



TOWN OF CARRBORO
NORTH CAROLINA

TRANSMITTAL PLANNING DEPARTMENT

DELIVERED VIA: ☐ HAND ☐ MAIL ☐ FAX ☒ EMAIL

To: Patrice Toney, Town Manager
Mayor and Town Council

From: Duncan Dodson, Planner
Tina Moon, Interim Planning Director, Planning & Transportation Administrator

Date: June 12, 2025

Subject: Reimagining Weaver Street Capacity Analysis

Summary

The purpose of this memorandum is to provide the Town Council with additional information relating to the draft capacity study exploring impacts of converting the East Weaver Street corridor to a pedestrian-focused facility, conducted by Exult Engineering. This information is a follow-up from the January 2025 work session, where the Town Council directed staff to conduct a study that looked at traffic impacts for all modes, changes to public transit, public services and EMS access, and cost estimates.

The capacity study explores three scenarios:

- No-Build (No change to East Weaver Street)
- Build (Close East Weaver Street to motorized vehicles)
- Build with Improvements (Close East Weaver Street and implement recommendations beyond minimum required infrastructure changes to close East Weaver Street)

The study projects shorter travel times through the intersections at both ends of East Weaver Street, increased travel times at W Main Street and Greensboro Street and Jones Ferry Road, and no substantial impact to E Braxton Foushee Street or Roberson Street. The model also projects cars backing up at some intersections, as congestion from E Weaver Street shifts to North and South Greensboro streets. The third scenario—Build with Recommended Improvements—provides road design recommendations to address this anticipated outcome.

The study also makes general recommendations for bike and pedestrian improvements for the area, expecting a pedestrianized street to draw in more foot traffic and cyclists. Counts at Maple Avenue, recently converted to one-way northbound, observed several drivers going the wrong direction. The consultant comments that the Town could switch the direction to better align with travel behaviors. This memorandum contextualizes the results of the study with themes explored in the work session including race & equity, climate, safety, and economic development, and provides considerations for Town Council discussion.

Background

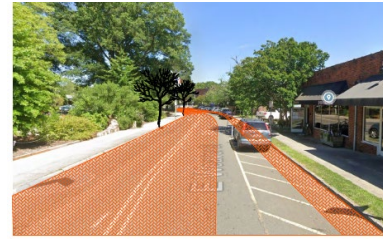
At [the January 14, 2025, work session](#) the Town Council discussed reimagining East Weaver Street as a dedicated pedestrian-focused facility.



Pedestrian Plaza



Meandering Path



Bike/Service Lane

High level conceptual designs (above) discussed at the meeting, explore considerations for equity, climate, economic development, and access, including goals of reducing single-occupancy vehicle trips, improving air quality, increasing safety for pedestrians and cyclists, and more dedicated public space. At the conclusion of the work session, the Town Council directed staff to engage consulting services to conduct a capacity analysis exploring the potential impacts of closing East Weaver Street.

Capacity Study – Introduction

Working through the Town Engineer (Sungate) Exult Engineering was engaged to evaluate the traffic operations of the closure of E Weaver Street to vehicular traffic. The scope was prepared in consultation with the North Carolina Department of Transportation (NCDOT). In March, Exult conducted traffic counts at ten intersections (Figure 1), which included the installation of temporary cameras that counted number of pedestrians, cyclists, and vehicles moving through each location. It should be noted that this approach differs from mid-block counts taken bi-annually by NCDOT. Exult reports counts from three different peak times:

- Weekend Saturday Peak – Saturday March 22, 2025, from 11 a.m. to 1 p.m.
- Weekday Morning Peak – Tuesday March 25, 2025, from 7 a.m. to 9 p.m.
- Weekday Evening Peak - Tuesday March 25, 2025, from 4 p.m. to 6 p.m.

