Galleria 75

Development of Regional Impact
DRI #2615
Traffic Impact Analysis

Cobb County, Georgia
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EXECUTIVE SUMMARY

A traffic impact analysis was performed for the proposed Galleria 75 mixed-use development located on Cobb Galleria Parkway south of Akers Mill Road and north of Cumberland Parkway in Cobb County, Georgia. The proposed development is to consist of 450,000 square feet of office space, 45,000 square feet of retail space, and 600 apartment units. The construction of the development is scheduled to be completed in 2025 with the tenancy being phased based on market demand.

PAC Galleria 75, LLC is actively in the rezoning process of the parcel of land to be developed for Galleria 75, Zoning Case Z-77 (2016). The zoning application is requesting the parcel of land be rezoned from OI (Office Institutional)/RRC (Regional Retail Commercial) to RRC. The development will be located within a "Regional Activity Center" as designated by Cobb County's 2015 Future Land Use Map.

Since the mixed-use project exceeds the 400,000 square feet threshold to be designated as a Development of Regional Impact (DRI), the developer must follow a reviewing process outlined by the Georgia Regional Transportation Authority (GRTA). The ensuing analysis report is presented as part of a DRI Review Package per GRTA's standards for review by all interested stakeholders' to determine the regional impact of the development of Galleria 75.

Intersection analyses were completed for the predetermined study network agreed upon by GRTA for the 2016 existing conditions of the network, the future year 2025 "No-Build" conditions, and the 2025 "Build" conditions. The results of the 2025 "Build" Analysis show that no "System Improvements" or "Site Mitigation Improvements" would be needed to maintain the Level of Service Standard (LOS D).

The following lane configurations are recommended at the project site driveways:

Cobb Galleria Parkway and Riverwood Parkway/Galleria 75 Driveway #1 (Signalized)

- Dual left lanes and a shared through/right-turn lane exiting driveway

Cobb Galleria Parkway and Galleria 75 Driveway #2 (Unsignalized)

- Right-In/Right-Out driveway

Per GRTA's Letter of Understanding following the Pre-Review/Methodology meeting on July 11, 2016, it was determined that the DRI qualifies for the criteria for Expedited Review under the DRI Procedures and Principles for GRTA Development of Regional Impact Review.

1. PROJECT DESCRIPTION

1.1. Introduction

PAC Galleria 75, LLC has submitted a rezoning application, Zoning Case Z-77 (2016) from OI, RRC to RRC, for property located west of Interstate 75 and south of Interstate 285 along Cobb Galleria Parkway north of Cumberland Boulevard.

Galleria 75 mixed-use development is expected to have 450,000 square feet of office space, 45,000 square feet of retail space, and 600 apartment units. Moreover, the site will provide a total of 2,577 parking spaces, 77 of which are on-street parking spaces and 2,500 of the spaces are located in parking decks. The construction of the development is scheduled to be completed in 2025 with the tenancy being phased based on market demand.

The development is located within a "Regional Activity Center" as designated by Cobb County's 2015 Future Land Use Map, and is nested within the Cumberland Community Improvement District (CID). Galleria 75 is consistent with the intended land use identified in Cobb County's Comprehensive Plan. Figure 1 shows the site location relative to the adjacent roadway network.

1.2. Site Plan

The development plan consists of 6 buildings. Building A, which abuts Interstate 75, will be the main office tower consisting of 400,000 square feet distributed over 15 floors. A loading area will be located at the south entrance of the tower. Building B and C will house the 600 apartment units distributed over 19 floors. Building D, E, G will consist of 20,000 square feet of specialty retail, which is anticipated to include eateries and local shops. Build F will consist of 25,000 SF of retail space for a local anchor tenant on the 1st floor and 50,000 square feet of office spaces spread over its 2nd and 3rd floors.

The development site plan proposes access points on Cobb Galleria Parkway with the following configurations:

- Site Driveway 1: Full access at the existing signalized intersection of Cobb Galleria Parkway and Riverwood Parkway.
- Site Driveway 2: Right-in/right-out driveway at the southern boundary of the development on Cobb Galleria Parkway. Driveway, which will also give access to the adjacent Encore Apartments development, is currently under construction.

The designated crosswalks and sidewalks throughout and surrounding the Galleria 75 development provide interconnectivity between the various land uses. Please refer to the site plan shown in Figure 2 for details. A full-size site plan is submitted as part of the Review Package per GRTA's Site Plan Guidelines.

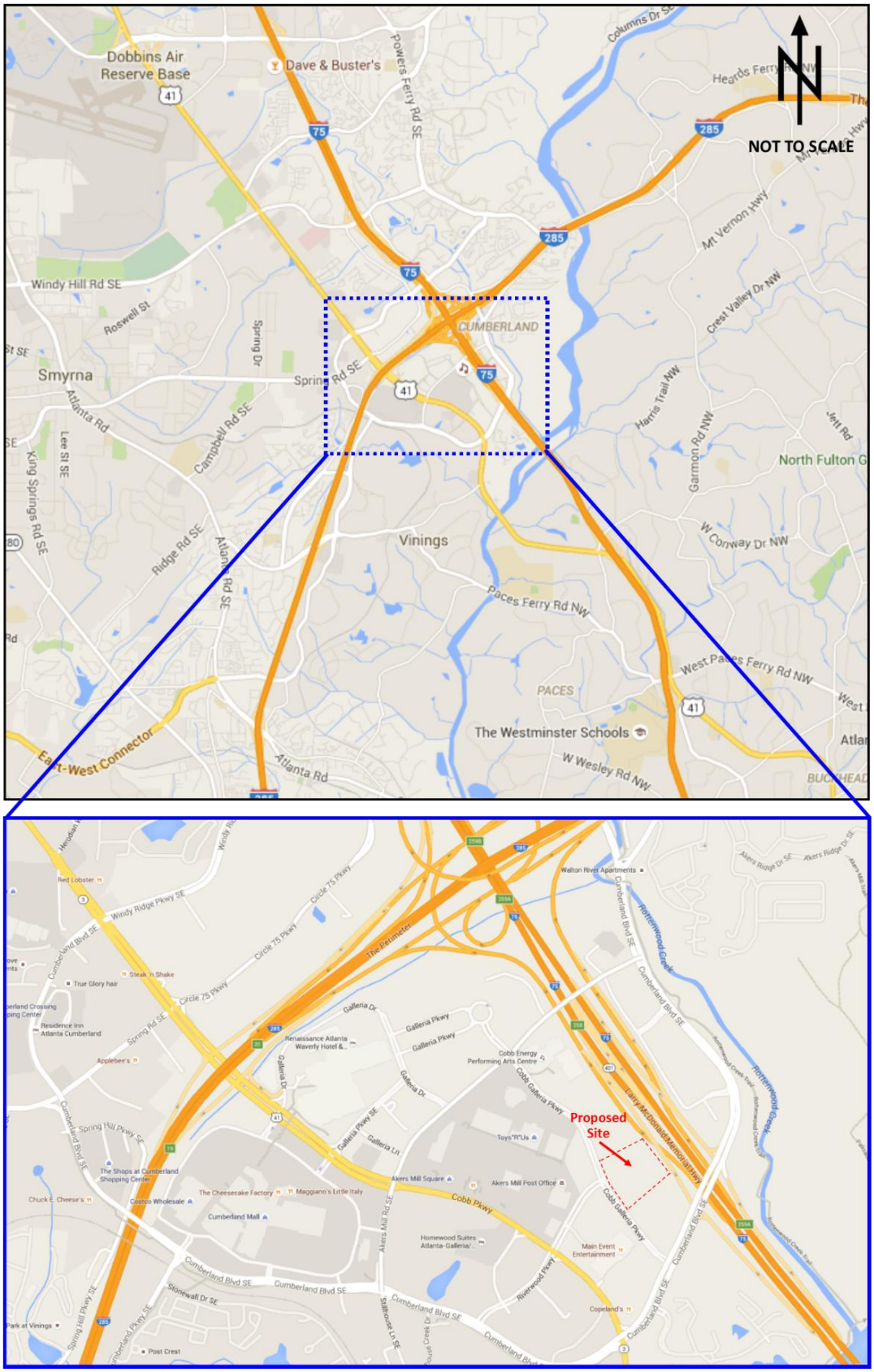


Figure 1: Site Location

Figure 2: Site Plan

1.3. Existing Roadway Facilities

The Cumberland CID serves a mix of uses, including office, retail/commercial, recreation, cultural, convention, and residential. Cobb Galleria Parkway is a four-lane divided roadway that extends from Cumberland Boulevard to Akers Mill Road, and it is classified as an urban local street by GDOT and as a major collector by Cobb County. The posted speed limit along Cobb Galleria Parkway is 35 miles per hour. A southbound left-turn lane currently exists along Cobb Galleria Parkway at the location of the proposed Driveway #1, which is an existing signalized intersection. Table 1 summarizes the character of the roadway facilities located within proximity to the site. Figure 3 shows an aerial of the surrounding roadway network and major traffic draws in the area relative to the proposed site location.

Table 1: Existing Roadways in the Vicinity of Galleria 75

Roadway	No. of Lanes	Speed Limit	GDOT Classification	Cobb County Classification
Cobb Galleria Parkway	4- Lane Divided	35 MPH	Urban Local Street	Major Collector
Cumberland Boulevard	4- Lane Divided	35 MPH	Urban Collector Street	Arterial
Akers Mill Road	4- Lane Divided	35 MPH	Urban Minor Arterial	Arterial
Riverwood Parkway	4- Lane Divided	25 MPH	Urban Local Street	Major Collector
US 41/SR 3/Cobb Pkwy	6-Lane Undivided	45 MPH	Urban Principal Arterial	Arterial
Interstate 285	8- Lane Divided	65 MPH	Urban Interstate Principal Arterial	n/a
Interstate 75	8- Lane Divided	65 MPH	Urban Interstate Principal Arterial	n/a

1.4. Transit Facilities

Cobb Linc Route 50 and Route 108 operate along Cobb Galleria Parkway and has a bus stop directly outside of the main entrance of proposed development at Cobb Galleria Parkway and Riverwood Parkway. Cobb Linc Route 10B passes the development along Cobb Galleria Parkway traveling south to Atlanta and north to Windy Hill Road. MARTA Route 12 bus stop is to the west at US 41/Cobb Parkway and Riverwood Parkway.

Per the Cobb County Transportation Plan (CTP), the Cobb Linc Cumberland Transfer Center, which is a bus connection and transfer point for Cobb Linc and MARTA, is programmed to be relocated to Cobb Parkway/US 41/SR 3 at Akers Mill Road. The transfer center will be approximately a half mile north of the site, and it will serve as a major connecting point for transit passengers in the Metro Atlanta Region traveling to and from downtown Atlanta and the Cumberland CID.

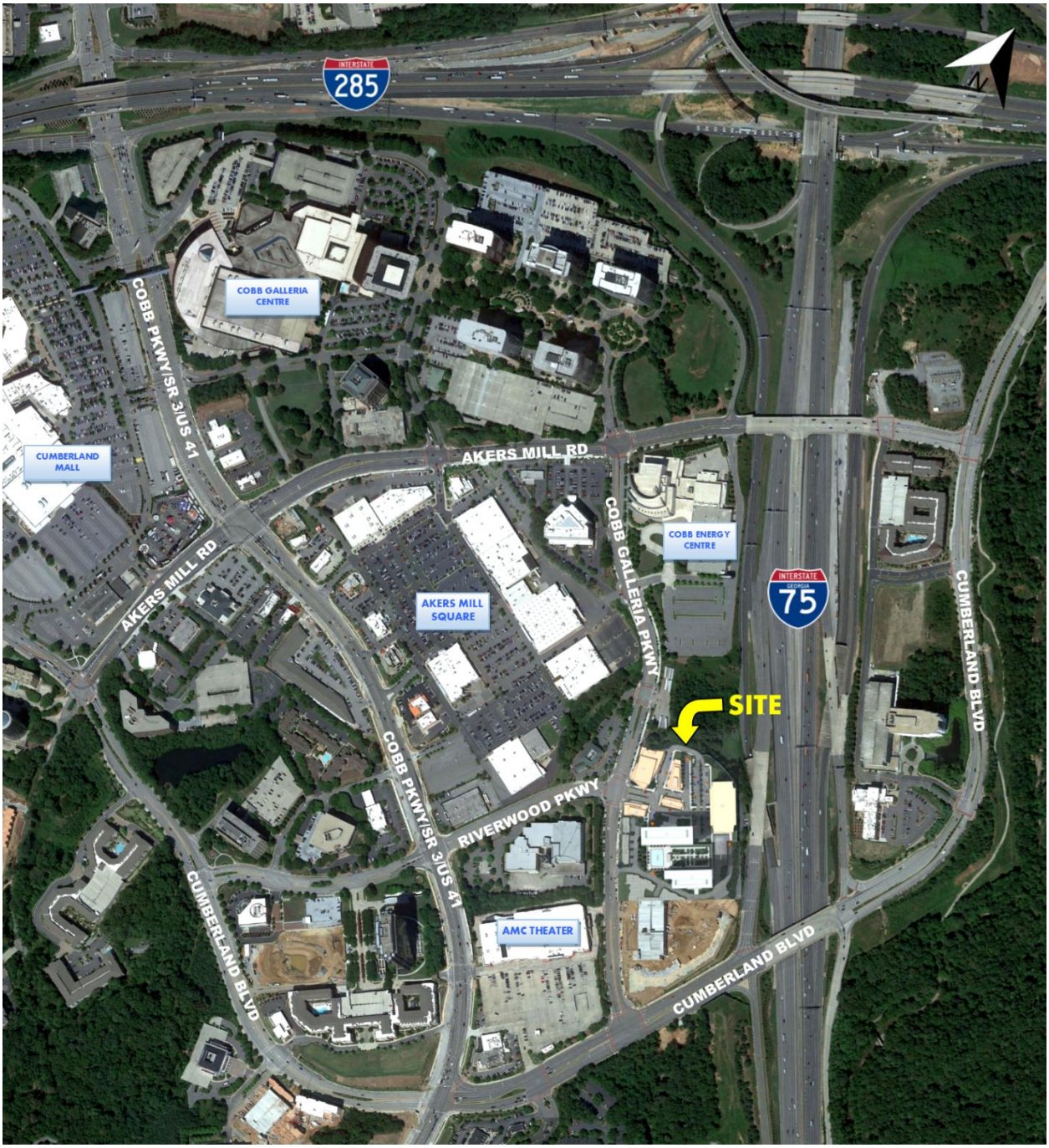
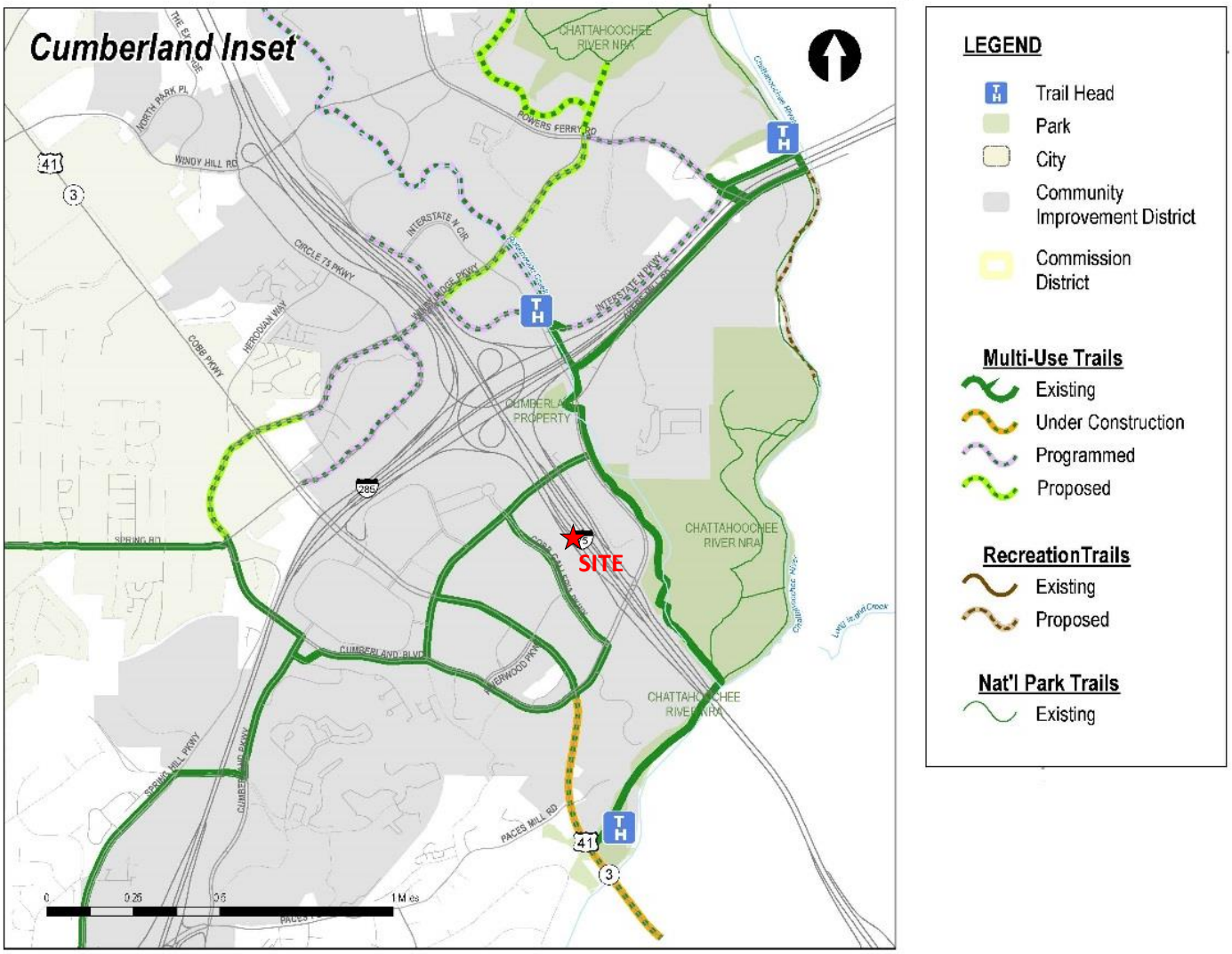


Figure 3: Aerial of Site Location Relative to Adjacent Roadway Network

1.5. Bicycle and Pedestrian Facilities

Within the immediate vicinity of the project location, there are existing sidewalks along both sides of Cobb Galleria Parkway to accommodate pedestrian activity. The proposed development will provide pedestrian access in accordance with Cobb County development requirements. The existing sidewalks on Cobb Galleria Parkway are a part of a shared path network of multi-use trails in Cobb County. Figure 4 shows the extent of the multi-use trail network in the Cumberland CID, including existing, programmed, and proposed trails. Galleria 75 will have an internal sidewalk network between the various land uses on the property to promote interconnectivity.



Source: Cobb County Trail Planning Map. Cobb County: Dept. of Transportation, 2016.

Figure 4: Cumberland Area Multi-Use Trail Network

1.6. Planned and Programmed Improvements

The Regional Transportation Plan (Plan 2040), Georgia Department of Transportation TransPI, Cobb County Comprehensive Transportation Plan, and Blueprint Cumberland were reviewed to determine projects that are planned within the vicinity of the proposed development. The identified projects were combined and are shown in Table 2 below.

Table 2: Planned and Programmed Improvements

PROJECT #	PROJECT	TYPE OF IMPROVEMENT	SOURCE
CO-382	Windy Hill Road Widening - Westbound only from East of Powers Ferry Road to Spectrum Circle	Roadway / General Purpose Capacity	ARC Plan 2040
CO-452/0012774	I-75 North - Diverging Diamond Interchange at Windy Hill Road	Roadway / Interchange Upgrade	ARC Plan 2040
CO-454/0011738	Windy Hill Road Widening from US 41 TO I-75	Roadway / General Purpose Capacity	ARC Plan 2040
CO-455	Windy Hill Road Improvements from Rottenwood Creek to Spectrum Circle/Interstate North Parkway	Roadway / General Purpose Capacity	ARC Plan 2040
CO-AR-238/713600	Revive 285 - I-75 North Interchange Upgrades from I-285 North to Delk Road	Roadway / Interchange Capacity	ARC Plan 2040
CO-380	Windy Hill Rd/ Terrell Mill Rd Connection - New 4-lane roadway	New Connection	Cobb CTP 2040
CO-457	I-285 at Cobb Pkwy (US 41/SR 3) Interchange - Improvements to include access with Spring Rd and Cumberland Blvd	Interchange and Grade Separation	Cobb CTP 2040
CO-458	Interstate North Pkwy Realignment and Pedestrian Corridor - Roadway operational and pedestrian improvements	Safety and Operational	Cobb CTP 2040
CO-459	I-285 Pedestrian and Transit Bridge	Transit	Cobb CTP 2040
R-091	Circle 75 Pkwy - I-75 Exit ramp improvements	Interchange and Grade Separation	Cobb CTP 2040
R-105	Cobb Pkwy (US 41/SR 3) at Windy Hill Rd Intersection	Interchange and Grade Separation	Cobb CTP 2040
R-277	Spring Rd and Cumberland Blvd - Intersection improvements, median and electronic message signs	Safety and Operational	Cobb CTP 2040
R-466	I-75 Managed Lanes Exit Ramp at Akers Mill Rd	Interchange and Grade Separation	Cobb CTP 2040
R-502	I-285 at Cobb Pkwy (US 41/SR 3) Interchange - Improvements to include access with Spring Rd and Cumberland Blvd	Interchange and Grade Separation	Cobb CTP 2040
R-518	Cumberland Blvd Safety and operational improvements, turn lanes, sidewalks	Safety and Operational	Cobb CTP 2040
R-521	Circle 75 Pkwy Realignment - Operational improvements including adding lanes, reassigning lanes, channelizing right turn lanes	Safety and Operational	Cobb CTP 2040
AR-475	Connect Cobb High Capacity Transit (BRT) Phase 1 - BRT from Kennesaw to Cumberland	Transit	Cobb CTP 2040
AR-959	Revive 285 - I-75 North/I-285 Interchange Improvements - Flyover ramp from I-75 NB to I-285 WB	Interchange and Grade Separation	Cobb CTP 2040
AR-960	Revive 285 - I-75 North/I-285 Interchange Improvements - Flyover ramp from I-75 SB to I-285 WB	Interchange and Grade Separation	Cobb CTP 2040
AR-ML-200	I-285 North Managed Lanes and CD Improvements	Managed Lanes	Cobb CTP 2040
ASP-CO-428B	Windy Hill Rd Widening - Widen from 4 to 6 lanes	Roadway Capacity	Cobb CTP 2040
INV-T-001	Cumberland Transfer Center Relocation - Relocate Cumberland Transfer Center to Cobb Pkwy (US 41/SR 3)at Akers Mill Rd	Transit	Cobb CTP 2040

PROJECT #	PROJECT	TYPE OF IMPROVEMENT	SOURCE
INV-T-013	CCT Local Bus Route - New local route	Transit	Cobb CTP 2040
R-277	Spring Rd and Cumberland Blvd - Intersection improvements, median and electronic message signs	Safety and Operational	Cobb CTP 2040
R-107	Windy Hill Rd (Joint project with County) - Blvd concept that includes widening, intersection and pedestrian improvements	Roadway Capacity	Cobb CTP 2040
TBD	Cobb Pkwy (US 41) Bridge Replacement & Trail	Roadway/ Bridge Capacity	Blueprint Cumberland
TBD	Cobb Pkwy (US 41) Widening & Trail	Roadway/ General Purpose Capacity	Blueprint Cumberland
TBD	Cumberland Blvd W Intersection Improvements & Phase III Pedestrian Facilities	Roadway/ Pedestrian Facility	Blueprint Cumberland
TBD	Akers Mill Pedestrian Facilities Central & West	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Cobb Parkway Pedestrian Facilities Central	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Cobb Parkway Pedestrian Facilities North	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Overton Park Area Pedestrian Circulation Improvements and Trail Connection at Overton Entrance	Last Mile Connectivity/ Side paths & Trails	Blueprint Cumberland
TBD	Pedestrian Bridge from Cumberland Boulevard east across the Rottenwood Creek to Apartment/Condo Communities (approx. 1,000 residents) and Chattahoochee NRA	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Trail terminus at the public/transit green with bike/locker/shower facilities	Last Mile Connectivity/ Side paths & Trails	Blueprint Cumberland
TBD	Interstate North Trail Eastbound Extension (to BC Trailhead)	Last Mile Connectivity/ Side paths & Trails	Blueprint Cumberland
TBD	Circle 75 North pedestrian facilities	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Cumberland Parkway between Cumberland Boulevard and Atlanta Road Pedestrian Improvements	Last Mile Connectivity/Ped Facility	Blueprint Cumberland
TBD	Akers Mill Road Pedestrian Bridge	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	U.S. 41 (Cobb Parkway) Pedestrian Bridge	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Akers Mill Square Property	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Cumberland Mall Property	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Windy Ridge Pedestrian Facilities	Last Mile Connectivity/ Ped Facility	Blueprint Cumberland
TBD	Bike/ pedestrian bridge across I-75, from the Performing Arts Center Public Green, east to Overton and to the national park.	Last Mile Connectivity/ Side paths & Trails	Blueprint Cumberland
TBD	Wayfinding & Trail Signage Phase II	Last Mile Connectivity/ Side paths & Trails	Blueprint Cumberland
TBD	Overton Park CCT Transfer Facility and Transit Station Site	Transit/Facilities Capital	Blueprint Cumberland

The planned improvements that will have the most direct impact on the traffic surrounding Galleria 75 would be the pedestrian accommodations added to Akers Mill Road and the Cobb Linc Cumberland Transfer Center Relocation to Cobb Parkway/US 41/SR 3 at Akers Mill Road. These projects are Long Range and will be "on-line" after Galleria 75 is built out.

2. STUDY NETWORK

2.1. Trip Generation

ITE Trip Generation Manual, 9th edition, was used to quantify the new trips generated by the Galleria 75 mixed-use development. For the proposed retail, the land uses were divided into ITE's "Shopping Center" and "Specialty Retail Center" land uses. The "Specialty Retail Center" land use captures the nature of the three stand along retail buildings "D", "E", and "G" versus "Shopping Center" for Building "F" as shown in the site plan (Figure 2).

Per GRTA's Letter of Understanding, a 10% reduction was applied to the generated trips to account for alternate modes of travel. These alternative modes of travel include the aforementioned Cobb Linc and MARTA bus routes as well as the Cumberland CID Commuter Club services including vanpools, carpools, and teleworking. ITE Trip Generation Handbook, 3rd edition standards for mixed-use reductions and pass-by trip reductions were used where applicable. For a more conservative analysis, a lower reduction of pass-by trips were used than the ITE standard for retail land uses to account for the traffic flow along of Cobb Galleria Parkway. The reduction of pass-by trips for the development falls below the 15% maximum identified in GRTA's Technical Guidelines. Table 3 shows the total two-way daily volumes and the peak morning and afternoon volumes per ITE Land Use Code (LUC). Gross trip generation and reduction tables are in Appendix A.

