Interning with the City of Omaha Traffic Department

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Mark Dethlefs

City of Omaha Traffic Department

If you were to ask me if I wanted to pursue a career in the transportation field of engineering a couple months ago, I would have said probably not. I didn't know much about this specialty and I didn't see how it could be interesting to me, personally. However, if you ask me now, after I participated in this summer internship program, I would definitely consider this field as an option for my future career. Interning for the City of Omaha Traffic Department opened my eyes to all of the different areas I could explore in this field of study and how each one of them uniquely contributes to society.

Over this past summer, I spent a lot of time doing field work for the City of Omaha Traffic Department. I collected data in a number of different ways to help see if changes are needed to make traffic run more smoothly and safely throughout the City. I did turning movement studies to collect traffic volumes of an intersection and I used a count board to record how many cars traveled through the intersection over a four hour time period. The traffic volumes are considered in almost all of the proposed improvements of an intersection. I also conducted delay studies, which is when you count and record how many cars are in and go through a left turn queue during an interval of time. Data collected from delay studies are used to determine if a left turn signal is warranted. I also did a couple of gap studies. A gap study is when you record time lapses from the time one car goes by on a street to the time a second car goes by. In addition, I used a radar gun to record the speed of vehicles.

I spent time accompanying engineers around different parts of the city on inspections. I rode along to inspect a stretch of high-collision-rate intersections to determine what safety improvements could be made. I also was along to inspect signalized railroad crossing intersections to see if the street signals communicated properly with the railroad crossings. I spent some time making collision diagrams. Collision diagrams show all the collisions at an

intersection over a certain amount of time. The diagrams help determine if changes need to be made to improve the safety of the intersection.

I also worked with the traffic facility. There, I inspected contractor work that was being done on streets and intersections across Omaha. I helped with an inventory check of the new cross beam that is over 72nd and Pacific streets in Omaha. I helped lay out tube counters to collect the volume and speeds of vehicles passing over the tubes. The data that tube counters collect help determine if there is a need for a traffic calming device, such as a speed bump. I also spent a day helping replace old signs and signs that don't coincide with regulations, such as height and visibility regulations. By conducting these studies and inspections, the City will be able to better improve the safety of traffic, especially during events.

The City of Omaha has gone through a number of events this summer, some of them I worked on. The first event was a record-setting Memorial Weekend for the Henry Doorly Zoo. I helped by organizing data into a document that shows traffic volumes and speeds on the 13th Street exit ramp from I-80. The next two events were the College World Series and Olympic Swim Trials. For that, I attended a meeting at a construction site close to TD Ameritrade Park and the CenturyLink Center. The goal of the meeting was to make a way for pedestrians to safely walk by the construction site without being endangered by the flow of traffic and the construction site. The biggest event has been happening for quite a while though. I have been lucky enough to learn about a new Automatic Traffic Management System (ATMS) that the City of Omaha is going to implement. I learned that an ATMS manages the flow of traffic by changing settings such as the green time at an intersection, which improves travel time and efficiency. This is a huge step up for the city considering that the technology they have now only lets them manage settings one intersection at a time through a dial up modem. With this project, I

attended the interviews of the different ATMS vendors. In those interviews, the vendors showed off their product and what made it unique from the competition. I also attended meetings that discussed the environmental impacts of installing a new ATMS. Part of where this new ATMS is being implemented is outside of city limits. Because of that, there is no data or information updated to the City of Omaha's system, that is, until I got there. I used Synchro to map out the geometry and program information of each intersection outside of the city's limit. I enjoyed learning about this new system over the course of the summer.

I enjoyed learning under the entire Traffic Engineering Department, Bryan Guy and Murthy Koti in particular. Bryan Guy is the Assistant City Traffic Engineer. He is in charge of monitoring and programming traffic signals. With him, I learned how the City of Omaha's traffic system is laid out. He taught me about traffic phases, which deal with the different traffic signals at intersections and how they coincide with each other. For example, he can program how long a light stays green, yellow, or red; the length of turn arrows; crosswalk time lengths; and how they all affect each other. Murthy Koti, the City Traffic Engineer, is also the person who hired me for the summer. He taught me a lot about important skills an engineer needs to have that isn't necessarily taught in school. He taught me that communication is a major key to success in engineering. To be a successful engineer, one must be able to convey thoughts and ideas properly and clearly so every party understands. I will use these skills as I continue on in my education and in my future as an engineer in the transportation field.

What was most valuable to me from this internship was seeing all aspects of engineering in action. There is so much more to it than design and what is taught in school. For example, I learned how to consider the environment and finances. I learned that communication is the most valuable tool you have, especially when presenting ideas. What I enjoyed learning the most is the

layout and the programming of a signalized intersection. I thought it was really interesting learning about the traffic signals and detectors and how they work together.

In an ever expanding world, there will always be a need for traffic engineering. It is a field where you can see the benefits of your work every day and the importance of what you do in society. Everyone I met at the traffic department is passionate about their work. They want to show off what they do, and they will tell you exactly how they got to where they are today. If I were to have any regrets, it would be that I didn't ask more questions. I am grateful for this opportunity and I feel confident that I am better prepared to continue in the transportation field because I was able to participate in this internship program.