TRAFFIC ANALYSIS

BUC-EE'S TRAVEL STOP

Harrison County, Mississippi

May 2026

Prepared For:

Gulf Regional Planning Commission

Prepared By:

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1.0 Introduction

The following report presents a traffic study to determine high-level potential improvements to best address transportation issues in the area surrounding the new Buc-ee's located in the northwest corner of Exit 24, on I-10 in Harrison County, Mississippi. The primary identified issue addressed in this report relates to traffic flowing into the new store impacting local traffic, particularly southbound traffic entering the roundabout. In addition, commercial and residential growth is anticipated to continue in the area creating additional strain on the existing transportation system.

The new Buc-ee's consists of 120 fueling positions and an approximate 74,000 ft^2 market/store. Access to Buc-ee's occurs at three driveways.

An additional 1000 homes are anticipated to be developed in the area just north of this new development.

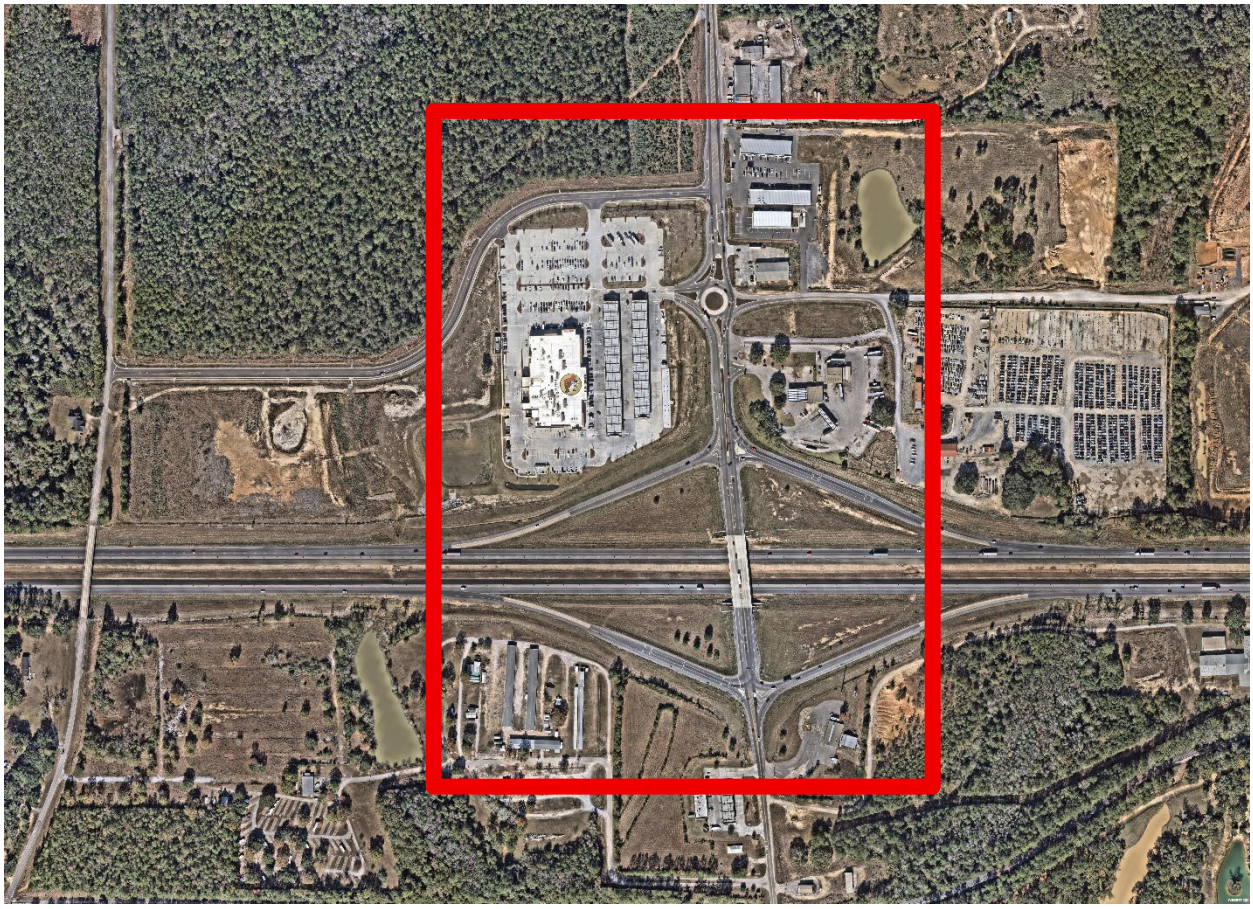
2.0 Study Area Determination

The study area focuses on the area surrounding Buc-ee's and the related interstate off-ramps as shown in **Figure 1** and consists of the following four (4) existing intersections:

1. Firetower Road at I-10 Eastbound Ramps (signalized)
2. Firetower Road at I-10 Westbound Ramps (signalized)
3. Firetower Road at Buc-ee's primary driveway (roundabout)
4. Firetower Road at Buc-ee's Boulevard (side street stop controlled)

The secondary and tertiary Buc-ee's driveways along Buc-ee's boulevard were also considered where applicable in this report.

Figure 1. Study Area



2.1 Roadway Characteristics

The roadways within the study network have the following characteristics:

Firetower Road is a two-lane major collector north and south of the study area. As part of the Buc-ee's development, the roadway was expanded to a four-lane section from the Eastbound I-10 ramps to the roundabout that provides the primary entrance to Buc-ee's with a 25-mph posted speed limit throughout the study area.

Buc-ee's Boulevard is a three-lane local roadway that was created with the Buc-ee's development providing access to the secondary and tertiary Buc-ee's driveways. The roadway also extends from Firetower Road to Lobouy Road and has a posted speed limit of 30-mph.

3.0 Site Observations

Site observations were made based on aerial imagery and videos of Labor Day weekend 2025 provided by the Gulf Region Planning Commission, GRPC.

- The roundabout markings are incorrect. The northbound approach to the roundabout is marked as if only the inside lane accessed the primary driveway of Buc-ee's as shown in **Figure 2**. This was also apparent in the traffic patterns as most vehicles only utilized the inside lane of the roundabout to access Buc-ee's with those using the outside lane making the transition within the roundabout itself.

