

August 30, 2024

To: Marcia Purvis, Project Manager
Town of Chapel Hill
Parks and Recreation Department

From: Zachary Hallock, PE
Project Engineer

Subject: Otey's Road Crossing - Morgan Creek Greenway East

Beginning in the Fall of 2023, McAdams has been assisting the Town of Chapel Hill with preliminary design development for the Morgan Creek Greenway East segment, from Merritt's Pasture to Manning Drive. Throughout this process, residents have repeatedly expressed interest in creating a crossing from the Morgan Creek Neighborhood at the intersection of Otey's Road and US 15-501, which is currently used by cyclists as an informal crossing location to access UNC via Mason Farm Road. This location had been included in previous planning documents (the Town's Mobility and Connectivity Plan, The Town's Greenway Master Plan, and UNC's Campus Master Plan) as a pedestrian overpass (grade separated crossing), which was linked to construction of the Durham-Orange Light Rail Transit (DO-LRT) project. This location was also previously analyzed as part of a Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) funded and NCDOT supported corridor safety study that was completed in 2019, around the same time as the discontinuation of the DO-LRT project. The recommendation from that study indicated that the Otey's Road and US 15-501 intersection could be considered as a location for a grade separated crossing, assuming connecting infrastructure is provided along both ends of Otey's Road. These previous planning efforts were developed based on the assumption that the DO-LRT project would provide an opportunity to construct an overpass over US 15-501, but as mentioned previously that project has been discontinued.

On November 7, 2023 the Town of Chapel Hill and McAdams team members met with Chuck Edwards, PE, District Engineer, NCDOT Field Operations Division 7, and Stephen Robinson, PE, Project Manager NCDOT Division 7 to discuss this project and a crossing at Otey's Road. NCDOT team members did not support a design that included a crossing at Otey's Road for some of the reasons stated in the NCDOT's Pedestrian Crossing Guidance¹ (PCG). In contrast, the existing pedestrian crossing at Manning Drive meets PCG criteria.

For the following reasons, we will not be including an at-grade crossing of US 15-501 at Otey's Road as part of this project:

- NCDOT will not entertain an at-grade crossing without a pedestrian traffic signal and evidence of current or future bicycle and pedestrian crossing demand meeting established warrants (the minimum threshold at which a signalized crossing could be considered). The PCG establishes the following thresholds, in this order:
 1. ADA Accessible Connections - In Figure 3 (Flowchart Element for Step 1: Document Existing Characteristics / Signalized Crossing Assessment), the main hurdle in the assessment is the need for receiving infrastructure; eg. an existing or funded ADA accessible route like a sidewalk connecting to the proposed crossing location. There are no sidewalks along Otey's Road and no plans or funding to construct them in the immediate future. An additional commitment from the Town would be required to design and build sidewalks, which is outside the scope of the Morgan Creek project.

¹ North Carolina Pedestrian Crossing Guidance -

https://connect.ncdot.gov/resources/safety/Teppl/TEPPL%20All%20Documents%20Library/Pedestrian_Crossing_Guidance.pdf

2. Road Geometry and Speed - Requirements of Figure 8 (Flowchart Element for Step 2: Unsignalized or Midblock Crossing Assessment) are more easily met. At the location of Otey's Road, US 15-501 is 4 lanes wide without a raised median (eg. no curb at the median) and has a posted/operating speed greater than 40 MPH, which meets the threshold to move to the next step.
3. Pedestrian Volumes - Figure 12 (Flowchart Element for Step 3: Additional / Alternative Treatments Assessment) contains several thresholds which must be met before a signalized crossing could be considered:
 - #1: A Peak Hour Pedestrian Crossing Volume of 14 persons per hour is required to consider signals. Additional research would be required to develop a study of comparable facilities to show such demand potential, which is out of scope of the Morgan Creek project. Based on my professional judgement, it is possible, but unlikely that this threshold can be met.
 - #2 MUCTD Traffic Signal Warrants #4 or #5
 - Warrant #5 only applies to peak hour school crossing volumes, which is not applicable for the proposed Otey's Road crossing.
 - Warrant #4 can be met if either the pedestrian (and bicycle) crossing demand over the four highest hours can be shown to greater than 107 people crossing per hour for four hours; or if the peak hour pedestrian demand can be shown to be 133 people crossing per hour. Additional research would be required to develop a study of comparable facilities to show such demand potential could exist, which is out of scope of the Morgan Creek project. Based on my professional judgement, I do not believe that a facility comparable to Otey's Road at US 15-501 exists with the capacity to demonstrate such significant pedestrian crossing demand to meet MUTCD Warrant #4.
4. All potential treatments indicated in the North Carolina Pedestrian Crossing Guidance are framed as "consider installing". NCDOT is in no way required to install a traffic signal if the warrants are met, as there are additional factors to consider such as roadway geometric design requirements and traffic analysis, both of which are beyond the scope of the Morgan Creek project.

> Roadway and traffic conditions along US 15-501 near Otey's Road:

1. Data presented in the previously mentioned 2019 safety study indicated that for eastbound traffic, the 85th percentile speed was nearly 60 MPH and over 75% of traffic exceeded the posted speed limit of 45 MPH.
2. NCDOT 2021 Annual Average Daily Traffic was 41,500 vehicles per day, the highest volume location included in the 2019 safety study.

> The Morgan Creek Greenway East project must take both cyclists and pedestrian needs into consideration and a crossing at Otey's, based on comments received from residents, would primarily serve cyclists.

Sincerely,

Zachary Hallock, PE
Project Engineer



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