

RICHMOND HILL— SOUTH BRYAN COUNTY TRANSPORTATION STUDY

**PREPARED FOR:
CITY OF RICHMOND HILL**

J – 25802

JULY 2016

PREPARED BY:

THOMAS & HUTTON

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1. INTRODUCTION

The City of Richmond Hill and southern Bryan County is anticipated to grow significantly in the near future. Transportation improvements will be needed in order to accommodate and promote this growth while maintaining an acceptable level of service on the roadways for all resident in the County. This study is intended to evaluate the transportation needs in the area and provide recommendations regarding future roadway improvements.

The amount of development anticipated in the area will be estimated for the 2030 and 2040 time frames. The roadway improvements needed to provide for the expected growth will be assessed and prioritization of improvements will be made. These assessments are based on current conditions and anticipated development patterns. As the development in the area occurs, the assumptions and recommendations made as a part of this study will need to be updated periodically to ensure they align with actual development patterns.

2. EXISTING CONDITIONS

Roadway Conditions

The study area is shown in **Figure 1**. Major roadway corridors within the area include US 17, SR 144, Harris Trail, Belfast River Road, and Belfast Keller Road. The I-95/US 17 and the I-95/SR 144 interchanges are not evaluated as a part of this study because GDOT currently has projects underway at each of these locations. Each of these roadway corridors will serve as a focus area in this report; the existing facility conditions are described below.

US 17

US 17 is a major arterial running north and south through the Richmond Hill area. It is currently a four lane section with a divided median. Major intersections are located at the I-95 interchange, Harris Trail Road, and SR 144. GDOT is currently working on a project to improve the loop ramp and lanes in the area. If when this improvement is completed a signal has not been included at the northern ramp termini with US 17 then, it is recommended a study be completed (if it was not a part of the GDOT improvement) to determine when a signal may be warranted at that location. There are currently signals at the following locations along the roadway: Truck stop access road west of I-95, Ramp Termini west of I-95, Harris Trail Road, SR 144, and Mulberry Drive.

SR 144

SR 144 is a major arterial connecting the southern end of Bryan County to I-95 and US 17. It is a multi-lane section between the I-95 ramps and Timber Trail, where it narrows to a two lane section. Portions of SR 144 provide a flush median and center turn lane, other sections have a raised divided median. SR 144 is planned to be widened by Georgia DOT from the terminus of the existing four lane section south to Belfast River Road. There are currently signals at the following locations along the roadway: Ramp Termini west of I-95, Rushing/Exchange St (Kroger), US 17, and Timber Trail. GDOT is currently evaluating the I-95 ramp termini for operational improvements including the installation of a roundabout at each ramp termini.

Harris Trail

Harris Trail runs roughly parallel to SR 144 and connects the southern areas of Bryan County to US 17. It is a four lane facility between US 17 and Timber Trail; it narrows to two lanes south of Timber Trail. The only intersection currently signalized on this roadway is the intersection of US 17. During the construction of SR 144 this roadway will likely see an increase in traffic. The existing conditions of the roadway should be evaluated prior to construction beginning to determine what improvements may be needed to accommodate the increase in traffic.

Belfast River Road

Belfast River Road serves as a connection between Belfast Keller Road and SR 144 in the southern part of Bryan County. It is a two lane facility. The side streets along this route are all stop controlled. The intersection of Belfast River Road and SR 144 at the entrance to the County complex is controlled with a single lane roundabout. This intersection will be converted to its final configuration with the SR 144 widening project.

Belfast Keller Road

Belfast Keller Road currently serves as a connection from the southern part of Bryan County to US 17. In the near future, Belfast Keller will serve as the primary access to I-95 for the southern part of Bryan County when the new interchange is constructed. It is currently a two lane facility. The side streets along the route are all stop control facilities.

Traffic Conditions

Peak hour traffic counts were taken at key intersections in November 2015; details of the count data are included in the appendix. The morning and afternoon peak hour traffic conditions are evaluated at the following intersections:

- US 17 and SR 144
- US 17 and Harris Trail/ Shopping Center
- US 17 and Belfast Keller Road
- SR 144 and Timber Trail
- Harris Trail and Timber Trail
- SR 144 and Port Royal Road
- Harris Trail and Port Royal Road
- SR 144 and Fort McAllister Road
- SR 144 and Belfast River Road / Capt. M Freeman
- Belfast River and Durham Marsh Trail / Harris Trail
- SR 144 and Belfast Keller Road / Oak Level Road
- Belfast Keller Road and Belfast River Road

Historical volumes based on GDOT count station data are shown in Table 1. The data shown below indicates an increase in traffic on the two State roads and traffic along the local roads basically remaining flat. Based on the GDOT data and the peak hour counts taken, an approximate current daily volume is estimated at key locations along the area corridors. These current daily volumes are shown in **Figure 2**.

Table 1 – GDOT Count Station Data

Count station # – Street	2010 ADT	2011 ADT	2012 ADT	2013 ADT	2014 ADT
029-0103 – US 17	22,080	23,460	23,420	23,267	23,900
029-0174 SR 144	13,670	13,440	13,660	13,570	16,800
029-8020 – Harris Trail	–	3,180	3,200	3,110	3,110
029-0223 – Belfast Keller	2,440	2,380	2,340	2,330	2,330

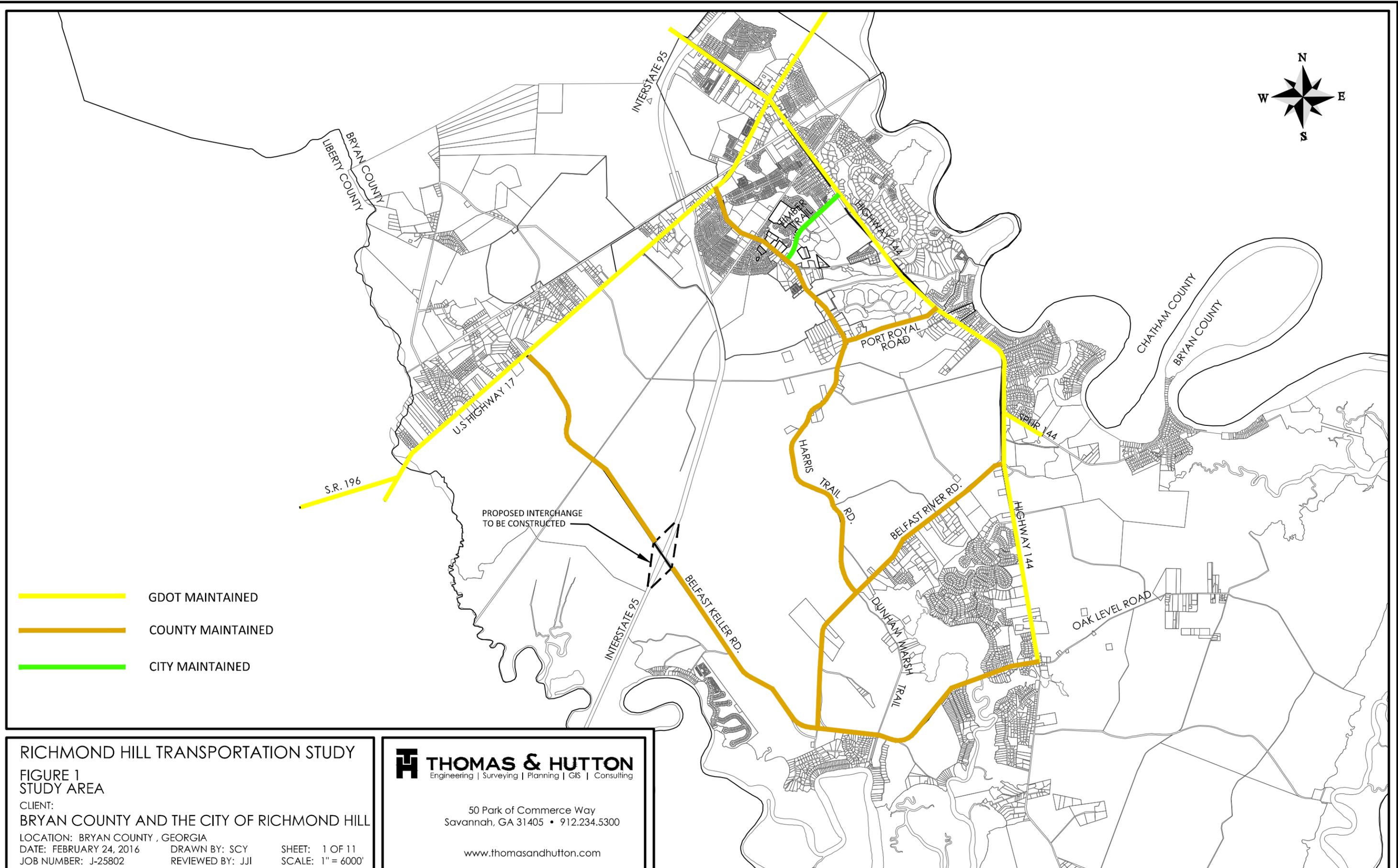
Traffic operations at intersections are typically evaluated in terms of “Level of Service” or LOS. The LOS is a measurement of delay incurred at an intersection or for a particular movement. LOS is defined by the Transportation Research Board’s Highway Capacity Manual (HCM) from which LOS A represents free flow conditions with minimal delays; LOS F represents congested conditions.

Table 2 shows the HCM criteria for both signalized and unsignalized intersections.

