

# TRAFFIC IMPACT ANALYSIS

## BUC-EE'S STAFFORD COUNTY, VIRGINIA

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## EXECUTIVE SUMMARY

A Buc-ee's is proposed in the northwest quadrant of the intersection of Interstate 95 (I-95) and Courthouse Road (Route 630) in Stafford County, Virginia. Currently, the site proposed for development is vacant. The proposed development consists of a 120 fueling position facility and a 74,000 square-foot convenience store. Access to the proposed development will be provide by one partial access driveway (right-in only) along Courthouse Road, one full-access driveway and one partial access driveway (right-in/right-out only) along Austin Ridge Drive, and one full-access driveway and one partial access (right-in/right-out only) driveway along Buc-ee's Boulevard, a proposed roadway intersecting with Austin Ridge Drive.

The analyses were conducted for Existing (2023), No-Build (2025 and 2031), and Build (2025 and 2031) conditions. Traffic generated by surrounding approved developments was included, as applicable, in all future year analysis scenarios.

For future conditions analyses, proffered improvements associated with background developments were assumed to be operational. The following improvements, in addition to proffered improvements, are recommended to mitigate expected project traffic:

- Austin Ridge Drive and Courthouse Road
  - Reconfigure the westbound approach which includes a right-turn lane to include dual right-turn lanes, one channelized yield-controlled lane and one channelized free-flow lane.
  - Construct an additional eastbound through lane along Courthouse Road between Mine Road and Austin Ridge Drive.
  - Increase the southbound left-turn lane storage length to 400 feet.
  - Re-stripe the northbound Austin Ridge Drive approach to a left-turn lane, shared through-left lane and dual right-turn lanes
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Sunflower Drive/Project Driveway 1.
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Buc-ee's Boulevard (proposed).
- Optimize signal timings, splits, and offsets at all study area signalized intersections.
- I-95 at Exit 140 Diverging Diamond Interchange
  - Construct a median separated southbound right-turn slip-lane and receiving lane along westbound Courthouse Road.
  - Construct a third northbound left-turn lane at the I-95 off-ramp to westbound Courthouse Road.

Due to required interchange modifications, an Operations and Safety Analysis Report (OSAR) will be required. The exact scope and limits of the OSAR will be determined with the Virginia Department of Transportation (VDOT) and the Federal Highway Administration (FHWA).

All proposed project driveway spacings are expected to comply with the guidelines outlined in the *VDOT Road Design Manual, Appendix F*. Therefore, no access management waivers are anticipated for the proposed development.

## 1. INTRODUCTION

### 1.1 PURPOSE

Kimley-Horn completed a traffic impact analysis (TIA) to evaluate the traffic impacts of the proposed 120 fueling position Buc-ee's located in the northwest quadrant of the intersection of I-95 and Courthouse Road (Route 630) at Exit 140 in Stafford County, Virginia. The purpose of this study is to evaluate the anticipated future impacts of the proposed development's traffic on the surrounding roadway network and to identify measures to mitigate the traffic impacts, if warranted.

### 1.2 PROJECT LOCATION MAP

The proposed project is located in the northwest quadrant of the Exit 140 interchange as shown in **Figure 1**. A conceptual site plan is included in **Appendix A**.

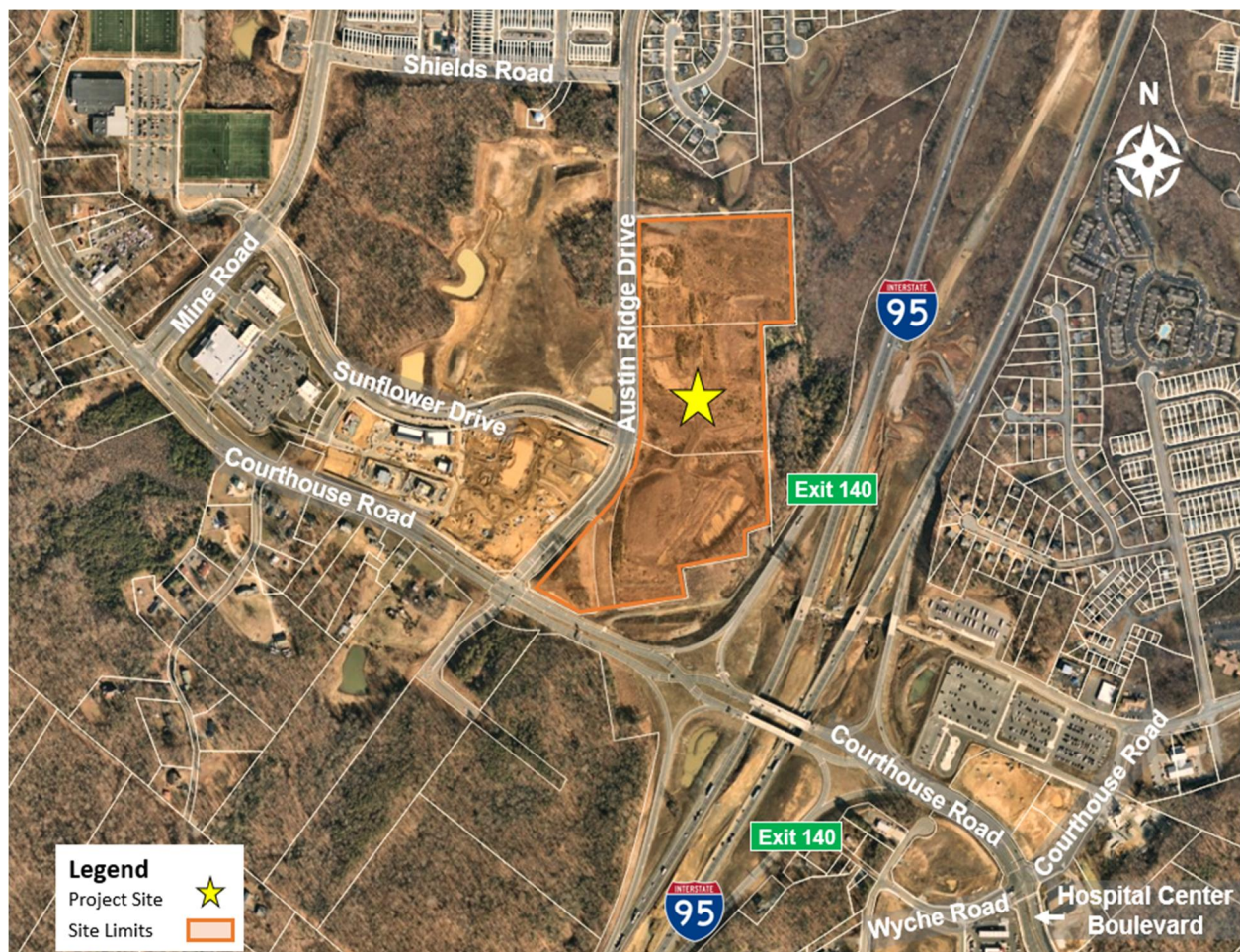


Figure 1: Project Location Map



## 2. TRAFFIC OPERATIONAL ANALYSIS

### 2.1 METHODOLOGY

Synchro 11 was used to evaluate network performance per the VDOT *Traffic Operations and Safety Analysis Manual* (TOSAM) requirements for deterministic intersection capacity analyses. HCM 2000 methodologies were used to evaluate signalized intersections and HCM 6<sup>th</sup> was used to evaluate two-way-stop-controlled intersection performance. Synchro models were updated based on intersection geometry, traffic signal timing, balanced traffic volumes, collected heavy vehicle percentages, and peak hour factors.

Vehicle queuing analyses were conducted using maximum queues, by lane, obtained from SimTraffic measured in feet. The SimTraffic models were calibrated to observed existing conditions using the methodology outlined in TOSAM. The calibration process is detailed in the approved SimTraffic Calibration Memo included in **Appendix B**.

The evaluation of traffic operations within the study area included intersection capacity level of service (LOS) and queuing analyses during the weekday AM, weekday PM, and Sunday peak hours. For the traffic operational analyses, the projected no-build conditions served as the baseline for evaluating intersection delays and identifying mitigation measures under the build conditions.

Intersection capacity defines the volume of traffic that can be accommodated by an intersection at a specified LOS. Capacity is affected by various geometric factors including roadway type (e.g., divided or undivided), number of lanes, lane widths, and grades. LOS, which is a measure of the degree of congestion, ranges from LOS A (free flowing) to LOS F (a congested, forced flow condition). Delay, measured in seconds per vehicle, and the associated LOS thresholds for signalized and unsignalized intersections based on HCM methodologies are presented in **Table 1**.

**Table 1: Intersection Level of Service (LOS) Analysis Criteria**

Level of Service (LOS)	Average Control Delay per Vehicle (sec/veh)		Description of Traffic Conditions
	Signalized	Unsignalized	
A	≤ 10	≤ 10	No or minimal delays at intersections with continuous flow traffic. Uncongested operations; high frequency of long gaps available for all left and right-turning traffic; no observable queues.
B	> 10 and ≤ 20	> 10 and ≤ 15	
C	> 20 and ≤ 35	> 15 and ≤ 25	Moderate delays at intersections with satisfactory to good traffic flow. Light congestion; infrequent backups on critical approaches.
D	> 35 and ≤ 55	> 25 and ≤ 35	Increased probability of delays along every approach. Significant congestion on critical approaches, but intersection functional. No long-standing lines formed.
E	> 55 and ≤ 80	> 35 and ≤ 50	Heavy traffic flow condition. Heavy delays probable. No available gaps for cross-street traffic or main street turning traffic. Limit of stable flow.
F	> 80	> 50	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Average delays greater than one minute highly probable. Total breakdown.
S	Indicates that the movement shares lanes		

### 2.2 KEY ASSUMPTIONS

The following assumptions were made for the traffic operational analysis.

- For future conditions, all signalized intersections used the higher of the calculated peak hour factor or 0.92 in accordance with TOSAM. All existing peak hour factors were calculated, per TOSAM.

- The collected heavy vehicle percentages were used in the analysis of each individual movement for the existing, no-build, and build conditions.
- All signalized intersections were evaluated using HCM 2000 reports due to *Synchro 11* limitations. All unsignalized intersections were evaluated using HCM 6<sup>th</sup> Edition.
- Queues were evaluated using calibrated SimTraffic models.

### 3. EXISTING CONDITIONS

#### 3.1 EXISTING ROADWAY CHARACTERISTICS

Roadway characteristics including geometry and posted speed limits for roadway facilities adjacent to the proposed development are summarized in **Table 2**.

**Table 2: Existing Roadway Characteristics**

Road	Lanes	Posted Speed (mph)	Functional Classification
Courthouse Road (Route 630)	4 Lanes Divided	40	Major Collector
Austin Ridge Drive	4 Lanes Divided south of Sunflower Drive/ 4 lanes Undivided north of Sunflower Drive	40	Major Collector
Mine Road	4 Lanes Divided	40	Local
Sunflower Drive	4 Lanes Divided	25	Local
Hospital Center Boulevard	5 Lanes Divided	40	Local
US Route 1	4 Lanes Undivided	35	Principle Arterial

#### 3.2 EXISTING TRAFFIC VOLUMES

Existing weekday AM, weekday PM, and Sunday peak hour turning movement counts were collected on Thursday, September 21, 2023, from 7:00 to 9:00 AM and from 3:00 to 6:00 PM and on Sunday, September 24, 2023, from 9:00 AM to 2:00 PM at the following study intersections:

1. Mine Road and Coastal Avenue/Austin Ridge Drive
2. Mine Road and Embrey Mill Park/Sunflower Drive
3. Mine Road and Courthouse Road
4. Austin Ridge Drive and Courthouse Road
5. Austin Ridge Drive and Sunflower Drive
6. Courthouse Road (WB) and I-95 SB Off-Ramp
7. Courthouse Road (EB) and I-95 SB On-Ramp
8. Courthouse Road (EB) and Courthouse Road (WB)
9. Courthouse Road (EB) and I-95 SB Off-Ramp
10. Courthouse Road (WB) and I-95 SB On-Ramp
11. Courthouse Road (EB) and I-95 NB On-Ramp
12. Courthouse Road (WB) and I-95 NB Off-Ramp
13. Courthouse Road (WB) and Courthouse Road (EB)
14. Courthouse Road (WB) and I-95 NB On-Ramp

15. Courthouse Road (EB) and I-95 NB Off-Ramp
16. Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road
17. US Route 1 (Jefferson Davis Highway) and Hospital Center Boulevard
18. US Route 1 (Jefferson Davis Highway) and Courthouse Road

Network-wide peak hours were determined for the weekday AM, weekday PM, and Sunday peak periods based on traffic volumes at each study intersection. The hours that captured the highest percentage of overall traffic in the network were selected as the network peak hours, which were from 7:30 AM to 8:30 AM, 4:30 PM to 5:30 PM during the weekday and from 11:45 AM to 12:45 PM on Sunday. Traffic count data and peak hour determination summary tables are provided in **Appendix C**. Existing traffic signal plans are provided in **Appendix D**. Existing traffic counts were balanced throughout the roadway network. Raw traffic volumes were not adjusted more than ten percent (10%). A site location exhibit is shown on **Sheet 1 of Appendix I** and the 2023 existing traffic volumes are shown on **Sheet 2 of Appendix I**.

### 3.3 EXISTING CONDITIONS INTERSECTION CAPACITY ANALYSIS

Under existing conditions, all study intersections are expected to operate at an overall LOS D or better with the exception of the intersection of US Route 1 and Courthouse Road during the PM peak hour which operates at LOS E.

The control delay and LOS results are summarized in **Table 5** through **Table 7**. Detailed intersection capacity analysis results are included in **Appendix E**.

### 3.4 EXISTING CONDITIONS MAXIMUM QUEUING ANALYSIS

Based on the queue analysis results, all turn lane queues are projected to be accommodated within the existing turn lane storage lengths at all study intersections. Additionally, queues for all through movements are projected to have adequate storage space between adjacent intersections.

The queue results are summarized in **Table 8** through **Table 10**. The queueing analysis results are included in **Appendix F**.