Figure 2. Northbound Roundabout Approach Improperly Marked

- The queueing occurring within the roundabout is related to slowdowns occurring within the Buc-ee's site itself. Queuing occurring at decision points with the site is backing into the roundabout as shown in **Figure 3**. This figure also provides an example of the previous bullet as only one lane is being utilized to access Buc-ee's.

Figure 3. Site Queues Extending into the Roundabout

- Southbound vehicles were observed to experience extensive delays at the roundabout. While vehicles should yield to traffic already in the roundabout, several instances of southbound vehicles entering the roundabout through gaps left by queued vehicles were observed.
- While northbound queueing was observed along Firetower Road, at no point was the queue observed backing onto the westbound I-10 off-ramp; however, the video of the ramp intersection was not provided during the periods of heaviest traffic observed at the roundabout around noon on 9/1/2025.

4.0 Analysis Volumes

Due to video quality issues, GRPC was unable to provide full turning movement counts at the study intersections. For this reason, the background traffic volumes utilized in the provided traffic impact study performed by Skipper Consulting Inc. from January 2021 were utilized for the purpose of analysis in this study. However, the trip generation for the site appeared to be low so a new trip generation was performed to determine site traffic.

4.1 Trip Generation

A trip generation was developed as an estimate of site traffic. Typically, the ITE *Trip Generation Manual, 12th Edition,* is utilized to estimate the anticipated number of trips generated by a development. However, because of the unique nature of a Buc-ee's development, a different methodology was utilized based on existing counts from nine different Buc-ee's locations across Texas. An average trip per vehicle fueling position rate of 10.16 in the morning (AM) and 14.10

in the afternoon (PM) for these locations will be utilized to develop site traffic for this study. These trips are summarized in **Table 1**.

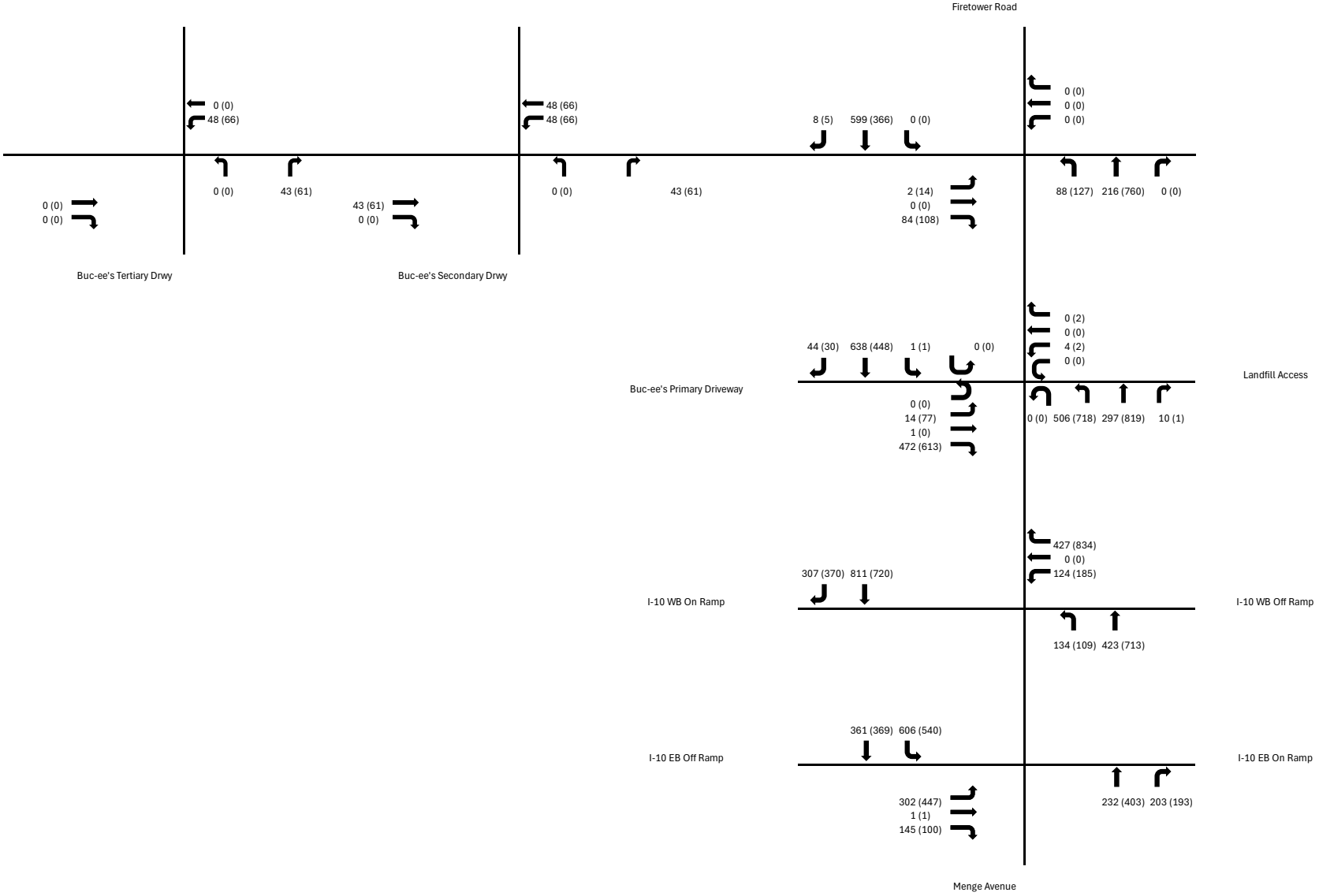
Table 1. Trip Generation

Peak Hour	Units	Average Rate	Total Trips	In	Out
AM	120 VFP	10.16	1219	646	573
PM	120 VFP	14.10	1692	880	812

GRPC provided hourly counts for the northbound left into Buc-ee's at the roundabout for Sunday 8/31/25. The maximum volume of 763 vehicles was observed from 11:00am to 12:00pm. While this peak was a noon count on a Sunday, it shows that the site traffic estimates above are reasonable.

Analysis volumes are shown in **Figure 4**.

Figure 4. Analysis Volumes – AM Peak (PM Peak)



5.0 Existing Roundabout Analysis

As the only observed issues revolved around the roundabout, an existing analysis was performed to determine capacity and level of service. This analysis considers the existing pavement markings and analyzes the northbound left turn move as available only from the inner northbound lane since this is the observed operational pattern. The level of service, delay, and 95th percentile queue results are provided in **Table 2**.