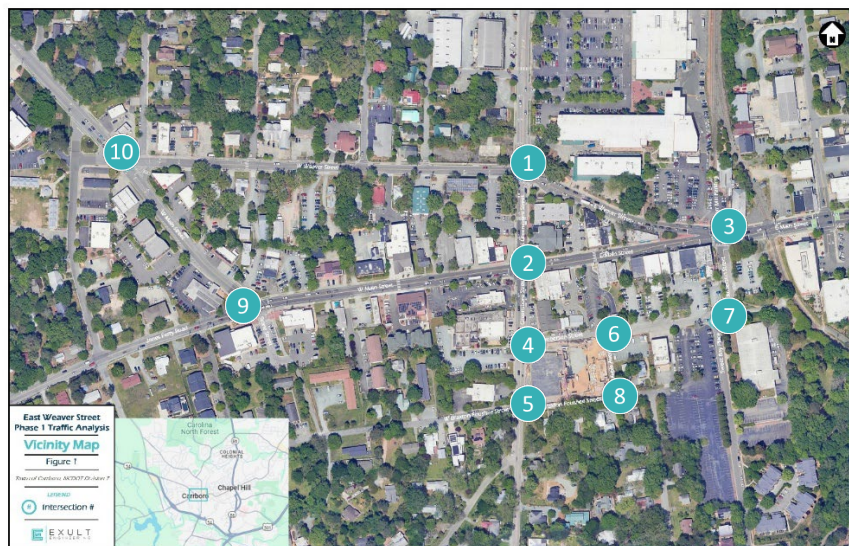


Figure 1. East Weaver Street Traffic Analysis Scope

Exult used these counts, as well as a traffic impact assessment (TIA) for the Drakeford Library Complex, as inputs into Synchro Studio and SimTraffic modeling software based on analysis procedures defined in the Transportation Research Board's Highway Capacity Manual. These models projects anticipated effects of the closure relating to intersection level-of-service and queue length.

- *Level-of-service (LOS)* – A qualitative measurement of the total time elapsed from when a vehicle stops at the end of the line of cars to when it departs from the stop line (See Table 1).
- *Queue* – The line of cars in a given lane waiting to move through an intersection.

Signalized Intersection		Stop-Controlled Intersection	
Level-of-Service (LOS)	Average Control Delay (Seconds per Vehicles)	Level-of-Service (LOS)	Average Control Delay (Seconds per Vehicles)
A	≤ 10.0	A	≤ 10.0
B	> 10.0 and ≤ 20.0	B	> 10.0 and ≤ 20.0
C	> 20.0 and ≤ 35.0	C	> 20.0 and ≤ 35.0
D*	> 35.0 and ≤ 55.0	D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0	E	> 55.0 and ≤ 80.0
F	> 80	F	> 80

*NCDOT Recommends Achieving a minimum LOS D

Table 1. Highway Capacity Manual (LOS and Delay)

Capacity Study – Assumptions and Caveats

The capacity study makes the following assumptions and inputs in the model:

- The model assumes a 0% growth rate.
- The model does not incorporate permitted smaller scale developments in the downtown (201 N Greensboro Street and 400 N Greensboro Street).
- The model does not include ongoing discussions about in-fill and re-development related to the Downtown Area Plan (draft representative renderings presented to the Town Council in May 2025, project up to 650 residential units and 150,000 square feet of retail/office based on high-level analysis from Freese & Nichols, Inc.).
- Right-turns on red were not permitted in any scenario.
- Percentage of total traffic considered heavy vehicles was based on existing traffic count data, or 2%, whichever was higher.
- For unsignalized intersections, queue length is reported in number of vehicles. To convert to queue length in feet, an estimated 25 feet per vehicle was applied.