Table 3: Galleria 75 Net Trip Generation

Description	LUC	Unit	Quantity	Daily	AM Peak			PM Peak		
				Two-way	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	Dwelling Units	600	3,760	60	238	298	226	122	348
Internal Capture + 10% Transit Reductions (Residential)				-461	-7	-30	-37	-27	-15	-42
Office	710	SQ FT/1000	450	4,118	561	76	637	99	483	582
Internal Capture + 10% Transit Reductions (Office)				-1,039	-80	-27	-107	-15	-97	-112
Shopping Center	820	SQ FT/1000	25	2,758	41	25	66	114	123	237
Specialty Retail Center	826	SQ FT/1000	20	893	103	111	214	56	44	100
Internal Capture + 10% Transit Reductions (Retail)				-1,010	-35	-34	-69	-67	-25	-92
Retail Pass-by Trips (0%) 15%				-396	0	0	0	-15	-21	-36
Net Total				**8,623**	**643**	**360**	**1,002**	**370**	**614**	**985**

2.2. Trip Distribution

Preliminary trip distribution percentages for the Galleria 75 site was based on presumed traffic patterns of residents and office employees, surrounding Cumberland CID land uses, and relative locations of major roadways and interstates that will serve the development. Input from the Pre-review DRI meeting was combined with engineering judgement to determine the final directional distribution and assignment of new project trips. Figure 5 shows the regional trip distribution of Galleria 75's generated trips.

Figure 5: Trip Distribution of Generated Trips on Adjacent Roadways

2.3. Study Intersections

Appropriate service flow volume for the road segments in the area surrounding the Galleria 75 site were assigned based on the type of roadway and a LOS standard "D" as designated in Table 5.4 of GRTA's DRI Review Package Technical Guidelines. The percent of service flow volume used by the project's traffic was calculated for each adjacent roadway using the preliminary trip distribution percentages in Figure 5.

Every roadway segment starting from the site location that consumed more than 7% of the service volume was included in the initial study network. Following the DRI Pre-review meeting, the study network was refined per GRTA's Letter of Understanding, and includes the following intersections:

1. Akers Mill Road at Cobb Galleria Parkway
2. Riverwood Parkway/Site Driveway #1 at Cobb Galleria Parkway
3. Cumberland Boulevard at Cobb Galleria Parkway

The study intersections were analyzed for the Existing 2016, 2025 "No Build", and 2025 "Build" AM and PM peak hour conditions. Additionally, the proposed site right-in/right-out Driveway #2 at Cobb Galleria Parkway was analyzed for the 2025 "Build" condition.

2.4. Traffic Assignment

Following the GRTA 7% Rule Analysis to determine the study intersections, a detailed traffic assignment of the generated trips was developed at each of the study intersections. The trip distribution percentages at each of the study intersections were based on the preliminary trip distributions (Figure 5), comments from the Pre-review meeting, and an analysis of the character of the region's major roadways and activity centers. The trip distribution at the study intersections is shown in Figure 6. Percentages from Figure 6 were then applied to the peak hour trips generated by the Galleria 75 development, and Figure 7 shows the generated trips distributed by intersection during the morning and afternoon peak hours.

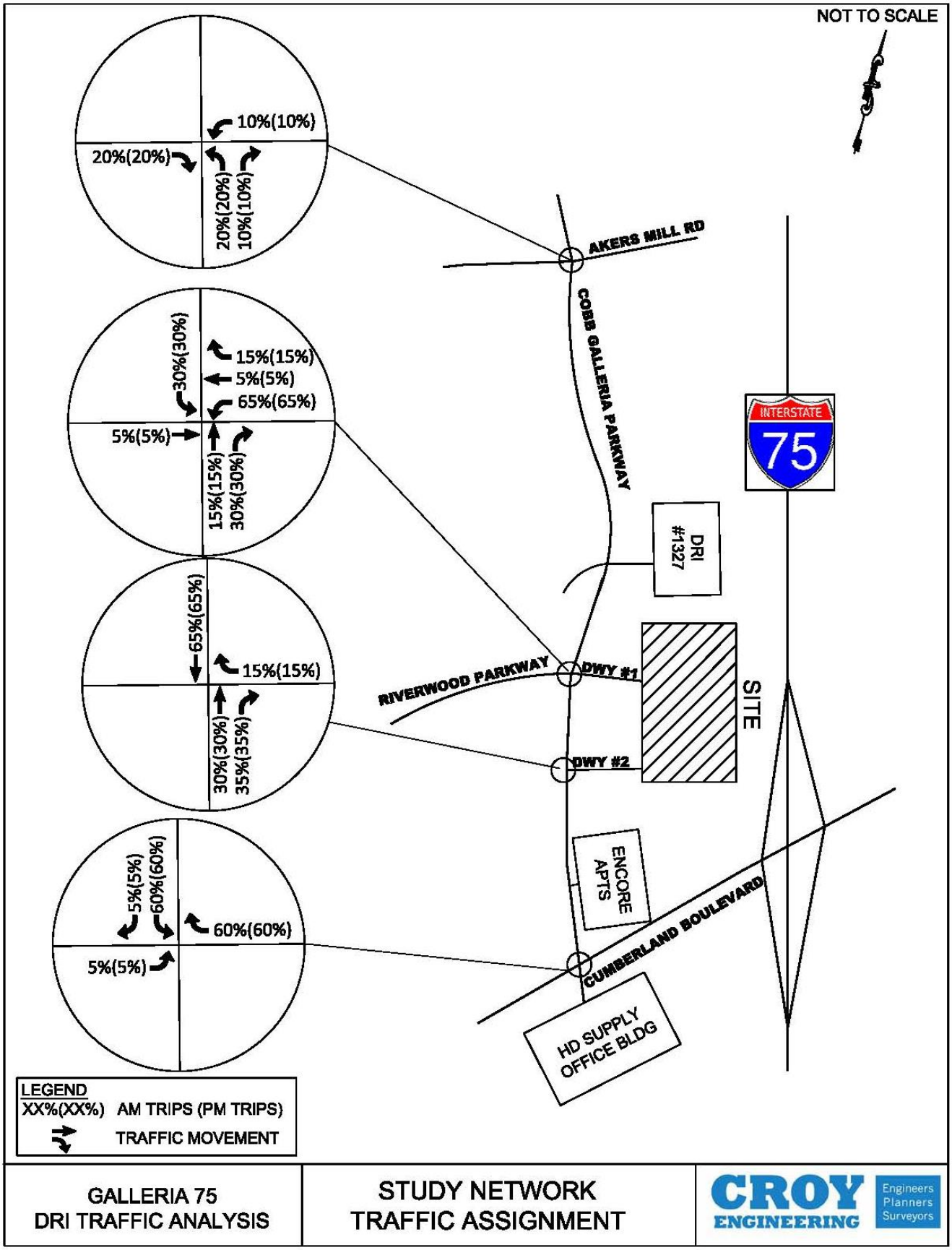


Figure 6: Galleria 75 Traffic Assignment

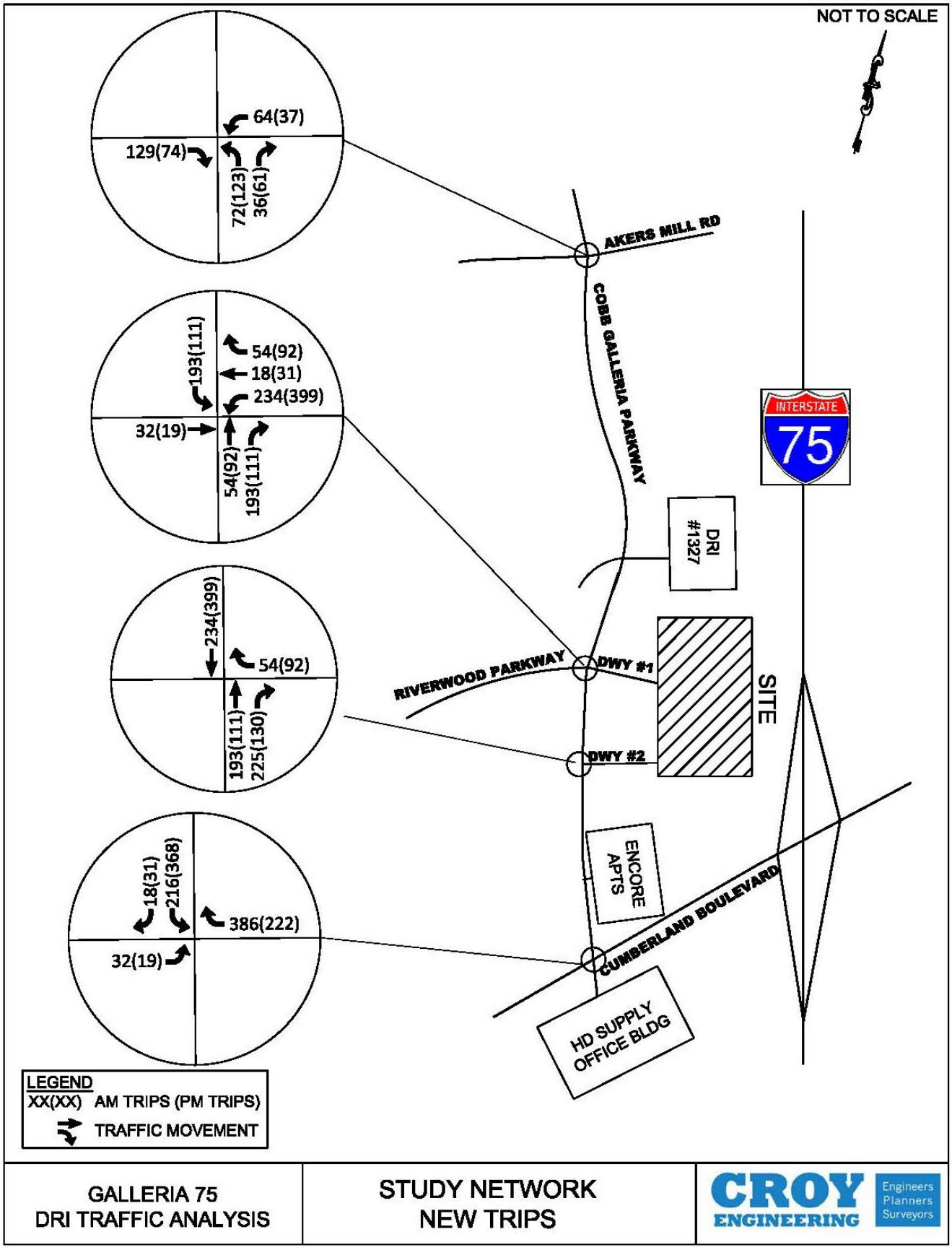


Figure 7: Galleria 75 Projected Trips

3. LEVEL OF SERVICE ANALYSIS

3.1. Traffic Analysis Methodlogy

The Transportation Research Board's Highway Capacity Manual, 2000 edition (HCM 2000) methodology using Synchro software (Version 9) was used to analyze level of service and delay at study intersections. Level of Service (LOS) is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The HCM defines six levels of service, which are defined by controlled delay. The LOS criteria for signalized and unsignalized intersections are given in Table 4. Levels of service are reported for individual movements as well as for the intersection as a whole; thus, an individual movement of an intersection may experience a low level of service, while the intersection as a whole may operate acceptably.

For signalized intersections, LOS and capacity analyses are necessary to determine the overall operation of the intersection. The capacity analysis of an intersection is defined by a volume to capacity ratio (v/c) for each lane group. A v/c ratio greater than 1.0 indicates that the volume of traffic on the roadway has exceeded the capacity available, resulting in a temporary surplus of demand.

For unsignalized intersections, the only criteria for evaluating traffic operation are the LOS of the turning movements and the overall intersection. Levels of service for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. Low levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

Table 4: Level of Service Criteria for Signalized and Unsignalized Intersections

	SIGNALIZED	UNSIGNALIZED
Level of Service	Average Delay (sec)	Average Delay (sec)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

The assumed LOS standard for the Cumberland CID is "D" or better. If the existing LOS for the roadway segments or intersections is "E" or "F", the future "No Build" and future "Build" LOS standard will be LOS "E", consistent with GRTA's Letter of Understanding.

3.2. 2016 Existing Traffic Analysis

Existing traffic counts, intersection geometric designs, and signal timing data were obtained at the following study intersections:

1. Cumberland Boulevard at Cobb Galleria Parkway
2. Riverwood Parkway/Site Driveway #1 at Cobb Galleria Parkway
3. Akers Mill Road at Cobb Galleria Parkway

Turning movement counts were conducted at the aforementioned three intersections between 7:00 – 9:00 AM and 4:00 – 6:00 PM on Thursday, August 4, 2016 while Cobb County schools were in session. The morning and afternoon peak hours were the same for all three intersections. The morning peak hour was from 8:00 AM to 9:00 AM, and the afternoon peak hour was from 5:00 PM to 6:00 PM. Figure 8 displays the existing traffic volumes inside of the study network, and Figure 9 displays the lane geometry and traffic control at the study intersections. All raw count data is included in Appendix B. All other pertinent traffic data for the study network is included in Appendix C.

These volumes along with their peak hour factors (PHF) and truck percentages were input in Synchro 9.0, and a traffic operation analysis for 2016 existing conditions was completed. The results of the analysis are shown in Table 5. Synchro output tables are in Appendix D.

Table 5: 2016 Existing Traffic Operations by Intersection

Intersection		Traffic Control	AM Peak		PM Peak	
			LOS	(Delay)	LOS	(Delay)
1	**Cumberland Blvd @ Cobb Galleria Pkwy**	Signalized	**A**	**(7.9 s)**	**B**	**(17.4 s)**
	Eastbound Approach		A	(7.5 s)	B	(12.2 s)
	Westbound Approach		A	(6.6 s)	B	(11.1 s)
	Southbound Approach		D	(43.8 s)	D	(48.0 s)
2	**Riverwood Pkwy @ Cobb Galleria Pkwy**	Signalized	**A**	**(9.9 s)**	**B**	**(18.0 s)**
	Eastbound Approach		D	(49.9 s)	D	(49.8 s)
	Westbound Approach		D	(48.9 s)	D	(47.1 s)
	Northbound Approach		A	(6.9 s)	A	(7.0 s)
	Southbound Approach		A	(5.5 s)	A	(9.1 s)
3	**Akers Mill Rd @ Cobb Galleria Pkwy**	Signalized	**B**	**(19.5 s)**	**C**	**(20.3 s)**
	Eastbound Approach		B	(15.2 s)	C	(20.4 s)
	Westbound Approach		B	(16.1 s)	B	(14.6 s)
	Northbound Approach		C	(27.0 s)	C	(32.9 s)
	Southbound Approach		C	(31.7 s)	C	(30.0 s)

As shown in Table 5, all of the intersections in the study network are currently operating above the acceptable Level of Service standard (LOS D) during the AM and PM peak hours.

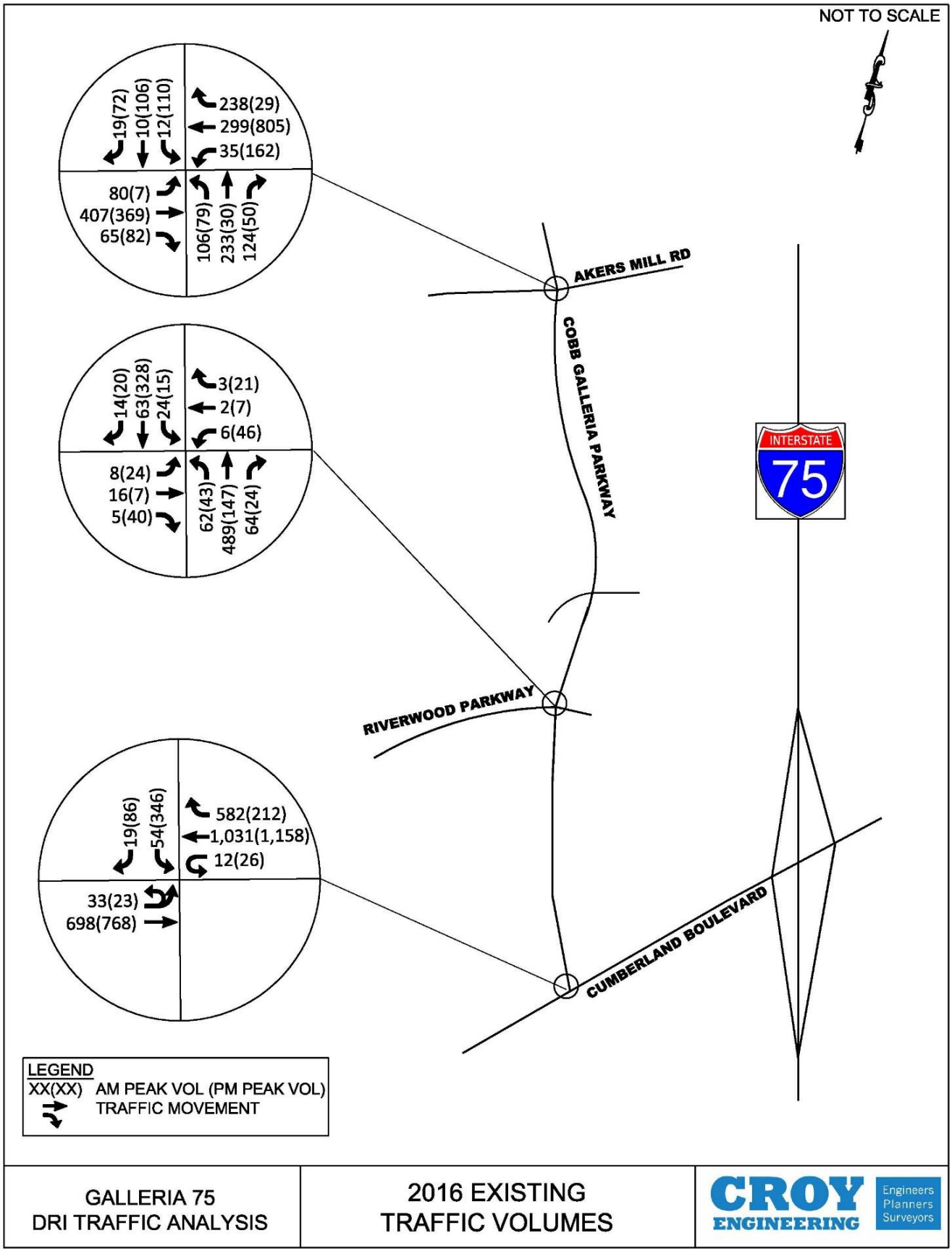


Figure 8: 2016 Existing Traffic Volumes

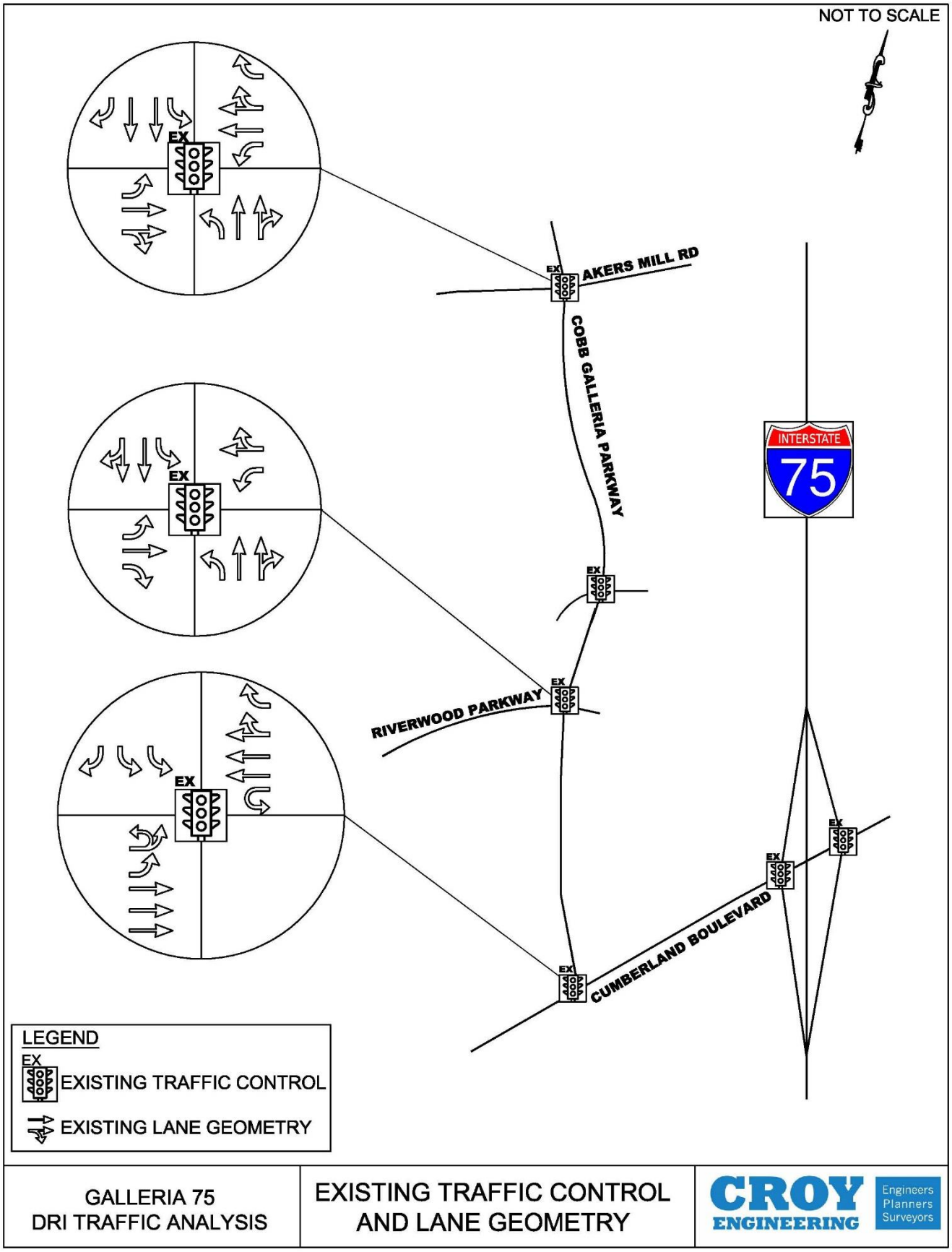


Figure 9: Existing Lane Geometry and Traffic Control at Study Intersections

3.3. Annual Traffic Growth and Background Traffic

A preliminary background traffic growth rate was estimated based on future traffic projected by the ARC Traffic Demand Model (TDM). Travel Demand Model future volumes was used to determine the growth factor versus historical trends because the ARC TDM provided a better representation of projected 2025 traffic given the significant number of programmed improvements planned for the region. Following the preliminary review of the proposed DRI, a 1.5% growth rate was agreed upon per GRTA's Letter of Understanding. The 1.5% growth rate assumes the development of the adjacent parcel, DRI #1327, to the North of Galleria 75's main entrance. Anticipated traffic from the Encore Apartments and HD Supply Office Building, which are currently under construction to the south of the Galleria 75 development, were also added to the 2025 background traffic per GRTA's Letter of Understanding.

3.4. 2025 "No Build" Traffic Analysis

In the "No Build" scenario, the introduction of the HD Supply office building adds a 4th northbound leg to the Cumberland Boulevard and Cobb Galleria Parkway intersection and signal operations will be modified with the redesign of the existing signal. To account for HD Supply's trips impact on traffic operations at the intersection of Cumberland Boulevard and Cobb Galleria Parkway, the southbound lane designations were configured as dual left lanes and a shared through/right/left lane, as shown in Figure 12. Timing was reallocated to accommodate the addition of the northbound leg of the intersection, and peak hour factors for the northbound leg and movements entering into HD Supply's driveway were adjusted to the Highway Capacity Manual's standard design value of 0.92 for urban conditions.

The 100 second and 110 second cycle lengths for the AM and PM peak hours were held constant, respectively. For the morning peak hours, the existing timing gives 30 seconds to the Cobb Galleria Parkway southbound movements, and 50 and 20 seconds to Cumberland Boulevard's through and left-turn protected phases, respectively. In the "No Build" condition, timing was taken from Cumberland Boulevard's through movements to allot for split timing for southbound Cobb Galleria Parkway and northbound HD Supply driveway.

In the evening peak hour, the existing timing gives 25 seconds to the Cobb Galleria Parkway southbound movements, and 60 and 25 seconds to Cumberland Boulevard's through and left-turn protected phases, respectively. In the "No Build" condition, timing was reallocated from the Cumberland Boulevard through phases and left turn phases, respectively, to create a split timing for southbound Cobb Galleria Parkway and northbound HD Supply driveway.

The existing 2016 traffic volumes were grown at the agreed upon 1.5% annual growth rate to Galleria 75's projected build out year 2025. The Encore apartments and HD Supply Office Building projected trips were then added to the annually grown background traffic to develop the 2025 "No Build" traffic volumes, as shown in Figure 10. The generated trips associated with Encore apartments and the HD Supply Office Building are included in Appendix C. A traffic operation analysis was completed for 2025 "No Build" conditions was completed. The results of the analysis is shown in Table 6. Synchro output tables are in Appendix D.

Table 6: 2025 "No Build" Traffic Operations by Intersection

	Intersection	Traffic Control	AM Peak		PM Peak	
			LOS	(Delay)	LOS	(Delay)
	Cumberland Blvd @ Cobb Galleria Pkwy		**C**	**(25.7 s)**	**D**	**(36.9 s)**
	Eastbound Approach (NB in Synchro 9.0)		C	(31.5 s)	C	(32.6 s)
1	Westbound Approach(SB in Synchro 9.0)	Signalized	C	(21.1 s)	C	(32.8 s)
	Northbound Approach (NW in Synchro 9.0)		D	(46.6 s)	E	(59.6 s)
	Southbound Approach (SE in Synchro 9.0)		D	(42.9 s)	D	(42.7 s)
	Riverwood Pkwy @ Cobb Galleria Pkwy		**B**	**(10.4 s)**	**B**	**(16.8 s)**
	Eastbound Approach		D	(49.7 s)	D	(49.9 s)
2	Westbound Approach	Signalized	D	(47.0 s)	D	(47.6 s)
	Northbound Approach		A	(8.2 s)	A	(7.6 s)
	Southbound Approach		A	(6.9 s)	A	(9.7 s)
	Akers Mill Rd @ Cobb Galleria Pkwy		**C**	**(21.2 s)**	**C**	**(25.7 s)**
	Eastbound Approach		B	(18.9 s)	C	(28.9 s)
3	Westbound Approach	Signalized	B	(16.9 s)	C	(21.7 s)
	Northbound Approach		C	(27.7 s)	C	(27.3 s)
	Southbound Approach		C	(33.6 s)	C	(30.3 s)

When adding the 4th leg to the intersection model, the algorithm in Synchro reorients the orientation of the lane designations for each approach. The true diagonal nature of the intersection caused the software to designate the Cumberland Boulevard eastbound and westbound lanes as northbound and southbound movements; respectively, and the Cobb Galleria Parkway southbound and northbound lanes as southeast-bound and northwest-bound, respectively. The orientation will remain consistent throughout the report; however, the Synchro printouts for the build conditions reflect these changes in lane designations in Appendix D.