Table 2. Sidra Roundabout Analysis – Existing

Roundabout		Level-of-Service – Delay (sec/veh) [95th Percentile Queue (ft)]				
Approach		Northbound	Southbound	Eastbound	Westbound	Intersection LOS
As Marked – Single NB Left Turn Lane	AM Peak	A – 5.8 [63]	D – 30.2 [443]	A – 3.5 [11]	A – 5.8 [1]	B – 13.6
	PM Peak	B – 11.6 [179]	C – 22.8 [190]	A – 6.6 [67]	B – 12.4 [1]	B – 7.4

This analysis shows that the roundabout functions with acceptable values; however, the observed southbound issues can be seen in this data. This analysis confirms that the primary issue is not the operation of the roundabout itself but circulation issues within the Buc-ee's site impacting the operation of the roundabout.

6.0 Short Term Considerations

This section identifies several items that could potentially improve the existing observed circulation issues. It provides pros and cons of each along with an estimated installation timeline and high-level cost

6.1 Update signage and correct pavement markings

The existing pavement markings are not allowing the roundabout to operate at full efficiency. The northbound left was intended to be allowed as a dual-lane movement while it is effectively operating as a single lane movement due to existing pavement markings that show the outer approach lane as a through-right only. Correcting this and providing additional signage will inform drivers that both northbound lanes can be utilized to access Buc-ee's which should improve the observed lane utilization issues. The design and location of additional signage can be provided in the future if this option is selected. An analysis of the dual northbound lefts is shown in **Table 3**.

Table 3. Sidra Roundabout Analysis – Updated Markings

Roundabout Approach		Level-of-Service – Delay (sec/veh)				
		Northbound	Southbound	Eastbound	Westbound	Intersection LOS
As Designed – Dual NB Left Turn Lane	AM Peak	A – 5.6 [45]	D – 30.2 [443]	A – 3.5 [11]	A – 5.8 [1]	B – 13.5
	PM Peak	B – 11.6 [179]	C – 22.8 [190]	A – 6.6 [67]	B – 12.4 [1]	B – 7.4

These results show only minor improvements over the single northbound left turn lane. This is due to the relatively large number of through-rights in the peak periods. Traffic will try to balance between the available lanes and with the thorough movements being larger, no advantage would be obtained by utilizing the outer lane. Site observations, however, during an off-peak period imply that some benefit could be gained through this improvement especially during special events and holidays when the left turn volume exceeds that of the through movements.

Pros:

- Improves capacity of NB left movement by reinforcing the original intent of the traffic impact study
- Low-cost / Easy Implementation

Cons:

- Minimal impact to peak periods
- Does nothing to address the underlying circulation issues

Cost:

- Less than $50,000

Implementation Time:

- Months

6.2 Install a Roundabout Metering System

The primary concern leading to this study was the delay experienced by southbound traffic at the roundabout. This delay could be mitigated by allowing the southbound approach to meter the northbound approach of the roundabout. Essentially, the northbound approach would be signalized when a southbound queue was observed to exceed a set value (200 ft for the provided analysis). An analysis of a metered northbound approach with dual lefts is shown in **Table 4**.

Table 4. Sidra Roundabout Analysis – Metered with Updated Markings

Roundabout		Level-of-Service – Delay (sec/veh)				
Approach		Northbound	Southbound	Eastbound	Westbound	Intersection LOS
As Designed – Dual NB Left Turn Lane	AM Peak	B – 12.6 [315]	C – 16.9 [288]	A – 1.3 [1]	A – 5.0 [1]	B – 12.3
	PM Peak	C – 22.1 [1243]	C – 15.1 [150]	A – 2.7 [26]	B – 13.0 [2]	C – 16.7

While metering the northbound approach does improve the delay experienced by the southbound movements, it increases the northbound delay along with a significant increase in the northbound queue. This would likely create queuing onto the I-10 WB off ramp and potentially onto I-10 itself.

Pros:

- Improves primary concern of SB delay

Cons:

- Does nothing to address the underlying circulation issues
- Creates a significant northbound queueing issue that would likely impact I-10 ramps and potentially the I-10 mainline.

Cost:

- $50,000 to $100,000

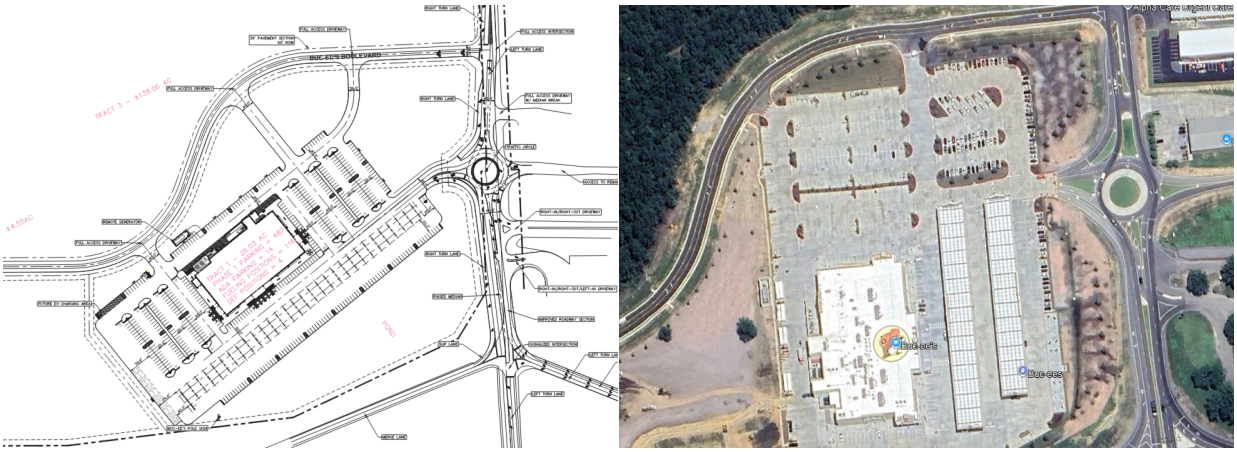
Implementation Time:

- Months

6.3 Improve Buc-ee's Internal Circulation

The underlying cause of the observed issues is related to the internal circulation within the Buc-ee's development causing queues that extend into the roundabout. The original traffic impact study site layout differs from the existing configuration which can be seen in **Figure** . The new configuration reduced the throat length at the roundabout and also created more required turning movements to access fueling positions.

