



# 182 PINNERS COVE ROAD TRAFFIC IMPACT ANALYSIS



Submitted to:

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# TRAFFIC IMPACT ANALYSIS

For  
**182 Pinner's Cove Road**  
Buncombe County, North Carolina

Prepared For:

**DJ Acquisitions, LLC**  
2641 NE 209<sup>th</sup> Street  
Miami, FL 33180

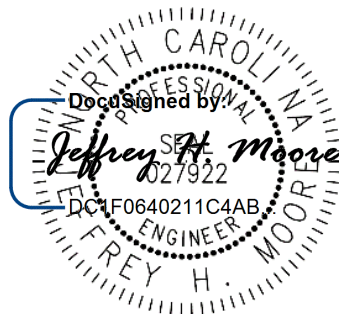
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(Gannett Fleming Project No. 069133)

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- Appendix C – Site Plan
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## I. Executive Summary

### A. Introduction

A residential development known as *182 Pinners Cove Road* is proposed on Pinners Cove Road in Buncombe County, NC (See Figure 1). The project will consist of 220 Townhouse units (ITE Code 220) and 60 Single-family units (ITE Code 210).

According to the proposed Site Plan developed by Civil Design Concepts, dated October 2021, direct access to the development is planned with two full movement access points, with one on Pinners Cove Road and one on Chapel Hill Road. The intersections are planned to be unsignalized and stop controlled (See Figure 2).

### B. Trip Generation

The amount of traffic generated by a new development is a function of the size and type of development. Once the proposed land use data for the site are known, the number of trips generated by the development can be estimated. Trip generation data for this report was conducted in accordance with the procedures outlined in the Institute of Transportation Engineers (ITE) report entitled *Trip Generation*<sup>3</sup>. Table 1 illustrates the number of daily, AM peak hour, and PM peak hour trips expected to be generated by the proposed development land use stated above.

**Table 1 - ITE Trip Generation Summary**

| ITE Trip Generation Summary           |                    |         |          |       |        |             |           |            |            |            |           |            |
|---------------------------------------|--------------------|---------|----------|-------|--------|-------------|-----------|------------|------------|------------|-----------|------------|
| LUC                                   | Description        | Density | Variable | PK HR | METHOD | Daily       | In        | AM<br>Out  | Total      | In         | PM<br>Out | Total      |
| 210                                   | Single Family Home | 61      | Units    | Adj   | EQN    | 640         | 12        | 36         | 48         | 39         | 23        | 62         |
| 220                                   | Townhouse/Duplex   | 220     | Units    | Adj   | EQN    | 1486        | 22        | 69         | 91         | 72         | 43        | 115        |
| <b>281 Units Total Trips ----&gt;</b> |                    |         |          |       |        | <b>2126</b> | <b>34</b> | <b>105</b> | <b>139</b> | <b>111</b> | <b>66</b> | <b>177</b> |

Traffic impact is determined by estimating the total number of daily vehicle trips, as well as the number of peak hour vehicle trips. Table 1 indicates the proposed development will generate approximately 2,126 total trips per day when it is fully built out. There are projected to be approximately 139 trips entering and exiting the site during the AM peak hour and 177 trips entering and exiting the site during the PM peak hour.



### C. Capacity Analysis

Capacity analyses were performed for 2021 Existing conditions, 2025 Background, and 2025 Future Buildout conditions for the following intersections:

- US 25A (Sweeten Creek Road)/ SR 3116 (Mills Gap Road)
- SR 3116 (Mills Gap Road)/ SR 3121 (Pinners Cove Road)
- SR 3121 (Pinners Cove Road)/ SR 3118 (Chapel Hill Road)
- SR 3117/SR 3121 (Pinners Cove Road)/ SR 3117 (School Road)

### D. Recommended Improvements

To mitigate the traffic-related impacts caused by the *182 Pinners Cove Road Residential Development* and to provide for safe, efficient, and reliable traffic flow, Gannett Fleming recommends the following:

#### **US 25A (Sweeten Creek Road)/ SR 3116 (Mills Gap Road)**

Gannett Fleming recommends no changes at this intersection.

#### **SR 3116 (Mills Gap Road)/ SR 3121 (Pinners Cove Road)**

Gannett Fleming recommends the addition of a left turn lane with 150 feet of full storage to the SR 3121 (Pinners Cove Road) approach to this intersection as a result of the 182 Pinners Cove Road development.

#### **SR 3121 (Pinners Cove Road)/ SR 3118 (Chapel Hill Road)**

Gannett Fleming recommends no changes at this intersection.

#### **SR 3117/SR 3121 (Pinners Cove Road)/ SR 3117 (School Road)**

Gannett Fleming recommends no changes at this intersection

#### **SR 3121 (Pinners Cove Road) / Site Access #1**

Gannett Fleming recommends that this intersection be constructed as planned with full access out control. Sufficient access stem length should be provided per NCDOT *Policy on Street and Driveway Access to North Carolina Highways*.

#### **SR 3118 (Chapel Hill Road) / Site Access #2**

Gannett Fleming recommends that this intersection be constructed as planned with full access out control. Sufficient access stem length should be provided per NCDOT *Policy on Street and Driveway Access to North Carolina Highways*.

### E. Conclusions

This Traffic Impact Analysis shows that although the proposed 182 Pinners Cove Road will have a minor impact on the traffic operations at the study area intersections, the impact will be mitigated by the recommended improvements. With the recommended improvements in place, the proposed development will not negatively impact the health, safety, and welfare of the traveling public.



*Note: The traffic signal at the intersection in this analysis should be optimized for traffic conditions as they change as part of an ongoing process. Because NCDOT has sole jurisdiction for the operation and maintenance of the signals, this should not be a responsibility of the development.*

## **II. Introduction**

A residential development known as *182 Pinners Cove Road* is proposed on Pinners Cove Road in Buncombe County, NC (See Figure 1). The project will consist of 220 Townhouse units (ITE Code 220), and 61 Single-family units (ITE Code 210).

According to the proposed Site Plan developed by Doran Architecture, dated August 30, 2021, direct access to the development is planned with two full movement access points, with one on Pinners Cove Road and one on Chapel Hill Road. The intersections are planned to be unsignalized and stop controlled (See Figure 2).

The purpose of this report is to evaluate the traffic impacts from the proposed 182 Pinners Cove Road development and to recommend transportation improvements needed to mitigate congestion that may result from the additional site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for transportation improvements needed to meet anticipated traffic demands. This report examines existing 2021 existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions.



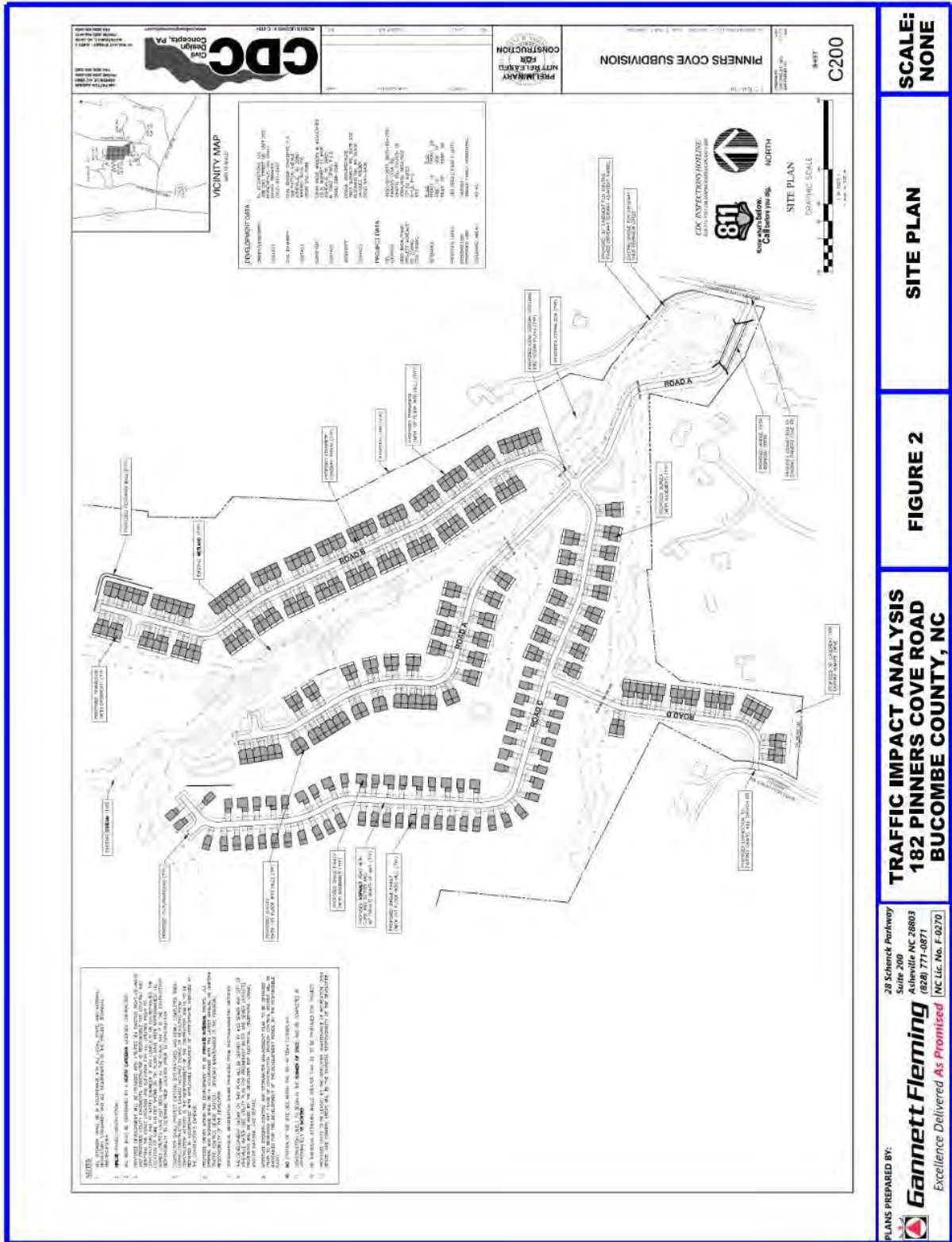
Figure 1 - Project and Count Locations



|                |                                |          |  |  |
|----------------|--------------------------------|----------|--|--|
| SCALE:<br>NONE | PROJECT AND COUNT<br>LOCATIONS | FIGURE 1 | TRAFFIC IMPACT ANALYSIS<br>182 PINNERS COVE ROAD<br>BUCUMBE COUNTY, NC | PLANS PREPARED BY:<br> <b>Gannett Fleming</b><br>Excellence Delivered <i>As Promised</i><br>28 Schenck Parkway<br>Suite 200<br>Asheville NC 28803<br>(828) 777-1687<br>[NC Lic. No. F-9270] |
|----------------|--------------------------------|----------|--|--|



Figure 2 - Site Plan



### III. Inventory of Traffic Conditions

#### A. Study Area

The North Carolina Department of Transportation (NCDOT) requested the following intersections be analyzed to determine the associated impacts from the proposed residential development (See Figure 1 for the count locations):

- US 25A (Sweeten Creek Road)/ SR 3116 (Mills Gap Road)
- SR 3116 (Mills Gap Road)/ SR 3121 (Pinners Cove Road)
- SR 3121 (Pinners Cove Road)/ SR 3118 (Chapel Hill Road)
- SR 3117/SR 3121 (Pinners Cove Road)/ SR 3117 (School Road East)

#### B. Existing Roadway Conditions

A description of transportation facilities in the general vicinity of this proposed development is as follows (See Figure 3 for the existing lane geometry and traffic control for the study area intersections):

US 25A (Sweeten Creek Road) is maintained by NCDOT as a primary highway. It has a two/three-lane cross section in the study area. It is a major corridor that runs north/south and parallels US 25 (Hendersonville Road) on the eastside in Buncombe County. It also provides access to I-40 to the north. According to the NCDOT AADT maps, the 2018 ADT was measured at 19,500 vehicles per day (vpd) north of Mills Gap Road and 16,000 vpd south of Mills Gap Road. US 25A (Sweeten Creek Road) is classified as a “*minor arterial*” by NCDOT.

SR 3116 (Mills Gap Road) is maintained by NCDOT as a secondary highway. It generally runs east/west through the study area and has a cross section of two lanes at a total of 24 feet in width. According to the 2018 NCDOT AADT maps, SR 3116 (Mills Gap Road) has an ADT of 14,500 in the study area. SR 3116 (Mills Gap Road) is classified as a “*major collector*” by NCDOT.

SR 3117/SR 3121 (Pinners Cove Road) is maintained by NCDOT as a secondary road with a cross section of two lanes. It is generally 18 feet in width. It has an AADT of 2,000. SR 3117/SR 3121 (Pinners Cove Road) is classified as a “*major collector*” by NCDOT.

SR 3117 (School Road East) is maintained by NCDOT as a secondary road with a cross section of two lanes. It is generally 18 feet in width. It has an AADT of 2,000. SR 3117 (School Road East) is classified as a “*local road*” by NCDOT.

The existing lane configurations and traffic control for the study area intersections are shown in Figure 3.

#### C. Existing Traffic

Gannett Fleming partnered with NDS to perform traffic counts at the existing intersections stated above in September 2021. The 2021 Traffic Count Volumes are shown in Figure 4.

In accordance with NCDOT Congestion Management Guidelines, Gannett Fleming “balanced” the factored traffic volumes. This balancing reconciles volumes for adjacent intersections on shared



routes. Because the volumes observed at the study intersections were not within the range that would be acceptable when considering business uses and driveways between them, it is Gannett Fleming's opinion that balancing the volumes was necessary.

**D. Projected Transportation Improvements**

NCDOT TIP Project U-5834, SR 3116 (Mills Gap Road) runs east/west from Hendersonville Road (US 25) eastward to the Robinson Creek bridge. According to the information contained on the project website ([Mills Gap Road Proposed Upgrade from Hendersonville Road to Weston Road \(ncdot.gov\)](https://www.ncdot.gov/projects/mills-gap-road-proposed-upgrade-from-hendersonville-road-to-weston-road)), the construction of the project is to start in 2024 and be completed in 2025 or 2026. Since the estimated completion date is expected by the buildout year of the proposed development, this project will be assumed in the analysis.

NCDOT TIP Project U-2801A, US 25A (Sweeten Creek Road) runs north/south from US 25 (Hendersonville Road) northward to the Rock Hill Road. According to the information contained on the project website (<https://www.ncdot.gov/projects/sweeten-creek-road/Pages/default.aspx>), the construction of the project is to start in 2027 with an estimated completion date of 2029. Since the estimated start of construction of the NCDOT project is expected to be beyond the buildout year of this development, the programmed widening of US 25A was not assumed for the buildout year scenarios.

Figure 3 - Existing Lane Configurations and Traffic Control

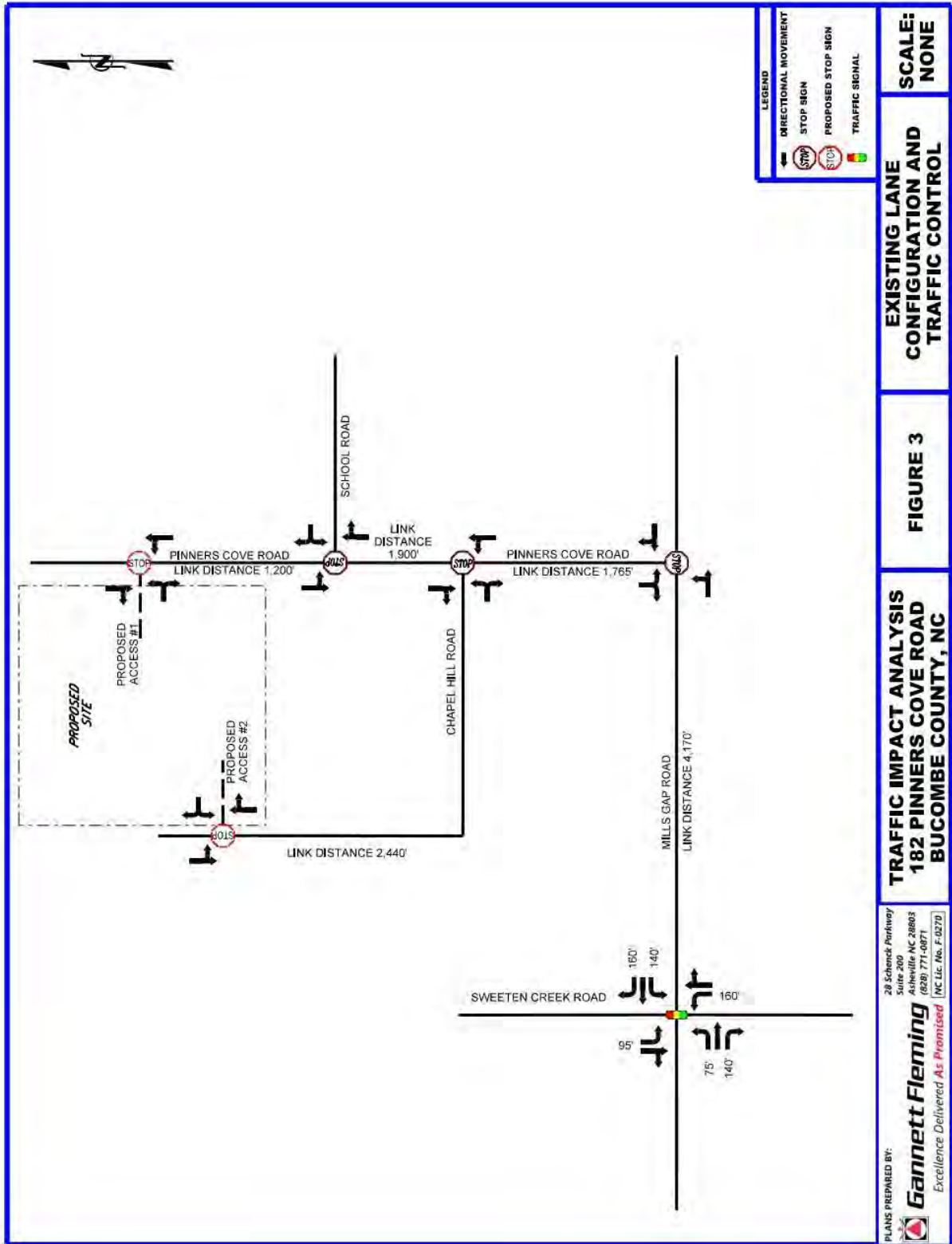
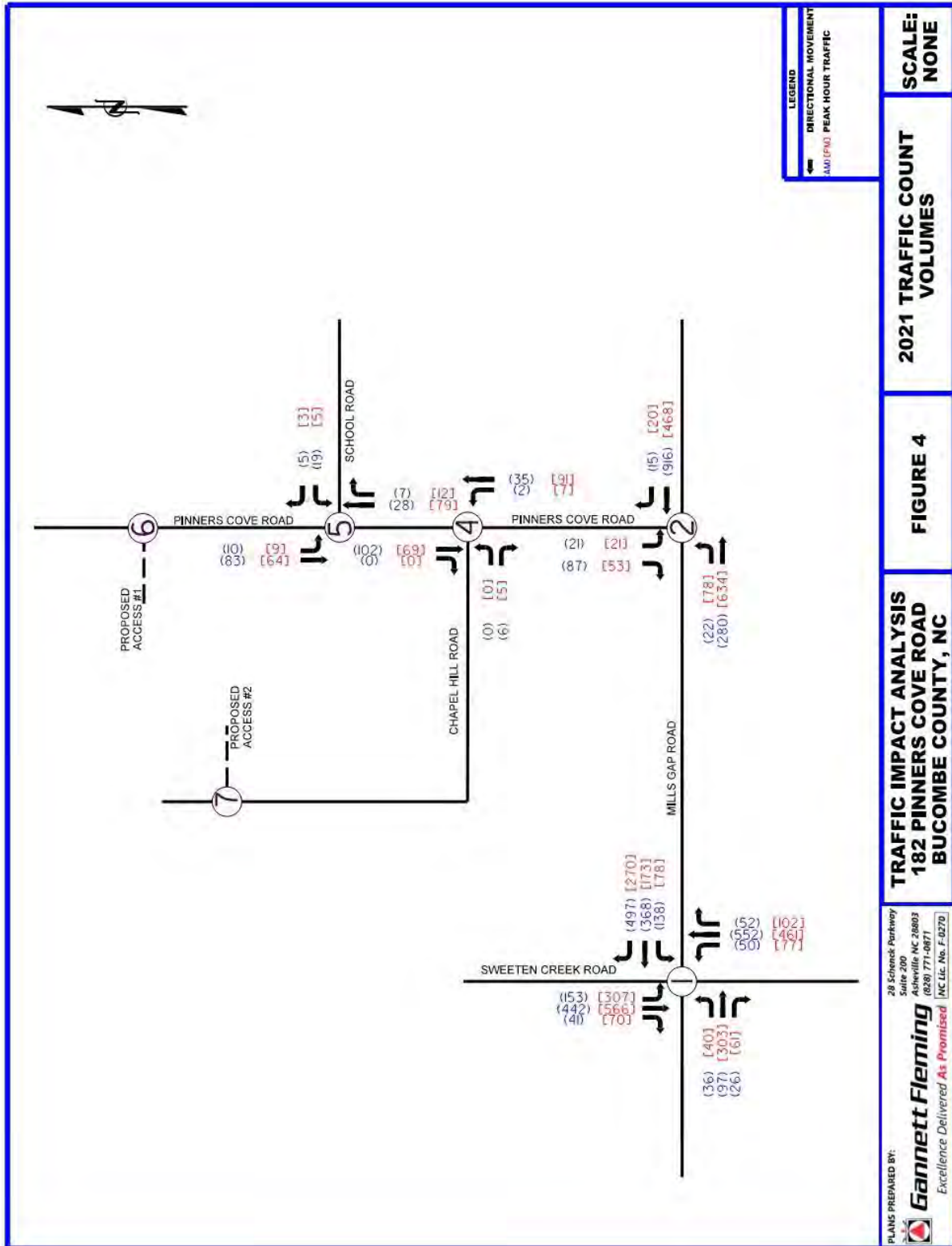


Figure 4 - 2021 Traffic Count Volumes



## IV. Traffic Generation

The amount of traffic generated by a new development is a function of the size and type of development. Once the proposed land use data for the site are known, the number of trips generated by the development can be estimated. Trip generation data for this report was conducted in accordance with the procedures outlined in the Institute of Transportation Engineers (ITE) report entitled *Trip Generation*<sup>3</sup>. Table 1 below illustrates the number of daily, AM peak hour, and PM peak hour trips expected to be generated by the proposed development.

**Table 1 – ITE Trip Generation Summary**

| ITE Trip Generation Summary           |                    |         |          |       |        |             |           |            |            |            |           |            |
|---------------------------------------|--------------------|---------|----------|-------|--------|-------------|-----------|------------|------------|------------|-----------|------------|
| LUC                                   | Description        | Density | Variable | PK HR | METHOD | Daily       | In        | AM Out     | Total      | In         | PM Out    | Total      |
| 210                                   | Single Family Home | 61      | Units    | Adj   | EQN    | 640         | 12        | 36         | 48         | 39         | 23        | 62         |
| 220                                   | Townhouse/Duplex   | 220     | Units    | Adj   | EQN    | 1486        | 22        | 69         | 91         | 72         | 43        | 115        |
| <b>281 Units Total Trips ----&gt;</b> |                    |         |          |       |        | <b>2126</b> | <b>34</b> | <b>105</b> | <b>139</b> | <b>111</b> | <b>66</b> | <b>177</b> |

Table 1 indicates the proposed development will generate approximately 2,126 total trips per day when it is fully built out. There are projected to be approximately 139 trips entering and exiting the site during the AM peak hour and 177 trips entering and exiting the site during the PM peak hour.

Pass-by trips are not applicable for residential land uses. Therefore, pass-by trips were not considered.

Internal capture is only applicable for mixed-use developments. Therefore, no internal capture was considered.

## V. Traffic Distribution

In order to properly determine the impact of the traffic generated by the proposed development, it is necessary to determine the distribution of traffic to and from the development. These percentages are based on the projected traffic patterns and population / employment centers in the area. They are also based on existing ADTs and count data obtained from traffic counts (See Table 2).

**Table 2- Site Traffic Distribution**

| Facility                          | Directions of Approach and Departure |
|-----------------------------------|--------------------------------------|
| SR 3116 (Mills Gap Road) (West)   | 75%                                  |
| SR 3116 (Mills Gap Road) (East)   | 15%                                  |
| SR 3117 (School Road East) (East) | 10%                                  |

The project traffic distribution is shown in Figure 6.

## VI. Projected Traffic Volumes

### A. Historical Traffic Growth

Historical traffic growth is the increase in traffic volumes due to usage increases and non-specific growth throughout the area. To account for normal increases in traffic as well as smaller, undetermined development, the existing 2021 traffic volumes were grown by 1.0% per year compounded annually to 2025 and 2040 to develop Background traffic volumes. This percentage is based on NCDOT AADT Maps<sup>2</sup> and observed growth patterns in the west Asheville Area. The 2025 Background AM and PM peak hour traffic volumes are illustrated in Figure 5.

### B. Approved Development Traffic

Approved development traffic is traffic generated by specific approved but not yet constructed, developments within the vicinity of the subject project. No other major developments are approved for construction in the immediate vicinity that would influence the growth rate beyond the 1.0% factor used in this analysis; therefore, no approved developments were included in the 2025 conditions.

### C. Total Traffic

To obtain total 2025 Future Buildout traffic volumes, the development traffic was added to the 2025 and 2040 Background traffic volumes. The AM and PM peak-hour turning movements for the studied intersections were then calculated and analyzed for the build-out years. The 2025 Future Buildout traffic volumes for the AM and PM peak hours are illustrated in Figure 8.