As shown in Table 6, under the 2025 "No Build" conditions, all of the intersections in the study network will be operating at or above the acceptable Level of Service standard (LOS D) during the AM and PM peak hours.

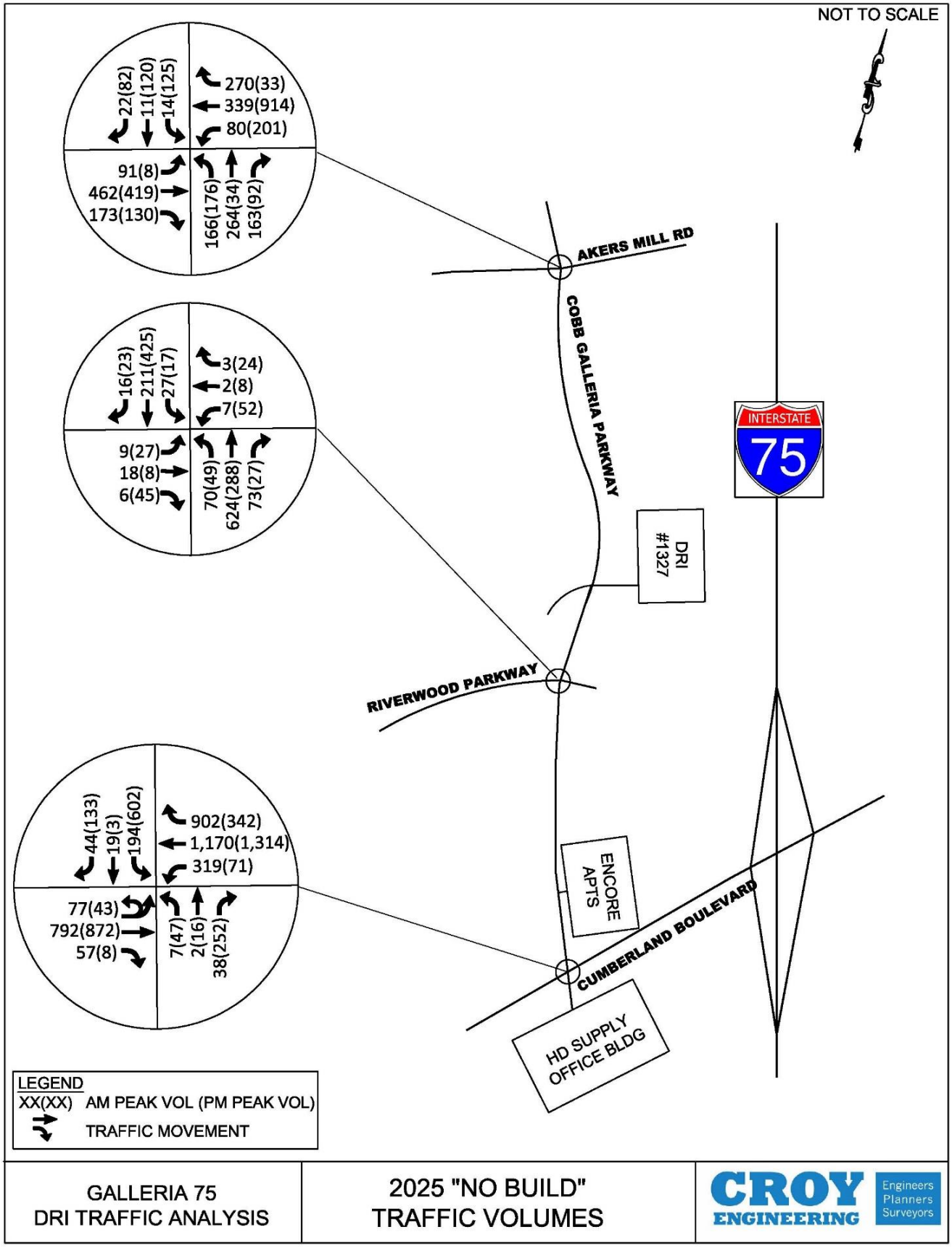


Figure 10: 2025 “No Build” Traffic Volumes

3.5. 2025 "Build" Traffic Analysis

The "Build" conditions associated with the Galleria 75 development combined the background traffic from the "No Build" conditions (Figure 10) and the generated trips from Galleria 75 (Figure 7). The "Build" traffic volumes are shown in Figure 11.

In the "Build" scenario, the lane configurations of Galleria 75 main driveway (westbound approach) changed from the "No Build" scenario from shared through/right and left turn lane to dual left turn lanes and shared through/right lane, as shown in the site plan (Figure 2). The second driveway into the Galleria 75 development creates a right-in/right-out intersection with stop control for the driveway, which gives access to Galleria 75 and the adjacent Encore apartments. With the new character of the Galleria 75 driveway at the Riverwood Parkway intersection, peak hour factors for the westbound leg and movements entering into Galleria 75's driveway were adjusted to the Highway Capacity Manual's standard design value of 0.92 for urban conditions .A traffic operation analysis was completed for 2025 "Build" conditions was completed. The results of the analysis is shown in Table 7. Synchro output tables are in Appendix D.

Table 7: 2025 "Build" Traffic Operations by Intersection

	Intersection	Traffic Control	AM Peak		PM Peak	
			LOS	(Delay)	LOS	(Delay)
1	**Cumberland Blvd @ Cobb Galleria Pkwy**	Signalized	**C**	**(32.0 s)**	**D**	**(52.6 s)**
	Eastbound Approach (NB in Synchro 9.0)		C	(32.4 s)	D	(35.9 s)
	Westbound Approach(SB in Synchro 9.0)		C	(28.1 s)	E	(55.3 s)
	Northbound Approach (NW in Synchro 9.0)		D	(46.6 s)	E	(66.5 s)
	Southbound Approach (SE in Synchro 9.0)		D	(53.0 s)	E	(59.4 s)
2	**Driveway #1/Riverwood Pkwy @ Cobb Galleria Pkwy**	Signalized	**C**	**(21.8 s)**	**C**	**(33.3 s)**
	Eastbound Approach		D	(51.5 s)	D	(48.8 s)
	Westbound Approach		D	(42.2 s)	E	(72.6 s)
	Northbound Approach		B	(17.4 s)	B	(13.7 s)
	Southbound Approach		B	(13.0 s)	B	(11.3 s)
3	**Akers Mill Rd @ Cobb Galleria Pkwy**	Signalized	**C**	**(23.4 s)**	**D**	**(35.6 s)**
	Eastbound Approach		C	(23.9 s)	C	(31.8 s)
	Westbound Approach		B	(18.2 s)	D	(42.4 s)
	Northbound Approach		C	(27.3 s)	C	(29.3 s)
	Southbound Approach		C	(33.8 s)	C	(30.4 s)
4	**Driveway #2 @ Cobb Galleria Pkwy**	Unsignalized	**A**	**(0.5 s)**	**A**	**(0.6 s)**
	Westbound Approach		B	(14.5 s)	B	(10.9 s)

Although some individual lane groups operate at LOS E, Table 7 shows that all intersections in the study network would be operating at or above the acceptable Level of Service standard (LOS D) during the AM and PM peak hours

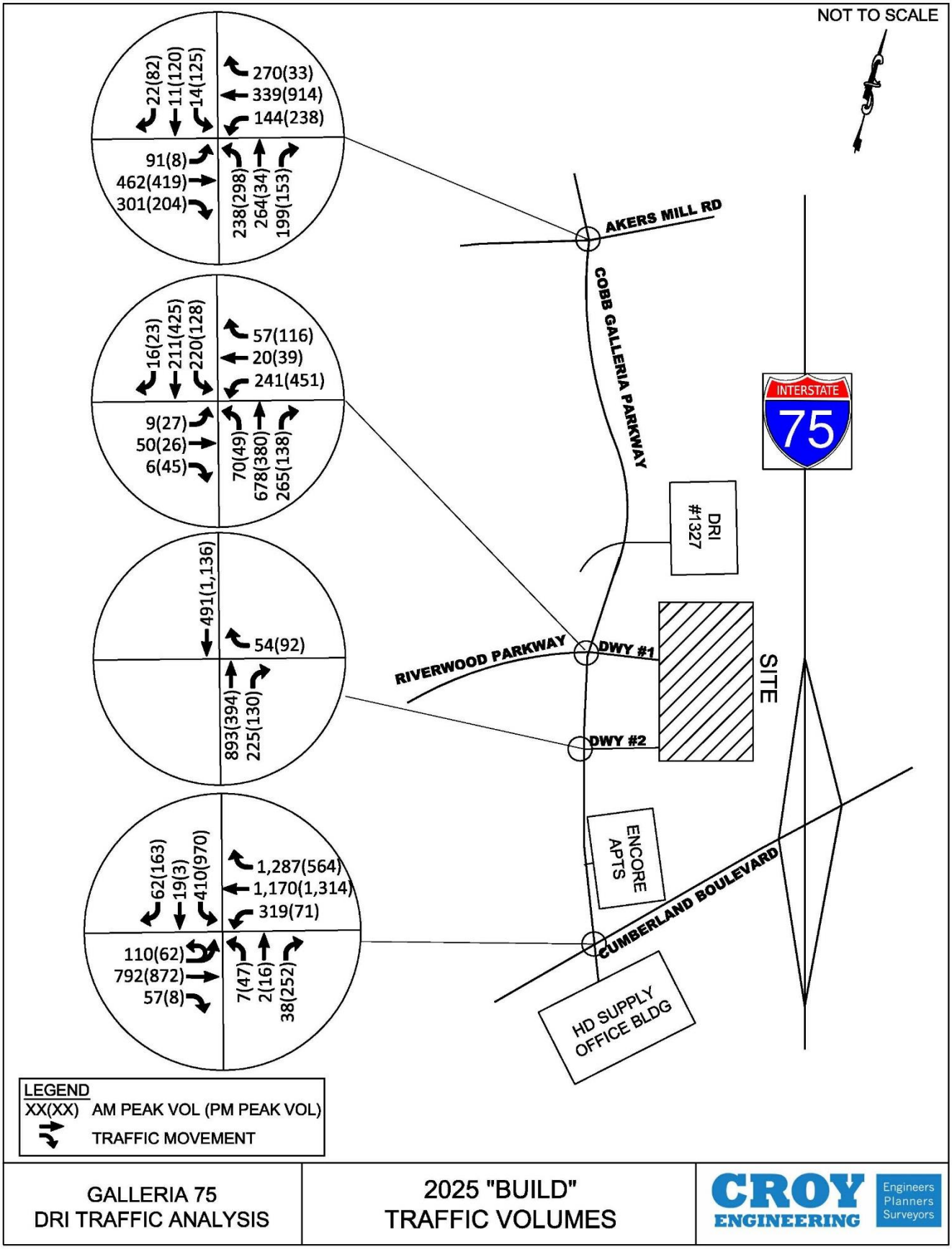


Figure 11: 2025 “Build” Traffic Volumes

4. RECOMMENDATIONS AND CONCLUSION

4.1. System Recommendations and Improvements

Improvements that are identified as "System Improvements" address deficiencies that are found in the study network for the "No Build" conditions, without the addition of traffic from the proposed development. The 2025 "No Build" capacity analysis shows that all intersections and roadways in the study network would be operating at or above the Level of Service standard (LOS D) even with the introduction HD Supply's driveway as the fourth leg to Cumberland Boulevard and Cobb Galleria Parkway.

Based on these results there are no "System Improvements" recommended for the study network.

4.2. Site Mitigation Recommendations and Improvements

Improvements that are identified as "Site Mitigation Improvements" address deficiencies that are caused by site traffic and can be identified as related to the proposed development. The 2025 "Build" capacity analysis shows that all intersections and roadways in the study network would be operating at or above the Level of Service standard (LOS D).

Based on these results there are no "Site Mitigation Improvements" recommended for the study network. The following site access configurations are recommended to maintain the Level of Service standard (LOS D) at Galleria 75 site access driveways:

Cobb Galleria Parkway and Riverwood Parkway/Galleria 75 Driveway #1 (Signalized)

- Dual left lanes and a shared through/right-turn lane exiting driveway

Cobb Galleria Parkway and Galleria 75 Driveway #2 (Unsignalized)

- Right-In/Right-Out driveway

Figure 12 shows the build scenario traffic control and lane geometry under the future build out conditions.

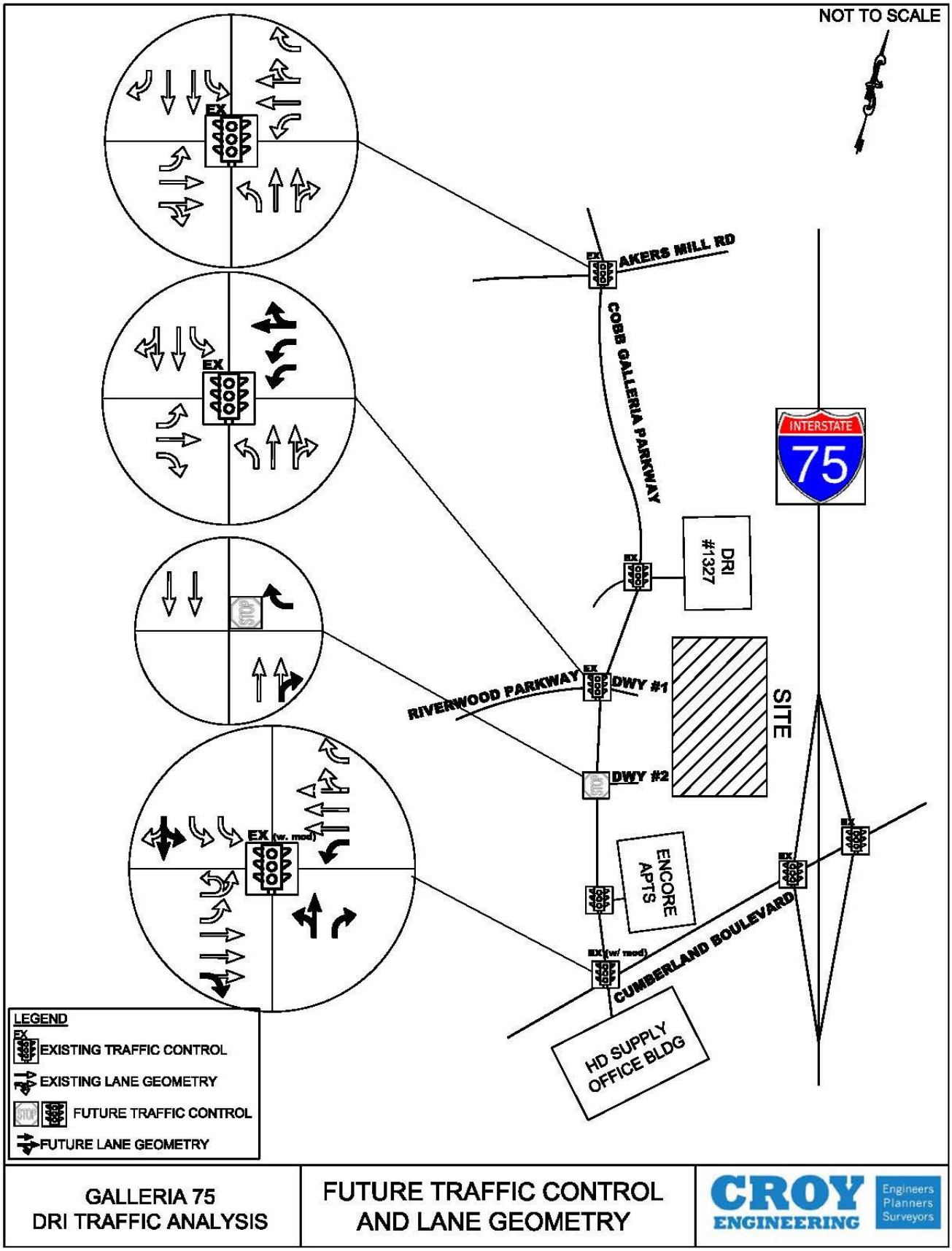


Figure 12: Future Lane Geometry and Traffic Control at Study Intersections

4.3. Conclusion

Traffic impacts were evaluated for the added traffic from the proposed Galleria 75 mixed-use development located on Cobb Galleria Parkway north of Cumberland Boulevard. The proposed development will consist of:

- 450,000 square feet of office space
- 45,000 square feet of retail space
- 600 apartment units

Galleria 75's proposed access points on Cobb Galleria Parkway are as following:

- Site Driveway 1: Full access at the existing signalized intersection of Cobb Galleria Parkway and Riverwood Parkway.
- Site Driveway 2: Right-in/right-out driveway at the southern boundary of the development on Cobb Galleria Parkway. Driveway, which will also give access to the adjacent Encore Apartments development, is currently under construction.

The following lane configurations are recommended at Galleria 75's driveways:

Cobb Galleria Parkway and Riverwood Parkway/Galleria 75 Driveway #1 (Signalized)

- Dual left lanes and a shared through/right-turn lane exiting driveway

Cobb Galleria Parkway and Galleria 75 Driveway #2 (Unsignalized)

- Right-In/Right-Out driveway

Based on the acceptable Levels of Service in the study network for the 2025 build out of Galleria 75, there are no recommended "System Improvements" or "Site Mitigation Improvements".

5. EXPEDITED REVIEW CRITERIA

Per GRTA's Letter of Understanding for DRI #2615 "Galleria 75", the DRI qualifies for the criteria for expedited review under the DRI Procedures and Principles for GRTA Development of Regional Impact Review 3-102.E. Alternative Modes of Transportation and 3-102.F. Livable Centers Initiative (LCI).

5.1. Alternative Modes of Transportation

The proposed DRI is located within a Cobb County designated Regional Activity Center as shown in Cobb County's Future Land Use Plan. The Cumberland Community Improvement District (CID) is a rapidly growing and evolving employment, residential, and entertainment center in metro Atlanta. As such, transit access is essential to the stability and growth of the region. Cobb Linc currently has two routes, Route 50 and Route 108, which operate along Cobb Galleria Parkway and have a bus stop directly outside of the main entrance of proposed development at Cobb Galleria Parkway and Riverwood Parkway. There is also access to MARTA's Route 12 bus stop to the west at US 41/Cobb Parkway and Riverwood Parkway. These transit options give residents, employees, and patrons of Galleria 75 the option to use mass transit with no delay associated with connectivity access.

Per the Cobb County Transportation Plan (CTP), there are planned transit improvements in the local region, including the relocation of the Cobb Linc Cumberland Transfer Center, which is a bus connection and transfer point for Cobb Linc and MARTA, to Cobb Parkway/US 41/SR 3 at Akers Mill Road. This transfer center will serve as a major connecting point for transit passengers in the Metro Atlanta Region traveling to and from downtown Atlanta and the Cumberland CID.

5.2. Livable Centers Initiative (LCI)

The proposed DRI is located within the approved Livable Centers Initiative (LCI) area known as Blueprint Cumberland; shown in Figure 13. The land uses and access are consistent with the policies, design elements, and overall standards established by the study. Cobb County in cooperation with the Cumberland Community Improvement District (CID) has adopted Blueprint Cumberland and has shown efforts towards implementation of elements of the study identified in the Five (5) Year Plan, such as the Cobb Galleria Parkway Streetscape, the Akers Mill Streetscape and the Bob Callan Loop Trail.

The site is well positioned along Cobb Galleria Parkway between Akers Mill Road and Cumberland Boulevard with efficient connectivity to adjacent arterials and I-75. The site layout provides safe and suitable access for efficient vehicular movement to parking lots within the site. The site design also provides for availability of transit alternatives including walkability and pedestrian movements; see Attachment F for Atlanta Region's Long Range Transit Vision: Plan 2040.

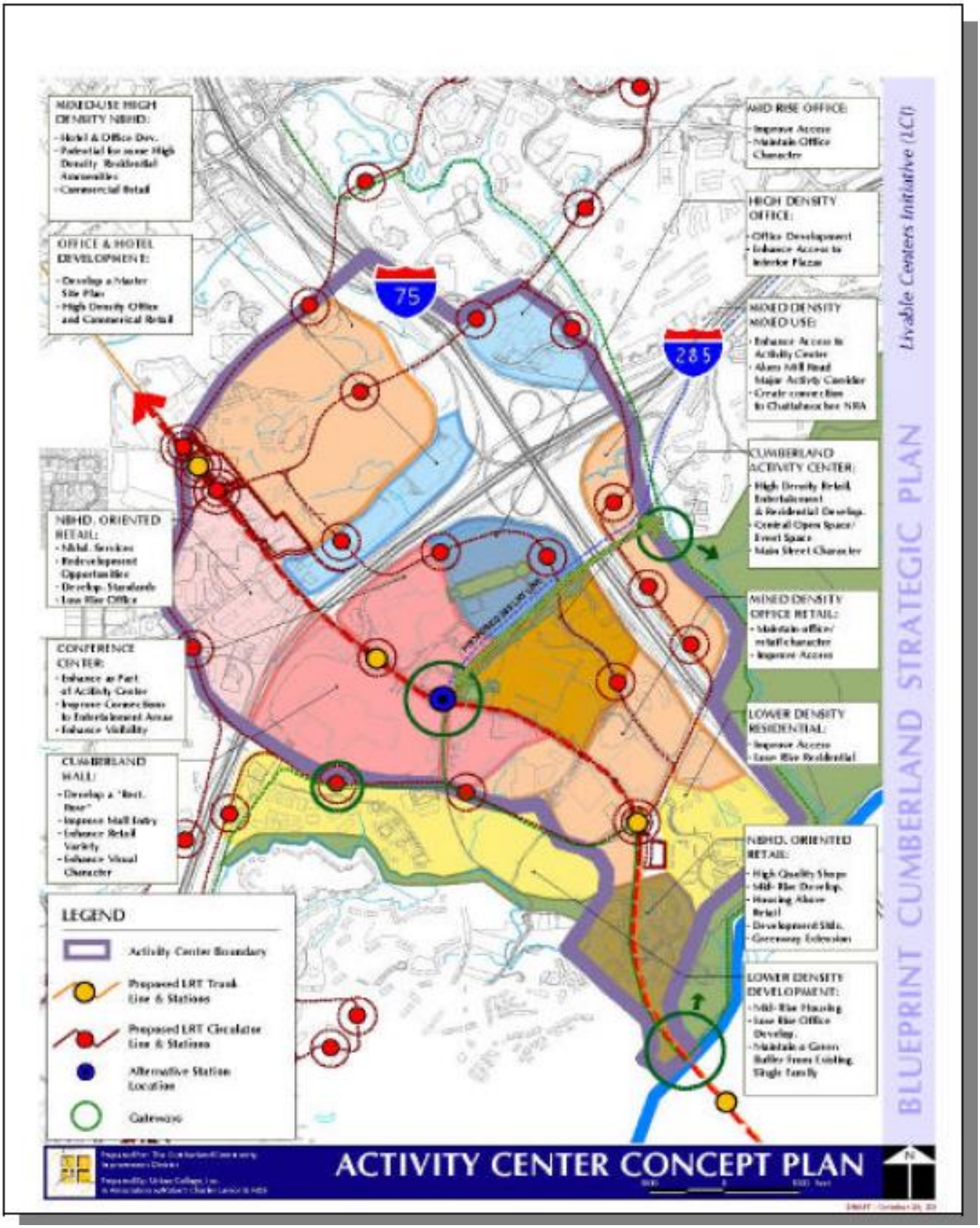


Figure 13: Blueprint Cumberland: Activity Center Concept Plan

APPENDIX

APPENDIX A

TRIP GENERATION AND REDUCTION TABLES

"Galleria 75"
ITE GENERATED TRIPS CALCULATIONS

Trip Genertion Summary (GROSS)

Description	LUC	Unit	Quanity	Daily	AM Peak			PM Peak		
				Two-way	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	Dwelling Units	600	3,760	60	238	298	226	122	348
Office	710	SQ FT/1000	450	4,118	561	76	637	99	483	582
Shopping Center	820	SQ FT/1000	25	2,758	41	25	66	114	123	237
Specialty Retail Center	826	SQ FT/1000	20	893	103	111	214	56	44	100
			Total	**11,529**	**765**	**451**	**1,215**	**495**	**772**	**1,267**

Trip Genertion Summary (NET)

Description	LUC	Unit	Quantity	Daily	AM Peak			PM Peak		
				Two-way	Enter	Exit	Total	Enter	Exit	Total
Apartments	220	Dwelling Units	600	3760	60	238	298	226	122	348
Internal Capture + 10% Transit Reductions (Residential)				-461	-7	-30	-37	-27	-15	-42
Office	710	SQ FT/1000	450	4118	561	76	637	99	483	582
Internal Capture + 10% Transit Reductions (Office)				-1039	-80	-27	-107	-15	-97	-112
Shopping Center	820	SQ FT/1000	25	2758	41	25	66	114	123	237
Specialty Retail Center	826	SQ FT/1000	20	893	103	111	214	56	44	100
Internal Capture + 10% Transit Reductions (Retail)				-1010	-35	-34	-69	-67	-25	-92
Retail Pass-by Trips (0%) 15%				-396	0	0	0	-15	-21	-36
			Net Total	**8,623**	**643**	**360**	**1,002**	**370**	**614**	**985**

"Galleria 75"
ITE TRIP GENERATION WORKSHEETS

Apartment LUC 220

Average Vehicle Trip Ends vs: Dwelling Units	Formula	Number	Total		Enter	Exit
Ona :					50%	50%
Per Weekday	T=6.06(X) + 123.56	600	3,760		1880	1880
					20%	80%
Morning Peak Hour of Adjacent Street Traffic One Hour Between 7 & 9 a.m.	T=0.49(X) + 3.73	600	298		60	238
					65%	35%
Afternoon Peak Hour of Adjacent Street Traffic One Hour Between 4 & 6 p.m.	T=0.55(X) + 17.65	600	348		226	122

General Office Building LUC 710

Average Vehicle Trip Ends vs: 1000 sq Feet Gross floor Area	Formula	Number	Total		Enter	Exit
					50%	50%
Per Weekday	Ln(T)=0.76Ln(X)+3.68	450	4117.61		2059	2059

Average Vehicle Trip Ends vs: 1000 sq Feet Gross floor Area	Formula	Number	Total		Enter	Exit
					88%	12%
A.M. Peak Hour	Ln(T)=0.80Ln(X)+1.57	450	637.40		561	76
					17%	83%
P.M. Peak Hour	T=1.12(x)+78.45	450	582.45		99	483

Shopping Center LUC 820

Average Vehicle Trip Ends vs: 1000 sq Feet Gross Leasable Area	Formula	Number	Total		Enter	Exit
					50%	50%
Per Weekday	Ln(T)=0.65ln(X)+5.83	25	2758.02		1379	1379
					62%	38%
Peak Hour of Adjacent Street Traffic One Hour Between 7 & 9 a.m.	Ln(T)=0.61ln(X)+2.24	25	66.92		41	25
					48%	52%
Peak Hour of Adjacent Street Traffic One Hour Between 4 & 6 p.m.	Ln(T)=0.67ln(X)+3.31	25	236.67		114	123