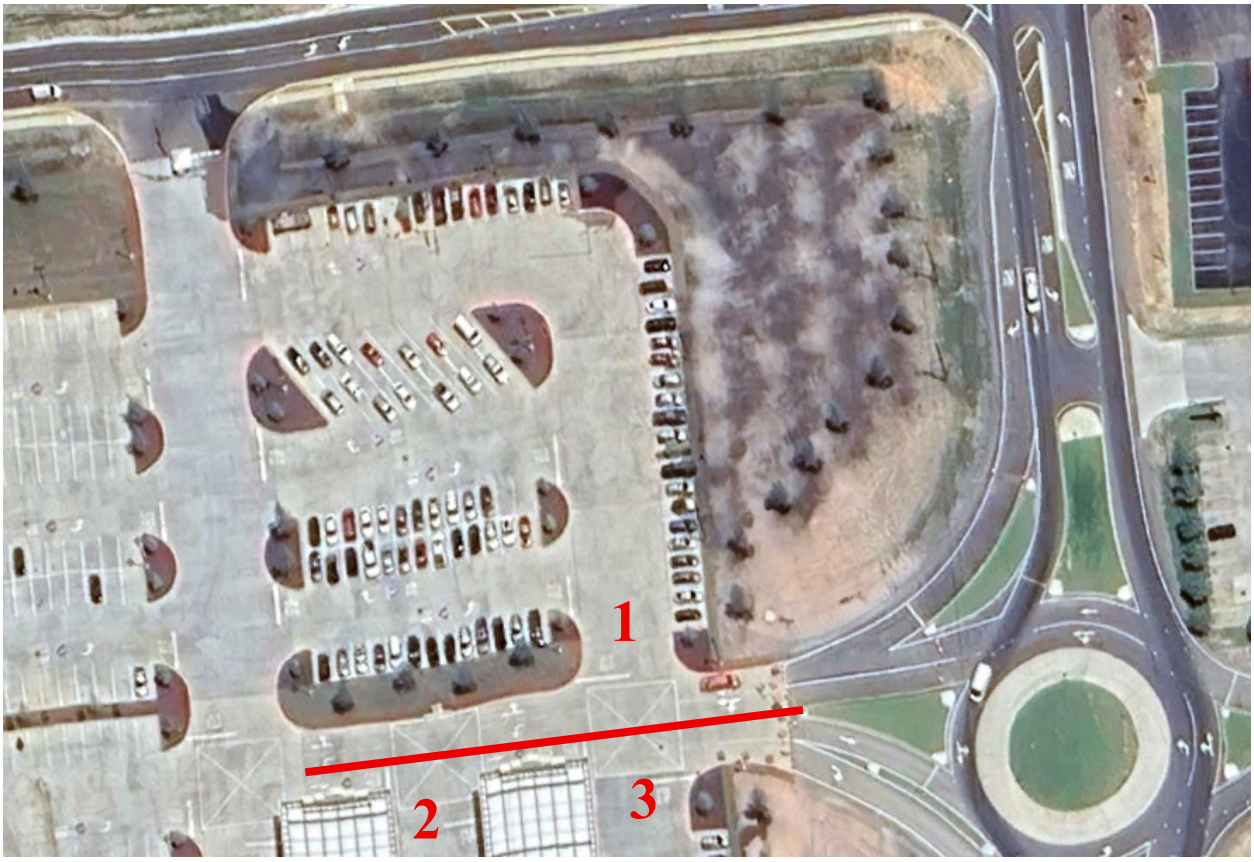
Figure 5. TIS Site Layout Versus Final Configuration



With the existing layout, the best way to address the observed circulation issue is to provide as much distance between the roundabout and the first decision point, turning movement, as possible with left turn avoidance being the priority.

The first option to accomplish this would be the installation of approximately 275 ft of slotted curb as shown in **Figure** . This would artificially extend the throat length and should reduce queueing that extends into the roundabout. This, however, would create restrictions on traffic within the site. Location 1 as shown in **Figure** would lose the ability to exit directly to the roundabout. Likewise, locations 2 and 3 would only allow traffic to exit the site. Any traffic wanting to move to a parking lot would be required to traverse the southern end of the gas pumps.

Figure 6. Proposed Slotted Curb



Pros:

- Improves the underlying internal circulation issue
- Relatively fast and cheap implementation

Cons:

- Entirely on the private site requiring buy-in and agreement from Buc-ee's
- Will restrict movements within the development and inhibit movement from the gas pumps to the parking areas

Cost:

- $25,000

Implementation Time:

- Weeks

A secondary option would be to channelize entry from the roundabout into the existing parking area as shown in **Figure** . This would allow more of the existing movements around the gas pumps to remain but would require a more involved installation process and most likely some geometric changes to the impacted parking area. This option could potentially create a similar queueing issue at the secondary Buc-ee's driveway as it would move the major internal intersection near the end of its throat length.

Figure 7. Channelized Entry

Pros:

- Improves the underlying internal circulation issue
- Limited impact to movements from the gas pumps

Cons:

- Entirely on the private site requiring buy-in and agreement from Buc-ee's
- Will restrict movements within the development
- May result in some lost parking
- May create queueing issues at the secondary driveway

Cost:

- Varies based on final configuration. $50,000 to $500,000

Implementation Time:

- Months

6.4 Revise signage, pavement markings and Buc-ee's Internal Circulation

The existing pavement markings are essentially allowing the roundabout to operate as a single lane roundabout. Revising the striping to make the roundabout a single lane roundabout turning left would split the Buc-ee's traffic between two intersections. In addition, the southbound traffic would only be yielding to one lane instead of two. Providing signage will inform drivers that both northbound lanes can be utilized to access Buc-ee's at two intersections should improve the observed lane utilization issues. An analysis of the single northbound lefts is shown in **Table 3**.

