AECOM

SC Highway 81 Corridor Study

FINAL

Anderson County - GPATS

Project number: P60711445

April 2024

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Quality information

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1. Executive Summary

SC Highway 81 (Anderson Road) is experiencing significant growth leading to transportation challenges including increased congestion and safety concerns along the corridor. This study recognizes the regional and local importance of the corridor and seeks to address issues and concerns related to safety, connectivity and capacity; and formulate a series of projects and recommendations to address those issues. The study area begins at the intersection of Lake Road / Wren School Road (S-953) and ends at the intersection of Powdersville Main / Piedmont Road (S-52) totaling approximately 5.7 miles. The corridor is considered north-south in this area and is a two-lane minor arterial carrying between 8,900 (southern end) to 11,900 (northern end) vehicles per day. On average,35 crashes a year occur within the study area limits.

Based on historic annual average daily traffic volumes, the development potential, the zoning and planned future developments in the area, and engineering judgement, a high annual average growth rate of 2.5% is utilized to project the future traffic growth in the study area.

The purpose of this study is to develop a corridor plan to accommodate future development which includes identifying new forms of traffic control at key intersections, mitigating any existing crash patterns, identifying future land use, and improving multimodal connectivity with pedestrian enhancement.

Below are the recommended short-term improvements to be implemented along SC Highway 81 by the year 2028 in order of ranking.

Rank #S1 – Old Williamston Road - ($3.70M)

- Install a new signal.
- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a westbound left turn lane on Old Williamston Road with 150 feet of storage.
- Install a northbound right turn lane on SC Highway 81 with 150 feet of storage.

Rank #S2 – Sherman Road / Pine Road - ($392K)

- Install a westbound right-turn lane on Pine Road with 100 feet of storage.

Rank #S3 – Circle Road - ($1.31M)

- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Install an eastbound left-turn lane on Circle Road with 150 feet of storage and restripe other eastbound lane as a shared left / thru / right-turn lane.

Rank #S4 – Cely Road - ($370K)

- Install a 100 feet northbound bypass lane on SC Highway 81.

Rank #S5 – Lake Road / Wren School Road - ($1.97M)

- Install a northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install a westbound right-turn lane on Wren School Road with 225 feet of storage.

Rank #S6 – Powdersville Main / Piedmont Road - ($30K)

- Install northbound left-turn protected/permissive phase on SC Highway 81.

Rank #S7 – Powdersville YMCA Driveway - ($1.62M)

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Rank #S8 – Van Henry Lane - ($1.98M)

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Rank #S9 – SC Highway 86 - ($30K)

- Install northbound left-turn protected/permissive phase on SC Highway 81.

AECOM also developed corridor related recommendations that would be considered long-term improvements to be implemented along SC Highway 81 by the year 2043 as shown below in order of ranking:

Rank #L1 – Sherman Road / Pine Road - ($1.82M)

- Realign Sherman Road with Pine Road to improve safety.

Rank #L2 – Airy Springs Road/ Southern Oaks Drive - ($450K)

- Install southbound right-turn lane on SC Highway 81 with 100 feet of storage.

Rank #L3 – Circle Road ($3.30M)

- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Extend the southbound right-turn lane on SC Highway 81 back to the intersection with Powdersville Main/Piedmont Road.
- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a northbound shared thru/right-turn lane on Circle Road with 150 feet of storage.
- Extend eastbound left-turn lane on Circle Road to provide 275 feet of storage.

Rank #L4 – Powdersville Main / Piedmont Road - ($950K)

- Install a westbound right-turn lane on Piedmont Road with 200 feet of storage.
- Restripe the westbound shared thru/right-turn lane to through only on Piedmont Road.
- Install southbound left-turn protected/permissive phase on SC Highway 81.

Rank #L5 – Mt Airy Church Road - ($1.40M)

- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Realign Mt. Airy Church Road to intersect with SC Highway 81 at 90 degrees.

Rank #L6 – SC Highway 86 - ($2.50M)

- Install northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install eastbound right-turn lane on SC Highway 86 with 225 feet of storage.
- Install southbound right-turn lane on SC Highway 81 with 200 feet of storage.

Rank #L7 – Widening from Old Williamston Road to Circle Road ($30M)

- Widen SC Highway 81 to install a Two-Way Left-Turn Lane (TWLTL) starting at Old Williamston Road heading northbound to end at Circle Road. Install curb and gutter and provide a sidewalk on west side of road and a shared use path on east side of road.

It should be noted that AECOM used a high 2.5% annual growth rate and results indicated SC Highway 81 is not expected to need additional through lanes in the year 2043.

Cost estimates and project prioritization for Short-term and Long-term projects have been identified in **Section 8.0** of this report along with concepts shown in **Appendix O** and **Appendix P**.

2. Introduction

SC Highway 81 (Anderson Road) is experiencing significant growth leading to transportation challenges including increased congestion and safety concerns along the corridor. This continued growth is expected to worsen and impact existing traffic patterns in the area by further increasing congestion and creating additional safety issues requiring improvements to the roadway infrastructure. This corridor study recognizes the regional and local importance of the corridor and seeks to address issues and concerns related to safety, connectivity, and capacity; and formulate a series of projects and recommendations to address those issues.

AECOM was retained by the Anderson County – Greenville-Pickens Anderson Transportation Study (GPATS) to perform the following tasks along SC Highway 81:

- Conduct a corridor study that included a review of the existing traffic operation and safety conditions along the corridor within the study area.
- Project future traffic conditions based on potential future land use and development plan.
- Identify potential deficiencies to propose improvement measures.

The SC Highway 81 Corridor study area is in northern Anderson County, beginning at the intersection of Lake Road / Wren School Road and ending near the core of the Powdersville community at the intersection of Powdersville Main / Piedmont Road as shown in **Figure 1**. The total corridor length is approximately 5.7 miles. The corridor is primarily a two-lane minor arterial carrying 8,900 to 11,900 vehicles per day.

This study is a culmination of involvement with the community and stakeholders including Anderson County, GPATS, and The South Carolina Department of Transportation (SCDOT). It will seek to analyze traffic operations, crash history, growth patterns, and access management strategies to improve safety and traffic flow. These efforts will result in Short-term, and Long-termrecommendations that local governments and the SCDOT could implement in the future to benefit the corridor.

In addition to increased volumes, approximately 36 crashes per year occurred within the study area limits over a 5.5-year time frame from February 2017 to October 2022 totaling 200 crashes (25% injury related). By establishing access management strategies and intersection improvements, the corridor is expected to be able to handle the additional traffic volumes while reducing the number and severity of collisions.

The project study area includes a 5.7-mile span along SC 81 (Anderson Road) from Lake Road / Wren School Road to Powdersville Main / Piedmont Road. AECOM has identified the following intersections to be studied as part of this corridor study as shown in **Figure 2**:

1. SC Highway 81 at Lake Road / Wren School Road (S-953) - *Signalized*
2. SC Highway 81 at Wren Crossing Lane / Planters Walk Drive - *Unsignalized*
3. SC Highway 81 at SC Highway 86 - *Signalized*
4. SC Highway 81 at Still Meadow Lane - *Unsignalized*
5. SC Highway 81 at Airy Springs Road / Southern Oaks Drive - *Unsignalized*
6. SC Highway 81 at Van Henry Lane - *Unsignalized*
7. SC Highway 81 at Mt Airy Church Road - *Unsignalized*
8. SC Highway 81 at Orr Road - *Unsignalized*

9. SC Highway 81 at Mountain Springs Road - *Unsignalized*
10. SC Highway 81 at Powdersville YMCA Driveway - *Unsignalized*
11. SC Highway 81 at Powdersville YMCA Driveway / Tripp Road - *Unsignalized*
12. SC Highway 81 at Wyatt Road - *Unsignalized*
13. SC Highway 81 at Tripp Road - *Unsignalized*
14. SC Highway 81 at Wilson Way - *Unsignalized*
15. SC Highway 81 at Old Williamston Road - *Unsignalized*
16. SC Highway 81 at Jameson Drive - *Unsignalized*
17. SC Highway 81 at Cely Road - *Unsignalized*
18. SC Highway 81 at Heritage Lane - *Unsignalized*
19. SC Highway 81 at Sherman Road / Pine Road - *Unsignalized*
20. SC Highway 81 at Holborne Drive - *Unsignalized*
21. SC Highway 81 at Circle Road - *Signalized*
22. SC Highway 81 at Powdersville Main / Piedmont Road (S-52) - *Signalized*

AECOM was tasked with studying traffic conditions along the proposed project during the weekday AM and PM peak hours for six (6) scenarios:

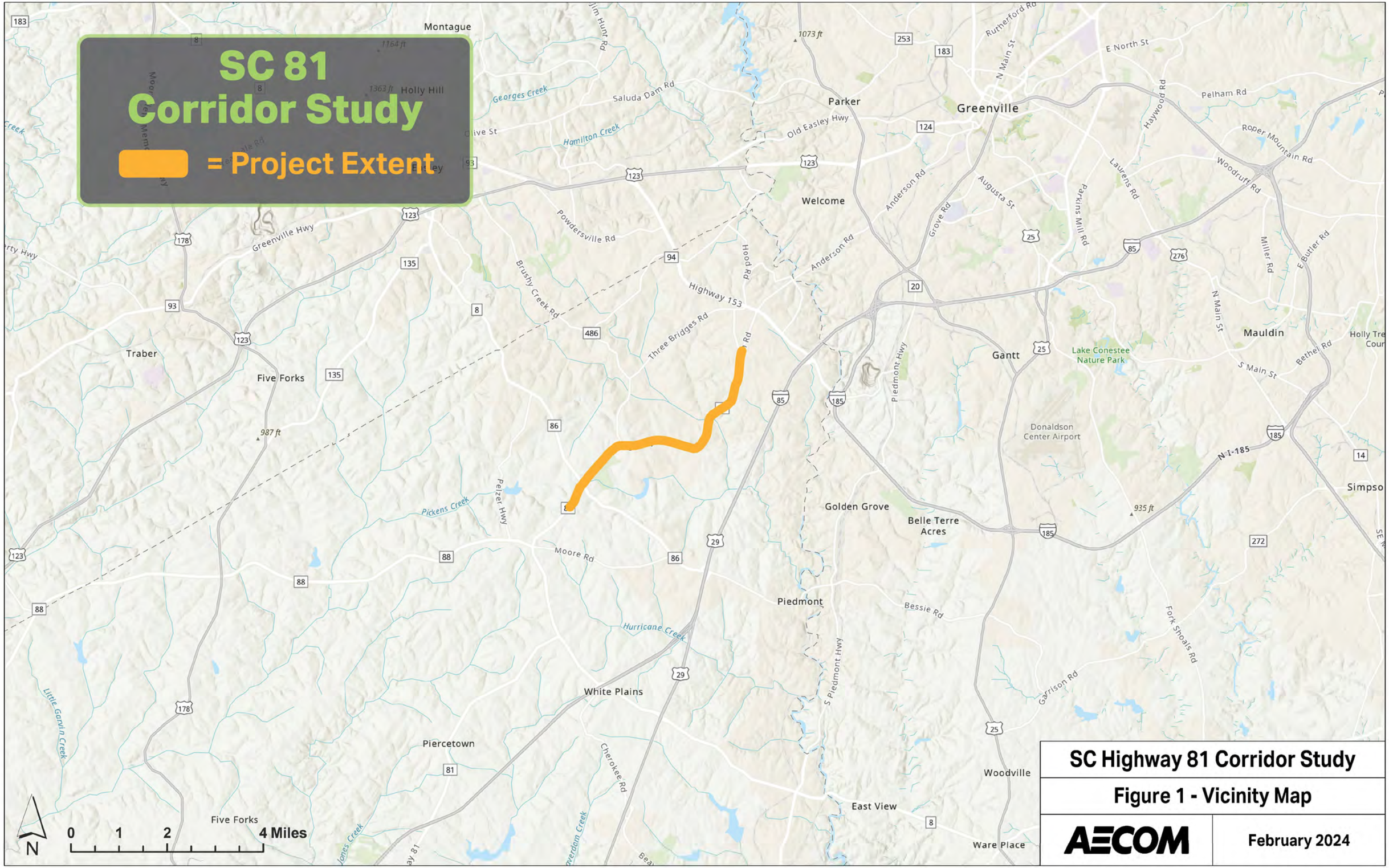
- Existing 2023: An analysis of the existing conditions in the year 2023.
- No-Build 2028: An analysis of future conditions in the year 2028 using historic traffic volume trends in the surrounding area if no changes are implemented.
- No-Build 2043: An analysis of future conditions in the year 2043 using historic traffic volume trends in the surrounding area if no changes are implemented.
- Build 2028 Short-Term: An analysis of future conditions in the year 2028 if the Short-Term Improvements are constructed.
- Build 2043 Short-Term: An analysis of the future conditions in the year 2043 if the Build Short-Term Improvements from 2028 are constructed.
- Build 2043 Long-Term: An analysis of the future conditions in the year 2043 if all the Short-Term and Long-Term improvements are constructed.

Based on these scenarios, the study will determine if the proposed improvements would have a positive impact on safety and traffic regarding LOS, delay, and queuing.

This report also includes a conceptual design of the proposed improvements. These improvements were separated into Short-term and Long-term along with their associated cost estimates.

SC 81 Corridor Study

= Project Extent



SC Highway 81 Corridor Study	
Figure 1 - Vicinity Map	
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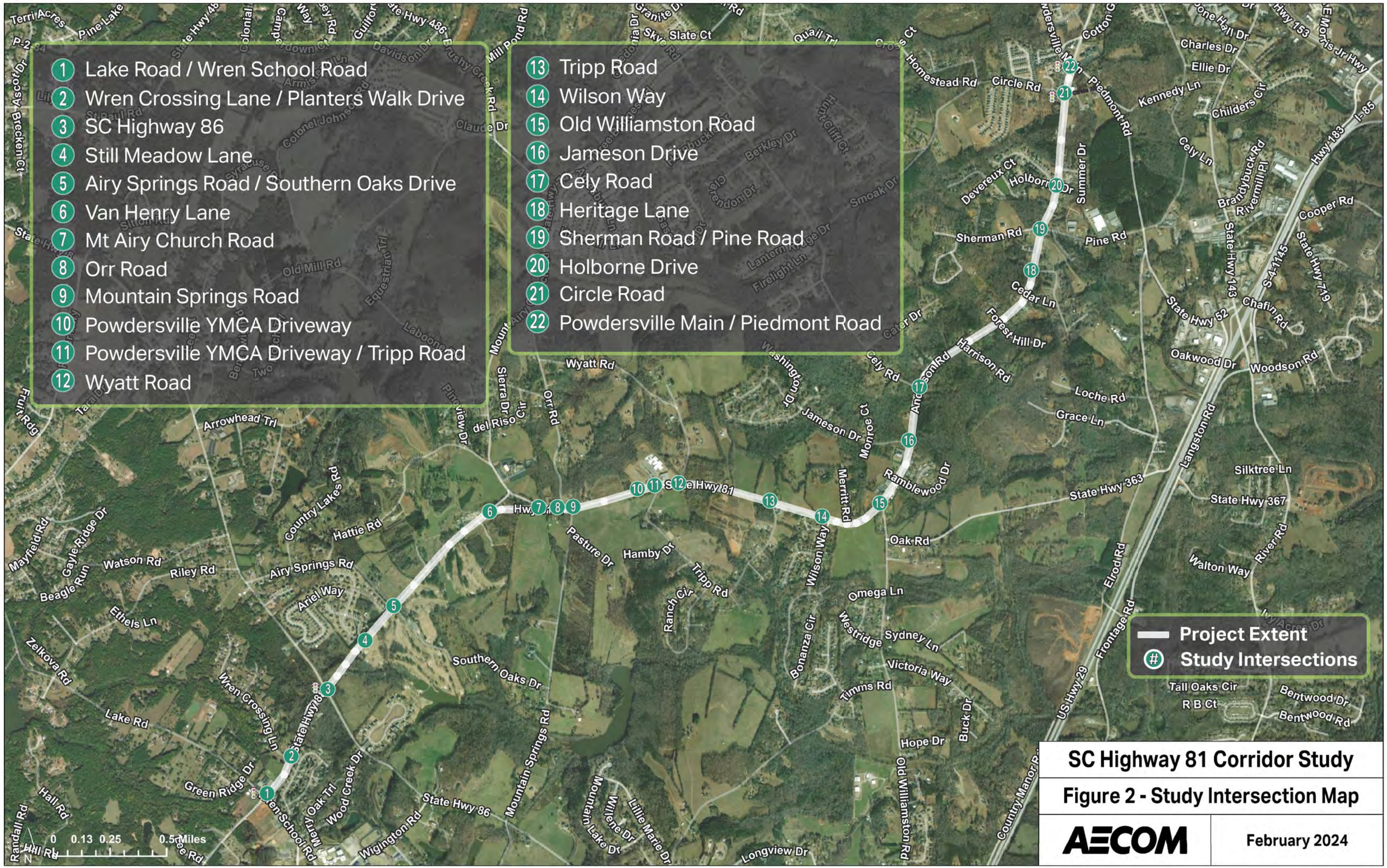

SC Highway 81 Corridor Study

Figure 2 - Study Intersection Map

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3. Existing Conditions

Resources on the South Carolina Department of Transportation (SCDOT) website were referenced to determine the functional classification and Annual Average Daily Traffic (AADT) of the roadways studied in this report. This data assisted with determination of growth rates and other analysis factors.

3.1 Corridor Characteristics

According to SCDOT traffic data, the study area of SC Highway 81 is classified as a 2-lane minor arterial with a speed limit ranging from 40 to 50 miles per hour (mph).

- Wren School Road to Still Meadow Lane (45 mph)
- Still Meadow Lane to Tripp Road (50 mph)
- Tripp Road to Powdersville Main / Piedmont Road (40 mph)

Beginning from the south the Average Daily Traffic (ADT) starts at 7,300 vehicles per day and increases to 11,900 vehicles per day based on a typical weekday in May 2023. The heavy truck percentage varies between two (2) and four (4) percent. Based on a recent field review and information provided by SCDOT, most of this corridor from just east of SC 86 to just west of Circle Road was improved with a safety project in 2020 that resurfaced the roadway with two-foot shoulders. Centerline and edge line rumble stripes were added along with highly reflective pavement markings. These recent improvements are proven countermeasures to reduce road departure crashes.

Some of the major intersecting roads along the SC Highway 81 corridor that have corresponding SCDOT traffic count stations include SC Highway 86, Mt Airy Church Road, and Old Williamston Road.

SC Highway 86 intersects with SC Highway 81 approximately 1000 feet north of Lake Road. It is a 2-lane minor arterial with a speed limit of 40 mph south of SC Highway 81 and 45 mph north of SC Highway 81. According to SCDOT traffic count data, SC Highway 86 carried 6,700 vehicles in 2022.

Mt Airy Church Road is a 2-lane minor collector with a speed limit of 35 mph. It intersects with SC Highway 81 from the northwest. According to SCDOT traffic count data, Mt. Airy Church Road carried 1,800 vehicles in 2022.

Old Williamston Road intersects with SC Highway 81 from the south as a 2-lane major collector with a speed limit of 40 mph. According to SCDOT traffic count data, Old Williamston Road carried 3,100 vehicles in 2022.