## 4. PROJECTED NO-BUILD CONDITIONS

The projected no-build conditions represent the future roadway network and background traffic growth prior to the completion of the proposed development. Surrounding approved developments included as part of no-build conditions were identified by VDOT and Stafford County staff. The estimated level of completion of each development was also provided by VDOT and Stafford County staff. No-build analyses were conducted for the opening year (2025) and design year (2031) to capture the impacts of the background development traffic. To provide a conservative analysis, all traffic signal timing was optimized in the 2031 No-Build models.

Peak hour traffic generated by the surrounding developments was referenced from previous traffic impact analyses and using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition. Background development locations and land uses were identified and confirmed based on VDOT and County input. **Table 3** summarizes the surrounding approved developments included as part of no-build conditions and their expected completion percentage. Trip generation estimated for each of the developments is included in **Appendix G**. Background trip distributions and trip assignments are located on **Sheet 3A** through **Sheet 16B** in **Appendix I**.



**Table 3: Background Development Build Outs**

Approved Development	Assumed Percent Built	
	2025	2031
Austin Ridge Logistics Center	25%	100%
Burns NE	50%	100%
Burns NW	50%	100%
Burns SE	50%	100%
Burns SW	50%	100%
Embrey Mill Commercial	50%	100%
Embrey Mill Phase 3A	0%	50%
Potomac Church AWS Data Center <sup>(1)</sup>	50%	100%
Stafford Commons	0%	100%
Stafford Hospital	25%	100%
Courthouse Tracts	100%	100%
Merritt at Austin Ridge	50%	100%
Venture Business Park	50%	100%

Notes: <sup>(1)</sup> Per the provided *Trip Generation Assessment* for the *Potomac Church AWS Data Center*, weekday trip generation was used, and weekend trip generation was estimated using the weekday PM peak hour volumes. Weekday and weekend trip generation assignments were assumed as a 50/50 in-out split.

Trip distributions and assignments for the background developments were approved by VDOT and Stafford County. Note that due to the expected increase in background future traffic volumes along Austin Ridge Drive and Courthouse Road, trip distribution assumptions were adjusted to reflect greater utilization of Sunflower Drive and Courthouse Road to access the I-95 interchange. Additionally, based on correspondence with the Stafford County, it was determined that the Westgate Center would not be included as part of the background developments due to the uncertainty of when it would be built out.

## 4.1 PROFFERED IMPROVEMENTS

Proffered off-site improvements associated with the approved development included in background conditions were reviewed to capture improvements that will be implemented on the roadway network prior to the build-out of Buc-ee's. Per discussion with Stafford County and VDOT, the following proffered improvements were included in the No-Build and Build analyses:

### ***Burns Corner (dated November 30, 2020)***

- **8.b.** – *Courthouse Road at Austin Ridge Drive – Construct a third westbound thru lane approach tapering back to the existing two lanes west of the intersection.*
- **8.c.** – *Courthouse Road (Old Route 630) at Jefferson Davis Highway (Route 1) – Restripe the eastbound approach to provide a left/through lane and a through/right lane.*
- **8.d.i.** – *Construct a continuous, dedicated westbound right turn lane at the Wyche Road/Courthouse Road intersection extending back to the Land Bay 2 entrance.*
  - Per recent aerial imagery, it appears that this improvement has already been implemented and was included in Existing through Build conditions.
- **8.d.ix.** – *Re-stripe the westbound approach to the Wyche Road/Courthouse Road intersection to provide a fourth (4<sup>th</sup>) westbound through lane that will be shared with the westbound right movement to Courthouse Road and continue as a westbound through lane across the frontage of Land Bay 1 to the northbound I-95 interchange on-ramp*
  - Per recent aerial imagery, it appears that the westbound shared through/right lane has been built as a right turn lane. The existing geometry was used for existing conditions

and the updated lane configuration with the 4<sup>th</sup> westbound through lane across Land Bay 1 was included in No-Build conditions.

- **8.d.x.** – *Construct a free-flow eastbound right-turn lane approaching Jefferson Davis Highway (Route 1).*
  - Per recent aerial imagery, the existing improvements at this intersection do not include this improvement and therefore was not included.
- **8.f.i.** – *Construct a 400 ft. southbound acceptance lane with a 250 ft. taper for the free flow eastbound right turn lane on Hospital Center Boulevard.*
  - Per recent aerial imagery, the existing improvements at this intersection do not include this improvement and therefore was not included.

**Austin Ridge Logistics (dated November 11, 2022)**

- **4.a.** – *Construction of a new westbound left-turn lane along courthouse road with 260 feet of storage and a 200 foot taper.*
- **4.c.** – *Construction (and dedication) of a two lane extension of Austin Ridge Drive to allow for transportation connection to Route 630.*
  - Per recent aerial imagery, it appears that this improvement has already been implemented and was included in Existing conditions through Build conditions.

Per the *Traffic Impact Analysis for the Austin Ridge Logistics Center*, dated March 8<sup>th</sup>, 2022, an additional northbound left-turn lane at the intersection of Courthouse Road/Hospital Center Boulevard and Courthouse Road/Wyche Road is to be constructed due to a separate development. These proffered improvements can be found in **Appendix G**.

Courthouse Tracts, Venture Business Park, and the Potomac Church proffer statements do not include proffers that would affect this project's network; therefore, no additional proffers were included.

## 4.2 TRAFFIC GROWTH RATE

Traffic volumes under no-build conditions were established by growing the existing 2023 turning movement counts to the opening year of 2025 and design year of 2031. Based on input from VDOT and Stafford County staff, a growth rate of 2.0% was agreed upon. No-build traffic volumes are shown on **Sheet 17** for 2025 and **Sheet 18** for 2031 in **Appendix I**.

## 4.3 2025 NO-BUILD CONDITIONS INTERSECTION CAPACITY ANALYSIS

During 2025 No-Build conditions, all study intersections are expected to operate at an overall LOS D or better with the exception of US Route 1 and Courthouse Road during the PM peak hour which operates at LOS E.

The control delay and LOS results are summarized in **Table 11** through **Table 13**. The intersection capacity analysis results are included in **Appendix E**.

## 4.4 2025 NO-BUILD CONDITIONS MAXIMUM QUEUEING ANALYSIS

Based on the queue analysis results, all turn lane queues are projected to be accommodated within the existing storage length with the exception of the following movements. Additionally, queues for all through movements are projected to have adequate storage space between adjacent intersections.

- PM Peak Hour
  - Mine Road and Coastal Avenue/Austin Ridge Drive (SBL)
  - Mine Road and Sunflower Drive (NBL)
  - Mine Road and Courthouse Road (EBL)

- Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBL, EBR, NBL)
- US Route 1 and Hospital Center Boulevard (WBL)
- SUN Peak Hour
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBR)
  - US Route 1 and Hospital Center Boulevard (WBL)

The queue results are summarized in **Table 14** through **Table 16**. Queues from upstream intersections were used to determine the maximum queue at the intersection movement. The queueing analysis results are included in **Appendix F**. Bolded values indicate movements that exceed existing storage length.

#### 4.5 2031 NO-BUILD CONDITIONS INTERSECTION CAPACITY ANALYSIS

During 2031 No-Build conditions, all study intersections are expected to operate at LOS D or better with the exception of the following:

- Mine Road and Coastal Avenue/Austin Ridge Drive (AM)
- Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (AM)
- US Route 1 and Courthouse Road (AM, PM)
- Mine Road and Courthouse Road (PM)
- Austin Ridge Drive and Courthouse Road (PM)
- US Route 1 and Hospital Center Boulevard (PM, SUN)
- Diverging Diamond Interchange
  - Intersection 13 - Courthouse Road (EB) and Courthouse Road (WB) (PM)

The control delay and LOS results are summarized in **Table 17** through **Table 19**. The intersection capacity analysis results are included in **Appendix E**.

#### 4.6 2031 NO-BUILD CONDITIONS SIMTRAFFIC QUEUEING ANALYSIS

Based on the queue analysis results, all queues that are projected to exceed their existing storage length in 2025 No-Build conditions are expected to exceed their storage length in 2031 No-Build conditions. The following queues are also projected to exceed storage in 2031:

- AM Peak Hour
  - Diverging Diamond Interchange
    - NB Off-Ramp
      - Note that the queues do reach the I-95 mainline
    - SB Off-Ramp
      - Note that the queues do reach the I-95 mainline
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBL, EBR)
  - US Route 1 and Hospital Center Boulevard (WBL)
- PM Peak Hour
  - Mine Road and Sunflower Drive (NBR, SBL, SBR)
  - Mine Road and Courthouse Road (EBR)
  - Austin Ridge Drive and Courthouse Road (SBL, SBR)
  - Diverging Diamond Interchange
    - NB Off-Ramp
      - Note that the queues do reach the I-95 mainline
    - SB Off-Ramp

- Note that the queues do reach the I-95 mainline
    - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (SBR)
    - US Route 1 and Courthouse Road (NBL)
- SUN Peak Hour
  - Mine Road and Sunflower Drive (EBR, NBL, SBL)
  - Mine Road and Courthouse Road (EBL, SBL)
  - Austin Ridge Drive and Courthouse Road (SBL, SBR)
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBL, WBL, NBL)

The queue results are summarized in **Table 20** through **Table 22**. Queues from upstream intersections were used to determine the maximum queue at the intersection movement. The queuing analysis results are included in **Appendix F**. Bolded values indicate movements that exceed existing storage length.

## 5. BUILD CONDITIONS

Build conditions represent the future roadway network with the addition of background traffic growth, background geometric improvements, surrounding development traffic, traffic generated by the proposed project, and proposed roadway improvements. Access to the proposed development will be provide by one partial access driveway (right-in only) along Courthouse Road, one full-access driveway and one partial access driveway (right-in/right-out only) along Austin Ridge Drive, and one full-access driveway and one partial access (right-in/right-out only) driveway along Buc-ee's Boulevard, a proposed roadway intersecting with Austin Ridge Drive.

The following improvements were included as part of Build conditions and proposed to mitigate project traffic along the roadway network:

- Austin Ridge Drive and Courthouse Road
  - Reconfigure the westbound approach which includes a right-turn lane to include dual right-turn lanes, one channelized yield-controlled lane and one channelized free-flow lane.
  - Construct an additional eastbound through lane along Courthouse Road between Mine Road and Austin Ridge Drive.
  - Increase the southbound left-turn lane storage length to 400 feet.
  - Re-stripe the northbound Austin Ridge Drive approach to a left-turn lane, shared through-left lane and dual right-turn lanes
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Sunflower Drive/Project Driveway 1.
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Buc-ee's Boulevard (proposed).
- Optimize signal timings, splits, and offsets at all study area signalized intersections.
- I-95 at Exit 140 Diverging Diamond Interchange
  - Construct a median separated southbound right-turn slip-lane and receiving lane along westbound Courthouse Road.
  - Construct a third northbound left-turn lane at the I-95 off-ramp to westbound Courthouse Road.

Build concept intersection sketches are included in **Appendix A**.

As part of the build concept, Project Driveway 1 will connect to the existing intersection of Austin Ridge

Drive and Sunflower Drive to be the fourth leg of the intersection. Note that a signal justification report (SJR) is required by VDOT at this intersection. Additionally, an SJR will need to be conducted at the newly constructed intersection of Austin Ridge Drive and Buc-ee's Boulevard. VDOT will review the SJR's to determine if a signalized intersection is justifiable. However, as stated in VDOT's IIM-TE-387.1 *Signal Justification Reports (SJRs) For New and Reconstructed Signals* "this IIM does not apply for signals that are recommended by an approved Interchange Modification Report/Interchange Justification Report (IMR/IJR) and will be constructed in conjunction with the proposed interchange improvements." Therefore, an IMR (i.e., OSAR) can be conducted in lieu of SJRs to determine the appropriate configuration at the Buc-ee's site driveways.

## 5.1 SITE TRIP GENERATION

Trip generation for the proposed development was developed using collected data at existing Buc-ee's sites around the country. Per guidance from VDOT and Stafford County staff, existing driveway count data was reviewed for six selected sites and used as the trip generation for this proposed Buc-ee's site. Estimated weekday AM, weekday PM, and SUN peak hour trip generation is summarized in **Table 4**.

**Table 4: Estimated Trip Generation**

Location	AM Peak Hour			PM Peak Hour			SUN Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
St. Augustine, FL	408	439	847	544	554	1,098	801	854	1,655
Daytona Beach, FL	572	491	1,063	823	847	1,670	1,085	1,051	2,136
Texas City, TX	300	301	601	820	835	1,655	1,688	1,721	3,409
New Braunfels, TX	757	757	1,514	873	873	1,746	1,399	1,399	2,798
Baytown, TX	473	477	950	622	626	1,248	747	747	1,494
Katy, TX	520	520	1,040	635	635	1,270	776	776	1,552
<b>Average</b>	<b>505</b>	<b>498</b>	<b>1,003</b>	<b>720</b>	<b>728</b>	<b>1,448</b>	<b>1,083</b>	<b>1,091</b>	<b>2,174</b>

## 5.2 SITE TRIP DISTRIBUTION AND ASSIGNMENT

Using engineering judgment based on existing roadway characteristics within the study area and input from VDOT and Stafford County staff, the following trip distribution was assumed for the proposed Buc-ee's site. Note that per input from Buc-ee's, approximately 90% of transactions include customers from outside the local store zip code. Therefore, a majority of traffic was assumed to enter/exit the store from I-95.

### Weekday

- To and from the north on I-95: 40%
- To and from the south on I-95: 40%
- To and from the east on Courthouse Road: 5%
- To and from the north on Mine Road: 5%
- To and from the north on U.S. 1: 5%
- To and from the south on U.S. 1: 5%

### Weekend

- To and from the north on I-95: 45%
- To and from the south on I-95: 45%
- To and from the north on U.S. 1: 5%



- To and from the south on U.S. 1: 5%

Trip assignment volumes at the study intersections were calculated by applying the distribution percentage for a specific turning movement to the total number of inbound or outbound trips generated by the Buc-ee's. Trip distribution and trip assignments for 2025 and 2031 are shown on **Sheet 19A** through **Sheet 20B** of **Appendix I**. The resulting build traffic volumes for the weekday AM, weekday PM, and Sunday peak hours are shown on **Sheet 21** and **Sheet 22** of **Appendix I** for 2025 and 2031, respectively. The Build traffic volumes were calculated by adding the site-generated trips to the projected no-build traffic volumes.