Figure 5 - 2025 Background Traffic Volumes

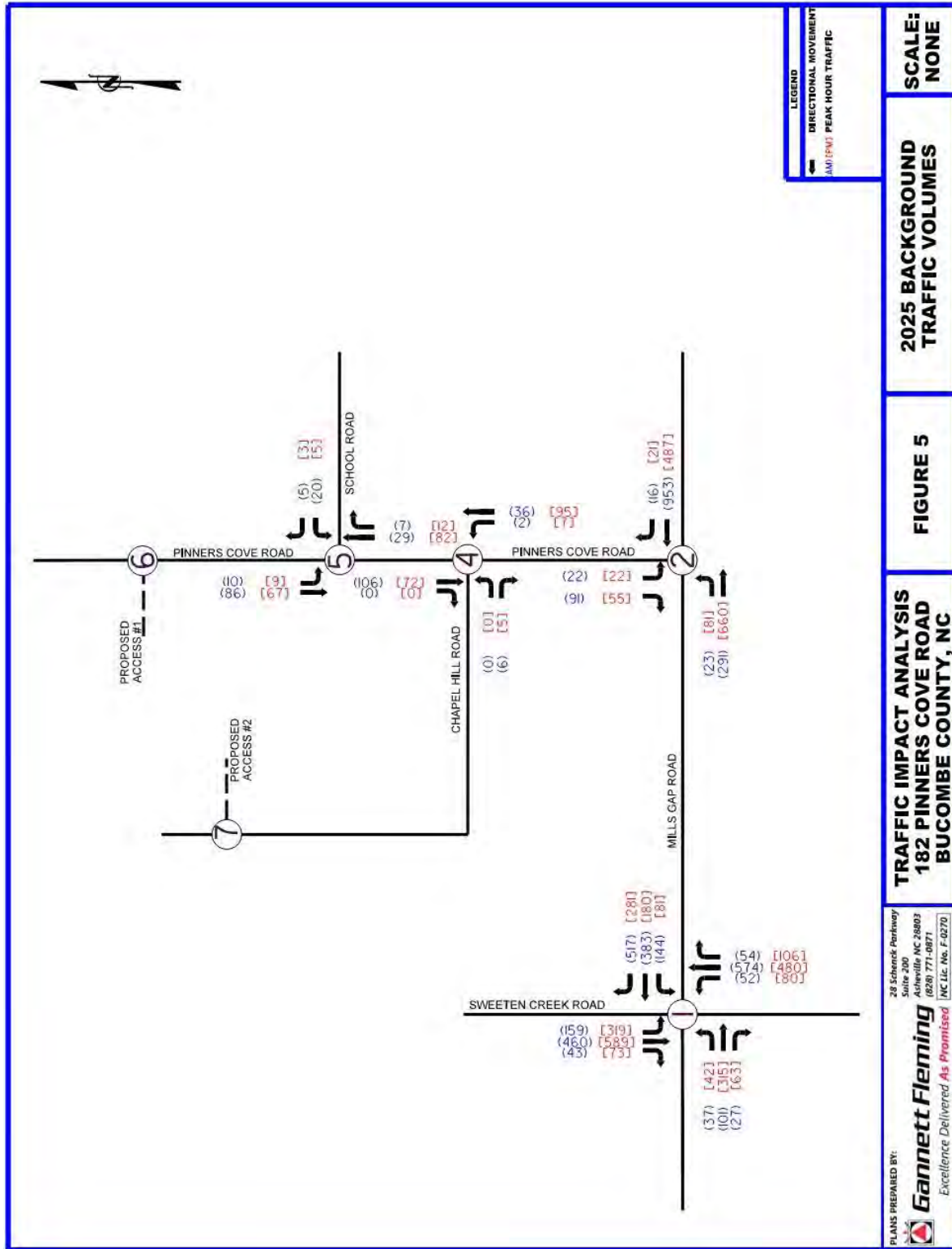




Figure 6 - Land Use Trip Distribution

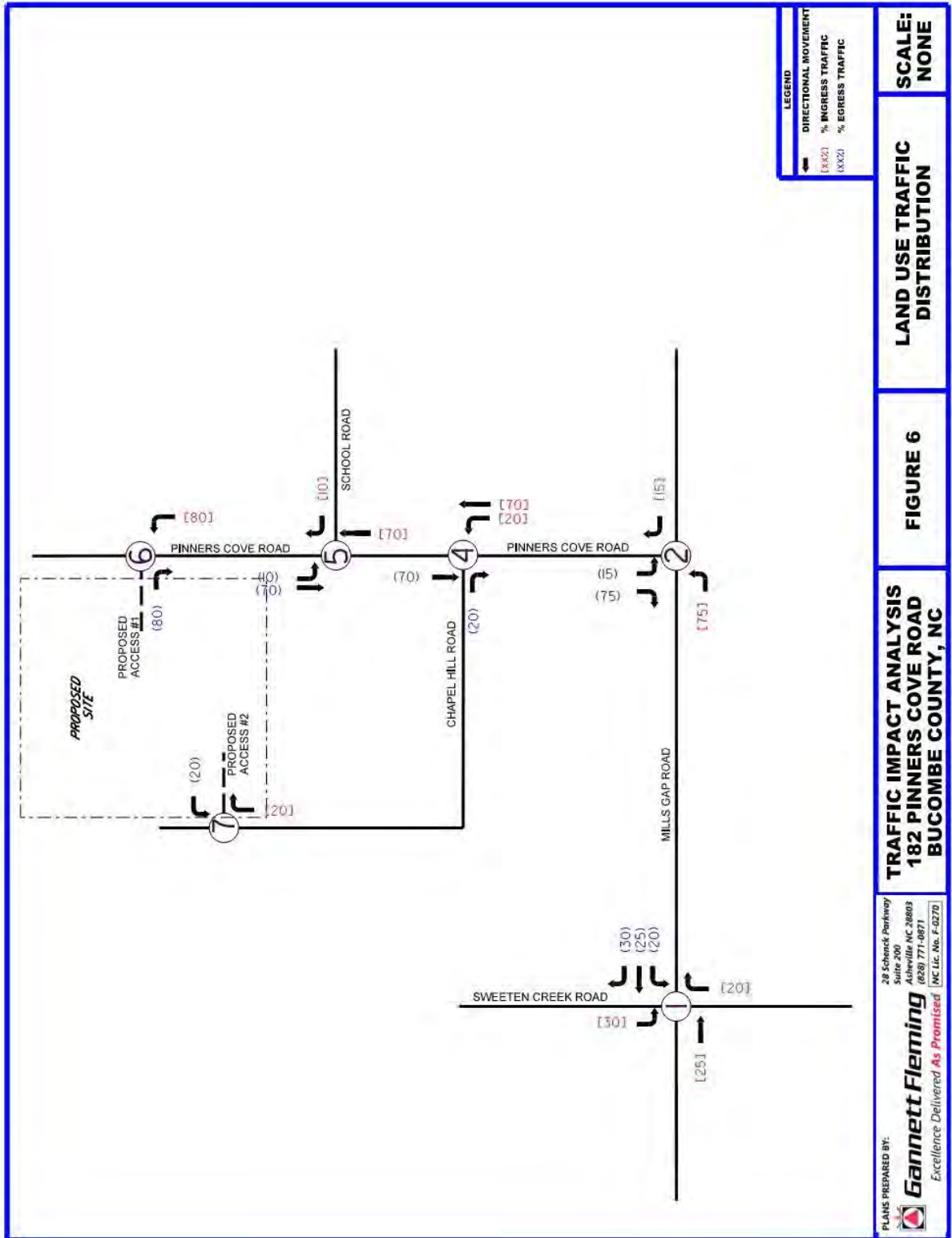


Figure 7 - Site Generated Traffic Volumes

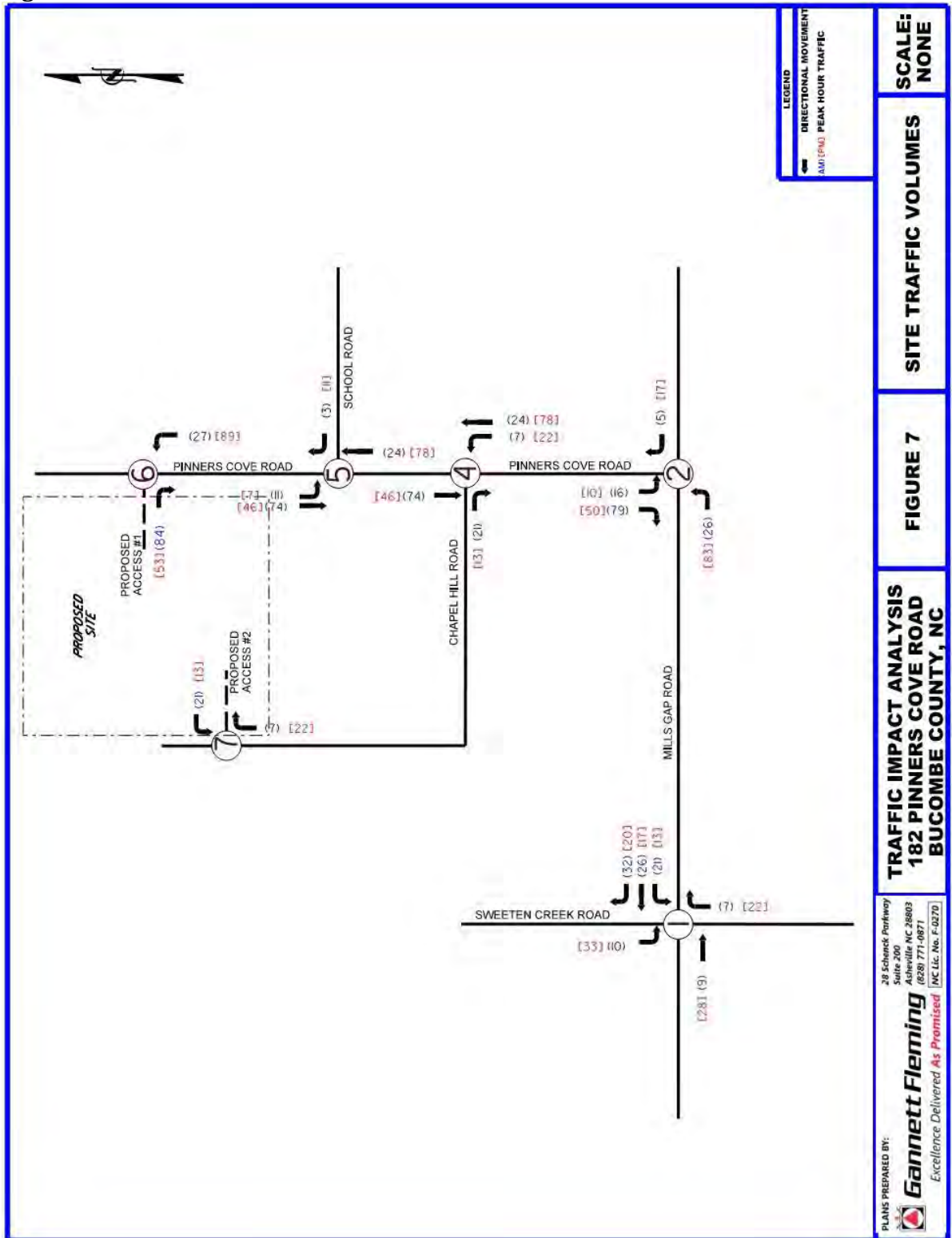
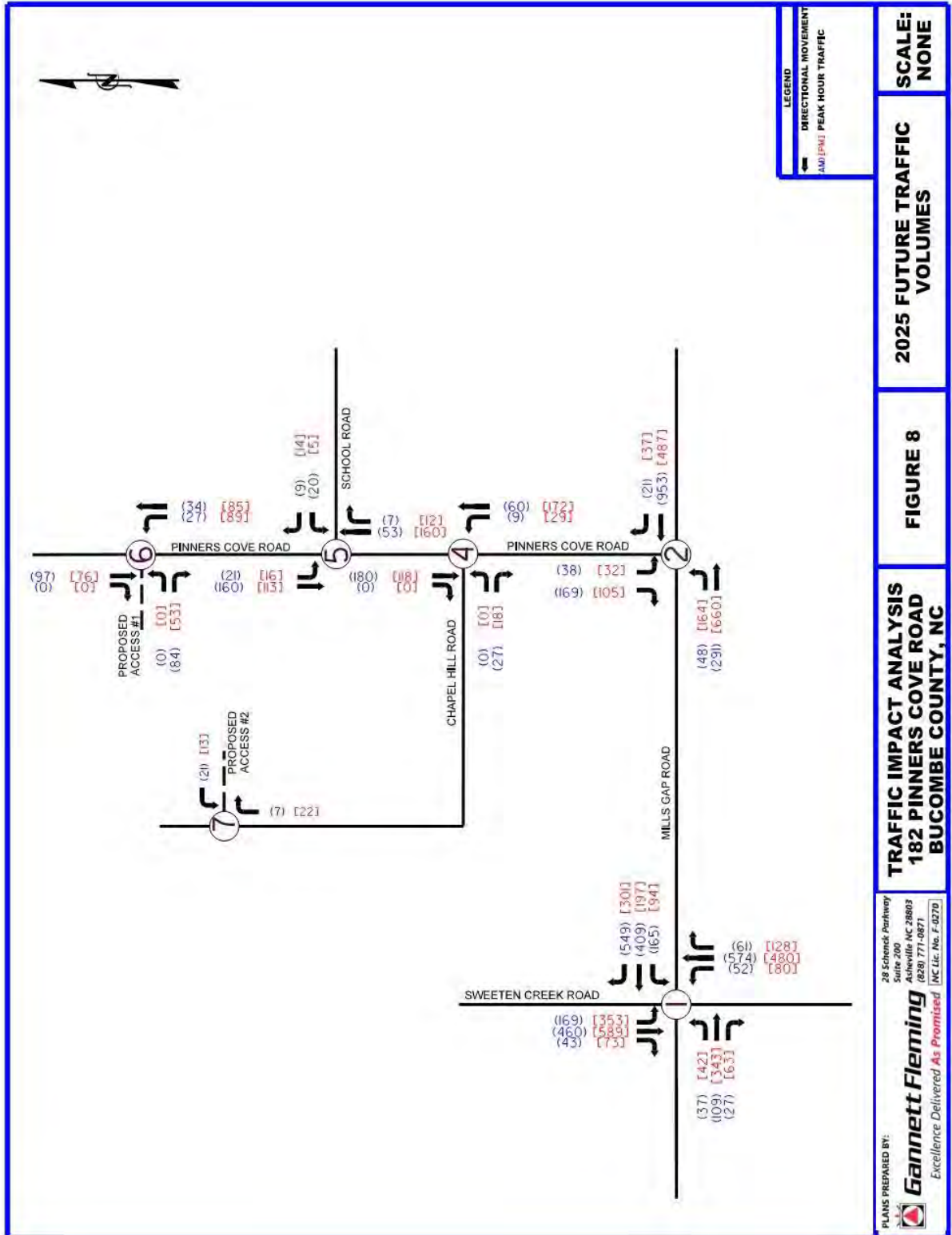


Figure 8 - 2025 Future Buildout Traffic Volumes



## VII. Traffic Analysis

The study area intersections were analyzed using the methods outlined in the **Highway Capacity Manual<sup>1</sup>** and Synchro Version 11 Software. The **Highway Capacity Manual<sup>1</sup>** defines capacity as “the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform section of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions, usually expressed as vehicles per hour or persons per hour”.

Level of service (LOS) is a term used to represent different traffic conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorist/or passengers”. Level of Service varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. Level B represents good progression with minimal congestion. At Level C, the number of vehicles stopping is significant, although many still pass through the intersection without stopping. Level D represents more congestion, but the overall operations are acceptable. At Level E, freedom to maneuver within the traffic stream is extremely difficult with driver frustration being generally high.

For signalized intersections, service levels pertain to each approach as well as an overall value. The unsignalized intersection analysis method in the **Highway Capacity Manual<sup>1</sup>** assigns LOS values for each movement that yields the right-of-way, but not to the overall intersection. This movement is generally a secondary movement from a minor street. At an unsignalized intersection, the primary traffic on the main roadway is virtually uninterrupted. Therefore, the overall level of service is usually much greater than what is represented by the results of the minor street movements. Synchro Version 11 will calculate an amount of delay for the overall intersection but will not assign a LOS value. Therefore, the overall intersection delay is not reported in the summary tables of this report. Generally, Level of Service D is acceptable for signalized intersections in suburban areas during peak periods. With the current method of reporting levels of service for unsignalized intersections, it is not uncommon for some of the minor street movements to be operating at a LOS F during the peak hours.

*Note: In accordance with NCDOT Guidelines, right turn on red movements were prohibited for each scenario. Additionally, all left turns from exclusive left turn lanes were modeled as “protected only”. The minimum cycle length for a traffic signal was set as 90 seconds for a three-phase and 120 seconds for a four-phase signal. Traffic signals in this analysis were modeled as actuated/uncoordinated if only one signal is analyzed and actuated/coordinated if multiple signals included. Synchro modeling software may predict that cycle lengths greater than 180 seconds may be most efficient for coordinated signal systems.*



Table 3 and 3A present criteria of each level of service as indicated in the *Highway Capacity Manual*<sup>1</sup>.

**Table 3 – Signalized Intersection Level of Service Criteria**

| Level of Service Criteria Signalized Intersections |                                 |
|--|---------------------------------|
| Level of Service                                   | Stopped Delay Per Vehicle (sec) |
| A  | ≤10.0                           |
| B  | >10.0 and ≤20.0                 |
| C  | >20.0 and ≤35.0                 |
| D  | >35.0 and ≤55.0                 |
| E  | >55.0 and ≤80.0                 |
| F  | >80.0                           |

**Table 3A – Unsignalized Intersection Level of Service Criteria**

| Level of Service Criteria Unsignalized Intersections |                               |
|--|-------------------------------|
| Level of Service                                     | Average Total Delay (sec/veh) |
| A  | ≤10                           |
| B  | >10 and ≤15                   |
| C  | >15 and ≤25                   |
| D  | >25 and ≤35                   |
| E  | >35 and ≤50                   |
| F  | >50                           |

Capacity analyses were performed for 2021 existing conditions, 2025 Background, and 2025 Future Buildout conditions (Mills Gap Road intersections only) for the following intersection:

- US 25A (Sweeten Creek Road)/ SR 3116 (Mills Gap Road)
- SR 3116 (Mills Gap Road)/ SR 3121 (Pinners Cove Road)
- SR 3121 (Pinners Cove Road)/ SR 3118 (Chapel Hill Road)
- SR 3117/SR 3121 (Pinners Cove Road)/ SR 3117 (School Road East)

Synchro 11 calculated the AM and PM peak hour level of service and delay for the study area intersections using methods outlined in the *Highway Capacity Manual*<sup>1</sup>. All capacity analyses are included in Appendix B and are briefly summarized in the following sub-sections. *It should be noted that under coordinated traffic signal operations, levels of service and delays may change with counterintuitive results. Individual approaches or intersections may experience less delay even with increased volumes due to the “system” approach taken by Synchro, where an individual intersection or approach may benefit from an increase or decrease in coordinated cycle lengths that may approach the optimum cycle length for that individual intersection.*



### **1. SR 3116 (Mills Gap Rd) / US 25A (Sweeten Creek Rd)**

The intersection of SR 3116 (Mills Gap Road) / US 25A (Sweeten Creek Road) operates as a signalized four-legged intersection. The capacity analysis for the Existing 2021 traffic condition revealed the intersection is currently operating at an acceptable Level of Service (LOS) in both the AM and PM peak hours with all approaches operating at LOS of either D or better during all modeled scenarios. The LOS of the intersection as a whole is operating at LOS C during the 2021 Existing AM Peak Hour conditions and D during the 2021 PM Peak Hour conditions with delays of 34.4 and 39.5 seconds respectively. All approaches are operating at LOS D or better. During the 2025 Background conditions, the LOS of the intersection as a whole is expected to be D for the AM and PM Peak Hour conditions, with delays of 48.8 and 47.6 seconds respectively.

For the 2025 Future Buildout conditions, the intersection as a whole is expected to operate at LOS D for the AM and PM Peak Hour conditions, with delays of 48.8 seconds and 47.6 seconds, respectively.

The queues predicted by Sim Traffic at this intersection show some change as a result of the addition of 182 Pinnars Cove Road. The westbound SR 3116 (Mills Gap Road) approach queues are predicted to improve slightly, but the northbound US 25A (Sweeten Creek Road) queues are expected to increase by more than 25%.

As previously mentioned, NCDOT TIP Project U-5834, SR 3116 (Mills Gap Road) runs east/west from Hendersonville Road (US 25) eastward to the Robinson Creek bridge. The construction of the project is expected to start in 2024 and be completed in 2025 or 2026. Since the estimated completion date is expected by the buildout year of the proposed development, this project was assumed to be constructed in the analysis.

Table 4 displays the Level of Service and Delay for the subject intersection for the 2021 Existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions. Table 5 displays projected queueing for these conditions.



**Table 4 - SR 3115 (Mills Gap Rd) / US 25A (Sweeten Creek Rd) LOS Analysis**

| Table 4 - Mills Gap Road at Sweeten Creek Road Level of Service |                |               |                 |                      |  |
|---|----------------|---------------|-----------------|----------------------|--|
| AM Peak Hour  |                |               |                 |                      |  |
| Intersection Level of Service (LOS)                             |                | 2021 Existing | 2025 Background | 2025 Future Buildout |  |
| <b>Total Intersection Delay (Seconds)</b>                       |                | <b>34.4</b>   | <b>48.8</b>     | <b>51.9</b>          |  |
| Mills Gap Road Eastbound  | LOS            | C             | D               | D                    |  |
| Mills Gap Road Westbound  | Approach Delay | 29.7          | 52.8            | 47.2                 |  |
| Sweeten Creek Road Northbound                                   | Approach Delay | D             | E               | E                    |  |
| Sweeten Creek Road Southbound                                   | Approach Delay | 35.1          | 58.1            | 58.1                 |  |
|   | LOS            | D             | D               | E                    |  |
|   | Approach Delay | 42.3          | 52.9            | 64.6                 |  |
|   | LOS            | C             | C               | C                    |  |
|   | Approach Delay | 26.3          | 29              | 29.9                 |  |
| PM Peak Hour  |                |               |                 |                      |  |
| Intersection Level of Service (LOS)                             |                | 2021 Existing | 2025 Background | 2025 Future Buildout |  |
| <b>Total Intersection Delay (Seconds)</b>                       |                | <b>39.5</b>   | <b>47.6</b>     | <b>53.9</b>          |  |
| Mills Gap Road Eastbound  | LOS            | D             | D               | D                    |  |
| Mills Gap Road Westbound  | Approach Delay | 54.0          | 50.4            | 52.8                 |  |
| Sweeten Creek Road Northbound                                   | Approach Delay | C             | D               | D                    |  |
| Sweeten Creek Road Southbound                                   | Approach Delay | 23.6          | 38.1            | 38.6                 |  |
|   | LOS            | D             | D               | E                    |  |
|   | Approach Delay | 50.2          | 54.7            | 67.0                 |  |
|   | LOS            | C             | D               | D                    |  |
|   | Approach Delay | 34.9          | 46.9            | 54.4                 |  |

Delay Decrease or LOS Improvement  
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade  
 LOS "F"

**Table 5 - SR 3115 (Mills Gap Rd) / US 25A (Sweeten Creek Rd) Queueing Analysis**

| Table 5 - Mills Gap Road at Sweeten Creek Road Queues |                 |               |      |                 |      |                      |      |
|---|-----------------|---------------|------|-----------------|------|----------------------|------|
| AM Peak Hour  | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|   |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Mills Gap Road Eastbound                              | Maximum         | 157           | 114  | 138             | 114  | 138                  | 138  |
|   | 95th Percentile | 132           | 108  | 73              | 108  | 73                   | 73   |
|   | Maximum         | 696           | 1198 | 1152            | 1198 | 1152                 | 1152 |
| Mills Gap Road Westbound                              | Maximum         | 496           | 1453 | #677            | 1453 | #677                 | #677 |
|   | 95th Percentile | 707           | 1893 | 2901            | 1893 | 2901                 | 2901 |
|   | Maximum         | 590           | 1522 | #810            | 1522 | #810                 | #810 |
| Sweeten Creek Road Northbound                         | Maximum         | 300           | 400  | 376             | 400  | 376                  | 376  |
|   | 95th Percentile | 250           | 367  | 416             | 367  | 416                  | 416  |
|   | Maximum         | 250           | 367  | 416             | 367  | 416                  | 416  |
| Sweeten Creek Road Southbound                         | Maximum         | 250           | 367  | 416             | 367  | 416                  | 416  |
|   | 95th Percentile | 250           | 367  | 416             | 367  | 416                  | 416  |
| PM Peak Hour  | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|   |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Mills Gap Road Eastbound                              | Maximum         | 738           | 282  | 226             | 282  | 226                  | 226  |
|   | 95th Percentile | 658           | 241  | 202             | 241  | 202                  | 202  |
|   | Maximum         | 286           | 261  | 225             | 261  | 225                  | 225  |
| Mills Gap Road Westbound                              | Maximum         | 209           | 218  | 218             | 218  | 218                  | 218  |
|   | 95th Percentile | 663           | 1159 | 1973            | 1159 | 1973                 | 1973 |
|   | Maximum         | 598           | 1174 | #767            | 1174 | #767                 | #767 |
| Sweeten Creek Road Northbound                         | Maximum         | 993           | 1238 | 1256            | 1238 | 1256                 | 1256 |
|   | 95th Percentile | 944           | 1354 | 605             | 1354 | 605                  | 605  |
|   | Maximum         | 944           | 1354 | 605             | 1354 | 605                  | 605  |

■ Queue Decrease  
■ Queue Increase > 25%  
■ Queue > Available Storage  
 # = 95th percentile volume exceeds capacity, queue may be longer.

## 2. SR 3115 (Mills Gap Rd) / SR 3121 (Pinners Cove Rd)

The SR 3115 (Mills Gap Road) / SR 3121 (Pinners Cove Road) intersection is currently an unsignalized three-legged intersection. The SR 3121 (Pinners Cove Road) approach is currently operating at LOS C during the AM Peak Hour. The 2025 background traffic is predicted to cause an additional 3.7 seconds of AM Peak Hour delay, which results in LOS D. The addition of site traffic is expected to result in an additional 4.9 seconds of delay to this approach, with the LOS remaining at LOS D.

The queues predicted by Sim Traffic at this intersection are expected to increase approximately 3 car lengths for the southbound SR 3121 (Pinners Cove Road) approach as a result of the addition of 182 Pinners Cove Road Development traffic.

For the 2025 Future Build Condition analysis, the construction of a 150-foot left turn lane at the southbound Pinners Cove Road approach was assumed. NCDOT has a proposed Spot Safety Project that will add a traffic signal and an eastbound turn lane to this intersection. There is currently no indication of when that project will be constructed. Gannett Fleming modeled the intersection as unsignalized to present a “worst case” scenario.

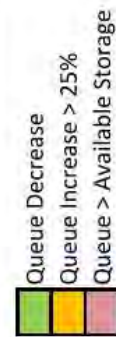
Table 6 displays the Level of Service and Delay for the subject intersection for the 2021 Existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions. Table 7 displays projected queueing for the intersection.





**Table 7 - SR 3115 (Mills Gap Rd) / SR 3121 (Pinners Cove Rd) Queueing Analysis**

| Table 7 - Mills Gap Road at Pinners Cove Rd Queues |                 |               |      |                 |      |                      |      |
|--|-----------------|---------------|------|-----------------|------|----------------------|------|
| AM Peak Hour                                       | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Mills Gap Road Eastbound                           | Maximum         | 204           |      | 52              |      | 75                   |      |
|  | 95th Percentile | 3             |      | 3               |      | 8                    |      |
|  | Maximum         |               |      | 0               |      | 0                    |      |
| Mills Gap Road Westbound                           | 95th Percentile |               |      | 0               |      | 0                    |      |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| Pinners Cove Road Southbound                       | Maximum         | 269           |      | 177             |      | 250                  |      |
|  | 95th Percentile | 43            |      | 53              |      | 93                   |      |
|  |                 |               |      |                 |      |                      |      |
| PM Peak Hour                                       | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Mills Gap Road Eastbound                           | Maximum         | 181           |      | 53              |      | 99                   |      |
|  | 95th Percentile | 8             |      | 8               |      | 18                   |      |
|  | Maximum         |               |      | 0               |      | 40                   |      |
| Mills Gap Road Westbound                           | 95th Percentile |               |      | 0               |      | 0                    |      |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| Pinners Cove Road Southbound                       | Maximum         | 97            |      | 95              |      | 76                   |      |
|  | 95th Percentile | 20            |      | 23              |      | 25                   |      |
|  |                 |               |      |                 |      |                      |      |



### 3. SR 3121 (Pinners Cove Rd) / SR 3118 (Chapel Hill Rd)

The SR 3121 (Pinners Cove Road) / SR 3118 (Chapel Hill Road) intersection is currently a unsignalized three-legged intersection. The capacity analyses for the 2021 Existing and 2025 Background traffic conditions revealed that all approaches are operating at LOS A in the AM and PM Peak Hours. For the 2025 Future Buildout conditions, the delays are expected to increase less than 1 second, but the LOS will remain A.

The queues predicted by Sim Traffic at this intersection show some change as a result of the addition of 182 Pinners Cove Road traffic but are not expected to be unreasonable. The SR 3118 (Chapel Hill Road) southbound approach queues are expected to increase by only 1 car length during the PM Peak Hour.

From these analyses, it is apparent that the addition of traffic from the 182 Pinners Cove Road development will have little effect on the traffic conditions at this intersection. Gannett Fleming recommends no changes to this intersection as a result of the 182 Pinners Cove Road development.

Table 8 displays the Level of Service and Delay for the subject intersection for the 2021 Existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions. Table 9 displays projected queueing for the intersection.

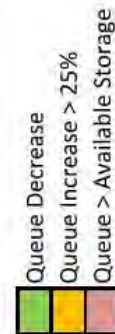






**Table 9 - SR 3121 (Pinners Cove Rd) / SR 3118 (Chapel Hill Rd) Queueing Analysis**

| Table 9 - Pinners Cove Road at Chapel Hill Road Queues |                 |               |      |                 |      |                      |      |
|--|-----------------|---------------|------|-----------------|------|----------------------|------|
| AM Peak Hour   | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Pinners Cove Road Eastbound                            | Maximum         | 0             | 0    | 0               | 0    | 0                    | 0    |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 25                   | 25   |
|  | Maximum         | 0             | 0    | 0               | 0    | 0                    | 0    |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 0                    | 0    |
| Pinners Cove Road Westbound                            | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| Chapel Hill Road Southbound                            | Maximum         | 26            | 48   | 48              | 48   | 48                   | 48   |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 3                    | 3    |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| PM Peak Hour   | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Pinners Cove Road Eastbound                            | Maximum         | 53            | 0    | 0               | 31   | 31                   | 31   |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 3                    | 3    |
|  | Maximum         | 0             | 0    | 0               | 0    | 0                    | 0    |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 0                    | 0    |
| Pinners Cove Road Westbound                            | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| Chapel Hill Road Southbound                            | Maximum         | 26            | 26   | 26              | 48   | 48                   | 48   |
|  | 95th Percentile | 0             | 0    | 0               | 0    | 3                    | 3    |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |



#### **4. SR 3121 (Pinners Cove Rd) / SR 3117 (School Rd East)**

The SR 3121 (Pinners Cove Road) / SR 3117 (School Road East) intersection is currently a unsignalized three-legged intersection. The capacity analyses for the 2021 Existing and 2025 Background traffic conditions revealed that all approaches are operating at LOS A in the AM and PM Peak Hours. The School Road East westbound approach will experience LOS B in the PM Peak Hour, with the remaining two approaches experiencing an LOS of A, in the Full Buildout Condition.




From these analyses, it is apparent that the addition of traffic from the 182 Pinners Cove Road development will have very little effect on the traffic conditions at this intersection. Gannett Fleming recommends no changes to this intersection as a result of the 182 Pinners Cove Road development.

Queue lengths are expected to not be unreasonably impacted by this project during the AM and PM Peak Hour conditions.

Table 10 displays the Level of Service and Delay for the subject intersection for the 2021 Existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions. Table 11 displays projected queueing for the intersection.

**Table 10 - SR 3121 (Pinners Cove Rd) / SR 3117 (School Rd E) LOS Analysis**

| Table 10 - Pinners Cove Road at School Road Level of Service |  |               |                 |                      |  |
|--|--|---------------|-----------------|----------------------|--|
| AM Peak Hour   |  | 2021 Existing | 2025 Background | 2025 Future Buildout |  |
| Intersection Level of Service (LOS)                          |  | N/A           | N/A             | N/A                  |  |
| Total Intersection Delay (Seconds)                           |  | N/A           | N/A             | N/A                  |  |
|  |  | LOS           |                 |                      |  |
| Approach Delay   |  |               |                 |                      |  |
| School Road Westbound  |  | A             | A               | B                    |  |
| Approach Delay   |  | 9.3           | 9.4             | 10.1                 |  |
| Pinners Cove Road Northbound                                 |  | A             | A               | A                    |  |
| Approach Delay   |  | 0.0           | 0.0             | 0.0                  |  |
| Pinners Cove Road Southbound                                 |  | A             | A               | A                    |  |
| Approach Delay   |  | 0.8           | 0.8             | 0.9                  |  |
|  |  |               |                 |                      |  |
| PM Peak Hour   |  | 2021 Existing | 2025 Background | 2025 Future Buildout |  |
| Intersection Level of Service (LOS)                          |  | N/A           | N/A             | N/A                  |  |
| Total Intersection Delay (Seconds)                           |  | N/A           | N/A             | N/A                  |  |
|  |  | LOS           |                 |                      |  |
| Approach Delay   |  |               |                 |                      |  |
| School Road Westbound  |  | A             | A               | A                    |  |
| Approach Delay   |  | 9.3           | 9.3             | 9.8                  |  |
| Pinners Cove Road Northbound                                 |  | A             | A               | A                    |  |
| Approach Delay   |  | 0.0           | 0.0             | 0.0                  |  |
| Pinners Cove Road Southbound                                 |  | A             | A               | A                    |  |
| Approach Delay   |  | 0.9           | 0.9             | 0.9                  |  |

 Delay Decrease or LOS Improvement  
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade  
 LOS "F"



**Table 11 - SR 3121 (Pinners Cove Rd) / SR 3117 (School Rd E) Queuing Analysis**

| Table 11 - Pinners Cove Road at School Road Queues |                 |               |      |                 |      |                      |      |
|--|-----------------|---------------|------|-----------------|------|----------------------|------|
| AM Peak Hour                                       | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| School Road Westbound                              | Maximum         | 16            |      | 16              |      | 38                   |      |
|  | 95th Percentile | 3             |      | 3               |      | 3                    |      |
| Pinners Cove Road Northbound                       | Maximum         | 0             |      | 0               |      | 0                    |      |
|  | 95th Percentile | 0             |      | 0               |      | 0                    |      |
| Pinners Cove Road Southbound                       | Maximum         | 32            |      | 31              |      | 55                   |      |
|  | 95th Percentile | 0             |      | 0               |      | 0                    |      |
|  |                 |               |      |                 |      |                      |      |
| PM Peak Hour                                       | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|  |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
|  | Maximum         |               |      |                 |      |                      |      |
|  | 95th Percentile |               |      |                 |      |                      |      |
| School Road Westbound                              | Maximum         | 16            |      | 16              |      | 35                   |      |
|  | 95th Percentile | 0             |      | 0               |      | 3                    |      |
| Pinners Cove Road Northbound                       | Maximum         | 0             |      | 0               |      | 0                    |      |
|  | 95th Percentile | 0             |      | 0               |      | 0                    |      |
| Pinners Cove Road Southbound                       | Maximum         | 53            |      | 31              |      | 31                   |      |
|  | 95th Percentile | 0             |      | 0               |      | 0                    |      |

■ Queue Decrease  
■ Queue Increase > 25%  
■ Queue > Available Storage



## 5. SR 3121 (Pinners Cove Road) / Site Access #1

The proposed SR 3121 (Pinners Cove Road) / Site Access #1 intersection is planned as a three-legged unsignalized intersection with two-way stop-control. The proposed access will operate at an LOS of A during the AM and PM Peak Hour conditions.

Queue lengths are expected to not be unreasonably impacted by this project during the AM and PM Peak Hour conditions.

Gannett Fleming recommends that this intersection be constructed as planned with full access out control. Sufficient stem length should be provided in accordance with the NCDOT Driveway Manual.


Table 12 displays the Level of Service and Delay for the subject intersection for the 2021 Existing conditions, 2025 Background conditions, and 2025 Future Buildout conditions. Table 13 displays projected queueing for the intersection.

Site Access #2 is an extension of SR 3118 (Chapel Hill Road). Therefore, it was not evaluated in this Analysis.



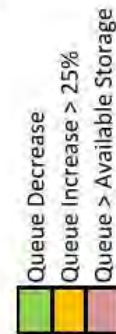
**Table 12 - SR 3121 (Pinners Cove Road) / Site Access #1 LOS Analysis**

| Table 12 - Pinners Cove Road at Site Access #1 Level of Service |                |               |                 |                      |  |  |
|---|----------------|---------------|-----------------|----------------------|--|--|
| AM Peak Hour  |                | 2021 Existing | 2025 Background | 2025 Future Buildout |  |  |
| Intersection Level of Service (LOS)                             |                | N/A           | N/A             | N/A                  |  |  |
| Total Intersection Delay (Seconds)                              |                | N/A           | N/A             | N/A                  |  |  |
| Site Access #1 Eastbound  | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 9.3                  |  |  |
|   | LOS            | N/A           | N/A             |                      |  |  |
| Pinners Cove Road Northbound                                    | Approach Delay | N/A           | N/A             |                      |  |  |
|   | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 3.3                  |  |  |
| Pinners Cove Road Southbound                                    | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 0                    |  |  |
|   | Approach Delay | N/A           | N/A             |                      |  |  |
|   |                |               |                 |                      |  |  |
| PM Peak Hour  |                | 2021 Existing | 2025 Background | 2025 Future Buildout |  |  |
| Intersection Level of Service (LOS)                             |                | N/A           | N/A             | N/A                  |  |  |
| Total Intersection Delay (Seconds)                              |                | N/A           | N/A             | N/A                  |  |  |
| Site Access #1 Eastbound  | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 9.2                  |  |  |
|   | LOS            | N/A           | N/A             |                      |  |  |
| Pinners Cove Road Northbound                                    | Approach Delay | N/A           | N/A             |                      |  |  |
|   | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 3.9                  |  |  |
| Pinners Cove Road Southbound                                    | LOS            | N/A           | N/A             | A                    |  |  |
|   | Approach Delay | N/A           | N/A             | 0                    |  |  |
|   | Approach Delay | N/A           | N/A             |                      |  |  |


  
 Delay Decrease or LOS Improvement  
 Delay Increase > 25% or LOS Decrease by 1 Letter Grade  
 LOS "F"

**Table 13 - SR 3121 (Pinners Cove Road) / Site Access #1 Queueing Analysis**

| Table 13 - Pinners Cove Road at Site Access #1 Queues |                 |               |      |                 |      |                      |      |
|---|-----------------|---------------|------|-----------------|------|----------------------|------|
| AM Peak Hour  | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|   |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
| Site Access #1 Eastbound                              | Maximum         | N/A           | N/A  | N/A             | N/A  | 50                   |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 8                    |      |
|   | Maximum         |               |      |                 |      |                      |      |
|   | 95th Percentile |               |      |                 |      |                      |      |
| Pinners Cove Road Northbound                          | Maximum         | N/A           | N/A  | N/A             | N/A  | 32                   |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 3                    |      |
|   | Maximum         | N/A           | N/A  | N/A             | N/A  | 0                    |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 0                    |      |
| PM Peak Hour  | Queue Length    | 2021 Existing |      | 2025 Background |      | 2025 Future Buildout |      |
|   |                 | Feet          | Feet | Feet            | Feet | Feet                 | Feet |
|   | Maximum         | N/A           | N/A  | N/A             | N/A  | 28                   |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 5                    |      |
| Pinners Cove Road Northbound                          | Maximum         |               |      |                 |      |                      |      |
|   | 95th Percentile |               |      |                 |      |                      |      |
|   | Maximum         | N/A           | N/A  | N/A             | N/A  | 73                   |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 5                    |      |
| Pinners Cove Road Southbound                          | Maximum         | N/A           | N/A  | N/A             | N/A  | 0                    |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 0                    |      |
|   | Maximum         | N/A           | N/A  | N/A             | N/A  | 0                    |      |
|   | 95th Percentile | N/A           | N/A  | N/A             | N/A  | 0                    |      |



## VIII. Recommendations

To mitigate the traffic-related impacts caused by the 182 Pinners Cove Road multi-family residential development and to provide for safe, efficient, and reliable traffic flow, Gannett Fleming recommends the following:

### **US 25A (Sweeten Creek Road)/ SR 3116 (Mills Gap Road)**

Gannett Fleming recommends no changes at this intersection.

### **SR 3116 (Mills Gap Road)/ SR 3121 (Pinners Cove Road)**

Gannett Fleming recommends the addition of a left turn lane with 150 feet of full storage to the SR 3121 (Pinners Cove Road) approach to this intersection as a result of the 182 Pinners Cove Road development.

### **SR 3121 (Pinners Cove Road)/ SR 3118 (Chapel Hill Road)**

Gannett Fleming recommends no changes at this intersection.

### **SR 3117/SR 3121 (Pinners Cove Road)/ SR 3117 (School Road)**

Gannett Fleming recommends no changes at this intersection

### **SR 3121 (Pinners Cove Road) / Site Access #1**

Gannett Fleming recommends that this intersection be constructed as planned with full access out control. The proposed access stem length should be as per NCDOT *Policy on Street and Driveway Access to North Carolina Highways*.

### **SR 3118 (Chapel Hill Road) / Site Access #2**

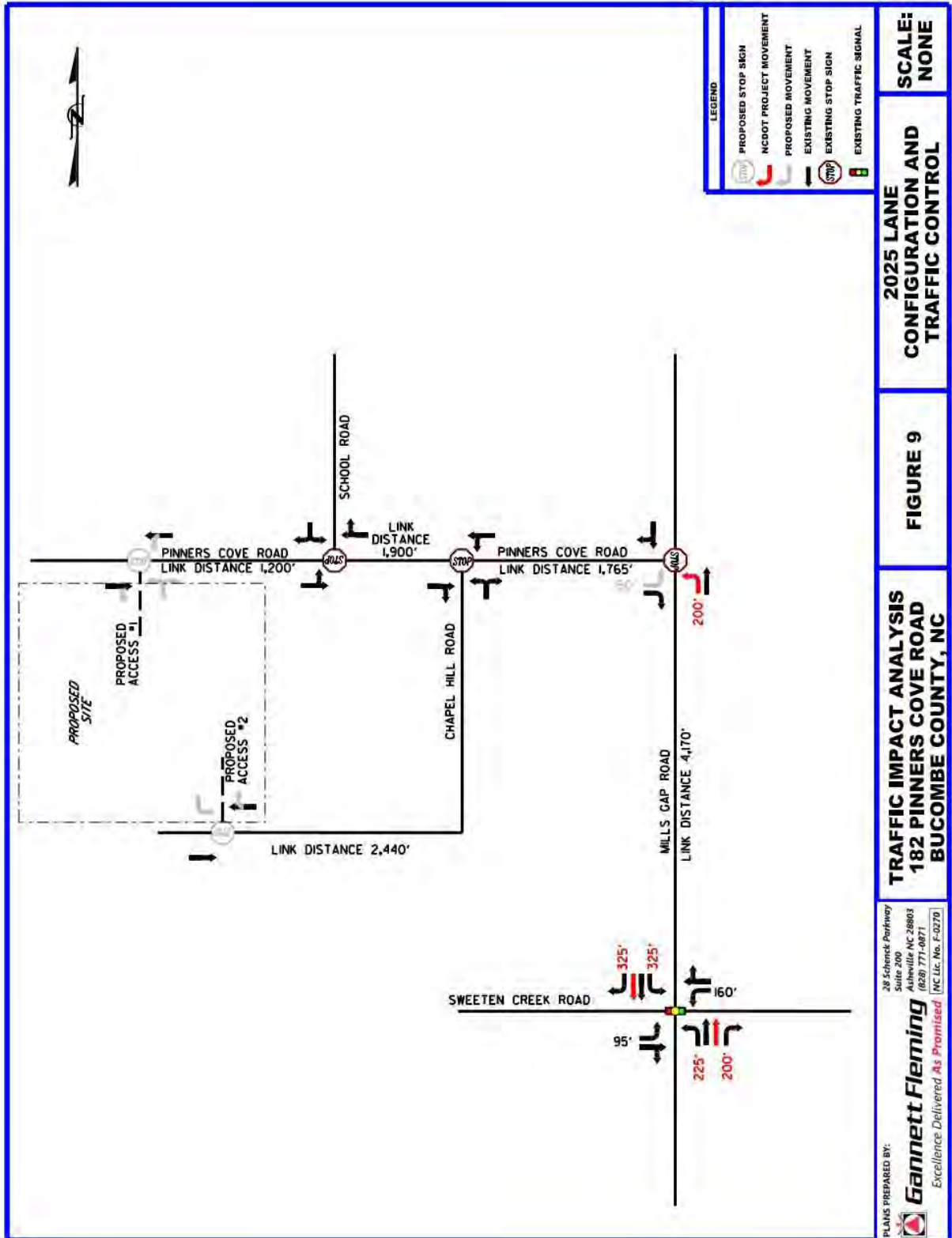
Gannett Fleming recommends that this intersection be constructed as planned with full access out control. The proposed access stem length should be as per NCDOT *Policy on Street and Driveway Access to North Carolina Highways*.