3.2 Field Review

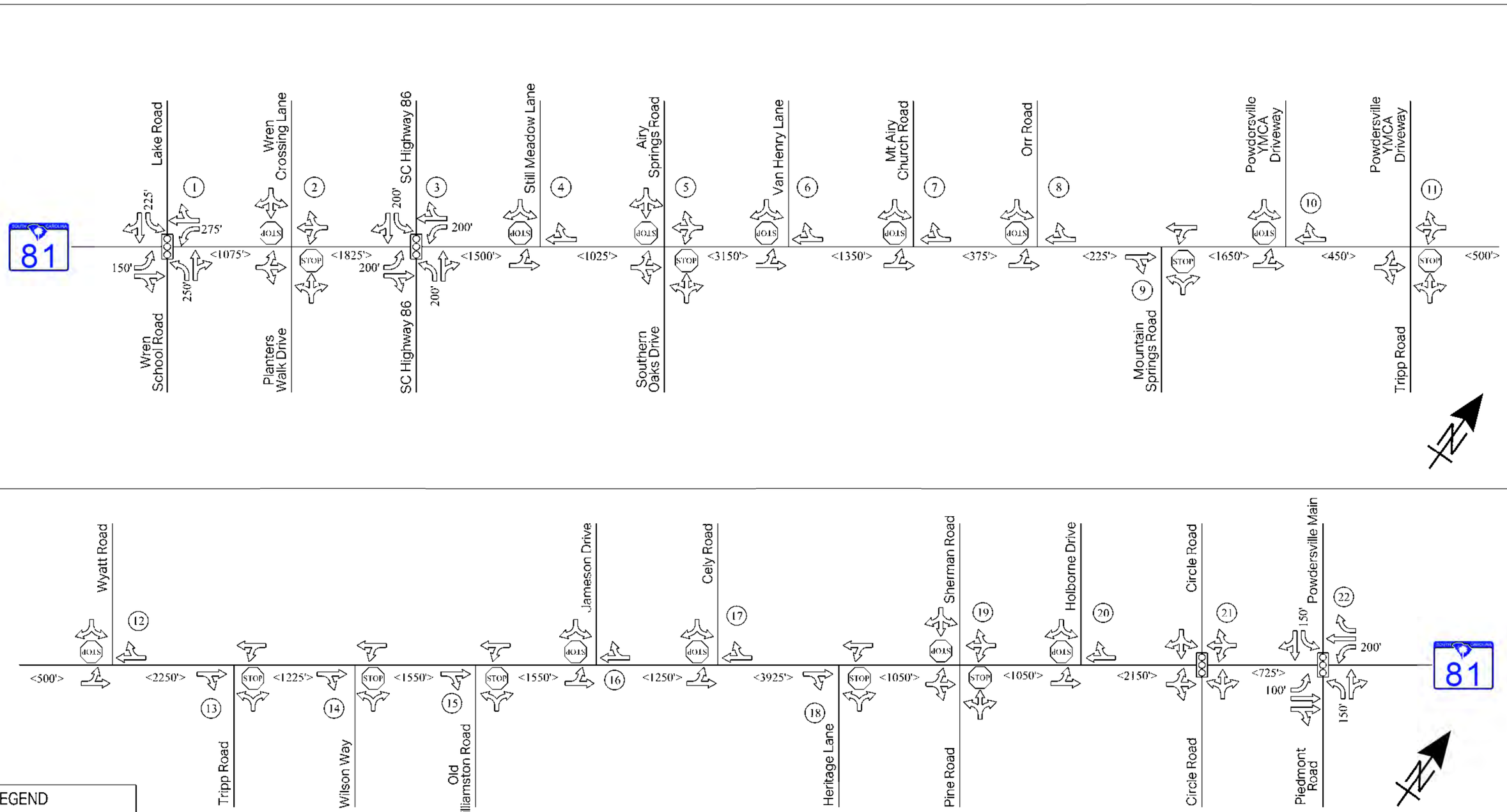
AECOM conducted a field visit in September 2023 on Monday (September 11th and September 18th) and Tuesday (September 12th and September 19th) to record the existing roadway geometry and operations. The field visit notes can be found in **Appendix A**. The existing lane configuration is shown in **Figure 3**

Looking west towards SC Highway 81 from Wren School Road

Looking north towards SC Highway 81 from Old Williamston Road.

Looking south towards SC Highway 81 from Cely Road

Looking north on SC Highway 81 towards Circle Road Signal



SC Highway 81 Corridor Study

Figure 3 - Existing Lane Configuration

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3.3 Study Intersections

Intersection 1: Lake Road / Wren School Road (S-953)

Lake Road approaches SC Highway 81 from the west and Wren School Road approaches from the east to form a four-legged intersection. All approaches from each street consist of one left-turn lane and one shared through / right-turn lane. Both L15ake Road and Wren School Road are two-lane major collectors with posted speed limits of 35 mph. The speed limit on SC Highway 81 in the area is 45 mph. The intersection is controlled by a traffic control signal with protected-permissive left-turn signal phases for the southbound (SC 81) and westbound (Wren School Road) approaches. The land use is generally commercial and institutional. It should be noted that Wren School Road serves the nearby Wren Elementary, Middle, and High schools.

Southbound SC Highway 81 north of Lake Road / Wren School Road

Intersection 2: Wren Crossing Lane / Planters Walk Drive

Wren Crossing Lane intersects SC Highway 81 from the west and Planters Walk Drive approaches from the east to form a four-legged intersection. All approaches consist of one shared left / through / right-turn lane. Both Wren Crossing Lane and Planters Walk Drive have posted speed limits of 25 mph. The speed limit on SC Highway 81 in the area is 45 mph. The intersection is unsignalized and controlled by Two-Way-Stop Control (TWSC) signs on Wren Crossing Lane and Planters Walk Drive. The land use is generally residential with neighborhoods on both sides of SC Highway 81.

Northbound SC Highway 81 South of Wren Crossing Lane/Planters Walk Drive

Intersection 3: SC Highway 86

SC Highway 86 is a two-lane minor arterial at this intersection with a posted speed limit of 40 mph on the south leg and 45 mph on the north leg to form a four-legged signalized intersection. Land use in the vicinity is undeveloped / wooded land. All approaches on SC Highway 81 and SC Highway 86 consist of one left-turn lane and one shared through / right-turn lane. Currently the signal provides permissive only phasing on all approaches. The speed limit on SC Highway 81 in the area is 45 mph. It should be noted that a residential development called Anderson Oaks is being built to the north and east of this intersection.

Northbound SC Highway 81 South of SC Highway 86

Intersection 4: Still Meadow Lane

Still Meadow Lane intersects SC Highway 81 from the west with one general purpose lane providing access to the Still Meadow neighborhood. Still Meadow Lane has a landscaped median with a posted speed limit of 25 mph and is controlled by a stop sign. The southbound approach on SC Highway 81 consists of one shared through / right-turn lane and the northbound approach has one shared through left-turn lane. The speed limit on SC Highway 81 in the area is 50 mph.

Northbound SC Highway 81 south of Still Meadow Lane

Intersection 5: Airy Springs Road / Southern Oaks Drive

Airy Springs Road intersects SC Highway 81 from the west and Southern Oaks Drive approaches from the east as single lane approaches. Airy Springs Road has a posted speed limit of 35 mph and Southern Oaks Drive has no posted speed limit. The intersection is TWSC with stop signs at

Airy Springs Road and Southern Oaks Drive. Both the northbound and southbound approaches on SC Highway 81 consist of one through lane. Land use in the vicinity is a mix of recreational, residential, and undeveloped / wooded land. The speed limit on SC Highway 81 in the area is 50 mph.

Southbound SC Highway 81 north of Airy Springs Road/Southern Oaks Drive

Intersection 6: Van Henry Lane

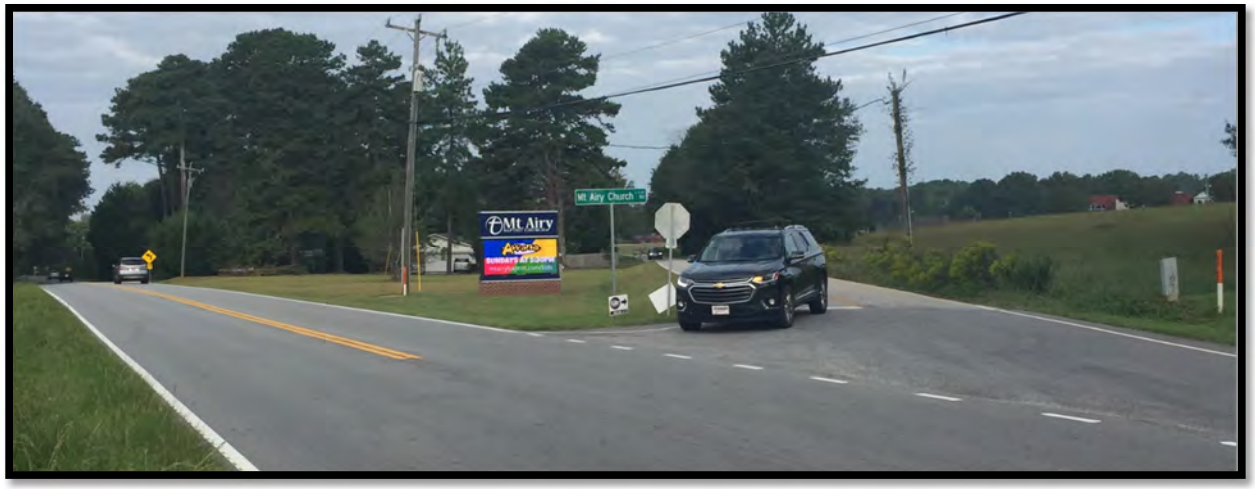
Van Henry Lane intersects SC Highway 81 as a single lane approach from the northeast at a skewed angle. On SC Highway 81, the northbound approach consists of a shared through left-turn lane while southbound approach has a shared through / right-turn lane. Land use in vicinity of the intersection is mostly residential, churches, and wooded land. The speed limit on SC Highway 81 in the area is 50 mph. The posted speed limit on Van Henry Lane is not posted. The intersection is controlled by a stop sign on the side street.

Southbound SC Highway 81 north of Van Henry Lane

Intersection 7: Mt Airy Church Road

Mt Airy Church Road intersects SC Highway 81 as a single lane approach from the northwest at a skewed angle. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. Land use in vicinity of the intersection is mostly residential, churches, and wooded land. The speed limit on

SC Highway 81 in the area is 50 mph. The posted speed limit on Mt Airy Church Road is 35 mph. The intersection is controlled by a stop sign on the side street.



Southbound SC Highway 81 at Mt Airy Church Road

Intersection 8: Orr Road

Orr Road intersects SC Highway 81 from the west as single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 50 mph and 35 mph on Orr Road. The intersection is controlled by a stop sign on the side street. Land use is mostly residential / wooded.

Southbound SC Highway 81 north of Orr Road

Intersection 9: Mountain Springs Road

Mountain Springs Road intersects SC Highway 81 from the east as a single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / right-turn lane while the southbound approach has a shared through / left-turn lane. The speed limit on SC Highway 81 in the area is 50 mph and 35 mph on Mountain Springs Road. The intersection is controlled by a stop sign on the side street. Land use is mostly residential / wooded.

Southbound SC Highway 81 north of Mountain Springs Road

Intersection 10: Powdersville YMCA Driveway

The Powdersville YMCA Driveway intersects SC Highway 81 from the west as a single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 50 mph and there is no posted speed limit on the Powdersville YMCA Driveway. The intersection is controlled by a stop sign on the side street.

Southbound SC Highway 81 North of Powdersville YMCA Driveway

Intersection 11: Powdersville YMCA Driveway / Tripp Road

The Powdersville YMCA Driveway intersects SC Highway 81 from the west and is a one-way entrance only driveway. Tripp Road approaches SC Highway 81 from the east. There are shared left-turn / through / right-turn lanes on all approaches except for the one way on Powdersville YMCA Driveway. The speed limit on SC Highway 81 in the area is 50 mph and 35 mph on Tripp Road. There is no posted speed limit on the Powdersville YMCA Driveway. The intersection is controlled by a stop sign on Tripp Road. Land use is residential / recreational / churches / wooded.

Northbound SC Highway 81 south of Powdersville YMCA Driveway / Tripp Road

Intersection 12: Wyatt Road

Wyatt Road intersects SC Highway 81 from the west as a single lane approach and is located approximately 500 feet north of Tripp Road. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 50 mph and 30 mph on Wyatt Road. The intersection is controlled by a stop sign on the side street. Land use is primarily residential and wooded.

Southbound SC Highway 81 north of Wyatt Road

Intersection 13: Tripp Road

Tripp Road intersects SC Highway 81 from the east as a single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / right-turn lane while the southbound approach has a shared through / left-turn lane. The speed limit on SC Highway 81 changes from 50 mph to 40 mph just east of Tripp Road. Tripp Road has a speed limit of 35 mph. The intersection is controlled by a stop sign on the side street. Land use is mostly residential / commercial / wooded.

Southbound SC Highway 81 north of Tripp Road

Intersection 14: Wilson Way

Wilson Way intersects SC Highway 81 from the east as a single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / right-turn lane while the southbound approach has a shared through / left-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 25 mph on Wilson Way. The intersection is controlled by a stop sign on the side street. Land use is mostly residential.

Southbound SC Highway 81 north of Wilson Way

Intersection 15: Old Williamston Road

SC Highway 81 makes a 90 degree turn between Wilson Way and Old Williamston Road and becomes predominant north-south direction again. Old Williamston Road is major collector that intersects SC Highway 81 from the southeast as a single lane approach to form a skewed three-leg intersection. On SC Highway 81, the northbound approach consists of a shared through / right-turn lane while the southbound approach has a shared through / left-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 35 mph on Old Williamston Road. The intersection is controlled by a stop sign on the side street. Land use is mostly residential / commercial / wooded.

Northbound SC Highway 81 south of Old Williamston Road

Intersection 16: Jameson Drive

Jameson Drive intersects SC Highway 81 from the west as single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 25 mph on Jameson Drive. The intersection is controlled by a stop sign on the side street. Land use is residential / recreational / churches / wooded.

Northbound SC Highway 81 south of Jameson Drive

Intersection 17: Cely Road

Cely Road intersects SC Highway 81 from the west as single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 35 mph on Cely Road. The intersection is controlled by a stop sign on the side street. Land use is residential / wooded. It should be noted that this intersection is near the bridge over Big Brushy Creek.

Southbound SC Highway 81 north of Cely Road

Intersection 18: Heritage Lane

Heritage Lane intersects SC Highway 81 from the east as a single lane approach to form a three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / right-turn lane while the southbound approach has a shared through / left-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 30 mph on Heritage Lane. The intersection is controlled by a stop sign on the side street. Land use is mostly residential / commercial / wooded.

Southbound SC Highway 81 north of Heritage Lane

Intersection 19: Sherman Road / Pine Road

Sherman Road intersects SC Highway 81 from the west and Pine Road approaches from the east as single lane approaches offset by approximately 30 feet. Both Sherman Road and Pine Road have a posted speed limit of 35 mph and controlled by a stop sign. Both the northbound and southbound approaches on SC Highway 81 consist of one shared left / through / right-turn lane. Land use in the vicinity is a mix of residential, commercial, and undeveloped / wooded land. The speed limit on SC Highway 81 in the area is 40 mph.

Northbound SC Highway 81 south of Sherman Road / Pine Road

Intersection 20: Holborne Drive

Holborne Drive intersects SC Highway 81 from the west as single lane approach to form at three-legged intersection. On SC Highway 81, the northbound approach consists of a shared through / left-turn lane while the southbound approach has a shared through / right-turn lane. The speed limit on SC Highway 81 in the area is 40 mph and 25 mph on Holborne Drive. The intersection is controlled by a stop sign on the side street. Land use is residential.

Southbound SC Highway 81 north of Holborne Drive

Intersection 21: Circle Road

Circle Road is a two-lane east / west roadway that intersects SC Highway to form a four-legged signalized intersection. All approaches on SC Highway 81 and Circle Road consists of one shared left-turn / through / right-turn lane. Currently the signal provides split phasing on Circle Road (approximately 30 feet offset) and permissive only phasing for SC Highway 81. The speed limit on SC Highway 81 in the area is 40 mph with Circle Road having a posted speed limit of 35 mph. It should be noted that this intersection has special preemptive phasing for the fire department on the northeast corner. SC Highway 81 also opens up to two northbound through lanes just north of the intersection. Land use in the vicinity is government, commercial, and residential.

Southbound SC Highway 81 north of Circle Road

Intersection 22: Powdersville Main / Piedmont Road

Powdersville Main and Piedmont Road intersect SC Highway 81 to form a four-legged signalized intersection. Northbound SC Highway 81 has one left-turn lane and two through lanes with the outermost lane being a shared through / right-turn lane. Southbound SC Highway 81 has one left-turn lane, one through lane, and one right-turn only lane drop at this intersection. Both Powdersville Main and Piedmont Road have an exclusive left-turn lane and a shared through / right-turn lane for their approaches. The speed limit on SC Highway 81 in the area is 40 mph with Powdersville Main / Piedmont Road with posted speed limits of 35 mph. Currently the signal has permissive only phasing on all four approaches. Land use in the vicinity is government commercial, churches, and an elementary school.

Northbound SC Highway 81 south of Powdersville Main/Piedmont Road

3.4 Traffic Counts

Peak hour turning movement counts were collected between 7:00 AM to 9:00 AM, and 2:00 PM to 6:00 PM along SC Highway 81 during May of 2023.

The AM peak hour was 7:15 AM to 8:15 AM throughout the entire corridor and the PM peak hour fluctuated at each intersection with the southernmost intersection (Lake Road / Wren School Road) being 2:45 PM to 3:45 PM, and all the other study intersections north of it having a peak hour starting between 4:45 PM to 5:45 PM and 5:00 PM to 6:00 PM.

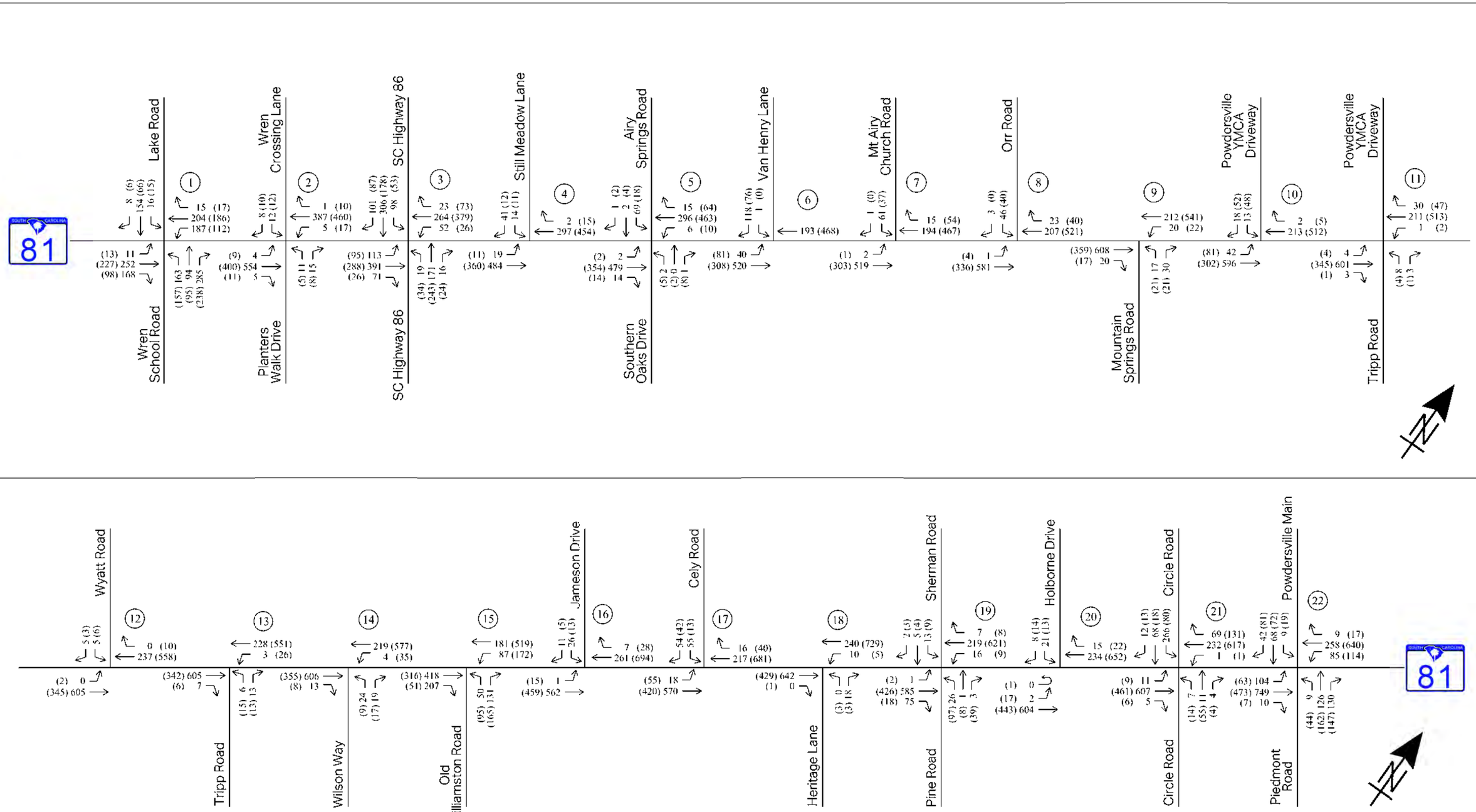
Based on these observations, traffic volumes observed during the peak hours of each individual intersection were utilized to conduct the traffic analysis. The observed peak hour factors and heavy vehicle percentage for these intersections are also reflected in the analysis.

To supplement the SCDOT permanent count stations and to obtain vehicular classification, 24-hour bi-directional counts were collected along the study area on SC Highway 81 in five (5) different locations on Tuesday May 23rd, 2023. **Table 1** summarizes the daily traffic volumes and the heavy truck percentages.

Table 1 - 2023 Daily Traffic Volumes

Count Location: SC Highway 81	ADT	Heavy Truck %
South of Wren School Road	8,900	4%
South of Southern Oaks Drive	9,000	3%
South of Wilson Way	9,300	3%
South of Heritage Lane	11,600	2%
South of Circle Road	11,900	2%

Existing 2023 peak hour traffic volumes are summarized in **Figure 4.** Raw traffic counts are found in **Appendix B**.



LEGEND

- ← Volume Movement
- (##) Intersection Number
- ## AM Peak Hour Traffic Volume
- (##) PM Peak Hour Traffic Volume

SC Highway 81 Corridor Study

Figure 4 - Existing 2023 AM / PM Peak Hour Volumes

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3.5 Crash Data

Crash data between February 1, 2017 and October 31, 2022 was provided by Anderson County. To perform a crash analysis for the SC Highway 81 study corridor, AECOM determined a total of 200 crashes were reported along the 5.7-mile section during this 5.5-year time period. There were 2 fatalities reported in the study area and roughly 1 out of every 4 crashes resulted in an injury.