Table 2. Level of Service Definitions

LEVEL OF SERVICE	Control Delay per Vehicle (seconds)	
	Unsignalized Intersection	Signalized Intersection
A	≤ 10	≤ 10
B	>10 and ≤ 15	>10 and ≤ 20
C	>15 and ≤ 25	>20 and ≤ 35
D	>25 and ≤ 35	>35 and ≤ 55
E	>35 and ≤ 50	>55 and ≤ 80
F	>50	>80

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RICHMOND HILL TRANSPORTATION STUDY

FIGURE 1 STUDY AREA

CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL

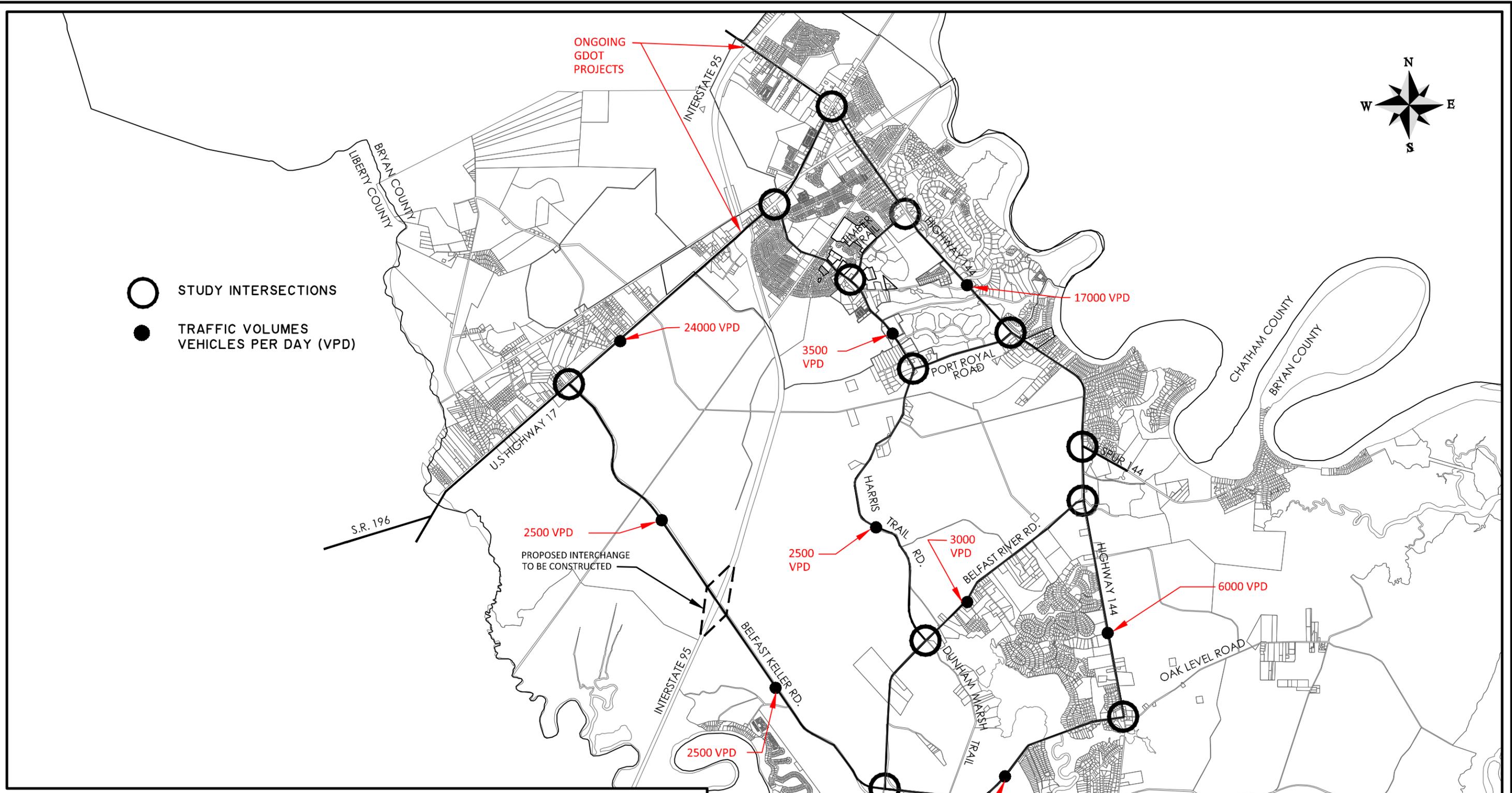
LOCATION: BRYAN COUNTY, GEORGIA	DRAWN BY: SCY	SHEET: 1 OF 11
DATE: FEBRUARY 24, 2016	REVIEWED BY: JJI	SCALE: 1" = 6000'
JOB NUMBER: J-25802		

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RICHMOND HILL TRANSPORTATION STUDY
FIGURE 2
APPROXIMATE CURRENT DAILY VOLUMES
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 2 OF 11
 JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 6000'

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Capacity analyses were completed based on the recent peak hour counts; results are shown in Table 3. The following intersections currently have one or more legs during the morning or afternoon peaks that are failing (LOS E or F): US 17/Belfast Keller, Harris Trail/Timber Trail, SR 144/Port Royal, and SR 144/Fort McAllister. More detailed analysis of these intersections should be completed to determine potential improvements in the short term (prior to construction of SR 144).

Table 3. Current Levels of Service

Intersection	Control	2015/16 AM Peak Hour		2015/16 PM Peak Hour	
		LOS	DELAY (sec)	LOS	DELAY (sec)
US 17 and SR 144	Signal				
NB (US 17)		F	80	D	36
SB (US 17)		D	39	D	40
SE B (SR 144)		D	47	D	37
NW B (SR 144)		D	39	C	29
Overall intersection		E	55	D	35
US 17 and Harris Trail/Shop Cntr	Signal				
NB (Harris)		C	34	D	35
SB (Shop Cntr)		B	17	C	30
NE B (US 17)		C	34	C	22
SW B (US 17)		D	35	C	22
Overall intersection		C	33	C	24
US 17 and Belfast Keller Road	Stop				
NW B (Belfast Keller)		F	198	D	32
SR 144 and Timber Trail	Signal				
SE B (SR 144)		B	13	B	14
NW B (SR 144)		B	10	A	5
NE (Harris)		C	24	C	22
Overall intersection		B	13	B	12
Harris Trail and Timber Trail	Stop				
S WB (Timber)		E	45	D	31
SR 144 and Port Royal	Stop				
NE B (Port Royal)		F	83	F	212
Harris Trail and Port Royal	Stop				
WB (Port Royal)		C	21	B	11
SR 144 and Fort McAllister	Stop				
WB (Fort McAllister)		D	25	E	44
SR 144 and Belfast River	roundabout				
EB (Belfast River)		A	5	C	22
WB (Capt. Freeman)		C	17	A	6
NB (SR 144)		C	21	B	12
SB (SR 144)		A	6	E	37
Belfast River and Harris/Dunham M	Stop				
SE B (Harris)		B	13	C	15
NW B (Dunham Marsh)		D	28	C	16
SR 144 and Belfast River/Oak Level	Stop				
EB (Belfast Keller)		C	19	C	15
WB (Oak Level)		B	11	B	10

Belfast River and Belfast Keller	Stop				
EB (Belfast Keller)		B	11	B	10
WB (Belfast Keller)		A	9	A	7
NB (Belfast River)		A	9	A	8
SB (Belfast River)		A	9	A	9

3. PLANNED IMPROVEMENTS

Numerous roadway projects have been evaluated or proposed in previous studies, some are currently scheduled for construction.

As mentioned, a new interchange on I-95 is scheduled to be constructed at Belfast Keller Road. The project is currently in the design stages and will be built within the next 5 years. SR 144 is planned to be widened to a four lane divided facility from just south of Timber Trail to Belfast River Road. This project has been designed, right-of-way acquisition is ongoing and it is scheduled for let sometime next year. Prior to the improvements proposed as a part of these two projects there should be an assessment of the roadways that will be utilized as alternate routes by the traveling public to determine what, if any, upgrades will be needed to accommodate the increased traffic. These improvements may range from signage or marking improvements to widening of lanes to the addition of shoulders along the more heavily traveled routes. These assessments need to be completed quickly so the improvements can be made and the roadways be ready to accept the increase in traffic when construction begins.

The most recent Bryan County Transportation Plan evaluated widening US 17 from 4 to 6 lanes from the Liberty County line to the I-95 interchange. Also evaluated was the widening of Harris Trail Road from 2 to 4 lanes from Timber Trail to Belfast River Road and the widening of Belfast Keller Road from US 17 to Belfast River Road. There is no planned timetable for construction of these projects. A full list of the projects included in the current plan is attached in the appendix.

The Draft Bryan County Bicycle and Pedestrian Plan evaluated and suggested bike lanes, shoulder widening, and shared use pathways along many of the main corridors in the region. A map of the recommendations, taken from the draft report, is attached in the appendix. There is no planned timetable for these bike/pedestrian improvements. As developments are proposed all modes or transportation should be considered and included where practical.

4. ACCESS MANAGEMENT

For each roadway and corridor, it will be important to implement an access management strategy that supports both development and mobility while maintaining the integrity of the transportation system. This section will outline some basic guidelines with regard to access management. The City should consider implementation of an access management plan or guidelines for local roads to help maintain acceptable levels of service and enhance safety along these routes.

Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a

roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals.

The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system. Guidance from the GDOT Driveway and Encroachment Manual and the Transportation Research Board publication *Access Management Manual* is described below.

Signal spacing

Closely spaced or irregularly spaced traffic signals on arterial roadway result in frequent stops, unnecessary delay, increased fuel consumption, and high crash rates. Alternatively, long and uniform signal spacing allows timing plans that can efficiently accommodate varying traffic conditions during peak and off-peak periods.

According to the Access Management Manual, the ideal spacing of signalized intersections along a major arterial corridor is approximately ½ mile. This separation provides a progression speed ranging from 30 to 40 mph. This spacing may not be achievable in all circumstances due to constraints such as topography, environmental issues/wetlands, etc. While this spacing should be provided if feasible, shorter separation distances of ¼ mile can also provide progression speeds in the 30 mph range.

The GDOT Driveway manual notes that a minimum signal spacing of ¼ mile is required in rural environments and 1000 feet in urban settings.

Median and access spacing

The spacing of driveway access points and median openings is typically determined based on the functional classification of the main roadway and the speed limits.

The GDOT Driveway Manual notes that the preferred spacing for median crossovers in rural environments is ½ mile with a minimum spacing of ¼ mile. In urban settings, the preferred spacing is 2,000 feet and the minimum spacing is 1000 feet. Minimum driveway spacing requirements vary depending on the speed limit. GDOT requirements range from 125 feet for 30 mph roadways to 350 feet for 55 mph roadways.

Auxiliary Turn Lanes

Auxiliary turn lanes are installed on approaches to an intersection to provide for deceleration and storage of vehicles waiting to turn right or left. The GDOT Driveway Manual states that such lanes are "always beneficial" and are typically required in conjunction with commercial driveway permit applications.