### 5.3 2025 BUILD CONDITIONS INTERSECTION CAPACITY ANALYSIS

During 2025 Build conditions, all study intersections are expected to improve in LOS compared to No-Build with the exception of the following:

- AM Peak Hour
  - US Route 1 and Hospital Center Boulevard
    - Delay increases by 0.4 seconds
- PM Peak Hour
  - Mine Road and Courthouse Road
    - Delay increases by 2.4 seconds
  - Austin Ridge Drive and Courthouse Road
    - Delay increases by 8.0 seconds
- SUN Peak Hour
  - Mine Road and Courthouse Road
    - Delay increases by 4.1 seconds
  - Austin Ridge Drive and Courthouse Road
    - Delay increases by 5.9 seconds

Additionally, the proposed signalized intersections at Austin Ridge Drive and Sunflower Drive and Austin Ridge Drive and Buc-ee's Boulevard are expected to operate at an overall LOS C or better. The delay and LOS results from the intersection capacity analyses are summarized in **Table 23** through **Table 25**. The intersection capacity analysis results are included in **Appendix E**.

### 5.4 2025 BUILD CONDITIONS SIMTRAFFIC QUEUING ANALYSIS

Based on the queue analysis results, all turn lane queues are projected to be accommodated within the existing storage length with the exception of the following movements. Additionally, queues for all through movements are projected to have adequate storage space between adjacent intersections.

- AM Peak Hour
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBL)
  - US Route 1 and Courthouse Road (WBR)
- PM Peak Hour
  - Mine Road & Courthouse Road (EBL)
  - Austin Ridge Drive & Courthouse Road (SBR)
  - Diverging Diamond Interchange
    - NB Off-Ramp
      - Note that the queues reach the I-95 mainline
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBR)
  - US Route 1 and Hospital Center Boulevard (WBL)
- SUN Peak Hour

- Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (WBL)
- US Route 1 and Hospital Center Boulevard (WBL)
- Diverging Diamond Interchange
  - Courthouse Road (EB) and Ramp B (NBL, NBR)
    - Note that queues reach the I-95 mainline

The maximum queues recorded for each movement at each intersection are presented in **Table 26** through **Table 28**. Queues from upstream intersections were used to determine the maximum queue at the intersection movement. The queuing analysis results are included in **Appendix F**. Highlighted values in yellow indicate movements that exceed existing storage length.

Note that this SimTraffic model exemplifies the research conducted by Wisconsin DOT in the “Vissim Analysis of Diverging Diamond Interchanges” as the vehicles pre-position themselves well before the DDI, drastically increasing the maximum queues in the network and causing significant queueing through the DDI as well as on the northbound/southbound on/off-Ramps.

## 5.5 2031 BUILD CONDITIONS INTERSECTION CAPACITY ANALYSIS

During 2031 Build conditions, all study intersections are expected to improve in LOS compared to No-Build with the exception of the following:

- AM Peak Hour
  - US Route 1 and Courthouse Road
    - Delay increases by 1.1 seconds
- PM Peak Hour
  - US Route 1 and Courthouse Road
    - Delay increases by 4.3 seconds
  - Diverging Diamond Interchange<sup>1</sup>
    - Intersection 8 - Courthouse Road (EB) and Courthouse Road (WB)
      - Delay increases by 53.6 seconds
- SUN Peak Hour
  - Mine Road and Courthouse Road
    - Delay increases by 3.3 seconds
  - Austin Ridge Drive and Courthouse Road
    - Delay increases by 9.5 seconds
  - US Route 1 and Courthouse Road
    - Delay increases by 3.1 seconds
  - Diverging Diamond Interchange<sup>1</sup>
    - Intersection 8 - Courthouse Road (EB) and Courthouse Road (WB)
      - Delay increases by 33.1 seconds

<sup>1</sup>Movements for the DDI were only included in this section if the overall LOS was below LOS D.

Additionally, the proposed signalized intersections at Austin Ridge Drive and Sunflower Drive and Austin Ridge Drive and Buc-ee's Boulevard are expected to operate at an overall LOS C or better. The intersection capacity analysis results are included in **Appendix E**.

## 5.6 2031 BUILD CONDITIONS SIMTRAFFIC QUEUING ANALYSIS

Based on the queue analysis results, all queues that are expected to exceed their existing storage length in 2031 No-Build conditions are expected to exceed their storage length in 2031 Build conditions in addition to the following:

- AM Peak Hour
  - Austin Ridge Drive & Courthouse Road (EBL, SBR)
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (NBL)
  - US Route 1 and Hospital Center Boulevard (EBR, SBL, SBR)
  - Diverging Diamond Interchange
    - WBT at I-95 SB On/Off-Ramp
- PM Peak Hour
  - Austin Ridge Drive and Sunflower Drive (EBL, EBR)
  - Diverging Diamond Interchange
    - EBT at I-95 SB On/Off-Ramp
    - EBT and WBT at I-95 NB On/Off Ramp
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (NBR)
- SUN Peak Hour
  - Mine Road and Sunflower Drive (SBR)
  - Mine Road and Courthouse Road (EBR)
  - Diverging Diamond Interchange
    - NB Off-Ramp
      - Note that the queues do reach the I-95 mainline

The following movements exceed existing storage length in 2031 No-Build conditions and are expected to have adequate storage length in 2031 Build conditions:

- PM Peak Hour
  - Mine Road and Courthouse Road (WBL)
  - Diverging Diamond Interchange
    - SB Off-Ramp
- SUN Peak Hour
  - Mine Road & Courthouse Road (EBR)
  - Courthouse Road/Hospital Center Boulevard and Wyche Road/Courthouse Road (EBL, EBR)

The maximum queues recorded for each movement at each intersection are presented in **Table 29** through **Table 31**. Queues from upstream intersections were used to determine the maximum queue at the intersection movement. The queuing analysis results are included in **Appendix F**. Highlighted values in yellow indicate movements that exceed existing storage length.

Note that this SimTraffic model exemplifies the research conducted by Wisconsin DOT in the “Vissim Analysis of Diverging Diamond Interchanges” as the vehicles pre-position themselves well before the DDI, drastically increasing the maximum queues in the network and causing significant queueing through the DDI as well as on the northbound/southbound on/off-Ramps.

Table 5: Existing LOS and Control Delay AM Peak Hour

LOS & Delay Summary Table   2023 EXISTING   AM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (30.2)	C (30.0)	C (28.8)		C (27.2)	D (49.9)	C (28.9)		B (12.2)	B (19.6)	B (15.5)		B (13.6)	B (13.6)	A (7.6)	C (30.1)	C (29.5)	B (19.2)	B (12.8)	C (21.3)
2	Mine Road & Sunflower Drive		s	D (36.5)	C (34.2)		D (37.2)	A (0.0)	C (34.0)	s	B (15.2)	B (17.1)	B (14.5)		B (14.8)	B (18.6)	B (17.1)	D (35.5)	D (36.4)	B (16.6)	B (18.2)	B (19.0)
3	Mine Road & Courthouse Road		A (6.6)	A (4.4)	A (0.0)		A (0.0)	C (29.4)	D (42.6)			A (0.0)			D (53.5)		C (34.5)	A (4.7)	C (33.0)	A (0.0)	D (49.0)	C (22.9)
4	Austin Ridge Drive & Courthouse Road		B (12.3)	B (19.1)	s		F (97.2)	B (11.9)	E (75.2)		A (0.0)	E (57.2)	E (55.9)		D (55.0)	E (58.4)	D (36.3)	B (19.0)	C (33.7)	E (56.6)	E (55.3)	C (31.2)
5	Austin Ridge Drive & Sunflower Drive		B (13.1)	A (0.0)	A (9.7)						A (8.3)				A (0.0)			B (10.7)				- (-)
6	Courthouse Road (WB) & Ramp D																B (10.1)				B (10.1)	A (1.1)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			B (11.0)				C (28.6)										B (11.0)	C (28.6)			B (19.9)
9	Courthouse Road (EB) & Spur D														D (39.1)						D (39.1)	B (11.6)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										A (9.7)									A (9.7)		A (3.1)
13	Courthouse Road (WB) & Courthouse Road (EB)			A (8.4)				D (41.9)										A (8.4)	D (41.9)			C (23.8)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												D (48.5)							D (48.5)		B (11.9)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		D (54.1)	B (19.8)	B (19.5)		B (14.2)	C (25.5)	C (22.6)		E (60.9)	D (53.0)	D (47.9)		D (49.0)	D (49.0)	C (30.8)	C (30.8)	C (24.9)	E (58.3)	C (31.9)	C (31.6)
17	US Route 1 & Hospital Center Boulevard		D (37.0)	C (33.3)	B (19.6)		D (37.9)	C (31.9)	s		C (33.1)	B (18.1)	B (11.4)		D (44.6)	C (24.7)	B (15.1)	C (28.7)	C (33.0)	C (22.2)	C (24.6)	C (26.1)
18	US Route 1 & Courthouse Road		s	E (69.5)	D (54.4)		s	E (67.2)	E (56.4)		s	D (35.8)	s		s	E (57.5)	s	E (67.6)	E (60.5)	D (35.8)	E (57.5)	D (50.9)

Table 6: Existing LOS and Control Delay PM Peak Hour

LOS & Delay Summary Table   2023 EXISTING   PM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (31.6)	C (34.2)	C (31.3)		C (29.2)	D (50.2)	C (26.5)		B (11.5)	C (22.2)	B (16.4)		B (16.1)	B (15.6)	A (8.2)	C (31.9)	C (27.7)	C (21.2)	B (14.8)	B (19.4)
2	Mine Road & Sunflower Drive		S	D (40.6)	D (36.6)		D (39.5)	D (37.8)	C (31.9)	S	C (25.1)	C (25.1)	B (17.4)		B (19.1)	C (28.2)	C (24.9)	D (38.7)	D (38.0)	C (25.0)	C (25.9)	C (27.2)
3	Mine Road & Courthouse Road		B (10.3)	A (6.0)	A (0.0)		A (0.0)	A (4.1)	A (1.9)			A (0.0)			D (50.3)		C (24.2)	A (7.6)	A (3.3)	A (0.0)	D (39.9)	B (15.3)
4	Austin Ridge Drive & Courthouse Road		A (8.9)	B (12.1)	A (0.0)		E (71.6)	B (16.9)	E (63.1)		A (0.0)	A (0.0)	A (0.0)		E (60.8)	E (66.8)	D (37.2)	B (12.0)	C (28.4)	A (0.0)	E (59.9)	C (27.2)
5	Austin Ridge Drive & Sunflower Drive		B (13.1)	A (0.0)	A (9.6)						A (8.0)				A (0.0)			B (10.4)				- (-)
6	Courthouse Road (WB) & I-95 SB Off-Ramp																C (27.3)				C (27.3)	A (5.6)
7	Courthouse Road (EB) & I-95 SB On-Ramp																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (29.7)				A (7.3)										C (29.7)	A (7.3)			B (17.0)
9	Courthouse Road (EB) & I-95 SB Off-Ramp														B (18.9)						B (18.9)	A (7.6)
10	Courthouse Road (WB) & I-95 SB On-Ramp																					- (-)
11	Courthouse Road (EB) & I-95 NB On-Ramp																					- (-)
12	Courthouse Road (WB) & I-95 NB Off-Ramp										B (10.9)									B (10.9)		A (2.9)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (22.6)				D (46.1)										C (22.6)	D (46.1)			C (33.0)
14	Courthouse Road (WB) & I-95 NB On-Ramp																					- (-)
15	Courthouse Road (EB) & I-95 NB Off-Ramp												D (39.0)							D (39.0)		A (5.7)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (56.4)	D (42.8)	D (39.0)		B (17.3)	C (26.5)	C (22.9)		E (59.9)	D (51.0)	D (46.6)		D (46.3)	D (46.1)	C (33.2)	D (45.0)	C (25.9)	E (57.4)	C (34.6)	D (39.5)
17	US Route 1 & Hospital Center Boulevard		D (49.2)	D (45.1)	C (29.4)		D (48.6)	D (38.7)	S		D (44.8)	C (22.2)	B (13.5)		D (52.9)	D (35.9)	B (19.3)	D (38.6)	D (41.4)	C (31.9)	C (34.5)	D (36.3)
18	US Route 1 & Courthouse Road		S	E (67.6)	E (59.2)		S	F (89.6)	E (65.7)		S	E (66.7)	S		S	D (47.5)	S	E (64.6)	E (79.7)	E (66.7)	D (47.5)	E (58.3)