Based on this data, the predominant type of crash was rear-end, comprising 49% (99 crashes) of all crashes followed by angle crashes at 24% (49 crashes). There was one injury crash that occurred in 2018 near Still Meadow Drive involving a pedal cycle. Most of the crashes occurred under daylight or dawn/dusk while 29% of the crashes occurred in the late evening or dark. The most prevalent crash type is non-injury or property damage only (PDO) at 74 percent of crashes while the remaining 26% resulted in an injury.

AECOM also performed a detailed crash review at the 22 study intersections identifying crash types and frequencies as summarized in **Table 2.**

Table 2 - Intersection Crash Summary

Int#	Location	Angle	Head On	Other	Rear End	Side Swipe	Total
1	Lake Road / Wren School Road	1	0	0	3	0	4
2	Wren Crossing Lane / Planters Walk Drive	0	0	1	2	0	3
3	SC Highway 86	6	1	0	5	0	12
4	Still Meadow Lane	0	0	2	2	1	5
5	Airy Springs Road / Southern Oaks Drive	2	0	0	7	0	9
6	Van Henry Lane	1	0	3	3	0	7
7	Mt Airy Church Road	1	0	0	3	0	4
8	Orr Road	1	0	0	1	0	2
9	Mountain Springs Road	1	0	0	1	1	3
10	Powdersville YMCA Driveway	3	0	0	1	0	4
11	Powdersville YMCA Driveway / Tripp Road	1	0	1	5	1	8
12	Wyatt Road	0	0	0	0	0	0
13	Tripp Road	0	0	0	5	0	5
14	Wilson Way	0	0	0	1	0	1
15	Old Williamston Road	6	0	2	5	1	14
16	Jameson Drive	1	0	0	2	1	4
17	Cely Road	0	1	1	8	0	10
18	Heritage Lane	0	0	3	4	0	7
19	Sherman Road / Pine Road	2	0	1	5	0	8
20	Holborne Drive	0	0	0	1	0	1
21	Circle Road	6	0	1	13	0	20
22	Powdersville Main / Piedmont Road	10	1	0	6	0	17
	Total	42	3	15	83	5	148

As shown in the table above, 148 of the 200 (approximately 74 percent) total crashes along the 5.7-mile corridor occurred at the twenty-two (22) study intersections. The Circle Road intersection had the highest number with 20 crashes (6 of the crashes are angle, 13 are rear-end type, and one was other). The next highest is Powdersville Main / Piedmont Road at seventeen (17) crashes and fourteen (14) crashes at Old Williamston Road. It is also noted that the signalized intersection of SC Highway 86 had twelve (12) crashes reported during the study period and six (6) of these crashes are angle type which typically results in a more severe crash type.

The crash data with full details can be found in **Appendix C.**

4. Background Growth

To determine an annual traffic growth rate along SC Highway 81, the regional travel demand model prepared for the Anderson Area Transportation Study (ANATS) Metropolitan Planning Organization (MPO) and the SCDOT historic annual average daily traffic (AADT) volume data were both reviewed. Findings from these two sources are summarized below.

4.1 ANATS Model

Annual average growth rate for links within the study area were projected based on comparing the 2010 Base model and the 2045 Do-Nothing Model. **Table 3** provides a summary of the 2010 and 2045 model volumes and the calculated annual average growth rate based on the ANATS model. As shown in Table 3, the annual average growth rate ranges from 0.60% at the north to 0.94% at the south.

Table 3 - ANATS Model Projection

Intersections along SC Highway 81	2010	2020	2030	2040	2045 Projection AADT	Annual Average Growth
Segment 1 (Wren School to SC 86)	10,105	11,111	12,325	13,209	13,494	0.83%
Segment 2 (SC 86 to Airy Springs)	9,905	10,983	12,424	13,351	13,746	0.94%
Segment 3 (Airy Springs to Van Henry)	9,905	10,983	12,424	13,351	13,746	0.94%
Segment 4 (Van Henry to Old Williamston)	6,566	6,960	7,255	7,801	8,119	0.61%
Segment 5 (Old Williamston to Circle)	11,144	11,973	12,796	13,423	13,728	0.60%
Segment 6 (Circle to SC 153)	26,422	28,223	29,986	31,681	32,532	0.60%
Segment 7 (SC 153 to Old Anderson)	17,448	19,193	21,322	23,508	24,780	1.01%
Segment 8 (Old Anderson to Bridges)	11,961	12,955	13,520	14,265	15,391	0.72%
Segment 9 (Bridges to Anderson/Greenville County Line)	11,780	12,768	13,260	13,982	14,471	0.59%

The 2010 and 2045 ANATS model projection information are included in **Appendix D.**

4.2 AADT trends

AECOM also reviewed the historic Annual Average Daily Traffic (AADT) data. South Carolina Department of Transportation (SCDOT) count station 212 is located on SC Highway 81 at the intersection Still Meadow Lane which is within the study limit toward the south end, and the 2014 to 2022 AADT showed an increase at an annual average rate of 4.8%. Station 214 is located on Anderson Road north of SC Highway 153, which is north of the study limit, and the historic AADT

reveals an annual average growth rate of 3.0% between 2014 and 2022. **Table 4** shows the AADT from 2014 to 2022.

As shown, the AADT from 2014 to 2022 fluctuates, with the 2014 AADT being the lowest at both stations. The annual average growth rate at Station 212 from 2014 to 2022 is 4.8%, which is slightly higher than the ANATS model projection of 1.0% for the same section of SC Highway 81. The areas along SC Highway 81 north of the study limit has an annual average growth rate of 3.0% from 2014 to 2022, which is higher than the historic growth within the study limits. Considering Station 214 located just north of the study limits, the growth in the area could also potentially have an impact to the study area for this project, so a weighted annual average growth rate for the two SCDOT count stations from 2014 to 2022 were calculated resulting in a growth rate of 3.6% per year.

Table 4 - Historic AADT

	SC Highway 81 between SC 8 and SC 153 (Station 212)	SC Highway 81 between SC 153 and the Anderson/ Greenville County Line (Station 214)	Overall
2014 AADT	5,000	10,300	15,300
2015 AADT	5,400	10,800	16,200
2016 AADT	5,900	12,300	18,200
2017 AADT	6,400	11,500	17,900
2018 AADT	7,100	12,100	19,200
2019 AADT	7,000	12,000	19,000
2020 AADT	6,900	12,800	19,700
2021 AADT	7,300	13,600	20,900
2022 AADT	7,300	13,000	20,300
2014 to 2022 Annual Average Growth	4.8%	3.0%	3.6%

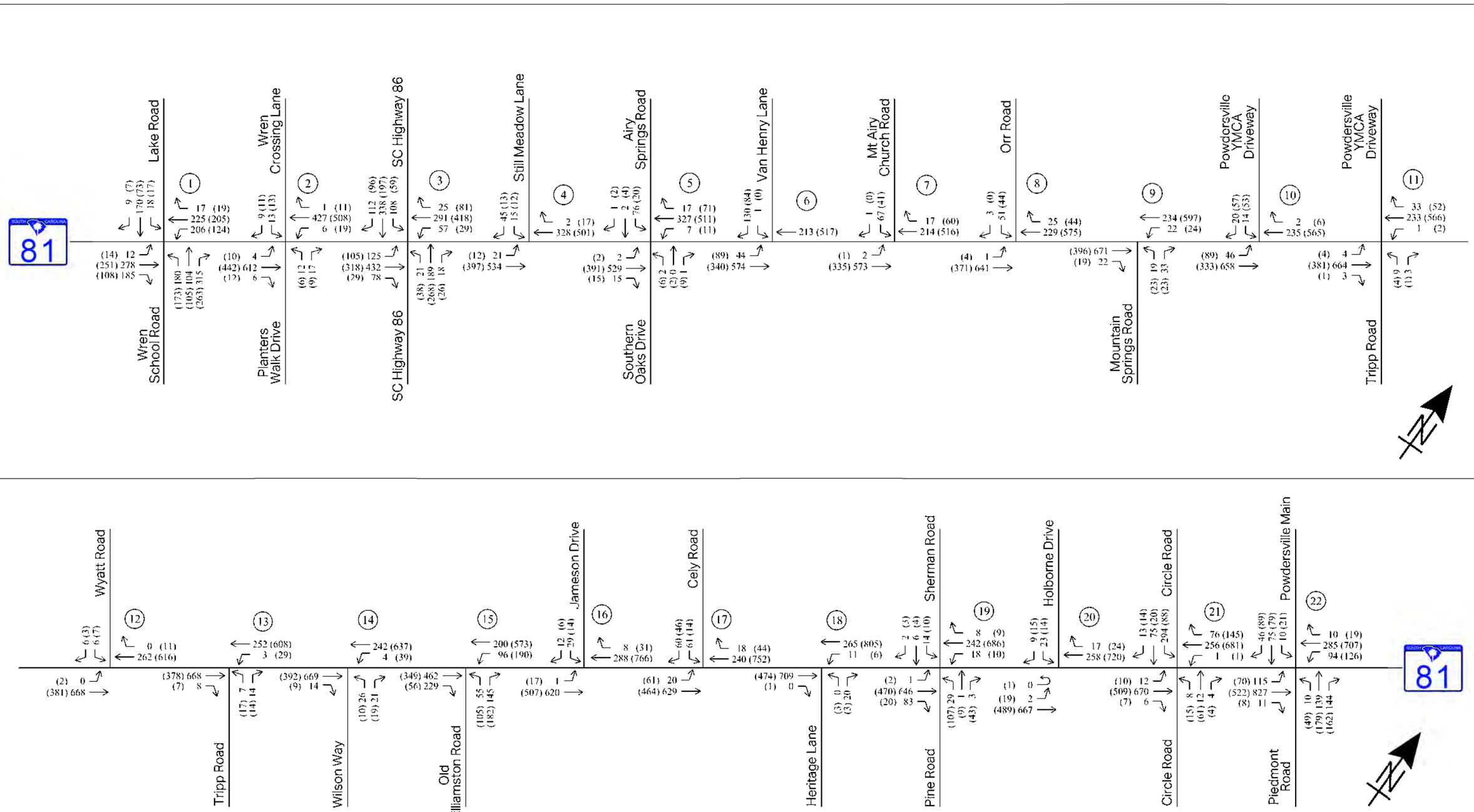
Based on the development potential, the zoning and planned future developments in the area and engineering judgement, a weighted annual average growth rate of 2.5% is considered appropriate and is expected to provide a more conservative projection and potentially more representative of the future growth over the area.

The SCDOT historic AADT information are included in **Appendix E**.

4.3 Planned Projects

There are currently plans to construct a new subdivision called Anderson Oaks which will affect a part of the southern end and add new driveways near the SC Highway 86 signal along both highways. The projected number of trips that will result in building this development was found to be 1,284 trips. The expected trips generated by this development is considered already included in the general background growth over the 20-year period addressed in this study.

Traffic volumes were projected to the future year 2028 and 2043. The projected 2028 peak hour traffic volumes are shown in **Figure 5.** The projected 2043 peak hour traffic volumes are shown in **Figure 6**.



SC Highway 81 Corridor Study

Figure 5 - Projected 2028 AM / PM Peak Hour Volumes

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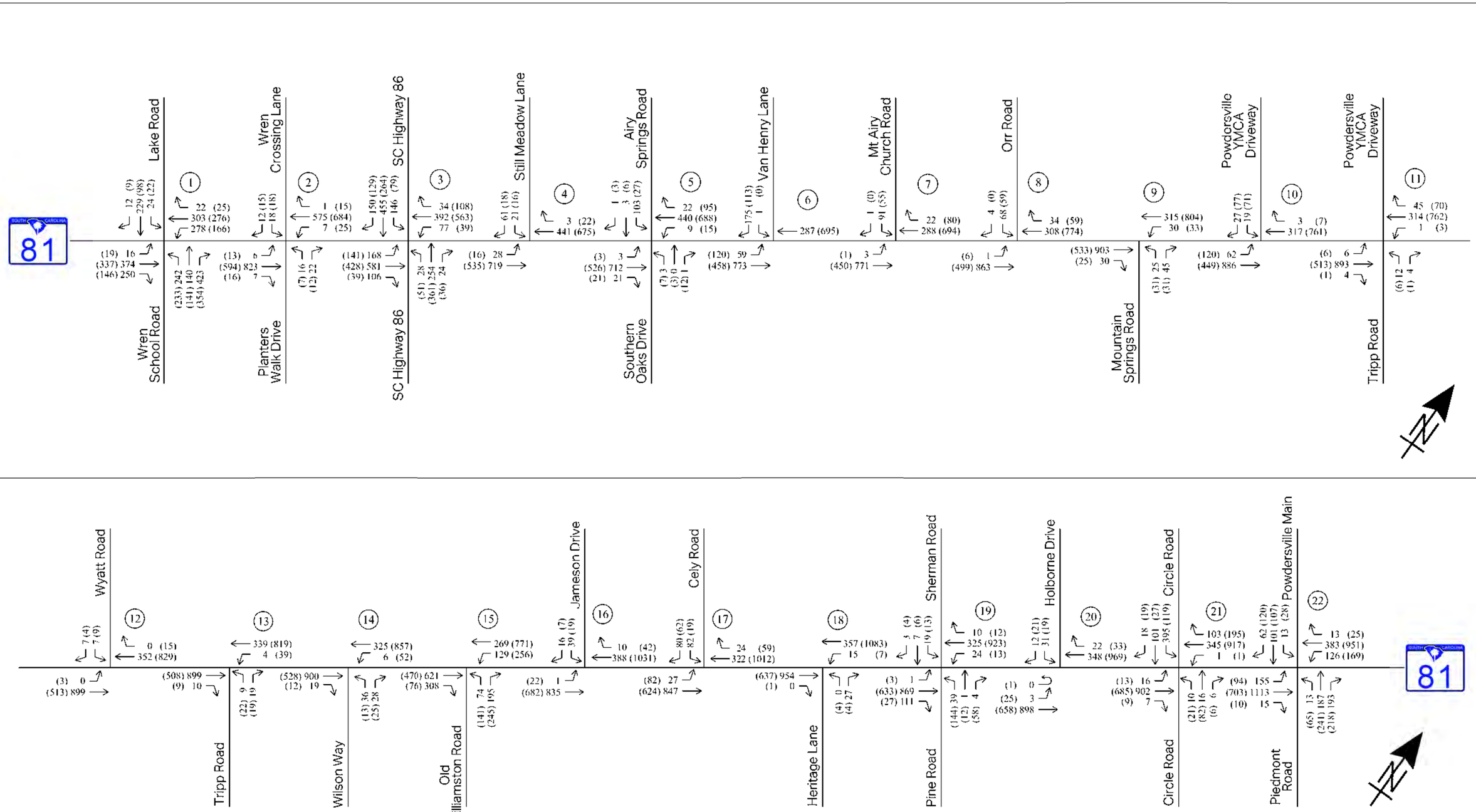

SC Highway 81 Corridor Study

Figure 6 - Projected 2043 AM / PM Peak Hour Volumes

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5. Public Involvement

Public involvement is crucial in identifying the concerns, needs, and priorities of transportation projects. Conducting a substantive and well-planned public outreach effort is also essential in determining and developing those priorities. An effective public involvement process increases community support and backing of projects and can lead to increased trust in local government. Conversely, poor public outreach efforts can cause stakeholders to view the process as merely "checking the box" leading to limited participation as well as increased concerns surrounding any potential projects.

As the SC Highway 81 Corridor Study was initiated a Public Involvement Plan was developed with several specified goals. These included:

- Stakeholder meetings with various business owners, technical staff, school officials, citizens, real estate developers and elected officials
- A project Wiki-Map interactive website for the corridor study
- Two public information meetings to provide information to the public on the project as well as engage the public in a meaningful way to receive vital input and feedback.

5.1 Stakeholder Meetings

The project team conducted several meetings with the stakeholder team throughout the project. The Stakeholder Groups were comprised of three groups including a Citizens Group, Government and Technical Group and the Project Team. The following entities were among those represented:

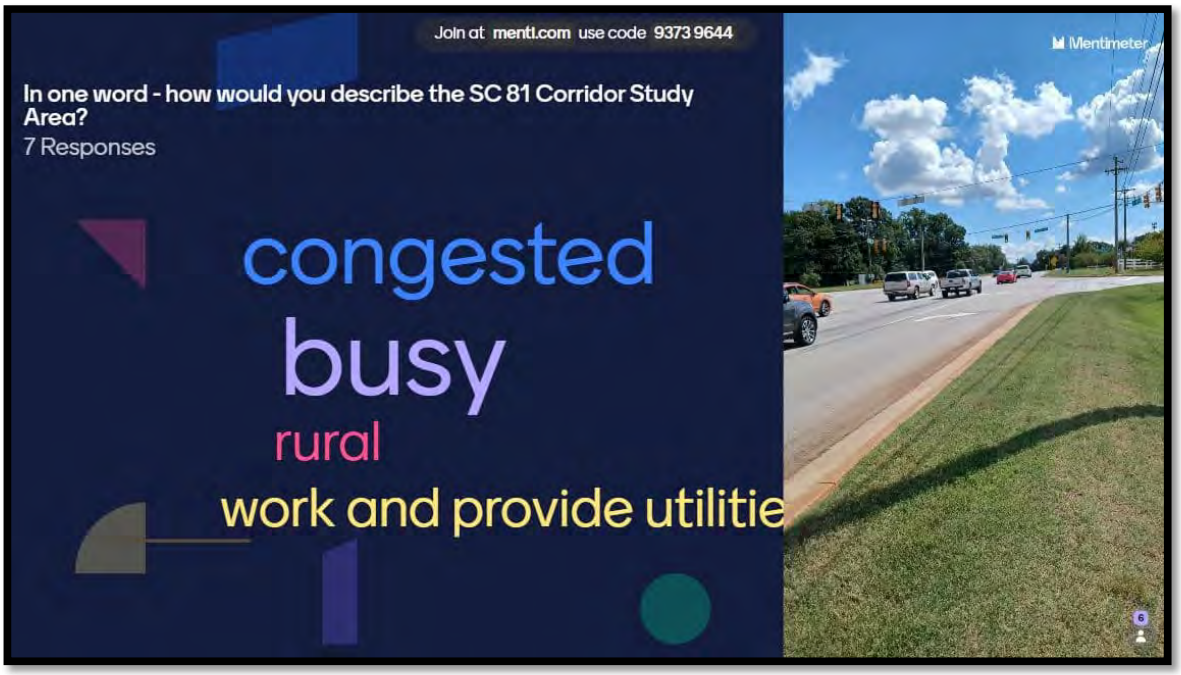
- Anderson County Planning
- Anderson County Engineering
- Anderson County Council
- Real Estate Representative
- Citizen Representatives
- Powdersville Water
- Anderson County School District 1
- GPATS MPO
- SCDOT

The groups met on September 7, 2023, and September 12, 2023, for interactive meetings with members of the project team. During these stakeholder meetings, members of the project team gave an overview of the corridor study and gathered feedback on important issues related to the study area which specifically included discussions on traffic, safety, and land use data, as well as other valuable input from the stakeholders. The stakeholder groups continued to provide input for the duration of the study. Equally important, these meetings allowed the project team to receive vital input and feedback during discussions with members of the stakeholder team.

Discussions also included a series of Menti-Poll questions that were asked of the Stakeholder Groups. These included:

- In one word how would you describe the SC Highway 81 Corridor Study Area?
- What is your association with the SC Highway 81 project corridor?

- What is your biggest concern along the corridor?
- What improvements would you like to see on this project corridor?
- In order of importance, what would you like to see along this corridor?

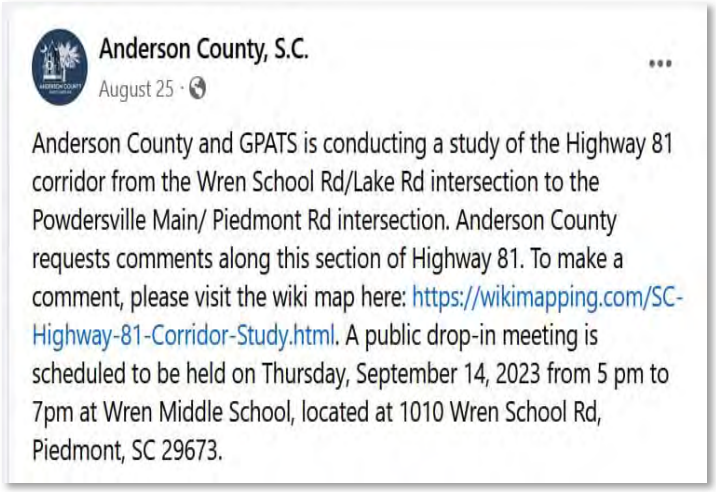


An additional meeting was held with the District 2 Traffic Engineer Representative from the South Carolina Department of Transportation to discuss the status of the study and present draft project recommendations. This meeting was crucial in helping to identify any concerns or issues the agency may have with the proposed improvements along the corridor.

