

Mid-America Transportation Center

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Internship Program

City of Lincoln Public Works Department

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## MATC Internship Summer Program

In 2015, I have been participating in the Brazil Scientific Mobility Program (BSMP), which provides scholarships for students that study abroad from Brazil. Living in the United States has been a unique opportunity to learn and interact with different cultures and people. Studying in an American university also has been providing me more knowledge in English and my major, civil engineering.

During the summer of 2015, I received the amazing opportunity to be a part of one of the Mid-America Transportation Center's (MATC) programs, which provided me with an internship at the construction area in the City of Lincoln. Throughout the internship, I was able to learn many topics such as planning, construction, maintenance and research projects. In addition, I had a chance to work in a really courteous and friendly environment, where there were many people willing to teach me the job. Working in the field, I performed several practical tasks such as bridge inspections, pavement repairs, contract deals, and contractor payment. With this internship, I could initiate my professional career, gaining more responsibility, knowledge, and experience in the work field along the way.

My internship started slow in the first weeks. Basically I began my internship spending most of my time in the office studying and trying to figure out the big plans that the city and companies use in any project. Reading those plans was a crucial point to understanding which tasks would be performed by the interns on the project area. With the plans, I could also comprehend the differences among many types of materials, work, and deadlines.

After some time inside the office, I accumulated the knowledge that would be used down on the work field. The first project which I have worked was the asphaltic pavement rehabilitation at Van Dorn between 33th and 48th Street. The inspector of that project was Dale Gebhard, who taught me many of my first concepts of concrete base, asphaltic pavement, and the installation of water pipes. In the same way, I learned a lot with the workers of Pavers, the contractor. They helped me with many doubts I had about the application of an 8 inch concrete base. Working some weeks at Van Dorn with Dale Gebhard, I

learned how to do a concrete air test, which consists of measuring the amount of air that there is inside of a concrete sample. The measuring should range between 6 and 8.5 percent. Another really important test that I have learned was to create concrete cylinders. This test is extremely important for the project, because we use it to verify the resistance of the concrete that is being applied on the street. The test is done by pouring 2 layers of concrete in a plastic sample cylinder, and hitting it with 25 strokes for each layer. After leaving the cylinders one day on the same environment of the real concrete pavement applied, we moved them to the laboratory, where they were broken to reach 3500 psi of compression resistance. With this important test we made sure that the concrete applied on the project will have a good resistance and behavior.

Furthermore, James Puls taught the interns how to do sidewalk reports, which are writing inspections that we use to inform the city department about some irregularities on the surface of the sidewalk structures. That was not the most exciting job. However, to me it was also a valuable way to meet and talk to other people, and practice English.

Moreover, I have been participating in bridge inspections with Project Manager Zach Becker. Those are very interesting inspections. The majority of them are located in places most people don't have access to. In Ashland, all the interns had the stunning opportunity to make a bridge inspection and visit 3 water pumping stations in the beautiful landscape of the Platte River.

The last project was at 70th Street between Eastborough and Van Dorn. This was the most challenging of all the projects that I have participated in. At 70th, I had the pleasure of working with the project manager Zach Becker and the inspector Gene Garza both from the City of Lincoln. In this project, I was in charge of performing many jobs including traffic control, concrete tests for different cement types, measuring pavement, sidewalk, ramps repair, and item payment.

Some examples of traffic control are to prevent accidents, unsafe signalization, and driver behavior. The duties are counting and placing the right number of cones, drums, barricade, and boards as well as keeping track of the number of signs and speed limit.

The same concrete and air tests performed at Van Dorn were also used at 70th. Although, at 70th we made more cylinders per test and materials used. Because 70<sup>th</sup> is such a busy road, the project calls for special types of concrete like high earlier concrete.

Measurements and payment should be effectuated to verify the right amount, type of materials, and work done by the contractor. The payment is made on the city or state's software, which are useful keys to keep tracking the progress of the projects.

Being in contact with many engineers, inspectors, and workers gave me a better idea of the engineering duties. I am sure that all the knowledge which I acquired this summer will help me and increase my understanding in my major.

Finally, I would like to thank all the people of MATC and the City of Lincoln, who provided me such an important opportunity to be working, learning, and gaining experience in my major. Now, I am totally sure that I will be more prepared for my occupation.