5. AREA DEVELOPMENT

There is tremendous growth potential in the southern part of Bryan County. Local planners anticipate that much of this potential growth will be realized in the near future. This growth will affect all residents of the County. The new interchange at I-95 and Belfast Keller Road is anticipated to spur immediate development and change travel patterns in the region. In addition to numerous small developments, several large tracts of land are anticipated to be developed.

The Belfast Commerce Centre PD II comprises roughly 2,000 acres near the proposed new I-95 / Belfast Keller Road interchange. This areas is anticipated to one day include up to roughly 19 million square feet of commercial / industrial space and 1,000

residences. An additional 10,700 residences are anticipated on the Belfast Siding property east of I-95. A large residential development, Waterways, is planned east of SR 144 and would access near the intersection SR 144 and Belfast Keller Road. Waterways is anticipated to eventually include up to 3,000 residences, with supporting commercial spaces. Connectivity between developments via internal roadways should be encouraged by the governing entity to provide alternative routes for shorter trips which would normally utilize the main roadways.

For this evaluation, development potential will split into three areas:

- Area A: Between US 17 and I-95

Within the Belfast Commerce Centre development, approximately 19 million square feet of industrial / commercial space is planned within Area A.

Development in this area will primarily use US 17 and the new I-95 / Belfast Keller Road interchange. For initial volume estimates, the generated trips are assumed to be distributed with 70% on internal roadways and I-95, 15% to US 17, and 15% to areas east of I-95 via Belfast Keller Road.

- Area B: Between SR 144 and I-95

Surrounding the interchange, a regional activity center/ commercial space is planned within Area B. The main generator to traffic on the interior roadways in Area B is assumed to be new residences. Roughly 11,000 new homes are ultimately envisioned in the region between I-95 and SR 144.

Development in this area will disperse among all major area roadways, Belfast Keller Road and the new I-95 interchange, Harris Trail Road, and SR 144. Numerous internal connector roadways will likely be needed as developments progress. For initial volume estimates, the generated trips are assumed to be distributed with 50% on internal roadways, 30% to Belfast Keller Road and I-95/US 17, and 20% to SR 144.

- Area C: East of SR 144

Within the Waterways development, approximately 3,000 residential units are planned.

Development in this area will primarily use Belfast Keller Road and the new I-95 interchange, and SR 144. For initial volume estimates, the generated trips are assumed to be distributed with 30% on internal roadways, 40% to Belfast Keller Road and I-95/US 17, and 30% to SR 144.

2030 Development Assumptions

With the new interchange in place, development is anticipated to occur at a relatively rapid pace within Area A. By 2030, it is assumed that roughly 50% to 60% of the planned industrial development will have been built. Based on Institute of Transportation Engineers Trip Generation estimates, 10 million square feet of industrial / commercial space could generate up to 50,000 daily trips.

The overall residential growth within Areas B and C is assumed to expand at a rate of roughly 300 to 350 units per year. Approximately 75% of these residences are assumed to be within areas west of SR 144 (Area B); 25% are assumed to be located east of SR 144 (Area C). With these assumptions, there would be roughly 3,750 new residences in Area B and 1250 new residences in Area C by 2030. These new residences could be expected to generate roughly 25,000 daily trips in Area B and 10,000 new trips in Area C.

Development assumptions and the associated trips generated from 2016 to 2030 are shown in **Figure 3**.

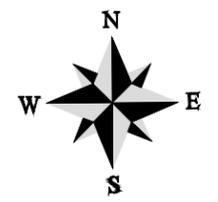
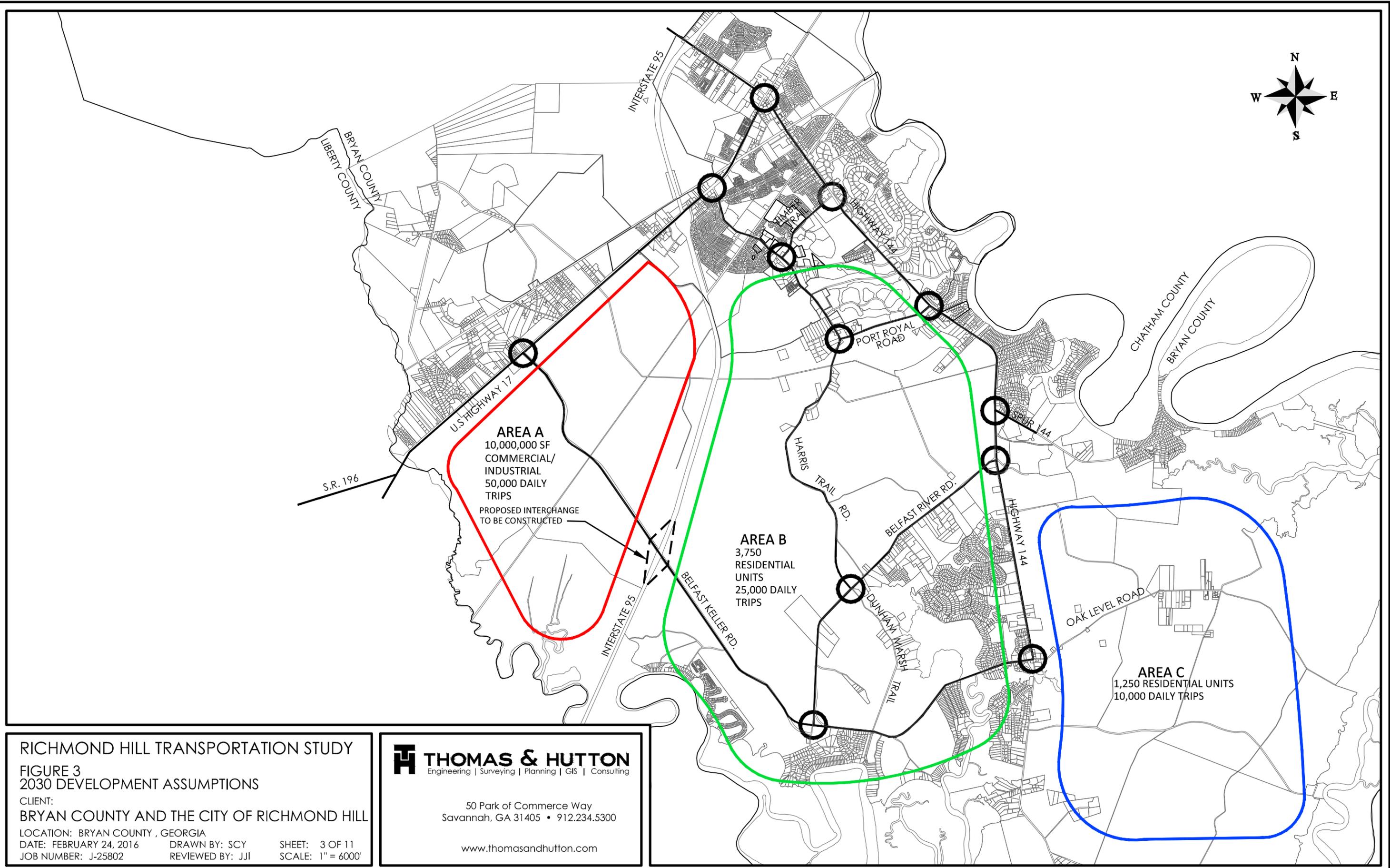
2040 Development Assumptions

By 2040, it is assumed that 80% of the planned development in Area A will have been built, consisting of approximately 15 million square feet of industrial/commercial space. If residential development in Areas B and C were to continue at the same pace as described above, there could be a total of 6,400 new residences in Area B and 2,100 new residences in Area C.

This level of development could generate up to 75,000 daily trips in Area A, 38,000 daily trips in Area B and 15,000 daily trips in Area C.

Development assumptions and the associated trips generated from 2016 to 2040 are shown in **Figure 4**.

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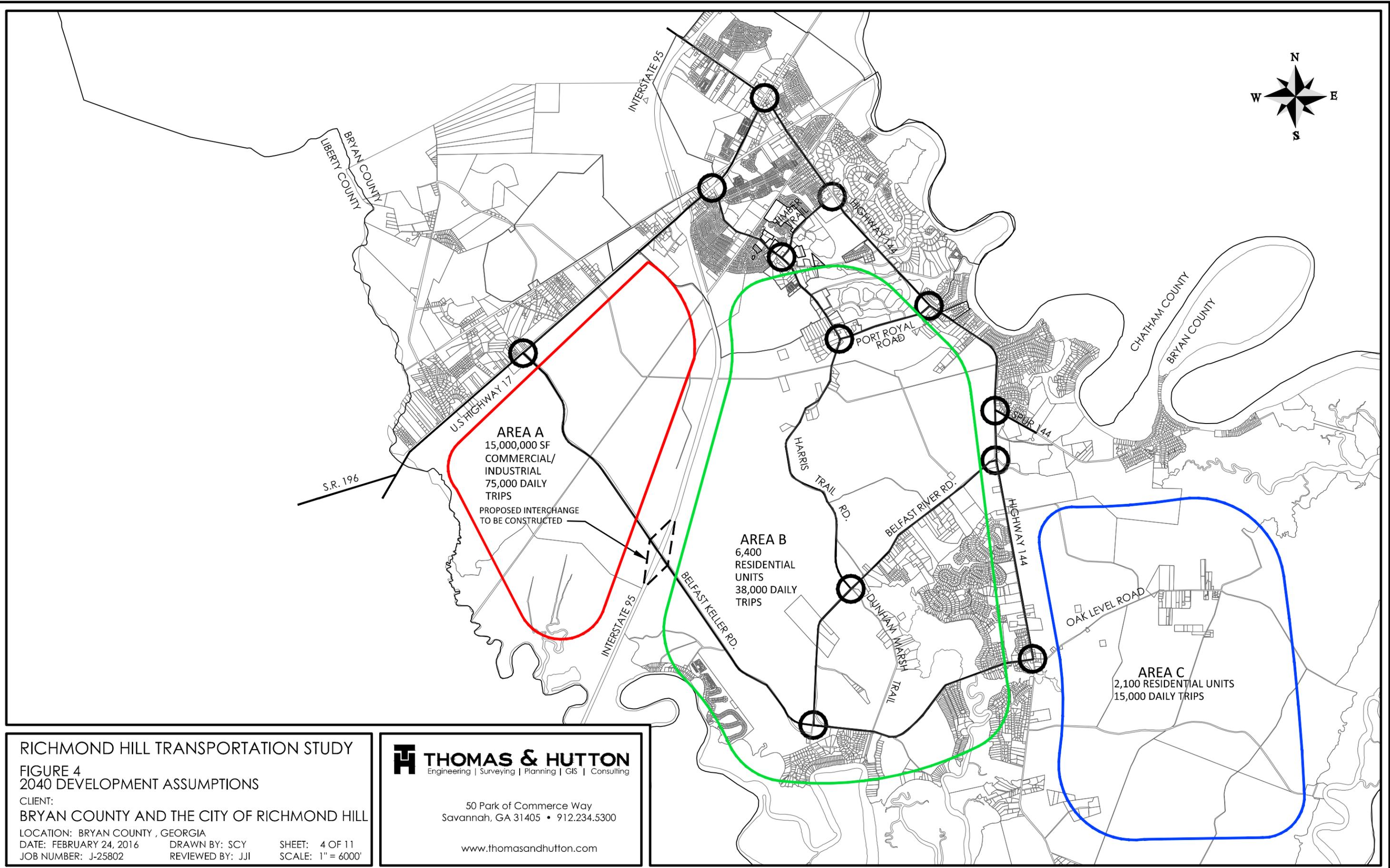
RICHMOND HILL TRANSPORTATION STUDY
FIGURE 3
2030 DEVELOPMENT ASSUMPTIONS
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 3 OF 11
 JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 6000'