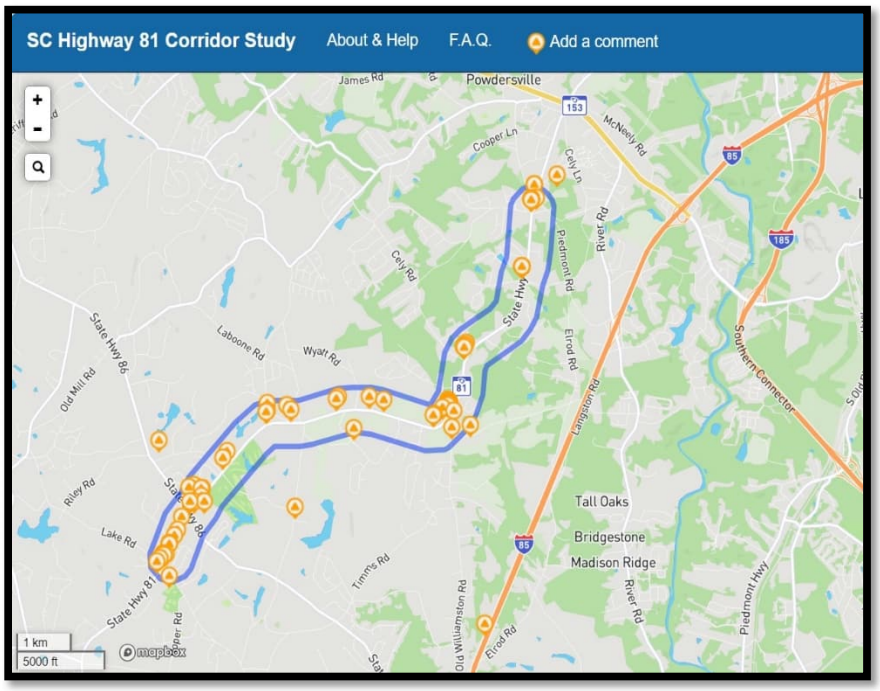
5.2 Public Information Meetings

The project team conducted two public information meetings, including one near the beginning of the study aimed at gaining feedback and input from the public on concerns and issues they deemed important. The second meeting occurred near the completion of the study and was used to present project recommendations and findings to the public. All public meeting display boards and tables summarizes comments can be found in **Appendix F**.

The **first meeting** was held on September 14, 2023, at Wren Middle School located at 1010 Wren School Road in Piedmont, South Carolina and was attended by 69 members of the public. The public was made aware of the meeting by a social media campaign including Facebook posts on the Anderson County government page as well as ten yard signs strategically placed at locations along the study area corridor. Additionally, as a result of this meeting 36 comment forms were obtained containing a breakout of 129 different feedback themes being mentioned.



The **second meeting** was held on December 12, 2023, also at Wren Middle School. It was attended by 52 members of the public. The public was made aware of the meeting once again by a social media campaign including Facebook posts on the Anderson County government page as well as 10 yard signs strategically placed at locations along the study area corridor. Additionally, as a result of this meeting 17 comment forms were obtained containing a breakout of 17 different feedback themes being mentioned. Public Information Meetings



A key component of the public involvement goals entailed the utilization of a SC Highway 81 Corridor Study Wiki Map website. Wiki Map is an internet-based mapping platform that allows participants to comment on suggested routes and notate their own specific recommendations on a shared interactive map. A press release was also created announcing the project and the location of the wiki map. This press release was shared with Anderson County and GPATS MPO for inclusion on their websites and social media outlets. For this study the Wiki Map was specifically tailored to the SC Highway 81 Corridor and was available for comments from August 10, 2023, through September 25, 2023.

The use of the SC Highway 81 Corridor Study Wiki Map website garnered a large response with a total of 116 visitors to the site including 74 leaving comments.

The Public Information Meeting attendance lists, handouts, press release, flyers, as well as comments received during the public comment periods from both meetings can be found in **Appendix F**.

6. Turn Lane Warrant Analysis

AECOM used SCDOT Turn Lane warrant guidelines to determine whether a left or right-turn lane should be considered along the corridor at the study intersections. **Table 5** provides a summary of the turn lane analysis results. Details of this analysis are shown in **Appendix G**.

Table 5 - Left and Right-Turn Lane Warrant Summary

Intersection	Turn Warrant Volume AM/PM		
	2023	2028	2043
1. Lake Rd / Wren School Rd - Signal			
Eastbound Left	Existing	Existing	Existing
Eastbound Right	No/No	No/No	No/No
Westbound Left	Existing	Existing	Existing
Westbound Right	Yes/Yes	Yes/Yes	Yes/Yes
Northbound Left	Existing	Existing	Existing
Northbound Right	Yes/Yes	Yes/Yes	Yes/Yes
Southbound Left	Existing	Existing	Existing
Southbound Right	No/No	No/No	No/No
2. Wren Crossing Ln / Planters Walk Dr			
Northbound Left	Yes/No	Yes/Yes	Yes/Yes
Southbound Left	No/No	Yes/Yes	Yes/Yes
3. SC Highway 86- Signal			
Eastbound Left	Existing	Existing	Existing
Eastbound Right	Yes/Yes	Yes/Yes	Yes/Yes
Westbound Left	Existing	Existing	Existing
Westbound Right	No/No	No/No	No/No
Northbound Left	Existing	Existing	Existing
Northbound Right	Yes/No	Yes/No	Yes/No
Southbound Left	Existing	Existing	Existing
Southbound Right	No/Yes	No/Yes	No/Yes
4. Still Meadow Ln			
Northbound Left	No/No	No/No	No/Yes
5. Airy Springs Rd / Southern Oaks Dr			
Northbound Left	No/No	Yes/Yes	Yes/Yes
Southbound Left	No/Yes	No/Yes	Yes/Yes
Southbound Right	No/No	No/Yes	Yes/Yes
6. Van Henry Ln			
Northbound Left	No/No	Yes/Yes	Yes/Yes
7. Mt. Airy Church Rd			
Northbound Left	No/No	No/No	Yes/Yes
Southbound Right	No/No	No/No	Yes/Yes
8. Orr Rd			
Northbound Left	No/No	Yes/No	Yes/Yes
Southbound Right	No/No	No/No	No/Yes
9. Mountain Springs Rd			
Southbound Left	No/Yes	No/Yes	Yes/Yes
10. Powdersville YMCA Dwy			
Northbound Left	Yes/No	Yes/Yes	Yes/Yes
11. Powdersville YMCA Dwy / Tripp Rd			
Northbound Left	Yes/No	Yes/No	Yes/Yes
Southbound Left	No/Yes	Yes/Yes	Yes/Yes

Table 5 (Continued) - Left and Right-Turn Lane Warrant Summary

Intersection	Turn Warrant Volume AM/PM		
	2023	2028	2043
12. Wyatt Rd			
Northbound Left	Yes/No	Yes/No	Yes/Yes
13. Tripp Rd			
Southbound Left	No/Yes	No/Yes	Yes/Yes
Southbound Right	No/No	No/No	No/Yes
14. Wilson Way			
Southbound left	No/Yes	No/Yes	Yes/Yes
15. Old Williamston Rd			
Northbound Right	Yes/No	Yes/No	Yes/Yes
Southbound Left	No/Yes	No/Yes	Yes/Yes
16. Jameson Dr			
Northbound Left	No/Yes	Yes/Yes	Yes/Yes
17. Cely Rd			
Northbound Left	No/Yes	Yes/Yes	Yes/Yes
Southbound Right	No/No	No/No	No/Yes
18. Heritage Ln			
Southbound Left	No/Yes	No/Yes	Yes/Yes
19. Sherman Rd / Pine Rd			
Northbound Right	Yes/No	Yes/No	Yes/Yes
Northbound Left	Yes/Yes	Yes/Yes	Yes/Yes
Southbound Left	No/Yes	No/Yes	Yes/Yes
20. Holborne Dr			
Northbound Left	Yes/Yes	Yes/Yes	Yes/Yes
21. Circle Rd- Signal			
Eastbound Left	Yes/Yes	Yes/Yes	Yes/Yes
Eastbound Right	No/No	No/No	No/No
Westbound Left	No/No	No/No	No/No
Westbound Right	No/No	No/No	No/No
Northbound Left	No/No	No/No	No/No
Northbound Right	No/No	No/No	No/No
Southbound Left	No/No	No/No	No/No
Southbound Right	Yes/Yes	Yes/Yes	Yes/Yes
22. Powdersville Main/Piedmont Rd - Signal			
Eastbound Left	Existing	Existing	Existing
Eastbound Right	No/No	No/Yes	Yes/Yes
Westbound Left	Existing	Existing	Existing
Westbound Right	Yes/Yes	Yes/Yes	Yes/Yes
Northbound Left	Existing	Existing	Existing
Northbound Right	No/No	No/No	No/No
Southbound Left	Existing	Existing	Existing
Southbound Right	Existing	Existing	Existing

7. Capacity Analysis

The traffic carrying ability of an uninterrupted flow roadway is described by levels-of-service (LOS) that range from LOS A to LOS F. LOS A represents unrestricted maneuverability and operating speeds. LOS B represents reduced maneuverability and operating speeds. LOS C represents restricted maneuverability and operating speeds closer to the speed limit. LOS D represents severely restricted maneuverability and unstable, low operating speeds. LOS E represents operating conditions at or near the capacity level. LOS F represents breakdown conditions characterized by stop and go travel. A visual representation of each LOS is shown below.

The Highway Capacity Manual (HCM) 6 also defines LOS at an unsignalized intersection by average control delay per vehicle, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue. Volume to capacity ratios is a metric used for unsignalized intersections because many stop controlled intersection may have a poor LOS, but do not warrant a traffic signal. Once the volume to capacity ratio exceeds 0.8, long delays and queuing are present.

The Highway Capacity Manual explains that drivers perceive that a signalized intersection is designed to carry higher traffic volumes and therefore expect to experience greater delays at signalized intersections. Unsignalized intersections are assigned a LOS for each minor movement. Typically, LOS C of LOS D is considered the minimum acceptable level of service at an intersection. **Table 6** defines the traffic flow conditions and approximate driver comfort level at each level of service.

Table 6 - Level of Service (LOS) Index

LOS	Traffic Flow Conditions	Delay (seconds) Signalized Intersections	Delay (seconds) Unsignalized Intersections
A	Progression is extremely favorable and most vehicles do not stop at all.	0-10	0-10
B	Good progression, some delay.	10-20	10-15
C	Fair progression, higher delay.	20-35	15-25
D	Unfavorable progression, congestion becomes apparent.	35-55	25-35
E	Unfavorable progression, congestion becomes apparent.	55-80	35-50
F	Poor progression, significant delay.	>80	>50

AECOM calculated the intersection LOS for each of the 22 project study intersections for existing and future conditions. The intersections were analyzed using Highway Capacity 6th Edition software and Synchro 11.1 (build 1, Rev 6) software. AECOM analyzed Existing 2023, No-Build 2028, No-Build 2043, Build 2028 Short-term, Build 2043 Short-term, Build 2043 Long-term traffic projections for the AM and PM peak hours.

To determine the necessary roadway improvements required for future development, a LOS "D" or better was the target value. Turn lane storage recommendations will accommodate the needs of 95th percentile queuing. Sim Traffic was used to estimate storage requirements by using the 95th percentile queuing.

Existing signal plans and timings for the four signalized study intersections were provided to AECOM by SCDOT. Signal phasing, timing, minimum green, and clearance times for the analysis are based on the existing signal plan as shown in **Appendix H**.

7.1 Existing 2023 Condition Analysis

AECOM analyzed the Existing 2023 traffic conditions during the AM and PM peak hours at each of the study intersections. The results are summarized **Table 7** and shown visually in **Figure 6.**

Analysis indicates that the following locations are expected to operate at LOS E or LOS F or have queuing issues:

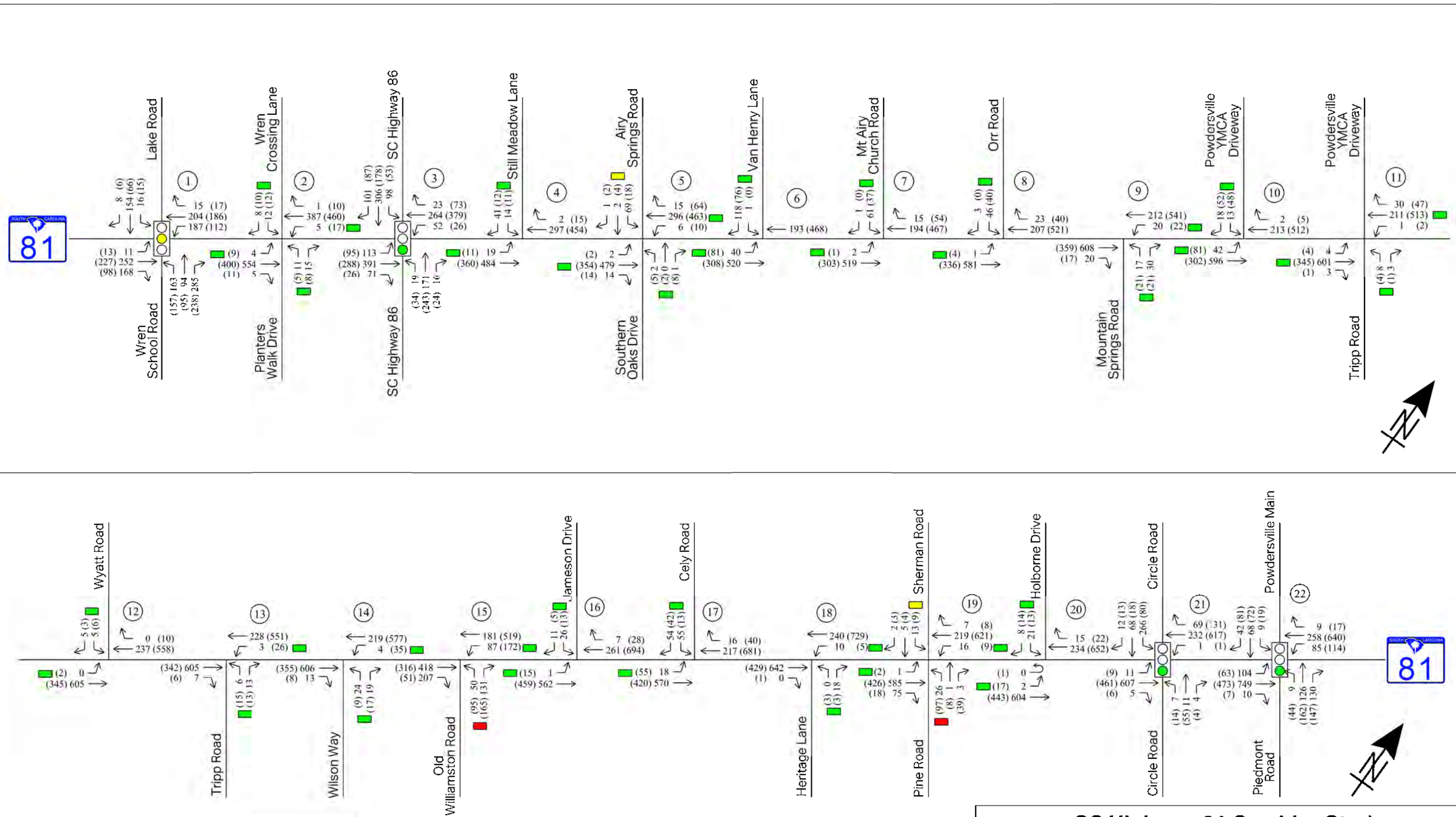
- At the intersection of SC 81 and Wren School Road, the westbound approach currently operates at LOS E during the AM Peak hour.
- At the intersection of SC 81 and Old Williamston Road, vehicles entering the westbound approach tend to queue significantly and operate at a LOS D in the AM Peak hour and a failing LOS F in the PM Peak hour.
- At the intersection of SC 81 and Pine Road / Sherman Road, vehicles entering the westbound approach tend to queue significantly and operate at a LOS D in the AM Peak hour and a near-failing LOS E in the PM Peak hour.

Table 7 - Existing 2023 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**D**	**C**	**43.3**	**21.2**
		EB Approach	D	C	40.5	24.4
		WB Approach	E	B	59.8	19.7
		NB Approach	D	C	43.3	27.9
		SB Approach	C	B	22.4	15.6
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	C	C	22.9	21.2
		WB Approach	C	C	20.8	17.5
		NB Left	A	A	8.3	8.6
		SB Left	A	A	8.9	8.4
3	SC Highway 81 at SC Highway 86	**Overall**	**B**	**B**	**17.9**	**14.6**
		EB Approach	C	B	22.4	17.0
		WB Approach	B	B	14.7	16.7
		NB Approach	B	B	17.6	12.9
		SB Approach	B	B	13.9	13.1
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	B	C	13.3	15.7
		NB Left	A	A	8.0	8.5
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	D	C	26.2	23.2
		WB Approach	C	C	17.1	16.4
		NB Left	A	A	8.0	8.7
		SB Left	A	A	8.6	8.2
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	B	10.3	12.5
		NB Left	A	A	7.7	8.7
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	C	C	18.7	16.8
		NB Left	A	A	7.7	8.5
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	C	C	19.4	18.6
		NB Left	A	A	7.8	8.6
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	C	C	17.8	15.5
		SB Left	A	A	9.4	8.2
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	B	C	14.6	20.0
		NB Left	A	A	7.8	8.7
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd (Unsignalized)	WB Approach	C	C	17.7	15.6
		NB Left	A	A	7.8	8.6
		SB Left	A	A	9.0	8.7

Table 7 (Continued) - Existing 2023 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	B	C	14.2	16.2
		NB Left	A	A	0.0	8.6
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	C	C	15.6	15.6
		SB Left	A	A	9.1	8.1
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	C	B	18.9	14.2
		SB Left	A	A	9.2	8.1
15	SC Highway 81 at Old Williamston Rd (Unsignalized)	WB Approach	D	F	29.2	66.5
		SB Left	A	A	9.9	8.6
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	C	C	16.6	23.9
		NB Left	A	A	7.9	9.4
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	C	C	17.5	18.7
		NB Left	A	A	7.9	9.4
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	B	C	14.5	16.9
		SB Left	A	A	9.2	8.2
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	C	D	22.6	25.0
		WB Approach	D	E	25.3	47.9
		NB Left	A	A	7.7	8.8
		SB Left	A	A	9.4	8.4
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	C	C	16.6	18.8
		NB Left	A	A	7.8	9.0
21	SC Highway 81 at Circle Rd 	**Overall**	**C**	**C**	**34.3**	**21.3**
		EB Approach	D	C	54.0	33.9
		WB Approach	D	C	43.7	33.3
		NB Approach	C	B	30.8	14.5
		SB Approach	B	C	18.2	22.5
22	SC Highway 81 at Powdersville Main / Piedmont Rd 	**Overall**	**B**	**B**	**15.0**	**17.0**
		EB Approach	B	B	16.6	18.6
		WB Approach	C	C	21.3	26.2
		NB Approach	B	B	13.5	11.1
		SB Approach	B	B	13.4	16.6



SC Highway 81 Corridor Study

Figure 7 - Existing 2023 AM / PM Peak Hour Volumes & LOS

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AECOM also analyzed the Existing 2023 95th percentile queues at each intersection as shown below in **Table 8**. All existing turn lanes currently provide adequate storage along SC Highway 81. Notable queues include vehicles entering SC Highway 81 from Old Williamston Road currently extend approximately 250 feet during the PM peak hour and eastbound approach from Circle Road vehicle queue extending 281 feet during the AM Peak hour.

Table 8 - Existing 2023 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	225	32	29
Westbound Left	250	145	127
Northbound Left	150	21	17
Southbound Left	275	134	64
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		43	39
Westbound Approach		43	31
3. SC Highway 86			
Eastbound Left	200	80	49
Westbound Left	200	35	47
Northbound Left	200	137	82
Southbound Left	200	69	39
4. Still Meadow Ln			
Eastbound Approach		45	36
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		63	44
Westbound Approach		9	30
6. Van Henry Ln			
Eastbound Approach		73	55
7. Mt. Airy Church Rd			
Eastbound Approach		58	52
8. Orr Rd			
Eastbound Approach		51	53
9. Mountain Springs Rd			
Westbound Approach		47	44
10. Powdersville YMCA Dwy			
Eastbound Approach		43	62
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		12	7
12. Wyatt Rd			
Eastbound Approach		26	31
13. Tripp Rd			
Westbound Approach		38	39
14. Wilson Way			
Westbound Approach		49	50
15. Old Williamston Rd			
Westbound Approach		118	247
16. Jameson Dr			
Eastbound Approach		46	42

Table 8 (Continued) - Existing 2023 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
17. Cely Rd			
Eastbound Approach		68	47
Northbound Approach		33	100
18. Heritage Ln			
Westbound Approach		36	22
19. Sherman Rd / Pine Rd			
Eastbound Approach		41	37
Westbound Approach		45	113
20. Holborne Dr			
Eastbound Approach		38	48
21. Circle Rd			
Eastbound Approach		281	95
Westbound Approach		42	73
Northbound Approach		349	260
Southbound Approach		204	433
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	14	39
Westbound Left	150	23	46
Northbound Left	100	69	101
Southbound Left	200	80	70
Southbound Right		13	25

The Synchro and Sim Traffic outputs for the Existing 2023 conditions analysis are included in **Appendix I**.

