

BOARD OF ALDERMEN

ITEM NO. C(2)

AGENDA ITEM ABSTRACT

MEETING DATE: October 2, 2012

TITLE: Update on Safety Improvements at the Intersection of Hillsborough Road and James Street

DEPARTMENT: Planning	PUBLIC HEARING: NO
ATTACHMENTS: A. Resolution B. Conceptual sketch of safety improvements	FOR INFORMATION CONTACT: Jeff Brubaker – 918-7329

PURPOSE

The purpose of this item is to provide an update to the Board on efforts to improve conditions for pedestrians at the intersection of Hillsborough Road, James Street, and Quail Roost Drive. A draft resolution (*Attachment A*) conveys the Board's support for traffic calming improvements.

INFORMATION

Hillsborough Rd. between Old Fayetteville Rd. and Greensboro St. serves approximately 6,500 cars per day. 85th-percentile speeds of cars traveling near its intersection with James St. (near the eastern end of Quail Roost Dr.) were measured in March 2012 and found to range from 39 and 45 miles per hour. The crosswalk just north of James St. is used by schoolchildren going to and from school as well as neighbors. No crossing guard is stationed at the intersection.

In August 2011, a resident wrote to the Board of Aldermen expressing concerns about the safety of pedestrians crossing Hillsborough Rd. at the crosswalk north of James St. The Police Department, coordinating with the Planning and Public Works departments, followed up on these concerns, and staff and various neighbors have since been communicating regarding pedestrian safety at the intersection. As Hillsborough Rd. is state-maintained, in January 2012, staff requested that NCDOT upgrade the crosswalk with high-visibility (ladder-style) pavement markings and new signage.

On March 22, 2012, Public Works and Planning staff installed a temporary traffic calming measure at the intersection, using orange cones and delineators to outline a curb extension and splitter island. The curb extension was recommended in the then-draft Safe Routes to School Action Plan. The goals of this trial measure were to serve as a visual cue for traffic to slow down at the crosswalk, to reduce the crossing distance for pedestrians at the crosswalk, to reduce the speed of southbound right turns onto James St., and to explore the feasibility of a permanent curb extension. The trial allowed for the collection of before-after motor vehicle speed data in order to estimate the effectiveness of a permanent measure. Eight traffic counters were placed in the vicinity of the intersection (one per approach or departure lane).

A summary of the major findings from the data analysis is as follows:

- There was a slight decrease in 85th-percentile speeds for all collection locations
- There was a 1 MPH decrease in average speeds for 3 of the 8 locations (2 on James St. and 1 on Quail Roost Dr.), and a 1 MPH increase for one of the Quail Roost Dr. locations.
- At 7 of the 8 locations, there was a decrease in the percentage of cars going above the speed limit. The largest decrease was for James St. going southbound, which dropped by 6.5 percentage points.
- A bin analysis shows that, with some exceptions, the locations mostly showed decreases in cars going 45 MPH or above and increases in cars going less than 25 MPH. There are mixed results for cars going 25-34 MPH and 35-44 MPH.

The trial measure continued until May 3.

On May 22, the Board of Aldermen adopted the Safe Routes to School Action Plan. The Hillsborough-James-Quail Roost safety improvements thus became part of an official guiding document for the Town.

On July 3, Town staff submitted a conceptual sketch (*Attachment B*) of the curb extension and a pedestrian refuge island, a cost estimate, and the before-after data to NCDOT Division 7, requesting clarification on how to formally submit a request for Small Construction Funds to fund this permanent installation. The pedestrian refuge island is not included in the SRTS Action Plan recommendation, but it was identified by Town staff during the March trial installation as a way of supplementing the curb extension as a traffic calming measure and providing a rest area for pedestrians crossing James St. The Division Engineer responded that the information itself was sufficient to serve as the request for funds. As of this writing, a decision on the request has not been received.

On August 15, NCDOT installed high-visibility pavement markings at the crosswalk. To date, upgraded signage has not been installed. New crosswalk signs with arrow plaques placed at the crosswalk would enhance the crosswalk's visibility for a marginal cost.

On August 23, after neighbors expressed concern that pedestrian activity would increase with the start of the school year, a second trial measure was installed using tall, skinny cones instead of pylons, and using more cones and a barrel to make the splitter island more prominent. As of this writing, this trial measure is still in place, and Town staff are in the process of collecting motor vehicle speed data. On August 31, staff also observed conditions during morning school traffic, along with several neighbors.

Stormwater management

Town staff identified an opportunity to include a stormwater management device as a component of the design of the curb extension. A rain garden has been proposed to filter runoff from Hillsborough Rd. immediately north of the intersection. On July 10, staff met on-site with a member of NC State's Stormwater Management and Low Impact Development team, who gave a preliminary opinion that a rain garden would be feasible and effective.