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FIGURE 4
2040 DEVELOPMENT ASSUMPTIONS
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 4 OF 11
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6. FUTURE CORRIDOR VOLUMES

Based on the development assumptions outlined above, a range of daily volumes is projected along each of the major corridors. Actual volumes will depend heavily on the pace of development, the specific types of land uses, internal capture, traffic distribution, and numerous other factors.

The volume estimates for 2030 and 2040, shown in **Figures 5 and 6**, are used as a general outline to determine typical sections for each roadway.

US 17

US 17 through much of Bryan County is currently a four lane divided section. Current volumes are roughly 24,000 vehicles per day near the Belfast Keller Road intersection.

Future volumes will depend heavily on the traffic pattern shifts caused by the new interchange, and the development within Area A.

The new interchange at Belfast Keller Road and I-95 may divert some of the existing traffic off of US 17. Any diversions, however, would likely be off-set by development within Area A. Volumes on US 17 and Belfast Keller Road will balance depending on the efficiency of the roadways and interchanges (delays at Exit 87 vs delays at the new interchange). Widening of Belfast Keller Road to four lanes from US 17 to I-95 could delay the need for widening the portion of US 17 to six lanes. Ultimately, there may be a need to widen US 17 to 6 lanes as Area A becomes fully developed.

Access control along US 17 should be strictly monitored. Developments should provide internal connections in order to minimize driveway accesses. Signals and median breaks should be limited as much as reasonably possible. These steps could help extend the acceptable level of service for the corridor for a few additional years before widening would be needed.

SR 144

SR 144 is planned to be widened to a four lane divided section from Timber Trail to Belfast River Road. Though delays will grow with the increased volumes, the widened section should be adequate through 2040 assuming other roadway options are provided (an improved Harris Trail Road, improved Belfast Keller Road, and new I-95 interchange). Also access controls mentioned above could assist in allowing an adequate level of service to be maintained as traffic continues to grow.

By 2030, volumes on SR 144 south of Belfast River Road may approach levels where widening should be considered. By 2040, anticipated volumes indicate that an extension of the SR 144 widening would be needed south to Belfast Keller Road.

Timing will depend primarily on the pace of development within the Waterways development and the rest of the Area C development. There is also potential that this widening may not be needed if Belfast Keller Road is widened to four lanes between I-95 and the Waterways development. Future travel patterns will dictate which section of roadway experiences heavier use as development progresses.

As a main arterial roadway through the area, access management should be administered with the through traffic progression in mind. Signals should be ½ mile apart if possible; a minimum of ¼ mile between signals should be maintained. With a 45 mph speed limit, driveways should be at least 250 feet apart. Connectivity and parallel routes should be encouraged as a part of proposed developments.

Belfast Keller Road

Belfast Keller Road is currently a two lane facility. With the new I-95 interchange in place, development along Belfast Keller Road is anticipated to grow quickly and significantly. By 2030, volumes on Belfast Keller Road could rise to the level where a four lane divided section is needed between US 17 and Belfast River Road. Right-of-ways along these growing areas should be reserved to accommodate the future widening. Typical sections for various roadway types is shown in Figure 10.

As mentioned in the previous section regarding SR 144, depending on travel patterns, widening Belfast Keller Road to four lanes between Belfast River Road and SR 144 may be needed.

It is recommended that when widened, a four lane median divided section, rather than a five lane section, be chosen. With a divided median, access control measures near the interchange can be easily implemented. In general, signals should be ½ mile apart if possible; a minimum of ¼ mile between signals should be maintained.

Particular consideration should be given to access control in the areas in the vicinity of the interchange. The nearest major intersection on Belfast Keller Road should be located at least 1000' away from the interchange ramp intersections (currently planned as roundabouts) as required by GDOT.

Harris Trail Road

Harris Trail is currently a four lane section from US 17 to Timber Trail. Previous studies have considered extending this four lane section from Timber Trail to Belfast River Road. By 2030, this extension will likely be needed if the residential development in Area B proceeds as anticipated.

As the area surrounding Harris Trail Road transitions from rural to suburban, the importance of maintaining adequate through movement on Harris Trail Road will become more critical. As with SR 144, signals should be ½ mile apart if possible, with a minimum of ¼ mile between signals. When the roadway is widened, consideration should be given to higher design speeds than are currently provided. Typical sections for various roadway types is shown in Figure 10

As development continues in the coming years, extending Harris Trail Road (via Dunham Marsh Road) through to Belfast Keller Road should be considered. This section of roadway would likely be a two lane facility. The roadway and improvements should be installed as additional development occurs along Dunham Marsh Road.

New Connector Roads/ Belfast River Road

New connector roads should also be planned as part of the growing roadway network within proposed developments. As residential areas develop within Area B, additional east-west connections should be considered to supplement Belfast River Road. At least

one of these new east-west connections should be planned as a managed access multi-lane facility. New connectors should be planned as public thoroughfares with the goal of dispersing area traffic and providing for through movements rather than simply subdivision access. Typical sections for various roadway types is shown in Figure 10.

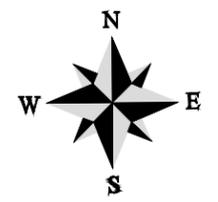
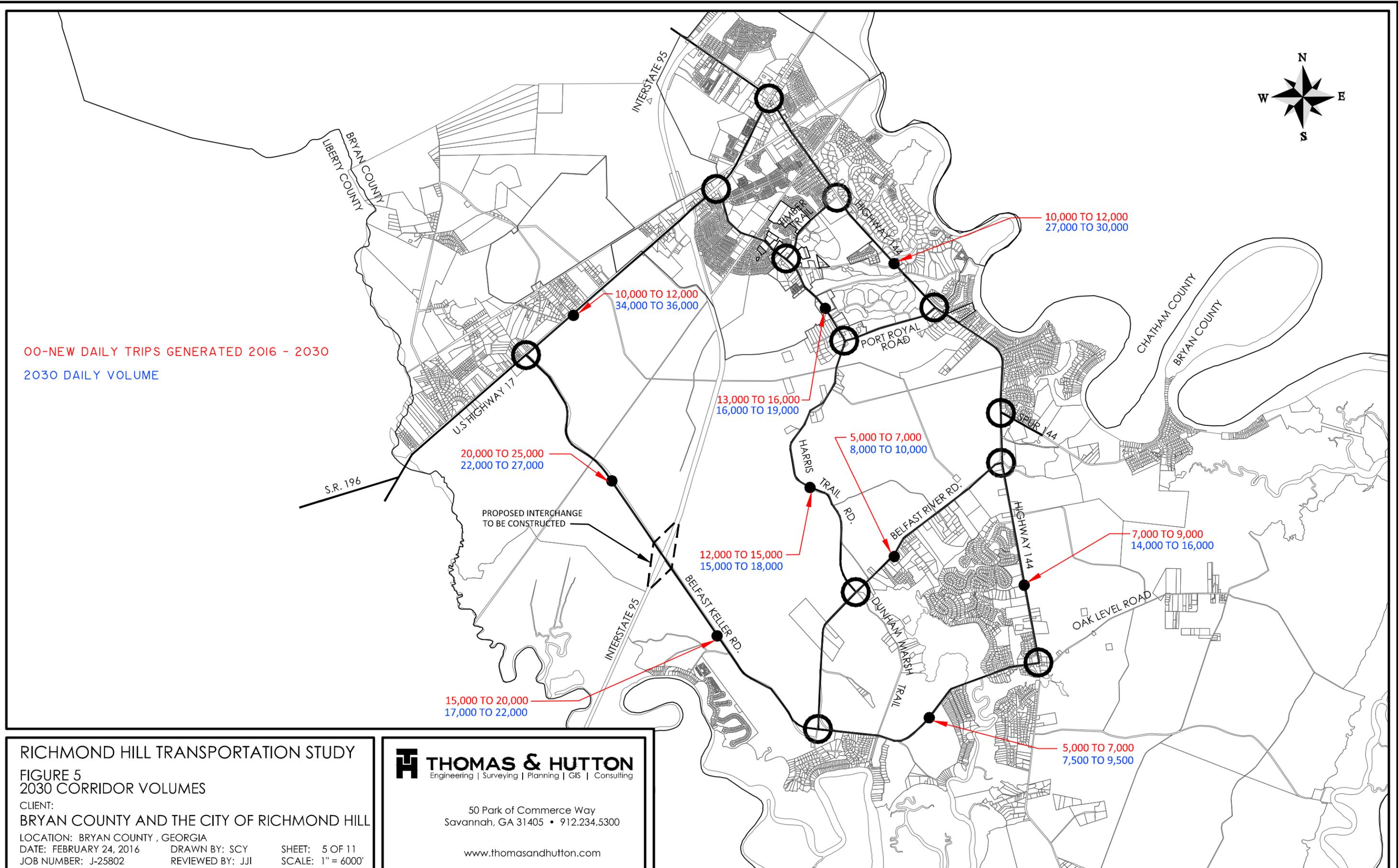
Construction Costs

The costs for the types of improvements discussed in this study vary widely and are affected by many site specific factors. Some of the items that are a part of the overall project cost would be design costs, right-of-way costs, utility relocation costs, and construction costs. Right-of-way and utility relocation costs are extremely site specific and as the various projects move forward estimates for these items could be developed during the concept development stage of the project. The cost for design also can vary greatly depending on the size of the project and funding source. The following costs for construction of various improvements are again site specific but some ranges for budgeting purposes are:

- | | |
|--|-----------------------------|
| ○ Road widening 2-lanes to 4-lanes | \$2 to \$4 million/mile |
| ○ Signal Installation w/ Intersection improvements | \$250,000 to \$500,000 |
| ○ Single Lane Roundabout | \$400,000 to \$800,000 |
| ○ Multi-lane Roundabout | \$1million to \$1.5 million |

As projects are identified and moved forward costs for design, right-of-way, and utility relocations would need to be added to the above costs to establish the overall budget for the project.

