NGAT Center demos for Hyde County

On October 23 the ITRE Next Generation Air Transportation Center (NGAT) Team hosted a small group of reporters to highlight the research and opportunities for flying unmanned aircraft systems around the Hyde County airport in eastern NC. Our partners, Bosh Technology, flew the Super Swiper that we have been using for agriculture research throughout the summer. The Vireo UAS, purchased through a Golden Leaf grant, was also launched as we continue building the potential of that system. These flights, interviews with local and state leadership, and corresponding imagery have been shared in the NCSU Bulletin (11/7) and Aviation Week Magazine (11/25).

Tom Zajkowski joined the team in October as the NGAT Flight Operations Manager. Tom led the training of the first Vireo flight crew in November utilizing our Caratoke COA, demonstrating the potential with industry partner Academi. UAS for Ag opportunities continue to grow and the collaboration with NCSU Crop Sciences is strengthening. On November 26th NGAT hosted a local UAS community reception in Greensboro that was attended by 80 people interested in the program from across the state. NGAT UAS staff are prepared for a busy 2014, including moderating the workshop at TRB entitled “Preparing for the Near Future of Aviation with Integrated NextGen and Unmanned Aerial Systems”. For more information, contact Kyle Snyder at kyle_snyder@ncsu.edu.

ITRE research estimates network-wide impacts of the work zone that will change commuting patterns in the Triangle region over the next three years

Researchers at ITRE, led by Dr. Bastian Schroeder of ITRE’s Highway Systems Group, recently completed a project predicting the impacts of NCDOT TIP Project I-5311/I-5338 (referred to initially as the “Crawleigh” project, and more recently as “Fortify” http://ncdot.gov/fortifync/). The ITRE team used computer models and extensive data collection to predict the extent of congestion and diversion rates once the DOT starts closing lanes on a facility carrying more than 110,000 vehicles per day.

The study developed and calibrated a network-wide simulation model of the entire Triangle region, including over 20,000 evaluation links. The four-hour AM and PM peak analysis periods included total traffic demands of 1.1 and 2.1 million vehicles, respectively, making this one of the largest simulation models in the country.

The final report for the project is currently under review at NCDOT and follow-up work on monitoring the actual work zone project has just gotten underway. For more information on this project, email Dr. Schroeder at bastian_schroeder@ncsu.edu.

View of the mesoscopic traffic simulation model used to evaluate network-wide impacts of the Fortify project, with the actual work zone location highlighted.
Public Transportation Group Highlights TriP_Maker

TriP_Maker is a scheduling and billing database program designed and supported by ITRE’s Public Transportation Group. It is available free of charge to all of North Carolina’s publicly-supported transit systems. The software was first deployed in 2001 to assist rural transit systems with handling the large volume of information necessary for the provision of safe, reliable, and affordable rural transit service.

The software was recently redesigned to incorporate new features, improve the work flow, and add new tools. The redesigned version shown in Figure 1 kept the most successful parts of the old software while increasing its functionality and user friendliness. Users now have easy access to all the data and the ability to customize how data are viewed. The software uses Bing Maps to visualize addresses, trips, and entire manifests, which allows schedulers to develop more efficient routes. New tools have been added to improve the efficiency of the transit service and to lessen the workload for the scheduler.

There are currently 14 TriP_Maker users. Many other systems have employed the software in the past and used it as a stepping stone along the path toward Intelligent Transportation Solutions (ITS). As transit systems grow, the knowledge they gain from TriP_Maker allows them to easily transition into advanced software. Figure 2 shows the transit systems that currently employ the TriP_Maker software, the sites transitioning to/away from the software, and their status. The redesigned software has been well received and interest in using the software is at an all-time high. Six transit systems are in the process of implementing the software and should be live by June 2014. For more information, contact Debbie Collins at debbie_collins@ncsu.edu.

Wagner Receives Leadership Award

Andy Wagner was recently awarded the Mulkey/General Hugh Shelton Leadership Award for 2013. This award is given to a senior civil engineering student at NCSU who exhibits values-based leadership. Andy was honored at a scholarship recognition banquet held November 7.

In addition to majoring in civil engineering at NCSU, Andy is minoring in mathematics. He currently works part-time for the finance office at ITRE and was previously employed at ITRE doing research on a Smartlink project involving congestion mapping and data analysis. He also had an internship with Newport News Shipbuilding and was a co-op with RMF Engineering.

Andy began his undergraduate experience in the University Honors Program and has maintained a high grade point average. As a member of the NC Alpha Chapter of Tau Beta Pi engineering honor society, Andy has been a member of the officer team for three years – serving as chapter president in 2012/13.

Andy plans to pursue graduate studies in transportation engineering and is interested in working in the field of Intelligent Transportation Systems (ITS).