Capacity Study – Build

The model projects that the closure of E Weaver Street would divert traffic to North and South Greensboro streets and East and West Main streets. The model does not show traffic redistributing to secondary streets (Roberson Street, E Braxton Foushee Street, and Maple Avenue). Summary findings are as follows:

- Delays reduce at either side of the closure, due to the simplified geometry of the intersections, and improved signal timings. (Improved LOS compared to 2026 no-build – C & D to A & B)
- Delays are expected to increase for east-west movements across North and South Greensboro streets. (Diminished LOS compared to 2026 no-build D to E)

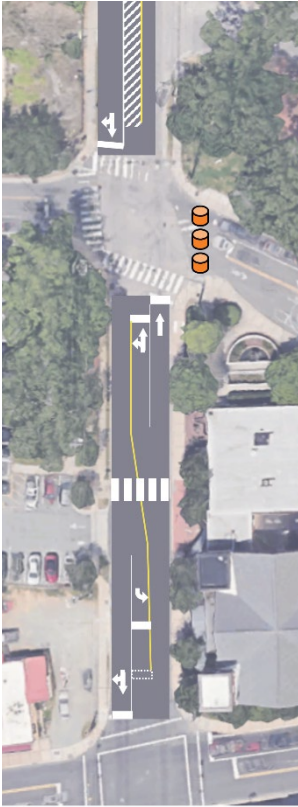


Figure 2. N Greensboro St. Design Changes for Build Scenario

- There are no anticipated impacts to Roberson or E Braxton Foushee streets.
- Average and maximum queue lengths are expected to increase at some intersections, most notably along North and South Greensboro streets.
 - Queues extend beyond Roberson Street and the Drakeford Library Complex (518') – see Figure 6 for an illustrative diagram.
 - Lines of vehicles fill up the entire available block on N Greensboro between W Weaver and Main Streets.
 - Queues extend towards Shelton Station and Poplar Ave on Saturday peak times (1167') – see Figure 7 for an illustrative diagram.
 - The line of cars for westbound traffic on E Main Street extends beyond Lloyd St. and E Main St. (1072') - see Figure 8 for an illustrative diagram.
- Chapel Hill Transit routes F and CW are re-routed from E Weaver Street to E Main Street – see p. 10 for an illustrative diagram

The Build scenario considers the following infrastructure modifications to N Greensboro Street, S Greensboro Street, and E Main Street (Figure 2).

- The left turn lane for southbound traffic on N Greensboro is a painted island (Note: this is where a bike loop detector is anticipated to be installed; Town staff are exploring various design guidelines, such as NACTO, to help direct queueing cyclists to the left turn lane to access E Weaver Street).
- The stop bar on N Greensboro is moved back 25 feet to accommodate 40' buses.

Capacity Study – Build with Improvements

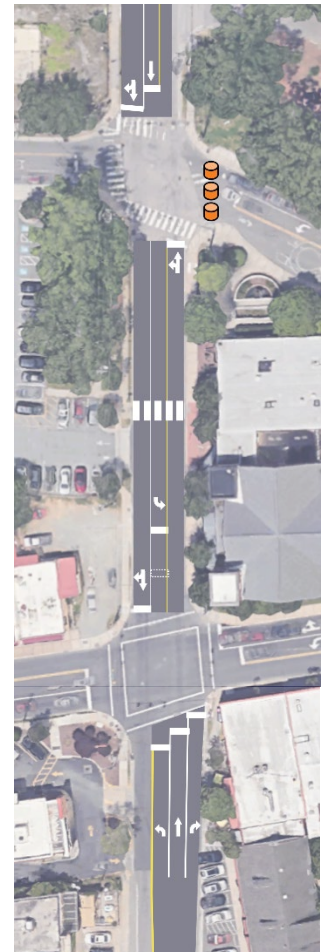
Due to the findings anticipating excessive queueing in the Build scenario, Exult recommends additional improvements to North and South Greensboro streets. Proposed lane reallocations help store more north-south moving cars and bikes, reducing the length of line of cars and improving access to and from side streets and nearby businesses. Summary findings include:

- Maintained LOS improvements on both sides of the closure (delays are reduced slightly more than the Build scenario)
- Delays for east-west movement across North and South Greensboro Streets are improved from the Build scenario (on average approx. 4 seconds)
- Excessive maximum queueing lengths are shortened
 - 259' (compared to 1167') at N Greensboro St. and W Weaver St.
 - 100' (compared to 518') at S Greensboro St. and Main St.
 - 872' (compared to 1072') at E Main St. and Roberson St.