The recommended lane configurations and traffic control are shown on Figure 9

*Note: The traffic signals at the intersections in this analysis should be optimized for traffic conditions as they change as part of an ongoing process. Because NCDOT has sole jurisdiction for the operation and maintenance of the signals, this should not be a responsibility of the development.*



Figure 9 - Recommended Lane Configuration and Traffic Control





## IX. Conclusions

This Traffic Impact Analysis shows that although the proposed 182 Pinners Cove Road will have a small impact on the traffic operations at the study area intersections, the impact will be mitigated by the recommended improvements. With the recommended improvements in place, the proposed development will not negatively impact the health, safety, and welfare of the travelling public.

## X. References

<sup>1</sup> **Highway Capacity Manual**, Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 1998.

<sup>2</sup> NCDOT Interactive Traffic Volume Map1:

<http://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=5f6fe58c1d90482ab9107ccc03026280>

<sup>3</sup> **Trip Generation Manual**, Institute of Transportation Engineers, 11<sup>th</sup> Edition, Washington, D.C., 2021



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## Appendix A: Traffic Data

A





| Groups Printed - Cars, PU, Vans - Heavy Trucks |  |      |      |       |      |  |      |      |       |      |                                |      |      |       |      |                                |      |      |       |      |            |     |      |      |
|--|--|------|------|-------|------|--|------|------|-------|------|--------------------------------|------|------|-------|------|--------------------------------|------|------|-------|------|------------|-----|------|------|
| Start Time                                     | US 25A ALT/Sweeten Creek Rd Northbound |      |      |       |      | US 25A ALT/Sweeten Creek Rd Southbound |      |      |       |      | CR 3116/Mills Gap Rd Eastbound |      |      |       |      | CR 3116/Mills Gap Rd Westbound |      |      |       |      | Int. Total |     |      |      |
|  | Left                                   | Thru | Rgt  | Uturn | Peds | Left                                   | Thru | Rgt  | Uturn | Peds | Left                           | Thru | Rgt  | Uturn | Peds | Left                           | Thru | Rgt  | Uturn | Peds |            |     |      |      |
| 7:00 AM  | 15                                     | 129  | 13   | 0     | 0    | 157                                    | 21   | 84   | 10    | 0    | 0                              | 115  | 9    | 15    | 3    | 0                              | 27   | 13   | 61    | 90   | 0          | 0   | 164  | 463  |
| 7:15 AM  | 16                                     | 144  | 7    | 0     | 0    | 167                                    | 41   | 93   | 10    | 0    | 1                              | 144  | 11   | 13    | 7    | 0                              | 0    | 31   | 25    | 86   | 133        | 0   | 0    | 244  |
| 7:30 AM  | 18                                     | 128  | 12   | 0     | 0    | 158                                    | 48   | 113  | 15    | 0    | 1                              | 176  | 9    | 18    | 4    | 0                              | 0    | 31   | 39    | 85   | 120        | 0   | 0    | 244  |
| 7:45 AM  | 9                                      | 143  | 18   | 0     | 0    | 170                                    | 30   | 120  | 9     | 0    | 1                              | 159  | 6    | 33    | 7    | 0                              | 0    | 46   | 37    | 107  | 133        | 0   | 0    | 277  |
| Total  | 58                                     | 544  | 50   | 0     | 0    | 652                                    | 140  | 410  | 44    | 0    | 3                              | 594  | 35   | 79    | 21   | 0                              | 0    | 135  | 114   | 339  | 476        | 0   | 0    | 929  |
| 8:00 AM  | 7                                      | 137  | 15   | 0     | 0    | 159                                    | 34   | 116  | 7     | 0    | 0                              | 157  | 10   | 33    | 8    | 0                              | 0    | 51   | 37    | 90   | 111        | 0   | 0    | 238  |
| 8:15 AM  | 12                                     | 134  | 15   | 0     | 0    | 161                                    | 37   | 94   | 15    | 0    | 0                              | 146  | 8    | 39    | 8    | 0                              | 0    | 55   | 30    | 69   | 91         | 0   | 0    | 190  |
| 8:30 AM  | 17                                     | 151  | 11   | 0     | 0    | 179                                    | 39   | 117  | 14    | 0    | 0                              | 170  | 12   | 32    | 13   | 0                              | 0    | 57   | 24    | 54   | 102        | 0   | 0    | 180  |
| 8:45 AM  | 12                                     | 134  | 10   | 0     | 0    | 156                                    | 40   | 101  | 19    | 0    | 0                              | 160  | 11   | 27    | 8    | 0                              | 0    | 46   | 28    | 52   | 68         | 0   | 0    | 148  |
| Total  | 48                                     | 556  | 51   | 0     | 0    | 655                                    | 150  | 428  | 55    | 0    | 0                              | 633  | 41   | 131   | 37   | 0                              | 0    | 209  | 119   | 265  | 372        | 0   | 0    | 756  |
| ***BREAK***                                    |  |      |      |       |      |  |      |      |       |      |                                |      |      |       |      |                                |      |      |       |      |            |     |      |      |
| 4:00 PM  | 13                                     | 106  | 23   | 0     | 0    | 142                                    | 73   | 127  | 13    | 0    | 2                              | 213  | 14   | 78    | 11   | 0                              | 0    | 103  | 27    | 59   | 58         | 0   | 0    | 144  |
| 4:15 PM  | 16                                     | 106  | 15   | 0     | 0    | 137                                    | 74   | 142  | 20    | 0    | 0                              | 236  | 12   | 88    | 18   | 0                              | 0    | 118  | 23    | 39   | 66         | 0   | 0    | 128  |
| 4:30 PM  | 13                                     | 126  | 33   | 0     | 0    | 172                                    | 69   | 137  | 17    | 0    | 1                              | 223  | 13   | 52    | 29   | 0                              | 0    | 94   | 17    | 47   | 50         | 0   | 0    | 114  |
| 4:45 PM  | 18                                     | 105  | 23   | 0     | 0    | 146                                    | 74   | 139  | 14    | 0    | 0                              | 227  | 13   | 76    | 14   | 0                              | 0    | 103  | 16    | 50   | 57         | 0   | 0    | 123  |
| Total  | 60                                     | 443  | 94   | 0     | 0    | 597                                    | 290  | 545  | 64    | 0    | 3                              | 899  | 52   | 294   | 72   | 0                              | 0    | 418  | 83    | 195  | 231        | 0   | 0    | 509  |
| 5:00 PM  | 15                                     | 127  | 21   | 0     | 0    | 163                                    | 74   | 150  | 22    | 0    | 0                              | 246  | 11   | 81    | 25   | 0                              | 0    | 117  | 16    | 39   | 67         | 0   | 0    | 122  |
| 5:15 PM  | 22                                     | 114  | 32   | 0     | 0    | 168                                    | 83   | 135  | 16    | 0    | 0                              | 234  | 4    | 67    | 9    | 0                              | 0    | 80   | 15    | 43   | 75         | 0   | 0    | 133  |
| 5:30 PM  | 22                                     | 115  | 26   | 0     | 0    | 163                                    | 76   | 142  | 18    | 0    | 0                              | 236  | 12   | 79    | 13   | 0                              | 0    | 104  | 31    | 41   | 71         | 0   | 0    | 143  |
| 5:45 PM  | 13                                     | 97   | 22   | 0     | 0    | 132                                    | 73   | 123  | 5     | 0    | 0                              | 201  | 12   | 92    | 14   | 0                              | 0    | 118  | 20    | 47   | 53         | 0   | 0    | 120  |
| Total  | 72                                     | 453  | 101  | 0     | 0    | 626                                    | 306  | 550  | 61    | 0    | 0                              | 917  | 39   | 319   | 61   | 0                              | 0    | 419  | 82    | 170  | 266        | 0   | 0    | 518  |
| Grand Total                                    | 238                                    | 1996 | 296  | 0     | 0    | 2530                                   | 886  | 1933 | 224   | 0    | 6                              | 3043 | 167  | 823   | 191  | 0                              | 0    | 1181 | 398   | 969  | 1345       | 0   | 0    | 2712 |
| Apprch %                                       | 9.4                                    | 78.9 | 11.7 | 0.0   | 0.0  |  | 29.1 | 63.5 | 7.4   | 0.0  | 0.2                            |      | 14.1 | 69.7  | 16.2 | 0.0                            | 0.0  |      | 14.7  | 35.7 | 49.6       | 0.0 | 0.0  |      |
| Total %  | 2.5                                    | 21.1 | 3.1  | 0.0   | 0.0  | 26.7                                   | 9.4  | 20.4 | 2.4   | 0.0  | 0.1                            | 32.1 | 1.8  | 8.7   | 2.0  | 0.0                            | 0.0  | 12.5 | 4.2   | 10.2 | 14.2       | 0.0 | 0.0  | 28.6 |
| Cars, PU, Vans                                 | 231                                    | 1897 | 288  | 0     | 0    | 2416                                   | 869  | 1861 | 217   | 0    | 2947                           | 162  | 812  | 190   | 0    | 0                              | 1164 | 395  | 960   | 1324 | 0          | 0   | 2679 |      |
| % Cars, PU, Vans                               | 97.1                                   | 95.0 | 97.3 | 0.0   | 0.0  | 95.5                                   | 98.1 | 96.3 | 96.9  | 0.0  | 96.8                           | 97.0 | 98.7 | 99.5  | 0.0  | 0.0                            | 98.6 | 99.2 | 99.1  | 98.4 | 0.0        | 0.0 | 98.8 | 97.3 |
| Heavy trucks                                   | 7                                      | 99   | 8    | 0     | 0    | 114                                    | 17   | 72   | 7     | 0    | 96                             | 5    | 11   | 1     | 0    | 0                              | 17   | 3    | 9     | 21   | 0          | 0   | 33   |      |
| %Heavy trucks                                  | 2.9                                    | 5.0  | 2.7  | 0.0   | 0.0  | 4.5                                    | 1.9  | 3.7  | 3.1   | 0.0  | 3.2                            | 3.0  | 1.3  | 0.5   | 0.0  | 1.4                            | 0.8  | 0.9  | 1.6   | 0.0  | 0.0        | 0.0 | 1.2  | 2.7  |

**PEAK HOURS**

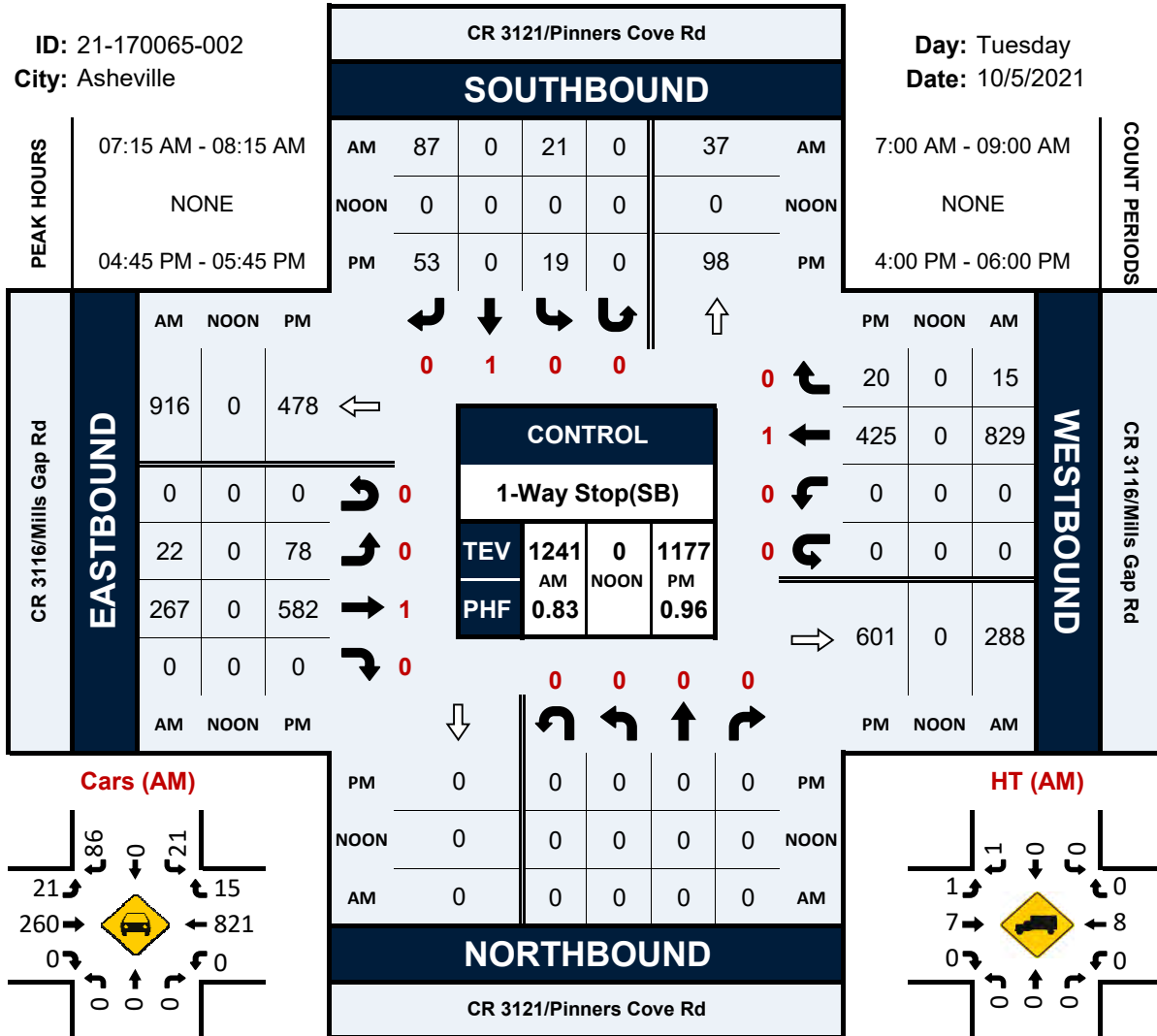
| AM   |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
|--|--|------|------|-------|------------|--|------|-------|-------|------------|--------------------------------|------|-------|-------|------------|--------------------------------|------|------|-------|------------|------------|
| Start Time   | US 25A ALT/Sweeten Creek Rd Northbound |      |      |       |            | US 25A ALT/Sweeten Creek Rd Southbound |      |       |       |            | CR 3116/Mills Gap Rd Eastbound |      |       |       |            | CR 3116/Mills Gap Rd Westbound |      |      |       |            | Int. Total |
|  | Left                                   | Thru | Rgt  | Uturn | App. Total | Left                                   | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt  | Uturn | App. Total |            |
| Peak Hour Analysis from 07:00 AM - 09:00 AM          |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
| 7:15 AM  | 16                                     | 144  | 7    | 0     | 167        | 41                                     | 93   | 10    | 0     | 144        | 11                             | 13   | 7     | 0     | 31         | 25                             | 86   | 133  | 0     | 244        | 586        |
| 7:30 AM  | 18                                     | 128  | 12   | 0     | 158        | 48                                     | 113  | 15    | 0     | 176        | 9                              | 18   | 4     | 0     | 31         | 39                             | 85   | 120  | 0     | 244        | 609        |
| 7:45 AM  | 9                                      | 143  | 18   | 0     | 170        | 30                                     | 120  | 9     | 0     | 159        | 6                              | 33   | 7     | 0     | 46         | 37                             | 107  | 133  | 0     | 277        | 652        |
| 8:00 AM  | 7                                      | 137  | 15   | 0     | 159        | 34                                     | 116  | 7     | 0     | 157        | 10                             | 33   | 8     | 0     | 51         | 37                             | 90   | 111  | 0     | 238        | 605        |
| Total Volume   | 50                                     | 552  | 52   | 0     | 654        | 153                                    | 442  | 41    | 0     | 636        | 36                             | 97   | 26    | 0     | 159        | 138                            | 368  | 497  | 0     | 1003       | 2452       |
| % App. Total   | 7.6                                    | 84.4 | 8.0  | 0.0   | 100        | 24.1                                   | 69.5 | 6.4   | 0.0   | 100        | 22.6                           | 61.0 | 16.4  | 0.0   | 100        | 13.8                           | 36.7 | 49.6 | 0.0   | 100        |            |
| PHF  | 0.962                                  |      |      |       |            | 0.903                                  |      |       |       |            | 0.779                          |      |       |       |            | 0.905                          |      |      |       |            | 0.940      |
| Cars, PU, Vans                                       | 49                                     | 525  | 50   | 0     | 624        | 149                                    | 421  | 40    | 0     | 610        | 36                             | 94   | 26    | 0     | 156        | 135                            | 366  | 491  | 0     | 992        | 2382       |
| % Cars, PU, Vans                                     | 98.0                                   | 95.1 | 96.2 | 0.0   | 95.4       | 97.4                                   | 95.2 | 97.6  | 0.0   | 95.9       | 100.0                          | 96.9 | 100.0 | 0.0   | 98.1       | 97.8                           | 99.5 | 98.8 | 0.0   | 98.9       | 97.1       |
| Heavy trucks   | 1                                      | 27   | 2    | 0     | 30         | 4                                      | 21   | 1     | 0     | 26         | 0                              | 3    | 0     | 0     | 3          | 3                              | 2    | 6    | 0     | 11         | 70         |
| %Heavy trucks  | 2.0                                    | 4.9  | 3.8  | 0.0   | 4.6        | 2.6                                    | 4.8  | 2.4   | 0.0   | 4.1        | 0.0                            | 3.1  | 0.0   | 0.0   | 1.9        | 2.2                            | 0.5  | 1.2  | 0.0   | 1.1        | 2.9        |
| PM   |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
| Start Time   | US 25A ALT/Sweeten Creek Rd Northbound |      |      |       |            | US 25A ALT/Sweeten Creek Rd Southbound |      |       |       |            | CR 3116/Mills Gap Rd Eastbound |      |       |       |            | CR 3116/Mills Gap Rd Westbound |      |      |       |            | Int. Total |
|  | Left                                   | Thru | Rgt  | Uturn | App. Total | Left                                   | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt  | Uturn | App. Total |            |
| Peak Hour Analysis from 04:00 PM - 06:00 PM          |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM |  |      |      |       |            |  |      |       |       |            |                                |      |       |       |            |                                |      |      |       |            |            |
| 4:45 PM  | 18                                     | 105  | 23   | 0     | 146        | 74                                     | 139  | 14    | 0     | 227        | 13                             | 76   | 14    | 0     | 103        | 16                             | 50   | 57   | 0     | 123        | 599        |
| 5:00 PM  | 15                                     | 127  | 21   | 0     | 163        | 74                                     | 150  | 22    | 0     | 246        | 11                             | 81   | 25    | 0     | 117        | 16                             | 39   | 67   | 0     | 122        | 648        |
| 5:15 PM  | 22                                     | 114  | 32   | 0     | 168        | 83                                     | 135  | 16    | 0     | 234        | 4                              | 67   | 9     | 0     | 80         | 15                             | 43   | 75   | 0     | 133        | 615        |
| 5:30 PM  | 22                                     | 115  | 26   | 0     | 163        | 76                                     | 142  | 18    | 0     | 236        | 12                             | 79   | 13    | 0     | 104        | 31                             | 41   | 71   | 0     | 143        | 646        |
| Total Volume   | 77                                     | 461  | 102  | 0     | 640        | 307                                    | 566  | 70    | 0     | 943        | 40                             | 303  | 61    | 0     | 404        | 78                             | 173  | 270  | 0     | 521        | 2508       |
| % App. Total   | 12.0                                   | 72.0 | 15.9 | 0.0   | 100        | 32.6                                   | 60.0 | 7.4   | 0.0   | 100        | 9.9                            | 75.0 | 15.1  | 0.0   | 100        | 15.0                           | 33.2 | 51.8 | 0.0   | 100        |            |
| PHF  | 0.952                                  |      |      |       |            | 0.958                                  |      |       |       |            | 0.863                          |      |       |       |            | 0.911                          |      |      |       |            | 0.968      |
| Cars, PU, Vans                                       | 77                                     | 442  | 101  | 0     | 620        | 305                                    | 552  | 70    | 0     | 927        | 38                             | 300  | 61    | 0     | 399        | 78                             | 172  | 263  | 0     | 513        | 2459       |
| % Cars, PU, Vans                                     | 100.0                                  | 95.9 | 99.0 | 0.0   | 96.9       | 99.3                                   | 97.5 | 100.0 | 0.0   | 98.3       | 95.0                           | 99.0 | 100.0 | 0.0   | 98.8       | 100.0                          | 99.4 | 97.4 | 0.0   | 98.5       | 98.0       |
| Heavy trucks   | 0                                      | 19   | 1    | 0     | 20         | 2                                      | 14   | 0     | 0     | 16         | 2                              | 3    | 0     | 0     | 5          | 0                              | 1    | 7    | 0     | 8          | 49         |
| %Heavy trucks  | 0.0                                    | 4.1  | 1.0  | 0.0   | 3.1        | 0.7                                    | 2.5  | 0.0   | 0.0   | 1.7        | 5.0                            | 1.0  | 0.0   | 0.0   | 1.2        | 0.0                            | 0.6  | 2.6  | 0.0   | 1.5        | 2.0        |

# CR 3121/Pinners Cove Rd & CR 3116/Mills Gap Rd

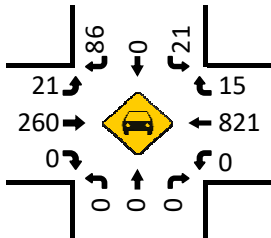
## Peak Hour Turning Movement Count

ID: 21-170065-002  
City: Asheville

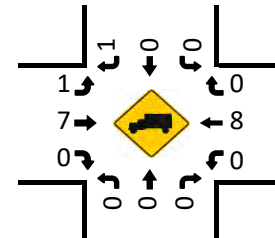
Day: Tuesday  
Date: 10/5/2021



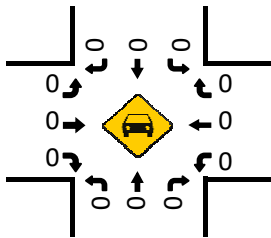
Cars (AM)



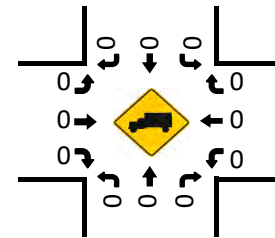
HT (AM)



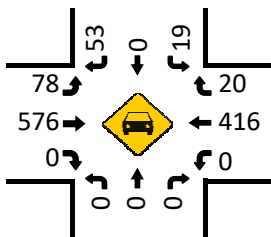
Cars (NOON)



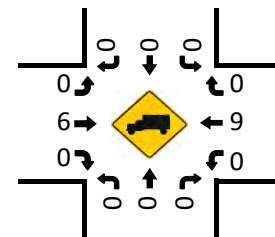
HT (NOON)



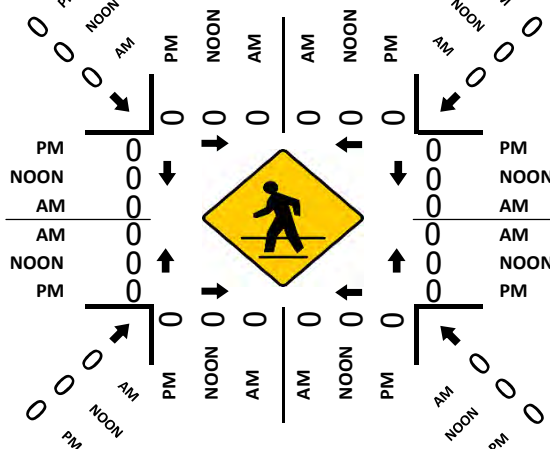
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)





Groups Printed - Cars, PU, Vans - Heavy Trucks

| Start Time       | CR 3121/Pinners Cove Rd Northbound |      |     |       |            | CR 3121/Pinners Cove Rd Southbound |      |      |       |            | CR 3116/Mills Gap Rd Eastbound |      |      |       |            | CR 3116/Mills Gap Rd Westbound |      |     |       |            | Int. Total |     |      |      |
|------------------|------------------------------------|------|-----|-------|------------|------------------------------------|------|------|-------|------------|--------------------------------|------|------|-------|------------|--------------------------------|------|-----|-------|------------|------------|-----|------|------|
|                  | Left                               | Thru | Rgt | Uturn | App. Total | Left                               | Thru | Rgt  | Uturn | App. Total | Left                           | Thru | Rgt  | Uturn | App. Total | Left                           | Thru | Rgt | Uturn | App. Total |            |     |      |      |
| 7:00 AM          | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 16   | 0     | 0          | 20                             | 1    | 47   | 0     | 0          | 0                              | 48   | 0   | 162   | 1          | 0          | 0   | 163  | 231  |
| 7:15 AM          | 0                                  | 0    | 0   | 0     | 0          | 10                                 | 0    | 14   | 0     | 0          | 24                             | 1    | 59   | 0     | 0          | 0                              | 60   | 0   | 192   | 0          | 0          | 0   | 192  | 276  |
| 7:30 AM          | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 28   | 0     | 0          | 32                             | 4    | 70   | 0     | 0          | 0                              | 74   | 0   | 227   | 4          | 0          | 0   | 231  | 337  |
| 7:45 AM          | 0                                  | 0    | 0   | 0     | 0          | 6                                  | 0    | 26   | 0     | 0          | 32                             | 6    | 77   | 0     | 0          | 0                              | 83   | 0   | 252   | 8          | 0          | 0   | 260  | 375  |
| Total            | 0                                  | 0    | 0   | 0     | 0          | 24                                 | 0    | 84   | 0     | 0          | 108                            | 12   | 253  | 0     | 0          | 0                              | 265  | 0   | 833   | 13         | 0          | 0   | 846  | 1219 |
| 8:00 AM          | 0                                  | 0    | 0   | 0     | 0          | 1                                  | 0    | 19   | 0     | 0          | 20                             | 11   | 61   | 0     | 0          | 0                              | 72   | 0   | 158   | 3          | 0          | 0   | 161  | 253  |
| 8:15 AM          | 0                                  | 0    | 0   | 0     | 0          | 0                                  | 0    | 14   | 0     | 0          | 14                             | 13   | 70   | 0     | 0          | 0                              | 83   | 0   | 160   | 2          | 0          | 0   | 162  | 259  |
| 8:30 AM          | 0                                  | 0    | 0   | 0     | 0          | 1                                  | 0    | 14   | 0     | 0          | 15                             | 9    | 60   | 0     | 0          | 0                              | 69   | 0   | 139   | 1          | 0          | 0   | 140  | 224  |
| 8:45 AM          | 0                                  | 0    | 0   | 0     | 0          | 2                                  | 0    | 8    | 0     | 0          | 10                             | 8    | 68   | 0     | 0          | 0                              | 76   | 0   | 122   | 0          | 0          | 0   | 122  | 208  |
| Total            | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 55   | 0     | 0          | 59                             | 41   | 259  | 0     | 0          | 0                              | 300  | 0   | 579   | 6          | 0          | 0   | 585  | 944  |
| ***BREAK***      |                                    |      |     |       |            |                                    |      |      |       |            |                                |      |      |       |            |                                |      |     |       |            |            |     |      |      |
| 4:00 PM          | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 17   | 0     | 1          | 22                             | 14   | 141  | 0     | 0          | 0                              | 155  | 0   | 113   | 7          | 0          | 0   | 120  | 297  |
| 4:15 PM          | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 17   | 0     | 0          | 22                             | 15   | 143  | 0     | 0          | 0                              | 158  | 0   | 99    | 7          | 0          | 0   | 106  | 286  |
| 4:30 PM          | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 15   | 0     | 0          | 19                             | 18   | 125  | 0     | 0          | 0                              | 143  | 0   | 98    | 5          | 0          | 0   | 103  | 265  |
| 4:45 PM          | 0                                  | 0    | 0   | 0     | 0          | 2                                  | 0    | 16   | 0     | 0          | 18                             | 21   | 141  | 0     | 0          | 0                              | 162  | 0   | 95    | 2          | 0          | 0   | 97   | 277  |
| Total            | 0                                  | 0    | 0   | 0     | 0          | 16                                 | 0    | 65   | 0     | 1          | 81                             | 68   | 550  | 0     | 0          | 0                              | 618  | 0   | 405   | 21         | 0          | 0   | 426  | 1125 |
| 5:00 PM          | 0                                  | 0    | 0   | 0     | 0          | 7                                  | 0    | 12   | 0     | 0          | 19                             | 18   | 144  | 0     | 0          | 0                              | 162  | 0   | 113   | 8          | 0          | 0   | 121  | 302  |
| 5:15 PM          | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 11   | 0     | 0          | 16                             | 19   | 155  | 0     | 0          | 0                              | 174  | 0   | 109   | 8          | 0          | 0   | 117  | 307  |
| 5:30 PM          | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 14   | 0     | 0          | 19                             | 20   | 142  | 0     | 0          | 0                              | 162  | 0   | 108   | 2          | 0          | 0   | 110  | 291  |
| 5:45 PM          | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 8    | 0     | 0          | 12                             | 19   | 138  | 0     | 0          | 0                              | 157  | 0   | 92    | 2          | 0          | 0   | 94   | 263  |
| Total            | 0                                  | 0    | 0   | 0     | 0          | 21                                 | 0    | 45   | 0     | 0          | 66                             | 76   | 579  | 0     | 0          | 0                              | 655  | 0   | 422   | 20         | 0          | 0   | 442  | 1163 |
| Grand Total      | 0                                  | 0    | 0   | 0     | 0          | 65                                 | 0    | 249  | 0     | 1          | 314                            | 197  | 1641 | 0     | 0          | 0                              | 1838 | 0   | 2239  | 60         | 0          | 0   | 2299 | 4451 |
| Apprch %         | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 20.7                               | 0.0  | 79.3 | 0.0   | 0.3        | 19                             | 10.7 | 89.3 | 0.0   | 0.0        | 0.0                            | 0.0  | 0.0 | 97.4  | 2.6        | 0.0        | 0.0 | 0.0  | 0.0  |
| Total %          | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 1.5                                | 0.0  | 5.6  | 0.0   | 0.0        | 7.1                            | 4.4  | 36.9 | 0.0   | 0.0        | 0.0                            | 41.3 | 0.0 | 50.3  | 1.3        | 0.0        | 0.0 | 51.7 | 0.0  |
| Cars, PU, Vans   | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 63                                 | 0    | 244  | 0     | 0          | 307                            | 195  | 1609 | 0     | 0          | 0                              | 1804 | 0   | 2207  | 58         | 0          | 0   | 2265 | 4376 |
| % Cars, PU, Vans | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 96.9                               | 0.0  | 98.0 | 0.0   | 0.0        | 97.8                           | 99.0 | 98.0 | 0.0   | 0.0        | 0.0                            | 98.2 | 0.0 | 98.6  | 96.7       | 0.0        | 0.0 | 98.5 | 98.3 |
| Heavy trucks     | 0                                  | 0    | 0   | 0     | 0          | 2                                  | 0    | 5    | 0     | 0          | 7                              | 2    | 32   | 0     | 0          | 0                              | 34   | 0   | 32    | 2          | 0          | 0   | 34   | 75   |
| %Heavy trucks    | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 3.1                                | 0.0  | 2.0  | 0.0   | 0.0        | 2.2                            | 1.0  | 2.0  | 0.0   | 0.0        | 0.0                            | 1.8  | 0.0 | 1.4   | 3.3        | 0.0        | 0.0 | 1.5  | 1.7  |

