

# BOARD OF ALDERMEN

ITEM NO. D(1)

## AGENDA ITEM ABSTRACT

**MEETING DATE: November 1, 2011**

**TITLE: Review of Downtown Circulation Issues**

<b>DEPARTMENT: Planning</b>	<b>PUBLIC HEARING: YES ___NO__X__</b>
<b>ATTACHMENTS:</b> A. Resolution B. Pages from the 2005 Downtown Traffic Circulation Study	<b>FOR INFORMATION CONTACT:</b> Jeff Brubaker – 918-7329

### PURPOSE

The Board of Aldermen is asked to receive a preliminary update on traffic circulation in the downtown area.

### INFORMATION

*Carrboro Vision 2020* declares that the “safe and adequate flow of bus, auto, bicycle and pedestrian traffic within and around Carrboro is essential”. Several projects and planning processes in downtown Carrboro suggest a need to reflect on conditions for all of these modes.

- Weaver Street Reconstruction
- Old Village neighborhood traffic study
- West Main Street road diet study
- 2040 Long Range Transportation Plan for the Durham-Chapel Hill-Carrboro metro area
- Traffic signal system upgrade
- New development proposals in downtown Carrboro
- Expected commencement of the 300 E. Main St. development
- New developments, or development proposals, in downtown Chapel Hill, such as Greenbridge, 140 West (under construction), and University Square (proposed)
- Carolina North development in the mid-term future
- Long-term potential for a fixed-guideway transit connection from downtown Carrboro to UNC, Chapel Hill, and Durham

Not all of these topics will be addressed individually in this agenda item. The list shows that there is a nexus of factors that will influence downtown traffic in the near and longer-term future.

On October 12, 2010, the Board received an update on the Weaver Street Reconstruction project and adopted a resolution that, among other points, directed the Planning Department to “monitor the impacts of the street closings of East Weaver on Greensboro Street and Main Street to provide information for future planning on downtown traffic circulation”. This is not a

comprehensive final report on the Weaver Street Reconstruction impact; since the project is still ongoing, more data need to be collected and analyzed. On February 8, 2011, the Board endorsed a road diet concept for W. Main St. and directed that analysis of its feasibility be conducted. Furthermore, recent development applications suggest the need to revisit the state of downtown traffic to ensure that the vibrancy and attractiveness of downtown is not significantly affected by future traffic volumes.

### *Scope of this item*

Data has been collected by the Town and by consultants on a variety of projects that allow a useful, if not wholly comprehensive, assessment of the state of transportation in downtown Carrboro. Since data collection efforts are ongoing, a more thorough, quantitative review of traffic conditions will be possible in the near future. The scope of this item is a broad overview of what existing plans, policies, and studies state relating to downtown traffic, as well as some preliminary quantitative data.

### *Carrboro Vision 2020*

Several policies in *Vision 2020* address traffic and the need to maintain the vibrancy of downtown Carrboro.

- The town should support the evolution of a downtown district that embodies Carrboro's character. The downtown district should have medium-rise buildings appropriately sited with adequate public access, and it should provide shopping opportunities that meet our citizens' everyday needs. The downtown should remain a center for the community where people work, gather, shop, socialize and recreate. The Century Center should serve as a focal point for the downtown (2.41).
- With the population of Carrboro expected to increase during the Vision2020 period, additional commercial development should be anticipated both downtown and in peripheral areas. Carrboro should seek to reduce the tax burden on single-family owners by increasing the percentage of commercial space in town (3.0).
- Downtown Carrboro should be nurtured as the social, cultural and economic center of our community. The downtown should include public social spaces as well as a mix of business types (3.2).
- The town should develop a plan to govern the continuing development of downtown. Toward this end, the town should adopt the following goals:
  - To double commercial square footage in the downtown from that existing in the year 2000.
  - To accommodate additional square footage by building up, not out.
  - To increase the density of commercial property in the downtown area.
  - To improve the downtown infrastructure (e.g. parking facilities, sidewalks, lighting, shading) to meet the needs of the community.
  - To develop transit and traffic initiatives which enhance the viability of downtown.
- Frequent, accessible public transit is necessary for a thriving downtown. Multi-modal access to downtown should be provided. As traffic increases, Carrboro should consider perimeter parking lots served by shuttles to bring people downtown (3.24).
- Walkability should be encouraged downtown and pedestrian safety and comfort should be a goal. The town should improve lighting and shading, and create auto barriers (3.25).
- Carrboro should consider pedestrian-only spaces downtown (3.27)