Infrastructure changes can be seen in Figure 3, and include:

- The painted island on S Greensboro St. is a southbound through lane
- The northbound approach on S Greensboro Street now has 3 exclusive lanes (uses existing pavement)

Figure 3. N & S Greensboro St. Design Changes for Build with Improvements



Additional Recommendations and Infrastructure Changes

To improve the safety and predictability on the eastern side of the closure, both the Build and Build with Improvements scenarios include restriping the lane on E Main Street traffic uses to move westward through the intersection (see Figure 4). This design change does not address queueing; it allows for shorter delays at the intersection, while also increasing visibility of vehicles for pedestrians and cyclists on or exiting E Weaver St who may be crossing on the sidewalk or entering the intersection.

Exult counted a high number of pedestrians and cyclists and notes that the closure of E Weaver Street could draw even more foot and bike traffic in the downtown area (the study does not generate expected bike and pedestrian counts for the various scenarios).



Figure 4. Design Changes for E Main Street – both scenarios

Due to this finding, the study offers general recommendations for the Town to explore in tandem with street changes and plaza design:

- Explore opportunities to stripe additional crosswalks where feasible.
- Continue with Roberson Street resurfacing that incorporates a sidewalk.
- Install removeable bollards at each end of E Weaver Street to allow for weekly garbage collection.
- With limited existing pavement, stripe sharrows to accommodate bicycles where dedicated bicycle lanes are not feasible

Public Transit



Figure 5. CW and F Route Changes

Town staff discussed changes necessary to transit routes on East Weaver Street, as well as ridership on routes serving Downtown Carrboro, with Chapel Hill Transit and GoTriangle staff. Chapel Hill Transit staff expressed concerns for the re-routed turn of the F and CW routes and noted a potential reduction in service.

A summary of ridership can be seen in Table 2, and the expected reconfiguration of Chapel Hill Transit routes can be seen in Figure 5.

The capacity study suggests that the stop bar would need to be moved back an additional 25 feet on S Greensboro Street to allow for buses to turn. The capacity study does not consider additional volumes of re-routed buses specifically, nor potential additional delays due to buses stopped on E Main Street.

Route	Service Provider	No. Buses (Weekday)	No. Buses (Weekend)	Average Daily Ridership (Weekday)	Anticipated Change
F Route <i>Franklin Street/ McDougle School</i>	Chapel Hill Transit	4*	-	106	Re-route to E Main
CW Route <i>Carrboro/Weaver/UNC</i>	Chapel Hill Transit	21	10	501	Re-route to E Main
J Route <i>Carrboro/Chapel Hill/ Jones Ferry Road</i>	Chapel Hill Transit	57	8-9	2401	None
405 <i>Carrboro/Durham</i>	GoTriangle	14	-	456	None
TOTAL	-	96	18-19	3464	-

* F Route currently operates a reduced service schedule; the F Route operates fifteen (15) daily trips in full service.

Table 2. Ridership on Public Transit Routes (Local and Regional Service Providers)

Maple Avenue

The study found minimal changes on Maple Avenue where it intersects E Braxton Foushee and Roberson streets. The study assumes that peak traffic encompasses 10% of the total volume of traffic on the road and estimates 200 annual average daily vehicle trips on Maple Avenue. Exult observed several cars traveling in the wrong direction (currently southbound one-way) and recommends direction be changed to northbound one-way.