PEAK HOURS

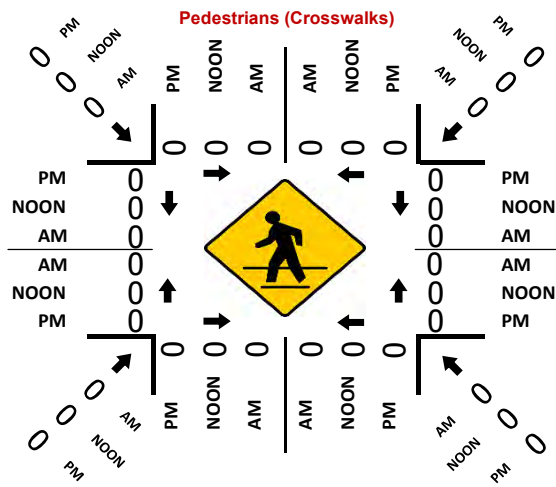
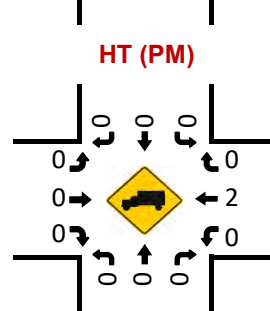
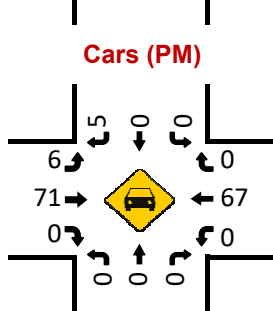
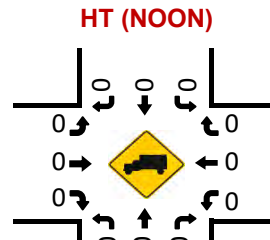
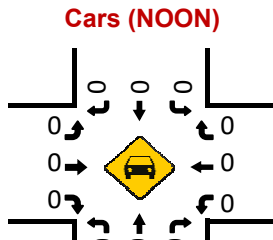
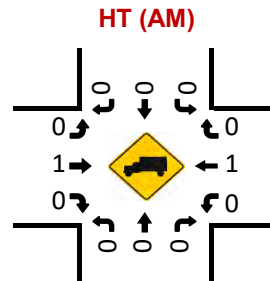
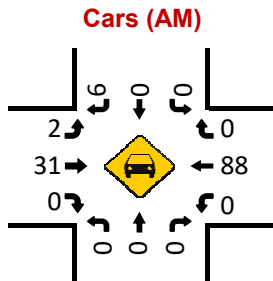
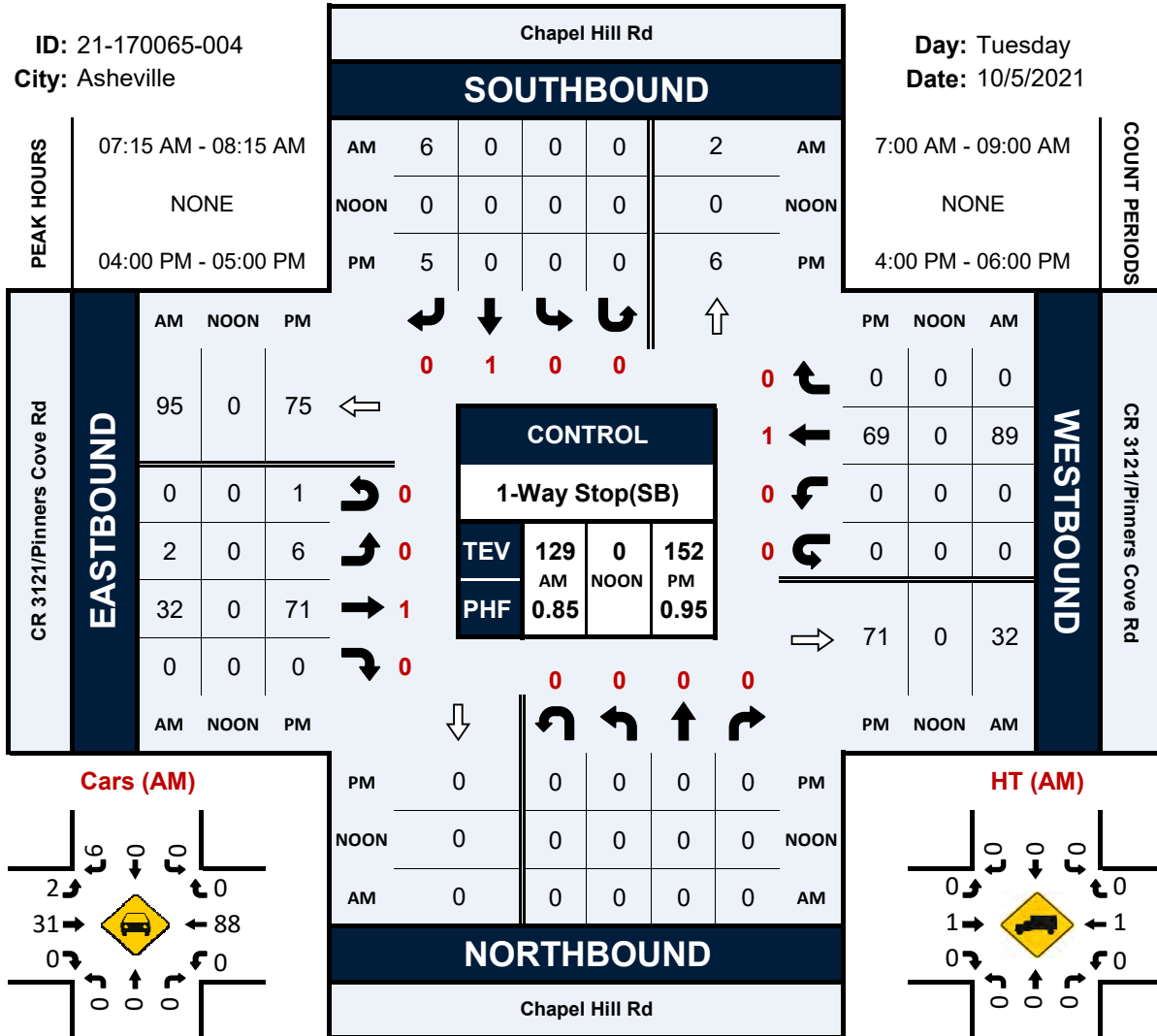
| Start Time   | CR 3121/Pinners Cove Rd Northbound |      |     |       |            | CR 3121/Pinners Cove Rd Southbound |      |       |       |            | CR 3116/Mills Gap Rd Eastbound |      |     |       |            | CR 3116/Mills Gap Rd Westbound |      |       |       |            | Int. Total |      |  |
|--|------------------------------------|------|-----|-------|------------|------------------------------------|------|-------|-------|------------|--------------------------------|------|-----|-------|------------|--------------------------------|------|-------|-------|------------|------------|------|--|
|  | Left                               | Thru | Rgt | Uturn | App. Total | Left                               | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt | Uturn | App. Total | Left                           | Thru | Rgt   | Uturn | App. Total |            |      |  |
| Peak Hour Analysis from 07:00 AM - 09:00 AM          |                                    |      |     |       |            |                                    |      |       |       |            |                                |      |     |       |            |                                |      |       |       |            |            |      |  |
| Peak Hour for Entire Intersection Begins at 07:15 AM |                                    |      |     |       |            |                                    |      |       |       |            |                                |      |     |       |            |                                |      |       |       |            |            |      |  |
| 7:15 AM  | 0                                  | 0    | 0   | 0     | 0          | 10                                 | 0    | 14    | 0     | 24         | 1                              | 59   | 0   | 0     | 60         | 0                              | 192  | 0     | 0     | 0          | 192        | 276  |  |
| 7:30 AM  | 0                                  | 0    | 0   | 0     | 0          | 4                                  | 0    | 28    | 0     | 32         | 4                              | 70   | 0   | 0     | 74         | 0                              | 227  | 4     | 0     | 0          | 231        | 337  |  |
| 7:45 AM  | 0                                  | 0    | 0   | 0     | 0          | 6                                  | 0    | 26    | 0     | 32         | 6                              | 77   | 0   | 0     | 83         | 0                              | 252  | 8     | 0     | 0          | 260        | 375  |  |
| 8:00 AM  | 0                                  | 0    | 0   | 0     | 0          | 1                                  | 0    | 19    | 0     | 20         | 11                             | 61   | 0   | 0     | 72         | 0                              | 158  | 3     | 0     | 0          | 161        | 253  |  |
| Total Volume   | 0                                  | 0    | 0   | 0     | 0          | 21                                 | 0    | 87    | 0     | 108        | 22                             | 267  | 0   | 0     | 289        | 0                              | 829  | 15    | 0     | 0          | 844        | 1241 |  |
| % App. Total   | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 19.4                               | 0.0  | 80.6  | 0.0   | 100        | 7.6                            | 92.4 | 0.0 | 0.0   | 100        | 0.0                            | 98.2 | 1.8   | 0.0   | 0.0        | 100        | 0.0  |  |
| PHF  |                                    |      |     |       |            | 0.844                              |      |       |       |            | 0.870                          |      |     |       |            | 0.812                          |      |       |       |            | 0.827      |      |  |
| Cars, PU, Vans                                       | 0                                  | 0    | 0   | 0     | 0          | 21                                 | 0    | 86    | 0     | 107        | 21                             | 260  | 0   | 0     | 281        | 0                              | 821  | 15    | 0     | 0          | 836        | 1224 |  |
| % Cars, PU, Vans                                     | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 100.0                              | 0.0  | 98.9  | 0.0   | 99.1       | 95.5                           | 97.4 | 0.0 | 0.0   | 97.2       | 0.0                            | 99.0 | 100.0 | 0.0   | 0.0        | 99.1       | 98.6 |  |
| Heavy trucks   | 0                                  | 0    | 0   | 0     | 0          | 0                                  | 0    | 1     | 0     | 1          | 1                              | 7    | 0   | 0     | 8          | 0                              | 8    | 0     | 0     | 0          | 8          | 17   |  |
| %Heavy trucks  | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                                | 0.0  | 1.1   | 0.0   | 0.9        | 4.5                            | 2.6  | 0.0 | 0.0   | 2.8        | 0.0                            | 1.0  | 0.0   | 0.0   | 0.9        | 1.4        | 0.0  |  |
| PM   |                                    |      |     |       |            |                                    |      |       |       |            |                                |      |     |       |            |                                |      |       |       |            |            |      |  |
| Start Time   | CR 3121/Pinners Cove Rd Northbound |      |     |       |            | CR 3121/Pinners Cove Rd Southbound |      |       |       |            | CR 3116/Mills Gap Rd Eastbound |      |     |       |            | CR 3116/Mills Gap Rd Westbound |      |       |       |            | Int. Total |      |  |
|  | Left                               | Thru | Rgt | Uturn | App. Total | Left                               | Thru | Rgt   | Uturn | App. Total | Left                           | Thru | Rgt | Uturn | App. Total | Left                           | Thru | Rgt   | Uturn | App. Total |            |      |  |
| Peak Hour Analysis from 04:00 PM - 06:00 PM          |                                    |      |     |       |            |                                    |      |       |       |            |                                |      |     |       |            |                                |      |       |       |            |            |      |  |
| Peak Hour for Entire Intersection Begins at 04:45 PM |                                    |      |     |       |            |                                    |      |       |       |            |                                |      |     |       |            |                                |      |       |       |            |            |      |  |
| 4:45 PM  | 0                                  | 0    | 0   | 0     | 0          | 2                                  | 0    | 16    | 0     | 18         | 21                             | 141  | 0   | 0     | 162        | 0                              | 95   | 2     | 0     | 0          | 97         | 277  |  |
| 5:00 PM  | 0                                  | 0    | 0   | 0     | 0          | 7                                  | 0    | 12    | 0     | 19         | 18                             | 144  | 0   | 0     | 162        | 0                              | 113  | 8     | 0     | 0          | 121        | 302  |  |
| 5:15 PM  | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 11    | 0     | 16         | 19                             | 155  | 0   | 0     | 174        | 0                              | 109  | 8     | 0     | 0          | 117        | 307  |  |
| 5:30 PM  | 0                                  | 0    | 0   | 0     | 0          | 5                                  | 0    | 14    | 0     | 19         | 20                             | 142  | 0   | 0     | 162        | 0                              | 108  | 2     | 0     | 0          | 110        | 291  |  |
| Total Volume   | 0                                  | 0    | 0   | 0     | 0          | 19                                 | 0    | 53    | 0     | 72         | 78                             | 582  | 0   | 0     | 660        | 0                              | 425  | 20    | 0     | 0          | 445        | 1177 |  |
| % App. Total   | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 26.4                               | 0.0  | 73.6  | 0.0   | 100        | 11.8                           | 88.2 | 0.0 | 0.0   | 100        | 0.0                            | 95.5 | 4.5   | 0.0   | 0.0        | 100        | 0.0  |  |
| PHF  |                                    |      |     |       |            | 0.947                              |      |       |       |            | 0.948                          |      |     |       |            | 0.919                          |      |       |       |            | 0.958      |      |  |
| Cars, PU, Vans                                       | 0                                  | 0    | 0   | 0     | 0          | 19                                 | 0    | 53    | 0     | 72         | 78                             | 576  | 0   | 0     | 654        | 0                              | 416  | 20    | 0     | 0          | 436        | 1162 |  |
| % Cars, PU, Vans                                     | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 100.0                              | 0.0  | 100.0 | 0.0   | 100.0      | 100.0                          | 99.0 | 0.0 | 0.0   | 99.1       | 0.0                            | 97.9 | 100.0 | 0.0   | 0.0        | 98.0       | 98.7 |  |
| Heavy trucks   | 0                                  | 0    | 0   | 0     | 0          | 0                                  | 0    | 0     | 0     | 0          | 0                              | 6    | 0   | 0     | 6          | 0                              | 9    | 0     | 0     | 0          | 9          | 15   |  |
| %Heavy trucks  | 0.0                                | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                                | 0.0  | 0.0   | 0.0   | 0.0        | 0.0                            | 1.0  | 0.0 | 0.0   | 0.9        | 0.0                            | 2.1  | 0.0   | 0.0   | 2.0        | 2.0        | 1.3  |  |

# Chapel Hill Rd & CR 3121/Pinners Cove Rd

## Peak Hour Turning Movement Count

ID: 21-170065-004  
City: Asheville

Day: Tuesday  
Date: 10/5/2021



Project ID: 21-170065-004  
 Location: Chapel Hill Rd & CR 3121/Pinners Cove Rd  
 City: Asheville

Day: Tuesday  
 Date: 10/5/2021

Groups Printed - Cars, PU, Vans - Heavy Trucks

| Start Time       | Chapel Hill Rd Northbound |      |     |       |            | Chapel Hill Rd Southbound |      |       |       |            | CR 3121/Pinners Cove Rd Eastbound |      |      |       |            | CR 3121/Pinners Cove Rd Westbound |      |       |       |            | Int. Total |      |
|------------------|---------------------------|------|-----|-------|------------|---------------------------|------|-------|-------|------------|-----------------------------------|------|------|-------|------------|-----------------------------------|------|-------|-------|------------|------------|------|
|                  | Left                      | Thru | Rgt | Uturn | App. Total | Left                      | Thru | Rgt   | Uturn | App. Total | Left                              | Thru | Rgt  | Uturn | App. Total | Left                              | Thru | Rgt   | Uturn | App. Total |            |      |
| 7:00 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 0          | 2                                 | 0    | 2    | 0     | 0          | 2                                 | 0    | 14    | 0     | 0          | 14         | 18   |
| 7:15 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 3     | 0     | 0          | 3                                 | 0    | 1    | 0     | 0          | 1                                 | 0    | 23    | 0     | 0          | 23         | 27   |
| 7:30 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 0          | 2                                 | 1    | 6    | 0     | 0          | 7                                 | 0    | 25    | 0     | 0          | 25         | 34   |
| 7:45 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 1                                 | 12   | 0    | 0     | 13         | 0                                 | 25   | 0     | 0     | 25         | 38         |      |
| Total            | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 7     | 0     | 0          | 7                                 | 2    | 21   | 0     | 0          | 23                                | 0    | 87    | 0     | 0          | 87         | 117  |
| 8:00 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 0    | 13   | 0     | 0          | 13                                | 0    | 16    | 0     | 0          | 16         | 30   |
| 8:15 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 1                                 | 8    | 0    | 0     | 9          | 0                                 | 13   | 0     | 0     | 13         | 22         |      |
| 8:30 AM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 0          | 2                                 | 1    | 10   | 0     | 0          | 11                                | 0    | 11    | 0     | 0          | 11         | 24   |
| 8:45 AM          | 0                         | 0    | 0   | 0     | 0          | 1                         | 0    | 0     | 0     | 0          | 1                                 | 8    | 0    | 0     | 9          | 0                                 | 12   | 0     | 0     | 12         | 22         |      |
| Total            | 0                         | 0    | 0   | 0     | 0          | 1                         | 0    | 3     | 0     | 0          | 4                                 | 3    | 39   | 0     | 0          | 42                                | 0    | 52    | 0     | 0          | 52         | 98   |
| ***BREAK***      |                           |      |     |       |            |                           |      |       |       |            |                                   |      |      |       |            |                                   |      |       |       |            |            |      |
| 4:00 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 0          | 2                                 | 0    | 18   | 0     | 1          | 19                                | 0    | 19    | 0     | 0          | 19         | 40   |
| 4:15 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 3    | 17   | 0     | 0          | 20                                | 0    | 19    | 0     | 0          | 19         | 40   |
| 4:30 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 1    | 19   | 0     | 0          | 20                                | 0    | 14    | 0     | 0          | 14         | 35   |
| 4:45 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 2    | 17   | 0     | 0          | 19                                | 0    | 17    | 0     | 0          | 17         | 37   |
| Total            | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 5     | 0     | 0          | 5                                 | 6    | 71   | 0     | 1          | 78                                | 0    | 69    | 0     | 0          | 69         | 152  |
| 5:00 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 0                                 | 3    | 19   | 0     | 0          | 22                                | 0    | 14    | 0     | 0          | 14         | 36   |
| 5:15 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 0                                 | 2    | 22   | 0     | 0          | 24                                | 0    | 14    | 0     | 0          | 14         | 38   |
| 5:30 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 0                                 | 0    | 18   | 0     | 0          | 18                                | 0    | 17    | 0     | 0          | 17         | 35   |
| 5:45 PM          | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 3    | 17   | 0     | 0          | 20                                | 0    | 11    | 0     | 0          | 11         | 32   |
| Total            | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 0          | 1                                 | 8    | 76   | 0     | 0          | 84                                | 0    | 56    | 0     | 0          | 56         | 141  |
| Grand Total      | 0                         | 0    | 0   | 0     | 0          | 1                         | 0    | 16    | 0     | 0          | 17                                | 19   | 207  | 0     | 1          | 227                               | 0    | 264   | 0     | 0          | 264        | 508  |
| Apprch %         | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 5.9                       | 0.0  | 94.1  | 0.0   | 0.0        | 0.0                               | 8.4  | 91.2 | 0.0   | 0.4        | 0.0                               | 0.0  | 100.0 | 0.0   | 0.0        | 0.0        | 0.0  |
| Total %          | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.2                       | 0.0  | 3.1   | 0.0   | 0.0        | 3.3                               | 3.7  | 40.7 | 0.0   | 0.2        | 0.0                               | 44.7 | 0.0   | 52.0  | 0.0        | 0.0        | 52.0 |
| Cars, PU, Vans   | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 16    | 0     | 0          | 16                                | 18   | 204  | 0     | 1          | 223                               | 0    | 259   | 0     | 0          | 259        | 498  |
| % Cars, PU, Vans | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 100.0 | 0.0   | 0.0        | 94.1                              | 94.7 | 98.6 | 0.0   | 100.0      | 98.2                              | 0.0  | 98.1  | 0.0   | 0.0        | 98.1       | 98.0 |
| Heavy trucks     | 0                         | 0    | 0   | 0     | 0          | 1                         | 0    | 0     | 0     | 0          | 1                                 | 1    | 3    | 0     | 0          | 4                                 | 0    | 5     | 0     | 0          | 5          | 10   |
| %Heavy trucks    | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 100.0                     | 0.0  | 0.0   | 0.0   | 0.0        | 5.9                               | 5.3  | 1.4  | 0.0   | 0.0        | 1.8                               | 0.0  | 1.9   | 0.0   | 0.0        | 1.9        | 2.0  |

Project ID: 21-170065-004  
 Location: Chapel Hill Rd & CR 3121/Pinners Cove Rd  
 City: Asheville

PEAK HOURS

Day: Tuesday  
 Date: 10/5/2021

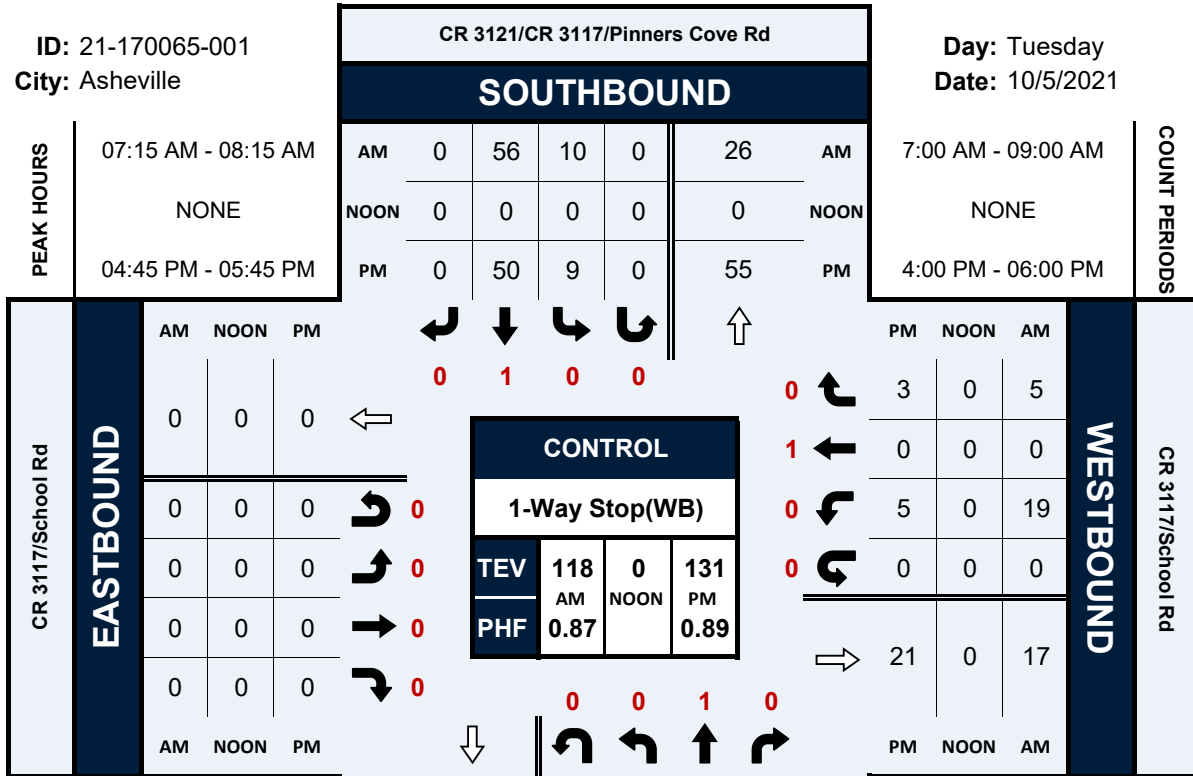
| Start Time   | Chapel Hill Rd Northbound |      |     |       |            | Chapel Hill Rd Southbound |      |       |       |            | CR 3121/Pinners Cove Rd Eastbound |       |     |       |            | CR 3121/Pinners Cove Rd Westbound |       |     |       |            | Int. Total |  |
|--|---------------------------|------|-----|-------|------------|---------------------------|------|-------|-------|------------|-----------------------------------|-------|-----|-------|------------|-----------------------------------|-------|-----|-------|------------|------------|--|
|  | Left                      | Thru | Rgt | Uturn | App. Total | Left                      | Thru | Rgt   | Uturn | App. Total | Left                              | Thru  | Rgt | Uturn | App. Total | Left                              | Thru  | Rgt | Uturn | App. Total |            |  |
| Peak Hour Analysis from 07:00 AM - 09:00 AM          |                           |      |     |       |            |                           |      |       |       |            |                                   |       |     |       |            |                                   |       |     |       |            |            |  |
| Peak Hour for Entire Intersection Begins at 07:15 AM |                           |      |     |       |            |                           |      |       |       |            |                                   |       |     |       |            |                                   |       |     |       |            |            |  |
| 7:15 AM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 3     | 0     | 3          | 0                                 | 1     | 0   | 0     | 1          | 0                                 | 23    | 0   | 0     | 23         | 27         |  |
| 7:30 AM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 2          | 1                                 | 6     | 0   | 0     | 7          | 0                                 | 25    | 0   | 0     | 25         | 34         |  |
| 7:45 AM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 1                                 | 12    | 0   | 0     | 13         | 0                                 | 25    | 0   | 0     | 25         | 38         |  |
| 8:00 AM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 1          | 0                                 | 13    | 0   | 0     | 13         | 0                                 | 16    | 0   | 0     | 16         | 30         |  |
| Total Volume   | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 6     | 0     | 6          | 2                                 | 32    | 0   | 0     | 34         | 0                                 | 89    | 0   | 0     | 89         | 129        |  |
| % App. Total   | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 100.0 | 0.0   | 100        | 5.9                               | 94.1  | 0.0 | 0.0   | 100        | 0.0                               | 100.0 | 0.0 | 0.0   | 100        | 100        |  |
| PHF  |                           |      |     |       |            | 0.500                     |      |       |       |            | 0.654                             |       |     |       |            | 0.890                             |       |     |       |            | 0.849      |  |
| Cars, PU, Vans                                       | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 6     | 0     | 6          | 2                                 | 31    | 0   | 0     | 33         | 0                                 | 88    | 0   | 0     | 88         | 127        |  |
| % Cars, PU, Vans                                     | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 100.0 | 0.0   | 100.0      | 100.0                             | 96.9  | 0.0 | 0.0   | 97.1       | 0.0                               | 98.9  | 0.0 | 0.0   | 98.9       | 98.4       |  |
| Heavy trucks   | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 0                                 | 1     | 0   | 0     | 1          | 0                                 | 1     | 0   | 0     | 1          | 2          |  |
| %Heavy trucks  | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 0.0   | 0.0   | 0.0        | 0.0                               | 3.1   | 0.0 | 0.0   | 2.9        | 0.0                               | 1.1   | 0.0 | 0.0   | 1.1        | 1.6        |  |
| PM   |                           |      |     |       |            |                           |      |       |       |            |                                   |       |     |       |            |                                   |       |     |       |            |            |  |
| Start Time   | Chapel Hill Rd Northbound |      |     |       |            | Chapel Hill Rd Southbound |      |       |       |            | CR 3121/Pinners Cove Rd Eastbound |       |     |       |            | CR 3121/Pinners Cove Rd Westbound |       |     |       |            | Int. Total |  |
|  | Left                      | Thru | Rgt | Uturn | App. Total | Left                      | Thru | Rgt   | Uturn | App. Total | Left                              | Thru  | Rgt | Uturn | App. Total | Left                              | Thru  | Rgt | Uturn | App. Total |            |  |
| Peak Hour Analysis from 04:00 PM - 06:00 PM          |                           |      |     |       |            |                           |      |       |       |            |                                   |       |     |       |            |                                   |       |     |       |            |            |  |
| Peak Hour for Entire Intersection Begins at 04:00 PM |                           |      |     |       |            |                           |      |       |       |            |                                   |       |     |       |            |                                   |       |     |       |            |            |  |
| 4:00 PM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 2     | 0     | 2          | 0                                 | 18    | 0   | 1     | 19         | 0                                 | 19    | 0   | 0     | 19         | 40         |  |
| 4:15 PM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 1          | 3                                 | 17    | 0   | 0     | 20         | 0                                 | 19    | 0   | 0     | 19         | 40         |  |
| 4:30 PM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 1          | 1                                 | 19    | 0   | 0     | 20         | 0                                 | 14    | 0   | 0     | 14         | 35         |  |
| 4:45 PM  | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 1     | 0     | 1          | 2                                 | 17    | 0   | 0     | 19         | 0                                 | 17    | 0   | 0     | 17         | 37         |  |
| Total Volume   | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 5     | 0     | 5          | 6                                 | 71    | 0   | 1     | 78         | 0                                 | 69    | 0   | 0     | 69         | 152        |  |
| % App. Total   | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 100.0 | 0.0   | 100        | 7.7                               | 91.0  | 0.0 | 1.3   | 100        | 0.0                               | 100.0 | 0.0 | 0.0   | 100        | 100        |  |
| PHF  |                           |      |     |       |            | 0.625                     |      |       |       |            | 0.975                             |       |     |       |            | 0.908                             |       |     |       |            | 0.950      |  |
| Cars, PU, Vans                                       | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 5     | 0     | 5          | 6                                 | 71    | 0   | 1     | 78         | 0                                 | 67    | 0   | 0     | 67         | 150        |  |
| % Cars, PU, Vans                                     | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 100.0 | 0.0   | 100.0      | 100.0                             | 100.0 | 0.0 | 100.0 | 100.0      | 0.0                               | 97.1  | 0.0 | 0.0   | 97.1       | 98.7       |  |
| Heavy trucks   | 0                         | 0    | 0   | 0     | 0          | 0                         | 0    | 0     | 0     | 0          | 0                                 | 0     | 0   | 0     | 0          | 0                                 | 2     | 0   | 0     | 2          | 2          |  |
| %Heavy trucks  | 0.0                       | 0.0  | 0.0 | 0.0   | 0.0        | 0.0                       | 0.0  | 0.0   | 0.0   | 0.0        | 0.0                               | 0.0   | 0.0 | 0.0   | 0.0        | 0.0                               | 2.9   | 0.0 | 0.0   | 2.9        | 1.3        |  |

# CR 3121/CR 3117/Pinners Cove Rd & CR 3117/School Rd

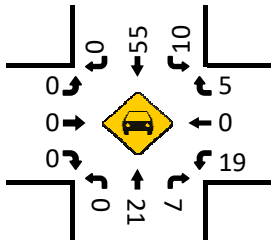
## Peak Hour Turning Movement Count

ID: 21-170065-001  
City: Asheville

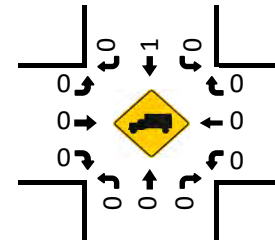
Day: Tuesday  
Date: 10/5/2021



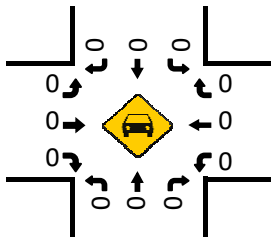
Cars (AM)



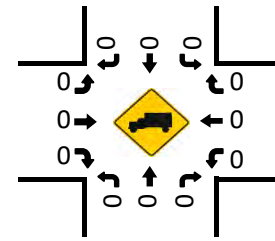
HT (AM)



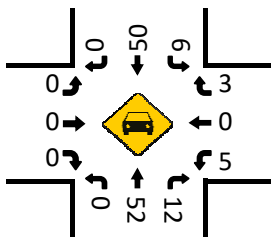
Cars (NOON)



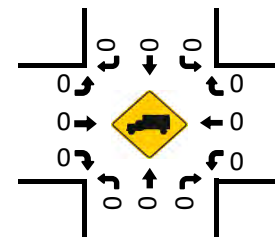
HT (NOON)



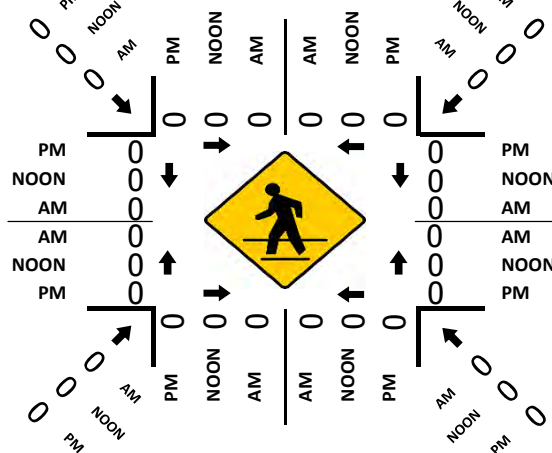
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)







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## Appendix B: Capacity Software Output

B



























**Gannett Fleming**

*Excellence Delivered **As Promised***

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

11/01/2021

|                           |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations       |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)      | 37  | 101   | 27  | 144   | 383   | 517   | 52   | 574   | 54  | 159   | 460   | 43  |
| Future Volume (vph)       | 37  | 101   | 27  | 144   | 383   | 517   | 52   | 574   | 54  | 159   | 460   | 43  |
| Ideal Flow (vphpl)        | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Grade (%)                 |   | 0%  |   |   | 0%  |   |  | 2%  |   |   |   | -3%   |
| Storage Length (ft)       | 225   |   | 200   | 325   |   | 325   | 160  |   | 0   | 150   |   | 0   |
| Storage Lanes             | 1   |   | 1   | 1   |   | 1   | 1  |   | 0   | 1   |   | 0   |
| Taper Length (ft)         | 100   |   |   | 100   |   |   | 100  |   |   | 100   |   |   |
| Lane Util. Factor         | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Ped Bike Factor           |   |   | 0.97  |   |   |   |  |   |   |   |   |   |
| Fr <sub>t</sub>           |   |   | 0.850   |   |   | 0.850   |  | 0.987   |   |   | 0.987   |   |
| Fl <sub>t</sub> Protected | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (prot)         | 1770  | 3539  | 1583  | 1770  | 3539  | 1583  | 1752   | 1820  | 0   | 1796  | 1866  | 0   |
| Fl <sub>t</sub> Permitted | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (perm)         | 1770  | 3539  | 1542  | 1770  | 3539  | 1583  | 1752   | 1820  | 0   | 1796  | 1866  | 0   |
| Right Turn on Red         |   |   | No  |   |   | No  |  |   | No  |   |   | No  |
| Satd. Flow (RTOR)         |   |   |   |   |   |   |  |   |   |   |   |   |
| Link Speed (mph)          |   | 35  |   |   | 35  |   |  | 45  |   |   | 45  |   |
| Link Distance (ft)        |   | 1262  |   |   | 1190  |   |  | 2948  |   |   | 1261  |   |
| Travel Time (s)           |   | 24.6  |   |   | 23.2  |   |  | 44.7  |   |   | 19.1  |   |
| Confl. Peds. (#/hr)       |   |   | 3   |   |   |   |  |   |   |   |   |   |
| Peak Hour Factor          | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)           | 41  | 112   | 30  | 160   | 426   | 574   | 58   | 638   | 60  | 177   | 511   | 48  |
| Shared Lane Traffic (%)   |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)     | 41  | 112   | 30  | 160   | 426   | 574   | 58   | 698   | 0   | 177   | 559   | 0   |
| Turn Type                 | Prot  | NA  | pm+ov   | Prot  | NA  | pm+ov   | Prot   | NA  |   | Prot  | NA  |   |
| Protected Phases          | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases          |   |   | 4   |   |   | 8   |  |   |   |   |   |   |
| Detector Phase            | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Switch Phase              |   |   |   |   |   |   |  |   |   |   |   |   |
| Minimum Initial (s)       | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0  | 12.0  |   | 7.0   | 12.0  |   |
| Minimum Split (s)         | 14.0  | 22.5  | 14.0  | 14.0  | 25.0  | 14.0  | 14.0   | 22.5  |   | 14.0  | 22.5  |   |
| Total Split (s)           | 14.0  | 24.0  | 14.0  | 16.0  | 26.0  | 26.0  | 14.0   | 54.0  |   | 26.0  | 66.0  |   |
| Total Split (%)           | 11.7%   | 20.0%   | 11.7%   | 13.3%   | 21.7%   | 21.7%   | 11.7%  | 45.0%   |   | 21.7%   | 55.0%   |   |
| Maximum Green (s)         | 7.0   | 17.0  | 7.0   | 9.0   | 19.0  | 19.0  | 7.0  | 47.0  |   | 19.0  | 59.0  |   |
| Yellow Time (s)           | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| All-Red Time (s)          | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0  | 2.0   |   | 2.0   | 2.0   |   |
| Lost Time Adjust (s)      | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0   | -2.0  |   | -2.0  | -2.0  |   |
| Total Lost Time (s)       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| Lead/Lag                  | Lead  | Lead  | Lag   | Lag   | Lag   | Lag   | Lag  | Lead  |   | Lag   | Lead  |   |
| Lead-Lag Optimize?        |   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |   | Yes   | Yes   |   |
| Vehicle Extension (s)     | 2.0   | 2.0   | 2.0   | 3.0   | 3.0   | 3.0   | 2.0  | 6.0   |   | 3.0   | 6.0   |   |
| Minimum Gap (s)           | 0.2   | 0.2   | 0.2   | 3.0   | 3.0   | 3.0   | 0.2  | 5.0   |   | 3.0   | 5.0   |   |
| Time Before Reduce (s)    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 15.0  |   | 0.0   | 15.0  |   |
| Time To Reduce (s)        | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 45.0  |   | 0.0   | 45.0  |   |
| Recall Mode               | None  | None  | None  | None  | None  | None  | None   | Max   |   | None  | Max   |   |
| Walk Time (s)             |   |   |   |   | 7.0   |   |  |   |   |   |   |   |
| Flash Dont Walk (s)       |   |   |   |   | 11.0  |   |  |   |   |   |   |   |
| Pedestrian Calls (#/hr)   |   |   |   |   | 3   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