- The safe and adequate flow of bus, auto, bicycle and pedestrian traffic within and around Carrboro is essential. The public transit system serves to encourage non-auto travel and reduce congestion on existing roads. The town's Land Use Ordinance and economic development policies both address traffic flow in this expanding municipality (4.0).
- The Town of Carrboro should adopt a comprehensive transportation plan. The plan should address population growth projections for the town, its planning jurisdiction and expected growth in adjoining jurisdictions (4.1).
- Carrboro should support a passenger rail connection between the Horace Williams' property, through Carrboro's downtown, and the main campus of the University of North Carolina at Chapel Hill (4.14).
- As a general policy, established roads should be widened to accommodate bike lanes and sidewalks, but not to provide additional lanes for automobiles (4.41).
- New developments should bear the costs of upgrading connector and arterial facilities in the areas adjacent to their properties to the extent appropriate, including upgrades to serve pedestrians and bicycles, given the added load to the infrastructure and anticipated use of facilities (4.52).
- The comprehensive transportation plan should propose and recommend alternative funding mechanisms to finance infrastructure improvements. (4.61).

### *Downtown Traffic Circulation Study*

The 2005 Downtown Traffic Circulation Study is the last comprehensive analysis of automobile level of service in the central business district. It also includes a number of pedestrian, bicycle, and aesthetic recommendations. Using 2003-2004 traffic counts, the Circulation Study found that

The ten (10) study intersections were shown to operate with acceptable LOS in the AM, Mid- Day, and PM peak hours under existing traffic for the current geometry with the exception of the Main Street at Merritt Mill intersection. However, it was noted both through field observations and viewing queue results in the analysis that the LOS values were not completely indicative of the actual delay that drivers experience in Carrboro along the primary streets. Short block lengths and inadequate storage lanes create congestion in downtown Carrboro that appears to exceed what the existing LOS indicates, especially along Greensboro Street. Although LOS is one way to compare geometric alternatives, it is not the only measure of traffic congestion. During the study, both the levels of service and the anticipated queuing concerns along the major roadways are considered while keeping in mind the need to maintain and enhance the walkable characteristics of the downtown area.

In the horizon year (2030), congestion was projected to worsen to an LOS F at several intersections.

The study modeled all intersections assuming their then-current traffic control and signal timing, and it also modeled roundabouts at 8 out of the 10 intersections. These two traffic control scenarios were also modeled under two traffic circulation scenarios: a one-way Weaver St. and a one-way pair of Main and Weaver Sts. Roundabouts improved traffic conditions at most intersections; in fact, all roundabouts were shown to operate at LOS A with base year traffic. The alternative traffic circulation scenarios had mixed results: improved LOS at some intersections and degraded LOS at others. The Circulation Study went on to recommend three roundabouts: at W. Main St. and W. Weaver St. (Town Hall); W. Main St. and Jones Ferry Rd.;

and Franklin/Main Sts., Merritt Mill Rd., and Brewer Ln. intersections. The W. Main St. road diet study will be conducting further modeling of a roundabout at the intersection. On a related note, NCDOT completed an engineering study recommending a roundabout at the Estes Dr. Ext./N. Greensboro St. intersection, and this roundabout was listed on the Town's 2011-2017 Local Priority List.

The study also recommends that the Town consider various street extensions to add parallel capacity to E. Main St. in order to increase the viability of an E. Main St. road diet that converts the cross-section to one through lane in each direction and improves safety for bicycles and pedestrians.

It should be noted that level of service is just one performance measure for evaluating the state of downtown traffic. Some peak-hour congestion is inevitable in thriving downtowns. Because of the number of pedestrians, the high traffic speeds that are possible in free-flow conditions are undesirable on downtown streets. Therefore, safety for all modes of transportation is an important consideration. Nevertheless, severe congestion can negatively affect access to destinations and risk pushing motorists to choose alternative destinations.

