

March 10, 2025

Marcia Purvis  
Town of Chapel Hill  
200 Plant Road  
Chapel Hill, NC 27514

**RE: Morgan Creek Greenway East Extension – Chapel Hill, North Carolina – AWSC Evaluation Letter**

Dear Ms. Purvis,

## Traffic Assessment

This letter presents a review of the potential need for conversion of the intersections of Morgan Creek Road at Morgan Creek Lane and Morgan Creek Road at Oteys Road to all-way-stop-control (AWSC) in Chapel Hill, North Carolina. Specific criteria when satisfied (referred to as “warrants”) which support conversion of a traditional unsignalized or two-way-stop-control (TWSC) intersection to AWSC is outlined within section 2B.12 of the Manual on Uniform Traffic Control Devices (MUTCD), 2023 Edition. The following warrants were considered in this study:

- I Warrant B: Sight Distance
- I Warrant D: 8-Hour Volume
- I Warrant E: Other Factors

This letter presents the findings of these warrants and provides a recommendation for the most appropriate traffic control of these intersections as part of the planned Morgan Creek Greenway East Extension project.

## Existing Conditions

Morgan Creek Road, Morgan Creek Lane, and Oteys Road are low volume residential collector streets with posted speeds of 25 miles per hour. The intersections of Morgan Creek Road at Morgan Creek Lane and Morgan Creek Road at Oteys Road both presently operate with TWSC traffic control with Morgan Creek Road functioning as the uncontrolled major-street.

Turning movement counts (TMC) were collected at the existing study intersections of Morgan Creek Road at Morgan Creek Lane and Morgan Creek Road at Oteys Road. This TMC data was collected for a continuous 13-hour period (6:00 AM to 7:00 PM) in February 2025 while Chapel Hill-Carrboro City Schools and Orange County public schools, and UNC-Chapel Hill were in-session. Refer to the attachments for a copy of the count data collected.

## AWSC Warrant Analysis

Evaluation of three (3) separate warrants from the MUTCD were considered to determine the potential need for conversion of the study intersection from TWSC or AWSC as part of the completion of the Morgan Creek Greenway East Extension project. A field visit was conducted to verify existing sight distance values according to Warrant B (Sight Distance) and existing TMC data was collected and evaluated according to Warrant D (Vehicular Volumes) from the MUTCD. A qualitative review of the study intersections and appropriateness of AWSC was performed as part of evaluation of Warrant E (Other Factors).

**WARRANT B: SIGHT DISTANCE**

Sight distance is the metric used to describe the ability of a motorist to physically see, via a direct line of sight, objects and/or vehicles to a degree sufficient to allow safe and efficient use of a roadway in the intended manner. Sight distance is a function of the major roadway's geometric characteristics (including both horizontal and vertical constraints) and design speed. Provided Intersection Sight Distance (ISD) values were determined via field data collection at the intersections and evaluated based on the required values for these roadways based on the criteria contained within the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Street* (Green Book), 7<sup>th</sup> Edition. Refer to Table 1 below for a summary of the provided and required sight distance values at these intersections.

<b>TABLE 1: INTERSECTION SIGHT DISTANCE</b>							
<b>Intersections</b>	<b>Requirements</b>	<b>Speed Limit</b>	<b>Height</b>	<b>Left-Turn</b>		<b>Right-Turn</b>	
				<b>Required</b>	<b>Provided</b>	<b>Required</b>	<b>Provided</b>
Morgan Creek Road + Morgan Creek Lane	AASHTO	25 mph	3.5 Feet	335'	232'	290	135'
Morgan Creek Road + Oteys Road	AASHTO	25 mph	3.5 Feet	335'	160'	290	290'

Based on a review of the provided sight distance values in the field, neither intersection currently meets AASHTO required sight distance values for both minor-street movements. At the intersection of Morgan Creek Road and Morgan Creek Lane it was observed that a vertical crest curve restricts motorists' ability to see north for vehicles turning onto Morgan Creek Road from US 15-501. Additionally, horizontal sight distance issues exist as well in both directions due to vegetation (large trees) and/or large rocks which are not expected to be feasible to mitigate to improve horizontal sight distance.