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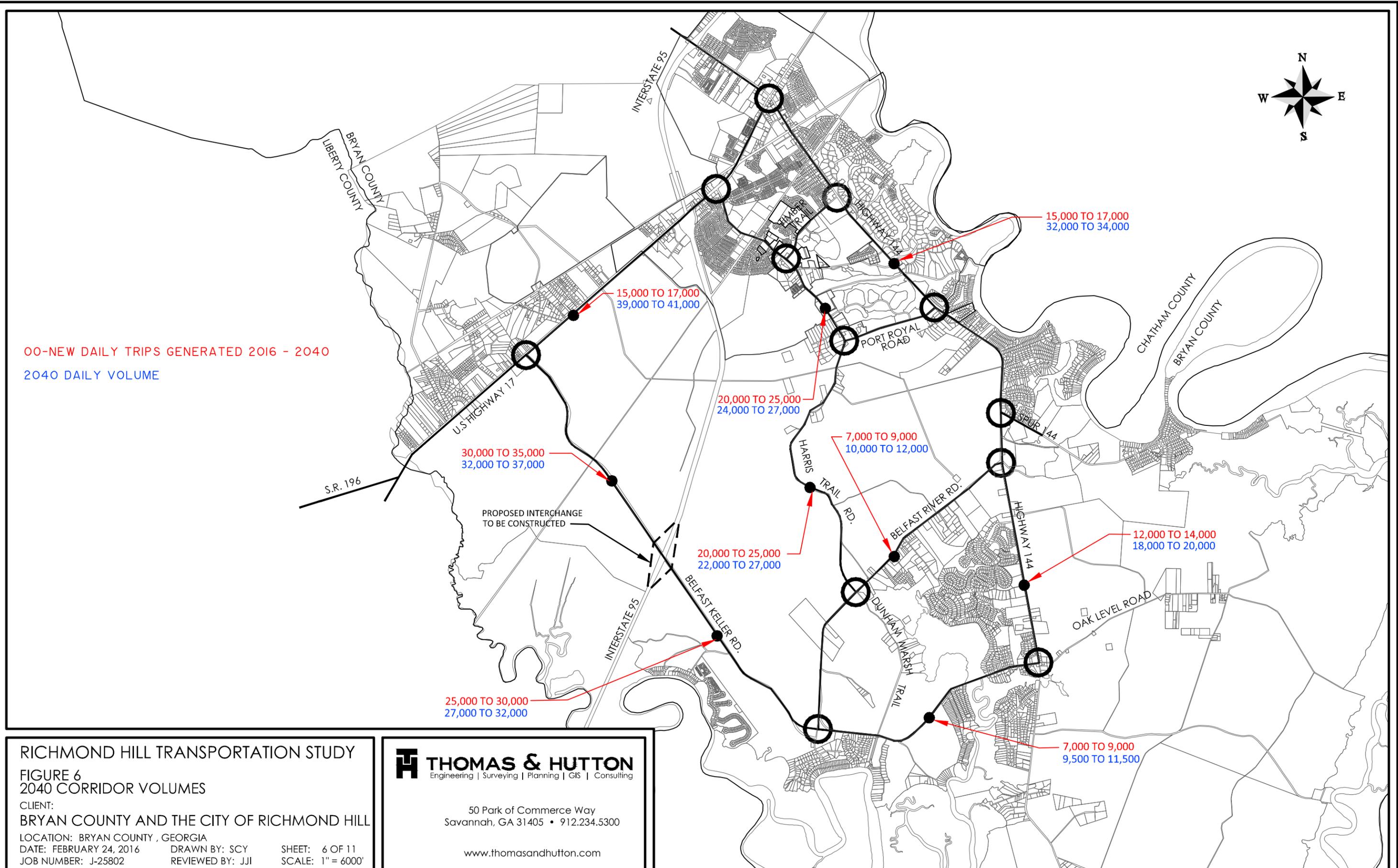
RICHMOND HILL TRANSPORTATION STUDY
FIGURE 5
2030 CORRIDOR VOLUMES
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 5 OF 11
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RICHMOND HILL TRANSPORTATION STUDY
FIGURE 6
2040 CORRIDOR VOLUMES
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 6 OF 11
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7. STUDY INTERSECTIONS

As the area develops, intersection improvements will be needed at numerous locations, regardless of overall corridor widenings. In each case, appropriate studies to determine turn lane additions, signal warrants, or roundabout feasibility will be needed.

The following summary considers the current conditions and the potential for future development. Several intersections discussed in section 2 would benefit from more detailed analysis and likely some immediate improvements. Recommendations for other short term improvements (5–7 years) are shown in **Figure 7**, mid-term improvements in **Figure 8**, and long term improvements in **Figure 9**.

Along the SR 144 corridor, there are several signalized intersections near the I-95 interchange, at US 17, and at Timber Trail. GDOT is currently evaluating improvements to the I-95 interchange ramp termini. At the intersection of US 17, operations will continue to deteriorate as development progresses. A major upgrade may be needed in the future, the extent of which would need to be studied in detail. Additional improvements may be needed in the future at Port Royal Road, SR 144 SPUR, and Belfast Keller Road. The need for signals at Port Royal and SR 144 SPUR may be delayed with the widening of SR 144. The timing or need for signalization or roundabout installation at Belfast Keller Road will depend primarily on the development of the Waterways tract. The existing roundabout at Belfast River Road may also need to be expanded to a multi-lane configuration as development continues.

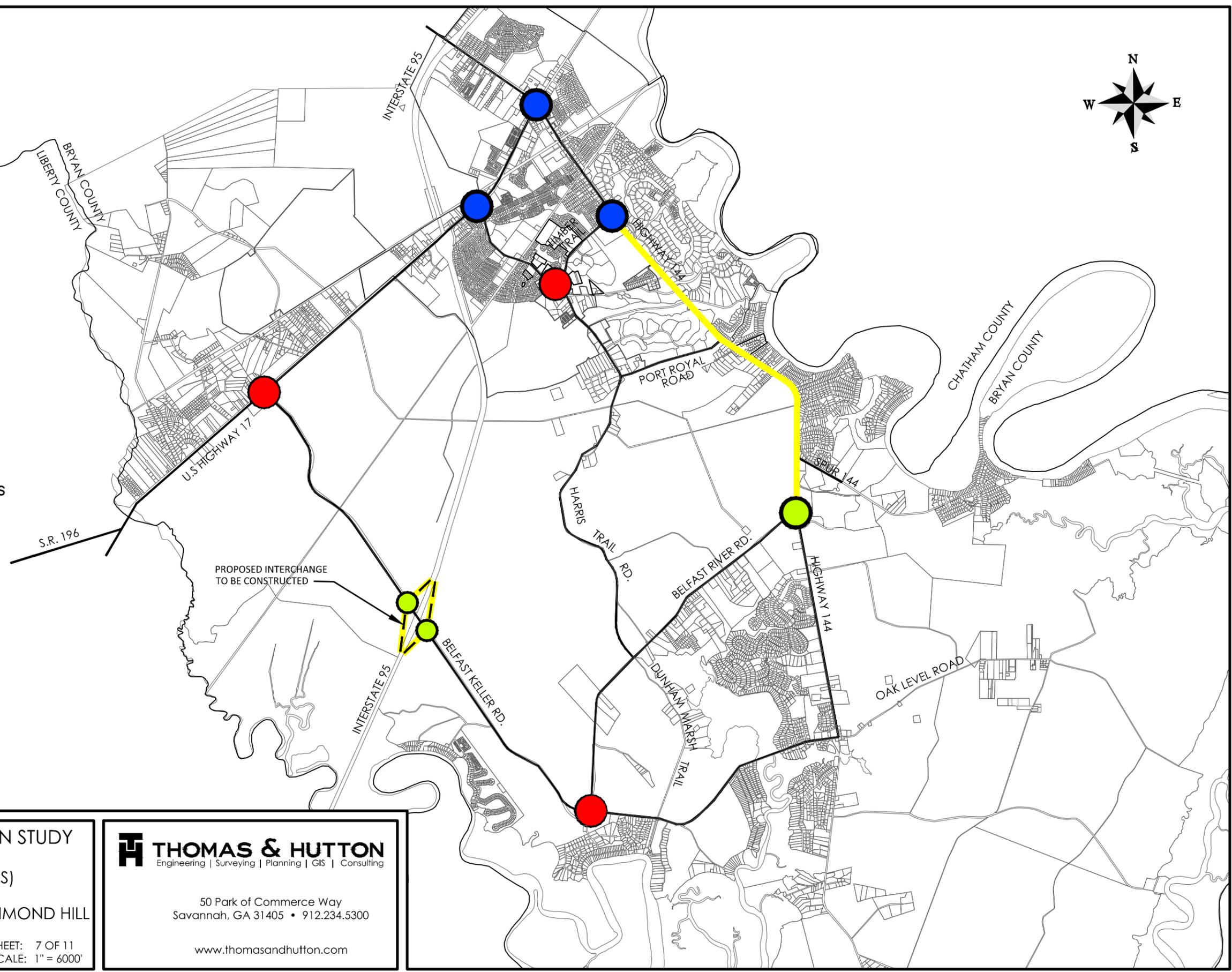
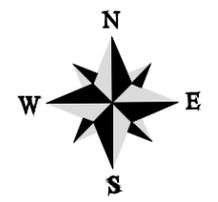
Along the US 17 corridor, a relatively immediate need will be a new signal or roundabout at the Belfast Keller Road intersection. This intersection operates with relatively long delays in the current peak hours. These delays will grow as the industrial areas in Area A are developed. GDOT is evaluating the existing interchange ramp termini with US 17, however, any substantial change to the interchange would likely require work on the I-95 bridge structure. As stated above the SR 144 intersection will likely need some type of major upgrade in the future.