#### *Carolina North Transportation Impact Analysis*

The *Transportation Impact Analysis: Update for the Carolina North Development* was most recently updated in December 2009. The Board received a report on the TIA's implications for Carrboro on March 16, 2010.

- Agenda item (D4): [http://townofcarrboro.org/BoA/Agendas/2010/03\\_16\\_2010.htm](http://townofcarrboro.org/BoA/Agendas/2010/03_16_2010.htm)
- Minutes: [http://townofcarrboro.org/BoA/Minutes/2010/03\\_16\\_2010.pdf](http://townofcarrboro.org/BoA/Minutes/2010/03_16_2010.pdf)

The update presented the TIA's projections for LOS at intersections in or near Carrboro based on 2015 and 2030 projections reflecting Carolina North's phases of development, with and without traffic mitigations. Downtown Carrboro intersections are in bold, whereas intersections near downtown are in italics.

No.	Intersection	2015 Build				2030* Build			
		Morning Peak		Evening Peak		Morning Peak		Evening Peak	
		NM	M	NM	M	NM	M	NM	M
26	Homestead/Seawell School					F	D	C	A
27	Homestead/Rogers	F	C	E	E	F	B	F	B
28	Homestead/High School					F	D	A	A
29	Old NC-86/Homestead/Dairy-land					F	D	D	C
31	Estes/Airport Dr.	E	E	F	F	F	C	F	C
32	Estes/Seawell Sch.	B	B	C	C	F	D	F	D
33	<i>Estes/Greensboro</i>					<i>E</i>	<i>D</i>	<i>F</i>	<i>D</i>
35	NC-54/W. Main	C	C	C	C	C	C	C	C
37	<b>Greensboro/Weaver</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>E</b>	<b>D</b>	<b>F</b>	<b>F</b>
38	<b>Greensboro/Main</b>					<b>F</b>	<b>D</b>	<b>F</b>	<b>D</b>
39	<i>Greensboro/Merritt Mill</i>					<i>B</i>	<i>D</i>	<i>D</i>	<i>D</i>

**Table 1. Projected 2015 and 2030 levels of service (LOS) for certain intersections in or near Carrboro in the December 2009 TIA with and without mitigation measures. LOS A = free flow traffic; LOS F = severely congested. Note: Some cells are blank because the TIA did not show the 2015 LOS for some intersections.**

**Letters represent overall LOS for each intersection approach; LOS for an individual approach may be better or worse than the overall LOS. NM = No mitigation. M = Mitigation.**

As can be seen, level of service varies for the two downtown intersections listed based on which peak is analyzed and whether mitigations are present. The TIA recommends adjusting signal timing as a mitigation measure at these two intersections. However, even after mitigation, the evening peak at the Greensboro/Weaver intersection will operate at LOS F, with an overall delay of 122.7 seconds and an LOS F at every approach except eastbound.

### *Downtown Carrboro New Vision*

Traffic was one of the top priorities among participants of this visioning process. A summary of some of the recommendations in the *New Vision* pertaining to traffic are as follows:

- Encourage mixed-use developments to limit auto commuting
- Provide bulb-outs for pedestrian safety and walkability
- Roundabouts calm traffic and smooth traffic flow
- *Woonerf* (shared street) concept for E. Weaver St.
- Encourage transit usage by enhancing bus stops
- Plan for light rail transit
- Improve bicycle facilities
- Preserve free parking, but provide better parking management and signage

### *Parking*

The availability of free parking is a significant factor that influences the likelihood that someone will drive to a destination. Other things equal, areas that have an abundance of free parking tend to attract motor vehicle trips while areas that have limited free parking tend to discourage them. Approved or proposed downtown developments are proposing to add to the downtown parking supply as they bring in new residents, employees, and visitors. This increased residential and employment density will add new trip origins and destinations. The mode chosen for these trips is influenced by utility: what is the most convenient way to go to or from downtown?

