Mid-America

Transportation Center

University of Nebraska Lincoln

Blake Eisenmann

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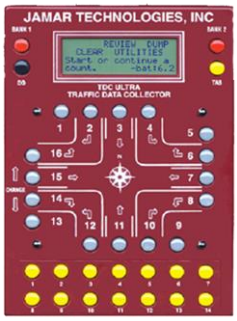
Through the Mid-America Transportation Center (MATC) program, I interned with the traffic engineering department in Public Works with the City of Omaha. During my experience, I was presented with the opportunity to expand my knowledge with traffic flow devices, different computer software, and the importance of field work. The knowledge, experience, and confidence gained during my internship are crucial pieces of my future as an engineer.

The City of Omaha has always just been here as long as everyone can remember. A treaty was made with the Omaha Tribe, and "Omaha City" was founded on July 4, 1854. In 1883, Omaha paved its first streets and had 16.06 miles of paved streets in 1886. Omaha grew rapidly to become the largest city in Nebraska currently with over 2,000 miles of paved streets and alleys. The Public Works department was created in 1882 and has had the mission statement: "To effectively meet the transportation and environmental quality needs of the citizens of Omaha" ever since. Public works is organized into two branches: Environmental Services and Transportation Services. The Public Works department is a public consulting group. Unlike a private firm, the traffic engineering department is a full time service group that is ready for any problem that suddenly occurs. Through my internship with the Traffic Engineering Department, I have been able to enjoy spending valuable time with many knowledgeable coworkers with phenomenal skill sets.

Prior to starting my adventure with the City of Omaha, my boss, Murthy Koti, wanted to meet with me. I was originally nervous, but once I started talking with him, I soon found out he was there to help me grow as an engineer. I had been given a tour of the office and was introduced to several of the professional traffic engineers. Each individual engineer welcomed me with open arms. As I started my internship, I quickly learned that all of my coworkers were there for me. Many curiosities and concerns arose to me as my internship progressed. I asked a lot of questions and always received a detailed and laid out explanation. I learned a lot of things just by asking questions and absorbing all the information provided.

I also gained a lot of experience and knowledge by the work I completed. The City uses an abundance of data to make important decisions. I helped to collect a lot of this data. I learned how to use a TDC Ultra Traffic Data Collector to get traffic volumes at intersections around the city. With all the information collected I constantly updated a file in Microsoft Excel. I also used the Collector to perform delay studies. A delay study is performed when there is a request that a green left turn arrow be installed at an intersection. Many warrants must be met and a critical examination of an intersection must be taken to determine if a green left turn arrow would benefit the behavior of drivers. I worked with a software called PetraPro which computes data from the Collector into data to be used in a traffic analysis.



TDC Ultra Traffic Data Collector

Speed limits and speed bumps are some items involved in traffic calming. I worked a lot with traffic calming devices. I regularly had a few tube counters laid out across different streets all around the city. The tube counters record the number of vehicles traveling on that street and their exact speed. A radar gun was provided for my use at times where speed studies were needed. I recorded the speeds of 100 cars traveling both ways on 2-way streets around the city. The data collected from the tube counters and speed studies helped to find the 85th percentile speed. This speed is used to determine if it would be necessary to install a speed bump.

Talon Radar Gun

Another thing that I worked on was making collision diagrams. Collision diagrams are a visual representation of collisions at a specific intersection over a 4-year period. If the diagram shows that there is a pattern of repetitive collisions, one of the traffic engineers examines the area. Adjacent businesses, curb lengths, and sign visibility are problematic concerns around the intersection. A solution is then provided to either reduce or eliminate collisions at that intersection.

I also met a lot of people at the Traffic Maintenance Facility where some of the city's maintenance vehicles are stored. I was excited about broadening my experience by going out in the field and getting hands-on work. I did about everything there was to do at the facility. One day I was sitting in a striper truck while we painted skips and solid lines on the streets, and the next day I was using a hydraulic jack to pull street signs out of the ground and pound in new ones. I also used a grinder to grind off and replace continentals that make up cross walks. I had a lot of hands-on experience with traffic signals. I learned a lot about signal timing, detection systems, and radio communication between traffic signals.

Traffic Maintenance Facility

My time spent with the City of Omaha has been an amazing experience. I got to see many different challenges that were presented to the city. Water main breaks and traffic signal power outages were some examples that required quick action to be taken. This quick critical thinking is something that is crucial to the field of engineering. Being exposed to transportation engineering has allowed me to expand my knowledge with traffic flow devices, different computer software, and the importance of field work. The experience, confidence, and knowledge that I have gained during my internship are not things that can be taught in the classroom. I am now a step ahead of my fellow classmates thanks to the MATC program and the City of Omaha. This internship has better prepared me for my future to become a professional engineer by setting an important foundation for my future engineering career. I would like to give my greatest gratitude to the City of Omaha and the MATC program for a great internship and allowing me to gain practical experience.

Thank you Mid-American Transportation Center & City of Omaha!