A review of the sight distance provided at intersection of Morgan Creek Road and Oteys Road indicated that the only constraint at said intersection is light vegetation (bushes and/or low-level plants) obstructing the view of vehicles traveling eastbound on Morgan Creek Road through the intersection. It should be noted that unlike the intersection of Morgan Creek Road and Morgan Creek Lane, it is feasible that the vegetation causing the horizontal sight distance issues could potentially be cleared should this vegetation fall within the public right-of-way.

Based on a review of the Warrant B for all-way-stop-control conversion evaluation, both intersections satisfy this warrant due to inadequate intersection sight distance that hinder the ability for drivers on the minor-street to see approaching vehicles on the major-street. Refer to the attachments for an exhibit of the intersection sight distance at these intersections.

**WARRANT D: 8-HOUR VOLUME**

Count data for a continuous 13-hour period (6:00 AM to 7:00 PM) was used to evaluate the 8-hour warrant for both study intersections per the methodology contained within the MUTCD. The purpose of this warrant is to evaluate the amount of vehicular traffic at the intersection and the degree to which motorists are navigating the existing non-all-way-stop-controlled intersection traffic control. Refer to Table 2 below for a summary of the observed existing traffic volumes at these intersections. Refer to the attachments for a copy of the turning movement count data collected.

**TABLE 2: WARRANT C SUMMARY – OTEYS ROAD + MORGAN CREEK ROAD**

Time Period	Oteys Creek + Morgan Creek Road					Morgan Creek Road + Morgan Creek Lane			
	Volumes (vehicles per hour)		Warrants			Volumes (vehicles per hour)		Warrants	
	Major-Street Approaches	Minor-Street Approaches	1A	1B		Major-Street Approaches	Minor-Street Approaches	1A	1B
6:00 AM – 7:00 AM	0	4	No	No		2	0	No	No
7:00 AM – 8:00 AM	16	20	No	No		18	2	No	No
8:00 AM – 9:00 AM	5	19	No	No		22	3	No	No
9:00 AM – 10:00 AM	1	12	No	No		11	2	No	No
10:00 AM – 11:00 AM	0	7	No	No		13	3	No	No
11:00 AM – 12:00 PM	0	12	No	No		12	3	No	No
12:00 PM – 1:00 PM	1	5	No	No		17	4	No	No
1:00 PM – 2:00 PM	1	12	No	No		6	3	No	No
2:00 PM – 3:00 PM	1	8	No	No		17	3	No	No
3:00 PM – 4:00 PM	1	15	No	No		17	3	No	No
4:00 PM – 5:00 PM	3	16	No	No		16	3	No	No
5:00 PM – 6:00 PM	4	15	No	No		24	2	No	No
6:00 PM – 7:00 PM	0	10	No	No		19	4	No	No
Number of Periods Met			0	0				0	0
Number of Periods Required			8 of any one					8 of any one	
Warrants Met?			No	No				No	No

Based on a review of the volume-based warrants in Table 2 for the intersections of Morgan Creek Road at Morgan Creek Lane and Morgan Creek Road at Oteys Road, neither intersection is expected to satisfy Warrant C for conversion to all-way-stop-control due to the low volume of vehicles observed on both the major-street and minor-street approaches. It should be noted that the thresholds for Warrant C are not typically expected to be met for low-traffic residential streets due to the limited development served by these roadways.

WARRANT E: OTHER FACTORS

The MUTCD allows for the consideration of the non-quantitative qualities of intersections such as the characteristic and intent of roadways to be addressed in the evaluation of potential conversion to all-way-stop-control. As described in Section 2B.17 of the MUTCD such factors may include, but are not limited to, the following:

- An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way-stop-control would improve traffic operational characteristics of the intersection
- Where pedestrian and/or bicyclist movements support the installation of all-way-stop-control.