7.2 No-Build 2028 Condition Analysis

AECOM analyzed the projected No-Build 2028 traffic conditions during the AM and PM peak hours at each study intersection. The No Build condition assumes all geometry and traffic control remain the same as the current 2023 condition. The results are summarized **Table 9** and shown visually in **Figure 8**.

Analysis indicates that all the study intersections currently operate at acceptable levels of services except the following locations where capacity issues are noted:

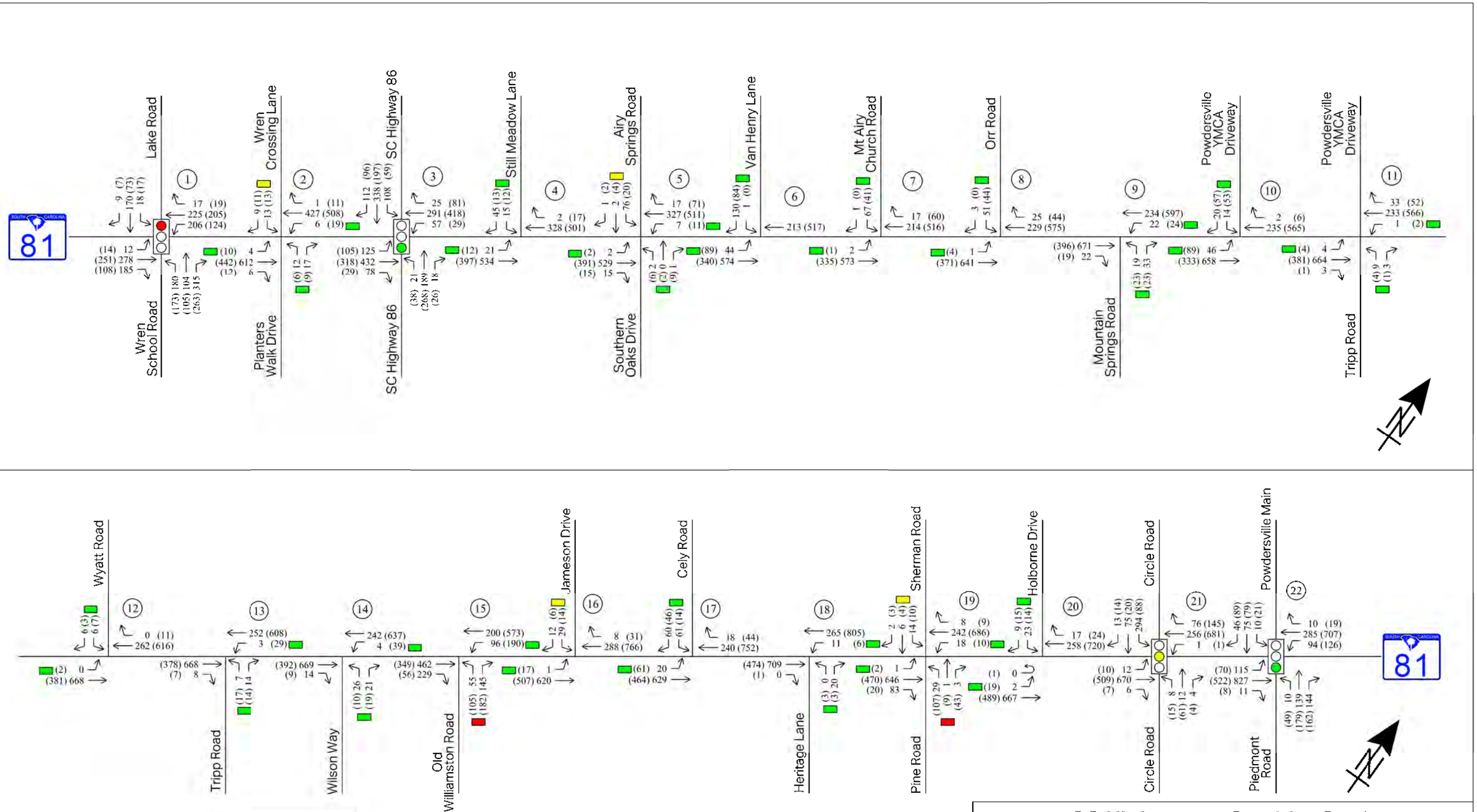
- At the intersection of SC Highway 81 and Wren School Road, the overall LOS is expected to be LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Old Williamston Road, vehicles entering the westbound approach are expected to operate at a LOS E in the AM Peak hour and a failing LOS F in the PM Peak hour with moderate queuing.
- At the intersection of SC Highway 81 and Pine Road / Sherman Road, vehicles entering the westbound approach are expected operate at a LOS F in the PM Peak hour.
- At the intersection of SC 81 and Circle Road, vehicles entering the eastbound approach tend to queue significantly and operate at a near-failing LOS E in the AM Peak hour.

Table 9 - No-Build 2028 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**E**	**C**	**65.8**	**24.4**
		EB Approach	D	C	48.3	27.6
		WB Approach	F	C	87.3	23.8
		NB Approach	E	C	73.3	32.2
		SB Approach	D	B	36.6	16.3
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	D	C	27.3	24.9
		WB Approach	C	C	24.3	20.3
		NB Left	A	A	8.4	8.8
		SB Left	A	A	9.2	8.6
3	SC Highway 81 at SC Highway 86	**Overall**	**C**	**B**	**22.1**	**16.5**
		EB Approach	C	C	29.2	20.9
		WB Approach	B	C	16.3	20.2
		NB Approach	C	B	21.8	13.2
		SB Approach	B	B	15.6	14.0
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	B	C	14.3	17.2
		NB Left	A	A	8.1	8.7
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	D	D	33.5	27.5
		WB Approach	C	C	19.0	18.4
		NB Left	A	A	8.1	8.9
		SB Left	A	A	8.8	8.3
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	B	10.6	13.3
		NB Left	A	A	7.8	8.9
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	C	C	21.5	18.7
		NB Left	A	A	7.8	8.6
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	C	C	22.4	21.1
		NB Left	A	A	7.8	8.8
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	C	C	20.3	17.1
		SB Left	A	A	9.7	8.3
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	C	C	16.0	24.2
		NB Left	A	A	7.9	9.0
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd (Unsignalized)	WB Approach	C	C	19.8	17.1
		NB Left	A	A	7.9	8.8
		SB Left	A	A	9.2	8.8

Table 9 (Continued) - No-Build 2028 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	C	C	15.4	18.0
		NB Left	A	A	0.0	8.8
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	C	C	17.3	17.5
		SB Left	A	A	9.4	8.2
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	C	C	21.6	15.6
		SB Left	A	A	9.5	8.2
15	SC Highway 81 at Old Williamston Rd (Unsignalized)	WB Approach	E	F	45.0	161.3
		SB Left	B	A	10.4	8.8
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	C	D	18.6	28.0
		NB Left	A	A	7.9	9.7
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	C	C	20.7	21.7
		NB Left	A	A	8.0	9.8
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	C	C	15.7	18.8
		SB Left	A	A	9.5	8.3
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	D	D	26.8	30.4
		WB Approach	D	F	31.2	87.9
		NB Left	A	A	7.8	9.0
		SB Left	A	A	9.7	8.6
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	C	C	18.4	21.5
		NB Left	A	A	7.9	9.3
21	SC Highway 81 at Circle Rd 	**Overall**	**D**	**C**	**44.6**	**24.0**
		EB Approach	E	D	73.5	39.0
		WB Approach	D	D	47.0	37.3
		NB Approach	D	B	40.5	14.4
		SB Approach	B	C	19.9	26.5
22	SC Highway 81 at Powdersville Main / Piedmont Rd 	**Overall**	**B**	**C**	**16.3**	**20.6**
		EB Approach	B	C	18.5	20.7
		WB Approach	C	D	28.2	38.1
		NB Approach	B	B	13.5	11.2
		SB Approach	B	B	13.7	19.1



SC Highway 81 Corridor Study

Figure 8 - No-Build 2028 AM / PM Peak Hour Volumes & LOS

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February 2024

AECOM also analyzed the No- Build 2028 95th percentile queues at each intersection as shown below in **Table 10**.

Table 10 - No-Build 2028 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	225	68	30
Westbound Left	250	160	147
Northbound Left	150	22	32
Southbound Left	275	134	97
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		50	46
Westbound Approach		43	34
3. SC Highway 86			
Eastbound Left	200	104	74
Westbound Left	200	36	53
Northbound Left	200	113	109
Southbound Left	200	64	27
4. Still Meadow Ln			
Eastbound Approach		43	40
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		64	44
Westbound Approach		0	32
6. Van Henry Ln			
Eastbound Approach		71	69
7. Mt. Airy Church Rd			
Eastbound Approach		68	69
8. Orr Rd			
Eastbound Approach		63	45
9. Mountain Springs Rd			
Westbound Approach		46	47
10. Powdersville YMCA Dwy			
Eastbound Approach		42	58
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		19	8
12. Wyatt Rd			
Eastbound Approach		25	21
13. Tripp Rd			
Westbound Approach		37	38
14. Wilson Way			
Westbound Approach		47	45
15. Old Williamston Rd			
Westbound Approach		162	353
16. Jameson Dr			
Eastbound Approach		43	54
17. Cely Rd			
Eastbound Approach		61	46
Northbound Approach		23	202
18. Heritage Ln			
Westbound Approach		37	16

Table 10 (Continued) - No-Build 2028 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
19. Sherman Rd / Pine Rd			
Eastbound Approach		43	34
Westbound Approach		44	133
20. Holborne Dr			
Eastbound Approach		52	54
21. Circle Rd			
Eastbound Approach		264	136
Westbound Approach		47	115
Northbound Approach		376	346
Southbound Approach		190	525
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	14	30
Westbound Left	150	17	63
Northbound Left	100	91	67
Southbound Left	200	82	142
Southbound Right		14	20

The Synchro and Sim Traffic outputs for the No-Build 2028 conditions analysis are included in **Appendix J**.

7.3 No-Build 2043 Condition Analysis

AECOM analyzed the No-Build 2043 traffic conditions during the AM and PM peak hours at each study intersections. The results are summarized in **Table 11** and shown visually in **Figure 8**.

Analysis indicates that the following locations are expected to operate at LOS E or LOS F or have a queuing issue:

- At the intersection of SC Highway 81 and Wren School Road, the overall operation is expected to be LOS F in the AM peak hour and LOS E during the PM peak hour with significant queuing along SC Highway 81. The westbound left-turn lane on Wren School Road and southbound left-turn lane on SC Highway 81 queues exceed the existing storage provided in the AM peak hour.

- At the intersection of SC Highway 81 and Wren Crossing Lane / Planters Walk Drive, both minor street approaches are expected to operate at LOS F in the AM and PM peak hours.

- At the intersection of SC Highway 81 and SC 86, the overall operation is expected to be LOS E in the AM peak hour. The eastbound left-turn lane on SC 86 and northbound and southbound left-turn lanes on SC Highway 81 queues exceeded the existing storage provided.

- At the intersection of SC Highway 81 and Airy Springs Road / Southern Oaks Drive, the Airy Springs Road approach is expected to operate at LOS F in the AM and PM peak hours.

- At the intersection of SC Highway 81 and Mt Airy Chuch Road, the minor street approach is expected to operate at LOS E in the AM peak hour.

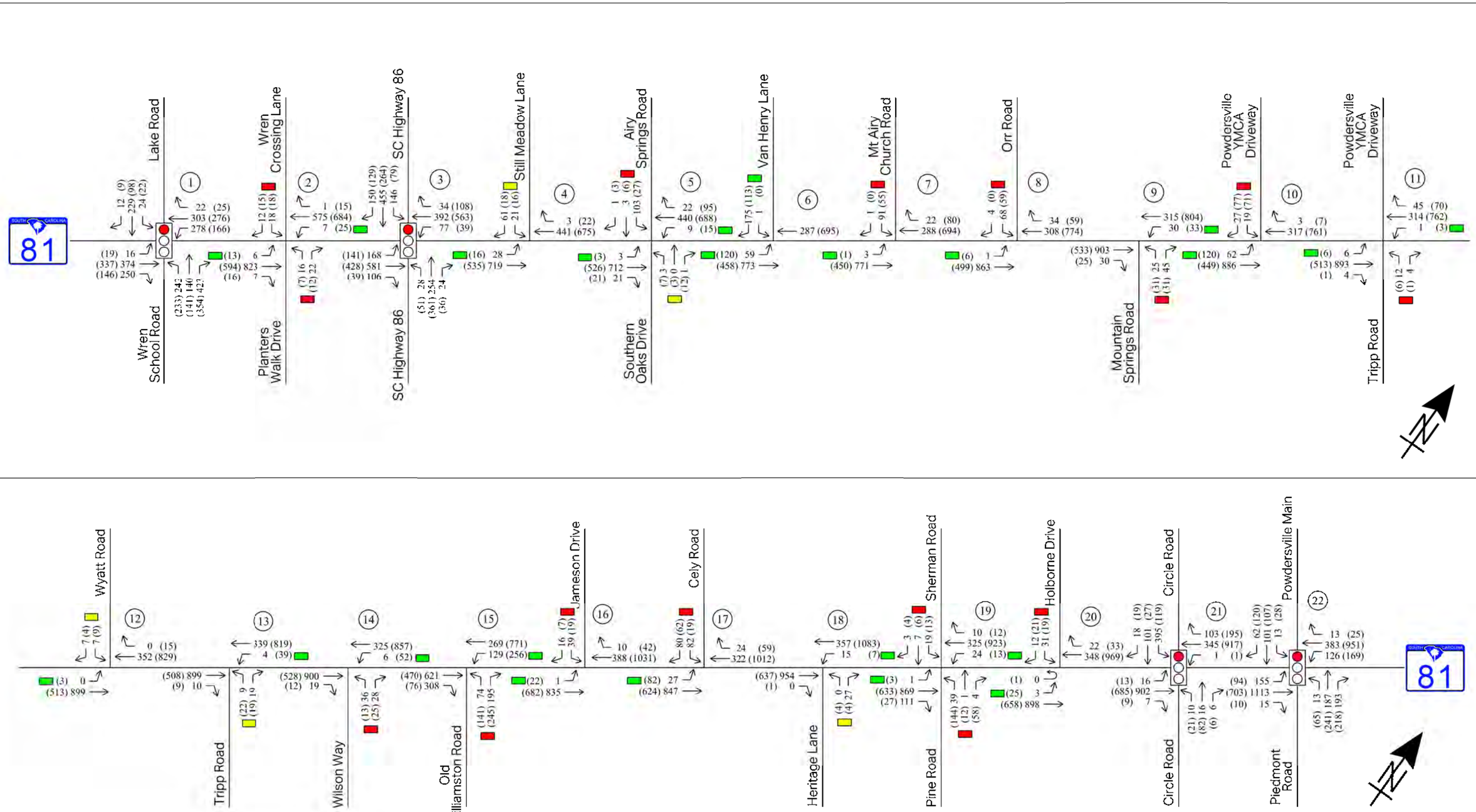
- At the intersection of SC Highway 81 and Orr Road, the minor street approach is expected to operate at LOS E in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Mountains Spring Road, the minor street approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Powdersville YMCA Driveway, the minor street approach is expected to operate at LOS F in the PM peak hour.
- At the intersection of SC Highway 81 and Powdersville YMCA Driveway / Tripp Road, the Tripp Road approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Wilson Way, the minor street approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Old Williamston Road, the minor street approach is expected to be LOS F in the AM and PM peak hours with significant queueing.
- At the intersection of SC Highway 81 and Jameson Drive, the minor street approach is expected to operate at LOS F in the PM peak hour.
- At the intersection of SC Highway 81 and Cely Road, the minor street approach is expected to operate at LOS F in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Sherman Road / Pine Road, both minor street approaches are expected to be LOS F in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Holborne Drive, the minor street approach is expected to operate at LOS F in the PM peak hour.
- At the intersection of SC Highway 81 and Circle Road, the overall operation is expected to be LOS F in the AM Peak hour. Significant queuing along eastbound Circle Road and SC Highway 81 on both northbound and southbound approaches is expected.
- At the intersection of SC Highway 81 and Powdersville Main / Piedmont Road, the overall operation is expected to be LOS E in the PM peak hour. The northbound left-turn lane and southbound left-turn lane on SC Highway 81 queues exceed the existing storage provided.

Table 11 - No-Build 2043 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**F**	**E**	**167.0**	**59.0**
		EB Approach	D	D	52.2	37.2
		WB Approach	E	D	73.3	37.8
		NB Approach	F	F	284.9	122.0
		SB Approach	F	C	217.7	30.2
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	F	F	70.0	56.9
		WB Approach	F	E	54.6	35.0
		NB Left	A	A	9.0	9.6
		SB Left	B	A	10.3	9.3
3	SC Highway 81 at SC Highway 86	**Overall**	**E**	**D**	**60.1**	**37.7**
		EB Approach	D	C	46.5	33.1
		WB Approach	C	C	26.8	31.8
		NB Approach	E	D	71.5	52.0
		SB Approach	F	C	81.3	32.2
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	C	D	21.7	26.5
		NB Left	A	A	8.5	9.5
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	F	F	152.0	62.5
		WB Approach	D	D	31.2	29.5
		NB Left	A	A	8.4	9.7
		SB Left	A	A	9.5	8.8
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	C	12.1	17.8
		NB Left	A	A	8.1	10.0
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	E	D	47.3	30.5
		NB Left	A	A	8.0	9.3
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	E	E	47.4	39.3
		NB Left	A	A	8.1	9.6
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	E	D	39.8	28.7
		SB Left	B	A	11.2	8.8
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	D	F	26.2	91.1
		NB Left	A	B	8.2	10.0
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd (Unsignalized)	WB Approach	E	D	40.1	31.7
		NB Left	A	A	8.1	9.5
		SB Left	B	A	10.3	9.3

Table 11 (Continued) - No Build 2043 Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	C	D	21.5	26.5
		NB Left	A	A	0.0	9.7
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	D	D	25.9	28.2
		SB Left	B	A	10.6	8.7
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	E	C	44.6	23.4
		SB Left	B	A	10.8	8.7
15	SC Highway 81 at Old Williamston Rd (Unsignalized)	WB Approach	F	F	407.5	1323.0
		SB Left	B	A	12.8	9.8
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	D	F	31.9	64.1
		NB Left	A	B	8.2	11.2
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	F	F	61.7	53.2
		NB Left	A	B	8.2	11.5
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	C	D	21.8	29.9
		SB Left	B	A	10.8	8.8
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	F	F	55.8	75.1
		WB Approach	F	F	87.3	710.1
		NB Left	A	B	8.0	10.0
		SB Left	B	A	11.2	9.2
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	D	E	30.6	40.8
		NB Left	A	B	8.1	10.5
21	SC Highway 81 at Circle Rd 	**Overall**	**F**	**D**	**120.5**	**55.0**
		EB Approach	F	D	198.4	53.4
		WB Approach	E	D	56.6	48.7
		NB Approach	F	B	125.5	17.8
		SB Approach	C	E	25.1	79.5
22	SC Highway 81 at Powdersville Main / Piedmont Rd 	**Overall**	**C**	**E**	**28.1**	**58.0**
		EB Approach	C	C	28.5	29.2
		WB Approach	D	D	46.8	47.2
		NB Approach	C	D	20.7	51.1
		SB Approach	C	E	31.9	74.2



SC Highway 81 Corridor Study

Figure 9 - No-Build 2043 AM / PM Peak Hour Volumes & LOS

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AECOM also analyzed the No Build 2043 95th percentile queues at each intersection as shown below in **Table 12**.

Table 12 - No-Build 2043 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	225	61	39
Westbound Left	250	325	166
Northbound Left	150	150	128
Southbound Left	275	435	108
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		46	58
Westbound Approach		51	39
3. SC Highway 86			
Eastbound Left	200	249	85
Westbound Left	200	71	66
Northbound Left	200	312	281
Southbound Left	200	279	33
4. Still Meadow Ln			
Eastbound Approach		58	42
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		93	46
Westbound Approach		9	37
6. Van Henry Ln			
Eastbound Approach		102	113
7. Mt. Airy Church Rd			
Eastbound Approach		87	92
8. Orr Rd			
Eastbound Approach		89	59
9. Mountain Springs Rd			
Westbound Approach		70	57
10. Powdersville YMCA Dwy			
Eastbound Approach		49	82
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		21	8
12. Wyatt Rd			
Eastbound Approach		29	27
13. Tripp Rd			
Westbound Approach		45	51
14. Wilson Way			
Westbound Approach		70	51
15. Old Williamston Rd			
Westbound Approach		782	629
16. Jameson Dr			
Eastbound Approach		43	52
17. Cely Rd			
Eastbound Approach		98	89
Northbound Approach		68	185
18. Heritage Ln			
Westbound Approach		56	37

Table 12 (Continued) - No-Build 2043 Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
19. Sherman Rd / Pine Rd			
Eastbound Approach		53	42
Westbound Approach		75	432
20. Holborne Dr			
Eastbound Approach		55	68
21. Circle Rd			
Eastbound Approach		913	205
Westbound Approach		50	133
Northbound Approach		1533	1348
Southbound Approach		499	716
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	16	32
Westbound Left	150	22	132
Northbound Left	100	148	170
Southbound Left	200	172	422
Southbound Right		20	636

The Synchro and Sim Traffic outputs for the No-Build 2043 conditions analysis are included in **Appendix K**.