Along the Harris Trail Road corridor, new roundabouts or signals will likely be needed at Timber Trail, Port Royal Trail, and the Belfast River Road intersections. Additional intersection improvements may be needed at any new connector roadways installed through Area B. The timing of these will follow development patterns, with the northern most intersections requiring attention first.

Along the Belfast Keller Road corridor, new roundabouts are planned at the I-95 interchange. As stated above a new signal or roundabout should be considered at the US 17 intersections as development continues and the new interchange opens for traffic. Additional roundabouts or signals will be needed as development progresses along the corridor. The interior roadways within Areas A and B should be carefully planned to provide adequate and uniform spacing of major intersections along Belfast Keller Road. Another relatively immediate improvement that should be considered would be to replace the all-way stop at Belfast Keller Road and Belfast River Road with a single lane roundabout. When the new interchange opens and volumes on Belfast Keller Road increase, the current all-way stop configuration will likely function poorly.

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-  EXISTING SIGNAL
-  EXISTING OR PLANNED ROUNDABOUT
-  PROPOSED ROUNDABOUT OR SIGNAL
-  SCHEDULED IMPROVEMENTS



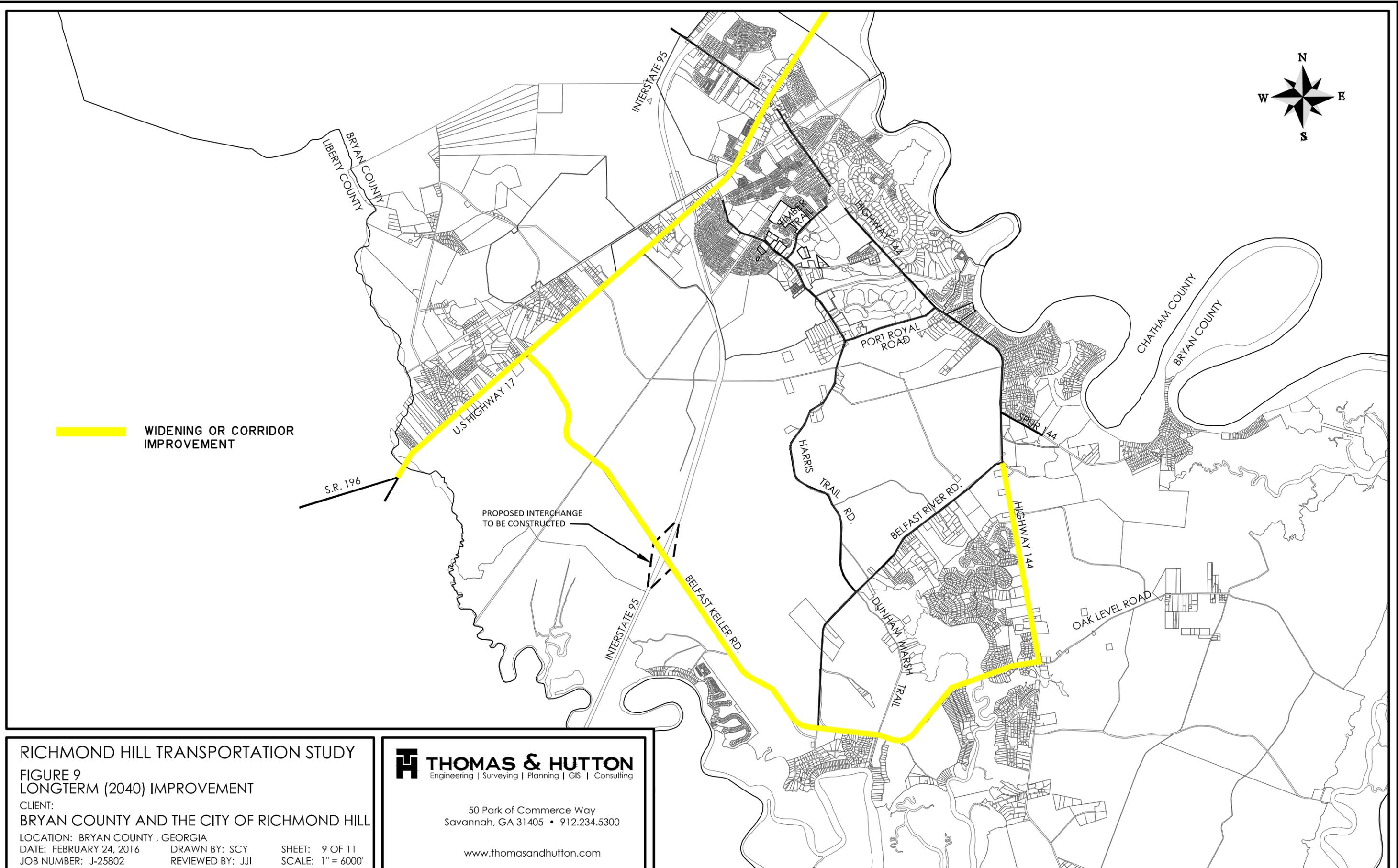
RICHMOND HILL TRANSPORTATION STUDY
FIGURE 7
SHORT TERM IMPROVEMENTS (5-7 YEARS)
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 7 OF 11
 JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 6000'

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WIDENING OR CORRIDOR IMPROVEMENT

RICHMOND HILL TRANSPORTATION STUDY
FIGURE 9
LONGTERM (2040) IMPROVEMENT
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 9 OF 11
 JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 6000'

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8. NEXT STEPS

Many times studies like this provide broad direction and ideas on where future improvements are needed in an area. There are some other items, not necessarily related to roadway improvements, that need to be addressed more quickly to help keep this planning study on track moving forward. The other items that need to be addressed as the interchange and 144 widening projects are under construction are:

- Complete a review of local roadways and signals. Once the review is complete formalize a maintenance program to help provide good alternate routes to the main roadway. A maintenance program is not something that everyone gets excited about but if roadways are neglected it will create a much larger expense later to repair or reconstruct a failing street.
- Begin work on an Access Management Plan. As discussed above, access management can be a great tool in maintaining adequate levels of service on main roadways. Along Harris Trail, Belfast Keller, Belfast River, and the proposed new connector road the establishment of full access and right-in/right-out locations would help provide for smart growth along those corridors and preserve their levels of service into the future.
- Develop typical roadway sections for various types of facilities. This would allow for right-of-way to be identified and set aside as development is occurring in these growth areas. Planning in these corridors now will help save money in the future on right-of-way and let there not be any surprises regarding roadway improvements along various corridors. It would be advantageous for these sections to be adopted by the Municipalities as well as the County to encourage uniformity in the right-of-way requirements.
- Begin planning and design for those projects identified in the 5–7 year window to be ready to implement when the need arises. This planning effort could also begin to identify projects that may be considered for a future sales tax or other financing mechanism.
- Explore funding options for future roadway improvements. Now is the time to evaluate the various options that may be available for funding roadway construction. Vetting options now will allow those that are not feasible to be eliminated and those that show real potential to be discussed among the elected officials and public and implemented prior to significant growth along the identified corridors.
- Prepare/Update the bicycle plan for the area. This will allow alternative modes of transportation to be incorporated into future designs (ie typical sections) for the identified corridors.

Working on the above “Next Step” will help improve the overall transportation system for the traveling public and position the City/County for success moving forward as the growth in the area occurs.

9. SUMMARY

Southern Bryan County, and by proximity the City of Richmond Hill, is anticipated to grow significantly in the near future. In an effort to grow smartly and help maintain the quality of life for those that work and live in the City and Southern Bryan County, a study has been commissioned to evaluate the existing roadway network. The study is based on current traffic data and will utilize potential development information to forecast what

and where improvements may be needed as this growth occurs. This report is intended to be used as a planning tool for local officials in the coming years. Figure 1 shows the study area and major roadway networks included in the review.

Existing AM and PM peak hour counts were collected at twelve intersections within the study area. The intersections counted can be seen in Figure 2. Average daily traffic volumes for the major corridors were collected from existing GDOT count stations for the past 5 years. There are several existing intersections that currently have, or will have, excessive delays on one or more legs. These intersections need more detailed analysis to determine the appropriate improvements needed to help mitigate these delays. Table 3 shows the current levels of service at the study intersections.

The pending improvements on SR 144 as well as the construction of the new interchange at I-95 and Belfast Keller Road will likely have a positive impact on some of the heaviest traveled corridors. The new projects will provide additional roadway capacity and divert traffic away from some of the currently congested areas, however, during the construction of these two projects there will likely be increased traffic on local roads. These local roads, such as, Harris Trail and its connectors to SR 144 will need to be evaluated and if required, improved prior to construction beginning to accommodate this likely increase in traffic. These potential improvements could be as simple as improved signage or the need may be more substantial like additional pavement width or paved shoulders. Other major improvements to the various studied corridors or intersections should be delayed until after these projects have been completed so their affect can be measured and the appropriate improvements made.

Access Management is an important aspect of protecting the level of service for a roadway. As development planning occurs the City should implement an access management plan based on the guidelines shown in section 4 of this report. For major corridors it may be advisable to adopt a specific plan for that corridor based on input from nearby or adjacent property owners and the traveling public.

Connectivity between various developments should be encouraged in order to provide options for the traveling public and allow for reduced travel on major corridors. As an efficient transportation network is good for all in the community, the governing municipality should coordinate with property owners and developers to set aside right-of-way that may be required for future roadway improvements, or future new connector roads.

The development patterns for the area will ultimately dictate the improvements that will be required. The development assumptions used in this study are described in section 5. The improvements outlined below assume the SR 144 widening project and the new interchange at I-95/Belfast Keller Road will be completed. Some sample typical roadway sections are shown in Figure 10. Potential improvement needs are categorized into three sections: likely needed within the next 5–7 years, by 2030 and by 2040.