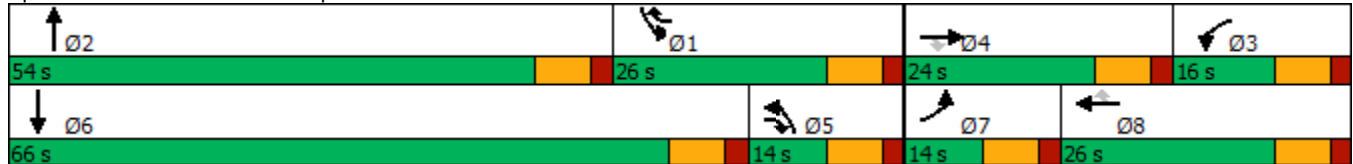
11/01/2021

| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|-------------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Act Effct Green (s)     | 9.0  | 10.4 | 19.5 | 17.1 | 21.6 | 43.7 | 9.0  | 49.1 |     | 21.0 | 64.1 |     |
| Actuated g/C Ratio      | 0.08 | 0.09 | 0.17 | 0.15 | 0.18 | 0.37 | 0.08 | 0.42 |     | 0.18 | 0.54 |     |
| v/c Ratio               | 0.30 | 0.36 | 0.12 | 0.62 | 0.66 | 0.98 | 0.43 | 0.92 |     | 0.55 | 0.55 |     |
| Control Delay           | 58.9 | 54.1 | 39.4 | 58.7 | 50.9 | 63.2 | 63.6 | 52.0 |     | 52.1 | 21.7 |     |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     | 0.0  | 0.0  |     |
| Total Delay             | 58.9 | 54.1 | 39.4 | 58.7 | 50.9 | 63.2 | 63.6 | 52.0 |     | 52.1 | 21.7 |     |
| LOS                     | E    | D    | D    | E    | D    | E    | E    | D    |     | D    | C    |     |
| Approach Delay          |      | 52.8 |      |      | 58.1 |      |      | 52.9 |     |      | 29.0 |     |
| Approach LOS            |      | D    |      |      | E    |      |      | D    |     |      | C    |     |
| Queue Length 50th (ft)  | 31   | 43   | 19   | 115  | 164  | ~355 | 44   | 511  |     | 127  | 294  |     |
| Queue Length 95th (ft)  | 68   | 72   | 45   | 193  | 222  | #700 | 89   | #758 |     | 203  | 408  |     |
| Internal Link Dist (ft) |      | 1182 |      |      | 1110 |      |      | 2868 |     |      | 1181 |     |
| Turn Bay Length (ft)    | 225  |      | 200  | 325  |      | 325  | 160  |      |     | 150  |      |     |
| Base Capacity (vph)     | 135  | 572  | 257  | 258  | 658  | 587  | 134  | 758  |     | 320  | 1015 |     |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Reduced v/c Ratio       | 0.30 | 0.20 | 0.12 | 0.62 | 0.65 | 0.98 | 0.43 | 0.92 |     | 0.55 | 0.55 |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 117.7  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 48.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 83.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Mills Gap Rd & Sweeten Creek Rd



HCM 6th TWSC  
2: Mills Gap Rd & Pinnars Cove Rd

11/01/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2.4  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 23   | 291  | 953  | 16   | 22   | 91   |
| Future Vol, veh/h        | 23   | 291  | 953  | 16   | 22   | 91   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 150  | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 8    | -    | -5   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 26   | 323  | 1059 | 18   | 24   | 101  |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1077   | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 647    | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 647    | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB  | WB | SB   |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.8 | 0  | 27.3 |
| HCM LOS              |     |    | D    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 647   | -   | -   | -   | 284   |
| HCM Lane V/C Ratio    | 0.039 | -   | -   | -   | 0.442 |
| HCM Control Delay (s) | 10.8  | -   | -   | -   | 27.3  |
| HCM Lane LOS          | B     | -   | -   | -   | D     |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | -   | 2.1   |

HCM 6th TWSC  
 4: Pinners Cove Rd & Chapel Hill Rd

11/01/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.7  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      | ↕    | ↕    |      | ↕    |      |
| Traffic Vol, veh/h       | 4    | 36   | 106  | 4    | 4    | 6    |
| Future Vol, veh/h        | 4    | 36   | 106  | 4    | 4    | 6    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | -4   | 5    | -    | -8   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 4    | 40   | 118  | 4    | 4    | 7    |

| Major/Minor          | Major1 | Major2 | Minor2 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 122    | 0      | -      | 0 | 168   |
| Stage 1              | -      | -      | -      | - | 120   |
| Stage 2              | -      | -      | -      | - | 48    |
| Critical Hdwy        | 4.12   | -      | -      | - | 4.82  |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 3.82  |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 3.82  |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 |
| Pot Cap-1 Maneuver   | 1465   | -      | -      | - | 886   |
| Stage 1              | -      | -      | -      | - | 955   |
| Stage 2              | -      | -      | -      | - | 995   |
| Platoon blocked, %   |        | -      | -      | - |       |
| Mov Cap-1 Maneuver   | 1465   | -      | -      | - | 883   |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 883   |
| Stage 1              | -      | -      | -      | - | 952   |
| Stage 2              | -      | -      | -      | - | 995   |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.7 | 0  | 8.9 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1465  | -   | -   | -   | 926   |
| HCM Lane V/C Ratio    | 0.003 | -   | -   | -   | 0.012 |
| HCM Control Delay (s) | 7.5   | 0   | -   | -   | 8.9   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0     |



HCM 6th TWSC  
5: School Rd & Pinnars Cove Rd

11/01/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2    |      |      |      |      |      |
| Movement                 | NBT  | NBR  | SBL  | SBT  | NWL  | NWR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 29   | 7    | 10   | 86   | 20   | 5    |
| Future Vol, veh/h        | 29   | 7    | 10   | 86   | 20   | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 2    | -    | -    | -3   | 2    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 32   | 8    | 11   | 96   | 22   | 6    |
























| Major/Minor          | Major1 | Major2 | Minor1 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 0      | 0      | 40     | 0 | 154 36      |
| Stage 1              | -      | -      | -      | - | 36 -        |
| Stage 2              | -      | -      | -      | - | 118 -       |
| Critical Hdwy        | -      | -      | 4.12   | - | 6.82 6.42   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.82 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.82 -      |
| Follow-up Hdwy       | -      | -      | 2.218  | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | -      | -      | 1570   | - | 823 1034    |
| Stage 1              | -      | -      | -      | - | 983 -       |
| Stage 2              | -      | -      | -      | - | 895 -       |
| Platoon blocked, %   | -      | -      | -      | - | -           |
| Mov Cap-1 Maneuver   | -      | -      | 1570   | - | 817 1034    |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 817 -       |
| Stage 1              | -      | -      | -      | - | 983 -       |
| Stage 2              | -      | -      | -      | - | 889 -       |

| Approach             | NB | SB  | NW  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 0.8 | 9.4 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 853   | 1570  |
| HCM Lane V/C Ratio    | -   | -        | 0.033 | 0.007 |
| HCM Control Delay (s) | -   | -        | 9.4   | 7.3   |
| HCM Lane LOS          | -   | -        | A     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.1   | 0     |

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

11/02/2021

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |   |
| Traffic Volume (vph)    | 42  | 315   | 63  | 81  | 180   | 281   | 80   | 480   | 106   | 319   | 589   | 73  |
| Future Volume (vph)     | 42  | 315   | 63  | 81  | 180   | 281   | 80   | 480   | 106   | 319   | 589   | 73  |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Grade (%)               |   | 0%  |   |   | 0%  |   |  | 2%  |   |   | -3%   |   |
| Storage Length (ft)     | 225   |   | 200   | 325   |   | 325   | 160  |   | 0   | 150   |   | 0   |
| Storage Lanes           | 1   |   | 1   | 1   |   | 1   | 1  |   | 0   | 1   |   | 0   |
| Taper Length (ft)       | 100   |   |   | 100   |   |   | 100  |   |   | 100   |   |   |
| Lane Util. Factor       | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Ped Bike Factor         |   |   | 0.97  |   |   |   |  |   |   |   |   |   |
| Frt                     |   |   | 0.850   |   |   | 0.850   |  | 0.973   |   |   | 0.983   |   |
| Flt Protected           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (prot)       | 1770  | 3539  | 1583  | 1770  | 3539  | 1583  | 1752   | 1794  | 0   | 1796  | 1859  | 0   |
| Flt Permitted           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (perm)       | 1770  | 3539  | 1542  | 1770  | 3539  | 1583  | 1752   | 1794  | 0   | 1796  | 1859  | 0   |
| Right Turn on Red       |   |   | No  |   |   | No  |  |   | No  |   |   | No  |
| Satd. Flow (RTOR)       |   |   |   |   |   |   |  |   |   |   |   |   |
| Link Speed (mph)        |   | 35  |   |   | 35  |   |  | 45  |   |   | 45  |   |
| Link Distance (ft)      |   | 1262  |   |   | 1190  |   |  | 2948  |   |   | 1261  |   |
| Travel Time (s)         |   | 24.6  |   |   | 23.2  |   |  | 44.7  |   |   | 19.1  |   |
| Confl. Peds. (#/hr)     |   |   | 3   |   |   |   |  |   |   |   |   |   |
| Peak Hour Factor        | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)         | 47  | 350   | 70  | 90  | 200   | 312   | 89   | 533   | 118   | 354   | 654   | 81  |
| Shared Lane Traffic (%) |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)   | 47  | 350   | 70  | 90  | 200   | 312   | 89   | 651   | 0   | 354   | 735   | 0   |
| Turn Type               | Prot  | NA  | pm+ov   | Prot  | NA  | pm+ov   | Prot   | NA  |   | Prot  | NA  |   |
| Protected Phases        | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases        |   |   | 4   |   |   | 8   |  |   |   |   |   |   |
| Detector Phase          | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Switch Phase            |   |   |   |   |   |   |  |   |   |   |   |   |
| Minimum Initial (s)     | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0  | 12.0  |   | 7.0   | 12.0  |   |
| Minimum Split (s)       | 14.0  | 22.5  | 14.0  | 14.0  | 25.0  | 14.0  | 14.0   | 22.5  |   | 14.0  | 22.5  |   |
| Total Split (s)         | 14.0  | 25.0  | 14.0  | 14.0  | 25.0  | 29.0  | 14.0   | 52.0  |   | 29.0  | 67.0  |   |
| Total Split (%)         | 11.7%   | 20.8%   | 11.7%   | 11.7%   | 20.8%   | 24.2%   | 11.7%  | 43.3%   |   | 24.2%   | 55.8%   |   |
| Maximum Green (s)       | 7.0   | 18.0  | 7.0   | 7.0   | 18.0  | 22.0  | 7.0  | 45.0  |   | 22.0  | 60.0  |   |
| Yellow Time (s)         | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| All-Red Time (s)        | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0  | 2.0   |   | 2.0   | 2.0   |   |
| Lost Time Adjust (s)    | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0   | -2.0  |   | -2.0  | -2.0  |   |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| Lead/Lag                | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lag  | Lead  |   | Lag   | Lead  |   |
| Lead-Lag Optimize?      |   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |   | Yes   | Yes   |   |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   | 3.0   | 3.0   | 3.0   | 2.0  | 6.0   |   | 3.0   | 6.0   |   |
| Minimum Gap (s)         | 0.2   | 0.2   | 0.2   | 3.0   | 3.0   | 3.0   | 0.2  | 5.0   |   | 3.0   | 5.0   |   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 15.0  |   | 0.0   | 15.0  |   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 45.0  |   | 0.0   | 45.0  |   |
| Recall Mode             | None  | None  | None  | None  | None  | None  | None   | Max   |   | None  | Max   |   |
| Walk Time (s)           |   |   |   |   | 7.0   |   |  |   |   |   |   |   |
| Flash Dont Walk (s)     |   |   |   |   | 11.0  |   |  |   |   |   |   |   |
| Pedestrian Calls (#/hr) |   |   |   |   | 3   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

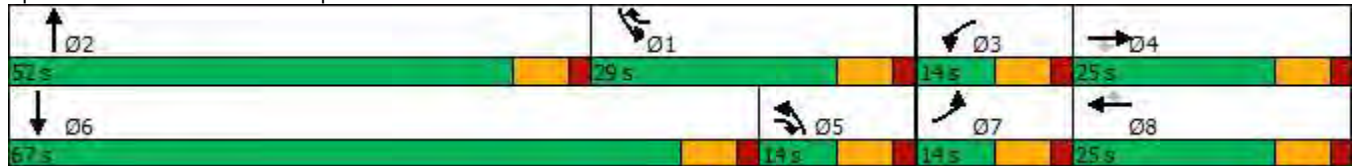
11/02/2021

| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|-------------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Act Effct Green (s)     | 9.0  | 17.4 | 26.4 | 9.0  | 20.3 | 45.3 | 9.0  | 47.0 |     | 24.0 | 62.0 |     |
| Actuated g/C Ratio      | 0.08 | 0.15 | 0.22 | 0.08 | 0.17 | 0.39 | 0.08 | 0.40 |     | 0.20 | 0.53 |     |
| v/c Ratio               | 0.35 | 0.67 | 0.20 | 0.67 | 0.33 | 0.51 | 0.66 | 0.91 |     | 0.96 | 0.75 |     |
| Control Delay           | 59.9 | 54.0 | 26.1 | 77.1 | 45.4 | 22.3 | 77.3 | 51.6 |     | 86.2 | 28.0 |     |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     | 0.0  | 0.0  |     |
| Total Delay             | 59.9 | 54.0 | 26.1 | 77.1 | 45.4 | 22.3 | 77.3 | 51.6 |     | 86.2 | 28.0 |     |
| LOS                     | E    | D    | C    | E    | D    | C    | E    | D    |     | F    | C    |     |
| Approach Delay          |      | 50.4 |      |      | 38.1 |      |      | 54.7 |     |      | 46.9 |     |
| Approach LOS            |      | D    |      |      | D    |      |      | D    |     |      | D    |     |
| Queue Length 50th (ft)  | 35   | 133  | 34   | 68   | 72   | 138  | 67   | 460  |     | 269  | 421  |     |
| Queue Length 95th (ft)  | 76   | 184  | 65   | #148 | 110  | 205  | #147 | #712 |     | #471 | 605  |     |
| Internal Link Dist (ft) |      | 1182 |      |      | 1110 |      |      | 2868 |     |      | 1181 |     |
| Turn Bay Length (ft)    | 225  |      | 200  | 325  |      | 325  | 160  |      |     | 150  |      |     |
| Base Capacity (vph)     | 135  | 603  | 349  | 135  | 648  | 610  | 134  | 718  |     | 367  | 982  |     |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Reduced v/c Ratio       | 0.35 | 0.58 | 0.20 | 0.67 | 0.31 | 0.51 | 0.66 | 0.91 |     | 0.96 | 0.75 |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 117.4  
 Natural Cycle: 110  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 47.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Mills Gap Rd & Sweeten Creek Rd



HCM 6th TWSC  
 2: Mills Gap Rd & Pinnars Cove Rd

11/02/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.6  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 81   | 660  | 487  | 21   | 22   | 55   |
| Future Vol, veh/h        | 81   | 660  | 487  | 21   | 22   | 55   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 150  | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 8    | -    | -5   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 90   | 733  | 541  | 23   | 24   | 61   |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 564    | 0      | -      | 0 | 1466 553    |
| Stage 1              | -      | -      | -      | - | 553 -       |
| Stage 2              | -      | -      | -      | - | 913 -       |
| Critical Hdwy        | 4.12   | -      | -      | - | 5.42 5.72   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 4.42 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 4.42 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1008   | -      | -      | - | 212 575     |
| Stage 1              | -      | -      | -      | - | 672 -       |
| Stage 2              | -      | -      | -      | - | 504 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 1008   | -      | -      | - | 193 575     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 193 -       |
| Stage 1              | -      | -      | -      | - | 612 -       |
| Stage 2              | -      | -      | -      | - | 504 -       |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 1  | 0  | 17.8 |
| HCM LOS              |    |    | C    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1008  | -   | -   | -   | 367   |
| HCM Lane V/C Ratio    | 0.089 | -   | -   | -   | 0.233 |
| HCM Control Delay (s) | 8.9   | -   | -   | -   | 17.8  |
| HCM Lane LOS          | A     | -   | -   | -   | C     |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | -   | 0.9   |

HCM 6th TWSC  
 4: Pinners Cove Rd & Chapel Hill Rd

11/02/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.7  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      | ↶    | ↷    |      | ↶    | ↷    |
| Traffic Vol, veh/h       | 7    | 95   | 72   | 4    | 4    | 5    |
| Future Vol, veh/h        | 7    | 95   | 72   | 4    | 4    | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | -4   | 5    | -    | -8   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 8    | 106  | 80   | 4    | 4    | 6    |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 84     | 0      | -      | 0 | 204 82      |
| Stage 1              | -      | -      | -      | - | 82 -        |
| Stage 2              | -      | -      | -      | - | 122 -       |
| Critical Hdwy        | 4.12   | -      | -      | - | 4.82 5.42   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 3.82 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 3.82 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1513   | -      | -      | - | 859 996     |
| Stage 1              | -      | -      | -      | - | 976 -       |
| Stage 2              | -      | -      | -      | - | 954 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 1513   | -      | -      | - | 854 996     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 854 -       |
| Stage 1              | -      | -      | -      | - | 970 -       |
| Stage 2              | -      | -      | -      | - | 954 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.5 | 0  | 8.9 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1513  | -   | -   | -   | 927   |
| HCM Lane V/C Ratio    | 0.005 | -   | -   | -   | 0.011 |
| HCM Control Delay (s) | 7.4   | 0   | -   | -   | 8.9   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0     |

HCM 6th TWSC  
5: School Rd & Pinnars Cove Rd

11/02/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.8  |      |      |      |      |      |
| Movement                 | NBT  | NBR  | SBL  | SBT  | NWL  | NWR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 82   | 12   | 9    | 67   | 5    | 4    |
| Future Vol, veh/h        | 82   | 12   | 9    | 67   | 5    | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 2    | -    | -    | -3   | 2    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 91   | 13   | 10   | 74   | 6    | 4    |

| Major/Minor          | Major1 | Major2 | Minor1 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 0      | 0      | 104    | 0 | 192   |
| Stage 1              | -      | -      | -      | - | 98    |
| Stage 2              | -      | -      | -      | - | 94    |
| Critical Hdwy        | -      | -      | 4.12   | - | 6.82  |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.82  |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.82  |
| Follow-up Hdwy       | -      | -      | 2.218  | - | 3.518 |
| Pot Cap-1 Maneuver   | -      | -      | 1488   | - | 780   |
| Stage 1              | -      | -      | -      | - | 916   |
| Stage 2              | -      | -      | -      | - | 920   |
| Platoon blocked, %   | -      | -      | -      | - | -     |
| Mov Cap-1 Maneuver   | -      | -      | 1488   | - | 775   |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 775   |
| Stage 1              | -      | -      | -      | - | 916   |
| Stage 2              | -      | -      | -      | - | 914   |

























| Approach             | NB | SB  | NW  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 0.9 | 9.3 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 845   | 1488  |
| HCM Lane V/C Ratio    | -   | -        | 0.012 | 0.007 |
| HCM Control Delay (s) | -   | -        | 9.3   | 7.4   |
| HCM Lane LOS          | -   | -        | A     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0     | 0     |



Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

12/23/2021

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 37  | 109   | 27  | 165   | 409   | 549   | 52   | 574   | 61  | 169   | 460   | 43  |
| Future Volume (vph)     | 37  | 109   | 27  | 165   | 409   | 549   | 52   | 574   | 61  | 169   | 460   | 43  |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Grade (%)               |   | 0%  |   |   | 0%  |   |  | 2%  |   |   | -3%   |   |
| Storage Length (ft)     | 225   |   | 200   | 325   |   | 325   | 160  |   | 0   | 150   |   | 0   |
| Storage Lanes           | 1   |   | 1   | 1   |   | 1   | 1  |   | 0   | 1   |   | 0   |
| Taper Length (ft)       | 100   |   |   | 100   |   |   | 100  |   |   | 100   |   |   |
| Lane Util. Factor       | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Ped Bike Factor         |   |   | 0.97  |   |   |   |  |   |   |   |   |   |
| Frt                     |   |   | 0.850   |   |   | 0.850   |  | 0.986   |   |   | 0.987   |   |
| Flt Protected           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (prot)       | 1770  | 3539  | 1583  | 1770  | 3539  | 1583  | 1752   | 1818  | 0   | 1796  | 1866  | 0   |
| Flt Permitted           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (perm)       | 1770  | 3539  | 1541  | 1770  | 3539  | 1583  | 1752   | 1818  | 0   | 1796  | 1866  | 0   |
| Right Turn on Red       |   |   | No  |   |   | No  |  |   | No  |   |   | No  |
| Satd. Flow (RTOR)       |   |   |   |   |   |   |  |   |   |   |   |   |
| Link Speed (mph)        |   | 35  |   |   | 35  |   |  | 45  |   |   | 45  |   |
| Link Distance (ft)      |   | 1262  |   |   | 1190  |   |  | 2948  |   |   | 1261  |   |
| Travel Time (s)         |   | 24.6  |   |   | 23.2  |   |  | 44.7  |   |   | 19.1  |   |
| Confl. Peds. (#/hr)     |   |   | 3   |   |   |   |  |   |   |   |   |   |
| Peak Hour Factor        | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)         | 41  | 121   | 30  | 183   | 454   | 610   | 58   | 638   | 68  | 188   | 511   | 48  |
| Shared Lane Traffic (%) |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)   | 41  | 121   | 30  | 183   | 454   | 610   | 58   | 706   | 0   | 188   | 559   | 0   |
| Turn Type               | Prot  | NA  | pm+ov   | Prot  | NA  | pm+ov   | Prot   | NA  |   | Prot  | NA  |   |
| Protected Phases        | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases        |   |   | 4   |   |   | 8   |  |   |   |   |   |   |
| Detector Phase          | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Switch Phase            |   |   |   |   |   |   |  |   |   |   |   |   |
| Minimum Initial (s)     | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0  | 12.0  |   | 7.0   | 12.0  |   |
| Minimum Split (s)       | 14.0  | 22.0  | 14.0  | 14.0  | 25.0  | 14.0  | 14.0   | 22.5  |   | 14.0  | 22.5  |   |
| Total Split (s)         | 14.0  | 23.0  | 14.0  | 18.0  | 27.0  | 28.0  | 14.0   | 51.0  |   | 28.0  | 65.0  |   |
| Total Split (%)         | 11.7%   | 19.2%   | 11.7%   | 15.0%   | 22.5%   | 23.3%   | 11.7%  | 42.5%   |   | 23.3%   | 54.2%   |   |
| Maximum Green (s)       | 7.0   | 16.0  | 7.0   | 11.0  | 20.0  | 21.0  | 7.0  | 44.0  |   | 21.0  | 58.0  |   |
| Yellow Time (s)         | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| All-Red Time (s)        | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0  | 2.0   |   | 2.0   | 2.0   |   |
| Lost Time Adjust (s)    | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0   | -2.0  |   | -2.0  | -2.0  |   |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| Lead/Lag                | Lead  | Lag   | Lead  | Lead  | Lag   | Lead  | Lead   | Lag   |   | Lead  | Lag   |   |
| Lead-Lag Optimize?      |   | Yes   | Yes   | Yes   |   | Yes   | Yes  | Yes   |   | Yes   | Yes   |   |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   | 3.0   | 3.0   | 3.0   | 2.0  | 6.0   |   | 3.0   | 6.0   |   |
| Minimum Gap (s)         | 0.2   | 0.2   | 0.2   | 3.0   | 3.0   | 3.0   | 0.2  | 5.0   |   | 3.0   | 5.0   |   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 15.0  |   | 0.0   | 15.0  |   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 45.0  |   | 0.0   | 45.0  |   |
| Recall Mode             | None  | None  | None  | None  | None  | None  | None   | Max   |   | None  | Max   |   |
| Walk Time (s)           |   |   |   |   | 7.0   |   |  |   |   |   |   |   |
| Flash Dont Walk (s)     |   |   |   |   | 11.0  |   |  |   |   |   |   |   |
| Pedestrian Calls (#/hr) |   |   |   |   | 3   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

12/23/2021

| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|-------------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Act Effct Green (s)     | 9.0  | 15.7 | 24.7 | 13.1 | 22.9 | 49.1 | 9.0  | 46.2 |     | 21.2 | 61.5 |     |
| Actuated g/C Ratio      | 0.08 | 0.14 | 0.21 | 0.11 | 0.20 | 0.42 | 0.08 | 0.40 |     | 0.18 | 0.53 |     |
| v/c Ratio               | 0.30 | 0.25 | 0.09 | 0.92 | 0.65 | 0.91 | 0.43 | 0.98 |     | 0.57 | 0.57 |     |
| Control Delay           | 58.6 | 46.5 | 34.0 | 99.3 | 49.4 | 52.2 | 63.3 | 64.7 |     | 51.4 | 22.7 |     |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     | 0.0  | 0.0  |     |
| Total Delay             | 58.6 | 46.5 | 34.0 | 99.3 | 49.4 | 52.2 | 63.3 | 64.7 |     | 51.4 | 22.7 |     |
| LOS                     | E    | D    | C    | F    | D    | D    | E    | E    |     | D    | C    |     |
| Approach Delay          |      | 47.2 |      |      | 58.1 |      |      | 64.6 |     |      | 29.9 |     |
| Approach LOS            |      | D    |      |      | E    |      |      | E    |     |      | C    |     |
| Queue Length 50th (ft)  | 31   | 44   | 17   | 143  | 175  | 441  | 44   | ~557 |     | 133  | 300  |     |
| Queue Length 95th (ft)  | 68   | 73   | 42   | #289 | 233  | #677 | 89   | #810 |     | 210  | 416  |     |
| Internal Link Dist (ft) |      | 1182 |      |      | 1110 |      |      | 2868 |     |      | 1181 |     |
| Turn Bay Length (ft)    | 225  |      | 200  | 325  |      | 325  | 160  |      |     | 150  |      |     |
| Base Capacity (vph)     | 137  | 550  | 331  | 198  | 707  | 694  | 136  | 722  |     | 357  | 987  |     |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0    | 0    |     |
| Reduced v/c Ratio       | 0.30 | 0.22 | 0.09 | 0.92 | 0.64 | 0.88 | 0.43 | 0.98 |     | 0.53 | 0.57 |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 116.2  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 51.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 86.2%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Mills Gap Rd & Sweeten Creek Rd



HCM 6th TWSC  
2: Mills Gap Rd & Pinnars Cove Rd

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.7  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      | ↙    | ↑    | ↘    |      | ↙    | ↘    |
| Traffic Vol, veh/h       | 48   | 291  | 953  | 21   | 38   | 169  |
| Future Vol, veh/h        | 48   | 291  | 953  | 21   | 38   | 169  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 150  | -    | -    | -    | 150  | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 8    | -    | -5   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 53   | 323  | 1059 | 23   | 42   | 188  |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 1082   | 0      | -      | 0 | 1500 1071   |
| Stage 1              | -      | -      | -      | - | 1071 -      |
| Stage 2              | -      | -      | -      | - | 429 -       |
| Critical Hdwy        | 4.12   | -      | -      | - | 5.42 5.72   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 4.42 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 4.42 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 645    | -      | -      | - | 204 311     |
| Stage 1              | -      | -      | -      | - | 443 -       |
| Stage 2              | -      | -      | -      | - | 740 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 645    | -      | -      | - | 187 311     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 187 -       |
| Stage 1              | -      | -      | -      | - | 407 -       |
| Stage 2              | -      | -      | -      | - | 740 -       |

| Approach             | EB  | WB | SB   |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.6 | 0  | 32.2 |
| HCM LOS              |     |    | D    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h)      | 645   | -   | -   | -   | 187   | 311   |
| HCM Lane V/C Ratio    | 0.083 | -   | -   | -   | 0.226 | 0.604 |
| HCM Control Delay (s) | 11.1  | -   | -   | -   | 29.8  | 32.7  |
| HCM Lane LOS          | B     | -   | -   | -   | D     | D     |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | -   | 0.8   | 3.7   |

HCM 6th TWSC  
 4: Pinners Cove Rd & Chapel Hill Rd

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.3  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      | ↔    | ↔    |      | ↔    |      |
| Traffic Vol, veh/h       | 9    | 60   | 180  | 4    | 4    | 27   |
| Future Vol, veh/h        | 9    | 60   | 180  | 4    | 4    | 27   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | -4   | 5    | -    | -8   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 10   | 67   | 200  | 4    | 4    | 30   |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 204    | 0      | -      | 0 | 289 202     |
| Stage 1              | -      | -      | -      | - | 202 -       |
| Stage 2              | -      | -      | -      | - | 87 -        |
| Critical Hdwy        | 4.12   | -      | -      | - | 4.82 5.42   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 3.82 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 3.82 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1368   | -      | -      | - | 798 877     |
| Stage 1              | -      | -      | -      | - | 910 -       |
| Stage 2              | -      | -      | -      | - | 973 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 1368   | -      | -      | - | 792 877     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 792 -       |
| Stage 1              | -      | -      | -      | - | 903 -       |
| Stage 2              | -      | -      | -      | - | 973 -       |

| Approach             | EB | WB | SB  |
|----------------------|----|----|-----|
| HCM Control Delay, s | 1  | 0  | 9.3 |
| HCM LOS              |    |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1368  | -   | -   | -   | 865   |
| HCM Lane V/C Ratio    | 0.007 | -   | -   | -   | 0.04  |
| HCM Control Delay (s) | 7.7   | 0   | -   | -   | 9.3   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

HCM 6th TWSC  
5: School Rd & Pinnars Cove Rd

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.7  |      |      |      |      |      |
| Movement                 | NBT  | NBR  | SBL  | SBT  | NWL  | NWR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 53   | 7    | 21   | 160  | 20   | 9    |
| Future Vol, veh/h        | 53   | 7    | 21   | 160  | 20   | 9    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 2    | -    | -    | -3   | 2    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 59   | 8    | 23   | 178  | 22   | 10   |

| Major/Minor          | Major1 | Major2 | Minor1 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 0      | 0      | 67     | 0 | 287 63      |
| Stage 1              | -      | -      | -      | - | 63 -        |
| Stage 2              | -      | -      | -      | - | 224 -       |
| Critical Hdwy        | -      | -      | 4.12   | - | 6.82 6.42   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.82 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.82 -      |
| Follow-up Hdwy       | -      | -      | 2.218  | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | -      | -      | 1535   | - | 681 998     |
| Stage 1              | -      | -      | -      | - | 953 -       |
| Stage 2              | -      | -      | -      | - | 793 -       |
| Platoon blocked, %   | -      | -      | -      | - | -           |
| Mov Cap-1 Maneuver   | -      | -      | 1535   | - | 669 998     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 669 -       |
| Stage 1              | -      | -      | -      | - | 953 -       |
| Stage 2              | -      | -      | -      | - | 780 -       |

| Approach             | NB | SB  | NW   |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0  | 0.9 | 10.1 |
| HCM LOS              |    |     | B    |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 745   | 1535  |
| HCM Lane V/C Ratio    | -   | -        | 0.043 | 0.015 |
| HCM Control Delay (s) | -   | -        | 10.1  | 7.4   |
| HCM Lane LOS          | -   | -        | B     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.1   | 0     |

HCM 6th TWSC  
10: Pinnars Cove Rd & Site Access

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.1  |      |      |      |      |      |
| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 4    | 84   | 27   | 34   | 97   | 4    |
| Future Vol, veh/h        | 4    | 84   | 27   | 34   | 97   | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 4    | 93   | 30   | 38   | 108  | 4    |

| Major/Minor          | Minor2 | Major1 |       | Major2 |   |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 208    | 110    | 112   | 0      | 0 |
| Stage 1              | 110    | -      | -     | -      | - |
| Stage 2              | 98     | -      | -     | -      | - |
| Critical Hdwy        | 6.42   | 6.22   | 4.12  | -      | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -     | -      | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -     | -      | - |
| Follow-up Hdwy       | 3.518  | 3.318  | 2.218 | -      | - |
| Pot Cap-1 Maneuver   | 780    | 943    | 1478  | -      | - |
| Stage 1              | 915    | -      | -     | -      | - |
| Stage 2              | 926    | -      | -     | -      | - |
| Platoon blocked, %   |        |        |       | -      | - |
| Mov Cap-1 Maneuver   | 764    | 943    | 1478  | -      | - |
| Mov Cap-2 Maneuver   | 764    | -      | -     | -      | - |
| Stage 1              | 896    | -      | -     | -      | - |
| Stage 2              | 926    | -      | -     | -      | - |

























| Approach             | EB  | NB  | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 9.3 | 3.3 | 0  |
| HCM LOS              | A   |     |    |

| Minor Lane/Major Mvmt | NBL  | NBT | EBLn1 | SBT | SBR |
|-----------------------|------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1478 | -   | 933   | -   | -   |
| HCM Lane V/C Ratio    | 0.02 | -   | 0.105 | -   | -   |
| HCM Control Delay (s) | 7.5  | 0   | 9.3   | -   | -   |
| HCM Lane LOS          | A    | A   | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0.1  | -   | 0.3   | -   | -   |



Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

12/23/2021

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 42  | 343   | 63  | 94  | 197   | 301   | 80   | 480   | 128   | 353   | 589   | 73  |
| Future Volume (vph)     | 42  | 343   | 63  | 94  | 197   | 301   | 80   | 480   | 128   | 353   | 589   | 73  |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Grade (%)               |   | 0%  |   |   | 0%  |   |  | 2%  |   |   |   | -3%   |
| Storage Length (ft)     | 225   |   | 200   | 325   |   | 325   | 160  |   | 0   | 150   |   | 0   |
| Storage Lanes           | 1   |   | 1   | 1   |   | 1   | 1  |   | 0   | 1   |   | 0   |
| Taper Length (ft)       | 100   |   |   | 100   |   |   | 100  |   |   | 100   |   |   |
| Lane Util. Factor       | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Ped Bike Factor         |   |   | 0.97  |   |   |   |  |   |   |   |   |   |
| Frt                     |   |   | 0.850   |   |   | 0.850   |  | 0.968   |   |   | 0.983   |   |
| Flt Protected           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (prot)       | 1770  | 3539  | 1583  | 1770  | 3539  | 1583  | 1752   | 1785  | 0   | 1796  | 1859  | 0   |
| Flt Permitted           | 0.950   |   |   | 0.950   |   |   | 0.950  |   |   | 0.950   |   |   |
| Satd. Flow (perm)       | 1770  | 3539  | 1542  | 1770  | 3539  | 1583  | 1752   | 1785  | 0   | 1796  | 1859  | 0   |
| Right Turn on Red       |   |   | No  |   |   | No  |  |   | No  |   |   | No  |
| Satd. Flow (RTOR)       |   |   |   |   |   |   |  |   |   |   |   |   |
| Link Speed (mph)        |   | 35  |   |   | 35  |   |  | 45  |   |   | 45  |   |
| Link Distance (ft)      |   | 1262  |   |   | 1190  |   |  | 2948  |   |   | 1261  |   |
| Travel Time (s)         |   | 24.6  |   |   | 23.2  |   |  | 44.7  |   |   | 19.1  |   |
| Confl. Peds. (#/hr)     |   |   | 3   |   |   |   |  |   |   |   |   |   |
| Peak Hour Factor        | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)         | 47  | 381   | 70  | 104   | 219   | 334   | 89   | 533   | 142   | 392   | 654   | 81  |
| Shared Lane Traffic (%) |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)   | 47  | 381   | 70  | 104   | 219   | 334   | 89   | 675   | 0   | 392   | 735   | 0   |
| Turn Type               | Prot  | NA  | pm+ov   | Prot  | NA  | pm+ov   | Prot   | NA  |   | Prot  | NA  |   |
| Protected Phases        | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases        |   |   | 4   |   |   | 8   |  |   |   |   |   |   |
| Detector Phase          | 7   | 4   | 5   | 3   | 8   | 1   | 5  | 2   |   | 1   | 6   |   |
| Switch Phase            |   |   |   |   |   |   |  |   |   |   |   |   |
| Minimum Initial (s)     | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0  | 12.0  |   | 7.0   | 12.0  |   |
| Minimum Split (s)       | 14.0  | 22.0  | 14.0  | 14.0  | 25.0  | 14.0  | 14.0   | 22.5  |   | 14.0  | 22.5  |   |
| Total Split (s)         | 14.0  | 24.0  | 14.0  | 15.0  | 25.0  | 30.0  | 14.0   | 51.0  |   | 30.0  | 67.0  |   |
| Total Split (%)         | 11.7%   | 20.0%   | 11.7%   | 12.5%   | 20.8%   | 25.0%   | 11.7%  | 42.5%   |   | 25.0%   | 55.8%   |   |
| Maximum Green (s)       | 7.0   | 17.0  | 7.0   | 8.0   | 18.0  | 23.0  | 7.0  | 44.0  |   | 23.0  | 60.0  |   |
| Yellow Time (s)         | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| All-Red Time (s)        | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0  | 2.0   |   | 2.0   | 2.0   |   |
| Lost Time Adjust (s)    | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0  | -2.0   | -2.0  |   | -2.0  | -2.0  |   |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |   | 5.0   | 5.0   |   |
| Lead/Lag                | Lead  | Lag   | Lag   | Lead  | Lag   | Lag   | Lag  | Lead  |   | Lag   | Lead  |   |
| Lead-Lag Optimize?      |   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |   | Yes   | Yes   |   |
| Vehicle Extension (s)   | 2.0   | 2.0   | 2.0   | 3.0   | 3.0   | 3.0   | 2.0  | 6.0   |   | 3.0   | 6.0   |   |
| Minimum Gap (s)         | 0.2   | 0.2   | 0.2   | 3.0   | 3.0   | 3.0   | 0.2  | 5.0   |   | 3.0   | 5.0   |   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 15.0  |   | 0.0   | 15.0  |   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 45.0  |   | 0.0   | 45.0  |   |
| Recall Mode             | None  | None  | None  | None  | None  | None  | None   | Max   |   | None  | Max   |   |
| Walk Time (s)           |   |   |   |   | 7.0   |   |  |   |   |   |   |   |
| Flash Dont Walk (s)     |   |   |   |   | 11.0  |   |  |   |   |   |   |   |
| Pedestrian Calls (#/hr) |   |   |   |   | 3   |   |  |   |   |   |   |   |

Lanes, Volumes, Timings  
 1: Mills Gap Rd & Sweeten Creek Rd

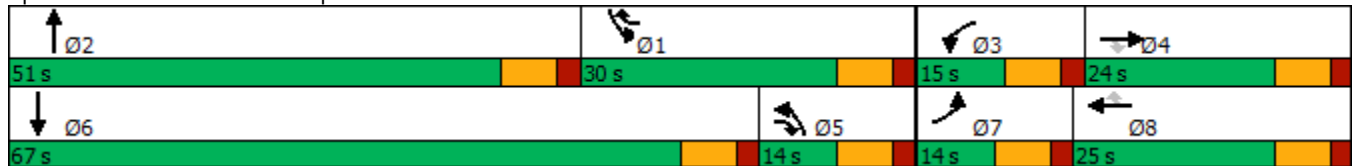
12/23/2021

| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL   | SBT  | SBR |
|-------------------------|------|------|------|------|------|------|------|------|-----|-------|------|-----|
| Act Effct Green (s)     | 9.0  | 17.7 | 26.7 | 10.0 | 21.5 | 47.6 | 9.0  | 46.0 |     | 25.0  | 62.0 |     |
| Actuated g/C Ratio      | 0.08 | 0.15 | 0.22 | 0.08 | 0.18 | 0.40 | 0.08 | 0.39 |     | 0.21  | 0.52 |     |
| v/c Ratio               | 0.35 | 0.72 | 0.20 | 0.70 | 0.34 | 0.53 | 0.67 | 0.98 |     | 1.04  | 0.76 |     |
| Control Delay           | 60.5 | 56.8 | 26.1 | 78.0 | 45.3 | 21.9 | 78.5 | 65.4 |     | 102.2 | 28.9 |     |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |     | 0.0   | 0.0  |     |
| Total Delay             | 60.5 | 56.8 | 26.1 | 78.0 | 45.3 | 21.9 | 78.5 | 65.4 |     | 102.2 | 28.9 |     |
| LOS                     | E    | E    | C    | E    | D    | C    | E    | E    |     | F     | C    |     |
| Approach Delay          |      | 52.8 |      |      | 38.6 |      |      | 67.0 |     |       | 54.4 |     |
| Approach LOS            |      | D    |      |      | D    |      |      | E    |     |       | D    |     |
| Queue Length 50th (ft)  | 35   | 148  | 34   | 80   | 80   | 147  | 68   | 513  |     | ~330  | 439  |     |
| Queue Length 95th (ft)  | 76   | 202  | 65   | #165 | 119  | 218  | #147 | #767 |     | #525  | 605  |     |
| Internal Link Dist (ft) |      | 1182 |      |      | 1110 |      |      | 2868 |     |       | 1181 |     |
| Turn Bay Length (ft)    | 225  |      | 200  | 325  |      | 325  | 160  |      |     | 150   |      |     |
| Base Capacity (vph)     | 134  | 566  | 349  | 149  | 653  | 634  | 132  | 692  |     | 378   | 971  |     |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0     | 0    |     |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0     | 0    |     |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |     | 0     | 0    |     |
| Reduced v/c Ratio       | 0.35 | 0.67 | 0.20 | 0.70 | 0.34 | 0.53 | 0.67 | 0.98 |     | 1.04  | 0.76 |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 118.7  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 53.9 Intersection LOS: D  
 Intersection Capacity Utilization 84.6% ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Mills Gap Rd & Sweeten Creek Rd



HCM 6th TWSC  
2: Mills Gap Rd & Pinnars Cove Rd

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2.8  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      | ↖    | ↑    | ↗    |      | ↖    | ↗    |
| Traffic Vol, veh/h       | 164  | 660  | 487  | 37   | 32   | 105  |
| Future Vol, veh/h        | 164  | 660  | 487  | 37   | 32   | 105  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 150  | -    | -    | -    | 150  | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 8    | -    | -5   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 182  | 733  | 541  | 41   | 36   | 117  |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 582    | 0      | -      | 0 | 1659 562    |
| Stage 1              | -      | -      | -      | - | 562 -       |
| Stage 2              | -      | -      | -      | - | 1097 -      |
| Critical Hdwy        | 4.12   | -      | -      | - | 5.42 5.72   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 4.42 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 4.42 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 992    | -      | -      | - | 170 569     |
| Stage 1              | -      | -      | -      | - | 667 -       |
| Stage 2              | -      | -      | -      | - | 434 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 992    | -      | -      | - | 139 569     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 139 -       |
| Stage 1              | -      | -      | -      | - | 545 -       |
| Stage 2              | -      | -      | -      | - | 434 -       |

| Approach             | EB  | WB | SB   |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.9 | 0  | 19.2 |
| HCM LOS              |     |    | C    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h)      | 992   | -   | -   | -   | 139   | 569   |
| HCM Lane V/C Ratio    | 0.184 | -   | -   | -   | 0.256 | 0.205 |
| HCM Control Delay (s) | 9.4   | -   | -   | -   | 39.6  | 13    |
| HCM Lane LOS          | A     | -   | -   | -   | E     | B     |
| HCM 95th %tile Q(veh) | 0.7   | -   | -   | -   | 1     | 0.8   |

HCM 6th TWSC  
 4: Pinnars Cove Rd & Chapel Hill Rd

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.2  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      | ↕    | ↕    |      | ↕    |      |
| Traffic Vol, veh/h       | 29   | 172  | 118  | 4    | 4    | 18   |
| Future Vol, veh/h        | 29   | 172  | 118  | 4    | 4    | 18   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | -4   | 5    | -    | -8   | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 32   | 191  | 131  | 4    | 4    | 20   |

| Major/Minor          | Major1 | Major2 | Minor2 |   |             |
|----------------------|--------|--------|--------|---|-------------|
| Conflicting Flow All | 135    | 0      | -      | 0 | 388 133     |
| Stage 1              | -      | -      | -      | - | 133 -       |
| Stage 2              | -      | -      | -      | - | 255 -       |
| Critical Hdwy        | 4.12   | -      | -      | - | 4.82 5.42   |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 3.82 -      |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 3.82 -      |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1449   | -      | -      | - | 731 944     |
| Stage 1              | -      | -      | -      | - | 948 -       |
| Stage 2              | -      | -      | -      | - | 882 -       |
| Platoon blocked, %   |        | -      | -      | - |             |
| Mov Cap-1 Maneuver   | 1449   | -      | -      | - | 713 944     |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 713 -       |
| Stage 1              | -      | -      | -      | - | 924 -       |
| Stage 2              | -      | -      | -      | - | 882 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 1.1 | 0  | 9.2 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1449  | -   | -   | -   | 891   |
| HCM Lane V/C Ratio    | 0.022 | -   | -   | -   | 0.027 |
| HCM Control Delay (s) | 7.5   | 0   | -   | -   | 9.2   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | -   | 0.1   |

HCM 6th TWSC  
5: School Rd & Pinnars Cove Rd

12/23/2021

Intersection

Int Delay, s/veh 0.9

| Movement                 | NBT  | NBR  | SBL  | SBT  | NWL  | NWR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 160  | 12   | 16   | 113  | 5    | 14   |
| Future Vol, veh/h        | 160  | 12   | 16   | 113  | 5    | 14   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 2    | -    | -    | -3   | 2    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 178  | 13   | 18   | 126  | 6    | 16   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 191    |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1383   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1383   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | NB | SB  | NW  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 0.9 | 9.8 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 772   | 1383  |
| HCM Lane V/C Ratio    | -   | -        | 0.027 | 0.013 |
| HCM Control Delay (s) | -   | -        | 9.8   | 7.6   |
| HCM Lane LOS          | -   | -        | A     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.1   | 0     |

HCM 6th TWSC  
10: Pinnars Cove Rd & Site Access

12/23/2021

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.9  |      |      |      |      |      |
| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
| Lane Configurations      |      |      |      |      |      |      |
| Traffic Vol, veh/h       | 4    | 53   | 89   | 85   | 76   | 4    |
| Future Vol, veh/h        | 4    | 53   | 89   | 85   | 76   | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 4    | 59   | 99   | 94   | 84   | 4    |

| Major/Minor          | Minor2 | Major1 |       | Major2 |   |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 378    | 86     | 88    | 0      | 0 |
| Stage 1              | 86     | -      | -     | -      | - |
| Stage 2              | 292    | -      | -     | -      | - |
| Critical Hdwy        | 6.42   | 6.22   | 4.12  | -      | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -     | -      | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -     | -      | - |
| Follow-up Hdwy       | 3.518  | 3.318  | 2.218 | -      | - |
| Pot Cap-1 Maneuver   | 624    | 973    | 1508  | -      | - |
| Stage 1              | 937    | -      | -     | -      | - |
| Stage 2              | 758    | -      | -     | -      | - |
| Platoon blocked, %   |        |        |       | -      | - |
| Mov Cap-1 Maneuver   | 581    | 973    | 1508  | -      | - |
| Mov Cap-2 Maneuver   | 581    | -      | -     | -      | - |
| Stage 1              | 872    | -      | -     | -      | - |
| Stage 2              | 758    | -      | -     | -      | - |

| Approach             | EB  | NB  | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 9.2 | 3.9 | 0  |
| HCM LOS              | A   |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1508  | -   | 929   | -   | -   |
| HCM Lane V/C Ratio    | 0.066 | -   | 0.068 | -   | -   |
| HCM Control Delay (s) | 7.6   | 0   | 9.2   | -   | -   |
| HCM Lane LOS          | A     | A   | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0.2   | -   | 0.2   | -   | -   |



Queuing and Blocking Report  
2021 AM Peak

10/21/2021

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB  | WB  | WB   | WB  | NB  | NB   | SB  | SB  |
|-----------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Directions Served     | L   | T    | R   | L   | T    | R   | L   | TR   | L   | TR  |
| Maximum Queue (ft)    | 51  | 157  | 55  | 437 | 696  | 650 | 260 | 707  | 249 | 300 |
| Average Queue (ft)    | 28  | 75   | 16  | 110 | 259  | 272 | 104 | 376  | 102 | 150 |
| 95th Queue (ft)       | 57  | 132  | 47  | 245 | 461  | 496 | 286 | 590  | 194 | 250 |
| Link Distance (ft)    |     | 1225 |     |     | 4106 |     |     | 1752 |     | 978 |
| Upstream Blk Time (%) |     |      |     |     |      |     |     |      |     |     |
| Queuing Penalty (veh) |     |      |     |     |      |     |     |      |     |     |
| Storage Bay Dist (ft) | 100 |      | 150 | 340 |      | 550 | 160 |      | 150 |     |
| Storage Blk Time (%)  |     | 6    |     |     | 3    | 3   |     | 41   | 6   | 8   |
| Queuing Penalty (veh) |     | 4    |     |     | 21   | 14  |     | 22   | 30  | 13  |

Intersection: 2: Mills Gap Rd & Pinners Cove Rd

| Movement              | EB   | SB   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 204  | 269  |
| Average Queue (ft)    | 22   | 103  |
| 95th Queue (ft)       | 92   | 223  |
| Link Distance (ft)    | 4106 | 1689 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

Intersection: 4: Pinners Cove Rd & Chapel Hill Rd

| Movement              | SB   |
|-----------------------|------|
| Directions Served     | LR   |
| Maximum Queue (ft)    | 26   |
| Average Queue (ft)    | 11   |
| 95th Queue (ft)       | 31   |
| Link Distance (ft)    | 2149 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

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Intersection: 5: School Rd & Pinnars Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 32   | 16   |
| Average Queue (ft)    | 1    | 9    |
| 95th Queue (ft)       | 10   | 21   |
| Link Distance (ft)    | 1001 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Network Summary

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Network wide Queuing Penalty: 104

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Queuing and Blocking Report  
2021 PM Peak

10/21/2021

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB  | WB  | WB   | WB  | NB  | NB   | SB  | SB  |
|-----------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Directions Served     | L   | T    | R   | L   | T    | R   | L   | TR   | L   | TR  |
| Maximum Queue (ft)    | 200 | 738  | 250 | 137 | 204  | 286 | 260 | 663  | 250 | 993 |
| Average Queue (ft)    | 57  | 346  | 91  | 62  | 115  | 112 | 118 | 414  | 229 | 544 |
| 95th Queue (ft)       | 158 | 658  | 261 | 110 | 192  | 209 | 287 | 598  | 296 | 944 |
| Link Distance (ft)    |     | 1225 |     |     | 4106 |     |     | 1752 |     | 978 |
| Upstream Blk Time (%) |     |      |     |     |      |     |     |      |     | 1   |
| Queuing Penalty (veh) |     |      |     |     |      |     |     |      |     | 0   |
| Storage Bay Dist (ft) | 100 |      | 150 | 340 |      | 550 | 160 |      | 150 |     |
| Storage Blk Time (%)  | 0   | 57   |     |     |      |     |     | 46   | 42  | 28  |
| Queuing Penalty (veh) | 2   | 62   |     |     |      |     |     | 38   | 293 | 94  |

Intersection: 2: Mills Gap Rd & Pinnars Cove Rd

| Movement              | EB   | SB   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 181  | 97   |
| Average Queue (ft)    | 51   | 40   |
| 95th Queue (ft)       | 131  | 73   |
| Link Distance (ft)    | 4106 | 1689 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

Intersection: 4: Pinnars Cove Rd & Chapel Hill Rd

| Movement              | EB   | SB   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 53   | 26   |
| Average Queue (ft)    | 2    | 6    |
| 95th Queue (ft)       | 17   | 23   |
| Link Distance (ft)    | 1689 | 2149 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 5: School Rd & Pinnars Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 53   | 16   |
| Average Queue (ft)    | 2    | 5    |
| 95th Queue (ft)       | 18   | 16   |
| Link Distance (ft)    | 1001 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Network Summary

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Network wide Queuing Penalty: 489

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Queuing and Blocking Report  
2025 AM Peak Background

11/01/2021

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB   | EB  | WB  | WB   | WB   | WB  | B13  | NB  | NB   | SB  |
|-----------------------|-----|------|------|-----|-----|------|------|-----|------|-----|------|-----|
| Directions Served     | L   | T    | T    | R   | L   | T    | T    | R   | T    | L   | TR   | L   |
| Maximum Queue (ft)    | 93  | 114  | 51   | 52  | 242 | 1197 | 1198 | 425 | 648  | 260 | 1893 | 250 |
| Average Queue (ft)    | 32  | 61   | 16   | 19  | 129 | 262  | 1066 | 417 | 169  | 124 | 1106 | 151 |
| 95th Queue (ft)       | 71  | 108  | 42   | 48  | 206 | 721  | 1453 | 490 | 512  | 297 | 1522 | 270 |
| Link Distance (ft)    |     | 1223 | 1223 |     |     | 1127 | 1127 |     | 2916 |     | 2886 |     |
| Upstream Blk Time (%) |     |      |      |     |     |      | 34   |     |      |     |      |     |
| Queuing Penalty (veh) |     |      |      |     |     |      | 195  |     |      |     |      |     |
| Storage Bay Dist (ft) | 225 |      |      | 200 | 325 |      |      | 325 |      | 160 |      | 150 |
| Storage Blk Time (%)  |     |      |      |     |     |      |      | 80  |      |     | 60   | 4   |
| Queuing Penalty (veh) |     |      |      |     |     |      |      | 170 |      |     | 35   | 23  |

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | SB   |
|-----------------------|------|
| Directions Served     | TR   |
| Maximum Queue (ft)    | 400  |
| Average Queue (ft)    | 222  |
| 95th Queue (ft)       | 367  |
| Link Distance (ft)    | 1204 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  | 17   |
| Queuing Penalty (veh) | 30   |

Intersection: 2: Mills Gap Rd & Pinners Cove Rd

| Movement              | EB  | SB   |
|-----------------------|-----|------|
| Directions Served     | L   | LR   |
| Maximum Queue (ft)    | 52  | 177  |
| Average Queue (ft)    | 15  | 64   |
| 95th Queue (ft)       | 42  | 122  |
| Link Distance (ft)    |     | 1682 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) | 150 |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

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Intersection: 4: Panners Cove Rd & Chapel Hill Rd

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| Movement              | SB   |
|-----------------------|------|
| Directions Served     | LR   |
| Maximum Queue (ft)    | 48   |
| Average Queue (ft)    | 9    |
| 95th Queue (ft)       | 31   |
| Link Distance (ft)    | 2149 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

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Intersection: 5: School Rd & Panners Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 31   | 16   |
| Average Queue (ft)    | 1    | 9    |
| 95th Queue (ft)       | 10   | 21   |
| Link Distance (ft)    | 1001 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Network Summary

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Network wide Queuing Penalty: 453

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Queuing and Blocking Report  
 2025 PM Peak Background

11/02/2021

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB   | EB  | WB  | WB   | WB   | WB  | NB  | NB   | SB  | SB   |
|-----------------------|-----|------|------|-----|-----|------|------|-----|-----|------|-----|------|
| Directions Served     | L   | T    | T    | R   | L   | T    | T    | R   | L   | TR   | L   | TR   |
| Maximum Queue (ft)    | 113 | 282  | 230  | 94  | 135 | 115  | 139  | 261 | 260 | 1159 | 250 | 1238 |
| Average Queue (ft)    | 43  | 158  | 126  | 38  | 68  | 61   | 67   | 131 | 128 | 772  | 243 | 885  |
| 95th Queue (ft)       | 90  | 241  | 214  | 74  | 126 | 107  | 117  | 218 | 297 | 1174 | 272 | 1354 |
| Link Distance (ft)    |     | 1223 | 1223 |     |     | 1127 | 1127 |     |     | 2886 |     | 1204 |
| Upstream Blk Time (%) |     |      |      |     |     |      |      |     |     |      |     | 15   |
| Queuing Penalty (veh) |     |      |      |     |     |      |      |     |     |      |     | 0    |
| Storage Bay Dist (ft) | 225 |      |      | 200 | 325 |      |      | 325 | 160 |      | 150 |      |
| Storage Blk Time (%)  |     | 2    | 1    |     |     |      |      |     |     | 58   | 43  | 37   |
| Queuing Penalty (veh) |     | 1    | 0    |     |     |      |      |     |     | 52   | 313 | 130  |

Intersection: 2: Mills Gap Rd & Pinners Cove Rd

| Movement              | EB  | SB   |
|-----------------------|-----|------|
| Directions Served     | L   | LR   |
| Maximum Queue (ft)    | 53  | 95   |
| Average Queue (ft)    | 22  | 39   |
| 95th Queue (ft)       | 52  | 64   |
| Link Distance (ft)    |     | 1682 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) | 150 |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

Intersection: 4: Pinners Cove Rd & Chapel Hill Rd

| Movement              | SB   |
|-----------------------|------|
| Directions Served     | LR   |
| Maximum Queue (ft)    | 26   |
| Average Queue (ft)    | 8    |
| 95th Queue (ft)       | 27   |
| Link Distance (ft)    | 2149 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

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Intersection: 5: School Rd & Pinnars Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 31   | 16   |
| Average Queue (ft)    | 1    | 1    |
| 95th Queue (ft)       | 10   | 7    |
| Link Distance (ft)    | 1001 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Network Summary

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Network wide Queuing Penalty: 496

Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB   | EB  | WB  | WB   | WB   | WB  | NB  | NB   | SB  | SB   |
|-----------------------|-----|------|------|-----|-----|------|------|-----|-----|------|-----|------|
| Directions Served     | L   | T    | T    | R   | L   | T    | T    | R   | L   | TR   | L   | TR   |
| Maximum Queue (ft)    | 92  | 138  | 124  | 112 | 226 | 815  | 1152 | 425 | 260 | 2901 | 250 | 376  |
| Average Queue (ft)    | 34  | 75   | 27   | 32  | 155 | 348  | 644  | 393 | 99  | 1483 | 130 | 215  |
| 95th Queue (ft)       | 78  | 128  | 76   | 76  | 214 | 759  | 1210 | 505 | 275 | 2632 | 242 | 314  |
| Link Distance (ft)    |     | 1223 | 1223 |     |     | 1127 | 1127 |     |     | 2886 |     | 1204 |
| Upstream Blk Time (%) |     |      |      |     |     |      | 0    |     |     | 0    |     |      |
| Queuing Penalty (veh) |     |      |      |     |     |      | 3    |     |     | 0    |     |      |
| Storage Bay Dist (ft) | 225 |      |      | 200 | 325 |      |      | 325 | 160 |      | 150 |      |
| Storage Blk Time (%)  |     |      |      |     |     |      |      | 62  |     | 62   | 6   | 14   |
| Queuing Penalty (veh) |     |      |      |     |     |      |      | 140 |     | 36   | 31  | 26   |

Intersection: 2: Mills Gap Rd & Pinners Cove Rd

| Movement              | EB  | SB  | SB   |
|-----------------------|-----|-----|------|
| Directions Served     | L   | L   | R    |
| Maximum Queue (ft)    | 75  | 248 | 250  |
| Average Queue (ft)    | 27  | 39  | 107  |
| 95th Queue (ft)       | 63  | 110 | 193  |
| Link Distance (ft)    |     |     | 1683 |
| Upstream Blk Time (%) |     |     |      |
| Queuing Penalty (veh) |     |     |      |
| Storage Bay Dist (ft) | 150 | 150 |      |
| Storage Blk Time (%)  |     |     | 9    |
| Queuing Penalty (veh) |     |     | 4    |

Intersection: 4: Pinners Cove Rd & Chapel Hill Rd

| Movement              | SB   |
|-----------------------|------|
| Directions Served     | LR   |
| Maximum Queue (ft)    | 48   |
| Average Queue (ft)    | 14   |
| 95th Queue (ft)       | 37   |
| Link Distance (ft)    | 2142 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

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Intersection: 5: School Rd & Pinners Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 55   | 38   |
| Average Queue (ft)    | 5    | 10   |
| 95th Queue (ft)       | 26   | 25   |
| Link Distance (ft)    | 1012 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 10: Pinners Cove Rd & Site Access

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| Movement              | EB  | NB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 50  | 32   |
| Average Queue (ft)    | 27  | 3    |
| 95th Queue (ft)       | 47  | 19   |
| Link Distance (ft)    | 913 | 1012 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

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Network Summary

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Network wide Queuing Penalty: 240

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Intersection: 1: Mills Gap Rd & Sweeten Creek Rd

| Movement              | EB  | EB   | EB   | EB  | WB  | WB   | WB   | WB  | NB  | NB   | SB  | SB   |
|-----------------------|-----|------|------|-----|-----|------|------|-----|-----|------|-----|------|
| Directions Served     | L   | T    | T    | R   | L   | T    | T    | R   | L   | TR   | L   | TR   |
| Maximum Queue (ft)    | 71  | 226  | 208  | 94  | 200 | 160  | 159  | 225 | 260 | 1973 | 250 | 1256 |
| Average Queue (ft)    | 39  | 170  | 140  | 42  | 123 | 78   | 81   | 132 | 175 | 1627 | 246 | 1227 |
| 95th Queue (ft)       | 70  | 219  | 203  | 79  | 203 | 132  | 132  | 213 | 337 | 2151 | 273 | 1246 |
| Link Distance (ft)    |     | 1223 | 1223 |     |     | 1127 | 1127 |     |     | 2886 |     | 1204 |
| Upstream Blk Time (%) |     |      |      |     |     |      |      |     |     |      |     | 69   |
| Queuing Penalty (veh) |     |      |      |     |     |      |      |     |     |      |     | 0    |
| Storage Bay Dist (ft) | 225 |      |      | 200 | 325 |      |      | 325 | 160 |      | 150 |      |
| Storage Blk Time (%)  |     | 0    | 0    |     |     |      |      |     |     | 64   | 45  | 35   |
| Queuing Penalty (veh) |     | 0    | 0    |     |     |      |      |     |     | 57   | 332 | 136  |

Intersection: 2: Mills Gap Rd & Pinners Cove Rd

| Movement              | EB  | WB   | SB  | SB   |
|-----------------------|-----|------|-----|------|
| Directions Served     | L   | TR   | L   | R    |
| Maximum Queue (ft)    | 99  | 40   | 71  | 76   |
| Average Queue (ft)    | 43  | 3    | 23  | 47   |
| 95th Queue (ft)       | 78  | 17   | 53  | 72   |
| Link Distance (ft)    |     | 1289 |     | 1683 |
| Upstream Blk Time (%) |     |      |     |      |
| Queuing Penalty (veh) |     |      |     |      |
| Storage Bay Dist (ft) | 150 |      | 150 |      |
| Storage Blk Time (%)  |     |      |     |      |
| Queuing Penalty (veh) |     |      |     |      |

Intersection: 4: Pinners Cove Rd & Chapel Hill Rd

| Movement              | EB   | SB   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 31   | 48   |
| Average Queue (ft)    | 2    | 14   |
| 95th Queue (ft)       | 14   | 37   |
| Link Distance (ft)    | 1683 | 2142 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 5: School Rd & Pinners Cove Rd

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| Movement              | SB   | NW   |
|-----------------------|------|------|
| Directions Served     | LT   | LR   |
| Maximum Queue (ft)    | 31   | 35   |
| Average Queue (ft)    | 4    | 9    |
| 95th Queue (ft)       | 21   | 23   |
| Link Distance (ft)    | 1012 | 1095 |
| Upstream Blk Time (%) |      |      |
| Queuing Penalty (veh) |      |      |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

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Intersection: 10: Pinners Cove Rd & Site Access

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| Movement              | EB  | NB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 28  | 73   |
| Average Queue (ft)    | 22  | 10   |
| 95th Queue (ft)       | 38  | 43   |
| Link Distance (ft)    | 612 | 1012 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

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Network Summary

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Network wide Queuing Penalty: 524

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**Appendix C: Site Plan**

**C**





| NO. | DATE     | DESCRIPTION    |
|-----|----------|----------------|
| 1   | 11/09/21 | BOOK SUBMITTAL |

DEVELOPMENT DATA  
 OWNER/DEVELOPER: DV ACQUISITIONS, LLC, UNIT 200, 100 PATTON AVENUE, ARLINGTOWN, PA 16801, (717) 225-0585  
 CONTACT: MICHAEL J. WILSON, (717) 225-0585  
 CIVIL ENGINEER: CIVIL DESIGN CONCEPTS, P.A., 100 PATTON AVENUE, ARLINGTOWN, PA 16801, (717) 225-0585  
 SURVEYOR: CIVIL DESIGN CONCEPTS, P.A., 100 PATTON AVENUE, ARLINGTOWN, PA 16801, (717) 225-0585  
 ARCHITECT: 28 N. MARKET ST. #100, WYOMING, PA 17376, (717) 225-0585  
 CONTACT: JACQUEL HOLLER, (717) 225-0585  
 PROJECT DATA  
 PIN: 88054-97-307, 88054-95-2787  
 ADDRESS: CHAMPEL HILL CHURCH LN, WYOMING, PA 17376  
 PROJECT ADDRESS: 1774 N. MARKET ST., WYOMING, PA 17376  
 SETBACKS: FRONT: 20', REAR: 20', SIDE: 20'  
 PROPOSED UNITS: 283 SINGLE FAMILY UNITS  
 EXISTING USE: VACANT  
 PROPOSED USE: BRIDGE FAMILY RESIDENTIAL  
 DISTURBED AREA: 42 AC



NOTES:  
 1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL STANDARDS, ORDINANCES AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.  
 2. SINGLE-PHASE CONSTRUCTION.  
 3. ALL WORK MUST BE PERFORMED BY A NORTH CAROLINA LICENSED CONTRACTOR.  
 4. PROPOSED DEVELOPMENT WILL BE PROVIDED WITH UTILITIES VIA EXISTING RIGHT-OF-WAYS. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL UTILITIES SHALL BE LOCATED AND DEPTH SHALL BE DETERMINED BY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.  
 5. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGES INCURRED DURING OR RESULTING FROM CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE TIME OF CONSTRUCTION.  
 6. PROPOSED DRIVES WITHIN THE DEVELOPMENT TO BE PRIVATE INTERNAL DRIVES. ALL DRIVEWAYS SHALL BE IN ACCORDANCE WITH THE LATEST MANUAL ON UNIFORM CONTROLLED ACCESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESPONSIBILITY OF THE DEVELOPER.  
 7. TOPOGRAPHICAL INFORMATION SHOWN PROPOSED FROM PHOTOGRAMMETRIC METHODS.  
 8. THE DEVELOPMENT SHOWN ON THIS PLAN WILL BE SERVED BY MID-SUMMER AND CITY OF WYOMING WATER AND SEWER SERVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL UTILITIES SHALL BE LOCATED AND DEPTH SHALL BE DETERMINED BY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.  
 9. PRIOR TO BEGINNING ANY PHASE OF CONSTRUCTION, UTILITY CONTROL SERVICES WILL BE MAINTAINED BY THE DEVELOPER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESPONSIBILITY OF THE DEVELOPER.  
 10. NO PORTION OF THE SITE SHALL BE USED FOR THE 100-YR FEMA FLOODPLAIN.  
 11. CONSTRUCTION SHALL BEGIN IN THE SUMMER OF 2022, AND BE COMPLETED IN APPROXIMATELY 18 MONTHS.  
 12. NO INDIVIDUAL RETAINING WALLS GREATER THAN 20' TO BE PROPOSED FOR PROJECT.  
 13. PROPOSED UNITS TO BE LEASED BY THE DEVELOPER. MAINTENANCE OF RESERVATION, OPEN SPACE, AND COMMON AREAS WILL BE THE FINANCIAL RESPONSIBILITY OF THE DEVELOPER.

CDC INSPECTIONS HOTLINE:  
 828-771-4333 OR INSPECT@CDC.IG.COM  
  
 Know what's below.  
 Call before you dig.

---

**Appendix D: NCDOT TIA Checklist, MOA, and  
Final Review Letter**

**D**



**Gannett Fleming**

*Excellence Delivered **As Promised***







# NCDOT Traffic Impact Analysis Need Screening / Scoping Request



### Additional Comments:

The TIA need decision is made by the NCDOT Division 13 District 2 on \_\_\_\_\_.

\_\_\_\_\_  
NCDOT District Representative's Signature

Email concurrence may be used in lieu of the signature.

\_\_\_\_\_  
Print Name



# NCDOT TIA Scoping Checklist



**Project Name:** Pinners Cove Road

**TIA Scoping Date:** 8-31-2021

**TIA Need Screening Forms are Attached.** Project Reference #: \_\_\_\_\_ Decision Date: \_\_\_\_\_

**Site Plan and Access**

Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.  
Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

Identify site access.

| New Access      | On Road                  | Access Type            |                     | Driveway Spacing                           |                |                               |
|-----------------|--------------------------|------------------------|---------------------|--|----------------|-------------------------------|
|                 | Road Name                | Permitted Movements    | Traffic Control     | Distance (ft)                              | Direction      | Nearest Intersection / Access |
| Access A        | SR 3117                  | Conventional Full-Mvmt | 2-Way Stop          | 1950                                       | North          | SR 3121                       |
| Access B        | Chapel Hill Rd           | Conventional Full-Mvmt | 2-Way Stop          | 2500                                       | North          | SR 3121                       |
| Access C        |                          |                        |                     |  |                |                               |
| Access D        |                          |                        |                     |  |                |                               |
| Access E        |                          |                        |                     |  |                |                               |
| Access F        |                          |                        |                     |  |                |                               |
| Access G        |                          |                        |                     |  |                |                               |
| Access H        |                          |                        |                     |  |                |                               |
| Existing Access | Existing Intersection of |                        | Access Modification | Proposed Interconnectivity (If Applicable) |                |                               |
|                 | Road A                   | Road B                 |                     | Connector #                                | Road Connected | Adjacent Development          |
| Access 1        |                          |                        | Please Select       | Connector 1                                |                |                               |
| Access 2        |                          |                        |                     | Connector 2                                |                |                               |
| Access 3        |                          |                        |                     | Connector 3                                |                |                               |
| Access 4        |                          |                        |                     | Connector 4                                |                |                               |

- Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).
- 

**Proposed K-12 School Site**

- NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.
- Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).
- Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.
- Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).







# NCDOT TIA Scoping Checklist



**Trip Distribution**

- Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- Inter-Development Trips (if 'internal" trips cross public streets)
- Pass-By Trips
- Diverted Trips
- Each Analysis Period

**Mode Split**

- Provide Data Source and Justification

| Mode \ Period | Auto |   |   |
|---------------|------|---|---|
| AM Peak       | %    | % | % |
| PM Peak       | %    | % | % |
| Daily         | %    | % | % |
|               | %    | % | % |

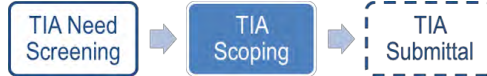
- Identify proper infrastructure and accommodation for other modes of travel.