Considerations

Using themes established during the January work session, this memo provides a list of additional considerations that pertain to the draft capacity study (for design considerations of East Weaver Street, refer to the [January Work Session Staff Memo](#)). Not all the points below need to be resolved before determining how to proceed. Anticipating benefits, burdens, and unintended consequences may inform the types of changes the Town wants to make and monitoring and mitigation strategies to implement.

Climate & Environment	- Anticipated uptake of motor vehicle trips replaced by alternative modes could reduce greenhouse gas emissions - Air quality improvements on East Weaver may be offset by idling vehicles in longer queues on Greensboro Street
Race & Equity	- Lloyd-Broad and Tin Top neighborhoods stand to be most impacted by long queues - Low-mobility and physically disabled visitors/residents may experience reduced access (loss of on street parking, fewer places to stop and let visitors out) - Emergency service impacts and increased response time could also impact Lloyd-Broad and Tin Top residents more
Economic Sustainability	- Counts completed in March, just after the opening of the Drakeford Library Complex - Long-term volumes of pedestrians, bikes, and motor vehicles are unknown - Deliveries on East Main were not part of the capacity study, and may contribute to delays and/or queueing (trucks using E Main for deliveries) - Could also lead to customer loss for local businesses if it is perceived too hard to find parking, travel through, or access places in the downtown

Safety	• Type of barrier at each end could limit emergency services access through Town and increase response time (removeable bollards versus planters i.e.) • Removes an exit point from police station, impacting access • Bikes should be queueing with motor vehicles where there is not a bike lane present ○ Could lead to bikes moving to the sidewalk (allowed on North and South Greensboro Street, but not on Main between Greensboro and Weaver) ○ May lead to bikes passing on the right, creating less predictability and more risk • Pedestrians and cyclists will need to reenter intersections at either end – will need re-signaling and new pavement markings ○ Explore leading pedestrian and bicycle signals • Increased queueing can increase the exposure of users to collisions as drivers, cyclists, and pedestrians may make riskier decisions – whether exiting the facility, or trying to bypass congestion
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Minimum Changes for Implementation and Costs

Permanently closing E Weaver Street to vehicular use would require:

- Changes to the existing traffic signals
- Installations of barriers to E Weaver
- Curb Realignment/Traffic Separator
- Lane Allocations and Restriping (see pages 4 and 5)
- Signage

Exult Engineering provided an opinion of probable construction cost for the Build scenario, totaling \$150,000—this includes a 25% contingency of \$30,000. This does not include design, nor additional accommodations for bikes turning left onto E Weaver Street from N Greensboro Street. Once NCDOT completes their review of the study and any revisions are made, cost estimates may change.

Exult does not provide an estimate for the Build with Improvements scenario.

The FY26 Budget allocates \$200,000 to this project, which may be enough to implement the Build scenario, allow for an opportunity to monitor impacts, and decide which further improvements, if any, to pursue.

Next Steps

NCDOT will complete their review, provide comments for revisions if necessary. At the work session in January, Town Staff anticipated community engagement with key stakeholders as the next step, as well as exploration of a town code amendment to establish a social district (to allow for the consumption of alcohol in the public right-of-way). Staff can continue to make these efforts. Subject to NCDOT's approval of the study, the final report will be posted on the Town's website, on the [Reimagining Weaver Street Project Page](#).

Conclusion & Recommendation

Over the summer, updates to the council about NCDOT's review will be provided via email. Staff anticipate bringing back a follow up agenda item in the fall to provide an update on community engagement, cost estimates, and updated schedule.

Staff recommend that the Council discuss and provide direction for next steps.