Specialty Retail Center LUC 826

Average Vehicle Trip Ends vs: 1000 sq Feet Gross floor Area	Formula	Number	Total		Enter	Exit
					50%	50%
Weekday	T=42.78(X)+37.66	20	893.26		447	447

Average Vehicle Trip Ends vs: 1000 sq Feet Gross floor Area	Formula	Number	Total		Enter	Exit
					48%	52%
A.M. Peak Hour of Generator	T=4.91(X)+115.59	20	213.79		103	111
	Average =				56%	44%
P.M. Peak Hour of Generator	5.02	20	100.40		56	44

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Galleria 75 Site Development	**Organization:**	PAC Galleria 75, LLC
Project Location:	Cobb Galleria Pkwy N of Riverwood Pkwy	**Performed By:**	AT, Croy Engineering
Scenario Description:	Mixed-Use Development	**Date:**	8/8/2016
Analysis Year:	2016	**Checked By:**	DBD, Croy Engineering
Analysis Period:	**Daily**	**Date:**	8/22/2016

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	400	Dwelling Units	4,118	2,059	2,059
Retail	820/826	45	SQ FT/1000	3,651	1,826	1,826
Restaurant				0		
Cinema/Entertainment				0		
Residential	220	600	SQ FT/1000	3,760	1,880	1,880
Hotel				0		
All Other Land Uses[2]				0		
				11,529	5,765	5,765

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	10%		1.00	10%	
Retail	1.00	10%		1.00	10%	
Restaurant						
Cinema/Entertainment						
Residential	1.00	10%		1.00	10%	
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		577	0	0	0	0
Retail	82		0	0	38	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	38	19	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	11,530	5,765	5,765
Internal Capture Percentage	13%	13%	13%
External Vehicle-Trips[5]	9,020	4,510	4,510
External Transit-Trips[6]	1,002	501	501
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	6%	28%
Retail	33%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Galleria 75 Site Development
Analysis Period:	**Daily**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	2059	2059	1.00	2059	2059
Retail	1.00	1825.5	1826	1.00	1825.5	1826
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	1880	1880	1.00	1880	1880
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		577	1297	0	21	0
Retail	530		237	0	256	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	38	19	376	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		584	0	0	0	0
Retail	82		0	0	38	0
Restaurant	288	146		0	94	0
Cinema/Entertainment	0	0	0		0	0
Residential	62	310	0	0		0
Hotel	62	73	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	120	1939	2059	1745	194	0
Retail	596	1230	1826	1107	123	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	38	1842	1880	1658	184	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	577	1482	2059	1334	148	0
Retail	120	1706	1826	1535	171	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	57	1823	1880	1641	182	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Galleria 75 Site Development	**Organization:**	PAC Galleria 75, LLC
Project Location:	Cobb Galleria Pkwy N of Riverwood Pkwy	**Performed By:**	AT, Croy Engineering
Scenario Description:	Mixed-Use Development	**Date:**	8/8/2016
Analysis Year:	2016	**Checked By:**	DBD, Croy Engineering
Analysis Period:	**AM Peak Hour**	**Date:**	8/22/2016

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	450	Dwelling Units	637	561	76
Retail	820/826	45	SQ FT/1000	280	144	136
Restaurant				0		
Cinema/Entertainment				0		
Residential	220	600	SQ FT/1000	298	60	238
Hotel				0		
All Other Land Uses[2]				0		
				1,215	765	450

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	10%		1.00	10%	
Retail	1.00	10%		1.00	10%	
Restaurant						
Cinema/Entertainment						
Residential	1.00	10%		1.00	10%	
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		21	0	0	0	0
Retail	22		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	5	2	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,215	765	450
Internal Capture Percentage	8%	7%	11%
External Vehicle-Trips[5]	1,002	643	359
External Transit-Trips[6]	111	71	40
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	5%	28%
Retail	16%	17%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Galleria 75 Site Development
Analysis Period:	**AM Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	561	561	1.00	76	76
Retail	1.00	144	144	1.00	136	136
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	60	60	1.00	238	238
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		21	48	0	1	0
Retail	39		18	0	19	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	5	2	48	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		46	0	0	0	0
Retail	22		0	0	1	0
Restaurant	79	12		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	17	24	0	0		0
Hotel	17	6	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	27	534	561	481	53	0
Retail	23	121	144	109	12	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	59	60	53	6	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	21	55	76	49	6	0
Retail	23	113	136	102	11	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	231	238	208	23	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Galleria 75 Site Development	**Organization:**	PAC Galleria 75, LLC
Project Location:	Cobb Galleria Pkwy N of Riverwood Pkwy	**Performed By:**	AT, Croy Engineering
Scenario Description:	Mixed-Use Development	**Date:**	8/8/2016
Analysis Year:	2016	**Checked By:**	DBD, Croy Engineering
Analysis Period:	**PM Peak Hour**	**Date:**	8/22/2016

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	450	Dwelling Units	582	99	483
Retail	820/826	45	SQ FT/1000	337	170	167
Restaurant				0		
Cinema/Entertainment				0		
Residential	220	600	SQ FT/1000	348	226	122
Hotel				0		
All Other Land Uses[2]				0		
				1,267	495	772

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	10%		1.00	10%	
Retail	1.00	10%		1.00	10%	
Restaurant						
Cinema/Entertainment						
Residential	1.00	10%		1.00	10%	
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		54	0	0	0	0
Retail	4		0	0	5	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,267	495	772
Internal Capture Percentage	10%	13%	9%
External Vehicle-Trips[5]	1,021	386	635
External Transit-Trips[6]	114	43	71
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	6%	11%
Retail	32%	5%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Galleria 75 Site Development
Analysis Period:	**PM Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	99	99	1.00	483	483
Retail	1.00	170	170	1.00	167	167
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	226	226	1.00	122	122
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		135	304	0	5	0
Retail	48		22	0	23	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	24	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		54	0	0	0	0
Retail	4		0	0	5	0
Restaurant	14	14		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	29	0	0		0
Hotel	3	7	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	6	93	99	84	9	0
Retail	55	115	170	103	12	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	221	226	199	22	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	54	429	483	386	43	0
Retail	9	158	167	142	16	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	119	122	107	12	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Table F.9 (Cont'd) Pass-By and Non-Pass-By Trips Weekday, PM Peak Period Land Use Code 820—Shopping Center

SIZE (1,000 SQ. FT. GLA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIP (%)			ADJ. STREET PEAK HOUR VOLUME	AVERAGE 24-HOUR TRAFFIC	SOURCE
						PRIMARY	DIVERTED	TOTAL			
921	Albany, NY	July & Aug. 1985	196	4:00–6:00 p.m.	23	42	35	77	—	60,950	Raymond Keyes Assoc.
108	Overland Park, KS	July 1988	111	4:30–5:30 p.m.	26	61	13	74	—	34,000	—
118	Overland Park, KS	Aug. 1988	123	4:30–5:30 p.m.	25	55	20	75	—	—	—
256	Greece, NY	June 1988	120	4:00–6:00 p.m.	38	62	—	62	—	23,410	Sear Brown
160	Greece, NY	June 1988	78	4:00–6:00 p.m.	29	71	—	71	—	57,306	Sear Brown
550	Greece, NY	June 1988	117	4:00–6:00 p.m.	48	52	—	52	—	40,763	Sear Brown
51	Boca Raton, FL	Dec. 1987	110	4:00–6:00 p.m.	33	34	33	67	—	42,225	Kimley-Horn and Assoc. Inc.
1,090	Ross Twp, PA	July 1988	411	2:00–8:00 p.m.	34	56	10	66	—	51,500	Wilbur Smith and Assoc.
97	Upper Dublin Twp, PA	Winter 1988/89	—	4:00–6:00 p.m.	41	—	—	59	—	34,000	McMahon Associates
118	Tredyffrin Twp, PA	Winter 1988/89	—	4:00–6:00 p.m.	24	—	—	76	—	10,000	Booz Allen & Hamilton
122	Lawnside, NJ	Winter 1988/89	—	4:00–6:00 p.m.	37	—	—	63	—	20,000	Pennoni Associates
126	Boca Raton, FL	Winter 1988/89	—	4:00–6:00 p.m.	43	—	—	57	—	40,000	McMahon Associates
150	Willow Grove, PA	Winter 1988/89	—	4:00–6:00 p.m.	39	—	—	61	—	26,000	Booz Allen & Hamilton
153	Broward Cnty., FL	Winter 1988/89	—	4:00–6:00 p.m.	50	—	—	50	—	85,000	McMahon Associates
153	Arden, DE	Winter 1988/89	—	4:00–6:00 p.m.	30	—	—	70	—	26,000	Orth-Rodgers & Assoc. Inc.
154	Doylestown, PA	Winter 1988/89	—	4:00–6:00 p.m.	32	—	—	68	—	29,000	Orth-Rodgers & Assoc. Inc.
164	Middletown Twp, PA	Winter 1988/89	—	4:00–6:00 p.m.	33	—	—	67	—	25,000	Booz Allen & Hamilton
166	Haddon Twp, NJ	Winter 1988/89	—	4:00–6:00 p.m.	20	—	—	80	—	6,000	Pennoni Associates
205	Broward Cnty., FL	Winter 1988/89	—	4:00–6:00 p.m.	55	—	—	45	—	62,000	McMahon Associates

Table F.9 (Cont'd) Pass-By and Non-Pass-By Trips Weekday, PM Peak Period Land Use Code 820—Shopping Center

SIZE (1,000 SQ. FT. GLA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIP (%)			ADJ. STREET PEAK HOUR VOLUME	AVERAGE 24-HOUR TRAFFIC	SOURCE
						PRIMARY	DIVERTED	TOTAL			
237	W. Windsor Twp, NJ	Winter 1988/89	—	4:00–6:00 p.m.	48	—	—	52	—	46,000	Booz Allen & Hamilton
242	Willow Grove, PA	Winter 1988/89	—	4:00–6:00 p.m.	37	—	—	63	—	26,000	McMahon Associates
297	Whitehall, PA	Winter 1988/89	—	4:00–6:00 p.m.	33	—	—	67	—	26,000	Orth-Rodgers & Assoc. Inc.
360	Broward Cnty., FL	Winter 1988/89	—	4:00–6:00 p.m.	44	—	—	56	—	73,000	McMahon Associates
370	Pittsburgh, PA	Winter 1988/89	—	4:00–6:00 p.m.	19	—	—	81	—	33,000	Wilbur Smith
150	Portland, OR	—	519	4:00–6:00 p.m.	68	6	26	32	—	25,000	Kittelson and Associates
150	Portland, OR	—	655	4:00–6:00 p.m.	65	7	28	35	—	30,000	Kittelson and Associates
760	Calgary, Alberta	Oct.-Dec. 1987	15,436	4:00–6:00 p.m.	20	39	41	80	—	—	City of Calgary DOT
178	Bordentown, NJ	Apr. 1989	154	2:00–6:00 p.m.	35	—	—	65	—	37,980	Raymond Keyes Assoc.
144	Manalapan, NJ	July 1990	176	3:30–6:15 p.m.	32	44	24	68	—	69,347	Raymond Keyes Assoc.
549	Natick, MA	Feb. 1989	—	4:45–5:45 p.m.	33	26	41	67	—	48,782	Raymond Keyes Assoc.

Average Pass-By Trip Percentage: 34
"—" means no data were provided

APPENDIX B

TRAFFIC VOLUME COUNTS

Greater Traffic Company

File Name : 03
Site Code : 00000013
Start Date : 8/4/2016
Page No : 1

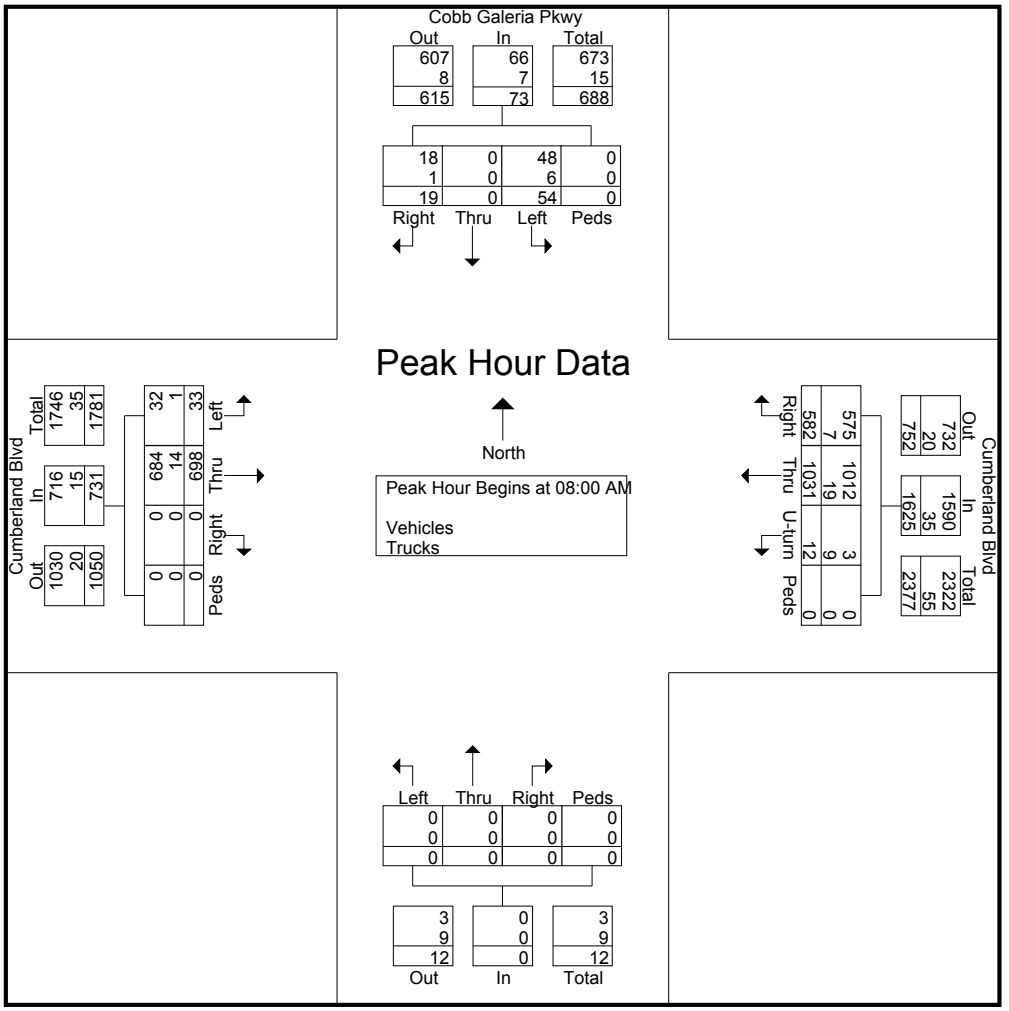
Groups Printed- Vehicles - Trucks

	Northbound					Cobb Galeria Pkwy Southbound					Cumberland Blvd Eastbound					Cumberland Blvd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	U-turn	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	18	0	1	0	19	6	139	0	0	145	1	130	77	0	208	372
07:15 AM	0	0	0	0	0	10	0	2	0	12	7	157	0	0	164	1	163	72	0	236	412
07:30 AM	0	0	0	0	0	10	0	5	0	15	5	245	0	0	250	0	198	111	0	309	574
07:45 AM	0	0	0	0	0	13	0	4	0	17	4	182	0	0	186	3	198	108	0	309	512
Total	0	0	0	0	0	51	0	12	0	63	22	723	0	0	745	5	689	368	0	1062	1870
08:00 AM	0	0	0	0	0	14	0	6	0	20	12	187	0	0	199	4	279	138	0	421	640
08:15 AM	0	0	0	0	0	12	0	4	0	16	5	179	0	0	184	6	233	160	0	399	599
08:30 AM	0	0	0	0	0	14	0	6	0	20	9	199	0	0	208	1	289	155	0	445	673
08:45 AM	0	0	0	0	0	14	0	3	0	17	7	133	0	0	140	1	230	129	0	360	517
Total	0	0	0	0	0	54	0	19	0	73	33	698	0	0	731	12	1031	582	0	1625	2429
*** BREAK ***																					
04:00 PM	0	0	0	0	0	67	0	7	0	74	5	196	0	0	201	0	191	32	0	223	498
04:15 PM	0	0	0	0	0	59	0	13	0	72	5	180	0	0	185	1	247	38	0	286	543
04:30 PM	0	0	0	0	0	75	0	14	0	89	6	175	0	0	181	2	244	38	0	284	554
04:45 PM	0	0	0	0	0	46	0	8	0	54	1	192	0	0	193	3	312	44	0	359	606
Total	0	0	0	0	0	247	0	42	0	289	17	743	0	0	760	6	994	152	0	1152	2201
05:00 PM	0	0	0	0	0	86	0	21	0	107	7	186	0	0	193	1	241	42	0	284	584
05:15 PM	0	0	0	0	0	98	0	22	0	120	2	228	0	0	230	14	311	49	0	374	724
05:30 PM	0	0	0	0	0	89	0	19	0	108	11	182	0	0	193	7	289	59	0	355	656
05:45 PM	0	0	0	0	0	73	0	24	0	97	3	172	0	0	175	4	317	62	0	383	655
Total	0	0	0	0	0	346	0	86	0	432	23	768	0	0	791	26	1158	212	0	1396	2619
Grand Total	0	0	0	0	0	698	0	159	0	857	95	2932	0	0	3027	49	3872	1314	0	5235	9119
Apprch %	0	0	0	0		81.4	0	18.6	0		3.1	96.9	0	0		0.9	74	25.1	0		
Total %	0	0	0	0	0	7.7	0	1.7	0	9.4	1	32.2	0	0	33.2	0.5	42.5	14.4	0	57.4	
Vehicles	0	0	0	0	0	681	0	156	0	837	87	2889	0	0	2976	36	3824	1293	0	5153	8966
% Vehicles	0	0	0	0	0	97.6	0	98.1	0	97.7	91.6	98.5	0	0	98.3	73.5	98.8	98.4	0	98.4	98.3
Trucks	0	0	0	0	0	17	0	3	0	20	8	43	0	0	51	13	48	21	0	82	153
% Trucks	0	0	0	0	0	2.4	0	1.9	0	2.3	8.4	1.5	0	0	1.7	26.5	1.2	1.6	0	1.6	1.7

Greater Traffic Company

File Name : 03
Site Code : 00000013
Start Date : 8/4/2016
Page No : 2

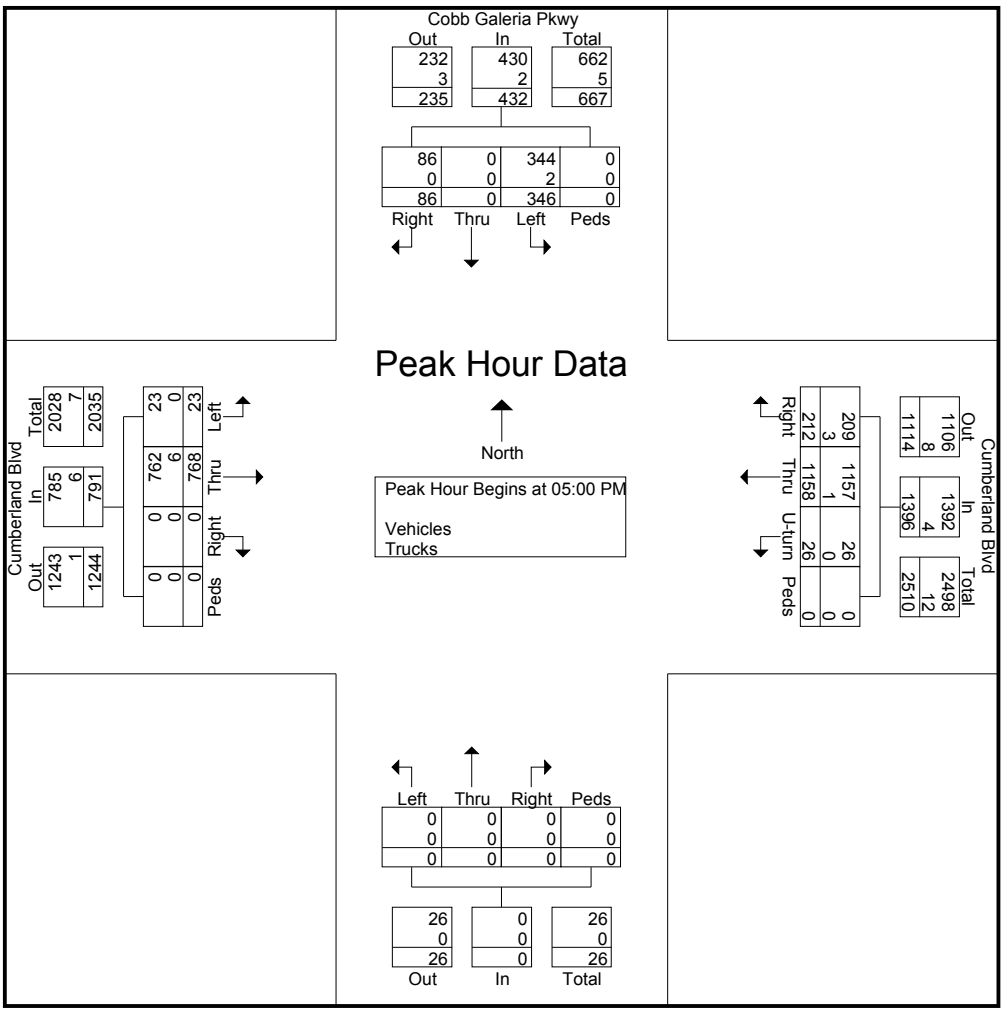
	Northbound					Cobb Galeria Pkwy Southbound					Cumberland Blvd Eastbound					Cumberland Blvd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	U-turn	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	**14**	0	**6**	0	**20**	**12**	187	0	0	199	4	279	138	0	421	640
08:15 AM	0	0	0	0	0	12	0	4	0	16	5	179	0	0	184	**6**	233	**160**	0	399	599
08:30 AM	0	0	0	0	0	14	0	6	0	20	9	**199**	0	0	**208**	1	**289**	155	0	**445**	**673**
08:45 AM	0	0	0	0	0	14	0	3	0	17	7	133	0	0	140	1	230	129	0	360	517
Total Volume	0	0	0	0	0	54	0	19	0	73	33	698	0	0	731	12	1031	582	0	1625	2429
% App. Total	0	0	0	0		74	0	26	0		4.5	95.5	0	0		0.7	63.4	35.8	0		
PHF	.000	.000	.000	.000	.000	.964	.000	.792	.000	.913	.688	.877	.000	.000	.879	.500	.892	.909	.000	.913	.902
Vehicles	0	0	0	0	0	48	0	18	0	66	32	684	0	0	716	3	1012				
% Vehicles	0	0	0	0	0	88.9	0	94.7	0	90.4	97.0	98.0	0	0	97.9	25.0	98.2	98.8	0	97.8	97.7
Trucks	0	0	0	0	0	6	0	1	0	7	1	14	0	0	15	9	19	7	0	35	57
% Trucks	0	0	0	0	0	11.1	0	5.3	0	9.6	3.0	2.0	0	0	2.1	75.0	1.8	1.2	0	2.2	2.3



Greater Traffic Company

File Name : 03
Site Code : 00000013
Start Date : 8/4/2016
Page No : 3

	Northbound					Cobb Galeria Pkwy Southbound					Cumberland Blvd Eastbound					Cumberland Blvd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	U-turn	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	86	0	21	0	107	7	186	0	0	193	1	241	42	0	284	584
05:15 PM	0	0	0	0	0	**98**	0	22	0	**120**	2	**228**	0	0	**230**	**14**	311	49	0	374	**724**
05:30 PM	0	0	0	0	0	89	0	19	0	108	**11**	182	0	0	193	7	289	59	0	355	656
05:45 PM	0	0	0	0	0	73	0	**24**	0	97	3	172	0	0	175	4	**317**	**62**	0	**383**	655
Total Volume	0	0	0	0	0	346	0	86	0	432	23	768	0	0	791	26	1158	212	0	1396	2619
% App. Total	0	0	0	0		80.1	0	19.9	0		2.9	97.1	0	0		1.9	83	15.2	0		
PHF	.000	.000	.000	.000	.000	.883	.000	.896	.000	.900	.523	.842	.000	.000	.860	.464	.913	.855	.000	.911	.904
Vehicles	0	0	0	0	0	344	0	86	0	430	23	762	0	0	785	26	1157				
% Vehicles	0	0	0	0	0	99.4	0	100	0	99.5	100	99.2	0	0	99.2	100	99.9	98.6	0	99.7	99.5
Trucks	0	0	0	0	0	2	0	0	0	2	0	6	0	0	6	0	1	3	0	4	12
% Trucks	0	0	0	0	0	0.6	0	0	0	0.5	0	0.8	0	0	0.8	0	0.1	1.4	0	0.3	0.5



Greater Traffic Company

File Name : 02
Site Code : 00000023
Start Date : 8/4/2016
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Groups Printed- Vehicles - Trucks

	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Riverwood Pkwy Eastbound					Riverwood Pkwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	9	55	5	0	69	2	18	0	0	20	0	0	2	0	2	0	0	1	1	2	93
07:15 AM	11	59	4	0	74	2	11	3	0	16	0	1	1	0	2	2	1	1	0	4	96
07:30 AM	10	97	8	0	115	5	15	5	0	25	2	3	1	0	6	0	1	0	0	1	147
07:45 AM	12	104	7	0	123	3	17	3	0	23	2	2	2	0	6	1	0	2	2	5	157
Total	42	315	24	0	381	12	61	11	0	84	4	6	6	0	16	3	2	4	3	12	493
08:00 AM	10	120	10	0	140	12	18	1	0	31	1	5	2	0	8	1	0	0	0	1	180
08:15 AM	15	127	30	0	172	4	14	4	0	22	2	6	0	0	8	2	0	1	0	3	205
08:30 AM	20	116	14	0	150	3	15	2	1	21	3	2	1	0	6	3	2	0	0	5	182
08:45 AM	17	126	10	0	153	5	16	7	0	28	2	3	2	0	7	0	0	2	0	2	190
Total	62	489	64	0	615	24	63	14	1	102	8	16	5	0	29	6	2	3	0	11	757
*** BREAK ***																					
04:00 PM	4	24	2	0	30	1	57	4	0	62	7	0	7	0	14	9	3	5	1	18	124
04:15 PM	12	36	4	0	52	4	50	3	0	57	6	1	6	0	13	9	8	4	0	21	143
04:30 PM	11	32	5	0	48	0	55	2	0	57	1	2	7	0	10	25	21	5	0	51	166
04:45 PM	5	32	1	0	38	2	34	3	0	39	3	0	7	0	10	7	6	2	0	15	102
Total	32	124	12	0	168	7	196	12	0	215	17	3	27	0	47	50	38	16	1	105	535
05:00 PM	12	31	5	0	48	3	76	10	0	89	9	2	12	0	23	18	1	9	1	29	189
05:15 PM	14	31	5	2	52	5	92	3	0	100	6	1	14	0	21	16	2	7	0	25	198
05:30 PM	10	40	6	0	56	3	83	6	0	92	6	3	10	0	19	7	3	5	0	15	182
05:45 PM	7	45	8	0	60	4	77	1	0	82	3	1	4	0	8	5	1	0	0	6	156
Total	43	147	24	2	216	15	328	20	0	363	24	7	40	0	71	46	7	21	1	75	725
Grand Total	179	1075	124	2	1380	58	648	57	1	764	53	32	78	0	163	105	49	44	5	203	2510
Apprch %	13	77.9	9	0.1		7.6	84.8	7.5	0.1		32.5	19.6	47.9	0		51.7	24.1	21.7	2.5		
Total %	7.1	42.8	4.9	0.1	55	2.3	25.8	2.3	0	30.4	2.1	1.3	3.1	0	6.5	4.2	2	1.8	0.2	8.1	
Vehicles	175	1059	124	2	1360	58	633	57	1	749	52	32	78	0	162	105	49	44	5	203	2474
% Vehicles	97.8	98.5	100	100	98.6	100	97.7	100	100	98	98.1	100	100	0	99.4	100	100	100	100	100	98.6
Trucks	4	16	0	0	20	0	15	0	0	15	1	0	0	0	1	0	0	0	0	0	36
% Trucks	2.2	1.5	0	0	1.4	0	2.3	0	0	2	1.9	0	0	0	0.6	0	0	0	0	0	1.4