The following improvements may be needed within the next 5–7 years, depending on development patterns:

- Install a signal at US 17 / Belfast Keller Road intersection
- Install a roundabout or signal at the Belfast River Road / Belfast Keller Road intersection
- Install a roundabout or signal at the Harris Trail / Timber Trail intersection

By 2030, depending on development patterns, the following may be needed:

- Widen Harris Trail to a four-lane facility from Timber Trail to Belfast River Road
- Reserve Right of way and/or construct a new two-lane roadway between Belfast Keller Road and SR 144; install a roundabout or signal at intersections with Belfast Keller Road, Harris Trail Road, and SR 144
- Install a roundabout or signal at the Harris Trail / Port Royal Road intersection
- Install a roundabout or signal at the Harris Trail / Belfast River Road intersection
- Install a roundabout or signal at the SR 144 / Port Royal Road intersection
- Install a roundabout or signal at the SR 144 / Spur 144 intersection
- Expand the roundabout at the SR 144/ Belfast Keller Road
- Install a roundabout or signal at the SR 144 / Belfast Keller Road/ Oak Level Road intersection

By 2040, depending on development patterns, the following may be needed:

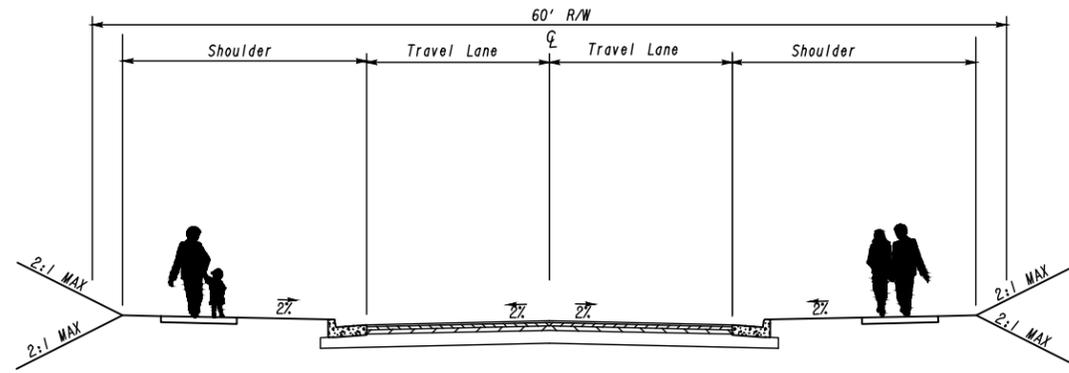
- Widen US 17 to a six-lane facility through Bryan County
- Widen Belfast Keller Road to a four lane facility from US 17 to SR 144
- Widen SR 144 from Belfast River Road to Belfast Keller Road/ Oak Level Road

Funding for the above projects could come from a combination of sources including but not limited to general funds, SPLOST, LOST, T-SPLOST, special tax districts, cost recovery agreements, State transportation funds (from the new state transportation tax), projects identified as a part of the MPO process, LMIG funds, GDOT Safety funds, Federal funds (this would likely be for project on interstates or significant State Routes) and other funding sources such as impact fees.

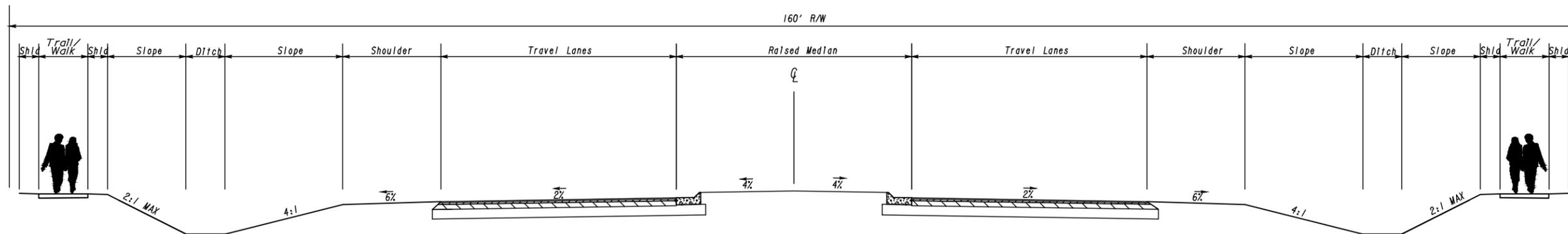
This study is intended for use as a planning tool to provide a baseline for the transportation network in the City of Richmond Hill and Southern Bryan County. As development continues and improvements are made, this study will need to be updated. A logical time for updating this study may be when the SR 144 widening and the new I-95 interchange at Belfast Keller Road are completed. With these improvements in place, the actual traffic patterns that result from these additions may be better assessed.

The "Next Steps" identified in section 8 provide many options to advance this study and the overall transportation network for the area. Moving forward with these work tasks will position the City/County to be ready as the growth in the area occurs.

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LOCAL ROAD / URBAN SECTION



RAISED MEDIAN - RURAL

RICHMOND HILL TRANSPORTATION STUDY

FIGURE 10 TYPICAL SECTIONS

CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL

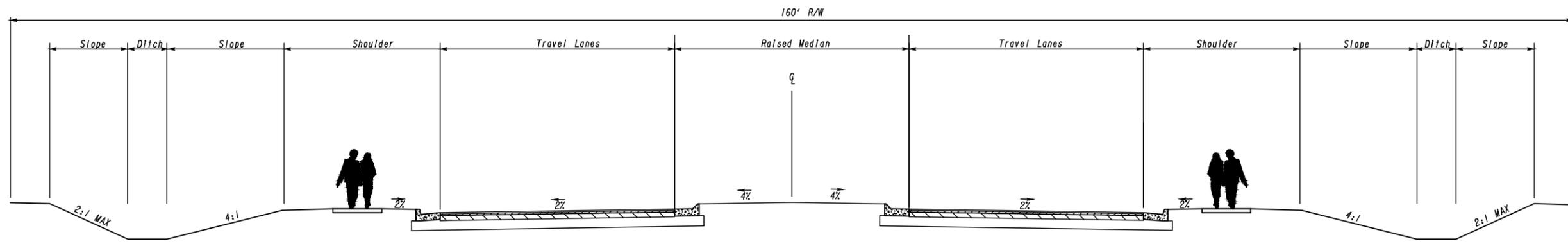
LOCATION: BRYAN COUNTY, GEORGIA
DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 10 OF 11
JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 12'



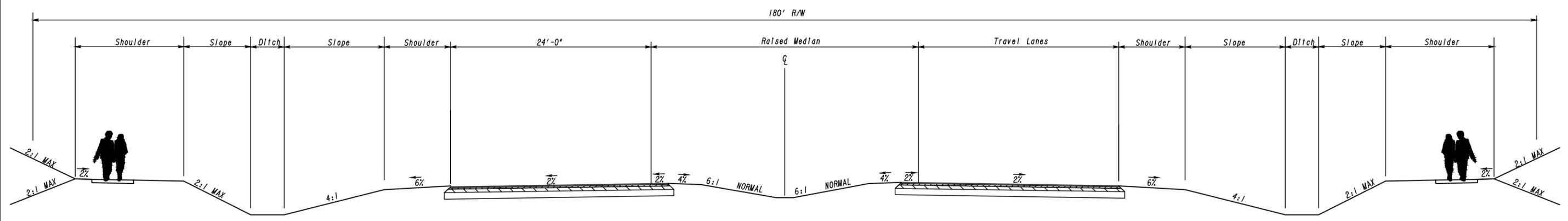
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RAISED MEDIAN - BOULEVARD



DEPRESSED MEDIAN - RURAL

RICHMOND HILL TRANSPORTATION STUDY
FIGURE 11
TYPICAL SECTIONS
 CLIENT:
BRYAN COUNTY AND THE CITY OF RICHMOND HILL
 LOCATION: BRYAN COUNTY, GEORGIA
 DATE: FEBRUARY 24, 2016 DRAWN BY: SCY SHEET: 11 OF 11
 JOB NUMBER: J-25802 REVIEWED BY: JJI SCALE: 1" = 12'

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APPENDIX

TRAFFIC COUNTS
CAPACITY ANALYSES
MPO PROJECT LIST

Appendix

Peak Hour Traffic Counts

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-01
Site Code : 01573401
Start Date : 10/28/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