FIGURE 6

SATURDAY (11 AM – 1PM)

S GREENSBORO ST & MAIN ST

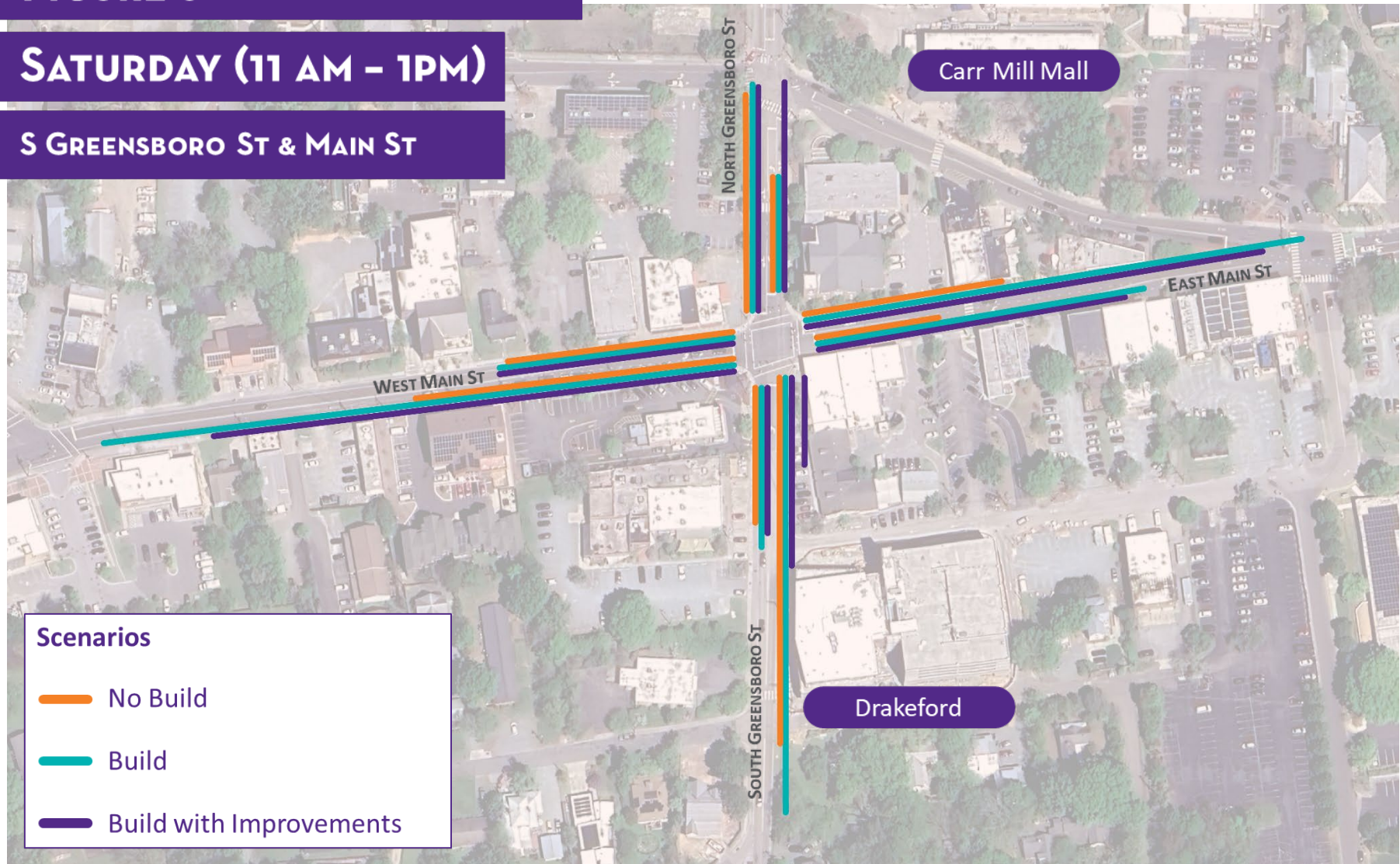


FIGURE 7**SATURDAY (11 AM – 1PM)****N GREENSBORO ST & WEAVER ST****Scenarios**

