



## McMahon Making News

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### Paving the Road for Future Engineers

**By: Ian Preston, Project Engineer, McMahon Associates, Inc.**

Engineers often reveal themselves at young ages – the kids you can't pull away from the Lincoln Logs, Legos, or Minecraft. Others may be less obvious, but all have an innate curiosity with the world around them coupled with a passion for developing novel solutions to problems big and small.

As engineers, we each have no shortage of people to thank for nurturing us on our journey – the parents who encouraged us when we took something apart (and maybe couldn't quite get it back together), the teachers and professors who worked with us to understand, and not just regurgitate, formulas in chemistry, physics and calculus, and the friends who worked with us through the night to finish that problem set (and now meet project deadlines as our coworkers and colleagues).

Lastly, most of us have professionals in our chosen field to thank for taking us under their wing as interns and co-ops, allowing us to leave school with a powerful combination of industry experience and professional connections. For myself, working on traffic studies and bike infrastructure as an undergraduate revealed to me the unique space transportation occupies at the intersection of civil engineering and planning/public policy. Transportation projects are not developed in a vacuum - public input and interagency coordination inform design throughout the lifecycle of a project. The importance of presentation, perception, and communication in transportation engineering, in addition to traditional engineering practices, hooked me, helping to turn an interest into a career.

In our Camp Hill office, we're thrilled to take advantage of a local resource – Messiah College in nearby Mechanicsburg. Senior Lecturer Michelle Lockwood notes that "graduates in civil engineering have a wide spectrum of job options to choose from when they graduate ... Our goal at Messiah College is to prepare our graduates over this large spectrum." Accordingly, Messiah College now offers a course in transportation engineering as part of their civil engineering curriculum. This aims to provide students with exposure to the tools and practices of transportation engineering including roadway design, traffic flow/queuing theory and highway capacity/Level-of-Service analysis.

Lockwood has partnered with McMahon to develop a realistic traffic analysis project for the course. This gives students the opportunity to apply theory to a local application - the development of a unique traffic signal timing plan for a nearby highway interchange during peak Sunday hours (which feature significant traffic from nearby church services). The project will include the collection of traffic data, building a software-based traffic model and simulation, an evaluation of existing conditions, and the development of alternatives to mitigate peak hour traffic conditions.

Students particularly fascinated by tweaking traffic signal timing plans and playing with traffic simulations (there's more than a few of us!) will gain valuable marketable skills in their future job search, while everyone will develop an understanding of how transportation improvements are evaluated and why sometimes it seems that you're sitting at that red light longer than others. Messiah students have already proven to be valuable additions to the McMahon team as full-time summer interns and part-time data collection technicians, and the further development of the College's traffic engineering curriculum will strengthen this partnership moving forward. In Lockwood's words, "McMahon has stood as an expert in their field and has chosen to help the next generation achieve that same excellence."

While problem solving is deeply satisfying for engineers across all industries, many work in relative obscurity on components and code that operate behind a curtain. As transportation engineers, we are fortunate to work on projects large and small that people can't help but interact with as they move about their busy lives. Recently within the greater Harrisburg area, you have likely driven through a corridor of newly optimized traffic signals, on a bridge that has been replaced, or taken advantage of traveler information via Dynamic Message Signs along the Pennsylvania Turnpike. Planning projects including land use studies and capital improvement plans ensure municipalities continue to embrace growth while protecting the historic assets and local character that makes Central PA a vibrant place to live, work, and play.

The next generation of transportation engineers will be tasked with accommodating growth, maintaining existing infrastructure, and providing transportation options for everyone from children getting to school and seniors who may no longer be able to drive themselves to the grocery store to visitors taking part in our unique events and attractions (the Farm Show, Hersheypark, and the State Capitol to name a few). At McMahon, we're thrilled to be a part of these future opportunities and challenges in Central PA, and look forward to meeting them with the help of engineers that are not yet a part of our professional community. Building mutually beneficial partnerships like the one with Messiah College is a rewarding and necessary step in paving the way for our future coworkers, colleagues, and industry leaders.