Summer 2016 MATC internship sponsored by City of Omaha

Traffic Engineering Department

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My experience with the traffic department of the City of Omaha, was an extraordinary learning and explorational journey to the practical world. I had the opportunity to work with great engineering minds, who are passionate about training and mentoring the future transportation engineers. During my internship period, I worked on different types of projects. I was also sent to different subdivisions in the traffic department, to get training with different professionals who work on a variety of tasks. One of the first projects that I worked on is the city's traffic signal master plan, which involves major upgrade to the current traffic signal systems. City of Omaha maintains over a 1000 traffic signals that run-on Wapiti system, which is DOS based system that runs on a dial up connection because it was developed in the late 1970s.

On my first day, I participated in a highly important meeting between the Federal Highway Administration (FHWA) along with the Nebraska Department of Roads (NDOR) and the City of Omaha regarding the traffic signal master plan. In this very meeting, I learned that good communication strategy and coordination is the key to accomplish any desired goal. In this project, I was assigned to calculate clearance intervals for the intersections. Clearance intervals are the yellow and all red timing intended to provide safe transition between conflicting traffic signal phases. It is calculated by using a kinematic equation with the parameters; width, the grade of the intersection and the speed of the roadway. To do this task, I had to use different kinds of software that I had little or no prior experience with. Hence, I had to acquaint myself with programs quickly, with a little extra effort and help from my supervisor to complete the task at hand.

Creating GIS layers for the city's traffic control devices was another project I worked on. I had to take pictures of the signal structures, controller cabinets and other traffic signs in order to upload them to the GIS database. Other tasks I was assigned included doing turning movement

count to collect traffic volume, which is used for signal green time adjustments. Traffic counts also provide data for all traffic related decisions. Moreover, I conducted spot speed studies to measure speed percentiles to determine if traffic control devices are warranted such as speed limit signs and traffic signals.

Outside of engineering and calculation tasks, I worked in the traffic shop where I had the opportunity to participate in hands on activity. I was enlightened with information regarding how traffic signs are fabricated by following the Uniform Traffic Control Device (MUTCD) manual. I helped engineering aides in creating work orders for a variety of tasks that needed to be completed. I worked with the traffic sign maintenance group, to install new traffic signs when warranted and also replace damaged signs. Additionally, I worked with the traffic signal maintenance crew who implements preventive maintenance for over 1000 signals that the city manages. The signal crew and I troubleshot the controller cabinets also supervised installation of new pedestrian signals and school crossing signals.

On the other hand, I was also exposed to other transportation divisions. My supervisor was kind enough to accept my humble request and arrange an orientation with the bridge division. In these two days, I got to see how bridge inspections are conducted. Furthermore, I spent a day with the city planning engineer, who showed me how he plans the city's land use. His planning included analyzing new developments for potential traffic congestions. I participated couple of meetings between developers along with their AE firms and the city planning engineer. One of the meeting was about the city's ordinances related to the development process of developer's project. The Other meeting was a fact finding and information gathering of how to obtain a permit for a renovation project.

The internship allowed me to apply the knowledge I obtained from the civil engineering program at UNL, which I am currently pursuing. I was able to actively contribute to my sponsor's objectives. And I was glad to exceed the goals that I had for this summer internship. As a non-traditional student, I had to weigh the benefits of taking an internship, then sacrificing my job, which was the source of providing my family. However, I realized my decision was a game changer. Because, an internship is too good of a prospect to pass on, especially for a future engineer like myself. I truly learned an invaluable transportation field work, which I believe schools cannot provide. I also learned the importance of teamwork and, I got to know many industry professionals, who can help me build a network in the engineering field.

I owe an immense gratitude to the MATC program who helped me obtain this invaluable internship opportunity. I also like to express my profound gratitude to the City of Omaha's traffic department team who provided me their insight, guidance and support throughout the internship period. Particularly, I am deeply grateful to my immediate supervisor Bryan Guy, assistant city traffic engineer, who invested his valuable time and knowledge in me.

Thank you MATC and CITY of Omaha