ATTACHMENT A

A RESOLUTION RECEIVING A REPORT ON DOWNTOWN TRAFFIC CONDITIONS
Draft Resolution No. 100/2012-13

WHEREAS, *Carrboro Vision 2020* declares that the "safe and adequate flow of bus, auto, bicycle and pedestrian traffic within and around Carrboro is essential"; and,

WHEREAS, several approved or proposed development projects, capital projects, and planning processes affecting traffic in downtown Carrboro suggest a need to reflect on conditions for all of these modes; and,

WHEREAS, on November 1, 2011, the Board of Aldermen received a preliminary report on downtown traffic, including a summary of recommendations from plans, policies, and studies; and,

WHEREAS, on March 13, 2012, the Board of Aldermen received an additional report on downtown traffic, including NCDOT average annual daily traffic data and data on downtown traffic volumes associated with the Weaver Street Reconstruction project;

NOW, THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen that:

1. The Board receives the report.
2. The Board provides the following comments or guidance:
    a. _____
    b. _____
    c. _____

This is the 12th day of February in the year 2013.

TOWN OF CARRBORO

NORTH CAROLINA

MEMORANDUM

DELIVERED VIA: ☐ *HAND* ☐ *MAIL* ☐ *FAX* ☒ *EMAIL*

DATE: **February 8, 2013**

TO: **David Andrews, Town Manager**
Mayor and Board of Aldermen

CC: **Christina Moon, Planning Administrator**
Patricia McGuire, Planning Director

FROM: **Jeff Brubaker, Transportation Planner** JSB

RE: **Report on Traffic in Downtown Carrboro – Part 3**

Background

This is the third in a series of reports to the Board of Aldermen on traffic in downtown Carrboro. Previously:

- A November 1, 2011, report summarized the recommendations of plans, policies, and studies relating to traffic in the downtown area. The report also provided some traffic data relating to the Weaver Street Reconstruction project. Agenda materials are available here: http://townofcarrboro.org/BoA/Agendas/2011/11_01_2011.htm.
- A March 13, 2012, report summarized downtown traffic volume trends; trip generation potential from approved, proposed, and potential developments; and additional data relating to the Weaver Street Reconstruction and its effect on the Main-Greensboro intersection. Agenda materials are available here: http://townofcarrboro.org/BoA/Agendas/2012/03_13_2012.htm.

Most recently, the Board received a report on the impact on Main St. level of service (LOS) of closing Weaver Street for an event. The report included details on how traffic changed for the Weaver Street Reconstruction and traffic volumes on weekend days. Agenda materials are available here: http://townofcarrboro.org/BoA/Agendas/2013/01_22_2013.htm.

This report focuses on downtown intersection LOS. Specifically, it seeks to address what level of congestion downtown Carrboro intersections may face after buildout of approved developments and a modest background traffic growth rate of 1%.

Methodology

Synchro traffic analysis software is used to measure LOS. Intersection turning movement volumes are calculated by assembling existing turning movement count data, multiplying it by 1% per year for background traffic, and applying additional traffic from approved developments to each intersection as appropriate. Buildout is modeled to occur in 2014, although several developments may not be opened until subsequent years.

The source of data is mainly from counts taken as part of traffic impact analyses (TIAs). Town turning movement counts from the Main-Greensboro intersection are incorporated into its background volumes. If several counts existed in the same year, they are averaged together. All counts took place while UNC was in session. The TIAs estimate the net new external trips developments are expected to load onto each intersection.

In some cases, turning movement counts are derived. For example, if a development was projected to add northbound through movements to the Main-Greensboro intersection, then it can be expected to add movements to the Greensboro-Weaver intersection, even if the latter was outside its study area. Most cars going north through the former will continue to go straight through the latter, while some will turn left (and very few will turn right).

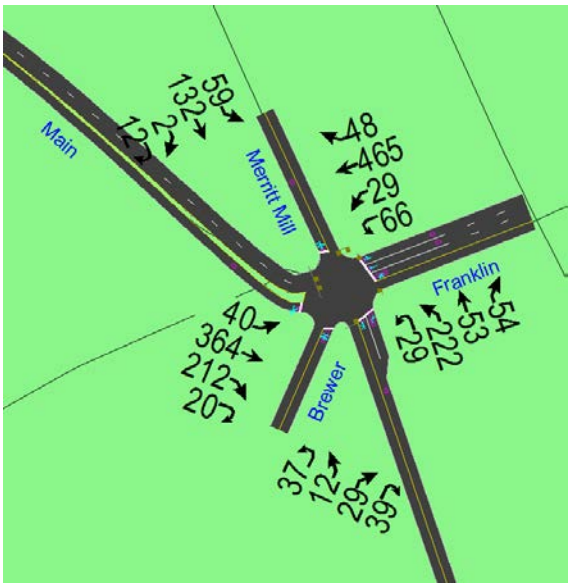
The report is organized by intersection, prioritizing those intersections that are shown to have the most pressing traffic issues. The Synchro information is presented and supplemented with relevant information from TIAs, planning documents, or other resources.