-  No Build
-  Build
-  Build with Improvements

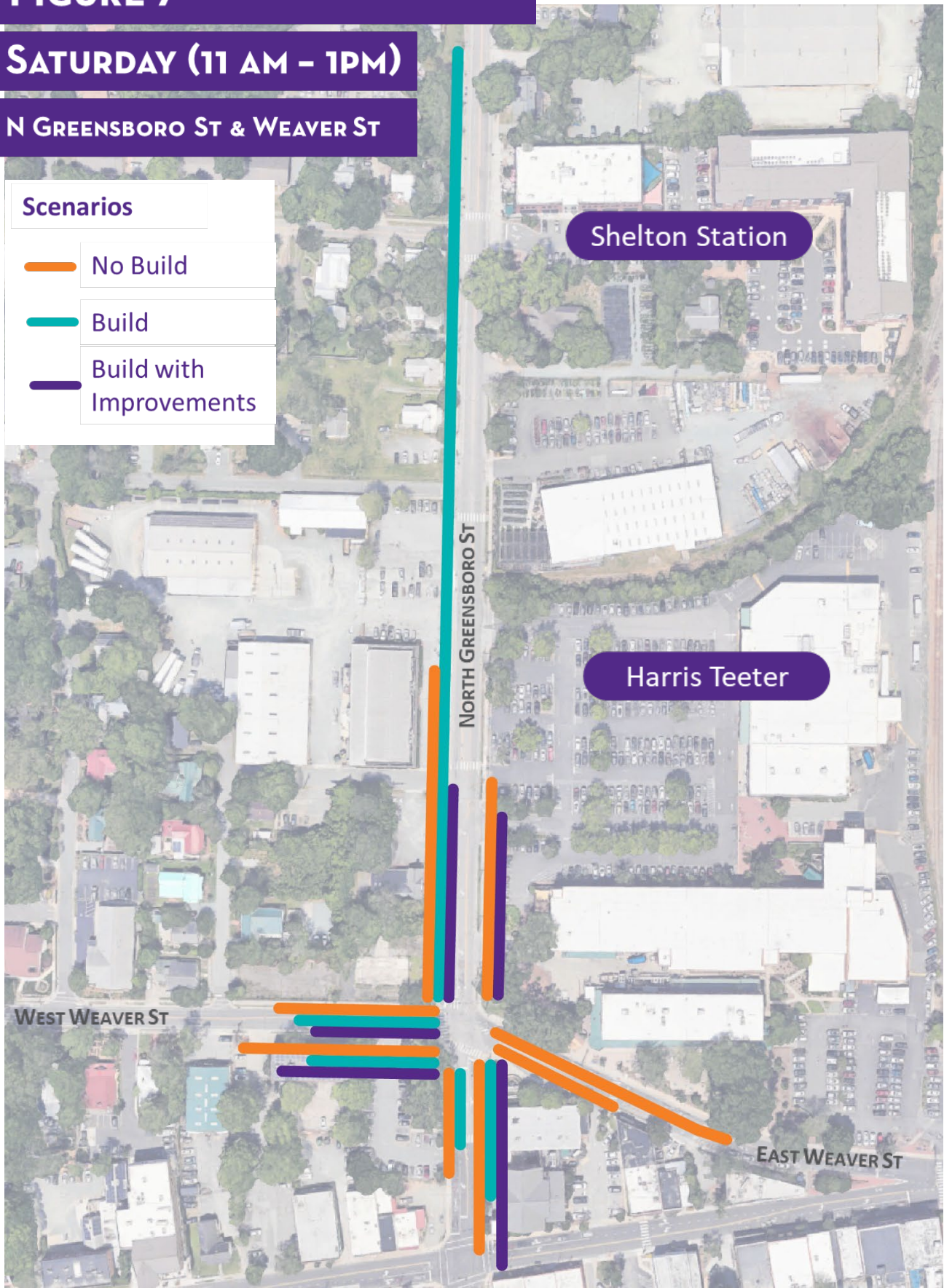


FIGURE 8

TUESDAY PM (4 PM – 6 PM)

MAIN ST & ROBERSON ST