The proposed Morgan Creek Greenway East Extension project is expected to increase bicycle and pedestrian volumes along Morgan Creek Road through both of these intersections. Conversion of these intersections to all-way-stop-control can be expected to improve traffic operations for all users at these intersections based on the increase of expected non-motorized traffic at these intersections paired with the identified existing horizontal and vertical issues present which restrict driver visibility.

Summary / Recommendations

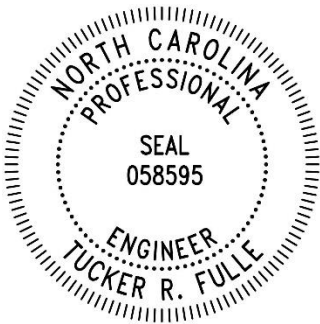
This letter presents a review of the evaluation of the potential need for conversion of the intersection of Morgan Creek Road at Morgan Creek Lane and Morgan Creek Road at Oteys Road to All-Way-Stop-Control (AWSC) in Chapel Hill, North Carolina. Warrant B (Sight Distance), Warrant D (Vehicular Volume), and Warrant E (Other Factors) were all considered for the conversion of these traditional two-way-stop-control intersections to all-way-stop-control as outlined within the Manual on Uniform Traffic Control Devices (MUTCD), 2023 Edition. Based on a review of these warrants sight distance issues exist at both intersections. These existing sight distance constraints paired with the expected increase in bicycle and pedestrian volumes on Morgan Creek Road as part of the Morgan Creek Greenway East Extension support conversion of both intersections to all-way-stop-control as part of this project.

If you should have any questions or comments relative to this study, please feel free to contact me at 919.283.2611.

Sincerely,  
**McAdams**

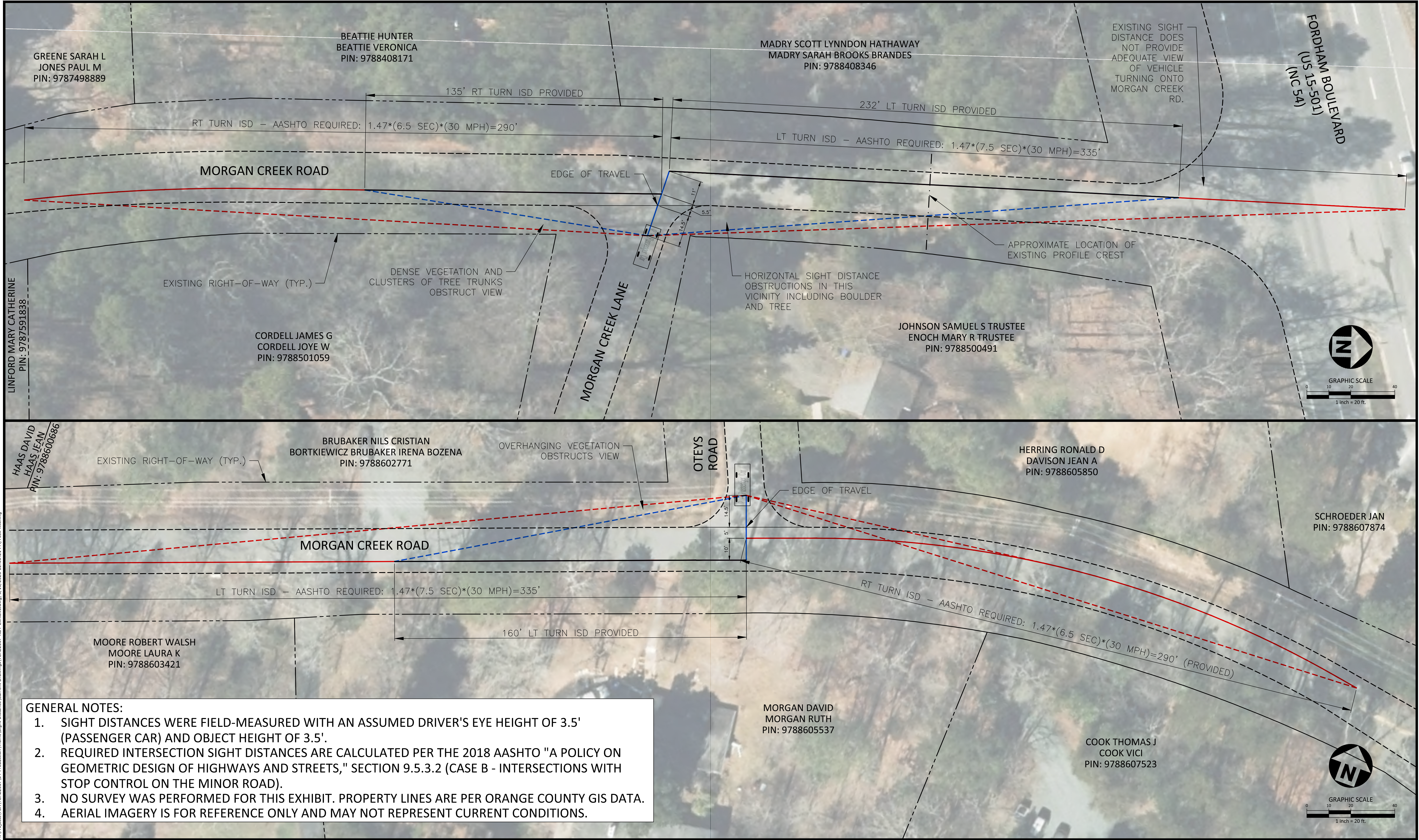
Tucker Fulle, PE | Project Engineer  
fulle@mcadamsco.com | 919. 283. 2611