There are some caveats:

- The analysis focuses only on the PM peak hour, where all intersection traffic volumes are higher than at the midday or AM peaks.
- The analysis has not been completed by a licensed professional engineer. Planning staff are in the process of identifying potential engineers to perform quality control on the model. Nonetheless, staff are confident the model is a reasonable representation of projected traffic.
- The model includes traffic from full buildout of the 300 E. Main development. A revised TIA was completed in 2007 that focused only on Phase 1, but at that time, Phase 1 included mixed-use office and retail, whereas the hotel was included in a later phase. Also, the model does not yet incorporate the Boyd St. unsignalized intersection.
- Staff are still in the process of checking intersection data that may have a small effect on motor vehicle LOS. For example, the model accounts for the presence of pedestrians and bicyclists. While pedestrians and cyclists are modeled to increase delay to motor vehicles at intersections, the Town's prioritization of walkability (e.g. Vision 2020 Policy 3.25) and bike-friendliness (Bike Plan) implies that any traffic model should assume high levels of pedestrians and cyclists. As stated in the 3/13/2012 memo, shorter cycle lengths may not be optimal for intersection motor vehicle operations, but they are more beneficial to pedestrians. The model also accounts for delay caused by buses. Given the Town's prioritization of transit (e.g. Vision 2020 Policy 3.24), any traffic model should also assume frequent bus service will be maintained.
- Mid-block crosswalks are not incorporated into the model.

Main St./Franklin St./Merritt Mill Rd./Brewer Ln.

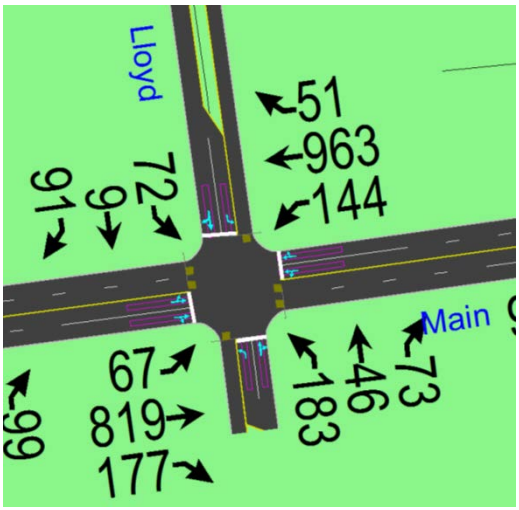
Approach volumes (PM peak hour 2014)



A LOS analysis for this intersection is not yet finalized. However, the 300 E. Main St. revised TIA (December 5, 2007) projected that at full buildout the intersection would operate at LOS D, with the northbound (Merritt Mill) approach operating at LOS F. The Greenbridge TIA projected LOS F for the intersection and two approach lanes, and LOS E for two others. This intersection was found to have the third-worst future (2030) PM peak delay (LOS F) of all intersections studied in the 2005 Downtown Circulation Study.

Main St. and Lloyd St.

Approach volumes

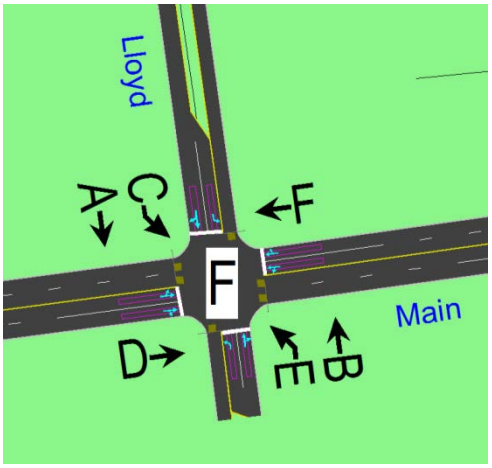


- Projected PM peak buildout (2014) LOS: Inconclusive – D or F

In August 2012, Main Street Properties and their engineering consultants submitted a memo proposing revisions to the signal phasing at this intersection. Specifically, they recommended a protected westbound left turn phase to accommodate traffic coming into the site driveway and a protected eastbound left turn phase to accommodate traffic entering Lloyd St. The memo found this scenario preferable to an alternative scenario which involved an altered lane configuration with left turn storage. It found that overall intersection LOS for a build 2011 scenario was B.

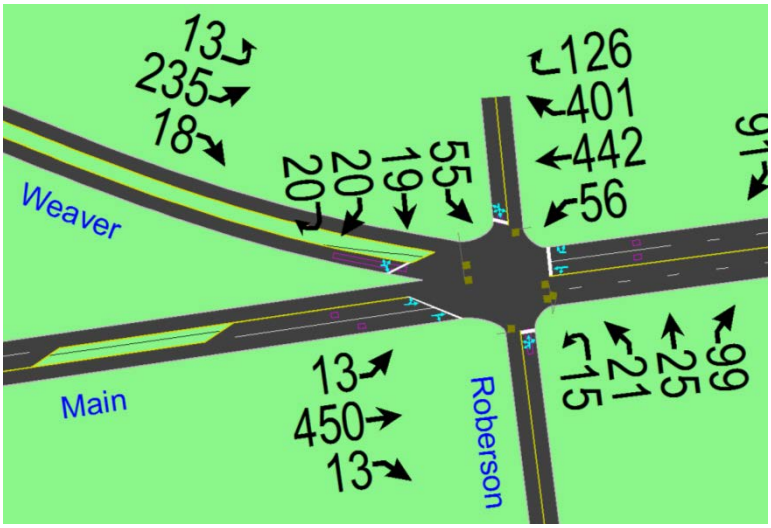
When modeled in Synchro for the 2014 buildout scenario, a level of service D was found for the intersection as a whole. However, when a SimTraffic simulation was run, it was noticed that the Main St. protected lefts were not being recalled. After the Lloyd St. phase, the Main St. through-movement phase would follow, with permitted-only left turns. When the protected lefts were added, intersection and westbound lane LOS dropped to F. Further review of the intersection inputs should confirm this output; if so, this intersection could experience unacceptable delay in the coming years.