7.4 Build 2028 Short-Term Condition Analysis

AECOM analyzed the Build 2028 traffic conditions during the AM and PM peak hours at each of the study intersections. As indicated, some of the study intersections are expected to operate at failing or near failing conditions in 2028 if no improvements in the vicinity are constructed. AECOM examined different alternatives to improve the traffic operations within the area. Based on our analysis, the following improvements were considered and assumed in the Build 2028 Short-Term condition as shown visually in **Figure 10.** The following is a summary of the short-term improvements recommended to implement by 2028.

Lake Road / Wren School Road

- Install a northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install a westbound right-turn lane on Wren School Road with 225 feet of storage.

SC Highway 86

- Install northbound left-turn protected/permissive phase on SC Highway 81.

Van Henry Lane

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Powdersville YMCA Driveway

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Old Williamston Road

- Install a new signal.
- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a westbound left turn lane on Old Williamston Road with 150 feet of storage.
- Install a northbound right turn lane on SC Highway 81 with 150 feet of storage.

Cely Road

- Install a 100 feet northbound bypass lane on SC Highway 81.

Sherman Road / Pine Road

- Install a westbound right-turn lane on Pine Road with 100 feet of storage.

Circle Road

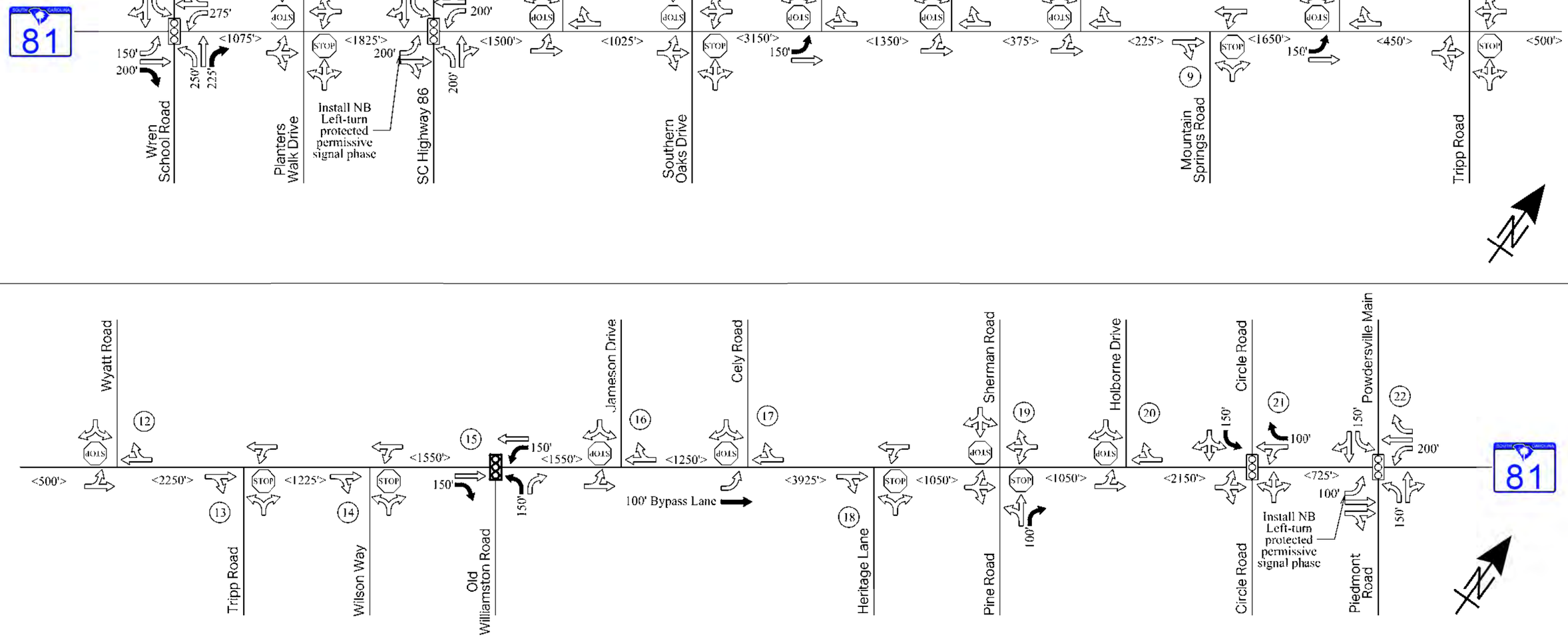
- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Install an eastbound left-turn lane on Circle Road with 150 feet of storage and restripe other eastbound lane as a shared left / thru / right-turn lane.

Powdersville Main / Piedmont Road

- Install northbound left-turn protected/permissive phase on SC Highway 81.

AECOM analyzed the Build 2028 Short-Term traffic conditions during the AM and PM peak hours at each study intersections with the above recommendations. The results are summarized in **Table 13** and visually shown in **Figure 11**. Analysis indicates that he following locations are expected to operate at LOS E or LOS F or have queuing issues:

- At the intersection of SC Highway 81 and Sherman Road / Pine Road, the Pine Road approach is expected to be LOS E in the PM peak hours.
- At the intersection of SC Highway 81 and Powdersville Main / Piedmont Road, the westbound approach along Piedmont is expected to operate at LOS F in the PM peak hour. The southbound left-turn storage is also expected to be exceeded by the 95th percentile queue.



LEGEND

- Existing Laneage
- Proposed Laneage
- (##) Intersection Number
- Existing Signal
- Proposed Signal
- STOP Existing Stop Sign
- ##' Storage Length
- <##'> Distance Between Intersections

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Figure 10 - Build 2028 Short-Term Lane Configuration

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Table 13 - Build 2028 Short-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**C**	**B**	**23.0**	**15.8**
		EB Approach	D	C	39.9	26.9
		WB Approach	B	B	18.2	14.0
		NB Approach	C	B	26.6	19.1
		SB Approach	B	B	18.4	12.2
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	D	C	27.3	24.9
		WB Approach	C	C	24.3	20.3
		NB Left	A	A	8.4	8.8
		SB Left	A	A	9.2	8.6
3	SC Highway 81 at SC Highway 86	**Overall**	**C**	**C**	**20.9**	**20.1**
		EB Approach	C	C	22.7	24.7
		WB Approach	B	C	16.6	23.9
		NB Approach	B	B	17.6	10.7
		SB Approach	C	C	26.4	22.8
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	B	C	14.3	17.2
		NB Left	A	A	8.1	8.7
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	D	D	33.5	27.5
		WB Approach	C	C	19.0	18.4
		NB Left	A	A	8.1	8.9
		SB Left	A	A	8.8	8.3
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	B	10.6	13.3
		NB Left	A	A	7.8	8.9
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	C	C	21.5	18.7
		NB Left	A	A	7.8	8.6
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	C	C	22.4	21.1
		NB Left	A	A	7.8	8.8
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	C	C	20.3	17.1
		SB Left	A	A	9.7	8.3
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	B	C	12.8	16.8
		NB Left	A	A	7.9	9.0
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd (Unsignalized)	WB Approach	C	C	19.8	17.1
		NB Left	A	A	7.9	8.8
		SB Left	A	A	9.2	8.8

Table 13 (Continued) - Build 2028 Short-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	C	C	15.4	18.0
		NB Left	A	A	0.0	8.8
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	C	C	17.3	17.5
		SB Left	A	A	9.4	8.2
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	C	C	21.6	15.6
		SB Left	A	A	9.5	8.2
15	SC Highway 81 at Old Williamston Rd 	**Overall**	**B**	**B**	**11.5**	**10.3**
		WB Approach	B	B	16.6	13.9
		NB Approach	B	B	12.3	13.4
		SB Approach	A	A	6.0	7.2
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	C	D	18.6	28.0
		NB Left	A	A	7.9	9.7
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	C	C	20.4	21.5
		NB Left	A	A	8.0	9.8
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	C	C	15.7	18.8
		SB Left	A	A	9.5	8.3
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	D	D	26.8	30.4
		WB Approach	D	E	30.7	49.5
		NB Left	A	A	7.8	9.0
		SB Left	A	A	9.7	8.6
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	C	C	18.4	21.5
		NB Left	A	A	7.9	9.3
21	SC Highway 81 at Circle Rd 	**Overall**	**C**	**A**	**23.8**	**9.7**
		EB Approach	D	D	50.2	46.6
		WB Approach	D	D	52.1	51.7
		NB Approach	B	A	17.9	8.0
		SB Approach	A	A	0.5	0.8
22	SC Highway 81 at Powdersville Main / Piedmont Rd 	**Overall**	**B**	**D**	**19.5**	**36.5**
		EB Approach	C	C	31.2	34.3
		WB Approach	D	F	52.7	87.5
		NB Approach	A	A	2.0	3.7
		SB Approach	C	D	33.4	36.9

AECOM also analyzed the Build 2028 Short-Term 95th percentile queues at each intersection as shown below in **Table 14**.

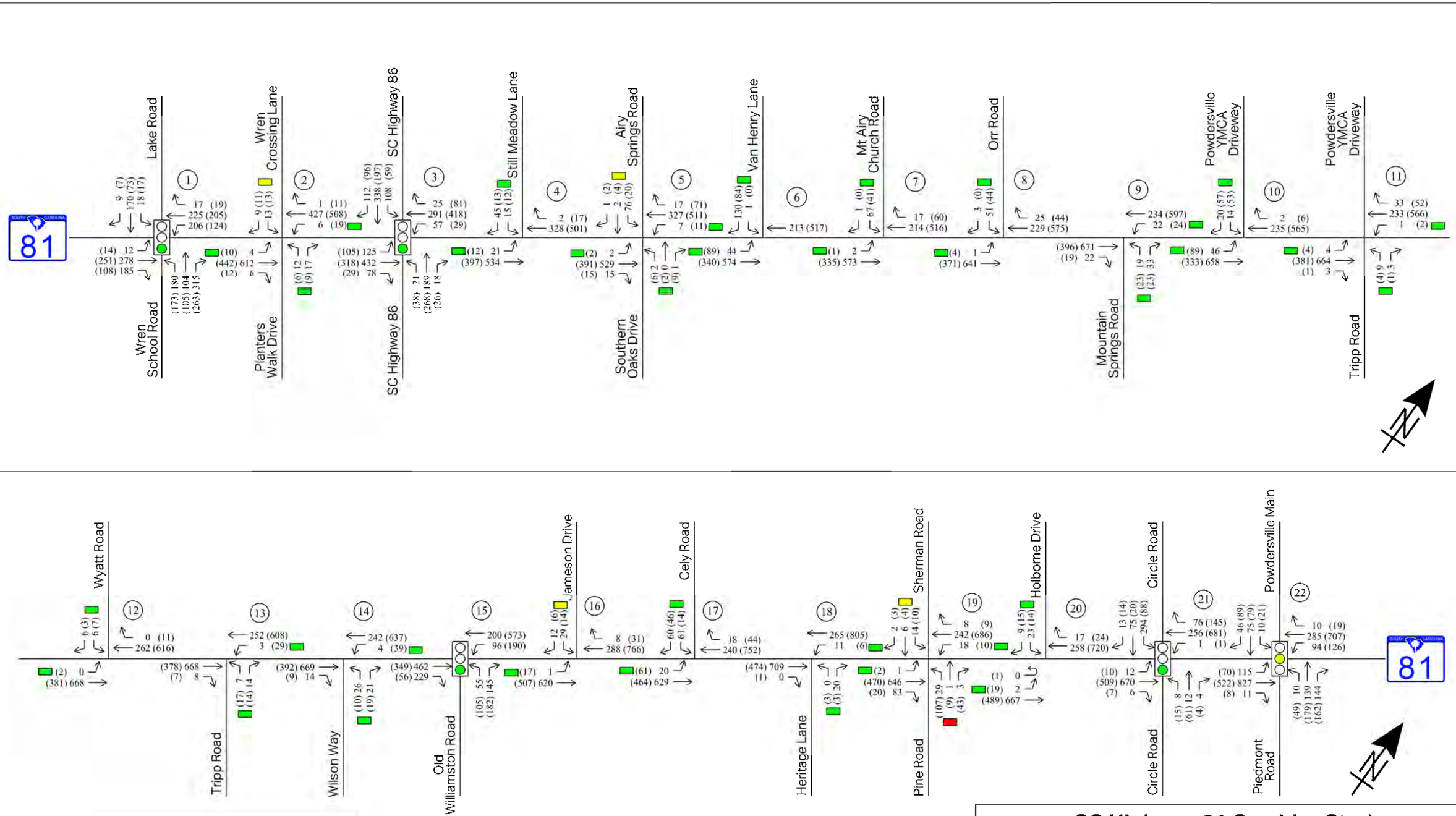
Table 14 - Build 2028 Short-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	225	38	35
Westbound Left	250	143	140
Westbound Right	225	109	80
Northbound Left	150	88	27
Northbound Right	200	106	64
Southbound Left	275	126	89
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		34	36
Westbound Approach		45	35
3. SC Highway 86			
Eastbound Left	200	140	71
Westbound Left	200	35	62
Northbound Left	200	77	89
Southbound Left	200	63	27
4. Still Meadow Ln			
Eastbound Approach		49	40
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		63	52
Westbound Approach		18	33
6. Van Henry Ln			
Eastbound Approach		62	70
Northbound Left	150	36	59
7. Mt. Airy Church Rd			
Eastbound Approach		60	60
8. Orr Rd			
Eastbound Approach		63	66
9. Mountain Springs Rd			
Westbound Approach		51	48
10. Powdersville YMCA Dwy			
Eastbound Approach		43	81
Northbound Left	150	26	51
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		17	4
12. Wyatt Rd			
Eastbound Approach		26	27
13. Tripp Rd			
Westbound Approach		35	38
14. Wilson Way			
Westbound Approach		52	48

Table 14 (Continued) - Build 2028 Short-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
15. Old Williamston Rd			
Westbound Left	150	56	68
Westbound Right		39	54
Northbound Right	150	70	54
Southbound Left	150	58	72
16. Jameson Dr			
Eastbound Approach		54	54
17. Cely Rd			
Eastbound Approach		49	58
Northbound Left		25	47
Northbound Thru		0	0
18. Heritage Ln			
Westbound Approach		45	27
19. Sherman Rd / Pine Rd			
Eastbound Approach		49	34
Westbound Left		63	105
Westbound Right	100	13	53
20. Holborne Dr			
Eastbound Approach		51	53
21. Circle Rd			
Eastbound Left	150	130	68
Southbound Right	100	19	94
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	19	23
Westbound Left	150	17	45
Northbound Left	100	56	82
Southbound Left	200	69	226
Southbound Right		13	31

The Synchro and Sim Traffic outputs for the Build 2028 Short-Term conditions analysis are included in **Appendix L**.



SC Highway 81 Corridor Study

Figure 11 - Build 2028 Short-Term AM / PM Peak Hour Volumes & LOS

AECOM

February 2024

7.5 Build 2043 Short-Term Condition Analysis

AECOM analyzed the 2043 traffic operation conditions with the recommended Short-Term improvements during the AM and PM peak hours at each study intersection. The following results are summarized in **Table 15** and visually shown in **Figure 12**.

Analysis indicates that the following locations are expected to operate at LOS E or LOS F or have queuing issues:

- At the intersection of SC Highway 81 and Wren School Road, the overall LOS is expected to operate at a LOS D or better; however, the southbound and eastbound approaches are expected to operate at LOS E (southbound) and LOS F (eastbound) in the AM peak hour.
- At the intersection of SC Highway 81 and Wren Crossing Lane / Planters Walk Drive, both minor street approaches are expected to operate at LOS F in the AM and PM peak hours.
- At the intersection of SC Highway 81 and SC 86, the overall operation is expected to be LOS F in the AM peak hour. The eastbound left-turn lane on SC 86 and northbound and southbound left-turn lanes on SC Highway 81 queues exceeded the existing storage provided.
- At the intersection of SC Highway 81 and Airy Springs Road / Southern Oaks Drive, the Airy Springs Road approach is expected to operate at LOS F in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Mt Airy Church Road, the minor street approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Orr Road, the minor street approach is expected to operate at LOS E in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Mountains Spring Road, the minor street approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Wilson Way, the minor street approach is expected to operate at LOS E in the AM peak hour.
- At the intersection of SC Highway 81 and Sherman Road / Pine Road, both minor street approaches are expected to be LOS F in the AM and PM peak hours.
- At the intersection of SC Highway 81 and Holborne Drive, the minor street approach is expected to operate at LOS F in the PM peak hour.
- At the intersection of SC 81 and Circle Road, the overall operation is expected to be LOS D in the AM Peak hour and LOS B during the PM Peak hour. The eastbound left-turn lane on Circle Road and southbound right-turn lane on SC 81 queues exceed the existing storage provided.
- At the intersection of SC Highway 81 and Powdersville Main / Piedmont Road, the overall operation is expected to be LOS E in the PM peak hour. The northbound left-turn lane and westbound left-turn lane on Piedmont Road queues exceed the existing storage provided.

Table 15 - Build 2043 Short-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**D**	**C**	**53.1**	**20.3**
		EB Approach	F	D	88.5	36.3
		WB Approach	D	B	39.5	18.4
		NB Approach	D	C	46.3	23.2
		SB Approach	E	B	62.8	15.5
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	F	F	70.0	56.9
		WB Approach	F	E	54.6	35.0
		NB Left	A	A	9.0	9.6
		SB Left	B	A	10.3	9.3
3	SC Highway 81 at SC Highway 86	**Overall**	**F**	**D**	**80.1**	**41.1**
		EB Approach	D	E	45.9	60.1
		WB Approach	D	D	38.6	52.1
		NB Approach	F	B	143.6	16.9
		SB Approach	D	D	48.4	42.2
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	C	D	21.7	26.5
		NB Left	A	A	8.5	9.5
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	F	F	152.0	62.5
		WB Approach	D	D	31.2	29.5
		NB Left	A	A	8.4	9.7
		SB Left	A	A	9.5	8.8
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	C	12.0	17.8
		NB Left	A	A	8.1	10.0
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	E	D	47.3	30.5
		NB Left	A	A	8.0	9.3
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	E	E	47.4	39.3
		NB Left	A	A	8.1	9.6
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	E	D	39.8	28.7
		SB Left	B	A	11.2	8.8
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	C	D	15.9	27.8
		NB Left	A	B	8.2	10.0
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd (Unsignalized)	WB Approach	D	D	31.4	25.7
		NB Left	A	A	8.1	9.5
		SB Left	B	A	10.3	9.3

Table 15 (Continued) - Build 2043 Short-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	C	D	21.5	26.5
		NB Left	A	A	0.0	9.7
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	D	D	25.9	28.2
		SB Left	B	A	10.6	8.7
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	E	C	44.6	23.4
		SB Left	B	A	10.8	8.7
15	SC Highway 81 at Old Williamston Rd	**Overall**	**B**	**B**	**18.4**	**12.7**
		WB Approach	C	B	21.0	16.8
		NB Approach	C	B	22.3	16.0
		SB Approach	A	A	7.7	9.4
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	C	D	18.4	25.4
		NB Left	A	B	8.2	11.2
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	C	D	23.4	27.0
		NB Left	A	B	8.2	11.5
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	C	C	21.8	17.6
		SB Left	B	A	10.8	8.8
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	F	F	55.8	75.1
		WB Left/Thru	F	F	88.9	689.4
		WB Right	C	B	18.4	13.9
		NB Left	A	B	8.0	10.0
		SB Left	B	A	11.2	9.2
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	D	E	30.6	40.8
		NB Left	A	B	8.1	10.5
21	SC Highway 81 at Circle Rd	**Overall**	**D**	**B**	**53.6**	**11.4**
		EB Approach	F	D	92.0	48.3
		WB Approach	D	E	52.5	56.4
		NB Approach	E	B	55.6	12.4
		SB Approach	A	A	0.7	0.4
22	SC Highway 81 at Powdersville Main / Piedmont Rd	**Overall**	**C**	**E**	**24.2**	**69.7**
		EB Approach	C	D	30.6	39.5
		WB Approach	F	F	89.2	210.7
		NB Approach	A	A	2.9	3.0
		SB Approach	C	E	25.7	59.0

AECOM also analyzed the Build 2043 Short-Term build 95th percentile queues at each intersection as shown below in **Table 16.**