Table 7: Existing LOS and Control Delay SUN Peak Hour

LOS & Delay Summary Table   2023 EXISTING   SUN Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	Unsignalized Intersections in <i>Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (30.9)	C (31.7)	C (30.2)		C (28.7)	D (41.6)	C (26.9)		B (10.5)	B (17.6)	B (14.1)		B (11.8)	B (12.1)	A (7.9)	C (30.9)	C (27.5)	B (17.3)	B (11.4)	B (17.2)
2	Mine Road & Sunflower Drive		s	C (33.7)	C (30.6)		D (36.8)	D (35.7)	C (27.6)	s	C (28.2)	C (32.2)	C (23.5)		C (24.2)	C (31.8)	C (29.4)	C (31.9)	C (34.5)	C (30.4)	C (29.0)	C (30.6)
3	Mine Road & Courthouse Road		B (13.6)	A (6.6)	A (0.0)		A (0.0)	B (16.6)	A (8.4)			A (0.0)			C (20.5)		A (9.2)	A (9.6)	B (13.1)	A (0.0)	B (16.5)	B (13.1)
4	Austin Ridge Drive & Courthouse Road		B (17.5)	C (24.1)	A (0.0)		D (41.7)	C (21.8)	B (11.6)		A (0.0)	A (0.0)	A (0.0)		C (30.2)	C (30.5)	B (19.7)	C (24.0)	B (19.7)	A (0.0)	C (29.5)	C (22.9)
5	Austin Ridge Drive & Sunflower Drive		B (10.7)	A (0.0)	A (9.1)						A (7.7)				A (0.0)			A (9.3)				- (-)
6	Courthouse Road (WB) & I-95 SB Off-Ramp																A (7.4)				A (7.4)	A (1.4)
7	Courthouse Road (EB) & I-95 SB On-Ramp																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			A (7.9)				E (61.5)										A (7.9)	E (61.5)			C (34.8)
9	Courthouse Road (EB) & I-95 SB Off-Ramp														D (35.8)						D (35.8)	A (9.6)
10	Courthouse Road (WB) & I-95 SB On-Ramp																					- (-)
11	Courthouse Road (EB) & I-95 NB On-Ramp																					- (-)
12	Courthouse Road (WB) & I-95 NB Off-Ramp										A (6.9)									A (6.9)		A (2.1)
13	Courthouse Road (WB) & Courthouse Road (EB)			A (7.6)				D (39.4)										A (7.6)	D (39.4)			C (22.5)
14	Courthouse Road (WB) & I-95 NB On-Ramp																					- (-)
15	Courthouse Road (EB) & I-95 NB Off-Ramp												D (37.3)							D (37.3)		A (6.3)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		D (35.2)	C (21.2)	C (20.5)		B (17.2)	C (23.5)	C (21.3)		C (35.0)	C (32.9)	C (30.5)		C (34.8)	C (34.8)	C (21.3)	C (23.0)	C (23.4)	C (34.4)	C (22.3)	C (24.3)
17	US Route 1 & Hospital Center Boulevard		C (35.0)	C (30.4)	C (20.9)		D (37.2)	C (31.0)	s		C (33.3)	B (16.5)	B (11.3)		D (42.8)	C (24.8)	B (13.7)	C (25.7)	C (32.6)	C (23.4)	C (23.7)	C (25.4)
18	US Route 1 & Courthouse Road		s	E (64.6)	E (56.2)		s	E (61.4)	E (57.0)		s	E (58.2)	s		s	C (21.8)	s	E (63.0)	E (59.0)	E (58.2)	C (21.8)	D (39.8)



**Table 8: Existing Queues AM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2023 EXISTING   AM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		128	39	22		54	56	127		36	124	32		108	85	24
2	Mine Road & Sunflower Drive		s	50	20		45	0	27	s	80	100	18		48	149	36
3	Mine Road & Courthouse Road		114	134	141		0	204	82			0			176		77
4	Austin Ridge Drive & Courthouse Road		44	193	234		45	93	68		0	9	6		178	175	54
5	Austin Ridge Drive & Sunflower Drive		16	0	21						25				0		
6	Courthouse Road (WB) & Ramp D																93
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			319				322									
9	Courthouse Road (EB) & Spur D														227		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										115						
13	Courthouse Road (WB) & Courthouse Road (EB)			231				443									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												296				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		212	157	141		73	169	28		178	72	65		58	60	245
17	US Route 1 & Hospital Center Boulevard		88	192	153		111	140	s		199	168	32		74	142	91
18	US Route 1 & Courthouse Road		s	218	78		s	226	384		s	325	s		s	266	s

**Table 9: Existing Queues PM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2023 EXISTING   PM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		114	46	35		50	44	102		31	111	40		211	170	38
2	Mine Road & Sunflower Drive		s	101	53		79	28	30	s	288	318	30		125	243	65
3	Mine Road & Courthouse Road		239	158	160		0	213	109			0			232		156
4	Austin Ridge Drive & Courthouse Road		59	225	306		32	179	74		0	0	0		191	185	88
5	Austin Ridge Drive & Sunflower Drive		19	0	25						18				0		
6	Courthouse Road (WB) & I-95 SB Off-Ramp																230
7	Courthouse Road (EB) & I-95 SB On-Ramp																
8	Courthouse Road (EB) & Courthouse Road (WB)			279				172									
9	Courthouse Road (EB) & I-95 SB Off-Ramp														185		
10	Courthouse Road (WB) & I-95 SB On-Ramp																
11	Courthouse Road (EB) & I-95 NB On-Ramp																
12	Courthouse Road (WB) & I-95 NB Off-Ramp										133						
13	Courthouse Road (WB) & Courthouse Road (EB)			388				510									
14	Courthouse Road (WB) & I-95 NB On-Ramp																
15	Courthouse Road (EB) & I-95 NB Off-Ramp												266				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		215	307	248		73	200	19		188	62	64		82	74	313
17	US Route 1 & Hospital Center Boulevard		106	268	371		164	187	188		244	126	50		94	323	145
18	US Route 1 & Courthouse Road		s	314	184		s	286	220		s	281	s		s	464	s

**Table 10: Existing Queues SUN Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2023 EXISTING   SUN Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		95	47	32		34	43	86		17	87	3		116	75	15
2	Mine Road & Sunflower Drive		s	156	82		75	35	25	s	206	161	27		120	135	53
3	Mine Road & Courthouse Road		145	89	75		0	132	84			0			141		74
4	Austin Ridge Drive & Courthouse Road		28	209	236		70	285	87		0	0	0		98	116	46
5	Austin Ridge Drive & Sunflower Drive		17	0	19						8				0		
6	Courthouse Road (WB) & I-95 SB Off-Ramp																84
7	Courthouse Road (EB) & I-95 SB On-Ramp																
8	Courthouse Road (EB) & Courthouse Road (WB)			196				272									
9	Courthouse Road (EB) & I-95 SB Off-Ramp														121		
10	Courthouse Road (WB) & I-95 SB On-Ramp																
11	Courthouse Road (EB) & I-95 NB On-Ramp																
12	Courthouse Road (WB) & I-95 NB Off-Ramp										97						
13	Courthouse Road (WB) & Courthouse Road (EB)			121				198									
14	Courthouse Road (WB) & I-95 NB On-Ramp																
15	Courthouse Road (EB) & I-95 NB Off-Ramp												177				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		87	152	127		20	151	7		155	40	54		38	39	126
17	US Route 1 & Hospital Center Boulevard		84	133	200		94	95	91		155	98	15		68	178	101
18	US Route 1 & Courthouse Road		s	141	63		s	122	157		s	173	s		s	243	s

Table 11: 2025 No-Build LOS and Control Delay AM Peak Hour

LOS & Delay Summary Table		2025 No-Build		AM Peak Hour																		
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	Unsignalized Intersections in <span>Green</span>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (31.4)	C (33.3)	C (32.0)		C (28.1)	D (52.8)	C (29.1)		B (12.0)	C (21.1)	B (14.9)		B (14.3)	B (14.0)	A (7.3)	C (31.5)	C (29.8)	C (20.6)	B (13.5)	C (21.2)
2	Mine Road & Sunflower Drive		<span>s</span>	D (38.1)	D (35.7)		D (35.1)	A (0.0)	C (28.9)	<span>s</span>	B (17.1)	C (22.4)	B (16.6)		B (17.2)	C (21.4)	B (19.1)	D (37.1)	C (33.1)	C (20.8)	C (20.6)	C (22.3)
3	Mine Road & Courthouse Road		A (8.3)	A (5.8)	A (0.0)		A (0.0)	B (14.2)	C (25.4)			A (0.0)			D (52.9)		C (30.7)	A (6.3)	B (17.3)	A (0.0)	D (48.8)	B (18.8)
4	Austin Ridge Drive & Courthouse Road		C (20.1)	C (33.8)	<span>s</span>		D (45.8)	D (37.9)	<span>s</span>		E (56.6)	E (55.9)	D (50.6)		D (54.9)	E (60.5)	C (35.0)	C (33.6)	D (38.4)	D (53.9)	E (56.0)	D (39.3)
5	Austin Ridge Drive & Sunflower Drive		B (14.2)	A (0.0)	A (10.0)						A (8.5)				A (0.0)			B (11.8)				- (-)
6	Courthouse Road (WB) & Ramp D															B (14.8)				B (14.8)	A (2.4)	
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (21.7)				C (25.9)										C (21.7)	C (25.9)			C (23.9)
9	Courthouse Road (EB) & Spur D														C (32.9)						C (32.9)	A (10.0)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (14.2)									B (14.2)		A (4.7)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (24.9)				D (46.3)										C (24.9)	D (46.3)			C (34.5)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												D (44.0)							D (44.0)		B (11.0)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (58.3)	C (30.8)	C (31.1)	<span>s</span>	B (16.5)	C (28.9)	<span>s</span>		E (60.1)	D (53.0)	D (45.8)		D (47.4)	D (46.8)	C (29.2)	D (38.7)	C (27.9)	E (57.5)	C (30.9)	D (36.2)
17	US Route 1 & Hospital Center Boulevard		D (39.8)	D (37.5)	B (18.8)		D (42.2)	C (33.5)	<span>s</span>		D (39.0)	C (26.1)	B (15.6)		D (42.8)	C (32.7)	B (19.6)	C (31.7)	D (35.2)	C (29.7)	C (30.4)	C (31.4)
18	US Route 1 & Courthouse Road		<span>s</span>	E (62.6)	<span>s</span>		<span>s</span>	E (70.1)	D (54.9)		<span>s</span>	D (40.9)	<span>s</span>		<span>s</span>	E (59.6)	<span>s</span>	E (62.6)	E (61.2)	D (40.9)	E (59.6)	D (53.3)

Table 12: 2025 No-Build LOS and Control Delay PM Peak Hour

LOS & Delay Summary Table   2025 No-Build   PM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	Unsignalized Intersections in <i>Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (33.3)	D (35.1)	C (32.6)		C (31.0)	E (61.0)	C (29.6)		B (11.9)	C (25.7)	B (18.6)		C (21.2)	B (16.5)	A (7.4)	C (33.4)	C (30.8)	C (24.7)	B (17.0)	C (22.0)
2	Mine Road & Sunflower Drive		s	D (42.8)	D (38.7)		D (38.5)	D (35.2)	C (27.8)	s	D (40.8)	C (33.8)	B (18.8)		C (24.0)	C (33.4)	C (28.1)	D (40.9)	D (35.4)	D (35.4)	C (30.4)	C (33.9)
3	Mine Road & Courthouse Road		B (19.2)	A (9.3)	A (0.0)		A (0.0)	B (11.8)	D (35.2)			A (0.0)			D (46.0)		B (18.1)	B (13.0)	B (19.6)	A (0.0)	D (37.2)	C (22.7)
4	Austin Ridge Drive & Courthouse Road		B (16.7)	C (20.5)	s		E (66.8)	B (17.2)	s		E (56.0)	D (54.8)	D (50.7)		F (95.9)	F (114.2)	D (36.9)	C (20.4)	B (18.1)	D (53.3)	F (96.3)	C (30.9)
5	Austin Ridge Drive & Sunflower Drive		B (15.0)	A (0.0)	B (10.2)						A (8.2)				A (0.0)			B (12.2)				- (-)
6	Courthouse Road (WB) & Ramp D																C (32.3)				C (32.3)	A (6.7)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (25.6)				B (14.3)										C (25.6)	B (14.3)			B (19.5)
9	Courthouse Road (EB) & Spur D														B (19.8)						B (19.8)	A (7.0)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (17.3)									B (17.3)		A (4.4)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (24.9)				B (34.1)										C (24.9)	B (34.5)			C (29.2)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												C (31.6)							C (31.6)		A (5.2)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (61.2)	D (35.9)	C (31.5)	s	C (20.8)	C (28.9)	s		E (67.5)	D (50.9)	D (46.3)		D (45.9)	D (45.1)	C (33.0)	D (40.0)	C (28.4)	E (64.1)	C (34.7)	D (38.9)
17	US Route 1 & Hospital Center Boulevard		E (63.9)	E (57.9)	D (41.7)		E (67.0)	D (48.7)	s		E (59.4)	C (28.6)	B (16.2)		E (70.7)	D (48.3)	C (27.2)	D (52.1)	D (53.0)	D (42.7)	D (46.0)	D (48.9)
18	US Route 1 & Courthouse Road		s	E (74.9)	s		s	F (100.7)	E (64.7)		s	F (80.8)	s		s	D (44.0)	s	E (74.9)	F (86.9)	F (80.8)	D (44.0)	E (62.4)

Table 13: 2025 No-Build LOS and Control Delay SUN Peak Hour

LOS & Delay Summary Table   2025 No-Build   SUN Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	Unsignalized Intersections in <i>Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (32.8)	C (33.4)	C (31.9)		C (30.4)	D (46.6)	C (27.6)		B (10.1)	B (19.2)	B (14.7)		B (12.3)	B (12.2)	A (7.5)	C (32.8)	C (28.3)	B (18.8)	B (11.7)	B (17.7)
2	Mine Road & Sunflower Drive		s	D (37.7)	C (34.0)		D (38.1)	D (35.5)	C (27.9)	s	C (31.7)	D (36.0)	C (22.5)		C (27.9)	C (34.8)	C (31.2)	D (35.6)	C (35.0)	C (33.3)	C (32.1)	C (33.6)
3	Mine Road & Courthouse Road		C (21.0)	A (8.6)	A (0.0)		A (0.0)	B (19.9)	A (7.9)			A (0.0)			C (21.5)		A (9.1)	B (13.6)	B (15.3)	A (0.0)	B (18.1)	B (15.7)
4	Austin Ridge Drive & Courthouse Road		B (10.3)	B (18.7)	s		F (109.8)	B (13.9)	s		F (113.0)	F (109.5)	F (98.9)		F (109.0)	F (117.0)	F (83.3)	B (18.6)	B (19.1)	F (105.9)	F (110.2)	C (34.7)
5	Austin Ridge Drive & Sunflower Drive		B (11.9)	A (0.0)	A (9.5)						A (7.9)				A (0.0)			B (10.4)				- (-)
6	Courthouse Road (WB) & Ramp D																B (11.8)				B (11.8)	A (2.4)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			B (13.4)				D (39.7)										B (13.4)	D (39.7)			C (26.4)
9	Courthouse Road (EB) & Spur D														C (29.8)						C (29.8)	A (8.0)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (11.3)									B (11.3)		A (3.1)
13	Courthouse Road (WB) & Courthouse Road (EB)			B (10.7)				C (34.5)										B (10.7)	C (34.5)			C (21.9)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												C (32.7)							C (32.7)		A (6.7)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		D (42.8)	C (27.1)	C (25.2)	s	B (19.3)	C (26.8)	s		D (41.7)	D (38.3)	C (33.1)		D (41.0)	D (40.5)	C (26.7)	C (28.9)	C (26.2)	D (40.7)	C (28.2)	C (29.7)
17	US Route 1 & Hospital Center Boulevard		D (49.3)	D (45.0)	C (26.9)		D (49.3)	D (37.5)	s		D (45.8)	C (26.1)	B (15.0)		D (53.8)	D (39.1)	C (22.7)	D (38.7)	D (40.6)	C (34.3)	D (36.3)	D (37.6)
18	US Route 1 & Courthouse Road		s	E (60.7)	s		s	E (62.4)	E (55.1)		s	E (56.6)	s		s	C (29.7)	s	E (60.7)	E (59.1)	E (56.6)	C (29.7)	D (43.8)

