the break room, and my personal favorite, scanning business cards. These "projects" always keep me on my toes and I usually took some grief while performing them.