Greater Traffic Company

File Name : 02
Site Code : 00000023
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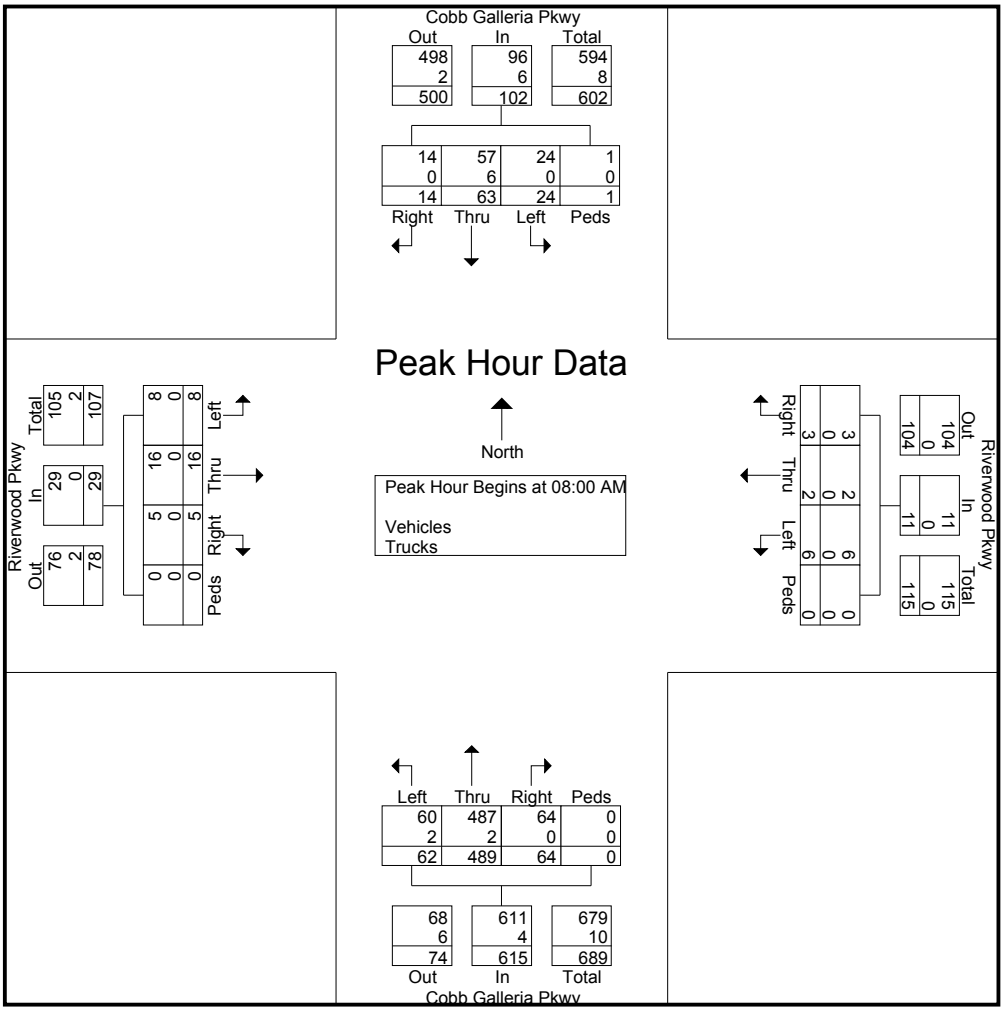
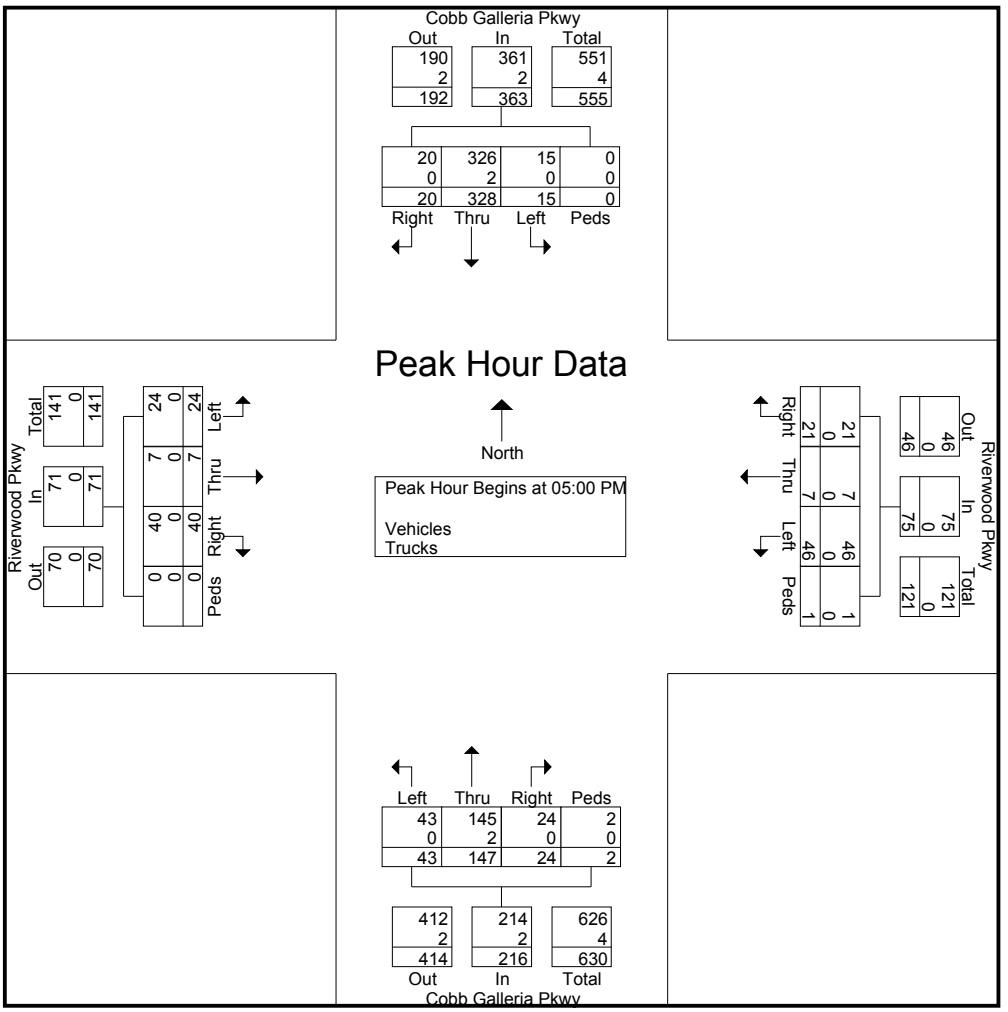
	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Riverwood Pkwy Eastbound					Riverwood Pkwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	10	120	10	0	140	**12**	**18**	1	0	**31**	1	5	**2**	0	**8**	1	0	0	0	1	180
08:15 AM	15	**127**	**30**	0	**172**	4	14	4	0	22	2	**6**	0	0	8	2	0	1	0	3	**205**
08:30 AM	**20**	116	14	0	150	3	15	2	**1**	21	**3**	2	1	0	6	**3**	**2**	0	0	**5**	182
08:45 AM	17	126	10	0	153	5	16	**7**	0	28	2	3	2	0	7	0	0	**2**	0	2	190
Total Volume	62	489	64	0	615	24	63	14	1	102	8	16	5	0	29	6	2	3	0	11	757
% App. Total	10.1	79.5	10.4	0		23.5	61.8	13.7	1		27.6	55.2	17.2	0		54.5	18.2	27.3	0		
PHF	.775	.963	.533	.000	.894	.500	.875	.500	.250	.823	.667	.667	.625	.000	.906	.500	.250	.375	.000	.550	.923
Vehicles	60	487	64	0	611	24	57	14	1	96	8	16	5	0	29	6	2	3	0	11	747
% Vehicles																					
Trucks	2	2	0	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
% Trucks	3.2	0.4	0	0	0.7	0	9.5	0	0	5.9	0	0	0	0	0	0	0	0	0	0	1.3



Greater Traffic Company

File Name : 02
Site Code : 00000023
Start Date : 8/4/2016
Page No : 3

	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Riverwood Pkwy Eastbound					Riverwood Pkwy Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	12	31	5	0	48	3	76	**10**	0	89	**9**	2	12	0	**23**	**18**	1	**9**	**1**	**29**	189
05:15 PM	**14**	31	5	**2**	52	**5**	**92**	3	0	**100**	6	1	**14**	0	21	16	2	7	0	25	**198**
05:30 PM	10	40	6	0	56	3	83	6	0	92	6	**3**	10	0	19	7	**3**	5	0	15	182
05:45 PM	7	**45**	**8**	0	**60**	4	77	1	0	82	3	1	4	0	8	5	1	0	0	6	156
Total Volume	43	147	24	2	216	15	328	20	0	363	24	7	40	0	71	46	7	21	1	75	725
% App. Total	19.9	68.1	11.1	0.9		4.1	90.4	5.5	0		33.8	9.9	56.3	0		61.3	9.3	28	1.3		
PHF	.768	.817	.750	.250	.900	.750	.891	.500	.000	.908	.667	.583	.714	.000	.772	.639	.583	.583	.250	.647	.915
Vehicles	43	145	24	2	214	15	326	20	0	361	24	7	40	0	71	46	7	21	1	75	721
% Vehicles																					
Trucks	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
% Trucks	0	1.4	0	0	0.9	0	0.6	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0.6



Greater Traffic Company

File Name : 01
Site Code : 00000001
Start Date : 8/4/2016
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Groups Printed- Vehicles - Trucks

	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Akers Mills Rd Eastbound					Akers Mills Rd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	22	24	13	0	59	0	4	0	1	5	5	53	5	0	63	6	57	13	0	76	203
07:15 AM	19	17	20	1	57	0	0	2	0	2	10	83	11	3	107	2	49	18	1	70	236
07:30 AM	16	39	14	1	70	2	0	1	0	3	14	99	9	0	122	6	49	20	0	75	270
07:45 AM	23	48	8	1	80	1	1	0	0	2	16	103	12	3	134	6	50	39	0	95	311
Total	80	128	55	3	266	3	5	3	1	12	45	338	37	6	426	20	205	90	1	316	1020
08:00 AM	25	65	24	1	115	3	1	4	0	8	21	103	15	3	142	11	69	56	0	136	401
08:15 AM	26	59	23	4	112	3	3	3	0	9	20	102	20	0	142	9	72	59	0	140	403
08:30 AM	30	53	36	2	121	4	3	6	0	13	16	94	21	1	132	7	84	66	0	157	423
08:45 AM	25	56	41	4	126	2	3	6	0	11	23	108	9	1	141	8	74	57	0	139	417
Total	106	233	124	11	474	12	10	19	0	41	80	407	65	5	557	35	299	238	0	572	1644
*** BREAK ***																					
04:00 PM	17	6	15	0	38	15	19	15	1	50	4	75	23	0	102	9	101	6	4	120	310
04:15 PM	14	5	12	0	31	24	23	16	1	64	1	87	16	1	105	16	135	6	0	157	357
04:30 PM	19	3	8	0	30	15	11	13	0	39	2	76	9	0	87	22	140	2	0	164	320
04:45 PM	11	7	13	0	31	13	8	19	1	41	2	72	20	0	94	22	162	5	2	191	357
Total	61	21	48	0	130	67	61	63	3	194	9	310	68	1	388	69	538	19	6	632	1344
05:00 PM	20	5	15	0	40	24	16	12	3	55	1	83	14	0	98	28	205	4	0	237	430
05:15 PM	20	4	12	0	36	38	40	22	2	102	4	124	26	0	154	41	192	4	0	237	529
05:30 PM	23	10	17	0	50	27	22	23	1	73	1	82	18	0	101	37	215	5	0	257	481
05:45 PM	16	11	6	0	33	21	28	15	1	65	1	80	24	0	105	56	193	16	2	267	470
Total	79	30	50	0	159	110	106	72	7	295	7	369	82	0	458	162	805	29	2	998	1910
Grand Total	326	412	277	14	1029	192	182	157	11	542	141	1424	252	12	1829	286	1847	376	9	2518	5918
Apprch %	31.7	40	26.9	1.4		35.4	33.6	29	2		7.7	77.9	13.8	0.7		11.4	73.4	14.9	0.4		
Total %	5.5	7	4.7	0.2	17.4	3.2	3.1	2.7	0.2	9.2	2.4	24.1	4.3	0.2	30.9	4.8	31.2	6.4	0.2	42.5	
Vehicles	313	411	276	14	1014	192	182	156	11	541	141	1414	238	12	1805	285	1840	376	9	2510	5870
% Vehicles	96	99.8	99.6	100	98.5	100	100	99.4	100	99.8	100	99.3	94.4	100	98.7	99.7	99.6	100	100	99.7	99.2
Trucks	13	1	1	0	15	0	0	1	0	1	0	10	14	0	24	1	7	0	0	8	48
% Trucks	4	0.2	0.4	0	1.5	0	0	0.6	0	0.2	0	0.7	5.6	0	1.3	0.3	0.4	0	0	0.3	0.8

Greater Traffic Company

File Name : 01
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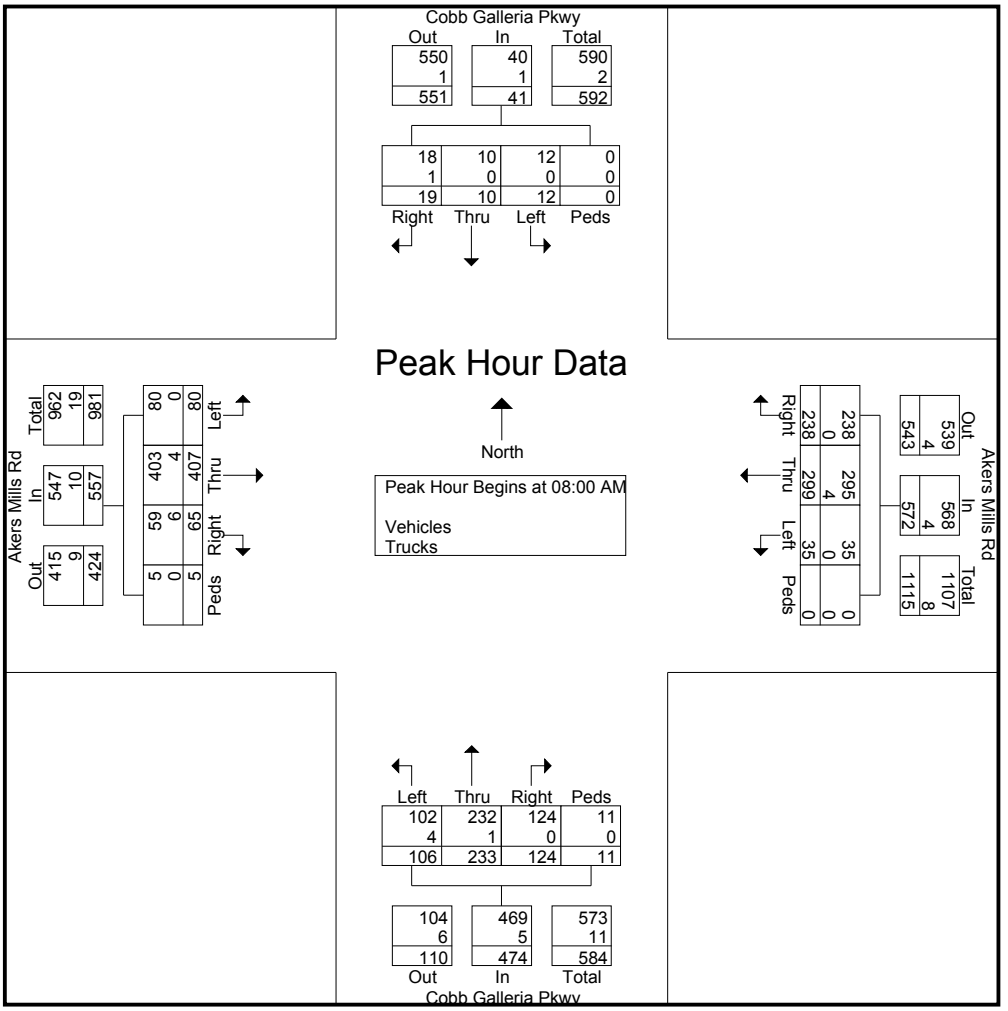
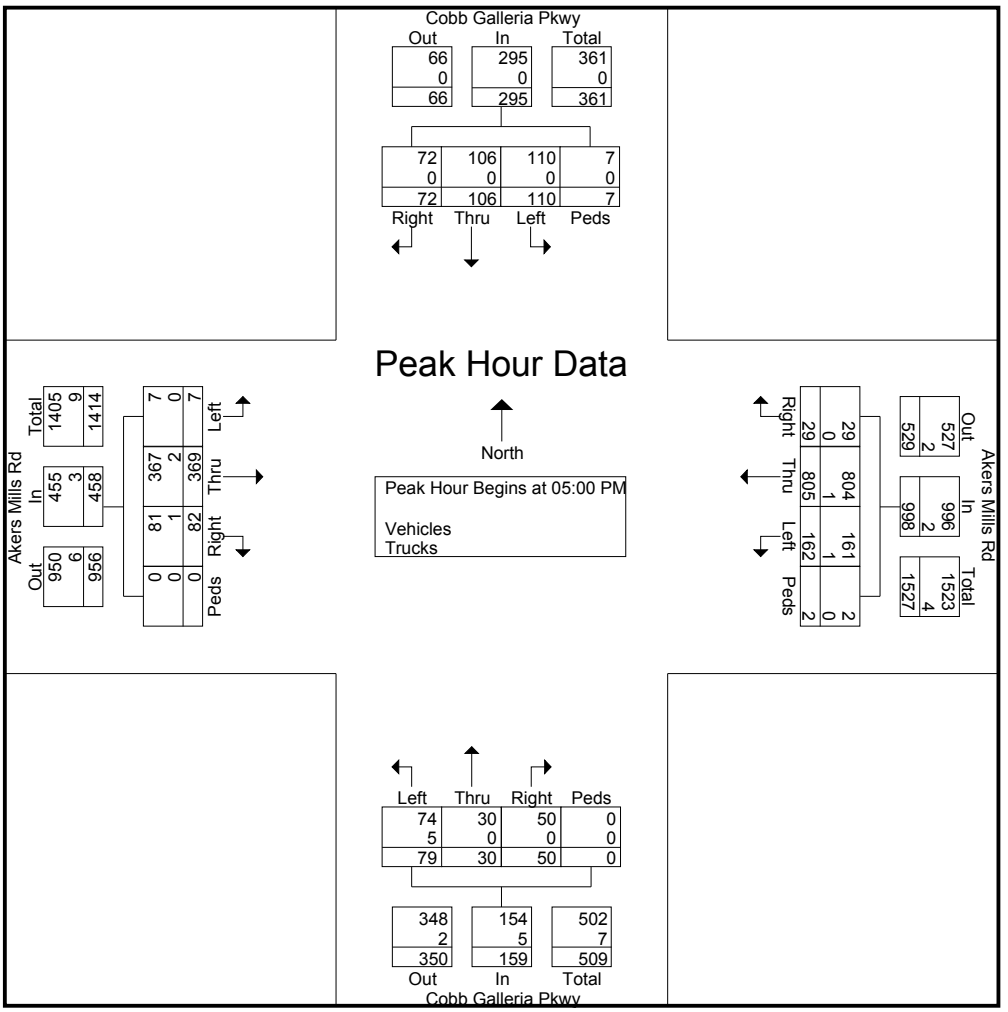
	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Akers Mills Rd Eastbound					Akers Mills Rd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	25	**65**	24	1	115	3	1	4	0	8	21	103	15	**3**	**142**	**11**	69	56	0	136	401
08:15 AM	26	59	23	**4**	112	3	**3**	3	0	9	20	102	20	0	142	9	72	59	0	140	403
08:30 AM	**30**	53	36	2	121	**4**	3	**6**	0	**13**	16	94	**21**	1	132	7	**84**	**66**	0	**157**	**423**
08:45 AM	25	56	**41**	4	**126**	2	3	6	0	11	**23**	**108**	9	1	141	8	74	57	0	139	417
Total Volume	106	233	124	11	474	12	10	19	0	41	80	407	65	5	557	35	299	238	0	572	1644
% App. Total	22.4	49.2	26.2	2.3		29.3	24.4	46.3	0		14.4	73.1	11.7	0.9		6.1	52.3	41.6	0		
PHF	.883	.896	.756	.688	.940	.750	.833	.792	.000	.788	.870	.942	.774	.417	.981	.795	.890	.902	.000	.911	.972
Vehicles	102	232	124	11	469	12	10	18	0	40	80	403	59	5	547	35	295	238	0	568	1624
% Vehicles																					
Trucks	4	1	0	0	5	0	0	1	0	1	0	4	6	0	10	0	4	0	0	4	20
% Trucks	3.8	0.4	0	0	1.1	0	0	5.3	0	2.4	0	1.0	9.2	0	1.8	0	1.3	0	0	0.7	1.2



Greater Traffic Company

File Name : 01
Site Code : 00000001
Start Date : 8/4/2016
Page No : 3

	Cobb Galleria Pkwy Northbound					Cobb Galleria Pkwy Southbound					Akers Mills Rd Eastbound					Akers Mills Rd Westbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	20	5	15	0	40	24	16	12	**3**	55	1	83	14	0	98	28	205	4	0	237	430
05:15 PM	20	4	12	0	36	**38**	**40**	22	2	**102**	**4**	**124**	**26**	0	**154**	41	192	4	0	237	**529**
05:30 PM	**23**	10	**17**	0	**50**	27	22	**23**	1	73	1	82	18	0	101	37	**215**	5	0	257	481
05:45 PM	16	**11**	6	0	33	21	28	15	1	65	1	80	24	0	105	**56**	193	**16**	**2**	**267**	470
Total Volume	79	30	50	0	159	110	106	72	7	295	7	369	82	0	458	162	805	29	2	998	1910
% App. Total	49.7	18.9	31.4	0		37.3	35.9	24.4	2.4		1.5	80.6	17.9	0		16.2	80.7	2.9	0.2		
PHF	.859	.682	.735	.000	.795	.724	.663	.783	.583	.723	.438	.744	.788	.000	.744	.723	.936	.453	.250	.934	.903
Vehicles	74	30	50	0	154	110	106	72	7	295	7	367	81	0	455	161	804	29	2	996	1900
% Vehicles																					
Trucks	5	0	0	0	5	0	0	0	0	0	0	2	1	0	3	1	1	0	0	2	10
% Trucks	6.3	0	0	0	3.1	0	0	0	0	0	0	0.5	1.2	0	0.7	0.6	0.1	0	0	0.2	0.5



APPENDIX C

STUDY NETWORK DATA

Galleria 75 Study Network: Existing Traffic

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	106	233	124	12	10	19	80	407	65	35	299	238
(PM)	79	30	50	110	106	72	7	369	82	162	805	29

2: Riverwood Parkway @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	62	489	64	24	63	14	8	16	5	6	2	3
(PM)	43	147	24	15	328	20	24	7	40	46	7	21

3: Cumberland Boulevard @ Cobb Galleria Parkway

	Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	0	0	54	0	19	33	698	0	12	1031	582
(PM)	0	0	0	346	0	86	23	768	0	26	1158	212

Encore Generated Trips

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	44	0	22	0	0	0	0	0	80	40	0	0
(PM)	70	0	35	0	0	0	0	0	34	17	0	0

2: Riverwood Parkway @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	67	0	0	120	0	0	0	0	0	0	0
(PM)	0	105	0	0	50	0	0	0	0	0	0	0

3: Cumberland Boulevard @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	0	0	133	0	22	40	0	0	0	0	241
(PM)	0	0	0	209	0	35	17	0	0	0	0	101

HD Supply Generated Trips

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	2	0	0	0	0	0	0	0	19	0	0	0
(PM)	16	0	0	0	0	0	0	0	3	0	0	0

2: Riverwood Parkway @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	2	0	0	19	0	0	0	0	0	0	0
(PM)	0	16	0	0	3	0	0	0	0	0	0	0

3: Cumberland Boulevard @ Cobb Galleria Parkway

	HD SUPPLY DRIVEWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	7	2	38	0	19	0	0	0	57	305	0	0
(PM)	47	16	252	0	3	0	0	0	8	41	0	0

Note: Generated trips for Encore Apartments and HD Supply Office Building were taken from previous Traffic Impact Analysis Reports.