**Table 14: 2025 No-Build Queues AM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 No-Build   AM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		139	38	22		49	48	150		45	152	35		165	103	31
2	Mine Road & Sunflower Drive		s	51	20		59	0	37	s	87	132	44		76	182	42
3	Mine Road & Courthouse Road		135	200	206		0	258	93			0			232		76
4	Austin Ridge Drive & Courthouse Road		68	410	s		101	361	s		2	13	5		193	203	57
5	Austin Ridge Drive & Sunflower Drive		14	0	25						25				0		
6	Courthouse Road (WB) & Ramp D																182
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			303				363									
9	Courthouse Road (EB) & Spur D														240		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										182						
13	Courthouse Road (WB) & Courthouse Road (EB)			507				372									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												374				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		239	275	232	s	134	190	s		274	132	85		76	61	263
17	US Route 1 & Hospital Center Boulevard		100	269	175		157	190	217		272	201	56		100	168	170
18	US Route 1 & Courthouse Road		s	186	s		s	235	413		s	373	s		s	355	s

**Table 15: 2025 No-Build Queues PM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 No-Build   PM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		124	51	30		61	49	154		34	186	34		243	302	39
2	Mine Road & Sunflower Drive		s	128	56		146	26	61	s	293	351	102		190	260	65
3	Mine Road & Courthouse Road		310	384	317		0	290	162			0			301		132
4	Austin Ridge Drive & Courthouse Road		154	439	s		55	348	s		3	39	4		303	302	127
5	Austin Ridge Drive & Sunflower Drive		56	0	33						17				0		
6	Courthouse Road (WB) & Ramp D																306
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			361				265									
9	Courthouse Road (EB) & Spur D														213		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										164						
13	Courthouse Road (WB) & Courthouse Road (EB)			603				403									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												284				
16	Courthouse Road/Hospital Center Boulevard & Wyche		250	411	250	s	108	201	s		320	440	78		112	99	388
17	US Route 1 & Hospital Center Boulevard		173	363	490		174	392	s		324	179	70		139	359	208
18	US Route 1 & Courthouse Road		s	238	s		s	327	228		s	386	s		s	532	s

**Table 16: 2025 No-Build Queues SUN Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 No-Build   SUN Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		93	42	34		41	37	108		17	123	7		123	105	23
2	Mine Road & Sunflower Drive		s	156	93		127	31	45	s	242	223	92		158	189	50
3	Mine Road & Courthouse Road		216	91	104		0	167	104			0			209		71
4	Austin Ridge Drive & Courthouse Road		50	422	s		133	437	s		3	53	12		296	310	68
5	Austin Ridge Drive & Sunflower Drive		31	0	46						4				0		
6	Courthouse Road (WB) & Ramp D																189
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			288				372									
9	Courthouse Road (EB) & Spur D														165		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										140						
13	Courthouse Road (WB) & Courthouse Road (EB)			225				253									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												261				
16	Courthouse Road/Hospital Center Boulevard & Wyche		152	332	250	s	108	182	s		305	109	81		64	58	190
17	US Route 1 & Hospital Center Boulevard		142	296	234		174	281	s		252	129	50		93	237	160
18	US Route 1 & Courthouse Road		s	160	s		s	152	152		s	248	s		s	294	s

Table 17: 2031 No-Build LOS and Control Delay AM Peak Hour

LOS & Delay Summary Table   2031 No-Build   AM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	<i>Unsignalized Intersections in Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (48.0)	C (31.4)	C (29.9)		C (28.5)	D (46.2)	F (204.4)		B (10.7)	B (17.6)	B (13.0)		B (19.4)	B (13.4)	A (8.1)	D (46.1)	F (189.1)	B (17.2)	B (15.3)	E (57.6)
2	Mine Road & Sunflower Drive		s	D (41.7)	D (37.8)		C (34.2)	A (0.0)	C (25.6)	s	B (18.8)	C (28.0)	B (17.6)		B (19.6)	C (25.8)	C (21.6)	D (40.1)	C (32.1)	C (24.6)	C (24.4)	C (25.7)
3	Mine Road & Courthouse Road		B (17.8)	B (12.0)	A (0.0)		A (0.0)	C (24.7)	A (7.7)			A (0.0)			D (36.4)		B (16.5)	B (13.3)	B (18.9)	A (0.0)	C (33.1)	B (19.6)
4	Austin Ridge Drive & Courthouse Road		B (19.6)	E (59.5)	s		F (95.0)	C (30.4)	s		E (60.9)	E (59.6)	D (50.4)		F (89.4)	F (105.3)	D (38.1)	E (59.0)	D (36.8)	E (56.2)	F (93.1)	D (52.8)
5	Austin Ridge Drive & Sunflower Drive		C (24.4)	A (0.0)	B (10.8)						A (9.4)				A (0.0)			C (15.4)				- (-)
6	Courthouse Road (WB) & Ramp D																C (24.0)				C (24.0)	A (4.8)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (27.9)				C (28.2)										C (27.9)	C (28.2)			C (28.0)
9	Courthouse Road (EB) & Spur D														B (17.9)						B (17.9)	A (5.3)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (18.5)									B (18.5)		A (6.2)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (33.1)				C (23.7)										C (33.1)	C (23.7)			C (28.9)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												D (35.5)							D (35.5)		A (8.8)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		F (479.8)	C (30.5)	C (28.4)	s	C (27.5)	C (24.7)	s		D (42.8)	D (39.4)	C (33.0)		D (46.6)	D (44.5)	D (35.7)	F (140.4)	C (24.9)	D (41.1)	D (36.9)	F (85.2)
17	US Route 1 & Hospital Center Boulevard		E (78.4)	D (44.7)	B (19.2)		E (61.7)	C (30.5)	s		D (52.1)	C (34.4)	C (21.7)		F (159.4)	D (47.4)	C (32.3)	D (41.3)	D (36.0)	D (39.7)	E (63.3)	D (43.1)
18	US Route 1 & Courthouse Road		s	E (77.5)	s		s	F (84.0)	D (39.0)		s	E (56.4)	s		s	E (72.0)	s	E (77.5)	E (59.7)	E (56.4)	E (72.0)	E (64.5)

Table 18: 2031 No-Build LOS and Control Delay PM Peak Hour

LOS & Delay Summary Table   2031 No-Build   PM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	<i>Unsignalized Intersections in Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		E (62.3)	D (54.7)	D (50.7)		D (51.0)	E (63.1)	D (40.2)		A (8.2)	D (41.7)	C (27.4)		C (32.2)	B (12.2)	A (6.1)	E (59.9)	D (41.4)	D (40.3)	B (18.4)	C (30.0)
2	Mine Road & Sunflower Drive		s	F (106.9)	E (57.7)		D (48.6)	D (38.8)	C (29.7)	s	F (84.2)	D (46.0)	B (16.0)		D (46.0)	E (56.9)	D (37.1)	F (84.4)	D (44.3)	D (52.8)	D (52.0)	D (52.3)
3	Mine Road & Courthouse Road		F (224.5)	B (17.0)	A (0.0)		A (0.0)	E (57.9)	B (12.8)			A (0.0)			E (67.1)		B (17.0)	F (97.5)	D (41.3)	A (0.0)	D (53.7)	E (61.1)
4	Austin Ridge Drive & Courthouse Road		D (36.6)	F (81.8)	s		E (72.0)	E (63.5)	s		E (74.0)	E (70.7)	E (62.1)		F (105.2)	F (122.6)	D (42.8)	F (81.1)	E (63.7)	E (67.7)	F (106.8)	E (75.8)
5	Austin Ridge Drive & Sunflower Drive		E (45.7)	A (0.0)	B (12.5)						A (9.2)				A (0.0)							- (-)
6	Courthouse Road (WB) & Ramp D																D (39.6)				D (39.6)	A (8.0)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			D (43.4)				C (28.7)										D (43.4)	C (28.7)			D (35.7)
9	Courthouse Road (EB) & Spur D														C (27.1)						C (27.1)	A (7.9)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										C (24.1)									C (24.1)		A (5.5)
13	Courthouse Road (WB) & Courthouse Road (EB)			E (59.5)				D (53.9)										E (59.5)	D (53.9)			E (56.7)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												C (29.6)							C (29.6)		A (4.9)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		F (163.8)	D (54.8)	C (31.0)	s	D (36.0)	C (34.4)	s		D (46.6)	D (39.4)	C (33.5)		E (69.2)	D (50.4)	D (44.7)	E (69.6)	C (34.5)	D (44.7)	D (47.5)	D (52.9)
17	US Route 1 & Hospital Center Boulevard		F (177.1)	F (103.6)	F (111.5)		F (130.4)	F (91.4)	s		F (97.2)	D (37.0)	C (21.7)		E (66.3)	F (94.0)	C (34.0)	F (118.1)	F (99.2)	E (68.2)	E (77.1)	F (95.9)
18	US Route 1 & Courthouse Road		s	F (128.4)	s		s	F (121.4)	E (57.0)		s	F (96.6)	s		s	F (107.2)	s	F (128.4)	F (98.8)	F (96.6)	F (107.2)	F (105.5)



Table 19: 2031 No-Build LOS and Control Delay SUN Peak Hour

LOS & Delay Summary Table   2031 No-Build   SUN Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	<i>Unsignalized Intersections in Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (38.7)	D (37.0)	C (34.6)		C (35.0)	D (48.7)	D (39.9)		A (9.0)	C (23.9)	B (17.4)		B (17.1)	B (12.4)	A (7.3)	D (38.0)	D (40.0)	C (23.6)	B (13.6)	C (21.9)
2	Mine Road & Sunflower Drive		s	F (142.9)	D (46.0)		D (38.9)	C (32.9)	C (27.6)	s	E (71.0)	D (39.0)	B (16.2)		F (94.7)	D (37.5)	C (30.0)	F (86.7)	D (36.2)	D (43.3)	D (53.5)	D (50.2)
3	Mine Road & Courthouse Road		E (70.9)	B (15.7)	A (0.0)		A (0.0)	D (41.1)	B (11.5)			A (0.0)			D (39.2)		B (10.4)	D (38.6)	C (28.2)	A (0.0)	C (32.4)	C (32.9)
4	Austin Ridge Drive & Courthouse Road		C (21.2)	E (59.7)	s		F (95.4)	C (29.4)	s		E (62.3)	E (59.0)	D (51.2)		F (88.6)	F (99.6)	D (39.8)	E (59.6)	C (34.4)	E (56.3)	F (90.3)	D (51.7)
5	Austin Ridge Drive & Sunflower Drive		D (26.9)	A (0.0)	B (11.0)						A (8.8)				A (0.0)	(-)	(-)	C (15.5)				- (-)
6	Courthouse Road (WB) & Ramp D																C (23.9)				C (23.9)	A (5.2)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (26.5)				C (33.7)										C (26.5)	C (33.7)			C (30.1)
9	Courthouse Road (EB) & Spur D														B (19.4)						B (19.4)	A (4.6)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (17.4)									B (17.4)		A (4.7)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (28.8)				C (29.1)										C (28.8)	C (29.1)			C (28.9)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												C (23.9)							C (23.9)		A (4.8)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (73.6)	F (80.7)	C (30.9)	s	C (25.7)	C (29.2)	s		D (38.8)	C (33.2)	C (27.7)		D (42.7)	D (41.4)	C (29.5)	E (73.9)	C (28.9)	D (37.4)	C (31.3)	D (51.3)
17	US Route 1 & Hospital Center Boulevard		F (249.0)	E (56.6)	C (34.5)		F (90.1)	C (32.8)	s		E (71.2)	C (30.9)	B (20.0)		F (137.2)	E (57.4)	C (31.6)	E (77.2)	D (45.3)	D (51.3)	E (59.2)	E (61.5)
18	US Route 1 & Courthouse Road		s	D (51.6)	s		s	E (69.5)	D (36.6)		s	E (57.5)	s		s	D (42.6)	s	D (51.6)	E (57.1)	E (57.5)	D (42.6)	D (49.8)

**Table 20: 2031 No-Build Queues AM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 No-Build   AM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		182	47	22		46	43	180		38	156	35		231	323	31
2	Mine Road & Sunflower Drive		s	60	20		100	0	49	s	82	214	70		119	237	48
3	Mine Road & Courthouse Road		274	495	497		0	244	151			0			382		78
4	Austin Ridge Drive & Courthouse Road		274	1,000+	587		174	283	s		6	39	14		543	408	292
5	Austin Ridge Drive & Sunflower Drive		39	0	64						95				0		
6	Courthouse Road (WB) & Ramp D																1,000+
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			1,000+				430									
9	Courthouse Road (EB) & Spur D														1,000+		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										1,000+						
13	Courthouse Road (WB) & Courthouse Road (EB)			1,000+				330									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		250	1,000+	242	s	195	249	s		278	70	80		93	70	333
17	US Route 1 & Hospital Center Boulevard		98	280	198		174	287	s		357	292	113		219	161	234
18	US Route 1 & Courthouse Road		s	300	s		s	655	1,000+		s	357	s		s	406	s