Table 5. Sidra Roundabout Analysis – Revised Markings

Roundabout		Level-of-Service – Delay (sec/veh)				
Approach		Northbound	Southbound	Eastbound	Westbound	Intersection LOS
As Designed – Dual NB Left Turn Lane	AM Peak	A – 5.6 [45]	D – 30.2 [443]	A – 3.5 [11]	A – 5.8 [1]	B – 13.5
	PM Peak	B – 11.6 [179]	C – 22.8 [190]	A – 6.6 [67]	B – 12.4 [1]	B – 7.4

These results are the same as the existing analysis for the roundabout. The modifications to the internal circulation would increase the throat distance and give more queuing distance inside the site. Congestion would be higher during special events and holidays when the left turn volume exceeds that of the through movements and possibly shifts some to the northern intersection. Figure 8 illustrates the striping and slotted curb improvements. The design and location of the additional signage can be provided in the future if this option is selected.

Pros:

- Reinforces how traffic is likely utilizing the intersection under existing conditions.
- Improves throat distance to address some circulation issues
- Low-cost / Easy Implementation

Cons:

- Minimal impact to peak periods
- Northbound left turn movements at the northern intersection could be delayed by southbound through movements.

Cost:

- Less than $50,000

Implementation Time:

- Months

INTERSECTION IMPROVEMENTS

Pass Christian, MS

PROPOSED SLOTTED CURB

PROPOSED STRIPING IMPROVEMENTS

NEEL-SCHAFFER

0 30 60 90 120

SCALE: 1" = 30'

DATE: 04-20-2026

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6.5 Reconfiguring Buc-ee's Access

A longer-term consideration was to remove entry at the primary driveway of Buc-ee's. The west leg of the roundabout would be converted to an exit only, pushing all traffic entering Buc-ee's to Buc-ee's Blvd. The level of service, delay, and 95th percentile queue results for this analysis are provided in **Table 6**.

Table 6. Synchro Signalized Analysis – Reconfigured Buc-ee's Blvd Access

Roundabout		Level-of-Service – Delay (sec/veh) [95th Percentile Queue (ft)]				
Approach		Northbound	Southbound	Eastbound	Westbound	Intersection LOS
As Marked – Single NB Left Turn Lane	AM Peak	B – 19.8 [279]	C – 21.5 [479]	C – 30.5 [10]	C – 28.7 [6]	C – 21.1
	PM Peak	B – 13.8 [328]	C – 25.1 [303]	C – 28.6 [30]	C – 26.6 [6]	B – 16.6

This analysis shows acceptable levels of service for this reconfiguration; however, this would require significant geometric alterations. The volume of northbound left turns would require dual left turn lanes. The northbound queue would likely extend into the roundabout during the PM peak however this would have minimal impact due to the movements present. It would also require the existing dollar general to be converted into a right-in/right-out only driveway. Figure 9 illustrates a conceptual improvement plan.

Pros:

- Eliminates the internal circulation queuing into the intersection
- Perception of delay may be more acceptable at a signal
- Removes any queueing issues related to the roundabout at I-10 WB ramps

Cons:

- SB queues and delays are similar to what they experience currently as a roundabout
- Large geometric improvements needed
- High cost
- Extended implementation time

Cost:

- $5,000,000 to $10,000,000

INTERSECTION IMPROVEMENTS

Pass Christian, MS

FIRETOWER ROAD

ONLY

ONLY

ONLY

NEEL-SCHAFFER

0 50 100 150 200

SCALE: 1" = 50'

DATE: 04-20-2026

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Implementation Time:

- Years

7.0 Long Term Considerations

Future development in this area is anticipated to create an additional 1000 homes along with other businesses. The additional homes alone are expected to add 700 trips in the AM peak and 930 trips in the PM peak to this roadway network. While the analysis provided for the existing volumes shows room for growth, it is expected that the roadway network will reach capacity prior to the full build out of this anticipated development. A long-term planning study would be valuable to determine when and what infrastructure improvements are needed. This analysis is outside the scope of this study, but some high-level considerations are provided.

The additional traffic will likely require geometric improvements to both Firetower Road and Lobouy Road. As part of these improvements, the I-10 interchange should be reconsidered. It would potentially be beneficial to provide C-D roadways between Lobouy Road and Firetower Road along the interstate to add interstate access to Lobouy Road. In addition, a two-way frontage roadway could be built on the northside of the interstate property to provide additional access to Buc-ee's reducing the demand on Firetower Road. Figure 10 illustrates the one-way and two-way roadway network.

The improvements shown here would require an Interchange Modification Report that would be approved by the Federal Highway Administration and the Mississippi Department of Transportation.

INTERSECTION IMPROVEMENTS

Pass Christian, MS

LOBOUY ROAD

FIRETOWER ROAD

I-10 (WEST-BOUND)

I-10 (EAST-BOUND)

MENGE AVENUE

NEEL-SCHAFFER

PROPOSED TWO-WAY ROAD

PROPOSED ONE-WAY ROAD

0 200 400 600 800

SCALE: 1" = 200'

DATE: 04-20-2026

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8.0 Conclusion

Through site observations this study found the following:

- Roundabout signage and marking could be improved
- Southbound vehicles experience extensive queueing and delay during high volume periods
- Northbound queues were observed but no queueing was observed backing onto off ramps
- Internal circulation issues within the Buc-ee's development is creating the majority of the queuing issues.

Existing analysis shows that while queueing and delays are present, no failing movements exist and all movements appear to operate at an acceptable level of service D or better.

Short-term considerations were provided to address the observed concerns.

- Improving roundabout pavement markings and signage to the intended use has potential benefits outside of peak periods but only minor improvements during the AM and PM peaks of the adjacent street network
- Metering the northbound roundabout approach improves southbound operations; however, presents a queueing concern with the I-10 WB off ramp
- Improving the internal circulation within Buc-ee's has potential improvements; however, it requires improvements on private property that would restrict movements within the site
- Revising the signage, striping, and improving internal circulation likely has the largest potential improvements.
- Reconfiguring the Buc-ee's access to Buc-ee's Way solves the issue with internal circulation impacting the roundabout, but it requires extensive geometric alterations that would be costly and provide limited improvements in delay. Although, being at a signalized location, the public perception of this delay may change.

If improvements are pursued, it is recommended to revise the pavement markings and signage on the northbound roundabout approach and pursue internal circulation improvements with Buc-ee's. This may require an in depth circulation study that includes all internal intersections which would increase costs and delay implementation. The design and location of additional signage can be provided in the future if these improvements are pursued.

