MEMO

TO: Michael Behrendt, Stephen Pesci

FROM: Erica Wygonik, Ben Swanson

DATE: February 12, 2018

SUBJECT: Durham & UNH Traffic Model

In support of on-going planning by the Town and University, RSG has recently recalibrated the AM Peak Hour traffic model for downtown Durham and built a PM Peak Hour traffic model. This tool is well-calibrated and suitable for evaluating changes to the downtown roadway network and impacts associated with new or changing land uses. Evaluations conducted with the model require creation of either a modified scenario roadway network file, modified traffic demand files, or both. The model can then be rerun and outputs processed for comparison with baseline conditions. Additional outputs can be created and evaluated with the EPA's MOVES mobile emissions model, if a project requires. The effort and cost required to conduct a scenario evaluation varies with the level of scenario complexity. Two general categories of scenario runs are presented below, along with the approximate associated cost.

A basic scenario would involve changes to a single intersection, addition of a small development, or focused changes to a corridor. Cost for a scenario of this type would range from approximately $5,000-$12,000. Evaluation of a basic scenario can typically be completed within 1 to 2 months, depending on active commitments and the availability of project details.

A complex scenario would involve a major development or an extensive corridor project. This type of scenario would involve multiple changes to the network and impacts throughout the model that must be carefully assessed. Cost for a scenario of this type would range from approximately $12,000-$25,000 depending on the level of complexity. Generally, this type of effort would require between 2 and 4 months to complete, depending on active commitments and the availability of project details.

While the model has been developed to reflect current weekday AM and PM peak hour conditions with a typical design hour, the model could also be augmented to evaluate special event conditions. The simplest special event scenario would simulate traffic conditions with a special event coinciding with either the weekday AM or PM peak hours. However, with additional data and calibration, a non-weekday peak hour special event condition could also be created. Developing a special event model would begin with data to inform the level of traffic generation associated with the event condition and would likely require a set of indicator traffic counts conducted during a typical event. If the

special event condition coincides with one of the two existing model peak hours, and if the general distribution of special event traffic flows through town is reasonably approximated by the existing model peak hour condition, event traffic could be overlaid onto the existing peak-hour model demand, and the resulting event peak hour condition could be used to evaluate traffic control strategies. Creation of a special event scenario that does not coincide with either of the model's existing peak hours would require considerably more count data and more extensive modifications to the model's origin/destination matrices.

The tool provides the opportunity evaluate complex changes to Durham's downtown, and we look forward to the opportunity to leverage it in support of the Town and University's on-going planning.