**Table 21: 2031 No-Build Queues PM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 No-Build   PM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		215	64	30		65	53	263		38	310	74		250	493	41
2	Mine Road & Sunflower Drive		s	164	93		304	30	93	s	293	576	240		330	947	340
3	Mine Road & Courthouse Road		320	1,000+	1,000+		0	494	300			0			503		190
4	Austin Ridge Drive & Courthouse Road		299	1,000+	s		329	459	s		17	134	101		792	796	350
5	Austin Ridge Drive & Sunflower Drive		93	0	78						74				0		
6	Courthouse Road (WB) & Ramp D																1,000+
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			574				1,000+									
9	Courthouse Road (EB) & Spur D														1,000+		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B									1,000+							
13	Courthouse Road (WB) & Courthouse Road (EB)			910				996									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche		250	446	253	s	193	338	s		323	536	98		137	280	564
17	US Route 1 & Hospital Center Boulevard		425	672	786		175	1,000+	s		389	824	189		184	376	308
18	US Route 1 & Courthouse Road		s	286	s		s	468	220		s	401	s		s	1,000+	s

**Table 22: 2031 No-Build Queues SUN Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 No-Build   SUN Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		108	57	36		39	48	191		18	189	9		238	193	17
2	Mine Road & Sunflower Drive		s	507	265		456	198	81	s	298	356	223		330	906	171
3	Mine Road & Courthouse Road		320	908	869		0	269	213			0			823		330
4	Austin Ridge Drive & Courthouse Road		159	1,000+	s		171	369	s		17	120	72		548	552	350
5	Austin Ridge Drive & Sunflower Drive		62	0	61						84				0		
6	Courthouse Road (WB) & Ramp D																1,000+
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			1,000+				457									
9	Courthouse Road (EB) & Spur D														1,000+		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B									1,000+							
13	Courthouse Road (WB) & Courthouse Road (EB)			1,000+				400									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche		250	1,000+	250	s	195	351	s		324	460	107		78	56	198
17	US Route 1 & Hospital Center Boulevard		160	272	259		174	407	s		371	381	90		191	258	235
18	US Route 1 & Courthouse Road		s	194	s		s	181	146		s	253	s		s	356	s

Table 23: 2025 Build LOS and Control Delay AM Peak Hour

LOS & Delay Summary Table   2025 Build   AM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (35.5)	C (31.1)	C (30.0)		C (29.1)	D (47.3)	C (30.1)		B (10.9)	B (19.9)	B (15.9)		B (13.2)	B (12.7)	A (7.6)	C (35.0)	C (30.5)	B (19.5)	B (12.4)	C (21.1)
2	Mine Road & Sunflower Drive		s	D (38.5)	D (35.4)		C (34.2)	A (0.0)	C (28.5)	s	B (17.1)	C (22.0)	B (16.2)		B (17.3)	C (20.9)	B (18.7)	D (37.2)	C (32.4)	C (20.4)	C (20.1)	C (21.8)
3	Mine Road & Courthouse Road		B (13.1)	A (9.8)	A (0.0)		A (0.0)	C (20.5)	A (6.7)			A (0.0)			C (31.4)		B (16.4)	B (10.4)	B (16.8)	A (0.0)	C (28.6)	B (16.2)
4	Austin Ridge Drive & Courthouse Road		C (21.9)	C (33.0)	s		E (57.3)	C (24.2)	A (0.8)		D (54.8)	D (54.8)	D (49.4)		D (47.8)	E (56.2)	C (25.6)	C (32.6)	B (17.1)	D (50.5)	D (49.5)	C (30.3)
5	Austin Ridge Drive & Sunflower Drive		E (57.9)	E (57.2)	E (55.9)		E (56.3)	A (0.0)	A (0.0)		B (10.5)	B (11.3)	A (0.7)		A (0.0)	A (8.4)	s	E (56.9)	E (56.3)	A (7.8)	A (8.4)	B (14.0)
6	Courthouse Road (WB) & I-95 SB Off-Ramp																B (18.2)				B (18.2)	A (2.5)
7	Courthouse Road (EB) & I-95 SB On-Ramp																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			B (18.7)				C (33.0)										B (18.7)	C (33.0)			C (26.0)
9	Courthouse Road (EB) & I-95 SB Off-Ramp														C (26.9)						C (26.9)	A (7.0)
10	Courthouse Road (WB) & I-95 SB On-Ramp																					- (-)
11	Courthouse Road (EB) & I-95 NB On-Ramp																					- (-)
12	Courthouse Road (WB) & I-95 NB Off-Ramp										B (14.6)									B (14.6)		A (5.9)
13	Courthouse Road (WB) & Courthouse Road (EB)			B (11.4)				D (36.9)										B (11.4)	D (36.9)			C (22.9)
14	Courthouse Road (WB) & I-95 NB On-Ramp																					- (-)
15	Courthouse Road (EB) & I-95 NB Off-Ramp												D (42.4)							A (0.1)		B (10.3)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (57.2)	B (20.0)	C (20.2)	s	B (15.4)	C (28.5)	s		D (53.1)	D (50.3)	D (44.5)		D (52.1)	D (51.3)	C (31.5)	C (30.3)	C (27.5)	D (51.6)	C (33.4)	C (31.8)
17	US Route 1 & Hospital Center Boulevard		D (43.0)	D (38.3)	C (20.3)		D (42.5)	C (33.0)	s		D (38.7)	C (25.8)	B (15.3)		D (45.1)	C (34.3)	C (21.2)	C (33.0)	C (34.8)	C (29.6)	C (31.5)	C (31.8)
18	US Route 1 & Courthouse Road		s	D (49.9)	s		s	E (59.5)	D (36.5)		s	D (35.2)	s		s	D (49.7)	s	D (49.9)	D (46.0)	D (35.2)	D (49.7)	D (43.6)
19	Austin Ridge Driveway & Driveway 2								B (10.3)											B (10.3)		- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						B (12.9)		s	B (10.3)		A (6.6)	A (0.7)		s	B (13.6)			B (12.9)	A (7.4)	B (13.6)	B (10.7)
21	Buc-ee's Boulevard & Driveway 3												A (8.8)							A (8.8)		- (-)
22	Buc-ee's Boulevard & Driveway 4	s									A (9.3)		A (0.0)					A (7.3)		A (9.3)		- (-)

Table 24: 2025 Build LOS and Control Delay PM Peak Hour

LOS & Delay Summary Table   2025 Build   PM Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (35.3)	C (34.7)	C (32.5)		C (32.2)	D (53.7)	D (35.9)		B (10.6)	C (24.4)	B (18.8)		B (19.3)	B (14.6)	A (7.6)	C (34.9)	D (36.3)	C (23.6)	B (15.4)	C (22.0)
2	Mine Road & Sunflower Drive		s	E (68.1)	E (60.3)		E (61.9)	E (55.8)	D (45.6)	s	C (20.5)	C (27.0)	B (14.9)		B (18.4)	C (33.9)	C (29.6)	E (64.5)	E (57.2)	C (24.0)	C (29.6)	C (33.2)
3	Mine Road & Courthouse Road		B (19.5)	A (9.3)	A (0.0)		A (0.0)	C (29.5)	A (9.5)			A (0.0)			D (51.0)		C (20.7)	B (13.0)	C (23.0)	A (0.0)	D (41.4)	C (25.1)
4	Austin Ridge Drive & Courthouse Road		C (34.9)	D (41.0)	s		E (68.2)	D (44.4)	A (1.0)		E (64.1)	E (64.1)	E (59.4)		D (51.7)	E (55.6)	C (25.5)	D (40.6)	C (29.8)	E (60.4)	D (51.2)	D (38.9)
5	Austin Ridge Drive & Sunflower Drive		E (60.0)	E (56.8)	E (56.4)		E (61.3)	A (0.0)	A (0.0)		A (9.7)	B (11.4)	A (3.4)		A (0.0)	B (13.7)	s	E (57.8)	E (61.3)	A (8.4)	B (13.7)	B (19.8)
6	Courthouse Road (WB) & Ramp D																C (20.4)				C (20.4)	A (3.5)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (27.2)				D (35.3)										C (27.2)	D (35.3)			C (31.5)
9	Courthouse Road (EB) & Spur D														C (31.7)						C (31.7)	A (9.3)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (18.5)									B (18.5)		A (6.5)
13	Courthouse Road (WB) & Courthouse Road (EB)			B (17.3)				C (26.2)										B (17.3)	C (26.2)			C (21.5)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												C (33.9)							C (33.9)		A (5.3)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		D (51.8)	C (25.4)	C (21.2)	s	A (9.7)	C (22.7)	s		E (57.7)	D (51.8)	D (45.8)		D (54.2)	D (53.0)	D (37.3)	C (29.6)	C (21.9)	E (55.9)	D (39.5)	C (32.0)
17	US Route 1 & Hospital Center Boulevard		F (97.8)	C (28.0)	D (45.7)		E (69.0)	D (44.9)	s		E (60.9)	C (25.7)	B (15.1)		E (67.3)	D (43.7)	C (24.4)	D (46.7)	D (50.5)	D (43.2)	D (41.0)	D (45.4)
18	US Route 1 & Courthouse Road		s	F (85.4)	s		s	F (108.5)	E (59.8)		s	E (58.8)	s		s	D (50.4)	s	F (85.4)	F (89.8)	E (58.8)	D (50.4)	E (61.8)
19	Austin Ridge Driveway & Driveway 2								B (11.4)											B (11.4)		- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						B (19.0)		s	A (5.4)		A (4.5)	A (0.7)		s	B (10.2)			B (19.0)	A (4.6)	B (10.2)	A (9.3)
21	Buc-ee's Boulevard & Driveway 3												A (9.0)							A (9.0)		- (-)
22	Buc-ee's Boulevard & Driveway 4	s									A (9.8)		A (0.0)					A (7.5)		A (9.8)		- (-)

Table 25: 2025 Build LOS and Control Delay SUN Peak Hour

LOS & Delay Summary Table   2025 Build   SUN Peak Hour																						
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
	Unsignalized Intersections in <i>Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		C (32.0)	C (30.8)	C (29.4)		C (28.6)	D (37.9)	C (27.1)		A (10.0)	B (16.6)	B (13.2)		B (12.4)	B (12.1)	A (8.3)	C (31.5)	C (27.5)	B (16.4)	B (11.8)	B (16.8)
2	Mine Road & Sunflower Drive		s	D (53.4)	C (34.3)		C (33.5)	C (31.3)	C (25.6)	s	C (30.3)	C (31.6)	B (19.3)		C (26.7)	C (32.2)	C (28.6)	D (42.3)	C (31.1)	C (30.2)	C (29.9)	C (32.3)
3	Mine Road & Courthouse Road		B (18.1)	B (11.2)	A (0.0)		A (0.0)	C (27.2)	A (8.3)			A (0.0)			C (30.0)		B (12.3)	B (14.0)	B (19.9)	A (0.0)	C (25.2)	B (19.8)
4	Austin Ridge Drive & Courthouse Road		C (34.8)	D (47.9)	s		E (77.8)	D (42.5)	A (1.3)		E (78.9)	E (78.8)	E (69.4)		D (50.4)	D (53.8)	C (24.8)	D (47.8)	C (25.0)	E (71.4)	D (51.1)	D (40.0)
5	Austin Ridge Drive & Sunflower Drive		D (49.6)	A (0.0)	D (45.7)		D (45.0)	A (0.0)	A (0.0)		B (11.3)	B (12.8)	A (3.4)		A (0.0)	B (18.0)	s	D (47.1)	D (45.0)	A (7.8)	B (18.0)	B (19.4)
6	Courthouse Road (WB) & Ramp D																B (16.7)		A (0.1)		B (16.7)	A (2.3)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			C (25.2)				C (25.1)										C (25.2)	C (25.1)			C (25.2)
9	Courthouse Road (EB) & Spur D														C (21.8)			A (0.1)			C (21.8)	A (4.1)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B										B (13.9)								A (0.1)	B (13.9)		A (6.3)
13	Courthouse Road (WB) & Courthouse Road (EB)			B (13.5)				C (24.3)										B (13.5)	C (24.3)			B (18.6)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B											C (30.0)								C (30.0)		A (5.6)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (62.0)	A (9.9)	A (9.0)	s	B (17.2)	C (23.2)	s		D (42.6)	D (38.8)	C (34.0)		D (44.5)	D (43.8)	C (30.1)	B (15.9)	C (22.9)	D (41.6)	C (31.7)	C (23.0)
17	US Route 1 & Hospital Center Boulevard		D (47.3)	D (42.1)	C (30.8)		D (46.9)	D (35.1)	s		D (43.6)	C (22.7)	B (13.5)		D (52.1)	D (35.6)	B (19.9)	D (38.6)	D (38.1)	C (32.7)	C (32.1)	D (35.7)
18	US Route 1 & Courthouse Road		s	E (62.3)	s		s	E (58.0)	D (46.3)		s	D (42.1)	s		s	C (29.1)	s	E (62.3)	D (52.7)	D (42.1)	C (29.1)	D (38.3)
19	Austin Ridge Driveway & Driveway 2																					- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						B (16.9)		A (0.0)	B (10.3)		A (6.4)	A (1.9)		A (0.0)	B (15.4)				A (8.0)	B (15.4)	B (12.5)
21	Buc-ee's Boulevard & Driveway 3												A (9.4)							A (9.4)		- (-)
22	Buc-ee's Boulevard & Driveway 4	s									B (10.9)		A (0.0)					A (8.0)		B (10.9)		- (-)