The study also provides two high-level planning concepts considering the expected future growth of the area as a starting point for a future analysis.

Appendix: Analysis Reports

LANE SUMMARY

Site: 101 [Buc-ee's Primary Access - AM - Total - Single Lane (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Rd													
Lane 1[d]	550	3.0	1356	0.406	100	6.5	LOS A	2.5	63.3	Full	1600	0.0	0.0
Lane 2	334	3.0	1356	0.246	100	4.7	LOS A	1.2	30.7	Full	1600	0.0	0.0
Approach	884	3.0		0.406		5.8	LOS A	2.5	63.3				
East: Landfill Access													
Lane 1[d]	7	3.0	634	0.010	100	5.8	LOS A	0.0	0.9	Full	1600	0.0	0.0
Approach	7	3.0		0.010		5.8	LOS A	0.0	0.9				
North: Firetower Rd													
Lane 1[d]	742	3.0	848	0.876	100	30.2	LOS D	17.3	443.3	Full	1600	0.0	0.0
Approach	742	3.0		0.876		30.2	LOS D	17.3	443.3				
West: Buc-ee's Access													
Lane 1[d]	529	3.0	1516	0.349	100	3.5	LOS A	0.4	11.3	Full	1600	0.0	0.0
Approach	529	3.0		0.349		3.5	LOS A	0.4	11.3				
Intersection	2162	3.0		0.876		13.6	LOS B	17.3	443.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	550	-	-	550	3.0	1356	0.406	100	NA	NA
Lane 2	-	323	11	334	3.0	1356	0.246	100	NA	NA
Approach	550	323	11	884	3.0		0.406			

East: Landfill Access

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	4	1	1	7	3.0	634	0.010	100	NA	NA
Approach	4	1	1	7	3.0		0.010			
North: Firetower Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	693	48	742	3.0	848	0.876	100	NA	NA
Approach	1	693	48	742	3.0		0.876			
West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	1	513	529	3.0	1516	0.349	100	NA	NA
Approach	15	1	513	529	3.0		0.349			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2162	3.0	0.876							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Buc-ee's Primary Access - PM - Total - Single Lanes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Rd													
Lane 1	780	3.0	1272	0.614	100	10.3	LOS B	5.0	129.3	Full	1600	0.0	0.0
Lane 2[d]	891	3.0	1272	0.701	100	12.7	LOS B	7.0	178.6	Full	1600	0.0	0.0
Approach	1672	3.0		0.701		11.6	LOS B	7.0	178.6				
East: Landfill Access													
Lane 1[d]	5	3.0	297	0.018	100	12.4	LOS B	0.1	1.4	Full	1600	0.0	0.0
Approach	5	3.0		0.018		12.4	LOS B	0.1	1.4				
North: Firetower Rd													
Lane 1[d]	521	3.0	694	0.750	100	22.8	LOS C	7.4	189.7	Full	1600	0.0	0.0
Approach	521	3.0		0.750		22.8	LOS C	7.4	189.7				
West: Buc-ee's Access													
Lane 1[d]	751	3.0	1437	0.523	100	6.6	LOS A	2.6	66.9	Full	1600	0.0	0.0
Approach	751	3.0		0.523		6.6	LOS A	2.6	66.9				
Intersection	2949	3.0		0.750		12.3	LOS B	7.4	189.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
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Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	-	-	780	3.0	1272	0.614	100	NA	NA
Lane 2	-	890	1	891	3.0	1272	0.701	100	NA	NA
Approach	780	890	1	1672	3.0		0.701			

East: Landfill Access

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	2	1	2	5	3.0	297	0.018	100	NA	NA
Approach	2	1	2	5	3.0		0.018			
North: Firetower Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	487	33	521	3.0	694	0.750	100	NA	NA
Approach	1	487	33	521	3.0		0.750			
West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	84	1	666	751	3.0	1437	0.523	100	NA	NA
Approach	84	1	666	751	3.0		0.523			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2949	3.0	0.750							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Buc-ee's Primary Access - AM - Total - Both Lanes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Rd													
Lane 1	442	3.0	1356	0.326	100	5.6	LOS A	1.8	45.2	Full	1600	0.0	0.0
Lane 2[d]	442	3.0	1356	0.326	100	5.6	LOS A	1.8	45.2	Full	1600	0.0	0.0
Approach	884	3.0		0.326		5.6	LOS A	1.8	45.2				
East: Landfill Access													
Lane 1[d]	7	3.0	634	0.010	100	5.8	LOS A	0.0	0.9	Full	1600	0.0	0.0
Approach	7	3.0		0.010		5.8	LOS A	0.0	0.9				
North: Firetower Rd													
Lane 1[d]	742	3.0	848	0.876	100	30.2	LOS D	17.3	443.3	Full	1600	0.0	0.0
Approach	742	3.0		0.876		30.2	LOS D	17.3	443.3				
West: Buc-ee's Access													
Lane 1[d]	529	3.0	1516	0.349	100	3.5	LOS A	0.4	11.3	Full	1600	0.0	0.0
Approach	529	3.0		0.349		3.5	LOS A	0.4	11.3				
Intersection	2162	3.0		0.876		13.5	LOS B	17.3	443.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	442	-	-	442	3.0	1356	0.326	100	NA	NA
Lane 2	108	323	11	442	3.0	1356	0.326	100	NA	NA
Approach	550	323	11	884	3.0		0.326			

