Applied Technology Tools Help Address Traffic and Mobility Challenges

By Will Duñgo, PE, VHB Project Manager

More people means more traffic. With 8.7 million people, New York City has the highest population density of any major city in the U.S.—and its airports are among the region's busiest. To accommodate continual increases in passenger traffic, airports across the city, region, and country are relying on advancements in technology to help increase mobility, minimize disruptions to drivers and passengers, and maintain airport operations.

To address the traffic challenges that come with growth and redevelopment, VHB's Traffic Engineering Team partnered with our clients and our company's Applied Technologies Group to develop a new web application forecasting tool that assesses airport passenger demand in real-time. The tool was created to assist with determining peaking characteristics of passenger volumes and in anticipating surges in traffic. This technology converts real-time flight data to passenger demand on the terminal landside system, enabling airport operators to anticipate and plan for increased traffic flow in the roadway network resulting from changes in flight activity and keep traffic moving.

When innovations are applied to real-world conditions, the results of efforts—both pros and cons—are immediately realized. A spreadsheet tool that predicts volume flows at specific roadways due to vehicle reroutes, along with the web application, create efficiencies for the entire project team, including owner, operator, designer, and builder.

Customized applications and analysis tools allow for delivery of accurate results quickly, which translate to cost and time savings for our partner clients. These applications include:

- A dynamic **parking occupancy model** that evaluates the ratio between the number of vehicles parked in relation to the parking facility's capacity.
- A **curb performance assessment tool** that determines the level of service of a terminal frontage curb against a baseline set by the Airport Cooperative Research Program (ACRP) guidelines
- An **intersection queue analysis tool** that can be compared against the results of more complex analysis software such as Synchro or Vissim
- A **multi-route spreadsheet model** that produces traffic reassignment of 24-hour volumes (in 15-minute intervals) for multiple vehicle classes across hundreds of routes.

As transportation technology continues to evolve at a rapid pace, VHB is at the forefront of developing and implementing tools to help our aviation clients nationwide improve air travel, including in the busiest airport system and most frequently used port of entry in the United States.

Will Duñgo is a professional engineer with 10 years of experience performing traffic impact analyses for major airport improvement programs. In 2018 he was named to Airport Business Magazine's Top 40 under 40. VHB partners with clients from 30 locations along the East Coast to improve mobility, enhance communities and economic vitality, and balance development and infrastructure needs with environmental stewardship. Our 1,350 engineers, scientists, planners, and designers provide a wide range of services to clients across the transportation market, including planning and designing large, complex highway, interchange, bridge, aviation and multimodal projects.

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