Galleria 75 Study Network: 2025 "No Build" Traffic

Build Out Year: 2025 AGR: 1.5%

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	166	264	163	14	11	22	91	462	173	80	339	270
(PM)	176	34	92	125	120	82	8	419	130	201	914	33

2: Riverwood Parkway @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	70	624	73	27	211	16	9	18	6	7	2	3
(PM)	49	288	27	17	425	23	27	8	45	52	8	24

3: Cumberland Boulevard @ Cobb Galleria Parkway

	HD SUPPLY DRIVEWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	7	2	38	194	19	44	77	792	57	319	1170	902
(PM)	47	16	252	602	3	133	43	872	8	71	1314	342

4: Galleria 75 Dwy #2 @ Cobb Galleria Pkwy

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	700	0	0	257	0	0	0	0	0	0	0
(PM)	0	283	0	0	737	0	0	0	0	0	0	0

Galleria 75 Trip Distribution

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	**20%**	0%	**10%**	0%	0%	0%	0%	0%	20%	10%	0%	0%
(PM)	**20%**	0%	**10%**	0%	0%	0%	0%	0%	20%	10%	0%	0%

2: Riverwood Parkway/Galleria 75 Dwy #1 @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0%	**15%**	30%	30%	0%	0%	0%	5%	0%	**65%**	**5%**	**15%**
(PM)	0%	**15%**	30%	30%	0%	0%	0%	5%	0%	**65%**	**5%**	**15%**

3: Cumberland Boulevard @ Cobb Galleria Parkway

	HD SUPPLY DRIVEWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0%	0%	0%	**60%**	0%	**5%**	5%	0%	0%	0%	0%	60%
(PM)	0%	0%	0%	**60%**	0%	**5%**	5%	0%	0%	0%	0%	60%

4: Galleria 75 Dwy #2 @ Cobb Galleria Pkwy

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0%	30%	35%	0%	**65%**	0%	0%	0%	0%	0%	0%	**15%**
(PM)	0%	30%	35%	0%	**65%**	0%	0%	0%	0%	0%	0%	**15%**

Note: Bold percentages represent exiting trips.

Galleria 75 Generated Trips

	Total Generated Trips		
	Enter	Exit	Total
AM	643	**360**	1,003
(PM)	370	**614**	984

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	**72**	0	**36**	0	0	0	0	0	129	64	0	0
(PM)	**123**	0	**61**	0	0	0	0	0	74	37	0	0

2: Riverwood Parkway/Galleria 75 Dwy #1 @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	**54**	193	193	0	0	0	32	0	**234**	**18**	**54**
(PM)	0	**92**	111	111	0	0	0	19	0	**399**	**31**	**92**

3: Cumberland Boulevard @ Cobb Galleria Parkway

	HD SUPPLY DRIVEWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	0	0	**216**	0	**18**	32	0	0	0	0	386
(PM)	0	0	0	**368**	0	**31**	19	0	0	0	0	222

4: Galleria 75 Dwy #2 @ Cobb Galleria Pkwy

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	193	225	0	**234**	0	0	0	0	0	0	**54**
(PM)	0	111	130	0	**399**	0	0	0	0	0	0	**92**

Note: Bold trips represent exiting trips.

Galleria 75 Study Network: 2025 "Build" Traffic

1: Akers Mill Road @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			AKERS MILL ROAD Eastbound			AKERS MILL ROAD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	238	264	199	14	11	22	91	462	301	144	339	270
(PM)	298	34	153	125	120	82	8	419	204	238	914	33

2: Riverwood Parkway/Galleria 75 Dwy #1 @ Cobb Galleria Parkway

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			RIVERWOOD PARKWAY Eastbound			RIVERWOORD PARKWAY Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	70	678	265	220	211	16	9	50	6	241	20	57
(PM)	49	380	138	128	425	23	27	26	45	451	39	116

3: Cumberland Boulevard @ Cobb Galleria Parkway

	HD SUPPLY DRIVEWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	7	2	38	410	19	62	110	792	57	319	1170	1287
(PM)	47	16	252	970	3	163	62	872	8	71	1314	564

4: Galleria 75 Dwy #2 @ Cobb Galleria Pkwy

	COBB GALLERIA PARKWAY Northbound			COBB GALLERIA PARKWAY Southbound			CUMBERLAND BOULEVARD Eastbound			CUMBERLAND BOULEVARD Westbound		
PEAK HOUR	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	0	893	225	0	491	0	0	0	0	0	0	54
(PM)	0	394	130	0	1136	0	0	0	0	0	0	92

 # 392 – Akers Mill Road at Cobb Galleria Parkway

Monday – Friday		Saturday		Sunday	
00:00 – 07:00	Free	00:00 – 10:00	Free	00:00 – 12:00	Free
07:00 – 09:00	Plan 1	10:00 – 24:00	Plan 2	12:00 – 18:00	Plan 2
09:00 – 16:30	Plan 2			18:00 – 24:00	Free
16:30 – 18:00	Plan 1				
18:00 – 21:00	Plan 2				
21:00 – 24:00	Free				

Plan 1 – 80 Second Cycle – Offset = 68

- Stage A – 29 Seconds (Phase 2 & 6)
- Stage B – 21 Seconds (Phase 3 & 7)
- Stage C – 17 Seconds (Phase 4 & 8)
- Stage D – 13 Seconds (Phase 1 & 5)

Plan 2 – 90 Second Cycle – Offset = 14

- Stage A – 34 Seconds (Phase 2 & 6)
- Stage B – 17 Seconds (Phase 3 & 7)
- Stage C – 22 Seconds (Phase 4 & 8)
- Stage D – 17 Seconds (Phase 1 & 5)

 # 354 – Cobb Galleria Parkway at Riverwood Parkway

Monday – Friday	Saturday	Sunday
00:00 – 24:00 Free	00:00 – 24:00 Free	00:00 – 24:00 Free

- Stage A – Min. 15 Seconds and Max. 70 Seconds (Phase 2 & 6)
- Stage B – Min. 5 Seconds and Max. 15 Seconds (Phase 3 & 7)
- Stage C – Min. 8 Seconds and Max. 30 Seconds (Phase 4 & 8)
- Stage D – Min. 5 Seconds and Max. 20 Seconds (Phase 1 & 5)

 # 379 – Cumberland Boulevard at Cobb Galleria Parkway

Monday – Friday		Saturday		Sunday	
00:00 – 07:00	Plan 1	00:00 – 24:00	Plan 2	00:00 – 24:00	Plan 2
07:00 – 10:00	Plan 3				
10:00 – 11:30	Plan 1				
11:30 – 12:30	Plan 2				
12:30 – 15:30	Plan 3				
15:30 – 19:00	Plan 4				
19:00 – 24:00	Plan 1				

Plan 1 – 60 Second Cycle – Offset = 5

- Stage A – 40 Seconds (Phase 2 & 6)
- Stage B – 10 Seconds (Phase 8)
- Stage C – 10 Seconds (Phase 1 & 5)

Plan 2 – 80 Second Cycle – Offset = 8

- Stage A – 50 Seconds (Phase 2 & 6)
- Stage B – 15 Seconds (Phase 8)
- Stage C – 15 Seconds (Phase 1 & 5)

Plan 3 – 100 Second Cycle – Offset = 32

- Stage A – 50 Seconds (Phase 2 & 6)
- Stage B – 30 Seconds (Phase 8)
- Stage C – 20 Seconds (Phase 1 & 5)

Plan 4 – 110 Second Cycle – Offset = 47

- Stage A – 60 Seconds (Phase 2 & 6)
- Stage B – 25 Seconds (Phase 8)
- Stage C – 25 Seconds (Phase 1 & 5)

APPENDIX D

SYNCHRO INTERSECTIONS ANALYSIS OUTPUTS

Queues
10: Cumberland Blvd & Cobb Galleria Pkwy

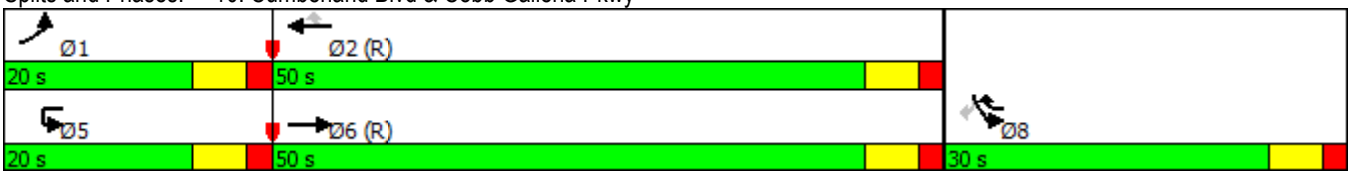
2016 Existing AM
8/29/2016

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	33	698	12	1031	582	54	19
Future Volume (vph)	33	698	12	1031	582	54	19
Lane Group Flow (vph)	48	793	24	1395	403	56	24
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Perm
Protected Phases	1	6	5	2	8	8	
Permitted Phases					2		8
Detector Phase	1	6	5	2	8	8	8
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0
Total Split (s)	20.0	50.0	20.0	50.0	30.0	30.0	30.0
Total Split (%)	20.0%	50.0%	20.0%	50.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	None	None	None
v/c Ratio	0.21	0.21	0.20	0.41	0.32	0.24	0.19
Control Delay	45.8	4.8	47.1	6.5	0.9	45.5	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	4.8	47.1	6.5	0.9	45.5	19.8
Queue Length 50th (ft)	15	31	15	132	0	17	0
Queue Length 95th (ft)	25	90	22	184	17	36	20
Internal Link Dist (ft)		319		483		1015	
Turn Bay Length (ft)	180		205			255	
Base Capacity (vph)	478	3790	246	3397	1333	756	367
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.21	0.10	0.41	0.30	0.07	0.07

Intersection Summary

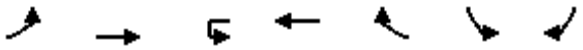
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 32 (32%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 10: Cumberland Blvd & Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & Cobb Galleria Pkwy

2016 Existing AM
8/29/2016



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	33	698	12	1031	582	54	19
Future Volume (vph)	33	698	12	1031	582	54	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%		1%		2%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	0.86	0.86	0.97	1.00
Frt	1.00	1.00	1.00	0.97	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3416	5060	1761	4660	1355	3152	1454
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3416	5060	1761	4660	1355	3152	1454
Peak-hour factor, PHF	0.69	0.88	0.50	0.89	0.91	0.96	0.79
Adj. Flow (vph)	48	793	24	1158	640	56	24
RTOR Reduction (vph)	0	0	0	15	90	0	22
Lane Group Flow (vph)	48	793	24	1380	313	56	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	10%
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Perm
Protected Phases	1	6	5	2	8	8	
Permitted Phases					2		8
Actuated Green, G (s)	4.4	71.3	3.3	70.2	77.6	7.4	7.4
Effective Green, g (s)	4.4	71.3	3.3	70.2	77.6	7.4	7.4
Actuated g/C Ratio	0.04	0.71	0.03	0.70	0.78	0.07	0.07
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150	3607	58	3271	1132	233	107
v/s Ratio Prot	c0.01	0.16	0.01	c0.30	c0.02	0.02	
v/s Ratio Perm					0.21		0.00
v/c Ratio	0.32	0.22	0.41	0.42	0.28	0.24	0.02
Uniform Delay, d1	46.3	4.9	47.4	6.3	3.2	43.7	42.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	4.7	0.4	0.1	0.5	0.1
Delay (s)	47.6	5.0	52.1	6.7	3.3	44.2	43.0
Level of Service	D	A	D	A	A	D	D
Approach Delay (s)		7.5		6.6		43.8	
Approach LOS		A		A		D	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: Cobb Galleria Pkwy & Riverwood Pkwy

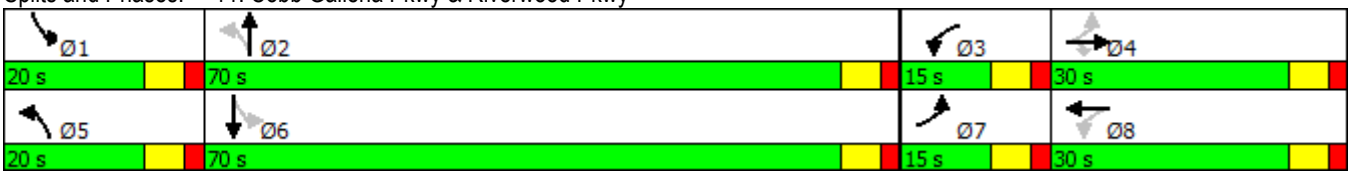
2016 Existing AM
8/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	8	16	5	6	2	62	489	24	63
Future Volume (vph)	8	16	5	6	2	62	489	24	63
Lane Group Flow (vph)	12	24	8	12	16	79	630	48	100
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.08	0.18	0.04	0.08	0.13	0.08	0.24	0.08	0.04
Control Delay	40.5	48.2	0.2	40.5	34.6	3.3	6.4	3.7	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	48.2	0.2	40.5	34.6	3.3	6.4	3.7	5.4
Queue Length 50th (ft)	7	14	0	7	5	7	65	4	6
Queue Length 95th (ft)	17	33	0	13	3	26	145	11	23
Internal Link Dist (ft)		525			93		1015		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	197	477	496	197	447	1139	2586	743	2406
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.05	0.02	0.06	0.04	0.07	0.24	0.06	0.04

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 96.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy

2016 Existing AM
8/29/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	16	5	6	2	3	62	489	64	24	63	14
Future Volume (vph)	8	16	5	6	2	3	62	489	64	24	63	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1805	1758		1778	3454		1693	3234	
Flt Permitted	0.93	1.00	1.00	0.95	1.00		0.68	1.00		0.41	1.00	
Satd. Flow (perm)	1767	1900	1615	1810	1758		1281	3454		722	3234	
Peak-hour factor, PHF	0.67	0.67	0.62	0.50	0.25	0.38	0.78	0.96	0.53	0.50	0.88	0.50
Adj. Flow (vph)	12	24	8	12	8	8	79	509	121	48	72	28
RTOR Reduction (vph)	0	0	8	0	8	0	0	10	0	0	9	0
Lane Group Flow (vph)	12	24	0	12	8	0	79	620	0	48	91	0
Confl. Peds. (#/hr)										1		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	6%	6%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	5.6	4.3	4.3	5.4	4.2		76.1	70.6		75.1	70.1	
Effective Green, g (s)	5.6	4.3	4.3	5.4	4.2		76.1	70.6		75.1	70.1	
Actuated g/C Ratio	0.05	0.04	0.04	0.05	0.04		0.72	0.67		0.71	0.67	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	94	77	66	92	70		953	2320		562	2157	
v/s Ratio Prot	c0.00	c0.01		0.00	0.00		c0.00	c0.18		0.00	0.03	
v/s Ratio Perm	0.01		0.00	0.01			0.06			0.06		
v/c Ratio	0.13	0.31	0.00	0.13	0.12		0.08	0.27		0.09	0.04	
Uniform Delay, d1	47.4	49.0	48.3	47.6	48.7		4.2	6.9		4.4	6.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	2.3	0.0	0.6	0.8		0.0	0.3		0.1	0.0	
Delay (s)	48.0	51.3	48.4	48.2	49.4		4.2	7.2		4.5	6.0	
Level of Service	D	D	D	D	D		A	A		A	A	
Approach Delay (s)		49.9			48.9			6.9			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	105.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

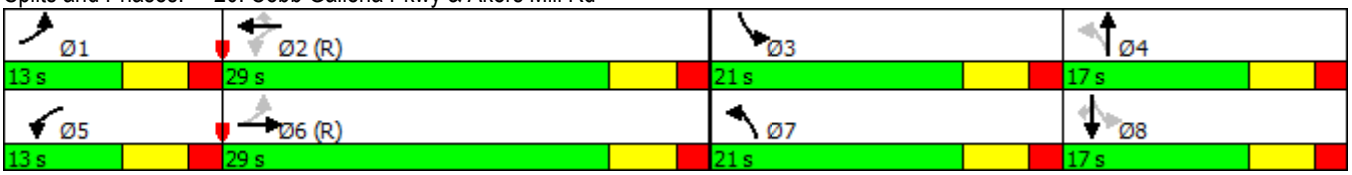
2016 Existing AM
8/29/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	80	407	35	299	238	106	233	12	10	19
Future Volume (vph)	80	407	35	299	238	106	233	12	10	19
Lane Group Flow (vph)	92	517	44	418	182	120	422	16	12	24
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.16	0.29	0.08	0.26	0.23	0.38	0.53	0.08	0.04	0.07
Control Delay	9.7	14.6	9.8	15.3	3.3	25.7	20.3	20.1	32.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	14.6	9.8	15.3	3.3	25.7	20.3	20.1	32.1	0.4
Queue Length 50th (ft)	19	84	9	68	0	46	57	6	3	0
Queue Length 95th (ft)	48	150	25	125	38	74	107	14	9	0
Internal Link Dist (ft)		399		351			626		146	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	577	1791	556	1605	801	396	817	384	490	395
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.29	0.08	0.26	0.23	0.30	0.52	0.04	0.02	0.06

Intersection Summary

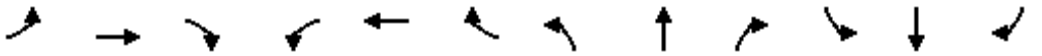
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2016 Existing AM
8/29/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	407	65	35	299	238	106	233	124	12	10	19
Future Volume (vph)	80	407	65	35	299	238	106	233	124	12	10	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3442		1787	3323	1455	1768	3314		1761	3522	1575
Flt Permitted	0.46	1.00		0.46	1.00	1.00	0.44	1.00		0.51	1.00	1.00
Satd. Flow (perm)	848	3442		860	3323	1455	826	3314		937	3522	1575
Peak-hour factor, PHF	0.87	0.94	0.77	0.80	0.89	0.90	0.88	0.90	0.76	0.75	0.83	0.79
Adj. Flow (vph)	92	433	84	44	336	264	120	259	163	16	12	24
RTOR Reduction (vph)	0	16	0	0	21	109	0	115	0	0	0	21
Lane Group Flow (vph)	92	501	0	44	397	73	120	307	0	16	12	3
Confl. Peds. (#/hr)	5		5				11		11			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	40.2	34.1		36.4	32.2	32.2	23.7	16.3		10.1	8.7	8.7
Effective Green, g (s)	40.2	34.1		36.4	32.2	32.2	23.7	16.3		10.1	8.7	8.7
Actuated g/C Ratio	0.50	0.43		0.45	0.40	0.40	0.30	0.20		0.13	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	496	1467		439	1337	585	350	675		132	383	171
v/s Ratio Prot	c0.01	c0.15		0.01	0.12		c0.04	c0.09		0.00	0.00	
v/s Ratio Perm	0.08			0.04		0.05	0.06			0.01		0.00
v/c Ratio	0.19	0.34		0.10	0.30	0.13	0.34	0.46		0.12	0.03	0.02
Uniform Delay, d1	10.5	15.4		12.2	16.2	15.0	21.5	28.0		30.8	31.9	31.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6		0.1	0.6	0.4	0.6	0.5		0.4	0.0	0.0
Delay (s)	10.7	16.0		12.3	16.8	15.5	22.1	28.4		31.2	31.9	31.9
Level of Service	B	B		B	B	B	C	C		C	C	C
Approach Delay (s)		15.2			16.1			27.0			31.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
10: Cumberland Blvd & Cobb Galleria Pkwy

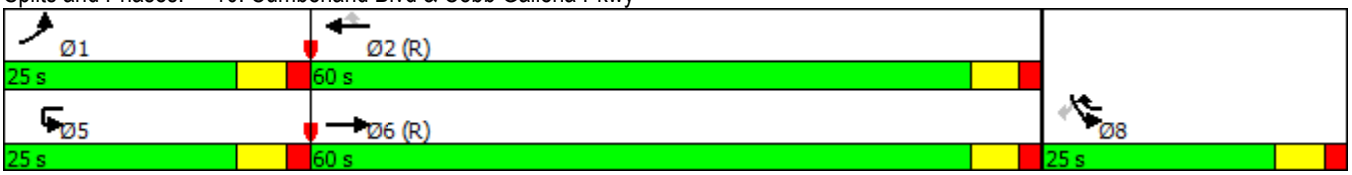
2016 Existing PM
8/29/2016

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	23	768	26	1158	212	346	86
Future Volume (vph)	23	768	26	1158	212	346	86
Lane Group Flow (vph)	44	914	57	1298	224	393	96
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Perm
Protected Phases	1	6	5	2	8	8	
Permitted Phases					2		8
Detector Phase	1	6	5	2	8	8	8
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0
Total Split (s)	25.0	60.0	25.0	60.0	25.0	25.0	25.0
Total Split (%)	22.7%	54.5%	22.7%	54.5%	22.7%	22.7%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			
Recall Mode	None	C-Max	None	C-Max	None	None	None
v/c Ratio	0.21	0.29	0.39	0.42	0.19	0.74	0.30
Control Delay	50.8	10.9	55.2	11.0	0.6	53.4	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	10.9	55.2	11.0	0.6	53.4	10.6
Queue Length 50th (ft)	15	109	39	174	0	137	0
Queue Length 95th (ft)	19	137	39	222	10	182	45
Internal Link Dist (ft)		319		483		1015	
Turn Bay Length (ft)	180		205			255	
Base Capacity (vph)	595	3181	310	3116	1217	592	352
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.29	0.18	0.42	0.18	0.66	0.27

Intersection Summary

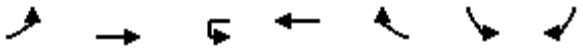
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 47 (43%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 10: Cumberland Blvd & Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & Cobb Galleria Pkwy

2016 Existing PM
8/29/2016



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	23	768	26	1158	212	346	86
Future Volume (vph)	23	768	26	1158	212	346	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%		1%		2%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	0.86	0.86	0.97	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3450	5110	1796	4862	1368	3432	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3450	5110	1796	4862	1368	3432	1583
Peak-hour factor, PHF	0.52	0.84	0.46	0.91	0.85	0.88	0.90
Adj. Flow (vph)	44	914	57	1273	249	393	96
RTOR Reduction (vph)	0	0	0	1	48	0	81
Lane Group Flow (vph)	44	914	57	1297	176	393	15
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%	1%
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	Perm
Protected Phases	1	6	5	2	8	8	
Permitted Phases					2		8
Actuated Green, G (s)	5.7	67.2	7.8	69.3	86.3	17.0	17.0
Effective Green, g (s)	5.7	67.2	7.8	69.3	86.3	17.0	17.0
Actuated g/C Ratio	0.05	0.61	0.07	0.63	0.78	0.15	0.15
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	178	3121	127	3063	1147	530	244
v/s Ratio Prot	0.01	0.18	c0.03	c0.27	0.02	c0.11	
v/s Ratio Perm					0.10		0.01
v/c Ratio	0.25	0.29	0.45	0.42	0.15	0.74	0.06
Uniform Delay, d1	50.1	10.1	49.0	10.3	2.9	44.4	39.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	2.5	0.4	0.1	5.5	0.1
Delay (s)	50.8	10.4	51.6	10.7	3.0	49.9	39.8
Level of Service	D	B	D	B	A	D	D
Approach Delay (s)		12.2		11.1		48.0	
Approach LOS		B		B		D	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: Cobb Galleria Pkwy & Riverwood Pkwy

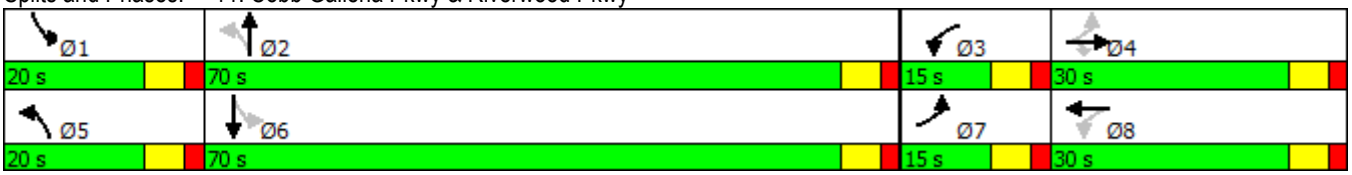
2016 Existing PM
8/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	24	7	40	46	7	43	147	15	328
Future Volume (vph)	24	7	40	46	7	43	147	15	328
Lane Group Flow (vph)	36	12	56	72	48	56	211	20	409
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.19	0.10	0.26	0.34	0.26	0.08	0.09	0.02	0.18
Control Delay	39.2	50.9	3.0	42.3	25.1	5.8	7.2	5.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	50.9	3.0	42.3	25.1	5.8	7.2	5.8	10.0
Queue Length 50th (ft)	21	8	0	43	8	11	20	4	65
Queue Length 95th (ft)	37	18	0	59	20	22	44	10	98
Internal Link Dist (ft)		525			93		1015		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	224	436	464	223	410	796	2474	945	2325
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.03	0.12	0.32	0.12	0.07	0.09	0.02	0.18

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 105.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy

2016 Existing PM
8/29/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	7	40	46	7	21	43	147	24	15	328	20
Future Volume (vph)	24	7	40	46	7	21	43	147	24	15	328	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1803	1668		1776	3461		1778	3504	
Flt Permitted	0.73	1.00	1.00	0.56	1.00		0.49	1.00		0.62	1.00	
Satd. Flow (perm)	1379	1900	1615	1071	1668		918	3461		1160	3504	
Peak-hour factor, PHF	0.67	0.58	0.71	0.64	0.58	0.58	0.77	0.82	0.75	0.75	0.89	0.50
Adj. Flow (vph)	36	12	56	72	12	36	56	179	32	20	369	40
RTOR Reduction (vph)	0	0	53	0	33	0	0	7	0	0	5	0
Lane Group Flow (vph)	36	12	3	72	15	0	56	204	0	20	404	0
Confl. Peds. (#/hr)				1		1	2		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	11.0	6.4	6.4	15.2	8.5		79.2	73.8		73.2	70.8	
Effective Green, g (s)	11.0	6.4	6.4	15.2	8.5		79.2	73.8		73.2	70.8	
Actuated g/C Ratio	0.10	0.06	0.06	0.13	0.08		0.70	0.65		0.65	0.62	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	151	107	91	186	125		682	2254		762	2189	
v/s Ratio Prot	0.01	0.01		c0.02	0.01		c0.00	c0.06		0.00	c0.12	
v/s Ratio Perm	0.01		0.00	c0.03			0.05			0.02		
v/c Ratio	0.24	0.11	0.03	0.39	0.12		0.08	0.09		0.03	0.18	
Uniform Delay, d1	47.1	50.8	50.5	44.3	48.9		5.3	7.3		7.2	9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.5	0.2	1.3	0.4		0.1	0.1		0.0	0.2	
Delay (s)	47.9	51.2	50.7	45.6	49.3		5.4	7.4		7.2	9.2	
Level of Service	D	D	D	D	D		A	A		A	A	
Approach Delay (s)		49.8			47.1			7.0			9.1	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	113.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

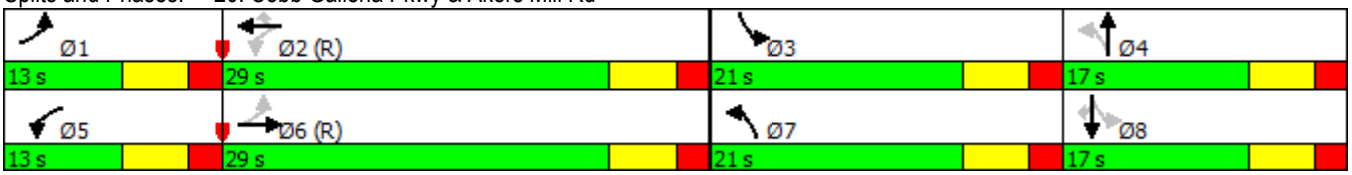
2016 Existing PM
8/29/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	7	369	162	805	29	79	30	110	106	72
Future Volume (vph)	7	369	162	805	29	79	30	110	106	72
Lane Group Flow (vph)	16	603	225	862	58	92	112	153	161	92
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.04	0.45	0.48	0.45	0.07	0.33	0.33	0.48	0.39	0.25
Control Delay	10.7	20.8	13.6	14.5	0.2	23.6	18.4	26.5	35.0	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	20.8	13.6	14.5	0.2	23.6	18.4	26.5	35.0	1.7
Queue Length 50th (ft)	3	116	53	129	0	34	11	59	40	0
Queue Length 95th (ft)	7	140	82	281	0	59	21	73	47	0
Internal Link Dist (ft)		399		351			626		146	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	381	1349	471	1900	889	417	494	413	504	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.45	0.48	0.45	0.07	0.22	0.23	0.37	0.32	0.23