East: Landfill Access

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	4	1	1	7	3.0	634	0.010	100	NA	NA
Approach	4	1	1	7	3.0		0.010			
North: Firetower Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	693	48	742	3.0	848	0.876	100	NA	NA
Approach	1	693	48	742	3.0		0.876			
West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	1	513	529	3.0	1516	0.349	100	NA	NA
Approach	15	1	513	529	3.0		0.349			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2162	3.0	0.876							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Buc-ee's Primary Access - PM - Total - Both Lanes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Rd													
Lane 1	780	3.0	1272	0.614	88[5]	10.3	LOS B	5.0	129.3	Full	1600	0.0	0.0
Lane 2[d]	891	3.0	1272	0.701	100	12.7	LOS B	7.0	178.6	Full	1600	0.0	0.0
Approach	1672	3.0		0.701		11.6	LOS B	7.0	178.6				
East: Landfill Access													
Lane 1[d]	5	3.0	297	0.018	100	12.4	LOS B	0.1	1.4	Full	1600	0.0	0.0
Approach	5	3.0		0.018		12.4	LOS B	0.1	1.4				
North: Firetower Rd													
Lane 1[d]	521	3.0	694	0.750	100	22.8	LOS C	7.4	189.7	Full	1600	0.0	0.0
Approach	521	3.0		0.750		22.8	LOS C	7.4	189.7				
West: Buc-ee's Access													
Lane 1[d]	751	3.0	1437	0.523	100	6.6	LOS A	2.6	66.9	Full	1600	0.0	0.0
Approach	751	3.0		0.523		6.6	LOS A	2.6	66.9				
Intersection	2949	3.0		0.750		12.3	LOS B	7.4	189.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	-	-	780	3.0	1272	0.614	88[5]	NA	NA
Lane 2	-	890	1	891	3.0	1272	0.701	100	NA	NA
Approach	780	890	1	1672	3.0		0.701			

East: Landfill Access

Mov. From E	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	S	W	N			veh/h	v/c	%	%	No.
Lane 1	2	1	2	5	3.0	297	0.018	100	NA	NA
Approach	2	1	2	5	3.0		0.018			

North: Firetower Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	487	33	521	3.0	694	0.750	100	NA	NA
Approach	1	487	33	521	3.0		0.750			

West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	84	1	666	751	3.0	1437	0.523	100	NA	NA
Approach	84	1	666	751	3.0		0.523			

	Total	%HV	Deg.Satn (v/c)
Intersection	2949	3.0	0.750

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

LANE SUMMARY

Site: 101v [Buc-ee's Primary Access - AM - Total - Both Lanes - Metered (Site Folder: General)]

New Site
Site Category: (None)
Roundabout Metering

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Road													
Lane 1	442	3.0	603	0.733	100	12.6	LOS B	12.3	314.6	Full	1600	0.0	0.0
Lane 2[d]	442	3.0	603	0.733	100	12.6	LOS B	12.3	314.6	Full	1600	0.0	0.0
Approach	884	3.0		0.733		12.6	LOS B	12.3	314.6				
East: Landfill Access													
Lane 1[d]	7	3.0	864	0.008	100	5.0	LOS A	0.0	1.0	Full	1600	0.0	0.0
Approach	7	3.0		0.008		5.0	LOS A	0.0	1.0				
North: Firetower Road													
Lane 1[d]	742	3.0	969	0.766	100	16.9	LOS C	11.3	288.0	Full	1600	0.0	0.0
Approach	742	3.0		0.766		16.9	LOS C	11.3	288.0				
West: Buc-ee's Access													
Lane 1[d]	529	3.0	1529	0.346	100	1.3	LOS A	0.0	0.7	Full	1600	0.0	0.0
Approach	529	3.0		0.346		1.3	LOS A	0.0	0.7				
Intersection	2162	3.0		0.766		11.8	LOS B	12.3	314.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Road

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	442	-	-	442	3.0	603	0.733	100	NA	NA
Lane 2	108	323	11	442	3.0	603	0.733	100	NA	NA
Approach	550	323	11	884	3.0		0.733			

East: Landfill Access

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	4	1	1	7	3.0	864	0.008	100	NA	NA
Approach	4	1	1	7	3.0		0.008			
North: Firetower Road										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	693	48	742	3.0	969	0.766	100	NA	NA
Approach	1	693	48	742	3.0		0.766			
West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	1	513	529	3.0	1529	0.346	100	NA	NA
Approach	15	1	513	529	3.0		0.346			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2162	3.0	0.766							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

LANE SUMMARY

Site: 101v [Buc-ee's Primary Access - PM - Total - Both Lanes - Metered (Site Folder: General)]

New Site
Site Category: (None)
Roundabout Metering

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Firetower Rd													
Lane 1	780	3.0	927	0.842	88[5]	13.5	LOS B	30.5	781.1	Full	1600	0.0	0.0
Lane 2[d]	891	3.0	927	0.961	100	29.6	LOS D	48.6	1242.9	Full	1600	0.0	0.0
Approach	1672	3.0		0.961		22.1	LOS C	48.6	1242.9				
East: Landfill Access													
Lane 1[d]	5	3.0	473	0.011	100	13.0	LOS B	0.1	1.6	Full	1600	0.0	0.0
Approach	5	3.0		0.011		13.0	LOS B	0.1	1.6				
North: Firetower Rd													
Lane 1[d]	521	3.0	765	0.680	100	15.1	LOS C	5.9	150.0	Full	1600	0.0	0.0
Approach	521	3.0		0.680		15.1	LOS C	5.9	150.0				
West: Buc-ee's Access													
Lane 1[d]	751	3.0	1437	0.523	100	2.7	LOS A	1.0	25.8	Full	1600	0.0	0.0
Approach	751	3.0		0.523		2.7	LOS A	1.0	25.8				
Intersection	2949	3.0		0.961		16.7	LOS C	48.6	1242.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Firetower Rd

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	780	-	-	780	3.0	927	0.842	88[5]	NA	NA
Lane 2	-	890	1	891	3.0	927	0.961	100	NA	NA
Approach	780	890	1	1672	3.0		0.961			

East: Landfill Access

Mov. From E	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	S	W	N			veh/h	v/c	%	%	No.
Lane 1	2	1	2	5	3.0	473	0.011	100	NA	NA
Approach	2	1	2	5	3.0		0.011			

North: Firetower Rd										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	487	33	521	3.0	765	0.680	100	NA	NA
Approach	1	487	33	521	3.0		0.680			

West: Buc-ee's Access										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	84	1	666	751	3.0	1437	0.523	100	NA	NA
Approach	84	1	666	751	3.0		0.523			

	Total	%HV	Deg.Satn (v/c)
Intersection	2949	3.0	0.961

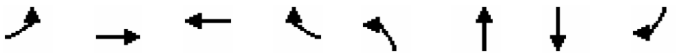
Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

Merge Analysis

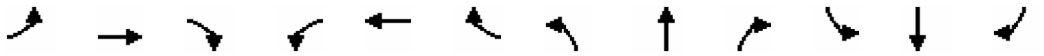
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Landfill Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Firetower Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Buc-ee's Access Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