**Table 26: 2025 Build Queues AM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 Build   AM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		140	41	24		46	48	154		37	131	35		155	106	13
2	Mine Road & Sunflower Drive		s	62	22		70	0	27	s	84	129	48		93	174	45
3	Mine Road & Courthouse Road		148	171	179		0	240	86			0			201		70
4	Austin Ridge Drive & Courthouse Road		93	324	s		113	238	0		1	14	2		372	377	196
5	Austin Ridge Drive & Sunflower Drive		41	28	32		202	0	0		42	144	54		0	162	s
6	Courthouse Road (WB) & I-95 SB Off-Ramp																133
7	Courthouse Road (EB) & I-95 SB On-Ramp																
8	Courthouse Road (EB) & Courthouse Road (WB)			477				625									
9	Courthouse Road (EB) & I-95 SB Off-Ramp														232		
10	Courthouse Road (WB) & I-95 SB On-Ramp																
11	Courthouse Road (EB) & I-95 NB On-Ramp																
12	Courthouse Road (WB) & I-95 NB Off-Ramp										178						
13	Courthouse Road (WB) & Courthouse Road (EB)			508				419									
14	Courthouse Road (WB) & I-95 NB On-Ramp																
15	Courthouse Road (EB) & I-95 NB Off-Ramp												478				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		246	273	210	s	166	211	s		256	75	77		63	69	274
17	US Route 1 & Hospital Center Boulevard		120	239	200		149	174	214		288	216	64		89	151	155
18	US Route 1 & Courthouse Road		s	187	s		s	464	1,000+		s	316	s		s	281	s
19	Austin Ridge Driveway & Driveway 2								80								
20	Austin Ridge Driveway & Buc-ee's Boulevard						70		s	143		110	21		s	190	
21	Buc-ee's Boulevard & Driveway 3												67				
22	Buc-ee's Boulevard & Driveway 4	s									0		0				

**Table 27: 2025 Build Queues PM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 Build   PM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		145	48	30		54	47	151		34	165	38		235	256	40
2	Mine Road & Sunflower Drive		s	151	57		164	23	63	s	276	281	144		206	310	68
3	Mine Road & Courthouse Road		312	391	279		0	396	204			0			333		122
4	Austin Ridge Drive & Courthouse Road		218	362	s		109	452	0		4	53	20		441	458	350
5	Austin Ridge Drive & Sunflower Drive		94	34	55		305	0	0		26	123	40		0	215	s
6	Courthouse Road (WB) & Ramp D																195
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			470				1,000+									
9	Courthouse Road (EB) & Spur D														281		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										1,000+						
13	Courthouse Road (WB) & Courthouse Road (EB)			584				459									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		227	371	250	s	129	204	s		296	95	96		125	80	319
17	US Route 1 & Hospital Center Boulevard		189	318	362		174	344	s		328	142	80		124	331	254
18	US Route 1 & Courthouse Road		s	269	s		s	374	204		s	323	s		s	564	s
19	Austin Ridge Driveway & Driveway 2								88								
20	Austin Ridge Driveway & Buc-ee's Boulevard						100		s	123		142	28		s	164	
21	Buc-ee's Boulevard & Driveway 3												72				
22	Buc-ee's Boulevard & Driveway 4	s									78		0				



**Table 28: 2025 Build Queues SUN Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2025 Build   SUN Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		97	55	31		34	39	117		19	110	3		126	85	24
2	Mine Road & Sunflower Drive		s	169	113		113	42	49	s	222	202	60		187	171	50
3	Mine Road & Courthouse Road		236	114	127		0	213	119			0			239		87
4	Austin Ridge Drive & Courthouse Road		22	359	s		120	344	0		6	54	15		639	640	291
5	Austin Ridge Drive & Sunflower Drive		63	0	50		309	0	0		18	106	50		0	232	s
6	Courthouse Road (WB) & Ramp D																139
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			523				893									
9	Courthouse Road (EB) & Spur D														145		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B									1,000+							
13	Courthouse Road (WB) & Courthouse Road (EB)			288				329									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B											1,000+					
16	Courthouse Road/Hospital Center Boulevard & Wyche		167	267	178	s	193	184	s		256	38	80		66	50	183
17	US Route 1 & Hospital Center Boulevard		144	233	224		169	208	s		247	117	52		84	209	192
18	US Route 1 & Courthouse Road		s	162	s		s	150	148		s	237	s		s	292	s
19	Austin Ridge Driveway & Driveway 2								142								
20	Austin Ridge Driveway & Buc-ee's Boulevard						123		117	161		102	36		117	170	
21	Buc-ee's Boulevard & Driveway 3												95				
22	Buc-ee's Boulevard & Driveway 4	s									139		0				

Table 29: 2031 Build LOS and Control Delay AM Peak Hour

LOS & Delay Summary Table   2031 Build   AM Peak Hour																							
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection	
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB		
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (47.1)	D (36.7)	D (35.2)		C (32.8)	D (54.3)	D (48.1)		A (10.0)	C (23.2)	B (16.8)		B (14.4)	B (12.5)	A (7.0)	D (45.9)	D (47.4)	C (22.7)	B (12.9)	C (25.8)	
2	Mine Road & Sunflower Drive		s	D (41.6)	D (37.7)		C (34.1)	A (0.0)	C (25.6)	s	B (18.8)	C (27.9)	B (17.6)		B (19.9)	C (25.8)	C (21.6)	D (40.0)	C (32.1)	C (24.5)	C (24.4)	C (25.7)	
3	Mine Road & Courthouse Road		B (15.4)	B (10.5)	A (0.0)		A (0.0)	C (22.6)	A (7.6)		A (0.0)				D (42.7)		B (19.4)	B (11.6)	B (17.6)	A (0.0)	D (38.9)	B (19.6)	
4	Austin Ridge Drive & Courthouse Road		C (24.4)	D (45.1)	s		E (76.4)	C (30.7)	A (1.3)		E (70.6)	E (70.5)	E (57.3)		F (82.0)	F (98.7)	C (34.0)	D (44.5)	C (25.0)	E (59.9)	F (85.5)	D (44.4)	
5	Austin Ridge Drive & Sunflower Drive		C (29.7)	C (28.8)	C (28.6)		F (91.6)	A (0.0)	A (0.0)		B (13.7)				A (0.0)	A (9.2)	s	C (28.9)	F (91.6)	A (7.5)	A (9.2)	B (15.9)	
6	Courthouse Road (WB) & Ramp D																C (26.5)				C (26.5)	A (4.7)	
7	Courthouse Road (EB) & Ramp C																					- (-)	
8	Courthouse Road (EB) & Courthouse Road (WB)			C (29.8)				D (41.0)										C (29.8)	D (41.0)			D (35.6)	
9	Courthouse Road (EB) & Spur D														C (31.2)					C (31.2)		A (8.2)	
10	Courthouse Road (WB) & Spur C																					- (-)	
11	Courthouse Road (EB) & Spur A																					- (-)	
12	Courthouse Road (WB) & Spur B									C (24.7)										C (24.7)		A (9.6)	
13	Courthouse Road (WB) & Courthouse Road (EB)			C (20.8)				C (33.4)										C (20.8)	C (33.4)			C (26.5)	
14	Courthouse Road (WB) & Ramp A																					- (-)	
15	Courthouse Road (EB) & Ramp B												D (47.4)							D (47.4)		B (11.4)	
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		E (76.1)	B (18.5)	B (16.6)	s	C (22.0)	D (37.0)	s		E (68.3)	E (61.4)	D (51.5)		E (64.4)	E (62.8)	D (39.2)	C (32.0)	D (35.7)	E (65.2)	D (42.0)	D (37.2)	
17	US Route 1 & Hospital Center Boulevard		E (63.6)	D (49.1)	C (20.3)		E (64.7)	D (35.2)	s		D (53.0)	D (38.3)	C (24.2)		E (65.7)	D (49.1)	C (33.6)	D (42.4)	D (40.4)	D (42.3)	D (46.5)	D (42.7)	
18	US Route 1 & Courthouse Road		s	F (81.3)	s		s	F (104.4)	D (54.6)		s	E (58.4)	s		s	E (62.3)	s	F (81.3)	E (77.6)	E (58.4)	E (62.3)	E (65.6)	
19	Austin Ridge Driveway & Driveway 2								B (10.7)										B (10.7)				- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						B (19.1)		s	A (7.5)		A (5.8)	A (1.8)		s	B (11.6)			B (19.1)	A (6.0)	B (11.6)	B (10.2)	
21	Buc-ee's Boulevard & Driveway 3												A (8.8)							A (8.8)		- (-)	
22	Buc-ee's Boulevard & Driveway 4	s									A (9.3)		A (0.0)					A (7.3)		A (9.3)		- (-)	

Table 30: 2031 Build LOS and Control Delay PM Peak Hour

LOS & Delay Summary Table   2031 Build   PM Peak Hour																							
ID	Intersection Name	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection	
	Unsignalized Intersections in <i>Green</i>	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB		
1	Mine Road & Coastal Avenue/Austin Ridge Drive		E (68.1)	E (55.2)	D (49.5)		D (48.8)	E (57.9)	D (38.4)		A (8.0)	D (41.0)	C (25.5)		C (34.2)	B (12.1)	A (6.6)	E (64.1)	D (39.4)	D (39.5)	B (19.2)	C (30.0)	
2	Mine Road & Sunflower Drive		s	F (123.5)	E (60.7)		D (51.4)	D (41.0)	C (31.0)	s	E (60.2)	D (45.1)	B (16.0)		D (44.1)	E (60.6)	D (39.1)	F (94.7)	D (46.8)	D (45.8)	D (54.3)	D (51.1)	
3	Mine Road & Courthouse Road		F (188.6)	B (18.2)	A (0.0)		A (0.0)	E (80.0)	A (3.3)			A (0.0)			E (63.9)		B (16.1)	F (82.4)	D (52.3)	A (0.0)	D (51.1)	E (60.4)	
4	Austin Ridge Drive & Courthouse Road		D (37.3)	E (55.4)	s		E (66.7)	F (86.3)	A (1.6)		E (71.6)	E (71.6)	E (64.4)		F (114.8)	F (124.0)	F (103.8)	D (54.8)	E (59.3)	E (65.8)	F (117.1)	E (71.0)	
5	Austin Ridge Drive & Sunflower Drive		E (71.7)	E (62.5)	E (73.9)		E (78.4)	A (0.0)	A (0.0)		C (25.5)	B (15.9)	B (10.2)		A (0.0)	B (12.7)	s	E (72.7)	E (78.4)	B (15.4)	B (12.7)	C (26.6)	
6	Courthouse Road (WB) & Ramp D																C (31.1)				C (31.1)	A (5.5)	
7	Courthouse Road (EB) & Ramp C																					- (-)	
8	Courthouse Road (EB) & Courthouse Road (WB)			E (77.2)				F (100.5)										E (77.2)	F (100.5)			F (89.3)	
9	Courthouse Road (EB) & Spur D														C (30.9)						C (30.9)	A (7.9)	
10	Courthouse Road (WB) & Spur C																					- (-)	
11	Courthouse Road (EB) & Spur A																					- (-)	
12	Courthouse Road (WB) & Spur B										C (27.7)									C (27.7)		A (8.2)	
13	Courthouse Road (WB) & Courthouse Road (EB)			D (36.9)				D (51.9)										D (36.9)	D (51.9)			D (44.3)	
14	Courthouse Road (WB) & Ramp A																					- (-)	
15	Courthouse Road (EB) & Ramp B												C (35.0)							C (35.0)		A (5.6)	
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		F (103.7)	C (21.0)	B (14.6)	s	D (52.1)	D (39.4)	s		E (72.3)	E (57.1)	D (48.6)		E (66.8)	E (63.4)	D (51.1)	C (33.1)	D (40.1)	E (68.8)	D (53.2)	D (41.8)	
17	US Route 1 & Hospital Center Boulevard		F (159.2)	E (77.5)	F (99.6)		F (175.1)	F (97.3)	s		F (90.9)	D (41.5)	C (25.2)		F (81.0)	F (115.0)	D (42.2)	F (99.9)	F (112.8)	E (67.3)	F (92.6)	F (95.4)	
18	US Route 1 & Courthouse Road		s	F (122.1)	s		s	F (183.7)	E (59.6)		s	F (101.8)	s		s	F (103.6)	s	F (122.1)	F (140.1)	F (101.8)	F (103.6)	F (109.8)	
19	Austin Ridge Driveway & Driveway 2								B (12.7)										B (12.7)				- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						B (18.9)		s	A (5.5)		A (5.6)	A (0.7)		s	B (11.0)			B (18.9)	A (5.4)	B (11.0)	A (9.6)	
21	Buc-ee's Boulevard & Driveway 3												A (9.0)									- (-)	
22	Buc-ee's Boulevard & Driveway 4	s									A (9.8)		A (0.0)									- (-)	

