PROJECT ASSIGNMENT #1

Data Collection and Analysis of Existing Conditions

Due October 17th, 2006

The major objective of this project assignment is to collect existing traffic and network data and conducting level-of-service analyses for the study intersections under the existing conditions. Members of each group need to work together to complete all the tasks. Each group needs to submit a report, documenting the data collection efforts and the analyses results. Contributions by each member must be clearly identified in the report. The report should address the following major tasks.

Task 1: Traffic Demand Data Collection

You need to collect and summarize the traffic demand data for each study intersection during the p.m. peak hour. Traffic counts for the five signalized intersections have been conducted by a local traffic engineering firm, and the counts were posted in the WebCT. However, manual traffic counts need to be conducted by project team members at the intersection of Center/9th.

Once the traffic demand data has been collected, you need to summarize the data for conducting the intersection LOS analyses. When summarizing the data, you need to find the system peak hour (total traffic demand is the highest), and then determine the peak hour demands and peak hour factors for each intersection. You should also check the volume balances between intersections, i.e., if there are no major driveways between intersections, the traffic numbers should be balanced.

Task 2: Geometry, Traffic Control, and Network Data

You need to collect the geometry and traffic control data at each intersection (lane configuration, crosswalk, traffic control and signal timing), and document the existing network characteristics, such as road classification, speed limit, pedestrian activities, and public transit.

Task 3: Data for Model Calibration

You also need to collect necessary data for calibrating the analytical models. At the minimum, you need to collect the saturation flow rate and delay at one intersection approach (suggesting the southbound approach at Virginia/8th). Note that the signals were re-timed recently, and sufficient queues may not be observed on the other approaches for saturation flow rate measurements. Refer to the recommended procedures for collecting saturation flow rate (discussed in class) and delay (discussions on page 228-233 of the textbook). Other data may include stops, and queues. These data will be used to verify that the results from the analytical models (i.e., the HCM model) are consistent with the
field observations. Otherwise, the parameters in the HCM need to be adjusted to match
the field data (the process is called model calibration). You should at least observe the
operations in the field if not accurately collecting them so that the results from analytical
models can be justified.

Task 4: Conducting LOS Analyses

Based on the traffic and intersection geometric data, the TRAFFIX software needs to be
used to conduct the LOS analyses under the existing conditions. The purpose of the
analyses is to identify whether the intersections currently experience operational
problems before the new development occurs. We will eventually use TRAFFIX to
analyze other traffic scenarios later in the project. At this point, try to lay out the
intersections based on approximate locations of the intersections. It does not need to be
accurate in distance. TRAFFIX does have the function to import a bitmap, so that you
can draw your network based on the bitmap. You can explore this function, but it is not
required for the analyses.