**Analysis Peak Periods:**

- Weekday AM Peak 7-9 AM
- Weekday PM Peak 4-6 PM
- Weekday Midday Peak \_\_\_\_\_
- Weekday PM School Peak \_\_\_\_\_
- Weekend \_\_\_\_\_ Peak \_\_\_\_\_
- Other \_\_\_\_\_



# NCDOT TIA Scoping Checklist



## Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

| External Intersection | Intersection of |                | Traffic Control | Intersection Turning Movement Counts |                |                   | Notes |
|-----------------------|-----------------|----------------|-----------------|--------------------------------------|----------------|-------------------|-------|
|                       | Road A          | Road B         |                 | New / Existing                       | Date of Counts | Growth Adjustment |       |
| #1                    | SR 3121         | SR 3117        | 2-Way Stop      | Require New Counts                   |                |                   |       |
| #2                    | SR 3121         | SR 3116        | 2-Way Stop      | Require New Counts                   |                |                   |       |
| #3                    | US 25A          | SR 3116        | Signal          | Require New Counts                   |                |                   |       |
| #4                    | SR 3121         | Chapel Hill Rd | 2-Way Stop      | Require New Counts                   |                |                   |       |
| #5                    |                 |                |                 |                                      |                |                   |       |
| #6                    |                 |                |                 |                                      |                |                   |       |
| #7                    |                 |                |                 |                                      |                |                   |       |
| #8                    |                 |                |                 |                                      |                |                   |       |
| #9                    |                 |                |                 |                                      |                |                   |       |
| #10                   |                 |                |                 |                                      |                |                   |       |
| #11                   |                 |                |                 |                                      |                |                   |       |
| #12                   |                 |                |                 |                                      |                |                   |       |

| Internal Intersection | Intersection of |        | Access Type     |                     | Intersection Spacing |           |                      |
|-----------------------|-----------------|--------|-----------------|---------------------|----------------------|-----------|----------------------|
|                       | Road A          | Road B | Traffic Control | Permitted Movements | Distance (ft)        | Direction | Nearest Intersection |
| #101                  |                 |        |                 |                     |                      |           |                      |
| #102                  |                 |        |                 |                     |                      |           |                      |
| #103                  |                 |        |                 |                     |                      |           |                      |
| #104                  |                 |        |                 |                     |                      |           |                      |
| #105                  |                 |        |                 |                     |                      |           |                      |

The following data will be collected:

- New traffic turning movement counts in  15-min intervals  5-min intervals (near schools)  
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.
- To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:  
 intersections numbered: \_\_\_\_\_  
 and access points numbered: \_\_\_\_\_
- Traffic Forecast Data for TIP: \_\_\_\_\_
- Roadway/Intersection Configuration & Traffic Control
- Traffic Signal Phasing & Timing Data
- Crash Data: \_\_\_\_\_ Period: \_\_\_\_\_
- Other: \_\_\_\_\_



# NCDOT TIA Scoping Checklist



**Future Year Conditions**

Project Build-Out Year: 2025

Future Analysis Year(s): \_\_\_\_\_

Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

| Funded STIP / Local CIP Project | Project Description                     | Year Complete |
|---------------------------------|---|---------------|
| U-2801A                         | US 25A Widening Improvements            | 2028          |
| U-5834                          | SR 3116 Mills Gap Widening Improvements | 2025          |
|                                 | SR3006/SR3121 Int. Improvements         | 2023          |
|                                 |   |               |

| Nearby Approved Development | Location | Future Land Use (exclude any completed phases) | Committed Improvements |
|-----------------------------|----------|--|------------------------|
|                             |          |  |                        |
|                             |          |  |                        |
|                             |          |  |                        |
|                             |          |  |                        |

Annual Growth Factor: 1 %

Justification/Data Source: NCDOT AADT Counts

**Local Comprehensive Transportation Plan Compliance**

Identify Applicable Local Transportation Planning Documents

Identify Applicable Roadways inside the Study Area

| Road Name | Classification | Speed Limit | Proposed Cross-Section | Proposed Right-of-Way | Compliance Requirements | Affect Study Intersection # |
|-----------|----------------|-------------|------------------------|-----------------------|-------------------------|-----------------------------|
|           |                |             |                        |                       |                         |                             |
|           |                |             |                        |                       |                         |                             |
|           |                |             |                        |                       |                         |                             |
|           |                |             |                        |                       |                         |                             |
|           |                |             |                        |                       |                         |                             |



# NCDOT TIA Scoping Checklist



**Study Method**

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
5. TIP Design Year Analysis \_\_\_\_\_
6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- Signal Warrant Analysis for accesses/intersections \_\_\_\_\_
- Multi-Modal Level of Service Analysis
- School Loading Zone Traffic Simulation
- Phasing Analysis (scope separately as needed)
- Safety/Crash Analysis
- Control-of-Access Modification Justification
- Median Break / Modification Justification
- Other \_\_\_\_\_

**Submittals**

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

- Div. Traffic Engr  Regional Traffic Engr  Congestion Management  Other Buncombe County

| Submittals                     | NCDOT      |          | Local Government |          |
|--------------------------------|------------|----------|------------------|----------|
|                                | Electronic | Hardcopy | Electronic       | Hardcopy |
| Trip Generation & Distribution | Required   |          | Required         |          |
| Draft TIA Report               | Required   |          | Required         |          |
| Final Sealed TIA Report        | Required   |          | Required         |          |

**Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)



# NCDOT TIA Scoping Checklist



## Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire \_\_\_ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

## APPLICANT

|                                   |            |      |
|-----------------------------------|------------|------|
|                                   | Joey Brehm |      |
| Signature                         | Print Name | Date |
|                                   |            |      |
| <small>F75BA436172947A...</small> |            |      |

## TIA CONSULTANT

|                                   |                   |      |
|-----------------------------------|-------------------|------|
|                                   | Jeff Moore, P. E. |      |
| DocuSigned by:                    | Print Name        | Date |
|                                   |                   |      |
| <small>DC1F0640211CAAB...</small> |                   |      |

## LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

|           |            |      |
|-----------|------------|------|
|           |            |      |
| Signature | Print Name | Date |

Email concurrence may be used in lieu of the signature.

## NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division 13 District 2 on \_\_\_\_\_.

|           |            |
|-----------|------------|
|           |            |
| Signature | Print Name |

Email concurrence may be used in lieu of the signature.



## NCDOT TIA Submittal Checklist



**Submittal:** Draft TIA Report **Document Date:** \_\_\_\_\_  
**Project Name:** Pinners Cove Road **Previous Name:** If Applicable \_\_\_\_\_  
**NCDOT Division:** 13 **District:** 2 **County:** Buncombe **Municipality:** \_\_\_\_\_  
**TIA Consultant:** Gannett Fleming Submitted By: Jeffrey H. Moore, P. E.  
 Phone Number: 828-674-0229 Email: jemoore@gfnet.com  
**TIA Scoping Checklist Approval Date:** \_\_\_\_\_ **Unadjusted Daily Site Trips:** 3884

- The approved TIA Scoping Checklist is included in this submittal.
- LOS D or better is expected at all study intersections after proposed mitigations.
- The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.
- This study has identified all known deficiencies with and without the proposed development.
- This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

**Deviations and Justifications** (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)



# NCDOT TIA Submittal Checklist



\_\_\_\_\_  
TIA Consultant's Signature  
(Professional Engineer of TIA Record)

\_\_\_\_\_  
Jeffrey H. Moore, P. E.  
Print Name

\_\_\_\_\_  
Date





Excellence Delivered **As Promised**

September 2, 2021

To: Nathan Pennington, Buncombe County  
Chris Medlin, NCDOT District Engineer  
Joey Brehm, DJ Acquisitions, LLC

From: Jeff Moore, P.E.

Subject: **MEMORANDUM OF UNDERSTANDING** for 168 Pinners Cove Road Traffic Impact Analysis (TIA), Pinners Cove Road (SR 3117), Buncombe County, NC

---

## **INTRODUCTION**

Pinners Cove Road, a proposed residential development, is planned to be constructed on the westside of Pinners Cove Road (SR 3117) just north of the Pinners Cove Road/School Road intersection in Buncombe County, NC (refer to Figure 1 – Project and Count Locations).

The proposed 177.8-acre residential development is planned to consist of the following land uses:

|                         |                    |
|-------------------------|--------------------|
| Townhouses:             | 274 Dwelling Units |
| Apartments:             | 150 Dwelling Units |
| Single-Family Detached: | 130 Dwelling Units |

The *Site Plan*, prepared by Doran Architecture, dated, 8/30/21, illustrates two (2) proposed access points with one on Pinners Cove Road and the other on Chapel Hill Road (See Figure 2). The attached site plan also illustrates the internal layout with the land use mix and density assuming a By Right Cluster. The access locations will not change with a revised internal layout assuming the land use mix and density identified herein.

## **Study Area Intersections**

To determine the potential impact of Pinners Cove Road development, the following intersections will be studied:

1. Pinners Cove Road (SR 3117/SR 3121)/ School Road (SR 3117)
2. Pinners Cove Road (SR 3121)/ Chapel Hill Road
3. Mills Gap Road (SR 3116)/ Pinners Cove Road (SR 3121)
4. Sweeten Creek Road (US 25A)/ Mills Gap Road (SR 3116)

The proposed study area intersections are illustrated on Figure 1.

## **AM & PM Peak Hour Turning Movement Counts**

Gannett Fleming will perform turning movement traffic counts during the AM (7-9am), PM (4-6pm) peak hours at the study area intersections identified above:

**Study Year Scenarios**

- 2021 Existing Condition
- 2025 No-Build Condition
- 2025 Buildout Condition

**Capacity Analysis**

Capacity analysis, using Synchro/SimTraffic, will be performed for the AM and PM peak hours at the study area intersections for existing and study year scenarios.

**Trip Generation**

Preliminary trip generation estimates for the proposed mixed-use development has been developed using the *ITE Trip Generation Manual, 10<sup>th</sup> Edition*. Table 1 below illustrates the trip generation estimates itemized by proposed land use.

| Table 1 - ITE Trip Generation Summary |                                    |         |          |       |        |             |            |            |            |            |            |            |
|---------------------------------------|------------------------------------|---------|----------|-------|--------|-------------|------------|------------|------------|------------|------------|------------|
| LUC                                   | Description                        | Density | Variable | PK HR | METHOD | Daily       | AM         |            |            | PM         |            |            |
|                                       |                                    |         |          |       |        |             | In         | Out        | Total      | In         | Out        | Total      |
| 210                                   | Single Family Hom                  | 130     | Units    | Adj   | EQN    | 1324        | 24         | 73         | 97         | 82         | 49         | 131        |
|                                       | Pass-by Adjustment AM (0%) PM (0%) |         |          |       |        |             | 0          | 0          | 0          | 0          | 0          | 0          |
|                                       | Single Family Home New Trips       |         |          |       |        |             | 13         | 41         | 54         | 45         | 27         | 72         |
| 220                                   | Multifamily Low                    | 274     | Units    | Adj   | EQN    | 2031        | 28         | 96         | 124        | 91         | 54         | 145        |
|                                       | Pass-by Adjustment AM (0%) PM (0%) |         |          |       |        |             | 0          | 0          | 0          | 0          | 0          | 0          |
|                                       | Multifamily Low-Rise New Trips     |         |          |       |        |             | 21         | 71         | 92         | 69         | 40         | 109        |
| 221                                   | Multifamily Mid                    | 150     | Units    | Adj   | EQN    | 816         | 13         | 38         | 51         | 40         | 25         | 65         |
|                                       | Pass-by Adjustment AM (0%) PM (0%) |         |          |       |        |             | 0          | 0          | 0          | 0          | 0          | 0          |
|                                       | Multifamily Mid-Rise New Trips     |         |          |       |        |             | 13         | 38         | 51         | 40         | 25         | 65         |
| <b>Total New Trips</b>                |                                    |         |          |       |        | <b>4171</b> | <b>112</b> | <b>357</b> | <b>469</b> | <b>367</b> | <b>220</b> | <b>587</b> |

The trip generation noted in Table 1 was developed using the suggested method as outlined in the *NCDOT Congestion Management Rate vs Equation Spreadsheet*, dated July 1, 2018 and the draft August 1, 2021 update, with the following parameters.

| Land Use                               | Equations vs Rates | Peak Hour Type          |
|--|--------------------|-------------------------|
| Single Family Residential [210]        | Equations          | Adjacent Street Traffic |
| Low-Rise Residential (Townhouse) [220] | Equations          | Adjacent Street Traffic |

**Growth Rates**

According to NCDOT AADT Volumes

(<http://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=5f6fe58c1d90482ab9107ccc03026280>), the following are the historical annual daily traffic (AADT) on study area roadways.

| Facility                             | Location                | 2002  | 2004  | 2006  | 2008  | 2010  | 2012  | 2014  | 2016  | 2018  | % Growth    |
|--------------------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|
| SR 3121                              | N OF SR 3116            | 1700  | 1900  | -     | 2200  | 2000  | 1900  | -     | 2000  | 2000  | 1.02%       |
| SR 3116                              | E OF US 25 A            | 14000 | 15000 | 14000 | 15000 | 13000 | 13000 | 14000 | 14000 | 14500 | 0.22%       |
| SR 3121                              | S OF BUSBEE MOUNTAIN RD | 340   | 310   | 300   | 330   | 270   | 290   | 270   | 310   | 350   | 0.18%       |
| SR 3116                              | S OF SR 3157            | 6300  | 6800  | 7000  | 8500  | 6300  | 6700  | 6900  | 7400  | 7400  | 1.01%       |
| <b>Average Annual Percent Growth</b> |                         |       |       |       |       |       |       |       |       |       | <b>0.6%</b> |

As illustrated in the table above, the traffic on study area roadways have stayed virtually the same or increased slightly over the past 16 years. Gannett Fleming recommends a 1% compounded annual growth rate is to be used on study area and intersections. This annual growth rate is typical for suburban areas in North Carolina.

**Approved Developments**

No major approved developments have been identified in the study area.

**Approved Transportation Projects**

TIP Project U-5834, Mills Gap Road (SR 3116) – from Hendersonville Road (US 25) eastward to the Robinson Creek bridge. According to the information contained on the project website ([Mills Gap Road Proposed Upgrade from Hendersonville Road to Weston Road \(ncdot.gov\)](http://ncdot.gov)), the construction of the project is to start in 2024 and completed in 2025 or 2026. Since the estimated completion date is expected by the buildout year of the proposed development, this project will be assumed in the analysis.

TIP Project U-2801A, Sweeten Creek Road (US 25A) – from Hendersonville Road (US 25) northward to the Rock Hill Road. According to the information contained on the project website (<https://www.ncdot.gov/projects/sweeten-creek-road/Pages/default.aspx>), the construction of the project is to start in 2027 with an estimated completion date of 2029. Since the estimated start of construction of the NCDOT project is expected to be beyond the buildout year of this development, the programed widening of US 25A was not assumed for the buildout year scenarios.

### **Directions of Approach and Departure**

The proposed AM and PM entering and exiting distributions are as follows:

| <b>Facility</b>                           | <b>Directions of Approach and Departure</b> |
|---|---|
| SR 3121 (Pinners Cove Road) (south)       | 100%  |
| SR 3117 (School Road East) (southeast)    | 10%   |
| SR 3116 (Mills Gap Road) (west)           | 75%   |
| SR 3116 (Mills Gap Road) (east)           | 15%   |
| US 25A (Sweeten Creek Road) (north)       | 30%   |
| US 25A (Sweeten Creek Road) (south)       | 20%   |
| SR 3116 (Mills Gap Road) (west of US 25A) | 25%   |

Traffic distribution above is based on review of NCDOT AADT, and Gannett Fleming’s local knowledge of the area. When Gannett Fleming obtains the existing traffic counts for the study area intersections, the directions of approach and departure will be reviewed and adjusted as necessary before submitting to Buncombe County and NCDOT for concurrence. The proposed directions of approach and departure are illustrated in Figure 3.

### **Auxiliary Turn Lane Analysis**

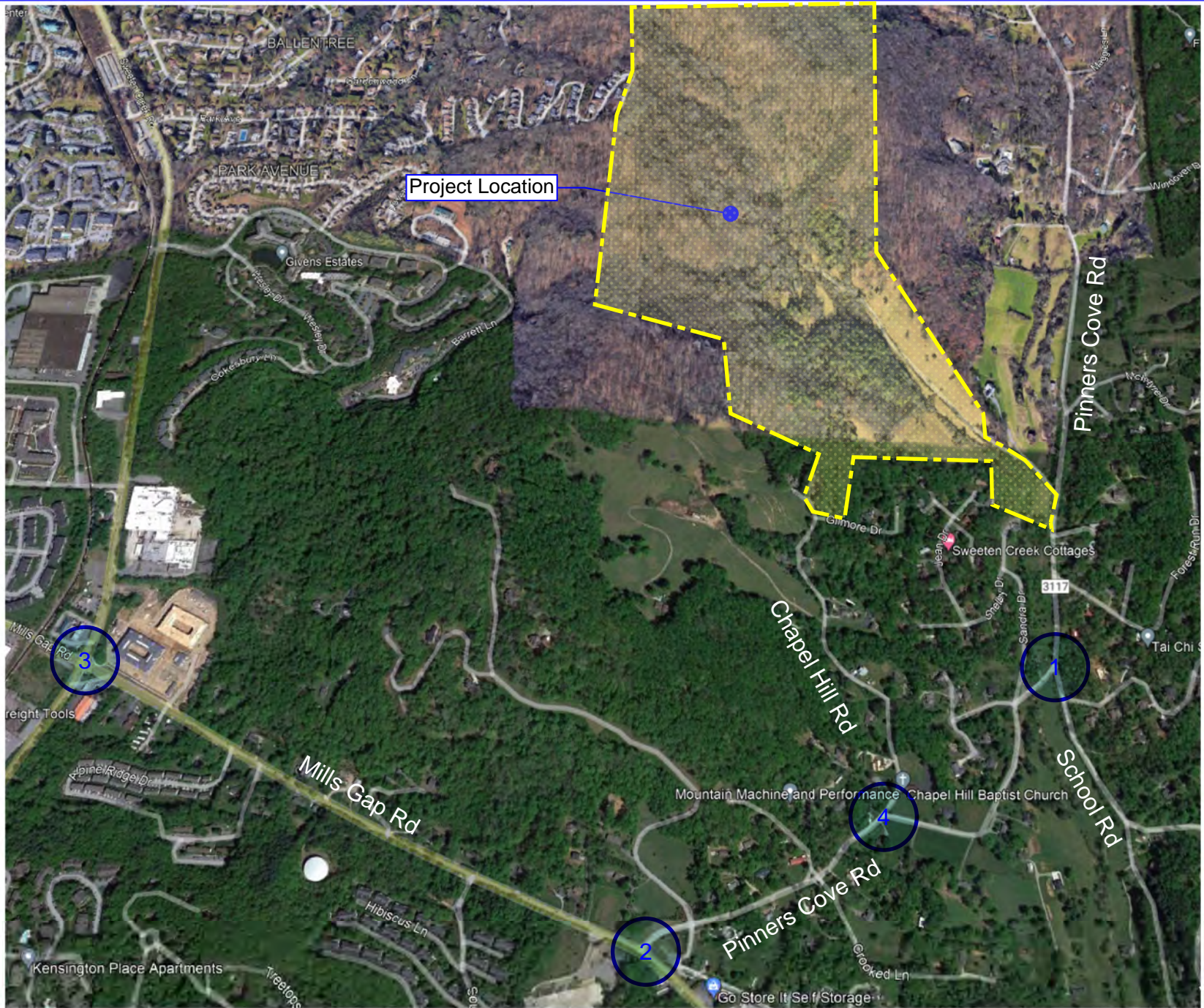
NCDOT Left and Right Turn Lane Warrants will be used to determine the need for left and right-turn lanes are the proposed access on Pinners Cove Road and other study area roadways.

### **Other Issues**

The TIA will address Finding of Fact in the Conclusion section.

This concludes the **Memorandum of Understanding**. Please review and provide your concurrence at our earliest convenience. If you have any questions, please feel free to contact me at [ripton@gfnet.com](mailto:ripton@gfnet.com) or 828.776.2971.





PLANS PREPARED BY:

 **Gannett Fleming**  
Excellence Delivered *As Promised*

28 Schenck Parkway  
Suite 200  
Asheville NC 28803  
(828) 771-0871  
NC Lic. No. F-0270

**TRAFFIC IMPACT ANALYSIS  
168 PINNERS COVE ROAD  
BUCOMBE COUNTY, NC**

**FIGURE 1**

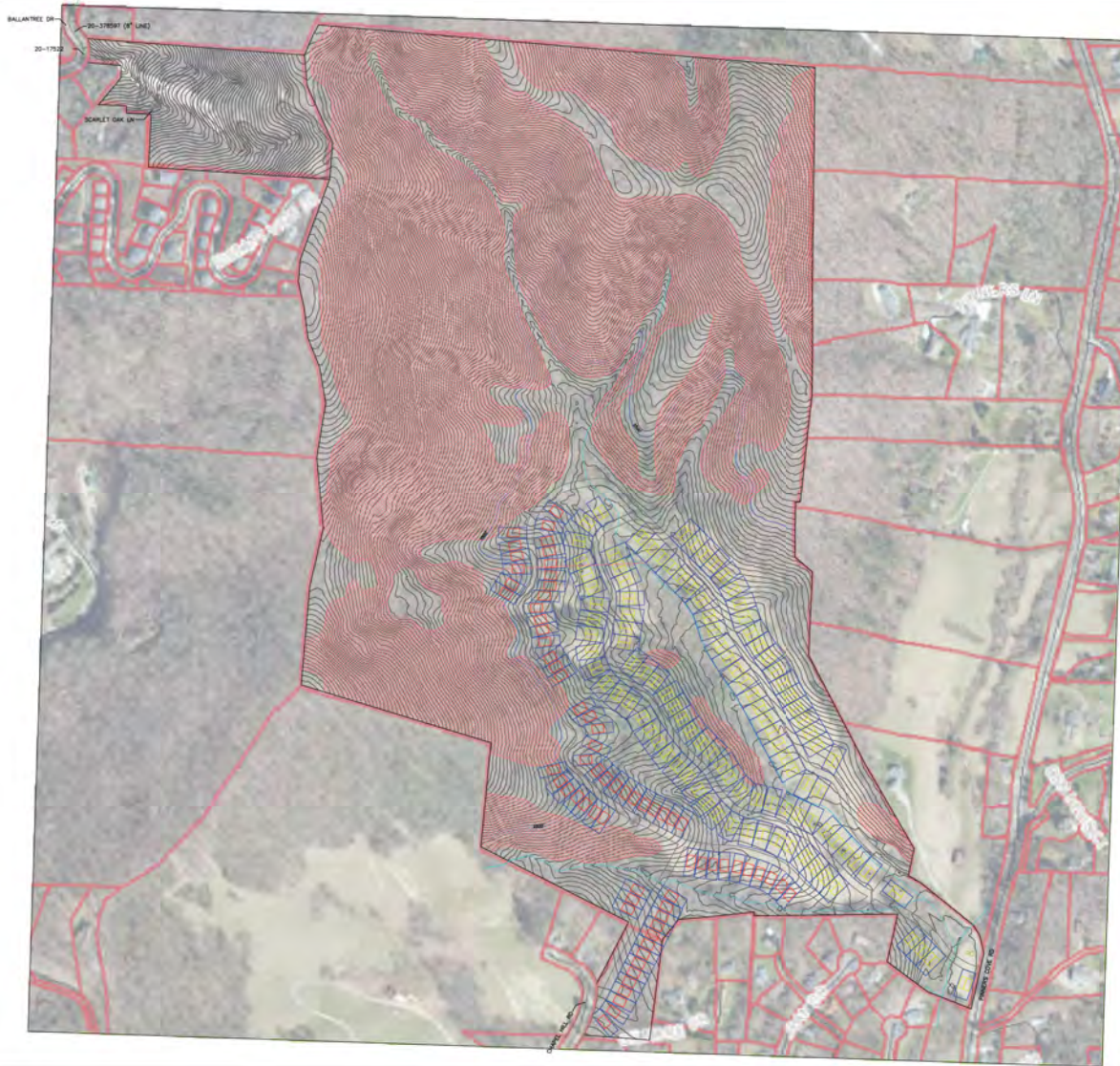
**PROJECT AND COUNT  
LOCATIONS**

**SCALE:  
NONE**



-  SINGLE FAMILY RESIDENTIAL DWELLING (70 TOTAL)
-  2 RESIDENTIAL DWELLING UNITS (214 TOTAL)
-  SUBDIVISION LOT (177 TOTAL)
-  SLOPE 30% OR GREATER
-  STREAM
-  CONTOUR LINE
-  PUMP STATION

SCALE = 1" = 100'



284 COMBINED UNITS

PINNERS COVE RD, ASHEVILLE, NC

Sheet Name

AUGUST 30, 2021

Sheet Name

SITE PLAN

PLANS PREPARED BY:

 **Gannett Fleming**  
Excellence Delivered *As Promised*

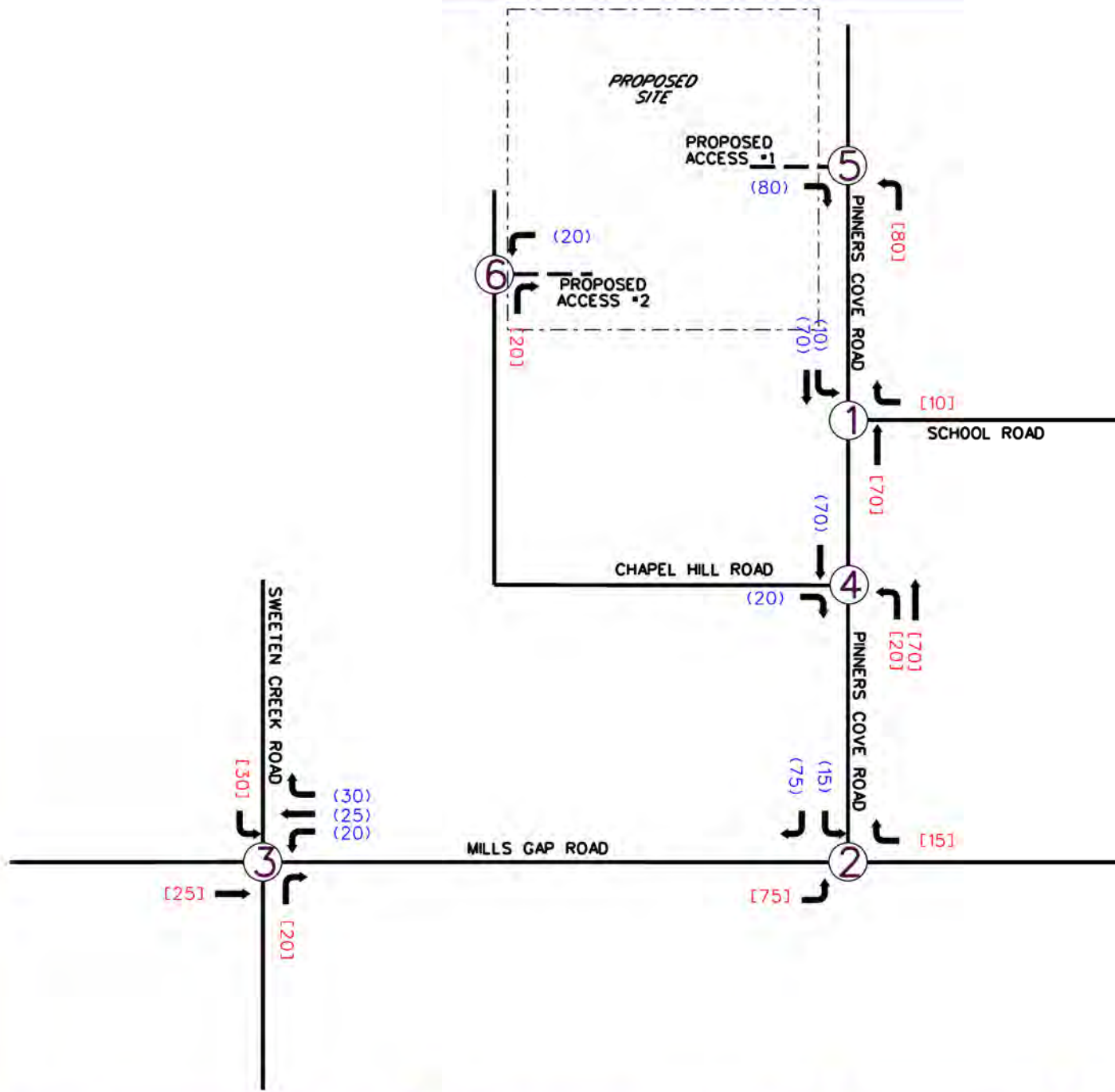
28 Schenck Parkway  
Suite 200  
Asheville NC 28803  
(828) 771-0871  
NC Lic. No. F-0270

**TRAFFIC IMPACT ANALYSIS**  
**168 PINNERS COVE ROAD**  
**BUCOMBE COUNTY, NC**

**FIGURE 2**

**SITE PLAN**

**SCALE:**  
**NONE**



| LEGEND |                      |
|--------|----------------------|
| ←      | DIRECTIONAL MOVEMENT |
| [XXX]  | INGRESS TRAFFIC      |
| (XX)   | EGRESS TRAFFIC       |





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

January 19, 2022

**Jeffrey Moore, P.E.** – Gannett Fleming

Prepared for:

*DJ Acquisitions, LLC*

*2641 NE 209<sup>th</sup> Street*

*Miami, FL 33180*

SUBJECT:     **\*\*FINAL DECISION\*\*** **182 Pinner's Cove Road-** SR 3121(Pinner's Cove Rd)  
Residential development TIA and Site Plan review located in Asheville,  
Buncombe County Division 13.

The District Office has performed a TIA and Site Plan review of the subject residential development located on SR 3121 Pinner's Cove Road in Asheville, Buncombe County. The project will consist of 274 Townhouse units, 150 Apartment units, and 130 Single-family units that will generate approximately a total of 3,884 unadjusted daily trips.

The District Office has determined the following listed improvement(s) (please see attached document) are required to be done in accordance with the *Policy on Street and Driveway Access to North Carolina Highways*. All improvements and documentation shall be shown on the plans and provided as part of the package submitted to the NCDOT District Office for review and approval of a Driveway Access Permit.

All work is to be done in strict compliance with the North Carolina Department of Transportation Standards and Specifications. At your convenience, please submit for a driveway access permit in accordance and provide all necessary documentation. Feel free to give us a call at the District Office (828) 298-2741 if you would like to discuss further.

Sincerely,

DocuSigned by:

A handwritten signature in black ink that reads "Christopher D. Medlin".

6D92D71E27C94A3...

Christopher D. Medlin, P.E.

District Engineer

CDM/nkd

Attachments

# PINNERS COVE ROAD DEVELOPMENT TIA CURSORY REVIEW

## BULLET LIST OF NCDOT COMMENTS AND CONCERNS (SC-2021-425)

*January 19, 2022*

The Department of Transportation (NCDOT) has performed a cursory review of the Pinners Cove Road Development traffic impact assessment (TIA) prepared by Gannett Fleming, sealed November 18, 2021. **The TIA was deemed “Complete” on December 17, 2021. [Preliminary Review Attached]** This proposed development is located west of SR 3121 (Pinners Cove Rd) and SR 3390 (McIntyre Dr) intersection in Asheville, Buncombe County. The TIA that the **full build-out of the development is to be constructed by 2025 and is to consist of a residential development, generating a total of 3,884 unadjusted daily trips.** Based on our cursory review, we have the following comments at this time:

### General

- TIP Projects U-5834 and U-2801A are in the immediate area of this project. The scoping documents indicate that TIP Design Year Analyses will not be provided and that a rezoning request will be made for this project. \* [Observation, Comment from September 27, 2021 scope review]
  - Current LET date for U-5834 is 07/18/2023
  - Current LET date for U-2801A is 09/21/2027
- Railroad crossing approximately 400’ west of US 25A (Sweeten Creek Rd) and SR 3116 (Mills Gap Rd); appropriate signage and pavement markings should exist within active at-grade railroad crossing areas with lights and gates to discourage queuing. [Observation]

### Trip Generation and Volume Calculations

- Trip generation appears reasonable.
- Volume calculations appear reasonable.

### Trip Distribution, Study Intersections, and Growth Rate

- The trip distribution, study intersections, and growth rate appear reasonable.

### Synchro Coding

- **AM Peak background file was submitted in Version 11 and CMS does not currently use that version. As of this review, CMS still uses Synchro Version 10.3.**
- **Intersection of SR 3118 (Chapel Hill Rd) and Proposed Site Access 2 was not modeled in the Synchro analysis. Proposed Site Access 2 appears to be a de facto extension of Chapel Hill Rd.**
- For main street through movements at signalized intersections, the following minimum initial green times should be used: for 35 mph or less, use 10 seconds; for 36-45 mph use 12 seconds, for 46 mph or higher use 14 seconds. For major corridors, a higher minimum green may be used. For protected left-turn movements and all side street approaches, a minimum initial green time of 7.0 seconds should be used.
- Signalized intersections were not analyzed as coordinated without clarification or justification. (TIA states analysis done actuated - coordinated).
- Otherwise, Synchro coding appears reasonable.

**Geometric Suggestions and Site Plan**

- **On Figure 2: Site Plan, in the TIA, a scale and north arrow have been provided. However, the site plan needs to match with trip generation and the inclusion of a north arrow is required. Also, please ensure that the proposed driveway(s) are in accordance with the NCDOT Driveway Manual and Internal Protected Stem lengths are provided with the TIA. [Comment from September 27, 2021 scope review. The site plan now has North arrow but cannot distinguish what LUC types – there is no legend and Figure 2: Site Plan is very poor quality and blurred]\***
  - **It is required to provide minimum IPS of 100' for Proposed Site Accesses 1 and 2.**
  - **Ensure appropriate sight distance is maintained for site accesses by limiting vegetation, adding appropriate signing/pavement markings, and/or adding reflection mirrors.**
- **For SR 3118 (Chapel Hill Church Rd), it is required to install NCDOT Standard Pavement Markings from SR 3121 (Pinners Cove Rd) intersection across the site frontage to Proposed Site Access 2.**
- **For the intersection of SR 3116 (Mills Gap Rd) and SR 3121 (Pinners Cove Rd), it is suggested to**
  - **Monitor for signalization**
- **Otherwise, based on our cursory review, the proposed recommendations in the traffic impact assessment (sealed November 18, 2021) appear reasonable. \***
  - **\* If improvements from TIP U-5834 are not in place by buildout of the site as assumed in the TIA, the Developer should be responsible for them or a revised TIA will be required.**
  - **\*The PEF should also consider the concerns and suggestions from the local authorities (e.g. City of Asheville, local NCDOT Division/District office, etc.).**

□



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

December 17, 2021

MEMORANDUM

In reply, refer to
File No. SC-2021-425

TO: Nicholas K. Dorato, Engineering Specialist I
Division 13, District 2

Document Sent Electronically

FROM: Robert S. Gallo, Design Engineer
Congestion Management Section

SUBJECT: Preliminary Review of Pinners Cove Rd Residential TIA, to be located west of SR
3121 (Pinners Cove Rd) and SR 3390 (McIntyre Dr) intersection in Asheville,
Buncombe County.