3: Firetower Rd & Buc-ee's Blvd/Strip Development Drwy



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	2	91	1	1	646	236	604	57
v/c Ratio	0.01	0.14	0.01	0.00	0.68	0.16	0.77	0.08
Control Delay (s/veh)	42.5	0.4	43.0	0.0	33.2	3.1	29.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.5	0.4	43.0	0.0	33.2	3.1	29.3	2.0
Queue Length 50th (ft)	1	0	1	0	162	30	278	0
Queue Length 95th (ft)	10	0	6	0	279	47	479	12
Internal Link Dist (ft)		575	93			450	442	
Turn Bay Length (ft)	175				110			150
Base Capacity (vph)	185	665	170	279	1441	1814	1369	1185
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.14	0.01	0.00	0.45	0.13	0.44	0.05

Intersection Summary

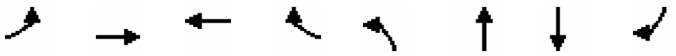


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	84	1	0	1	594	216	1	1	555	52
Future Volume (veh/h)	2	0	84	1	0	1	594	216	1	1	555	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	0	91	1	0	1	646	235	1	1	603	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	0	191	191	0	191	853	1317	6	52	701	594
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.25	0.71	0.71	0.37	0.37	0.37
Sat Flow, veh/h	1416	0	1585	725	0	1585	3456	1861	8	0	1870	1585
Grp Volume(v), veh/h	2	0	91	1	0	1	646	0	236	604	0	57
Grp Sat Flow(s),veh/h/ln	1416	0	1585	725	0	1585	1728	0	1869	1870	0	1585
Q Serve(g_s), s	0.1	0.0	3.7	0.0	0.0	0.0	12.1	0.0	3.0	0.0	0.0	1.6
Cycle Q Clear(g_c), s	3.9	0.0	3.7	3.8	0.0	0.0	12.1	0.0	3.0	20.8	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	197	0	191	191	0	191	853	0	1322	752	0	594
V/C Ratio(X)	0.01	0.00	0.48	0.01	0.00	0.01	0.76	0.00	0.18	0.80	0.00	0.10
Avail Cap(c_a), veh/h	229	0	227	220	0	227	1584	0	2624	1658	0	1362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	28.6	30.4	0.0	27.0	24.3	0.0	3.4	20.2	0.0	14.2
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.0	0.0	0.0	1.4	0.0	0.1	2.1	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.4	0.0	0.0	0.0	4.9	0.0	0.8	8.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.5	0.0	30.5	30.4	0.0	27.0	25.8	0.0	3.5	22.2	0.0	14.2
LnGrp LOS	C		C	C		C	C		A	C		B
Approach Vol, veh/h		93			2			882			661	
Approach Delay, s/veh		30.5			28.7			19.8			21.5	
Approach LOS		C			C			B			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		55.4		14.4	23.2	32.2		14.4				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		98.0		10.0	32.0	60.0		10.0				
Max Q Clear Time (g_c+I1), s		5.0		5.9	14.1	22.8		5.8				
Green Ext Time (p_c), s		1.0		0.1	3.1	3.3		0.0				

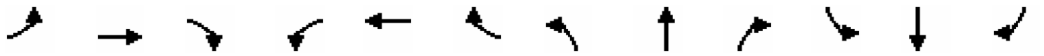
Intersection Summary												
HCM 7th Control Delay, s/veh			21.1									
HCM 7th LOS			C									

3: Firetower Rd & Buc-ee's Blvd/Strip Development Drwy



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	15	117	1	1	918	827	366	38
v/c Ratio	0.08	0.14	0.01	0.00	0.75	0.62	0.70	0.07
Control Delay (s/veh)	39.3	0.4	39.0	0.0	27.5	7.7	34.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.3	0.4	39.0	0.0	27.5	7.7	34.1	0.5
Queue Length 50th (ft)	7	0	0	0	198	168	159	0
Queue Length 95th (ft)	30	0	6	0	328	242	303	3
Internal Link Dist (ft)		575	93			450	442	
Turn Bay Length (ft)	175				110			150
Base Capacity (vph)	182	817	164	276	2044	1863	1107	975
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.14	0.01	0.00	0.45	0.44	0.33	0.04

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	108	1	0	1	845	760	1	1	336	35
Future Volume (veh/h)	14	0	108	1	0	1	845	760	1	1	336	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	0	117	1	0	1	918	826	1	1	365	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	0	219	198	0	219	1203	1271	2	55	451	383
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.35	0.68	0.68	0.24	0.24	0.24
Sat Flow, veh/h	1416	0	1585	642	0	1585	3456	1868	2	1	1868	1585
Grp Volume(v), veh/h	15	0	117	1	0	1	918	0	827	366	0	38
Grp Sat Flow(s),veh/h/ln	1416	0	1585	642	0	1585	1728	0	1870	1869	0	1585
Q Serve(g_s), s	0.7	0.0	4.5	0.0	0.0	0.0	15.6	0.0	16.8	0.0	0.0	1.2
Cycle Q Clear(g_c), s	5.3	0.0	4.5	4.6	0.0	0.0	15.6	0.0	16.8	12.2	0.0	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	206	0	219	198	0	219	1203	0	1272	506	0	383
V/C Ratio(X)	0.07	0.00	0.53	0.01	0.00	0.00	0.76	0.00	0.65	0.72	0.00	0.10
Avail Cap(c_a), veh/h	225	0	240	214	0	240	2403	0	2770	1350	0	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	26.5	28.6	0.0	24.6	19.2	0.0	6.1	23.7	0.0	19.5
Incr Delay (d2), s/veh	0.1	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.6	2.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.7	0.0	0.0	0.0	6.0	0.0	5.0	5.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.1	0.0	28.5	28.6	0.0	24.6	20.2	0.0	6.6	25.6	0.0	19.6
LnGrp LOS	C		C	C		C	C		A	C		B
Approach Vol, veh/h		132			2			1745			404	
Approach Delay, s/veh		28.6			26.6			13.8			25.1	
Approach LOS		C			C			B			C	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		51.0		15.1	29.0	22.0		15.1				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		98.0		10.0	46.0	46.0		10.0				
Max Q Clear Time (g_c+I1), s		18.8		7.3	17.6	14.2		6.6				
Green Ext Time (p_c), s		5.0		0.1	5.4	1.8		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.6									
HCM 7th LOS			B									