The John R. McAdams Company, Inc.  
NC License #C-0293



Attachments: Intersection Sight Distance Exhibit  
Intersection Turning Movement Counts





The John R. McAdams Company, Inc.  
2905 Meridian Parkway  
Durham, NC 27713

phone 919. 361. 5000  
fax 919. 361. 2269  
license number: C-0293

www.mcadamsco.com

CLIENT  
TOWN OF CHAPEL HILL  
200 PLANT ROAD  
CHAPEL HILL, NC 27514  
PHONE: 919. 968. 2750



REVISIONS  
NO. DATE

PRELIMINARY  
NOT FOR CONSTRUCTION

PRELIMINARY  
NOT FOR CONSTRUCTION

## MORGAN CREEK GREENWAY EAST EXTENSION

### INTERSECTION SIGHT DISTANCE EXHIBIT FOR AWSC EVAL.

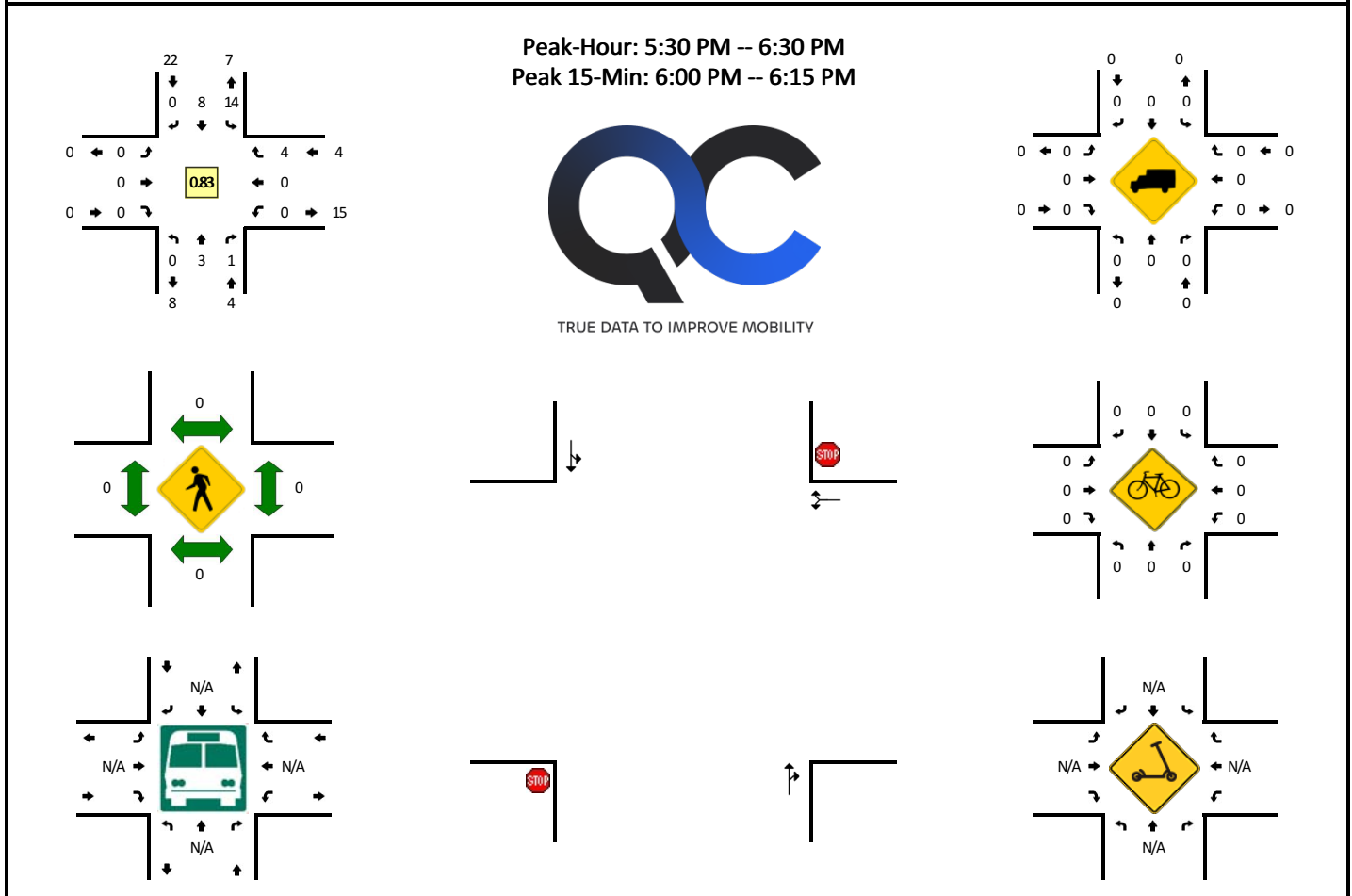
#### PLAN INFORMATION

PROJECT NO. TCH-22007  
FILENAME TCH22007-RDY-Exhibit1.dwg  
CHECKED BY TRF  
DRAWN BY APK  
SCALE 1"=20'  
DATE 2025. 03. 10



**LOCATION:** Morgan Creek Rd -- Morgan Creek Ln  
**CITY/STATE:** Chapel Hill, NC

**QC JOB #:** 16901502  
**DATE:** Wed, Feb 12 2025



15-Min Count Period Beginning At	Morgan Creek Rd (Northbound)				Morgan Creek Rd (Southbound)				Morgan Creek Ln (Eastbound)				Morgan Creek Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
6:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	5
7:00 AM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	11
7:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	1	0	6	14
7:30 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	4	20
7:45 AM	0	0	1	0	5	1	0	0	0	0	0	0	0	0	0	0	7	20
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	3	16
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	18
8:30 AM	0	1	1	0	0	3	0	0	0	0	0	0	0	0	1	0	6	25
8:45 AM	0	3	1	0	6	3	0	0	0	0	0	0	0	0	1	0	14	24
9:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	24
9:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	24
9:30 AM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	1	0	6	24
9:45 AM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	13
10:00 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5	16
10:15 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	2	0	6	20
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
10:45 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	16
11:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	2	0	5	16
11:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11
11:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	14
11:45 AM	0	0	0	0	4	1	0	0	0	0	0	0	0	0	1	0	6	15
12:00 PM	0	3	0	0	2	1	0	0	0	0	0	0	0	0	1	0	7	17
12:15 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	20
12:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4	21
12:45 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	2	0	6	21
1:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	3	17
1:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	14
1:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	4	14
1:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	9
2:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	8
2:15 PM	0	0	0	0	3	2	0	0	0	0	0	0	0	0	1	0	6	13
2:30 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	2	0	6	15
2:45 PM	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	6	20
3:00 PM	0	1	0	0	3	1	0	0	0	0	0	0	0	0	0	0	5	23
3:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	3	20