Table 31: 2031 Build LOS and Control Delay SUN Peak Hour

LOS & Delay Summary Table   2031 Build   SUN Peak Hour																						
ID	Intersection Name <i>Unsignalized Intersections in Green</i>	Eastbound				Westbound				Northbound				Southbound				Approach				Intersection
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EB	WB	NB	SB	
1	Mine Road & Coastal Avenue/Austin Ridge Drive		D (38.7)	D (37.0)	C (34.6)		C (35.0)	D (48.7)	D (39.9)		A (9.0)	C (23.9)	B (17.4)		B (17.1)	B (12.4)	A (7.3)	D (38.0)	D (40.0)	C (23.6)	B (13.6)	C (21.9)
2	Mine Road & Sunflower Drive		s	F (106.6)	E (55.1)		D (50.6)	D (42.4)	C (27.0)	s	C (31.4)	D (53.9)	C (22.6)		C (32.3)	D (50.4)	D (38.6)	E (76.8)	D (45.1)	D (42.9)	D (44.3)	D (47.8)
3	Mine Road & Courthouse Road		E (58.4)	B (19.7)	A (0.0)		A (0.0)	E (55.2)	B (13.9)			A (0.0)			D (43.4)		B (10.5)	D (35.7)	D (37.1)	A (0.0)	D (35.7)	D (36.2)
4	Austin Ridge Drive & Courthouse Road		D (39.4)	E (68.9)	s		F (150.7)	D (44.1)	A (2.3)		F (86.6)	F (86.7)	E (74.7)		F (84.4)	F (94.5)	C (28.8)	E (68.8)	C (34.3)	E (77.2)	F (87.0)	E (59.1)
5	Austin Ridge Drive & Sunflower Drive		E (57.7)	A (0.0)	F (97.1)		F (116.1)	A (0.0)	A (0.0)		F (101.5)	B (11.0)	B (10.6)		A (0.0)	B (15.4)	s	F (85.9)	F (116.1)	C (23.8)	B (15.4)	D (35.9)
6	Courthouse Road (WB) & Ramp D																C (29.9)				C (29.9)	A (5.0)
7	Courthouse Road (EB) & Ramp C																					- (-)
8	Courthouse Road (EB) & Courthouse Road (WB)			D (54.2)				E (72.3)										D (54.2)	E (72.3)			E (63.2)
9	Courthouse Road (EB) & Spur D														C (33.1)					C (33.1)		A (6.2)
10	Courthouse Road (WB) & Spur C																					- (-)
11	Courthouse Road (EB) & Spur A																					- (-)
12	Courthouse Road (WB) & Spur B									C (29.4)										C (29.4)		B (11.5)
13	Courthouse Road (WB) & Courthouse Road (EB)			C (23.2)				D (40.7)										C (23.2)	D (40.7)			C (31.5)
14	Courthouse Road (WB) & Ramp A																					- (-)
15	Courthouse Road (EB) & Ramp B												D (40.3)							D (40.3)		A (7.7)
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		F (110.9)	B (16.8)	B (12.5)	s	C (28.0)	C (27.8)	s		E (76.3)	E (63.3)	D (54.0)		E (78.9)	E (76.5)	E (59.1)	C (26.1)	C (27.8)	E (73.4)	E (61.8)	D (35.6)
17	US Route 1 & Hospital Center Boulevard		E (79.2)	E (67.6)	D (50.0)		F (93.5)	D (49.1)	s		E (67.2)	D (37.3)	C (23.6)		E (70.3)	E (62.5)	D (37.2)	E (63.0)	E (58.8)	D (52.3)	D (54.6)	E (58.2)
18	US Route 1 & Courthouse Road		s	E (79.7)	s		s	E (76.2)	D (46.5)		s	E (60.9)	s		s	D (40.6)	s	E (79.7)	E (65.0)	E (60.9)	D (40.6)	D (52.9)
19	Austin Ridge Driveway & Driveway 2								B (13.3)													- (-)
20	Austin Ridge Driveway & Buc-ee's Boulevard						C (21.4)		A (0.0)	A (9.7)		A (5.2)	A (1.7)		A (0.0)	B (12.3)			C (21.4)	A (6.6)	B (12.3)	B (11.9)
21	Buc-ee's Boulevard & Driveway 3												A (9.6)							A (9.6)		- (-)
22	Buc-ee's Boulevard & Driveway 4	s									B (11.0)		A (0.0)					A (7.1)		B (11.0)		- (-)

**Table 32: 2031 Build Queues AM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 Build   AM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		178	41	24		62	47	203		40	168	39		231	230	33
2	Mine Road & Sunflower Drive		s	62	26		112	0	45	s	89	203	107		123	242	47
3	Mine Road & Courthouse Road		265	270	256		0	346	152			0			291		80
4	Austin Ridge Drive & Courthouse Road		300	483	s		245	419	0		1	37	17		713	500	350
5	Austin Ridge Drive & Sunflower Drive		41	18	43		219	0	0		170				0	121	s
6	Courthouse Road (WB) & Ramp D																234
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			950				1,000+									
9	Courthouse Road (EB) & Spur D														443		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B									1,000+							
13	Courthouse Road (WB) & Courthouse Road (EB)			1,000+				470									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche		250	424	250	s	200	347	s		322	229	122		107	70	327
17	US Route 1 & Hospital Center Boulevard		149	400	299		174	290	s		374	376	117		182	180	305
18	US Route 1 & Courthouse Road		s	264	s		s	1,000+	1,000+		s	443	s		s	461	s
19	Austin Ridge Driveway & Driveway 2								86								
20	Austin Ridge Driveway & Buc-ee's Boulevard						80		s	106		118	33		s	222	
21	Buc-ee's Boulevard & Driveway 3												62				
22	Buc-ee's Boulevard & Driveway 4	s									64		0				

**Table 33: 2031 Build Queues PM Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 Build   PM Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		180	60	33		61	59	276		39	335	40		250	612	71
2	Mine Road & Sunflower Drive		s	211	95		326	25	90	s	293	477	240		330	935	340
3	Mine Road & Courthouse Road		320	1,000+	1,000+		0	601	300			0			483		141
4	Austin Ridge Drive & Courthouse Road		300	1,000+	s		204	577	0		19	122	68		1,000+	522	350
5	Austin Ridge Drive & Sunflower Drive		1,000+	1,000+	250		349	0	0		179	233	60		0	1,000+	s
6	Courthouse Road (WB) & Ramp D																327
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			1,000+				1,000+									
9	Courthouse Road (EB) & Spur D														429		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B									1,000+							
13	Courthouse Road (WB) & Courthouse Road (EB)			1,000+				1,000+									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche		232	239	206	s	200	352	s		325	759	123		157	91	447
17	US Route 1 & Hospital Center Boulevard		284	428	602		175	1,000+	s		390	995	260		267	444	419
18	US Route 1 & Courthouse Road		s	344	s		s	1,000+	478		s	453	s		s	1,000+	s
19	Austin Ridge Driveway & Driveway 2								308								
20	Austin Ridge Driveway & Buc-ee's Boulevard						204		s	307		430	275		s	545	
21	Buc-ee's Boulevard & Driveway 3												80				
22	Buc-ee's Boulevard & Driveway 4	s									73		0				

**Table 34: 2031 Build Queues SUN Peak Hour**

SimTRAFFIC Max Queue Queue Length Summary Table   2031 Build   SUN Peak Hour																	
ID		Eastbound				Westbound				Northbound				Southbound			
		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Mine Road & Coastal Avenue/Austin Ridge Drive		104	53	37		34	43	185		22	193	7		229	212	19
2	Mine Road & Sunflower Drive		s	477	266		934	905	98	s	298	354	240		330	1,000+	340
3	Mine Road & Courthouse Road		320	1,000+	1,000+		0	290	291			0			899		429
4	Austin Ridge Drive & Courthouse Road		212	470	s		226	444	0		46	136	104		536	527	350
5	Austin Ridge Drive & Sunflower Drive		78	75	196		350	0	350		246	220	68		0	576	s
6	Courthouse Road (WB) & Ramp D																272
7	Courthouse Road (EB) & Ramp C																
8	Courthouse Road (EB) & Courthouse Road (WB)			1,000+				1,000+									
9	Courthouse Road (EB) & Spur D														298		
10	Courthouse Road (WB) & Spur C																
11	Courthouse Road (EB) & Spur A																
12	Courthouse Road (WB) & Spur B										1,000+						
13	Courthouse Road (WB) & Courthouse Road (EB)			708				772									
14	Courthouse Road (WB) & Ramp A																
15	Courthouse Road (EB) & Ramp B												1,000+				
16	Courthouse Road/Hospital Center Boulevard & Wyche Road/Courthouse Road		183	271	210	s	200	317	s		324	739	116		103	69	256
17	US Route 1 & Hospital Center Boulevard		206	390	434		174	529	s		379	416	95		180	270	332
18	US Route 1 & Courthouse Road		s	235	s		s	237	157		s	288	s		s	380	s
19	Austin Ridge Driveway & Driveway 2								146								
20	Austin Ridge Driveway & Buc-ee's Boulevard						141		132	184		76	45		127	159	
21	Buc-ee's Boulevard & Driveway 3												92				
22	Buc-ee's Boulevard & Driveway 4	s									114		0				

## 5.6 ACCESS MANAGEMENT

**Figure 2** presents the driveway spacing and proposed lane configuration at each project driveway. The Virginia Department of Transportation (VDOT) established access management guidelines for commercial driveway access on the state highway system. VDOT access management standards are described in the *VDOT Road Design Manual, Appendix F* and outline where intersections or commercial driveways should be located in relation to other access points and signalized intersections. If the VDOT access management spacing standards are not met, an access management waiver or exception will be required.

### ***Project Driveway 1 (Intersection 5)***

Project Driveway 1 will create the fourth leg of the Austin Ridge Drive and Sunflower Drive intersection and is expected to meet traffic signal warrants once the Buc-ee's is open. A thru-cut is proposed at this intersection to restrict westbound through movements and improve signal operations. To meet VDOT traffic signal spacing requirements, the proposed traffic signal must be located at least 660 feet (measured from curb return to curb return) from the existing traffic signal at the Austin Ridge Drive and Courthouse Road intersection. Since the Sunflower Drive intersection is located approximately 1,050 feet north of adjacent traffic signal at Courthouse Road, the proposed traffic signal meets VDOT access management spacing requirements.

### ***Project Driveway 2 (Intersection 19)***

Project Driveway 2 is a proposed three-leg, right-in/right-out only, one-way stop-controlled, intersection along Austin Ridge Drive. To meet VDOT access management spacing requirements, the proposed driveway must be located at least 250 feet (measured from curb return to curb return) from the Austin Ridge Drive and Sunflower Drive intersection. Since the Sunflower Drive intersection is located 475 feet south of the proposed commercial driveway, the proposed access meets VDOT access management spacing requirements.

### ***Buc-ee's Boulevard (Intersection 20)***

A signal is proposed at Buc-ee's Boulevard and Austin Ridge Drive upon build-out of the proposed development, and is expected to meet traffic signal warrants once the Buc-ee's is open. To meet VDOT access management spacing requirements, the proposed signalized intersection must be located at least 1,050 feet (measured from curb return to curb return) from the nearest signal. Since the distance to the proposed signal at Austin Ridge Drive and Sunflower Drive is approximately 1,200 feet, the proposed signal meets VDOT access management spacing requirements.

### ***Project Driveway 3 (Intersection 21)***

Project Driveway 3 located along Buc-ee's Boulevard is proposed to be a right-in/right-out only, stop-controlled, driveway. To meet VDOT access management spacing requirements, the proposed partial-access driveway must be located at least 250 feet (measured from curb return to curb return) from the Buc-ee's Boulevard intersection. As the proposed driveway is located approximately 275 feet east of the intersection of the proposed roadway and Austin Ridge Drive, the proposed access meets VDOT access management spacing requirements.

### ***Project Driveway 4 (Intersection 22)***

Project Driveway 4 located along Buc-ee's Boulevard will be a full-access, stop-controlled, driveway. To meet VDOT access management spacing requirements, the proposed full-access project driveway is required to be located at least 335 feet (measured from curb return to curb return) from the proposed partial access project driveway to the west. As the proposed full-access project is located approximately 340 feet east of the partial access project driveway, the proposed access meets VDOT access management spacing requirements.



### Project Driveway 5 (Intersection 24)

Project Driveway 5 located along Courthouse Road, between the Southbound I-95 off-ramp and Austin Ridge Drive, will be an inbound only, free-flow, right-in only driveway along a proposed median separated lane from the southbound I-95 off-ramp. To meet VDOT access management spacing requirements, the proposed commercial driveway must be located at least 250 feet (measured from curb return to curb return) from the Austin Ridge Drive and Courthouse Road and the Southbound I-95 On/off-Ramp intersection. Since both intersections are located 450 feet from the proposed driveway, the proposed access meets VDOT access management spacing requirements. A break in the limited access right-of-way along Courthouse Road is required to provide access to this driveway.



Figure 2: Proposed Driveway Spacing and Geometry

## 6. CONCLUSION AND RECOMMENDATIONS

A Buc-ee's is proposed in the northwest quadrant of the intersection of Interstate 95 (I-95) and Courthouse Road (Route 630) in Stafford County, Virginia. Currently, the site proposed for development is vacant. The proposed development consists of a 120 fueling position facility and a 74,000 square-foot convenience store. Access to the proposed development will be provide by one partial access driveway (right-in only) along Courthouse Road, one full-access driveway and one partial access driveway (right-in/right-out only) along Austin Ridge Drive, and one full-access driveway and one partial access (right-in/right-out only) driveway along Buc-ee's Boulevard, a proposed roadway intersecting with Austin Ridge Drive.

The analyses were conducted for Existing (2023), No-Build (2025 and 2031), and Build (2025 and 2031) conditions. Traffic generated by surrounding approved developments was included, as applicable, in all future year analysis scenarios.

For future conditions analyses, proffered improvements associated with background developments were assumed to be operational. The following improvements, in addition to proffered improvements, are recommended to mitigate expected project traffic:

- Austin Ridge Drive and Courthouse Road
  - Reconfigure the westbound approach which includes a right-turn lane to include dual right-turn lanes, one channelized yield-controlled lane and one channelized free-flow lane.
  - Construct an additional eastbound through lane along Courthouse Road between Mine Road and Austin Ridge Drive.
  - Increase the southbound left-turn lane storage length to 400 feet.
  - Re-stripe the northbound Austin Ridge Drive approach to a left-turn lane, shared through-left lane and dual right-turn lanes
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Sunflower Drive/Project Driveway 1.
- Construct a new traffic signal at the intersection of Austin Ridge Drive and Buc-ee's Boulevard (proposed).
- Optimize signal timings, splits, and offsets at all study area signalized intersections.
- I-95 at Exit 140 Diverging Diamond Interchange
  - Construct a median separated southbound right-turn slip-lane and receiving lane along westbound Courthouse Road.
  - Construct a third northbound left-turn lane at the I-95 off-ramp to westbound Courthouse Road.

Due to required interchange modifications, an Operations and Safety Analysis Report (OSAR) will be required. The exact scope and limits of the OSAR will be determined with the Virginia Department of Transportation (VDOT) and the Federal Highway Administration (FHWA).

All proposed project driveway spacings are expected to comply with the guidelines outlined in the *VDOT Road Design Manual, Appendix F*. Therefore, no access management waivers are anticipated for the proposed development.