Intersection Summary

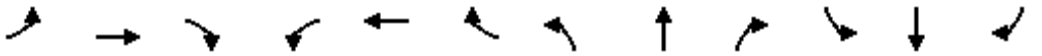
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2016 Existing PM
8/29/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	369	82	162	805	29	79	30	50	110	106	72
Future Volume (vph)	7	369	82	162	805	29	79	30	50	110	106	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	3482		1787	3454	1448	1744	3170		1790	3592	1571
Flt Permitted	0.31	1.00		0.29	1.00	1.00	0.67	1.00		0.44	1.00	1.00
Satd. Flow (perm)	589	3482		552	3454	1448	1224	3170		828	3592	1571
Peak-hour factor, PHF	0.44	0.74	0.79	0.72	0.94	0.45	0.86	0.68	0.73	0.72	0.66	0.78
Adj. Flow (vph)	16	499	104	225	856	64	92	44	68	153	161	92
RTOR Reduction (vph)	0	20	0	0	1	30	0	63	0	0	0	81
Lane Group Flow (vph)	16	583	0	225	861	28	92	49	0	153	161	11
Confl. Peds. (#/hr)				2		2				7		7
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%	3%	3%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	30.6	29.3		45.3	38.0	38.0	13.4	6.0		20.0	9.3	9.3
Effective Green, g (s)	30.6	29.3		45.3	38.0	38.0	13.4	6.0		20.0	9.3	9.3
Actuated g/C Ratio	0.38	0.37		0.57	0.48	0.48	0.17	0.08		0.25	0.12	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	244	1275		466	1640	687	253	237		335	417	182
v/s Ratio Prot	0.00	0.17		c0.06	c0.25		0.03	0.02		c0.06	0.04	
v/s Ratio Perm	0.02			0.21		0.02	0.03			c0.05		0.01
v/c Ratio	0.07	0.46		0.48	0.53	0.04	0.36	0.21		0.46	0.39	0.06
Uniform Delay, d1	15.4	19.3		9.6	14.7	11.2	29.3	34.8		24.7	32.7	31.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	1.2		0.8	1.2	0.1	0.9	0.4		1.0	0.6	0.1
Delay (s)	15.5	20.5		10.4	15.9	11.3	30.2	35.2		25.7	33.3	31.6
Level of Service	B	C		B	B	B	C	D		C	C	C
Approach Delay (s)		20.4			14.6			32.9			30.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

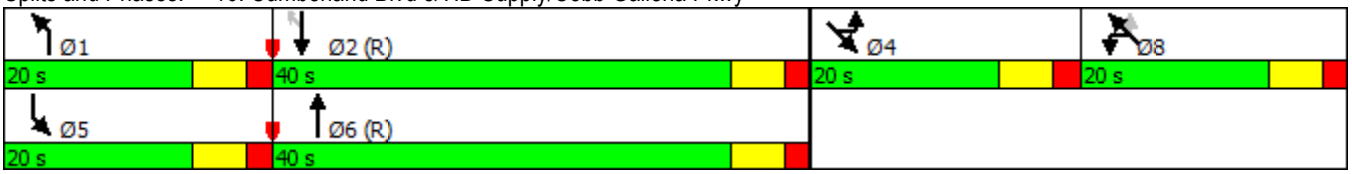
2025 No Build AM
8/29/2016

Lane Group	NBL	NBT	SBL	SBT	SBR	SEL	SET	NWT	NWR
Lane Configurations									
Traffic Volume (vph)	77	792	319	1170	902	194	19	2	38
Future Volume (vph)	77	792	319	1170	902	194	19	2	38
Lane Group Flow (vph)	112	962	347	1781	525	182	97	10	41
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	NA	Perm
Protected Phases	1	6	5	2		4	4	8	
Permitted Phases					2				8
Detector Phase	1	6	5	2	2	4	4	8	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	20.0	40.0	20.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	20.0%	40.0%	20.0%	40.0%	40.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.38	0.55	0.68	0.69	0.54	0.53	0.45	0.09	0.17
Control Delay	46.6	27.6	42.4	19.1	3.8	47.3	26.8	45.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	27.6	42.4	19.1	3.8	47.3	26.8	45.9	1.4
Queue Length 50th (ft)	35	179	207	318	0	60	26	6	0
Queue Length 95th (ft)	46	216	#393	434	70	95	79	23	0
Internal Link Dist (ft)		545		521			1012	315	
Turn Bay Length (ft)	180		205			255			
Base Capacity (vph)	478	1743	508	2569	981	442	258	244	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.55	0.68	0.69	0.54	0.41	0.38	0.04	0.11

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 12 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

2025 No Build AM
8/29/2016

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	77	792	57	319	1170	902	194	19	44	7	2	38
Future Volume (vph)	77	792	57	319	1170	902	194	19	44	7	2	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			2%			5%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.86	0.86	0.91	0.91			1.00	1.00
Frt	1.00	0.99		1.00	0.96	0.85	1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99			0.96	1.00
Satd. Flow (prot)	3416	5011		1761	4594	1355	3158	1502			1746	1544
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99			0.96	1.00
Satd. Flow (perm)	3416	5011		1761	4594	1355	3158	1502			1746	1544
Peak-hour factor, PHF	0.69	0.88	0.92	0.92	0.89	0.91	0.96	0.92	0.79	0.92	0.92	0.92
Adj. Flow (vph)	112	900	62	347	1315	991	202	21	56	8	2	41
RTOR Reduction (vph)	0	8	0	0	46	249	0	50	0	0	0	39
Lane Group Flow (vph)	112	954	0	347	1735	276	182	47	0	0	10	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases						2						8
Actuated Green, G (s)	8.5	32.2		28.9	52.6	52.6	11.0	11.0			3.9	3.9
Effective Green, g (s)	8.5	32.2		28.9	52.6	52.6	11.0	11.0			3.9	3.9
Actuated g/C Ratio	0.08	0.32		0.29	0.53	0.53	0.11	0.11			0.04	0.04
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	290	1613		508	2416	712	347	165			68	60
v/s Ratio Prot	0.03	0.19		c0.20	c0.38		c0.06	0.03			c0.01	
v/s Ratio Perm						0.20						0.00
v/c Ratio	0.39	0.59		0.68	0.72	0.39	0.52	0.29			0.15	0.03
Uniform Delay, d1	43.3	28.4		31.5	18.1	14.1	42.0	40.9			46.4	46.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.9	1.6		3.8	1.9	1.6	1.4	1.0			1.0	0.2
Delay (s)	44.1	30.0		35.3	19.9	15.7	43.5	41.8			47.4	46.4
Level of Service	D	C		D	B	B	D	D			D	D
Approach Delay (s)		31.5			21.1			42.9			46.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

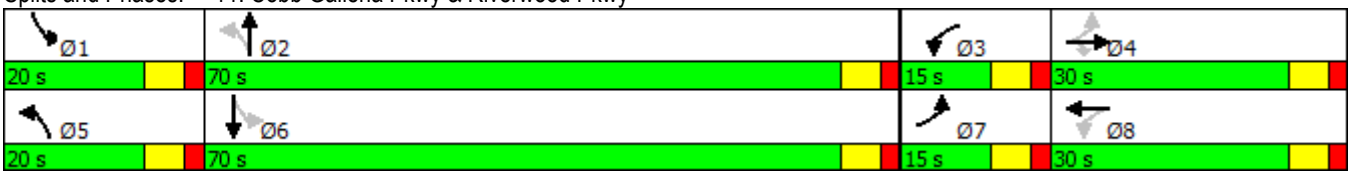
Queues
11: Cobb Galleria Pkwy & Riverwood Pkwy

2025 No Build AM
8/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	18	6	7	2	70	624	27	211
Future Volume (vph)	9	18	6	7	2	70	624	27	211
Lane Group Flow (vph)	13	27	10	14	16	90	788	54	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.08	0.20	0.04	0.09	0.10	0.10	0.31	0.10	0.11
Control Delay	39.1	50.7	0.3	39.1	32.6	4.3	8.1	4.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	50.7	0.3	39.1	32.6	4.3	8.1	4.7	7.3
Queue Length 50th (ft)	8	16	0	8	5	8	88	5	25
Queue Length 95th (ft)	19	35	0	15	3	30	193	13	63
Internal Link Dist (ft)		525			93		1012		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	209	468	489	209	439	981	2534	639	2405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.02	0.07	0.04	0.09	0.31	0.08	0.11

Intersection Summary
Cycle Length: 135
Actuated Cycle Length: 98.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy

2025 No Build AM
8/29/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	18	6	7	2	3	70	624	73	27	211	16
Future Volume (vph)	9	18	6	7	2	3	70	624	73	27	211	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1805	1758		1778	3463		1694	3323	
Flt Permitted	0.75	1.00	1.00	0.61	1.00		0.58	1.00		0.33	1.00	
Satd. Flow (perm)	1419	1900	1615	1152	1758		1083	3463		591	3323	
Peak-hour factor, PHF	0.67	0.67	0.62	0.50	0.25	0.38	0.78	0.96	0.53	0.50	0.88	0.50
Adj. Flow (vph)	13	27	10	14	8	8	90	650	138	54	240	32
RTOR Reduction (vph)	0	0	9	0	8	0	0	9	0	0	5	0
Lane Group Flow (vph)	13	27	1	14	8	0	90	779	0	54	267	0
Confl. Peds. (#/hr)										1		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	6%	6%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	6.7	5.4	5.4	9.1	6.6		76.3	70.6		74.9	69.9	
Effective Green, g (s)	6.7	5.4	5.4	9.1	6.6		76.3	70.6		74.9	69.9	
Actuated g/C Ratio	0.06	0.05	0.05	0.08	0.06		0.71	0.66		0.70	0.65	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	95	81	112	107		805	2274		463	2160	
v/s Ratio Prot	0.00	c0.01		c0.00	0.00		c0.01	c0.23		0.01	0.08	
v/s Ratio Perm	0.01		0.00	0.01			0.07			0.08		
v/c Ratio	0.14	0.28	0.01	0.12	0.08		0.11	0.34		0.12	0.12	
Uniform Delay, d1	47.6	49.2	48.5	45.4	47.6		4.8	8.2		5.2	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.6	0.0	0.5	0.3		0.1	0.4		0.1	0.1	
Delay (s)	48.3	50.8	48.5	45.9	47.9		4.8	8.6		5.3	7.3	
Level of Service	D	D	D	D	D		A	A		A	A	
Approach Delay (s)		49.7			47.0			8.2			6.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	107.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

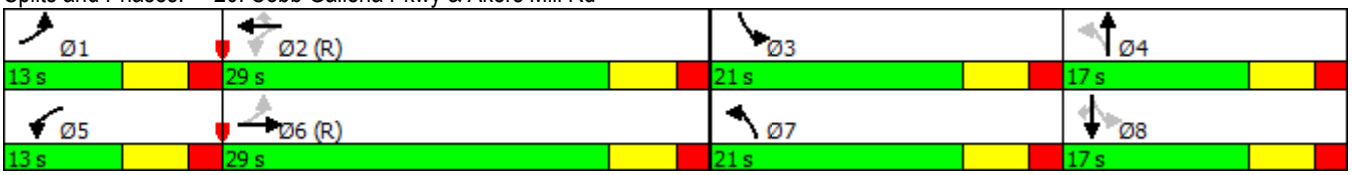
2025 No Build AM
8/29/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	91	462	80	339	270	166	264	14	11	22
Future Volume (vph)	91	462	80	339	270	166	264	14	11	22
Lane Group Flow (vph)	105	716	100	474	207	189	507	19	13	28
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.20	0.46	0.25	0.31	0.27	0.54	0.63	0.09	0.04	0.09
Control Delay	11.4	17.5	12.0	17.1	4.5	27.8	20.9	19.1	31.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	17.5	12.0	17.1	4.5	27.8	20.9	19.1	31.9	0.5
Queue Length 50th (ft)	24	126	23	86	0	72	62	7	3	0
Queue Length 95th (ft)	56	206	49	143	51	106	118	15	10	0
Internal Link Dist (ft)		399		351			626		267	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	519	1566	410	1518	769	402	827	404	484	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.46	0.24	0.31	0.27	0.47	0.61	0.05	0.03	0.07

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2025 No Build AM
8/29/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	462	173	80	339	270	166	264	163	14	11	22
Future Volume (vph)	91	462	173	80	339	270	166	264	163	14	11	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.97	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3352		1787	3323	1455	1770	3292		1761	3522	1575
Flt Permitted	0.44	1.00		0.30	1.00	1.00	0.38	1.00		0.65	1.00	1.00
Satd. Flow (perm)	810	3352		558	3323	1455	709	3292		1196	3522	1575
Peak-hour factor, PHF	0.87	0.94	0.77	0.80	0.89	0.90	0.88	0.90	0.76	0.75	0.83	0.79
Adj. Flow (vph)	105	491	225	100	381	300	189	293	214	19	13	28
RTOR Reduction (vph)	0	57	0	0	21	126	0	154	0	0	0	26
Lane Group Flow (vph)	105	659	0	100	453	81	189	353	0	19	13	2
Confl. Peds. (#/hr)	5		5				11		11			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	37.4	31.3		37.2	31.2	31.2	24.7	16.0		8.9	6.2	6.2
Effective Green, g (s)	37.4	31.3		37.2	31.2	31.2	24.7	16.0		8.9	6.2	6.2
Actuated g/C Ratio	0.47	0.39		0.47	0.39	0.39	0.31	0.20		0.11	0.08	0.08
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	451	1311		351	1295	567	384	658		152	272	122
v/s Ratio Prot	0.02	c0.20		c0.02	0.14		c0.08	c0.11		0.00	0.00	
v/s Ratio Perm	0.09			0.11		0.06	0.07			0.01		0.00
v/c Ratio	0.23	0.50		0.28	0.35	0.14	0.49	0.54		0.12	0.05	0.02
Uniform Delay, d1	12.1	18.5		12.5	17.2	15.8	21.7	28.7		31.9	34.2	34.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	1.4		0.4	0.7	0.5	1.0	0.8		0.4	0.1	0.1
Delay (s)	12.4	19.8		12.9	18.0	16.3	22.7	29.5		32.3	34.2	34.1
Level of Service	B	B		B	B	B	C	C		C	C	C
Approach Delay (s)		18.9			16.9			27.7			33.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

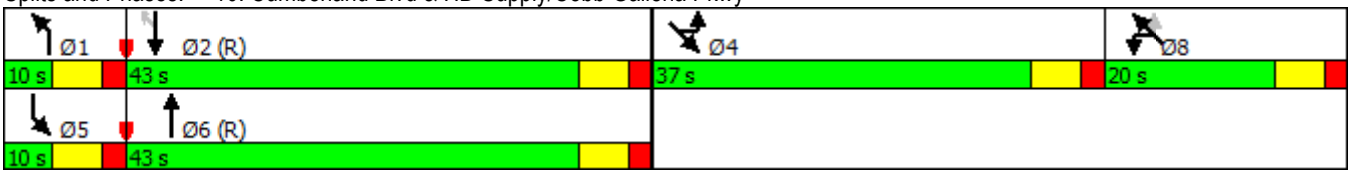
2025 No Build PM
8/29/2016

Lane Group	NBL	NBT	SBL	SBT	SBR	SEL	SET	NWT	NWR
Lane Configurations									
Traffic Volume (vph)	43	872	71	1314	342	602	3	16	252
Future Volume (vph)	43	872	71	1314	342	602	3	16	252
Lane Group Flow (vph)	83	1047	77	1484	362	568	267	68	274
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	NA	Perm
Protected Phases	1	6	5	2		4	4	8	
Permitted Phases					2				8
Detector Phase	1	6	5	2	2	4	4	8	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	10.0	43.0	10.0	43.0	43.0	37.0	37.0	20.0	20.0
Total Split (%)	9.1%	39.1%	9.1%	39.1%	39.1%	33.6%	33.6%	18.2%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.48	0.58	0.60	0.77	0.48	0.75	0.67	0.32	0.86
Control Delay	61.4	31.0	72.4	34.3	5.1	45.6	37.8	47.5	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	31.0	72.4	34.3	5.1	45.6	37.8	47.5	46.9
Queue Length 50th (ft)	29	224	55	385	0	204	148	43	85
Queue Length 95th (ft)	32	248	#165	#486	56	247	235	88	#232
Internal Link Dist (ft)		545		521			1012	315	
Turn Bay Length (ft)	180		205			255			
Base Capacity (vph)	172	1803	128	1916	762	907	469	236	337
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.58	0.60	0.77	0.48	0.63	0.57	0.29	0.81

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 12 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

2025 No Build PM
8/29/2016

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	43	872	8	71	1314	342	602	3	133	47	16	252
Future Volume (vph)	43	872	8	71	1314	342	602	3	133	47	16	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			2%			5%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.86	0.86	0.91	0.91			1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.98			0.96	1.00
Satd. Flow (prot)	3450	5103		1761	4810	1368	3220	1521			1751	1544
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.98			0.96	1.00
Satd. Flow (perm)	3450	5103		1761	4810	1368	3220	1521			1751	1544
Peak-hour factor, PHF	0.52	0.84	0.92	0.92	0.91	0.85	0.88	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	83	1038	9	77	1444	402	684	3	148	51	17	274
RTOR Reduction (vph)	0	1	0	0	2	222	0	44	0	0	0	131
Lane Group Flow (vph)	83	1046	0	77	1482	140	568	223	0	0	68	143
Heavy Vehicles (%)	1%	1%	1%	2%	1%	1%	1%	2%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases						2						8
Actuated Green, G (s)	4.3	38.8		8.0	42.5	42.5	25.8	25.8			13.4	13.4
Effective Green, g (s)	4.3	38.8		8.0	42.5	42.5	25.8	25.8			13.4	13.4
Actuated g/C Ratio	0.04	0.35		0.07	0.39	0.39	0.23	0.23			0.12	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	134	1799		128	1858	528	755	356			213	188
v/s Ratio Prot	0.02	0.21		c0.04	c0.31		c0.18	0.15			0.04	
v/s Ratio Perm						0.10						c0.09
v/c Ratio	0.62	0.58		0.60	0.80	0.26	0.75	0.63			0.32	0.76
Uniform Delay, d1	52.0	29.0		49.5	29.9	23.1	39.1	37.8			44.1	46.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	8.3	1.4		7.7	3.7	1.2	4.3	3.4			0.9	16.5
Delay (s)	60.3	30.4		57.2	33.6	24.3	43.4	41.2			45.0	63.3
Level of Service	E	C		E	C	C	D	D			D	E
Approach Delay (s)		32.6			32.8			42.7			59.6	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
11: Cobb Galleria Pkwy & Riverwood Pkwy

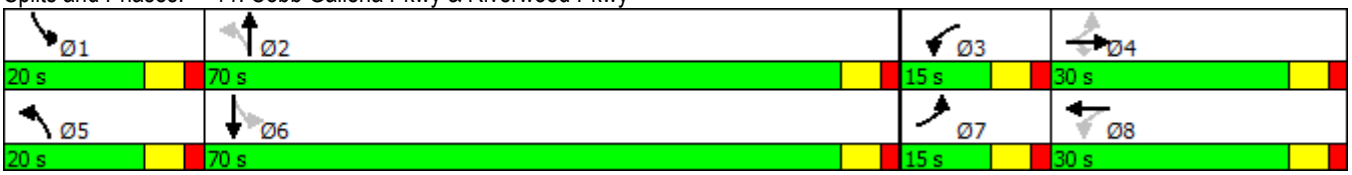
2025 No Build PM
8/29/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	27	8	45	52	8	49	288	17	425
Future Volume (vph)	27	8	45	52	8	49	288	17	425
Lane Group Flow (vph)	40	14	63	81	55	64	387	23	524
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.21	0.12	0.29	0.38	0.29	0.10	0.16	0.03	0.23
Control Delay	39.6	51.4	3.4	43.3	25.0	6.0	7.9	5.9	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	51.4	3.4	43.3	25.0	6.0	7.9	5.9	10.6
Queue Length 50th (ft)	24	10	0	49	10	13	42	4	88
Queue Length 95th (ft)	40	20	0	65	21	24	82	11	129
Internal Link Dist (ft)		525			93		1012		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	224	435	463	225	414	723	2496	833	2322
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.03	0.14	0.36	0.13	0.09	0.16	0.03	0.23

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 105.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy

2025 No Build PM
8/29/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	8	45	52	8	24	49	288	27	17	425	23
Future Volume (vph)	27	8	45	52	8	24	49	288	27	17	425	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1803	1670		1777	3498		1778	3510	
Flt Permitted	0.72	1.00	1.00	0.57	1.00		0.43	1.00		0.52	1.00	
Satd. Flow (perm)	1370	1900	1615	1090	1670		799	3498		979	3510	
Peak-hour factor, PHF	0.67	0.58	0.71	0.64	0.58	0.58	0.77	0.82	0.75	0.75	0.89	0.50
Adj. Flow (vph)	40	14	63	81	14	41	64	351	36	23	478	46
RTOR Reduction (vph)	0	0	59	0	38	0	0	4	0	0	4	0
Lane Group Flow (vph)	40	14	4	81	17	0	64	383	0	23	520	0
Confl. Peds. (#/hr)				1		1	2		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	11.3	6.6	6.6	15.3	8.6		79.6	74.0		73.2	70.8	
Effective Green, g (s)	11.3	6.6	6.6	15.3	8.6		79.6	74.0		73.2	70.8	
Actuated g/C Ratio	0.10	0.06	0.06	0.13	0.08		0.70	0.65		0.64	0.62	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	110	93	188	126		607	2276		647	2185	
v/s Ratio Prot	0.01	0.01		c0.03	0.01		c0.01	c0.11		0.00	c0.15	
v/s Ratio Perm	0.02		0.00	c0.03			0.07			0.02		
v/c Ratio	0.26	0.13	0.04	0.43	0.14		0.11	0.17		0.04	0.24	
Uniform Delay, d1	47.2	50.8	50.6	44.6	49.1		5.4	7.8		7.3	9.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.5	0.2	1.6	0.5		0.1	0.2		0.0	0.3	
Delay (s)	48.1	51.3	50.7	46.2	49.6		5.5	7.9		7.3	9.8	
Level of Service	D	D	D	D	D		A	A		A	A	
Approach Delay (s)		49.9			47.6			7.6			9.7	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	113.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

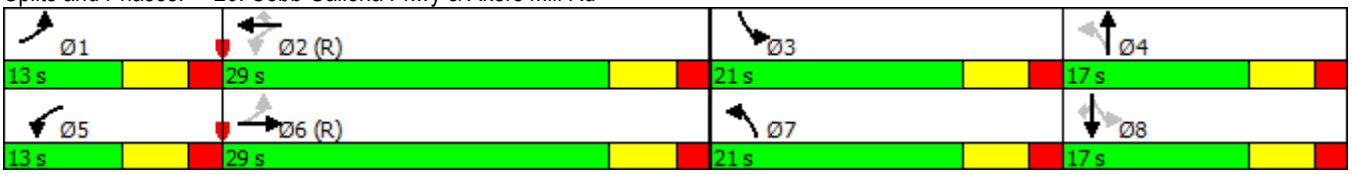
2025 No Build PM
8/29/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	419	201	914	33	176	34	125	120	82
Future Volume (vph)	8	419	201	914	33	176	34	125	120	82
Lane Group Flow (vph)	18	731	279	979	66	205	176	174	182	105
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.07	0.70	0.77	0.60	0.08	0.51	0.34	0.45	0.44	0.29
Control Delay	12.8	28.0	33.9	20.3	0.2	23.4	12.6	22.4	36.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	28.0	33.9	20.3	0.2	23.4	12.6	22.4	36.3	2.0
Queue Length 50th (ft)	4	160	79	178	0	74	11	61	45	0
Queue Length 95th (ft)	8	169	#167	#403	0	111	22	77	53	0
Internal Link Dist (ft)		399		351			626		267	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	281	1041	364	1635	793	456	552	472	493	392
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.70	0.77	0.60	0.08	0.45	0.32	0.37	0.37	0.27

Intersection Summary

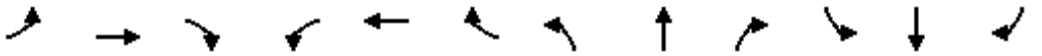
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2025 No Build PM
8/29/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	419	130	201	914	33	176	34	92	125	120	82
Future Volume (vph)	8	419	130	201	914	33	176	34	92	125	120	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	3453		1787	3454	1448	1744	3113		1787	3592	1571
Flt Permitted	0.23	1.00		0.18	1.00	1.00	0.55	1.00		0.64	1.00	1.00
Satd. Flow (perm)	429	3453		333	3454	1448	1013	3113		1205	3592	1571
Peak-hour factor, PHF	0.44	0.74	0.79	0.72	0.94	0.45	0.86	0.68	0.73	0.72	0.66	0.78
Adj. Flow (vph)	18	566	165	279	972	73	205	50	126	174	182	105
RTOR Reduction (vph)	0	33	0	0	1	39	0	109	0	0	0	93
Lane Group Flow (vph)	18	698	0	279	978	27	205	67	0	174	182	12
Confl. Peds. (#/hr)				2		2				7		7
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%	3%	3%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	24.7	23.3		40.4	33.0	33.0	23.0	10.5		20.2	9.1	9.1
Effective Green, g (s)	24.7	23.3		40.4	33.0	33.0	23.0	10.5		20.2	9.1	9.1
Actuated g/C Ratio	0.31	0.29		0.50	0.41	0.41	0.29	0.13		0.25	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	156	1005		369	1424	597	405	408		385	408	178
v/s Ratio Prot	0.00	0.20		c0.10	0.28		c0.08	0.02		0.06	0.05	
v/s Ratio Perm	0.03			c0.28		0.02	c0.07			0.05		0.01
v/c Ratio	0.12	0.69		0.76	0.69	0.05	0.51	0.16		0.45	0.45	0.07
Uniform Delay, d1	19.4	25.2		14.1	19.3	14.1	23.0	30.8		24.8	33.1	31.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	4.0		8.6	2.7	0.1	1.0	0.2		0.8	0.8	0.2
Delay (s)	19.8	29.1		22.6	22.0	14.2	24.0	31.0		25.6	33.9	31.8
Level of Service	B	C		C	C	B	C	C		C	C	C
Approach Delay (s)		28.9			21.7			27.3			30.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