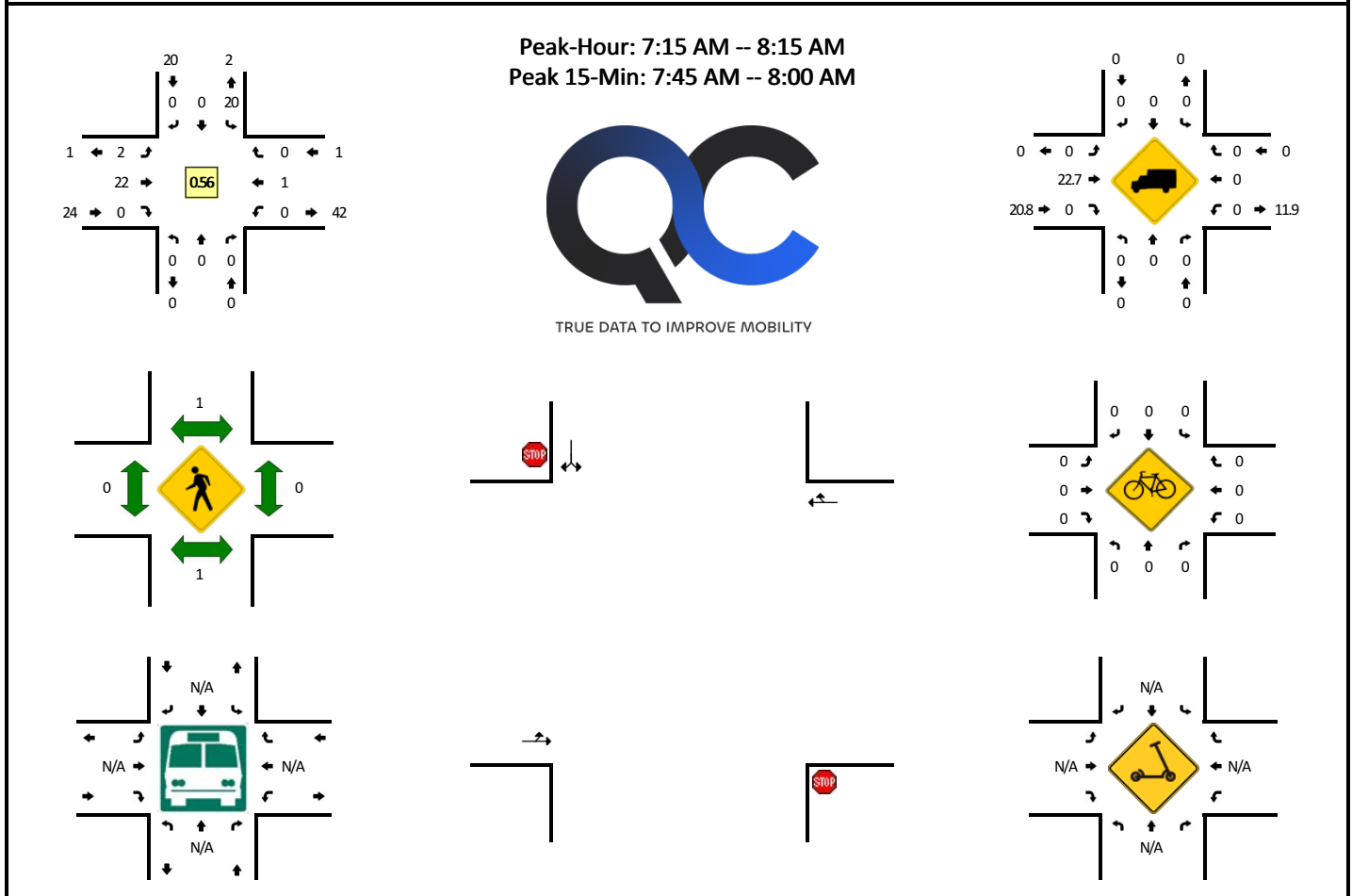
15-Min Count Period Beginning At	Morgan Creek Rd (Northbound)				Morgan Creek Rd (Southbound)				Morgan Creek Ln (Eastbound)				Morgan Creek Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	2	0	7	21
3:45 PM	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	5	20
4:00 PM	0	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0	8	23
4:15 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	4	24
4:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	3	20
4:45 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	4	19
5:00 PM	0	2	1	0	1	2	0	0	0	0	0	0	0	0	0	0	6	17
5:15 PM	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	0	6	19
5:30 PM	0	2	0	0	4	2	0	0	0	0	0	0	0	0	0	0	8	24
5:45 PM	0	0	1	0	3	2	0	0	0	0	0	0	0	0	0	0	6	26
6:00 PM	0	1	0	0	4	2	0	0	0	0	0	0	0	0	2	0	9	29
6:15 PM	0	0	0	0	3	2	0	0	0	0	0	0	0	0	2	0	7	30
6:30 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3	25
6:45 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	23
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	4	0	0	16	8	0	0	0	0	0	0	0	0	8	0	36	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		
<i>Comments:</i>																		