Intersection LOS, when protected left turns are recalled



Main St./Weaver St./Roberson St./Carr Mill Mall driveway

Approach volumes (PM peak hour 2014)

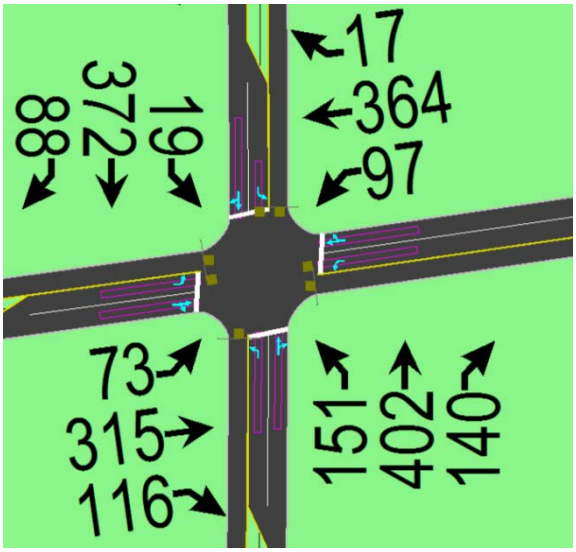


- Projected PM peak buildout (2014) LOS: C or D

This intersection was found by the August 2012 Main Street Properties memo to experience LOS D under the preferred signal phasing scenario for the Main-Lloyd intersection. The source of the most delay was the southeastbound left turn from E. Weaver St. to Main St., which was LOS F (137.5 seconds of delay). 2014 buildout projections by the Planning Dept. preliminary show LOS C for the entire intersection, with LOS E for the E. Weaver southeastbound left and for westbound through movements on Main St. This intersection was projected to have the worst future year PM peak hour delay of any intersection in the 2005 Downtown Circulation Study.

Main St. and Greensboro St.

Approach volumes (PM peak hour 2014)



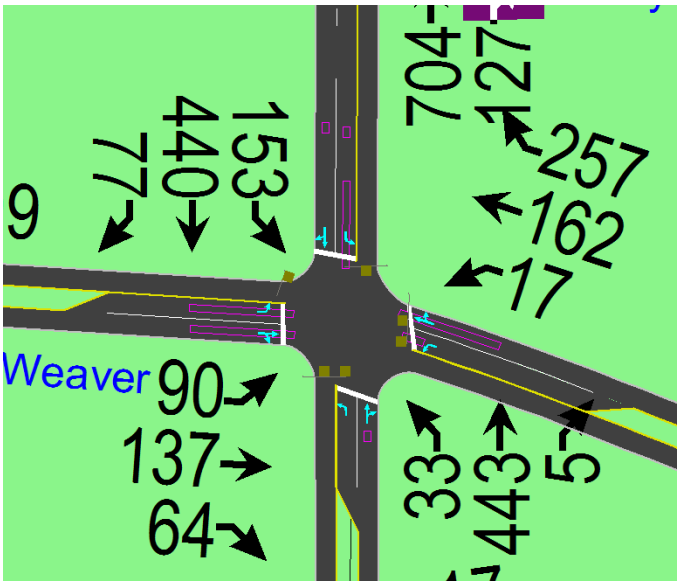
- Projected PM peak buildout (2014) LOS: C

This intersection is projected to operate at an acceptable level of service, even after approved developments are constructed. The 201 N. Greensboro St., 300 E. Main St., and Roberson Square TIAs also projected LOS C for this intersection.

Town staff will be conducting PM peak hour turning movement counts on Wed., Feb. 13, which will be analyzed with Feb. 2011 and 2012 data to determine if traffic levels have changed.

Main St. and Weaver St.

Approach volumes (PM peak hour 2014)



- Projected PM peak buildout (2014) LOS: C or D

This intersection was projected to have LOS E (with northbound approach LOS F) in the 300 E. Main revised TIA. However, in the Planning Dept. analysis, the most congested approach is the westbound through-right lane. The 201 N. Greensboro St. TIA modeled this at LOS C after buildout + approved developments (2012), with the assumption of improved signal timing. The 500 N. Greensboro St. TIA modeled LOS D, with the westbound approach reaching LOS E in the buildout (2012) scenario.