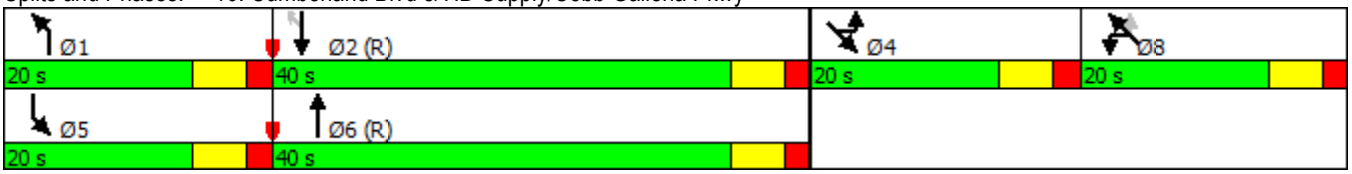
2025 Build AM
9/1/2016

Lane Group	NBL	NBT	SBL	SBT	SBR	SEL	SET	NWT	NWR
Lane Configurations									
Traffic Volume (vph)	110	792	319	1170	1287	410	19	2	38
Future Volume (vph)	110	792	319	1170	1287	410	19	2	38
Lane Group Flow (vph)	159	962	347	2022	707	354	172	10	41
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	NA	Perm
Protected Phases	1	6	5	2		4	4	8	
Permitted Phases					2				8
Detector Phase	1	6	5	2	2	4	4	8	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	20.0	40.0	20.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	20.0%	40.0%	20.0%	40.0%	40.0%	20.0%	20.0%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.47	0.56	0.74	0.85	0.68	0.82	0.73	0.09	0.17
Control Delay	46.9	28.1	46.5	25.9	5.5	58.7	51.5	45.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	28.1	46.5	25.9	5.5	58.7	51.5	45.9	1.4
Queue Length 50th (ft)	50	179	216	431	0	121	92	6	0
Queue Length 95th (ft)	60	216	#393	#597	97	#193	#197	23	0
Internal Link Dist (ft)		545		521			580	315	
Turn Bay Length (ft)	180		205			255			
Base Capacity (vph)	478	1710	472	2382	1037	442	242	244	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.56	0.74	0.85	0.68	0.80	0.71	0.04	0.11

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 12 (12%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

2025 Build AM
9/1/2016

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	110	792	57	319	1170	1287	410	19	62	7	2	38
Future Volume (vph)	110	792	57	319	1170	1287	410	19	62	7	2	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			2%			5%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.86	0.86	0.91	0.91			1.00	1.00
Frt	1.00	0.99		1.00	0.95	0.85	1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.98			0.96	1.00
Satd. Flow (prot)	3416	5011		1761	4531	1355	3158	1517			1746	1544
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.98			0.96	1.00
Satd. Flow (perm)	3416	5011		1761	4531	1355	3158	1517			1746	1544
Peak-hour factor, PHF	0.69	0.88	0.92	0.92	0.89	0.91	0.96	0.92	0.79	0.92	0.92	0.92
Adj. Flow (vph)	159	900	62	347	1315	1414	427	21	78	8	2	41
RTOR Reduction (vph)	0	8	0	0	76	363	0	30	0	0	0	39
Lane Group Flow (vph)	159	954	0	347	1946	344	354	142	0	0	10	2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases						2						8
Actuated Green, G (s)	9.9	31.7		26.8	48.6	48.6	13.6	13.6			3.9	3.9
Effective Green, g (s)	9.9	31.7		26.8	48.6	48.6	13.6	13.6			3.9	3.9
Actuated g/C Ratio	0.10	0.32		0.27	0.49	0.49	0.14	0.14			0.04	0.04
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	338	1588		471	2202	658	429	206			68	60
v/s Ratio Prot	0.05	0.19		c0.20	c0.43		c0.11	0.09			c0.01	
v/s Ratio Perm						0.25						0.00
v/c Ratio	0.47	0.60		0.74	0.88	0.52	0.83	0.69			0.15	0.03
Uniform Delay, d1	42.6	28.8		33.4	23.2	17.7	42.0	41.2			46.4	46.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	1.0	1.7		5.9	5.6	2.9	12.2	9.2			1.0	0.2
Delay (s)	43.6	30.5		39.3	28.8	20.7	54.2	50.4			47.4	46.4
Level of Service	D	C		D	C	C	D	D			D	D
Approach Delay (s)		32.4			28.1			53.0			46.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)

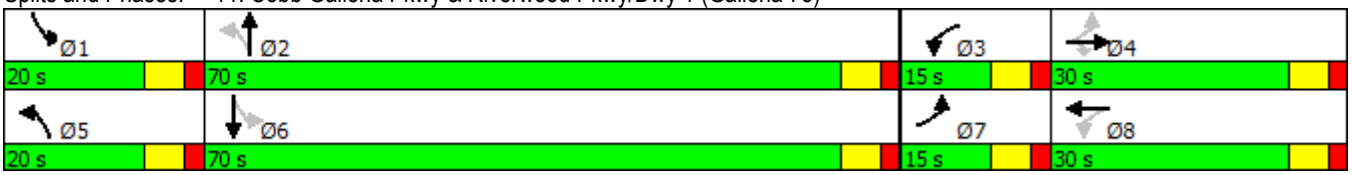
2025 Build AM
9/1/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	9	50	6	241	20	70	678	220	211
Future Volume (vph)	9	50	6	241	20	70	678	220	211
Lane Group Flow (vph)	13	54	10	262	84	90	994	239	272
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.07	0.38	0.04	0.62	0.29	0.12	0.51	0.63	0.14
Control Delay	39.1	59.9	0.3	48.1	21.1	6.8	16.6	14.1	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	59.9	0.3	48.1	21.1	6.8	16.6	14.1	10.8
Queue Length 50th (ft)	8	40	0	88	14	20	225	57	44
Queue Length 95th (ft)	19	83	0	131	66	34	314	97	69
Internal Link Dist (ft)		217			93		348		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	227	400	436	425	404	831	1940	423	1978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.14	0.02	0.62	0.21	0.11	0.51	0.57	0.14

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 114.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)

2025 Build AM
9/1/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	50	6	241	20	57	70	678	265	220	211	16
Future Volume (vph)	9	50	6	241	20	57	70	678	265	220	211	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3502	1690		1778	3402		1694	3323	
Flt Permitted	0.70	1.00	1.00	0.44	1.00		0.58	1.00		0.21	1.00	
Satd. Flow (perm)	1335	1900	1615	1637	1690		1094	3402		366	3323	
Peak-hour factor, PHF	0.67	0.92	0.62	0.92	0.92	0.92	0.78	0.96	0.92	0.92	0.88	0.50
Adj. Flow (vph)	13	54	10	262	22	62	90	706	288	239	240	32
RTOR Reduction (vph)	0	0	9	0	54	0	0	28	0	0	6	0
Lane Group Flow (vph)	13	54	1	262	30	0	90	966	0	239	266	0
Confl. Peds. (#/hr)										1		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	6%	6%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	12.3	9.6	9.6	24.7	16.0		71.8	64.4		79.0	68.0	
Effective Green, g (s)	12.3	9.6	9.6	24.7	16.0		71.8	64.4		79.0	68.0	
Actuated g/C Ratio	0.10	0.08	0.08	0.21	0.14		0.61	0.55		0.67	0.58	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	154	131	486	228		707	1855		368	1913	
v/s Ratio Prot	0.00	0.03		c0.04	0.02		0.01	0.28		c0.06	0.08	
v/s Ratio Perm	0.01		0.00	c0.07			0.07			c0.37		
v/c Ratio	0.09	0.35	0.01	0.54	0.13		0.13	0.52		0.65	0.14	
Uniform Delay, d1	47.7	51.3	49.9	40.1	44.9		9.6	17.0		10.6	11.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.4	0.0	1.2	0.3		0.1	1.0		3.9	0.2	
Delay (s)	48.0	52.7	49.9	41.2	45.2		9.6	18.1		14.5	11.7	
Level of Service	D	D	D	D	D		A	B		B	B	
Approach Delay (s)		51.5			42.2			17.4			13.0	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	118.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

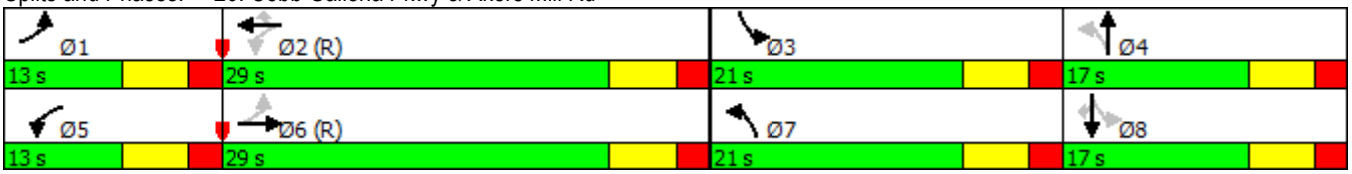
2025 Build AM
9/1/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	91	462	144	339	270	238	264	14	11	22
Future Volume (vph)	91	462	144	339	270	238	264	14	11	22
Lane Group Flow (vph)	105	882	180	474	207	270	555	19	13	28
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.21	0.62	0.56	0.32	0.28	0.70	0.62	0.09	0.04	0.09
Control Delay	12.0	18.0	20.7	17.8	4.6	32.9	18.9	18.9	32.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	18.0	20.7	17.8	4.6	32.9	18.9	18.9	32.1	0.5
Queue Length 50th (ft)	25	146	45	90	0	105	61	6	3	0
Queue Length 95th (ft)	56	225	#99	143	51	149	122	15	10	0
Internal Link Dist (ft)		399		351			626		267	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	505	1421	319	1459	747	405	892	403	484	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.62	0.56	0.32	0.28	0.67	0.62	0.05	0.03	0.07

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2025 Build AM
9/1/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	462	301	144	339	270	238	264	199	14	11	22
Future Volume (vph)	91	462	301	144	339	270	238	264	199	14	11	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.97	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3276		1787	3323	1455	1770	3261		1761	3522	1575
Flt Permitted	0.47	1.00		0.16	1.00	1.00	0.37	1.00		0.67	1.00	1.00
Satd. Flow (perm)	876	3276		305	3323	1455	697	3261		1236	3522	1575
Peak-hour factor, PHF	0.87	0.94	0.77	0.80	0.89	0.90	0.88	0.90	0.76	0.75	0.83	0.79
Adj. Flow (vph)	105	491	391	180	381	300	270	293	262	19	13	28
RTOR Reduction (vph)	0	166	0	0	22	130	0	185	0	0	0	26
Lane Group Flow (vph)	105	716	0	180	452	77	270	370	0	19	13	2
Confl. Peds. (#/hr)	5		5				11		11			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	33.4	27.3		38.4	29.8	29.8	26.1	17.4		8.7	6.0	6.0
Effective Green, g (s)	33.4	27.3		38.4	29.8	29.8	26.1	17.4		8.7	6.0	6.0
Actuated g/C Ratio	0.42	0.34		0.48	0.37	0.37	0.33	0.22		0.11	0.08	0.08
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	433	1117		305	1237	541	416	709		152	264	118
v/s Ratio Prot	0.02	0.22		c0.06	0.14		c0.11	0.11		0.00	0.00	
v/s Ratio Perm	0.08			c0.22		0.05	c0.10			0.01		0.00
v/c Ratio	0.24	0.64		0.59	0.37	0.14	0.65	0.52		0.12	0.05	0.02
Uniform Delay, d1	14.4	22.2		14.0	18.2	16.6	21.7	27.6		32.1	34.4	34.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	2.8		3.0	0.8	0.6	3.5	0.7		0.4	0.1	0.1
Delay (s)	14.7	25.0		17.0	19.1	17.2	25.2	28.3		32.5	34.4	34.3
Level of Service	B	C		B	B	B	C	C		C	C	C
Approach Delay (s)		23.9			18.2			27.3			33.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
4: Cobb Galleria Pkwy & Dwy 2 (Galleria 75)

2025 Build AM
8/29/2016

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	491	893	225	0	54
Future Volume (Veh/h)	0	491	893	225	0	54
Sign Control		Free	Free		Stop	
Grade		2%	1%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	534	971	245	0	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		428	660			
pX, platoon unblocked					0.92	
vC, conflicting volume	1216				1360	608
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1216				1216	608
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	87
cM capacity (veh/h)	569				159	439

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1
Volume Total	267	267	647	569	59
Volume Left	0	0	0	0	0
Volume Right	0	0	0	245	59
cSH	1700	1700	1700	1700	439
Volume to Capacity	0.16	0.16	0.38	0.33	0.13
Queue Length 95th (ft)	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	14.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		14.5
Approach LOS					B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Queues

10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

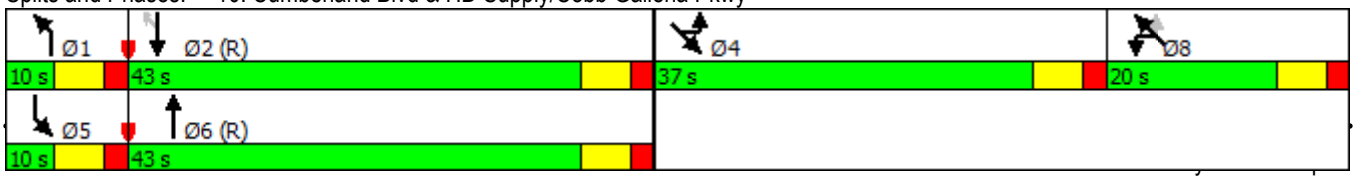
2025 Build PM
9/1/2016

Lane Group	NBL	NBT	SBL	SBT	SBR	SEL	SET	NWT	NWR
Lane Configurations									
Traffic Volume (vph)	62	872	71	1314	564	970	3	16	252
Future Volume (vph)	62	872	71	1314	564	970	3	16	252
Lane Group Flow (vph)	119	1047	77	1637	471	871	415	68	274
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	NA	Perm
Protected Phases	1	6	5	2		4	4	8	
Permitted Phases					2				8
Detector Phase	1	6	5	2	2	4	4	8	8
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	22.0	22.0	20.0	20.0
Total Split (s)	10.0	43.0	10.0	43.0	43.0	37.0	37.0	20.0	20.0
Total Split (%)	9.1%	39.1%	9.1%	39.1%	39.1%	33.6%	33.6%	18.2%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.75	0.61	0.88	1.00	0.61	0.96	0.90	0.34	0.90
Control Delay	80.8	32.3	119.8	59.8	6.2	61.2	59.7	49.2	52.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	32.3	119.8	59.8	6.2	61.2	59.7	49.2	52.5
Queue Length 50th (ft)	44	224	~66	~456	0	332	287	44	87
Queue Length 95th (ft)	42	248	#165	#575	60	#451	#493	88	#232
Internal Link Dist (ft)		545		521			572	315	
Turn Bay Length (ft)	180		205			255			
Base Capacity (vph)	159	1717	88	1629	776	907	459	222	326
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.61	0.88	1.00	0.61	0.96	0.90	0.31	0.84

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 12 (11%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy



HCM Signalized Intersection Capacity Analysis
10: Cumberland Blvd & HD Supply/Cobb Galleria Pkwy

2025 Build PM
9/1/2016

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	62	872	8	71	1314	564	970	3	163	47	16	252
Future Volume (vph)	62	872	8	71	1314	564	970	3	163	47	16	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%			2%			5%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.86	0.86	0.91	0.91			1.00	1.00
Frt	1.00	1.00		1.00	0.98	0.85	1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97			0.96	1.00
Satd. Flow (prot)	3450	5103		1761	4744	1368	3220	1541			1751	1544
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97			0.96	1.00
Satd. Flow (perm)	3450	5103		1761	4744	1368	3220	1541			1751	1544
Peak-hour factor, PHF	0.52	0.84	0.92	0.92	0.91	0.85	0.88	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	119	1038	9	77	1444	664	1102	3	181	51	17	274
RTOR Reduction (vph)	0	1	0	0	15	311	0	25	0	0	0	132
Lane Group Flow (vph)	119	1046	0	77	1622	160	871	390	0	0	68	142
Heavy Vehicles (%)	1%	1%	1%	2%	1%	1%	1%	2%	1%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	Perm
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases						2						8
Actuated Green, G (s)	5.1	37.0		5.5	37.4	37.4	31.0	31.0			12.5	12.5
Effective Green, g (s)	5.1	37.0		5.5	37.4	37.4	31.0	31.0			12.5	12.5
Actuated g/C Ratio	0.05	0.34		0.05	0.34	0.34	0.28	0.28			0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	159	1716		88	1612	465	907	434			198	175
v/s Ratio Prot	0.03	0.21		c0.04	c0.34		c0.27	0.25			0.04	
v/s Ratio Perm						0.12						c0.09
v/c Ratio	0.75	0.61		0.88	1.01	0.34	0.96	0.90			0.34	0.81
Uniform Delay, d1	51.8	30.5		51.9	36.3	27.1	38.9	38.0			45.0	47.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	17.4	1.6		56.5	24.0	2.0	20.8	20.8			1.0	24.0
Delay (s)	69.2	32.1		108.5	60.3	29.2	59.7	58.7			46.0	71.6
Level of Service	E	C		F	E	C	E	E			D	E
Approach Delay (s)		35.9			55.3			59.4			66.5	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)

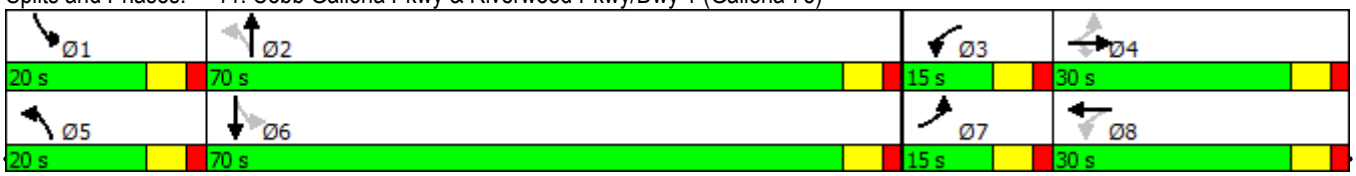
2025 Build PM
9/1/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	27	26	45	451	39	49	380	128	425
Future Volume (vph)	27	26	45	451	39	49	380	128	425
Lane Group Flow (vph)	40	28	63	490	168	64	613	139	524
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	15.0	30.0	30.0	15.0	30.0	20.0	70.0	20.0	70.0
Total Split (%)	11.1%	22.2%	22.2%	11.1%	22.2%	14.8%	51.9%	14.8%	51.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.19	0.17	0.25	1.09	0.57	0.11	0.31	0.26	0.25
Control Delay	38.6	50.9	2.4	109.9	30.3	7.7	13.7	8.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	50.9	2.4	109.9	30.3	7.7	13.7	8.2	12.5
Queue Length 50th (ft)	24	20	0	~191	50	14	111	31	94
Queue Length 95th (ft)	40	49	0	#286	127	29	162	67	151
Internal Link Dist (ft)		208			93		356		849
Turn Bay Length (ft)	225					220		170	
Base Capacity (vph)	235	404	439	450	431	702	1950	616	2130
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07	0.14	1.09	0.39	0.09	0.31	0.23	0.25

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 113.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)



HCM Signalized Intersection Capacity Analysis
11: Cobb Galleria Pkwy & Riverwood Pkwy/Dwy 1 (Galleria 75)

2025 Build PM
9/1/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	26	45	451	39	116	49	380	138	128	425	23
Future Volume (vph)	27	26	45	451	39	116	49	380	138	128	425	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3496	1668		1777	3403		1778	3510	
Flt Permitted	0.63	1.00	1.00	0.52	1.00		0.46	1.00		0.37	1.00	
Satd. Flow (perm)	1196	1900	1615	1896	1668		856	3403		693	3510	
Peak-hour factor, PHF	0.67	0.92	0.71	0.92	0.92	0.92	0.77	0.82	0.92	0.92	0.89	0.50
Adj. Flow (vph)	40	28	63	490	42	126	64	463	150	139	478	46
RTOR Reduction (vph)	0	0	58	0	85	0	0	19	0	0	4	0
Lane Group Flow (vph)	40	28	5	490	83	0	64	594	0	139	520	0
Confl. Peds. (#/hr)				1		1	2		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.7	9.9	9.9	23.3	14.2		71.5	65.9		77.3	68.8	
Effective Green, g (s)	14.7	9.9	9.9	23.3	14.2		71.5	65.9		77.3	68.8	
Actuated g/C Ratio	0.13	0.08	0.08	0.20	0.12		0.61	0.56		0.66	0.59	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	160	136	500	201		565	1910		534	2056	
v/s Ratio Prot	0.01	0.01		c0.08	0.05		0.01	c0.17		c0.02	0.15	
v/s Ratio Perm	0.02		0.00	c0.12			0.06			c0.15		
v/c Ratio	0.23	0.17	0.04	0.98	0.41		0.11	0.31		0.26	0.25	
Uniform Delay, d1	45.9	50.0	49.4	46.0	47.7		9.3	13.7		7.8	11.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.5	0.1	34.6	1.4		0.1	0.4		0.3	0.3	
Delay (s)	46.6	50.5	49.5	80.7	49.1		9.4	14.1		8.0	12.1	
Level of Service	D	D	D	F	D		A	B		A	B	
Approach Delay (s)		48.8			72.6			13.7			11.3	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	117.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Cobb Galleria Pkwy & Akers Mill Rd

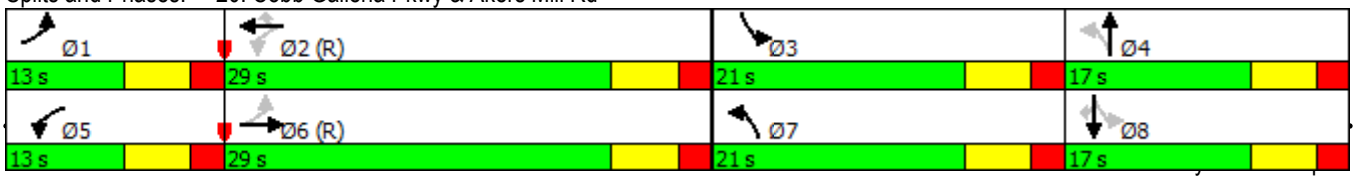
2025 Build PM
9/1/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	419	238	914	33	298	34	125	120	82
Future Volume (vph)	8	419	238	914	33	298	34	125	120	82
Lane Group Flow (vph)	18	824	331	979	66	347	260	174	182	105
Turn Type	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2		7	4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	2	7	4	3	8	8
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	10.0	22.0	22.0	10.0	17.0	10.0	17.0	17.0
Total Split (s)	13.0	29.0	13.0	29.0	29.0	21.0	17.0	21.0	17.0	17.0
Total Split (%)	16.3%	36.3%	16.3%	36.3%	36.3%	26.3%	21.3%	26.3%	21.3%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
v/c Ratio	0.08	0.79	1.12	0.63	0.09	0.77	0.39	0.47	0.44	0.29
Control Delay	13.0	29.7	110.8	21.9	0.2	33.1	9.8	22.1	36.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	29.7	110.8	21.9	0.2	33.1	9.8	22.1	36.3	2.0
Queue Length 50th (ft)	5	177	~146	189	0	131	11	59	45	0
Queue Length 95th (ft)	8	183	#245	#403	0	#202	20	77	53	0
Internal Link Dist (ft)		399		351			626		267	
Turn Bay Length (ft)	200		295		450	285		190		180
Base Capacity (vph)	261	1045	296	1542	759	457	668	463	493	392
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.79	1.12	0.63	0.09	0.76	0.39	0.38	0.37	0.27

Intersection Summary

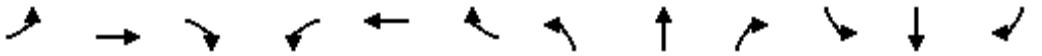
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cobb Galleria Pkwy & Akers Mill Rd



HCM Signalized Intersection Capacity Analysis
20: Cobb Galleria Pkwy & Akers Mill Rd

2025 Build PM
9/1/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	419	204	238	914	33	298	34	153	125	120	82
Future Volume (vph)	8	419	204	238	914	33	298	34	153	125	120	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.91	0.91	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	3406		1787	3454	1448	1744	3065		1788	3592	1571
Flt Permitted	0.19	1.00		0.14	1.00	1.00	0.45	1.00		0.59	1.00	1.00
Satd. Flow (perm)	366	3406		259	3454	1448	831	3065		1113	3592	1571
Peak-hour factor, PHF	0.44	0.74	0.79	0.72	0.94	0.45	0.86	0.68	0.73	0.72	0.66	0.78
Adj. Flow (vph)	18	566	258	331	972	73	347	50	210	174	182	105
RTOR Reduction (vph)	0	66	0	0	1	41	0	176	0	0	0	93
Lane Group Flow (vph)	18	758	0	331	978	25	347	84	0	174	182	12
Confl. Peds. (#/hr)				2		2				7		7
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%	3%	3%	3%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2		2	4			8		8
Actuated Green, G (s)	24.4	23.0		38.3	30.9	30.9	27.4	12.8		20.0	9.1	9.1
Effective Green, g (s)	24.4	23.0		38.3	30.9	30.9	27.4	12.8		20.0	9.1	9.1
Actuated g/C Ratio	0.30	0.29		0.48	0.39	0.39	0.34	0.16		0.25	0.11	0.11
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	136	979		301	1334	559	451	490		370	408	178
v/s Ratio Prot	0.00	0.22		c0.13	0.28		c0.14	0.03		0.06	0.05	
v/s Ratio Perm	0.04			c0.40		0.02	c0.12			0.05		0.01
v/c Ratio	0.13	0.77		1.10	0.73	0.05	0.77	0.17		0.47	0.45	0.07
Uniform Delay, d1	19.8	26.1		19.1	21.0	15.3	21.7	29.0		24.9	33.1	31.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	5.9		81.3	3.6	0.2	7.7	0.2		0.9	0.8	0.2
Delay (s)	20.3	32.1		100.4	24.6	15.5	29.4	29.2		25.9	33.9	31.8
Level of Service	C	C		F	C	B	C	C		C	C	C
Approach Delay (s)		31.8			42.4			29.3			30.4	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
4: Cobb Galleria Pkwy & Dwy 2 (Galleria 75)

2025 Build PM
8/31/2016

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	1136	394	130	0	92
Future Volume (Veh/h)	0	1136	394	130	0	92
Sign Control		Free	Free		Stop	
Grade		2%	1%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1235	428	141	0	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		436	652			
pX, platoon unblocked					0.93	
vC, conflicting volume	569				1116	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	569				967	284
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	86
cM capacity (veh/h)	999				233	712

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1
Volume Total	618	618	285	284	100
Volume Left	0	0	0	0	0
Volume Right	0	0	0	141	100
cSH	1700	1700	1700	1700	712
Volume to Capacity	0.36	0.36	0.17	0.17	0.14
Queue Length 95th (ft)	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	10.9
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.9
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		