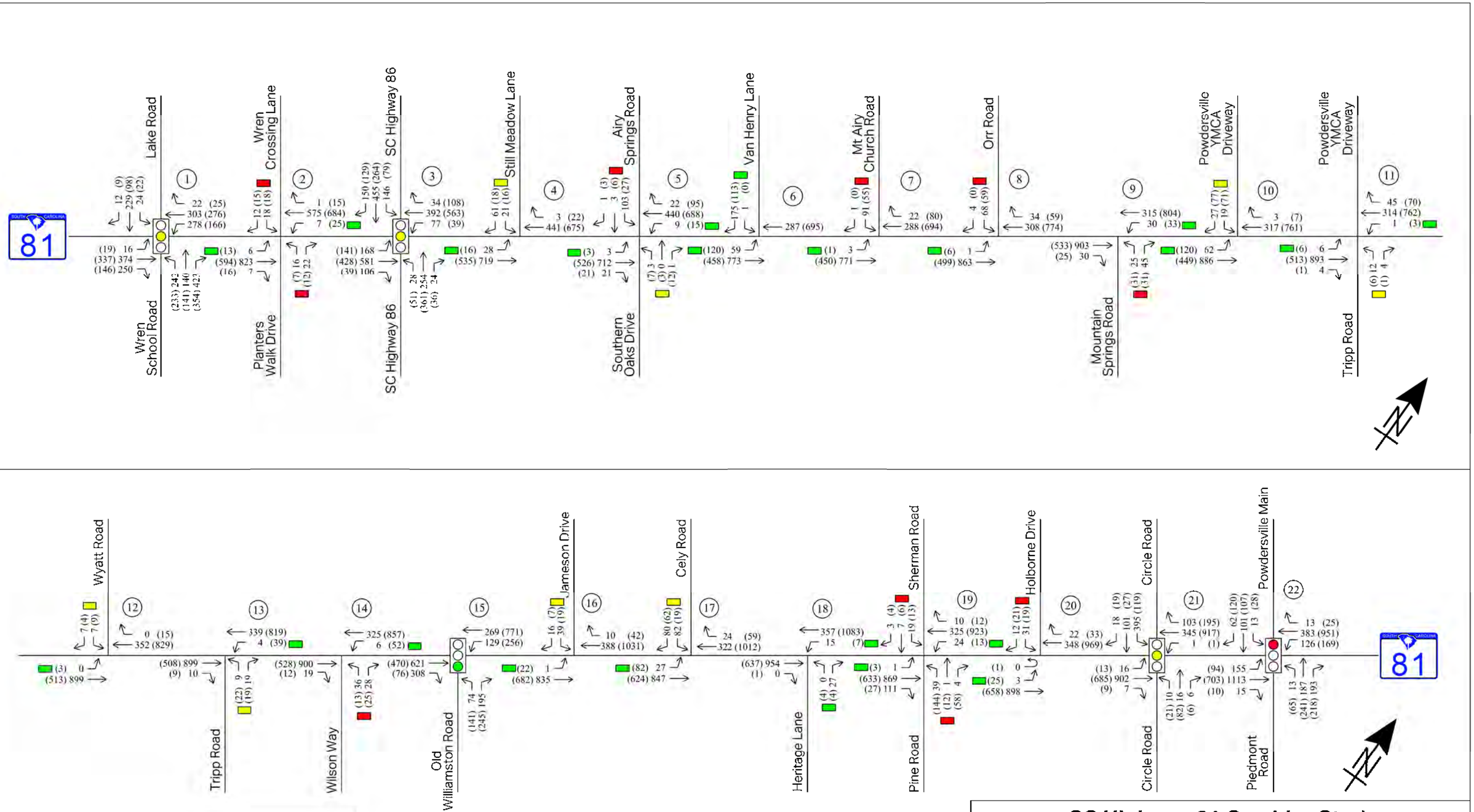
Table 16 - Build 2043 Short-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	225	46	45
Westbound Left	250	249	183
Westbound Right	225	177	133
Northbound Left	150	132	36
Northbound Right	200	244	115
Southbound Left	275	179	110
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		47	46
Westbound Approach		57	42
3. SC Highway 86			
Eastbound Left	200	315	213
Westbound Left	200	81	87
Northbound Left	200	396	112
Southbound Left	200	84	117
4. Still Meadow Ln			
Eastbound Approach		53	40
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		66	60
Westbound Approach		18	44
6. Van Henry Ln			
Eastbound Approach		84	109
Northbound Left	150	33	82
7. Mt. Airy Church Rd			
Eastbound Approach		84	84
8. Orr Rd			
Eastbound Approach		72	64
9. Mountain Springs Rd			
Westbound Approach		60	59
10. Powdersville YMCA Dwy			
Eastbound Approach		46	116
Northbound Left	150	29	70
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		27	15
12. Wyatt Rd			
Eastbound Approach		38	29
13. Tripp Rd			
Westbound Approach		41	46
14. Wilson Way			
Westbound Approach		62	61

Table 16 - Build 2043 Short-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
15. Old Williamston Rd			
Westbound Left	150	58	125
Westbound Right		63	103
Northbound Right	150	147	133
Southbound Left	150	100	113
16. Jameson Dr			
Eastbound Approach		54	55
17. Cely Rd			
Eastbound Approach		83	141
Northbound Left		40	76
Northbound Thru		0	0
18. Heritage Ln			
Westbound Approach		51	30
19. Sherman Rd / Pine Rd			
Eastbound Approach		59	48
Westbound Left		66	354
Westbound Right	100	17	221
20. Holborne Dr			
Eastbound Approach		59	54
21. Circle Rd			
Eastbound Left	150	192	52
Westbound Approach		62	175
Northbound Approach		641	1561
Southbound Right	100	32	237
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	20	60
Westbound Left	150	26	355
Northbound Left	100	93	95
Southbound Left	200	324	405
Southbound Right		366	498

The Synchro and Sim Traffic outputs for the Build 2043 Short-Term build conditions analysis are included in **Appendix M**.



SC Highway 81 Corridor Study

Figure 12 - Build 2043 Short-Term AM / PM Peak Hour Volumes & LOS

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February 2024

7.6 Build 2043 Long-Term Condition Analysis

As indicated in previous analysis, with the recommended short-term improvements, there are still intersections that are expected to operate at or near failing conditions with the expected traffic growth. AECOM examined different alternatives to improve the traffic operations within the area. Based on our analysis, the following Long-Term improvement measures were considered and assumed in the 2043 Build condition as shown graphically in **Figure 12**.

SC Highway 86

- Install northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install eastbound right-turn lane on SC Highway 86 with 225 feet of storage.
- Install southbound right-turn lane on SC Highway 81 with 200 feet of storage.

Airy Springs Road/ Southern Oaks Drive

- Install southbound right-turn lane on SC Highway 81 with 100 feet of storage.

Mt Airy Church Road

- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Realign Mt. Airy Church Road to intersect with SC Highway 81 at 90 degrees.

Sherman Road / Pine Road

- Realign Sherman Road with Pine Road to improve safety and monitor for signalization.

Circle Road

- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Extend the southbound right-turn lane on SC Highway 81 back to the intersection with Powdersville Main/Piedmont Road.
- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a northbound shared thru/right-turn lane on Circle Road with 150 feet of storage.

Powdersville Main / Piedmont Road

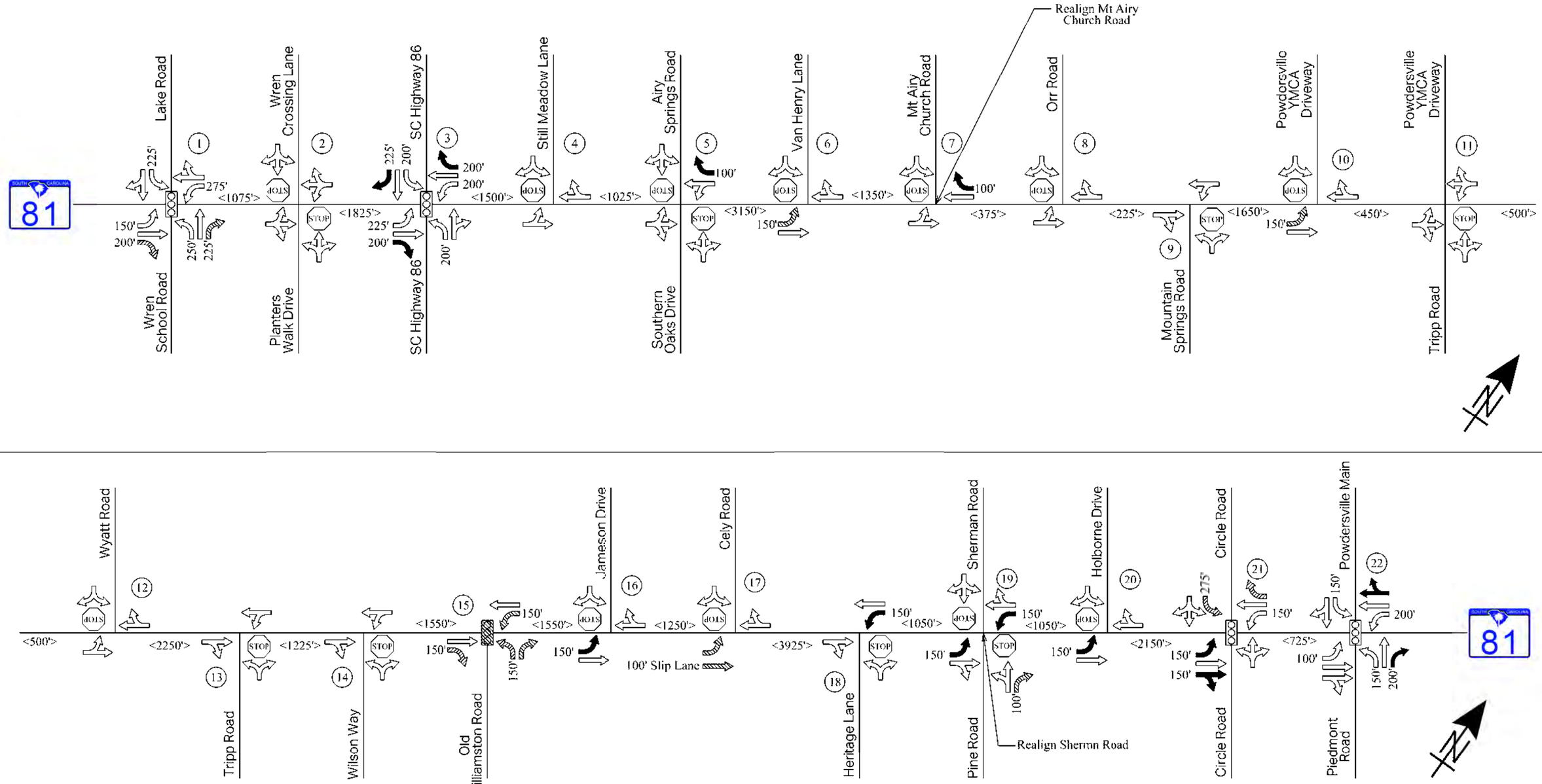
- Install a westbound right-turn lane on Piedmont Road with 200 feet of storage.
- Restripe the westbound shared thru/right-turn lane to through only on Piedmont Road.
- Install southbound left-turn protected/permissive phase on SC Highway 81.

SC Highway 81 Widening from Old Williamston Road to Circle Road

- Widen SC Highway 81 to install a Two-Way Left-Turn Lane (TWLTL) starting at Old Williamston Road heading northbound to end at Circle Road. Install curb and gutter and provide a sidewalk on west side of road and a shared use path on east side of road.

AECOM analyzed the Build 2043 Long-Term traffic conditions during the AM and PM peak hours at each study intersection. The results are summarized in **Table 17** and in **Figure 13**. The analysis indicates that the following locations are still expected to operate at LOS F for the minor street approach issue:

- SC 81 and Wren Crossing Lane / Planters Walk Drive
- SC 81 and Airy Springs Road / Southern Oaks Drive
- SC 81 and Sherman Road / Pine Road (should be monitored for signalization)



SC Highway 81 Corridor Study

Figure 13 - Build 2043 Long-Term Lane Configuration

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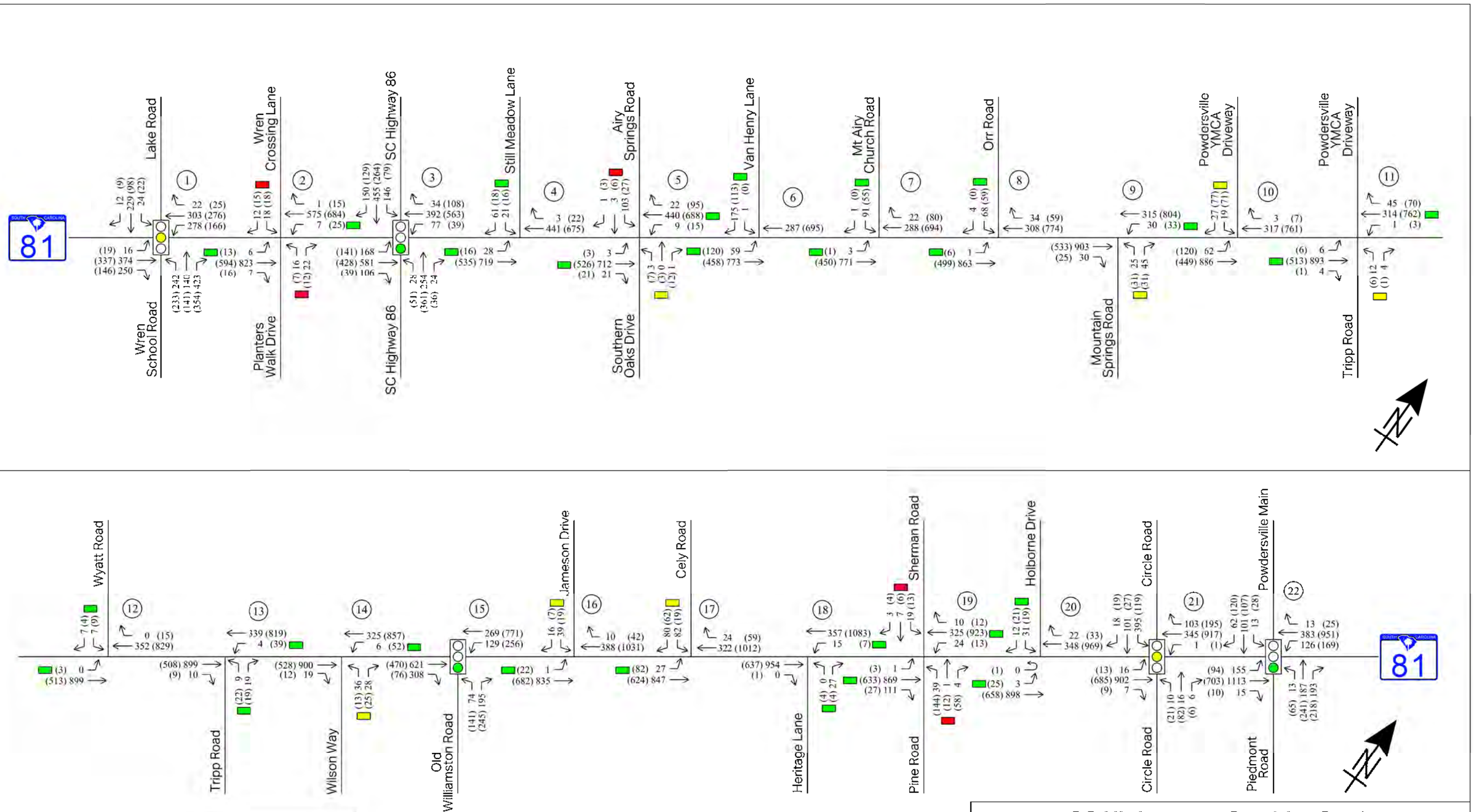
February 2024

Table 17 - Build 2043 Long-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	**Overall**	**D**	**C**	**53.2**	**20.3**
		EB Approach	F	C	116.6	33.7
		WB Approach	D	B	44.5	19.4
		NB Approach	D	C	46.8	23.1
		SB Approach	D	B	43.7	14.8
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr (Unsignalized)	EB Approach	F	F	70.0	56.9
		WB Approach	F	E	54.6	35.0
		NB Left	A	A	9.0	9.6
		SB Left	B	A	10.3	9.3
3	SC Highway 81 at SC Highway 86	**Overall**	**C**	**C**	**25.9**	**27.7**
		EB Approach	C	C	29.0	27.3
		WB Approach	C	C	25.3	33.1
		NB Approach	C	B	20.4	18.2
		SB Approach	C	C	31.0	32.8
4	SC Highway 81 at Still Meadow Ln (Unsignalized)	EB Approach	C	C	15.6	17.7
		NB Left	A	A	8.5	9.5
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr (Unsignalized)	EB Approach	F	F	146.0	55.5
		WB Approach	D	D	31.2	29.5
		NB Left	A	A	8.4	9.7
		SB Left	A	A	9.5	8.8
6	SC Highway 81 at Van Henry Ln (Unsignalized)	EB Approach	B	C	12.0	17.8
		NB Left	A	A	8.1	10.0
7	SC Highway 81 at Mt. Airy Church Rd (Unsignalized)	EB Approach	C	C	22.7	17.6
		NB Left	A	A	8.0	9.3
8	SC Highway 81 at Orr Rd (Unsignalized)	EB Approach	C	C	22.9	20.1
		NB Left	A	A	8.1	9.6
9	SC Highway 81 at Mountain Springs Rd (Unsignalized)	WB Approach	D	C	25.9	17.4
		SB Left	B	A	11.2	8.8
10	SC Highway 81 at Powdersville YMCA Dwy (Unsignalized)	EB Approach	C	D	15.9	27.8
		NB Left	A	B	8.2	10.0
11	SC Highway 81 at Powdersville YMCA Dwy /Tripp Rd (Unsignalized)	WB Approach	D	D	31.4	25.7
		NB Left	A	A	8.1	9.5
		SB Left	B	A	10.3	9.3

Table 17 (Continued) - Build 2043 Long-Term Summary of LOS and Delay

ID#	Intersection	Approach	HCM 6 Level of Service (LOS)		Control Delay (sec/veh)	
			AM	PM	AM	PM
12	SC Highway 81 at Wyatt Rd (Unsignalized)	EB Approach	C	C	15.3	17.9
		NB Left	A	A	0.0	9.7
13	SC Highway 81 at Tripp Rd (Unsignalized)	WB Approach	C	C	20.6	17.2
		SB Left	B	A	10.6	8.7
14	SC Highway 81 at Wilson Way (Unsignalized)	WB Approach	D	C	25.7	15.9
		SB Left	B	A	10.8	8.7
15	SC Highway 81 at Old Williamston Rd	**Overall**	**B**	**B**	**13.4**	**12.7**
		WB Approach	C	B	25.1	16.7
		NB Approach	B	B	12.4	15.9
		SB Approach	A	A	7.6	9.4
16	SC Highway 81 at Jameson Dr (Unsignalized)	EB Approach	C	D	18.4	25.1
		NB Left	A	B	8.2	11.2
17	SC Highway 81 at Cely Rd (Unsignalized)	EB Approach	C	D	23.4	27.0
		NB Left	A	B	8.2	11.5
18	SC Highway 81 at Heritage Ln (Unsignalized)	WB Approach	C	C	21.8	17.5
		SB Left	B	A	10.8	8.8
19	SC Highway 81 at Sherman Rd / Pine Rd (Unsignalized)	EB Approach	F	F	55.2	72.5
		WB Left	F	F	87.2	674.5
		WB Right	C	B	18.4	13.9
		NB Left	A	B	8.0	10.0
		SB Left	B	A	11.2	9.2
20	SC Highway 81 at Holborne Dr (Unsignalized)	EB Approach	C	C	18.3	21.9
		NB Left	A	B	8.1	10.5
21	SC Highway 81 at Circle Rd	**Overall**	**D**	**B**	**45.3**	**12.6**
		EB Approach	F	E	132.6	60.5
		WB Approach	E	E	73.1	63.8
		NB Approach	B	A	12.3	7.7
		SB Approach	A	A	0.7	3.0
22	SC Highway 81 at Powdersville Main / Piedmont Rd	**Overall**	**B**	**C**	**15.9**	**24.7**
		EB Approach	D	E	53.6	73.0
		WB Approach	D	E	51.2	65.6
		NB Approach	A	A	2.4	1.7
		SB Approach	A	B	9.5	11.5



LEGEND

- Volume Movement
- (##) Intersection Number
- ## AM Peak Hour Traffic Volume
- (##) PM Peak Hour Traffic Volume

Unsignalized LOS (Critical Peak Hour)
- LOS E/F
- LOS D
- LOS A/B/C

Signalized LOS (Critical Peak Hour)
- LOS E/F
- LOS D
- LOS A/B/C

SC Highway 81 Corridor Study

Figure 14 - Build 2043 Long-Term AM / PM Peak Hour Volumes & LOS

AECOM

February 2024

AECOM also analyzed the Build 2043 Long-Term 95th percentile queues at each intersection as shown below in **Table 18**.