The important question is whether downtown Carrboro can accommodate the expected number of new vehicle trips without adding capacity via road widenings (which is contrary to *Vision 2020*), adding capacity via new street connections, or revising parking requirements, even as the Town continues to improve bicycle and pedestrian facilities and encourage nonmotorized travel. The Town has relatively high transit, bicycle, and pedestrian mode splits (compared to U.S. levels), which have moderated the number of single-occupancy automobile trips. However, a majority of trips in Town are by automobile.

### *Carrboro Parking: An Exploratory Study*

This study, conducted in 2008 by Master of City and Regional Planning students at UNC, presents several findings based on a parking supply and demand inventory and a survey of businesses.

- In general, parking demand does not exceed ideal (85%) occupancy. Data does not indicate that current demand is outpacing supply for the CBD.
- Parking demand does exceed recommended occupancy at specific sites at certain times and this situation may be exacerbated by future demand.

- Parking spaces in the CBD experience high turnover.
- There is a 20% violation of the 2-hour limit in public lots.
- Most CBD visitors want to park in lots adjacent to the businesses they are visiting.
- The prevalent perception among business owners and others is that there is a parking shortage in the CBD.

The survey of businesses found more support for keeping parking free than for metering or enforcing parking (only 29% of respondents were in favor of metering parking).

Several dynamics implied by the parking study's findings may be relevant to downtown traffic. First, cruising for parking increases traffic volume. While there may be an adequate supply of parking at most times of the day, if a motorist is interested in parking immediately adjacent to the destination, they may check those popular spots first to see if there is an opening, and if not, drive around the block to a more distant space. Second, availability of free parking affects the decision of which mode to take. Third, the study's finding regarding the 20 percent violation of the two-hour parking limit suggests that there may be some motorists using municipal or other parking lots as de facto park-and-rides to UNC. This is an issue that should continue to be monitored closely due to UNC's recent conversion of free park-and-ride lots to permitted lots.

#### *Weaver Street Reconstruction – Preliminary data*

Public Works and Planning staff have so far taken three PM peak hour turning movement counts of the Main-Greensboro intersection to assess the extent of detoured traffic from the Weaver St. project. Counts were taken manually on Wednesday afternoons between 4:00-6:00 p.m. on February 16 (Weaver St. fully open – baseline traffic conditions), April 20 (E. Weaver St. fully closed), and October 12 (W. Weaver St. – Oak Ave. segment fully closed).

During baseline traffic conditions (February), 3,420 automobiles, 262 pedestrians, and 86 bicyclists passed through the intersection. During the closure of E. Weaver St. (April), there was a 17% increase in traffic (569 additional autos). There was a 21% increase in southbound traffic on Greensboro St. and a 32% increase in westbound traffic on Main St. Movements that followed the detour from the E. Weaver St. closure saw significant increases in traffic, while other movements saw decreases in traffic, likely due to congestion. During the closure of part of W. Weaver St. (October), traffic was 10% higher (327 additional autos) than the baseline. There was a 29% increase in eastbound traffic on Main St. and an 18% increase in westbound traffic on Main St.

48-hour automated traffic volume counts have also been conducted to analyze the impact on Main and Weaver Sts. E. Main St. between Roberson St. and Greensboro St. had an average daily traffic volume of 14,738 in April when E. Weaver St. was fully closed. With E. Weaver St. fully open, volume decreased 31% to 10,113 (October). Traffic volume on E. Weaver St. at the same time was 5,861 per day, lower than the 9,300 vehicles that NCDOT estimated for E. Weaver St. in 2009. An implication of the Main St. comparison is that Main St. was an alternate route for some, but not all, Weaver St. traffic. Some motorists may have used Estes Dr. or NC-54 bypass, or changed their destinations.

**FISCAL AND STAFF IMPACT**

No fiscal and staff impacts accrue from receiving the presentation.

**RECOMMENDATION**

That the Board of Aldermen receive the update and consider providing comments.

More time is needed to complete ongoing data collection efforts, such as the Weaver Street Reconstruction and W. Main St. road diet. Therefore, staff recommend that the Board revisit the item in the next few months to allow for a more detailed, quantitative analysis to be presented. at the Board of Aldermen receive the update and consider providing comments.