Report generated on 2/17/2025 8:22 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Oteys Rd -- Morgan Creek Rd  
**CITY/STATE:** Chapel Hill, NC

**QC JOB #:** 16901501  
**DATE:** Wed, Feb 12 2025



15-Min Count Period Beginning At	Oteys Rd (Northbound)				Oteys Rd (Southbound)				Morgan Creek Rd (Eastbound)				Morgan Creek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
6:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
6:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2	4
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	6
7:15 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5	10
7:30 AM	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	0	9	18
7:45 AM	0	0	0	0	12	0	0	0	1	7	0	0	0	0	0	0	20	36
8:00 AM	0	0	0	0	4	0	0	0	1	5	0	0	0	1	0	0	11	45
8:15 AM	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	4	44
8:30 AM	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0	7	42
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	24
9:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	16
9:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	13
9:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	10
9:45 AM	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	5	13
10:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	11
10:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	11
10:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	9
10:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3	7
11:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	10
11:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	11
11:30 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	5	14
11:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	12
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	9
12:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	9
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	5
12:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	6
1:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3	8
1:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	10
1:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	13
1:45 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	13
2:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	12
2:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	9
2:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	6
2:45 PM	0	0	0	0	0	0	0	0	1	3	0	0	0	1	0	0	5	9
3:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6	13
3:15 PM	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	4	16



15-Min Count Period Beginning At	Oteys Rd (Northbound)				Oteys Rd (Southbound)				Morgan Creek Rd (Eastbound)				Morgan Creek Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	3	18
3:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	16
4:00 PM	0	0	0	0	0	0	0	0	1	3	0	0	0	2	0	0	6	16
4:15 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	4	16
4:30 PM	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	4	17
4:45 PM	0	0	0	0	0	0	1	0	1	1	0	0	0	2	0	0	5	19
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	16
5:15 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4	16
5:30 PM	0	0	0	0	1	0	0	0	1	2	0	0	0	1	0	0	5	17
5:45 PM	0	0	0	0	3	0	0	0	1	3	0	0	0	0	0	0	7	19
6:00 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	4	20
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	18
6:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	15
6:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	10
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	48	0	0	0	4	28	0	0	0	0	0	0	80	
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	0	0		8	
Buses																		
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
<i>Comments:</i>																		

Report generated on 2/17/2025 8:22 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212