

# My MATC Summer Internship



Omaha - Council Bluffs  
Metropolitan Area  
Planning Agency

Thomas Ryan

2019

During my internship at the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA), I got the opportunity to take part in various projects, attend a number of meetings, and build my GIS skills. Being that I already have a BS in Geography with a GIS concentration, they utilized my background to involve me in projects that used GIS software. I used ArcMap for most day to day work. I also frequently used ArcGIS Online and the Collector app for fieldwork.

The main project that I worked on was developing a method for gathering pavement data. Pavement quality is a big concern for many communities in the MAPA region. For many of the smaller communities, the only way they know the condition of their road networks is if something is called in or reported to them. This does not provide reliable enough data to develop an efficient and effective pavement management plan.

A solution that MAPA is exploring is using Pavement Surface Evaluation and Rating (PASER). PASER uses a visual approach to identify defects in the pavement surface to determine the quality and assign a rating to individual road segments. These ratings are then related to needed maintenance or repair. Starting along a trial corridor in Bellevue, NE we tried different methods of data collection. I went out into the field with MAPA's drone pilot. He gathered drone photography while I walked the corridor doing a visual inspection and used a GIS Collector app that I built to gather data. We also tried using aerial imagery. We found that walking the corridor with the collector app was the best option that yielded the most accurate results. Throughout the rest of the summer I went out into the field, weather permitting, to help build the dataset for

roadways in Bellevue. Over time the process was tweaked to improve efficiency and ease of collection.

I was also given the task of writing up process documentation for implementing PASER. This is an essential part of organizational knowledge sharing that will ensure consistency in data collection. I will also be putting together a short presentation of this process and the yielded results at the Transportation Technical Advisory Committee (TTAC) meeting next month to gather if there are any communities that will be interested in pursuing this.

Between field days, many of the other projects I have worked on over the summer involved assisting the GIS team in cleaning up data sets and building databases. One of the measures that MAPA uses for many of their projects is walkability. I helped gather cleanup data related to sidewalk condition that is very helpful in determining walkability. We received years' worth of data from Omaha Public Works for sidewalk related work orders and reported issues. My job was to go through the tables, cleaning them up for GIS and categorizing the reports to help sort out sidewalk repair requests from others like snow removal.

I was also given the task of building a data set for traffic lanes in a three county area including Douglas, Sarpy, and Pottawattamie. Using already existing lane data from traffic models, as well as aerial interpretation, I updated MAPA's street centerline feature to included lane data. This was a process that took awhile.

Another GIS related project I worked on was not really related to transportation but helped to build a natural resource database that can be used as a resource for communities in the MAPA region. I gathered the most recent data for FEMA Flood

Zones, National Register of Historic Places, National Hydrography Datasets, National Wetlands Inventory, National Land Cover Database, USDA-NRCS Soils data, USFWS Critical Habitat. Using ArcGIS software I filtered out the data that did not pertain to the Omaha-Council Bluffs MSA and was not relevant for MAPA's database.

I also got to attend many meetings addressing various MAPA related projects over the course of the summer. One of these was the Transportation Systems Management (TSM) meeting at the Nebraska DOT. This meeting involved many groups including City of Omaha, Douglas County, OPPD, and Metropolitan Utilities District to discuss current and future road projects. These meetings are to help coordinate projects, minimize traffic impacts, and help mitigate other potential issues.

Additionally I had the opportunity to sit in on a Council of Officials meeting. This was a formal meeting of MAPA's governing board made up of representatives from membership communities and organizations where they address changes to the organization. There was also a very interesting talk by FEMA who discussed flood recovery efforts in the region and resources available to affected communities.

I also got to sit in on a Unified Transportation Plan – Funding & Policy meeting at the Greater Omaha Chamber of Commerce. This was a brainstorming session to come up with a spreadsheet of possible sources of funding for transportation projects in the region.

There were many other meetings including general staff meetings where we were updated on what everyone is working on in the office, Transportation department and GIS meetings where different project updates and new projects are discussed. There were also MAPA Board Meetings where official changes to the organization and

funding is voted on by the board. This summer the inclusion of Cass County to the MAPA region was discussed, which was exciting to see.

Ultimately, I feel working at MAPA was a great opportunity for me. It allowed me to brush up on and pick up new GIS related skills, gave me insight into the world of planning, and I learned more about transportation project funding and local governance. I learned a lot from the people at MAPA. They were very helpful and fun to work with. I would definitely recommend an internship at MAPA to any transportation engineering student who thinks they might be interested in planning.