Other options for the intersection

HAWK Signal

The SRTS Action Plan recommends that a HAWK signal, otherwise known as a pedestrian hybrid beacon, be considered for the intersection. The HAWK signal remains off until activated by a pedestrian. When the signal enters a yellow-red sequence, it creates an enforceable stop condition when the pedestrian is crossing. The image below, from the Manual on Uniform Traffic Control Devices (MUTCD), shows the sequence.

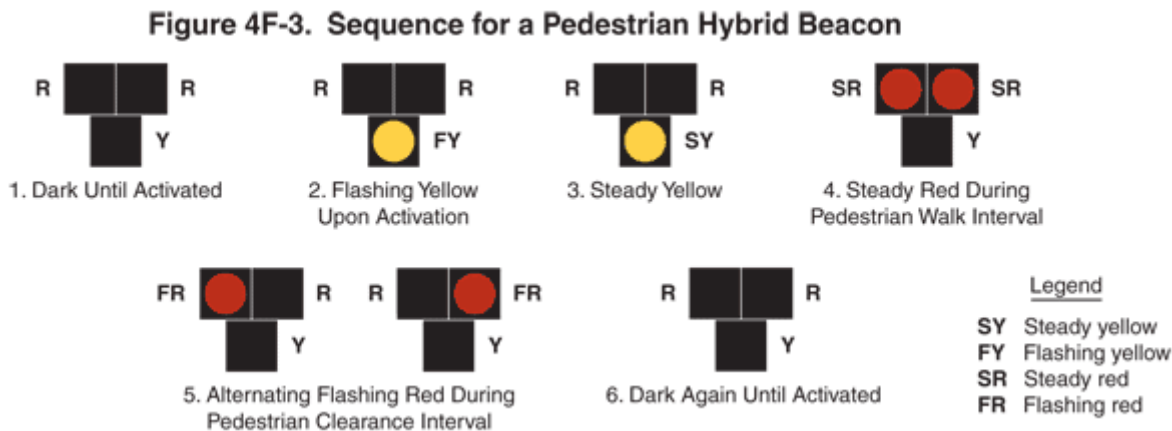


Figure 1. HAWK signal sequence. Source: MUTCD.

A HAWK signal is not currently warranted at the intersection, according to MUTCD guidelines. The minimum number of vehicles per hour traversing a crosswalk 50 ft. in length to warrant a HAWK signal is 500, and it is warranted only if the number of pedestrians per hour is at least 150.¹ Less than 400 vehicles per hour currently traverse the crosswalk, and rudimentary counts of pedestrians during morning school traffic have ranged from about 15 to 40 pedestrians per hour. This is not considering other times of the day, when pedestrian traffic is likely to be lower.

A downside to a HAWK signal is its cost, which may exceed \$100,000.

Signage enhanced with beacons or lighting

The Town has previously requested Rectangular Rapid Flashing Beacons (RRFBs) at two locations – Greensboro and Shelton Sts. and at the future crosswalk from Estes Park Apartments driveway to the future Wilson Park Multi-use Path. Both requests were denied by NCDOT. RRFBs are small modules placed underneath crosswalk signs with LED lights that flash when activated by pedestrians. An example is below.

¹ See: http://mutcd.fhwa.dot.gov/htm/2009/part4/fig4f_02_longdesc.htm.



Figure 2. Example of a Rectangular Rapid Flashing Beacon below a crosswalk sign. Source: Washington County, OR.

The Town of Chapel Hill has installed edge-lit LED crosswalk signage on Martin Luther King, Jr., Blvd. and Franklin Streets. UNC also has installed such signage on Mason Farm Rd. This may also be an option for a signage upgrade at the Hillsborough-James intersection. A cost estimate for these signs has been sought from the Town of Chapel Hill and UNC and if received will be provided at the meeting.

FISCAL AND STAFF IMPACT

The project is estimated to cost between \$43,000 and \$48,000, depending on whether the rain garden is included. This includes the installation of the curb extension, the pedestrian refuge island, high visibility crosswalk markings across James St. and Quail Roost Dr., and the rain garden (in one scenario) and stormwater interpretive signage, plus additional expenses for design, construction engineering, and contingency.

If approved, Small Construction Funding is expected to fund most, if not all, expenses. The Town may potentially need to fund detailed design of the measure, which is estimated to cost approximately \$5,000. It is uncertain whether the rain garden would be approved, or, if so, be included in the funding. This is roughly estimated to cost \$3,000, with another \$300 for interpretive signage. Another option would be to seek third-party funding for the rain garden.

RECOMMENDATION

Town staff recommend that the Board of Aldermen consider approval of the resolution in *Attachment A*.