The Congestion Management Section has performed a preliminary review of the sealed Traffic Impact
Analysis (TIA) prepared by Gannett Fleming and the preliminary site plan included with the TIA for
the subject site. The key dates regarding this development are as follows:

Date Received by NCDOT 11/19/2021 Date of Sealed TIA 11/18/2021
Date of Latest Information 11/19/2021 Date of Site Plan (in TIA) 08/30/2021
Received by This Office

Table with 2 columns: Status (X) and Description of review findings.

Based on this preliminary review, the TIA is "Complete" according to G.S.136-93.1A

Please refer to the Driveway Manual and the Capacity Analysis Guidelines available via
https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx for additional
information. This letter is only being distributed electronically and should be considered as the official
documentation. If we can provide further assistance with this project or if you require a paper copy of
this letter, please contact me or Michael P. Reese, PE, CPM at (919) 814-5000.

RSG/ams

cc: M. T. Gibbs, PE
A. G. Henderson, PE
C. D. Medlin, PE

J. K. Lacy, PE, CPM
D. D. Galloway, PE, CPM
J. P. Roberts

J. E. Hummer, PhD., PE
M. P. Reese, PE, CPM
J. H. Moore, PE (PEF)

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION MOBILITY & SAFETY DIVISION
TRAFFIC MANAGEMENT UNIT
1561 MAIL SERVICE CENTER
RALEIGH, NC 27699-1561

Telephone: (919) 814-5000
Fax: (919) 771-2745
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
750 N. GREENFIELD PARKWAY
GARNER, NC 27529

**Preliminary Review Concerns Attachment**  
(For SC-2021-425 – Pinners Cove Residential Development TIA)

**Items Requiring Correction or Clarification:**

Synchro Coding

- **AM Peak background file was submitted in Version 11 and CMS does not currently use that version. As of this review, CMS still uses Synchro Version 10.3.**
- For main street through movements at signalized intersections, the following minimum initial green times should be used: for 35 mph or less, use 10 seconds; for 36-45 mph use 12 seconds, for 46 mph or higher use 14 seconds. For major corridors, a higher minimum green may be used. For protected left-turn movements and all side street approaches, a minimum initial green time of 7.0 seconds should be used.
- Signalized intersections were not analyzed as coordinated without clarification or justification. (TIA states analysis done actuated - coordinated).

**Although not anticipated to significantly change the recommendation made in this TIA, the following issues should be addressed:**

- Please ensure that the proposed driveway(s) are in accordance with the NCDOT Driveway Manual and Internal Protected Stem lengths are provided with the TIA.
- TIP Projects U-5834 and U-2801A are in the immediate area of this project. The scoping documents indicate that TIP Design Year Analyses will not be provided and that a rezoning request will be made for this project. \* [Observation, Comment from September 27, 2021 scope review]
  - Current LET date for U-5834 is 07/18/2023
  - Current LET date for U-2801A is 09/21/2027

**NOTE:** This list should not be considered all inclusive. Further review may identify additional areas of concern

---

## Appendix E: NCDOT Roadway and Signal Plans

E

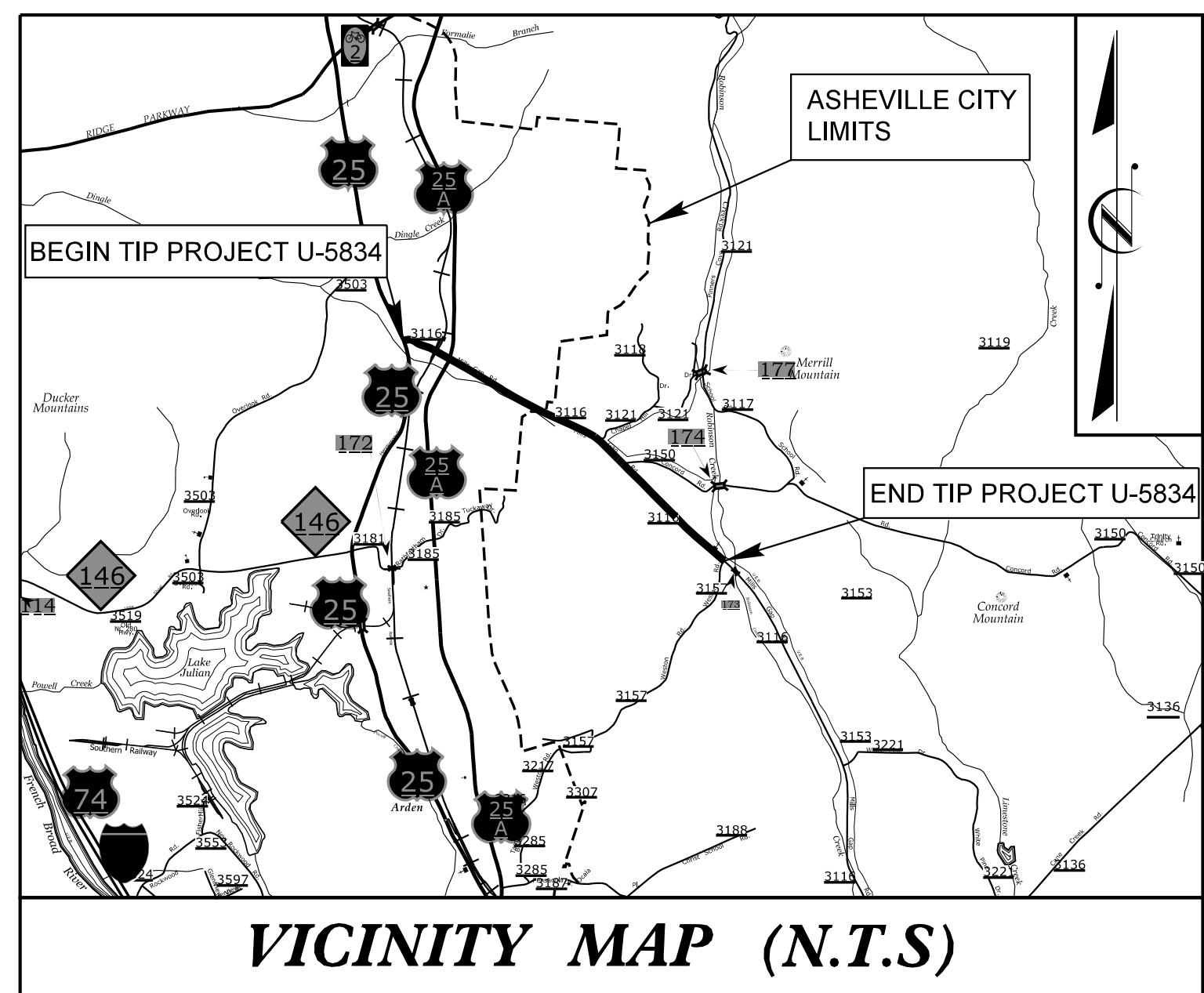
09.08/2019

See Sheet 1A For Index of Sheets  
See Sheet 1B For Standard Symbology Sheet

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

|                 |                             |                |              |
|-----------------|-----------------------------|----------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.      | TOTAL SHEETS |
| N.C.            | U-5834                      | 1              | -            |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION    |              |
| 50226.1.1       |                             | P.E.           |              |
| 50226.2.1       |                             | R.O.W./UTILITY |              |

TIP PROJECT: U-5834

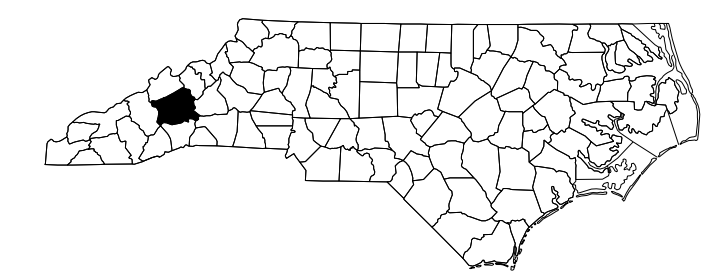


PRELIMINARY PLANS

# BUNCOMBE COUNTY

LOCATION: SR 3116 (MILLS GAP RD.) FROM US25 TO SR 3157 (WESTON RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, SIGNING, AND RETAINING WALLS



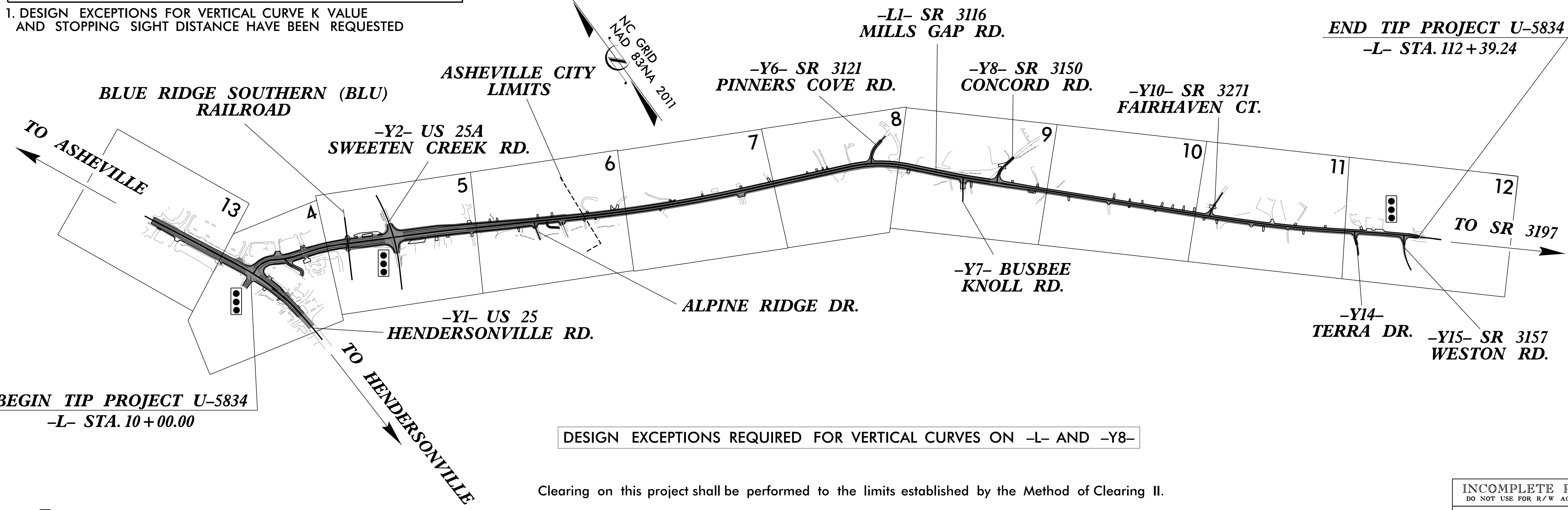
**V&M**  
Vaughn & Melton  
Consulting Engineers

Asheville, North Carolina  
828-253-2796

Boone, NC 828-355-9933  
Tri-Cities, TN 423-467-8401  
Knoxville, TN 865-546-5800  
Spartanburg, SC 864-574-4775  
Charleston, SC 843-974-5650  
Middlesboro, KY 606-248-6600  
Raleigh, NC 919-977-9405  
Charlotte, NC 704-357-0488  
Atlanta, GA 770-627-3590

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1. DESIGN EXCEPTIONS FOR VERTICAL CURVE K VALUE AND STOPPING SIGHT DISTANCE HAVE BEEN REQUESTED

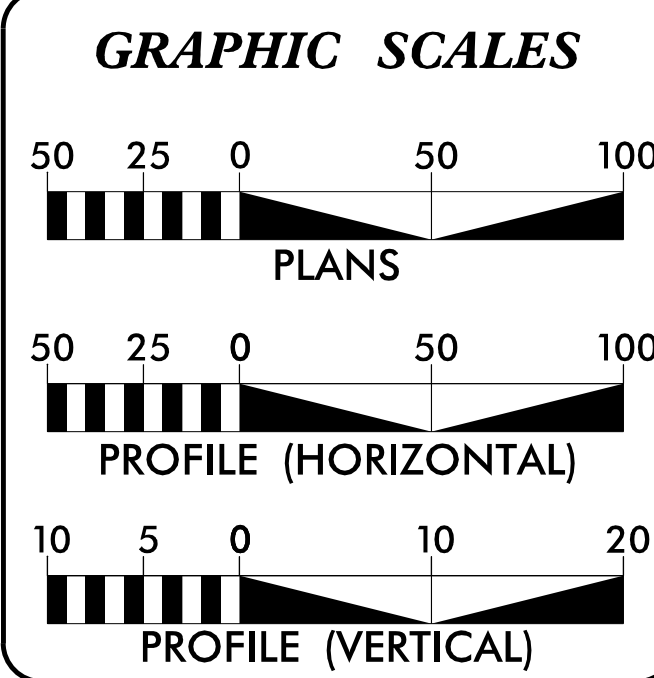


DESIGN EXCEPTIONS REQUIRED FOR VERTICAL CURVES ON -L- AND -Y8-

Clearing on this project shall be performed to the limits established by the Method of Clearing II.  
This project is within the municipal boundaries of the City of Asheville.

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



**DESIGN DATA**

ADT 2015 = 14,000  
ADT 2040 = 18,400

T = 5 % \*  
V = 50 MPH  
\* TTST = 2 DUAL 3

FUNC CLASS =  
MAJOR COLLECTOR  
RURAL COLLECTOR

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-5834 = 1.939 MILES  
TOTAL LENGTH OF TIP PROJECT U-5834 = 1.939 MILES

CONTACT: STEVE CANNON, P.E.  
DIVISION 13

Prepared In the Office of:  
**VAUGHN & MELTON, INC.**  
1318-F PATTON AVENUE ASHEVILLE, NC 28806 PHONE (828)253-2796

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 12, 2018  
LETTING DATE: JUNE 9, 2020

REECE SCHULER, P.E., P.L.S.  
PROJECT ENGINEER

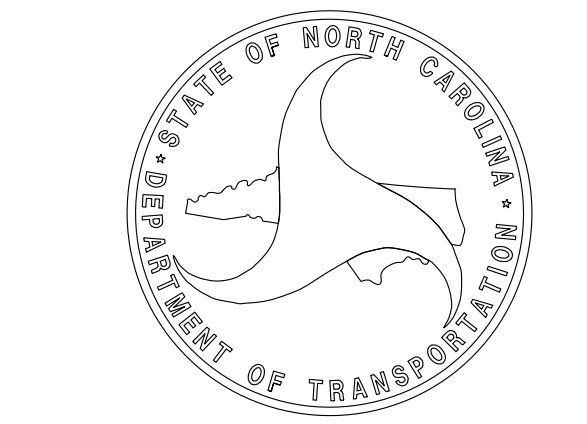
CHRIS MARTELL  
PROJECT DESIGNER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

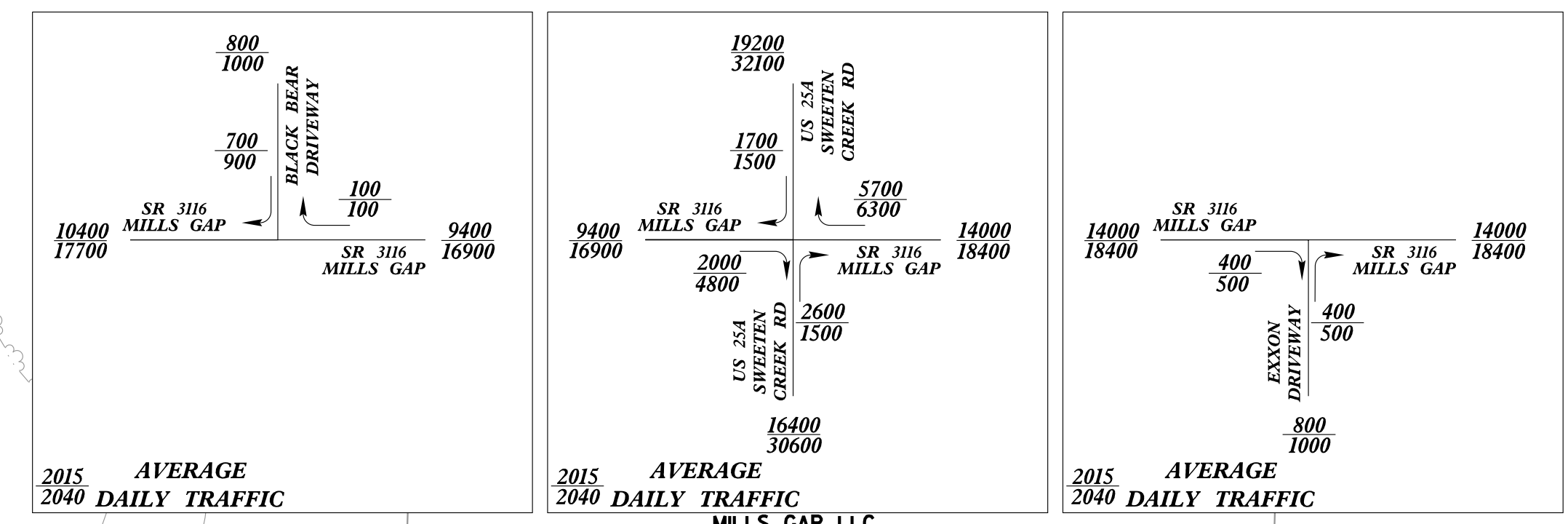
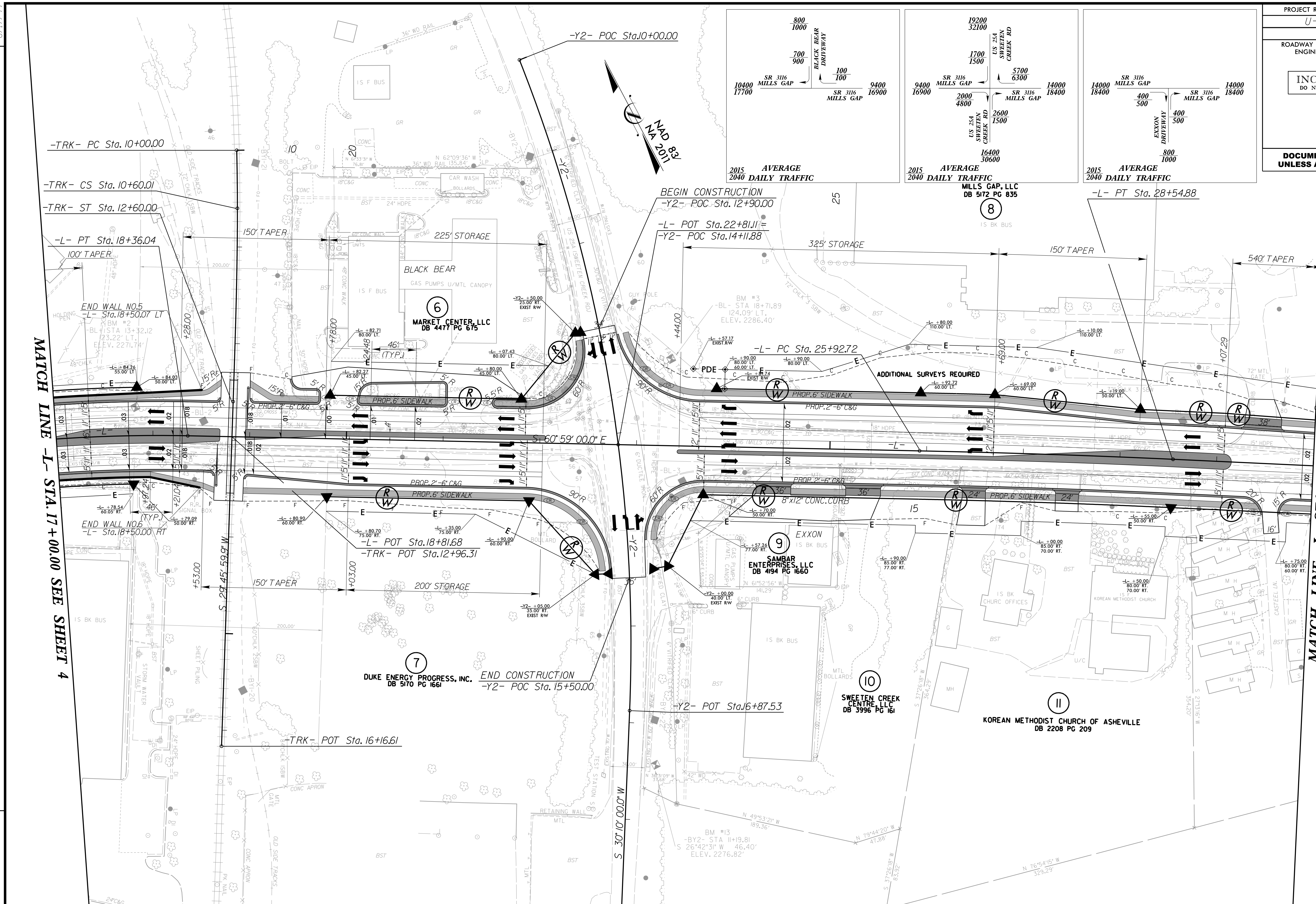


10/11/2018 11:04:53 PM V:\Asheville\Transportation\31535-04 U-5834 Mills Gap\Roadway\Proj\U-5834\_rdy\_t.sh.dgn User:clm@tdt









MATCH LINE -L- STA. 17 + 00.00 SEE SHEET 4

MATCH LINE -L- STA. 30 + 00.00 SEE SHEET 6

REVISIONS

| -L- CURVE DATA                     |                                    | -Y2- CURVE DATA                     |                                    | -TRK- CURVE DATA                |  |
|------------------------------------|------------------------------------|-------------------------------------|------------------------------------|---------------------------------|--|
| PI Sta 17+07.21                    | PI Sta 27+23.81                    | PI Sta 13+48.83                     | PI Sta 10+30.01                    | PIs Sta 11+26.68                |  |
| $\Delta = 9^{\circ}52'00.0''$ (RT) | $\Delta = 1^{\circ}27'30.0''$ (RT) | $\Delta = 23^{\circ}52'27.5''$ (RT) | $\Delta = 1^{\circ}12'00.4''$ (RT) | $\Theta_s = 1^{\circ}59'59.3''$ |  |
| D = 3'49'11.0"                     | D = 0'33'22.6"                     | D = 3'28'20.9"                      | D = 2'00'00.0"                     | Ls = 199.99'                    |  |
| L = 258.31'                        | L = 262.16'                        | L = 687.53'                         | L = 60.01'                         | LT = 133.34'                    |  |
| T = 129.47'                        | T = 131.09'                        | T = 348.83'                         | T = 30.01'                         | ST = 66.67'                     |  |
| R = 1,500.00'                      | R = 10,300.00'                     | R = 1,650.00'                       | R = 2,864.93'                      |                                 |  |
| e = 0.03                           | e = NC                             | e = EXIST.                          |                                    |                                 |  |
| RUNOFF = 138'                      | DS = 40 MPH                        | RUNOFF = EXIST.                     |                                    |                                 |  |
| DS = 40 MPH                        |                                    | DS = EXIST.                         |                                    |                                 |  |

SEE SHEET 15 FOR -L- PROFILE

8.17.19  
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11/15/2018 10:51:11 AM



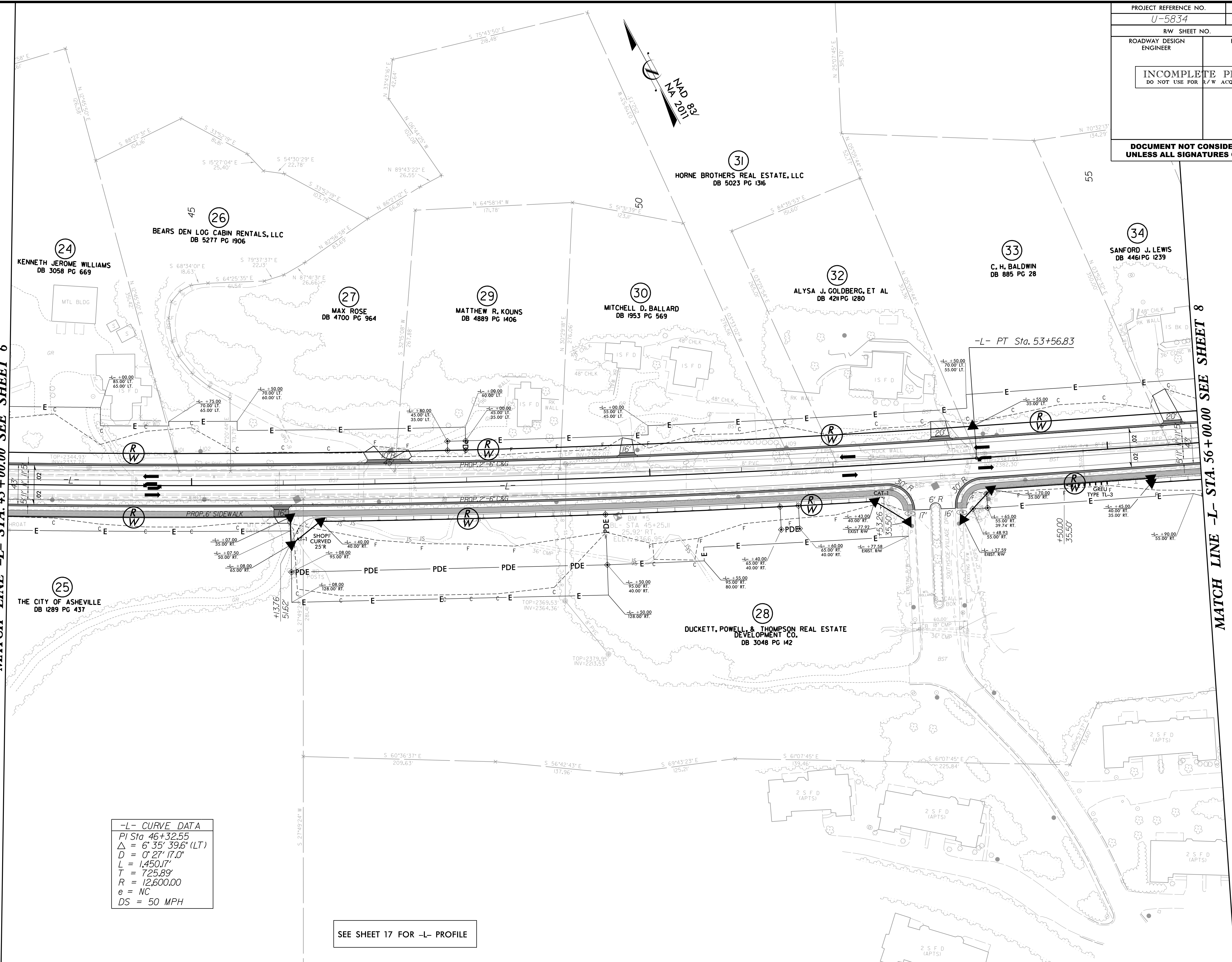


|   |  |                     |  |
|---|--|---------------------|--|
| PROJECT REFERENCE NO.   |  | SHEET NO.           |  |
| U-5834  |  | 7                   |  |
| RW SHEET NO.  |  |                     |  |
| ROADWAY DESIGN ENGINEER   |  | HYDRAULICS ENGINEER |  |
|   |  |                     |  |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION               |  |                     |  |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |  |                     |  |

8/17/19  
 REVISIONS  
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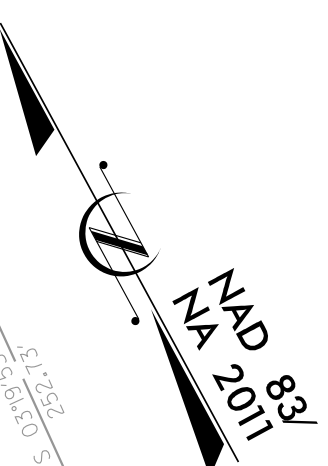
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MATCH LINE -L- STA. 56 + 00.00 SEE SHEET 8

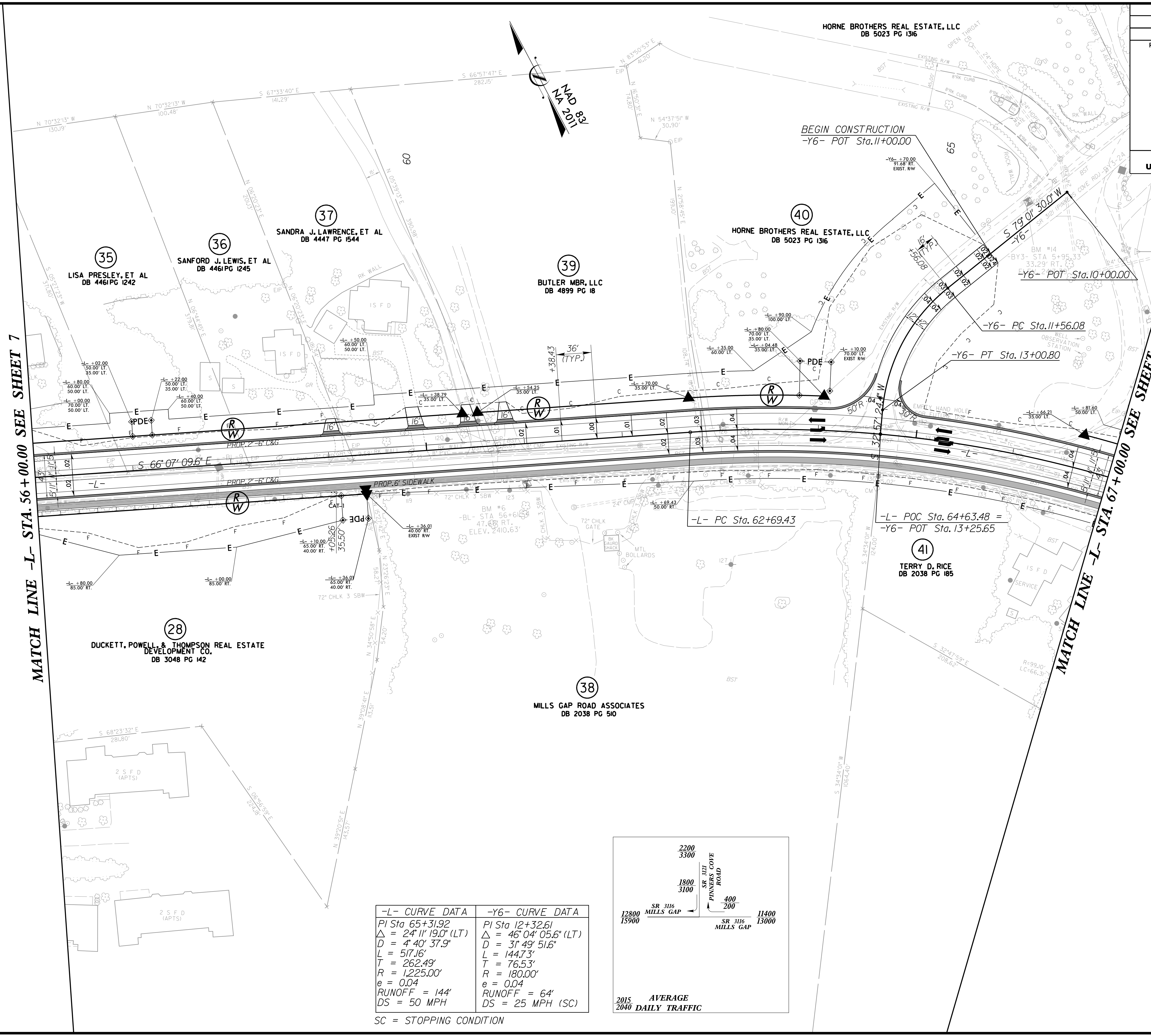


|                       |                   |
|-----------------------|-------------------|
| <b>-L- CURVE DATA</b> |                   |
| PI Sta                | 46+32.55          |
| Δ                     | 6° 35' 39.6" (LT) |
| D                     | 0' 27' 17.0"      |
| L                     | 1,450.17'         |
| T                     | 725.89'           |
| R                     | 12,600.00         |
| e                     | NC                |
| DS                    | 50 MPH            |

SEE SHEET 17 FOR -L- PROFILE



24 KENNETH JEROME WILLIAMS DB 3058 PG 669  
 25 THE CITY OF ASHEVILLE DB 1289 PG 437  
 26 BEARS DEN LOG CABIN RENTALS, LLC DB 5277 PG 1906  
 27 MAX ROSE DB 4700 PG 964  
 28 DUCKETT, POWELL & THOMPSON REAL ESTATE DEVELOPMENT CO. DB 3048 PG 142  
 29 MATTHEW R. KOUNS DB 4889 PG 1406  
 30 MITCHELL D. BALLARD DB 1953 PG 569  
 31 HORNE BROTHERS REAL ESTATE, LLC DB 5023 PG 1316  
 32 ALYSA J. GOLDBERG, ET AL DB 421 PG 1280  
 33 C. H. BALDWIN DB 885 PG 28  
 34 SANFORD J. LEWIS DB 4461 PG 1239

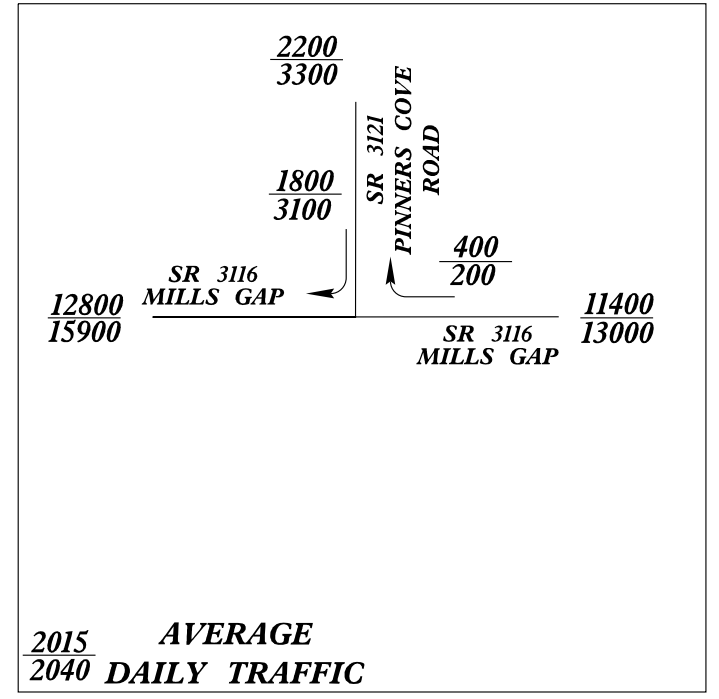


REVISIONS

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 8/17/99

| -L- CURVE DATA                        | -Y6- CURVE DATA                       |
|---------------------------------------|---------------------------------------|
| PI Sta 65+31.92                       | PI Sta 12+32.61                       |
| $\Delta = 24^{\circ} 11' 19.0''$ (LT) | $\Delta = 46^{\circ} 04' 05.6''$ (LT) |
| D = 4' 40' 37.9"                      | D = 3' 49' 51.6"                      |
| L = 517.16'                           | L = 144.73'                           |
| T = 262.49'                           | T = 76.53'                            |
| R = 1,225.00'                         | R = 180.00'                           |
| e = 0.04                              | e = 0.04                              |
| RUNOFF = 144'                         | RUNOFF = 64'                          |
| DS = 50 MPH                           | DS = 25 MPH (SC)                      |

SC = STOPPING CONDITION



SEE SHEET 18 FOR -L- PROFILE  
SEE SHEET 24 FOR -Y6- PROFILE