Table 18 - Build 2043 Long-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
1. Lake Rd / Wren School Rd			
Eastbound Left	250	76	54
Westbound Left	225	214	161
Westbound Right	225	164	140
Northbound Left	150	39	38
Northbound Right	200	210	62
Southbound Left	275	290	149
2. Wren Crossing Ln / Planters Walk Dr			
Eastbound Approach		56	45
Westbound Approach		53	32
3. SC Highway 86			
Eastbound Left	200	191	131
Eastbound Right	225	54	91
Westbound Left	200	127	122
Northbound Left	200	183	101
Northbound Right	200	166	39
Southbound Left	200	91	111
Southbound Right	200	41	223
4. Still Meadow Ln			
Eastbound Approach		61	45
5. Airy Springs Rd / Southern Oaks Dr			
Eastbound Approach		83	40
Westbound Approach		13	37
Southbound Right	100	0	0
6. Van Henry Ln			
Eastbound Approach		93	104
Northbound Left	150	48	81
7. Mt. Airy Church Rd			
Eastbound Approach		59	49
Southbound Right	100	0	0
8. Orr Rd			
Eastbound Approach		100	62
9. Mountain Springs Rd			
Westbound Approach		68	67
10. Powdersville YMCA Dwy			
Eastbound Approach		50	100
Northbound Left	150	36	68
11. Powdersville YMCA Dwy / Tripp Rd			
Westbound Approach		28	7
12. Wyatt Rd			
Eastbound Approach		25	26
13. Tripp Rd			
Westbound Approach		41	46
14. Wilson Way			
Westbound Approach		79	55

Table 18 (Continued) - Build 2043 Long-Term Summary of 95th Percentile Vehicle Queues

Intersection	95th Percentile Queue (ft)		
	Storage Length	AM	PM
15. Old Williamston Rd			
Westbound Left	150	64	85
Westbound Right		80	87
Northbound Right	150	133	45
Southbound Left	150	115	106
16. Jameson Dr			
Eastbound Approach		55	51
Northbound Left	150	0	41
17. Cely Rd			
Eastbound Approach		94	113
Northbound Left		22	82
Northbound Thru		0	0
18. Heritage Ln			
Westbound Approach		57	26
Southbound Left	150	34	17
19. Sherman Rd / Pine Rd			
Eastbound Approach		50	34
Westbound Right	100	24	190
Northbound Left	150	8	14
Southbound Left	150	27	19
20. Holborne Dr			
Eastbound Approach		56	66
Northbound Left	150	14	40
21. Circle Rd			
Eastbound Left	150	259	76
Northbound Left	150	18	23
Northbound Thru/Right	150	247	165
Southbound Left	150	0	0
Southbound Right		37	281
22. Powdersville Main / Piedmont Rd			
Eastbound Left	150	24	60
Westbound Left	150	48	103
Westbound Right	200	116	170
Northbound Left	100	85	87
Southbound Left	200	109	96
Southbound Thru/Right		107	245

The Synchro and Sim Traffic outputs for the Build 2043 Long-Term conditions analysis are included in **Appendix N**.

8. Conclusions & Recommendations

The recommendations developed for SC Highway 81 Corridor study focus on traffic operations and safety improvements. The recommended short-term roadway improvements shown in **Figure 9** and described below are expected to provide an acceptable level of service in 2028 as summarized in **Table 19**. The one exception is Pine Road approach at LOS E that should improve with the signalization at Old Williamston Road; however, and Pine Road should also be monitored for signalization.

Lake Road / Wren School Road

- Install a northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install a westbound right-turn lane on Wren School Road with 225 feet of storage.

SC Highway 86

- Install northbound left-turn protected/permissive phase on SC Highway 81.

Van Henry Lane

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Powdersville YMCA Driveway

- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.

Old Williamston Road

- Install a new signal.
- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a westbound left turn lane on Old Williamston Road with 150 feet of storage.
- Install a northbound right turn lane on SC Highway 81 with 150 feet of storage.

Cely Road

- Install a 100-foot northbound bypass lane on SC Highway 81.

Sherman Road / Pine Road

- Install a westbound right-turn lane on Pine Road with 100 feet of storage.

Circle Road

- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Install an eastbound left-turn lane on Circle Road with 150 feet of storage and restripe other eastbound lane as a shared left / thru / right-turn lane.

Powdersville Main / Piedmont Road

- Install northbound left-turn protected/permissive phase on SC Highway 81.

Table 19 - Intersection LOS Comparison 2028 Short-Term

#	Intersection	2023 Existing		No-Build 2028		Build 2028	
		AM	PM	AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	D	C	E	C	C	B
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr	C	C	D	C	D	C
3	SC Highway 81 at SC Highway 86	B	B	C	B	C	C
4	SC Highway 81 at Still Meadow Ln	B	C	B	C	B	C
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr	D	C	D	D	D	D
6	SC Highway 81 at Van Henry Ln	B	B	B	B	B	B
7	SC Highway 81 at Mt Airy Church Rd	C	C	C	C	C	C
8	SC Highway 81 at Orr Rd	C	C	C	C	C	C
9	SC Highway 81 at Mountain Springs Rd	C	C	C	C	C	C
10	SC Highway 81 at Powdersville YMCA Dwy	B	C	C	C	C	C
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd	C	C	C	C	C	C
12	SC Highway 81 at Wyatt Rd	B	C	C	C	C	C
13	SC Highway 81 at Tripp Rd	C	C	C	C	C	C
14	SC Highway 81 at Wilson Way	C	B	C	C	C	C
15	SC Highway 81 at Old Williamston Rd	D	F	E	F	B	B
16	SC Highway 81 at Jameson Dr	C	C	C	D	C	D
17	SC Highway 81 at Cely Rd	C	C	C	C	C	C
18	SC Highway 81 at Heritage Ln	B	C	C	C	C	C
19	SC Highway 81 at Sherman Rd / Pine Rd	D	E	D	F	D	E
20	SC Highway 81 at Holborne Dr	C	C	C	C	C	C
21	SC Highway 81 at Circle Rd	C	C	D	C	C	A
22	SC Highway 81 at Powdersville Main / Piedmont Rd	B	B	B	C	B	D

The recommended long-term roadway improvements are shown in **Figure 12** and described below. With the recommended roadway improvements described below, the study intersections along SC Highway 81 are expected to operate at acceptable levels of service as shown in **Table 20**. The intersections of Wren Crossing Lane / Planters Walk Drive, Airy Spring Road / Southern Oak Drive, Sherman Road / Pine Road are expected to operate at LOS F for the minor street approaches; however, a traffic signal is not expected to be warranted. It should be noted that traffic volumes on Pine Street are low with minimal queuing.

SC Highway 86

- Install northbound right-turn lane on SC Highway 81 with 200 feet of storage.
- Install eastbound right-turn lane on SC Highway 86 with 225 feet of storage.
- Install southbound right-turn lane on SC Highway 81 with 200 feet of storage.

Airy Springs Road/ Southern Oaks Drive

- Install southbound right-turn lane on SC Highway 81 with 100 feet of storage.

Mt Airy Church Road

- Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage.
- Realign Mt. Airy Church Road to intersect with SC Highway 81 at 90 degrees.

Sherman Road / Pine Road

- Realign Sherman Road with Pine Road to improve safety and monitor for signalization.

Circle Road

- Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Extend the southbound right-turn lane on SC Highway 81 back to the intersection with Powdersville Main/Piedmont Road.
- Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.
- Install a northbound shared thru/right-turn lane on SC Highway 81 with 150 feet of storage.
- Extend eastbound left-turn lane on Circle Road to provide 275 feet of storage.

Powdersville Main / Piedmont Road

- Install a westbound right-turn lane on Piedmont Road with 200 feet of storage.
- Restripe the westbound shared thru/right-turn lane to through only on Piedmont Road.
- Install southbound left-turn protected/permissive phase on SC Highway 81.

SC Highway 81 Widening from Old Williamston Road to Circle Road

- Widen SC Highway 81 to install a Two-Way Left-Turn Lane (TWLTL) starting at Old Williamston Road heading northbound to end at Circle Road. Install curb and gutter and provide a sidewalk on west side of road and a shared use path on east side of road.

Table 20 - Intersection LOS Comparison 2043 Long-Term

#	Intersection	2023 Existing		2043 No-Build		2043 Build Short-Term		2043 Build Long-Term	
		AM	PM	AM	PM	AM	PM	AM	PM
1	SC Highway 81 at Lake Rd / Wren School Rd	D	C	F	E	D	C	D	C
2	SC Highway 81 at Wren Crossing Ln / Planters Walk Dr	C	C	F	F	F	F	F	F
3	SC Highway 81 at SC Highway 86	B	B	E	D	F	D	C	C
4	SC Highway 81 at Still Meadow Ln	B	C	C	D	C	D	C	C
5	SC Highway 81 at Airy Springs Rd / Southern Oaks Dr	D	C	F	F	F	F	F	F
6	SC Highway 81 at Van Henry Ln	B	B	B	C	B	C	B	C
7	SC Highway 81 at Mt Airy Church Rd	C	C	E	D	E	D	B	C
8	SC Highway 81 at Orr Rd	C	C	E	E	E	E	C	C
9	SC Highway 81 at Mountain Springs Rd	C	C	E	D	E	D	D	C
10	SC Highway 81 at Powdersville YMCA Dwy	B	C	D	F	C	D	C	D
11	SC Highway 81 at Powdersville YMCA Dwy / Tripp Rd	C	C	E	D	D	D	D	D
12	SC Highway 81 at Wyatt Rd	B	C	C	D	C	D	C	C
13	SC Highway 81 at Tripp Rd	C	C	D	D	D	D	C	C
14	SC Highway 81 at Wilson Way	C	B	E	C	E	C	D	C
15	SC Highway 81 at Old Williamston Rd	D	F	F	F	B	B	B	B
16	SC Highway 81 at Jameson Dr	C	C	D	F	C	D	C	D
17	SC Highway 81 at Cely Rd	C	C	F	F	C	D	C	D
18	SC Highway 81 at Heritage Ln	B	C	C	D	C	C	C	C
19	SC Highway 81 at Sherman Rd / Pine Rd	D	E	F	F	F	F	F	F
20	SC Highway 81 at Holborne Dr	C	C	D	E	D	E	C	C
21	SC Highway 81 at Circle Rd	C	C	F	D	D	B	D	B
22	SC Highway 81 at Powdersville Main / Piedmont Rd	B	B	C	E	C	E	B	C

8.1 Project Priority Ranking

In order to rank projects based on a data driven process utilizing quantifiable and objective criteria a ranking process was developed based on SCDOT Planning Directive PD-15. Individual intersections were ranked using criteria agreed upon by the Anderson County Staff. It was also established several criteria often used by SCDOT would not be included in the ranking process as they were consistent throughout the study area corridor thus would have little influence on final rankings. These included environmental impact, alternative transportation solutions, Pavement Quality Index (PQI), truck percentage, and consistency with local land use plans.

For intersections, criteria and percentages included the following:

- Traffic volume and congestion (LOS) – 50%
- Public Safety (crashes) – 25%
- Financial Viability (project cost estimates) – 15%
- Public Input – 10%

The project team developed a list of projects and associated costs for Short-Term (2024-2028) and Long-Term (2029-2043) categories. The costs were developed based on conceptual designs quantities of the considered improvements as part of this SC Highway 81 Corridor Study and are summarized below in **Table 21**, and **Table 22**.

A basic concept showing all the projects included in the short-term recommendation is included in **Appendix O**.

Additionally, a basic concept showing all the projects included in the long-term recommendations are included in **Appendix P**.

GPATS will utilize these ranked projects and incorporate the findings into their long-range transportation plan. It should be noted development and changing conditions through the corridor could have an impact on these rankings and priorities. It is recommended project priorities be re-evaluated and updated every five years or as deemed necessary.

8.2 Funding Alternatives

One of the harsh realities of transportation planning is that funding for transportation improvements is extremely limited. If current growth and travel trends continue as forecasted, transportation improvements in the Anderson County area of GPATS will not keep pace with rising traffic congestion. Like most areas in South Carolina, funding in the form of higher gas taxes or other fees on users of the transportation system unfortunately are inadequate to keep pace with the projected growth and traffic congestion. Although no one has a crystal ball for what funding levels may look like in the future, the project team has identified various sources that potentially could be used to fund proposed improvements.

Local Funding Options

Anderson County voters are anticipated to have a one percent transportation sales and use tax referendum on the ballot during the November 2024 elections. If approved, it will go into effect for fiscal year ending May 1, 2025, and will be in place for a limited time, ending April 30, 2032. The tax could raise an estimated $360 million over seven years and could be used for a variety of projects including road improvements, bridges, transit, and other transportation related projects including drainage. As part of the Referendum, voters will also have the opportunity to decide if they want a supporting bond that will be secured by proceeds from the tax. The $15 million bond issue would allow the county to immediately begin work on transportation projects. The bond would then be repaid as funds from the sales tax are gathered. If this one percent sales tax is approved, it could potentially be a major contributor to aid with the transportation infrastructure needs for corridors like SC Highway 81. Additionally, impact fees, Tax Increment Financing and Municipal Improvement Districts are also possible funding options typically utilized for funding at the local level.

State Funding Options

An obvious option would be the GPATS (Greenville Pickens Area Transportation Study) Regional Mobility Funding allocated by SCDOT to the GPATS region on an annual basis. That amount is currently $29,199,000 annually. Additionally, Anderson County Transportation Committee (CTC) C-funds can be used at the discretion of the CTC. Other counties have benefited by using C-Funds as matching funds to obtain various grants, such as the SCDOT Transportation Alternatives Program and transit grants. These grants are available for multiple purposes, but mostly for pedestrian accommodations and beautification. In addition, the SCDOT has Safety Funds that can be used on qualifying intersections and corridors based on ADT and collision history. Some of the intersection projects recommended below could be candidates for this safety program funding. A request to evaluate the recommended intersection projects could be submitted to SCDOT Traffic Engineering to determine if any of the recommended intersection projects may be eligible for funding. There is also funding at SCDOT for upgrading traffic signals and installing new traffic signals where needed, as well as improving traffic signal timing on coordinated traffic signal systems. Additionally, the SCDOT administers the Safe Routes to Schools program that allows for bicycle and pedestrian improvements in and around schools. The Transportation Alternatives Program (TAP) allows local governments and other eligible entities to apply for grants for a variety of non-motorized transportation projects. A final funding option at the state level would be to apply for funding from the South Carolina Transportation Infrastructure Bank (SCTIB). To date, the Bank has assisted with funding up to $5.9 billion on 100 projects, in 29 counties and 5 municipalities.

Federal Funding Options

The Bipartisan Infrastructure Law, as enacted in the Infrastructure Investment and Jobs Act, was signed into law by President Biden in November 2021 and is the largest federal investment in public transportation in the nation’s history. The legislation reauthorizes surface transportation programs for FY 2022-2026 and provides advance appropriations for certain programs. The Bipartisan Infrastructure Law authorizes up to $108 billion to support federal public transportation

programs, including $91 billion in guaranteed funding. At the federal level, there are several funding options that could assist in the SC Highway 81 Corridor. Most of these funding sources are also administered by the SCDOT. However, the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant program is part of President Biden's Infrastructure plan and include annual discretionary allocations for projects across the country. RAISE projects are reviewed and evaluated on statutory criteria of safety, environmental sustainability, quality of life, mobility and community connectivity, economic competitiveness and opportunity including tourism, state of good repair, partnership and collaboration, and innovation. The Rural Surface Transportation Grant Program supports projects that improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life. Additionally, the Safe Streets and Roads for All (SS4A) program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

Innovative Funding

Public-Private Partnerships (PPP or P3) are arrangements between the public and private sectors where some of the services that fall under the responsibility of the public sector are provided by the private sector. This can occur in any public sector and usually involves a contract between the public and private parties. Public Private partnerships are increasing in popularity around the country and basically involve a private entity building a road or making improvements to a corridor with numerous smaller projects now being funded with public private partnerships. P3s have emerged, in part, because of the growing demands on the transportation system and constraints on public resources. To date, the number of P3s in the United States is relatively small, as is the amount of long-term private financing provided. Among the reasons for this are the availability to state and local governments of tax-preferred municipal bonds; the need for some kind of revenue stream, such as a toll, fare, or tax, to provide funding; and the fact that many states have very limited experience with P3s.

Table 21 - SC Highway 81 Corridor Study Short-Term Recommendations (2024 – 2028)

Rank # (Figure #)	Location	Improvements	Cost
S1 (Appendix O Figure O-5)	Old Williamston Road	▪ Install a new signal at the intersection. ▪ Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage. ▪ Install a westbound left-turn lane on Old Williamston Rd with 150 feet of storage. ▪ Install a northbound right-turn lane on SC Highway 81 with 150 feet of storage.	$3.70M
S2 (Appendix O Figure O-7)	Sherman Road / Pine Road	▪ Install a westbound right-turn lane on Pine Road with 100 feet of storage.	$392K
S3 (Appendix O Figure O-8)	Circle Road	▪ Install a southbound right-turn lane on SC Highway 81 with 100 feet of storage. ▪ Install an eastbound left-turn lane on Circle Road with 150 feet of storage and restripe other eastbound lane as a shared left / thru / right-turn lane	$1.31M
S4 (Appendix O Figure O-6)	Cely Road	▪ Install a 100 feet northbound bypass lane on SC Highway 81.	$370K
S5 (Appendix O Figure O-1)	Lake Road / Wren School Road	▪ Install a northbound right-turn lane on SC Highway 81 with 200 feet of storage. ▪ Install a westbound right-turn lane on Wren School Road with 225 feet of storage.	$1.97M
S6 (Appendix O Figure O-8)	Piedmont Road / Powdersville Main	▪ Install northbound left-turn protected/permissive phase on SC Highway 81.	$30K
S7 (Appendix O Figure O-4)	Powdersville YMCA Driveway	▪ Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.	$1.62M
S8 (Appendix O Figure O-3)	Van Henry Lane	▪ Install a northbound left-turn lane on SC Highway 81 with 150 feet of storage.	$1.98M
S9 (Appendix O Figure O-2)	SC Highway 86	▪ Install northbound left-turn protected/permissive phase on SC Highway 81.	$30K
Total			$11.40M

Table 22 - SC Highway 81 Corridor Study Long-Term Recommendations (2029 – 2043)

Rank # (Figure #)	Location	Improvements	Cost
L1 (Appendix P Figure P-4)	Sherman Road / Pine Drive	▪ Realignment of Sherman Road with Pine Road to improve safety.	$1.82M
L2 (Appendix P Figure P-2)	Airy Springs Road/ Southern Oaks Drive	▪ Install southbound right-turn lane on SC Highway 81 with 100 feet of storage.	$450K
L3 (Appendix P Figure P-5)	Circle Road	▪ Install a southbound left-turn lane on SC Highway 81 with 150 feet of storage. ▪ Extend the southbound right-turn lane on SC Highway 81 back to the intersection with Powdersville Main/Piedmont Road. ▪ Install a northbound left-turn lane on SC Highway 81 with 150 feet storage. ▪ Install a northbound shared thru/right-turn lane on Circle Road with 150 feet of storage. ▪ Extend eastbound left-turn lane on Circle Road to provide 275 feet of storage.	$3.30M
L4 (Appendix P Figure P-5)	Piedmont Road / Powdersville Main	▪ Install a westbound right-turn lane on Piedmont Road with 200 feet of storage. ▪ Restripe the westbound shared thru/right-turn lane to thru only on Piedmont Road. ▪ Install southbound left-turn protected/permissive phase on SC Highway 81.	$950K
L5 (Appendix P Figure P-3)	Mt Airy Church Road	▪ Install a southbound right-turn lane on SC Highway 81 with 100 feet storage. ▪ Realign Mt. Airy Church Road to intersect with SC Highway 81 at 90 degrees.	$1.40M
L6 (Appendix P Figure P-1)	SC Highway 86	▪ Install northbound right-turn lane on SC Highway 81 with 200 feet of storage. ▪ Install eastbound right-turn lane on SC Highway 86 with 225 feet of storage. ▪ Install southbound right-turn lane on SC Highway 81 with 200 feet storage.	$2.50M
L7 (No Figures)	Corridor-Wide	▪ Widen SC Highway 81 to install a Two-Way Left-Turn Lane (TWLTL) starting at Old Williamston Road heading northbound to end at Circle Road. Install curb and gutter and provide a sidewalk on west side of road and a shared use path on east side of road.	$30M
Total			$40.42M

Appendix O – Short-Term Project Concept Drawings

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

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Figure O-1

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

AECOM

Figure O-2

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

AECOM

Figure O-3

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

AECOM

Figure O-4

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

AECOM

Figure O-5

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

AECOM

Figure O-6

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

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Figure O-7

Legend

- Sidewalk
- Existing Pavement
- Widening

Circle Road

Existing Signal

SC 81

Existing Signal

Powdersville Main

SC 81

Install northbound left-turn protected/permissive phase on SC Highway 81

SC 81

Circle Road

Piedmont Road

SCALE IN FEET

0 100 200 300

SC Highway 81 Corridor Study

Recommended Short Term Improvement Concept

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Figure O-8

Appendix P – Long-Term Project Concept Drawings

Legend

Existing Pavement

Short Term Improvements

Widening

SC Highway 86

Existing Signal

SC 81

SC 81

SC Highway 86

SCALE IN FEET

0 100 200 300

SC Highway 81 Corridor Study

Recommended Long Term Improvement Concept

AECOM

Figure P-1

Legend

Existing Pavement

Short Term Improvements

Widening

Airy Springs Road

SC 81

STOP

SC 81

STOP

Southern Oaks Drive

SCALE IN FEET

0 100 200 300

SC Highway 81 Corridor Study

Recommended Long Term Improvement Concept

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Figure P-2

SC Highway 81 Corridor Study

Recommended Long Term Improvement Concept

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Figure P-3

SC Highway 81 Corridor Study

Recommended Long Term Improvement Concept

AECOM

Figure P-4

SC Highway 81 Corridor Study

Recommended Long Term Improvement Concept

AECOM

Figure P-5