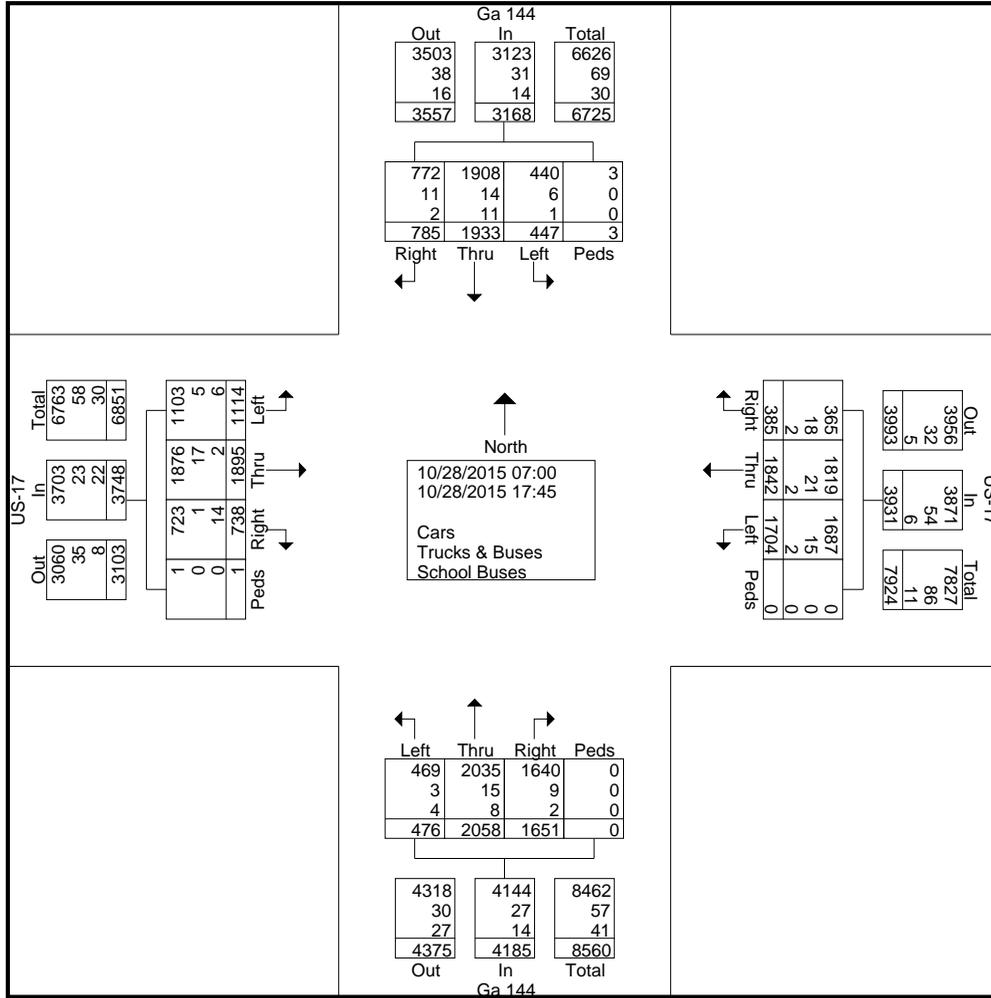
Start Time	Ga 144 Northbound					Ga 144 Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	12	135	143	0	290	22	45	44	0	111	56	170	32	0	258	41	69	18	0	128	787
07:15	20	119	129	0	268	27	71	46	1	145	67	168	47	0	282	61	74	26	0	161	856
07:30	23	156	129	0	308	23	87	36	0	146	79	158	75	0	312	70	61	20	0	151	917
07:45	29	142	106	0	277	32	101	27	0	160	67	124	69	0	260	88	60	11	0	159	856
Total	84	552	507	0	1143	104	304	153	1	562	269	620	223	0	1112	260	264	75	0	599	3416
08:00	37	153	140	0	330	37	65	25	0	127	80	183	67	0	330	70	71	31	0	172	959
08:15	24	157	145	0	326	37	97	35	0	169	64	130	21	0	215	56	73	23	0	152	862
08:30	21	94	102	0	217	25	69	27	0	121	66	119	29	0	214	44	75	21	0	140	692
08:45	17	146	113	0	276	24	99	28	0	151	62	112	46	0	220	84	64	18	0	166	813
Total	99	550	500	0	1149	123	330	115	0	568	272	544	163	0	979	254	283	93	0	630	3326
*** BREAK ***																					
16:00	33	117	75	0	225	31	143	79	1	254	75	85	34	0	194	105	136	21	0	262	935
16:15	30	146	81	0	257	29	152	60	1	242	63	92	49	1	205	146	157	39	0	342	1046
16:30	32	125	71	0	228	39	168	67	0	274	69	98	43	0	210	128	156	21	0	305	1017
16:45	41	82	72	0	195	29	128	80	0	237	74	82	42	0	198	141	173	25	0	339	969
Total	136	470	299	0	905	128	591	286	2	1007	281	357	168	1	807	520	622	106	0	1248	3967
17:00	46	120	89	0	255	16	181	74	0	271	83	95	37	0	215	158	147	25	0	330	1071
17:15	44	128	82	0	254	25	144	42	0	211	60	103	50	0	213	162	193	28	0	383	1061
17:30	30	105	94	0	229	25	185	61	0	271	81	89	43	0	213	195	167	29	0	391	1104
17:45	37	133	80	0	250	26	198	54	0	278	68	87	54	0	209	155	166	29	0	350	1087
Total	157	486	345	0	988	92	708	231	0	1031	292	374	184	0	850	670	673	111	0	1454	4323
Grand Total	476	2058	1651	0	4185	447	1933	785	3	3168	1114	1895	738	1	3748	1704	1842	385	0	3931	15032
Apprch %	11.4	49.2	39.5	0		14.1	61	24.8	0.1		29.7	50.6	19.7	0		43.3	46.9	9.8	0		
Total %	3.2	13.7	11	0	27.8	3	12.9	5.2	0	21.1	7.4	12.6	4.9	0	24.9	11.3	12.3	2.6	0	26.2	
Cars	469	2035	1640	0	4144	440	1908	772	3	3123	1103	1876	723	1	3703	1687	1819	365	0	3871	14841
% Cars	98.5	98.9	99.3	0	99	98.4	98.7	98.3	100	98.6	99	99	98	100	98.8	99	98.8	94.8	0	98.5	98.7
Trucks & Buses	3	15	9	0	27	6	14	11	0	31	5	17	1	0	23	15	21	18	0	54	135
% Trucks & Buses	0.6	0.7	0.5	0	0.6	1.3	0.7	1.4	0	1	0.4	0.9	0.1	0	0.6	0.9	1.1	4.7	0	1.4	0.9
School Buses	4	8	2	0	14	1	11	2	0	14	6	2	14	0	22	2	2	2	0	6	56
% School Buses	0.8	0.4	0.1	0	0.3	0.2	0.6	0.3	0	0.4	0.5	0.1	1.9	0	0.6	0.1	0.1	0.5	0	0.2	0.4

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-01
Site Code : 01573401
Start Date : 10/28/2015
Page No : 2



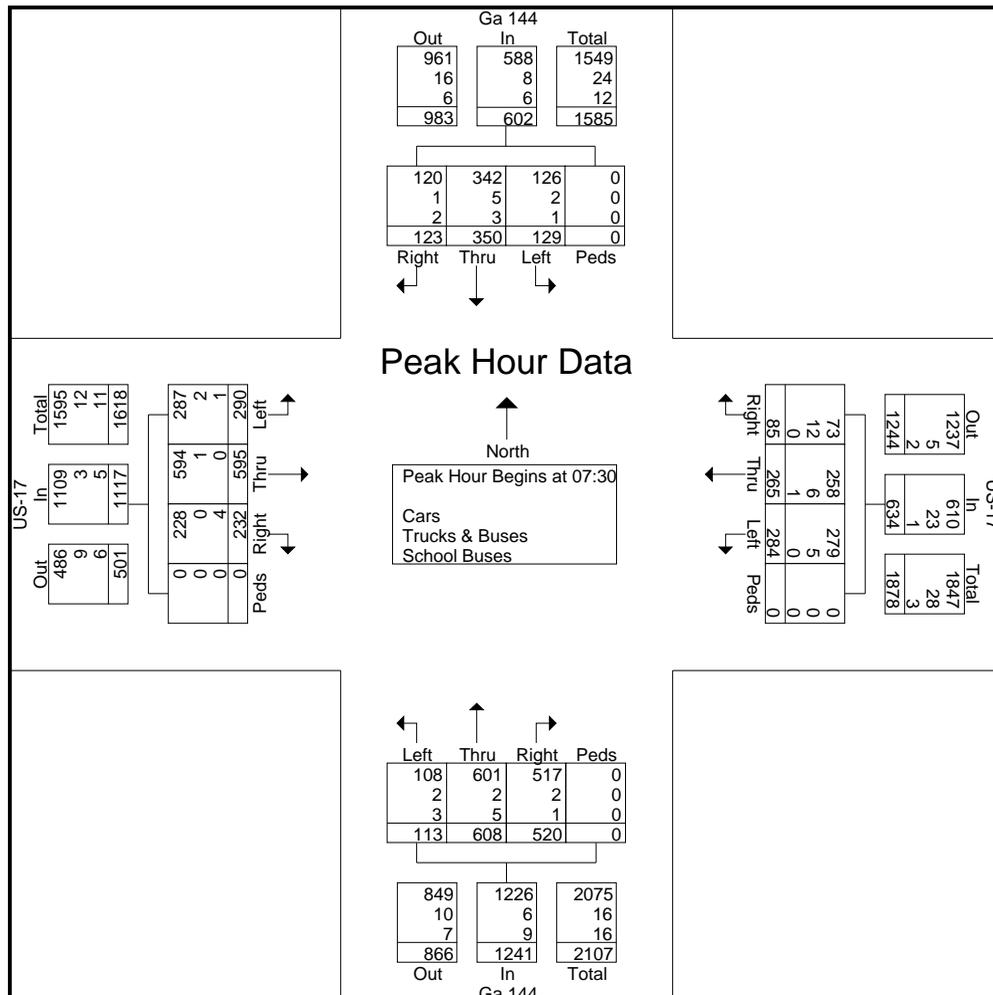
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Counter: D4-1422/4421
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Other: T&H

File Name : 15734-01
Site Code : 01573401
Start Date : 10/28/2015
Page No : 3

Start Time	Ga 144 Northbound					Ga 144 Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	23	156	129	0	308	23	87	36	0	146	79	158	75	0	312	70	61	20	0	151	917
07:45	29	142	106	0	277	32	101	27	0	160	67	124	69	0	260	88	60	11	0	159	856
08:00	37	153	140	0	330	37	65	25	0	127	80	183	67	0	330	70	71	31	0	172	959
08:15	24	157	145	0	326	37	97	35	0	169	64	130	21	0	215	56	73	23	0	152	862
Total Volume	113	608	520	0	1241	129	350	123	0	602	290	595	232	0	1117	284	265	85	0	634	3594
% App. Total	9.1	49	41.9	0	98.8	21.4	58.1	20.4	0	97.7	26	53.3	20.8	0	99.3	44.8	41.8	13.4	0	96.2	98.3
PHF	.764	.968	.897	.000	.940	.872	.866	.854	.000	.891	.906	.813	.773	.000	.846	.807	.908	.685	.000	.922	.937
Cars	108	601	517	0	1226	126	342	120	0	588	287	594	228	0	1109	279	258	73	0	610	3533
% Cars	95.6	98.8	99.4	0	98.8	97.7	97.7	97.6	0	97.7	99.0	99.8	98.3	0	99.3	98.2	97.4	85.9	0	96.2	98.3
Trucks & Buses	1.8	0.3	0.4	0	0.5	1.6	1.4	0.8	0	1.3	0.7	0.2	0	0	0.3	1.8	2.3	14.1	0	3.6	1.1
% Trucks & Buses	3	5	1	0	9	1	3	2	0	6	1	0	4	0	5	0	1	0	0	1	21
School Buses	2.7	0.8	0.2	0	0.7	0.8	0.9	1.6	0	1.0	0.3	0	1.7	0	0.4	0	0.4	0	0	0.2	0.6
% School Buses																					



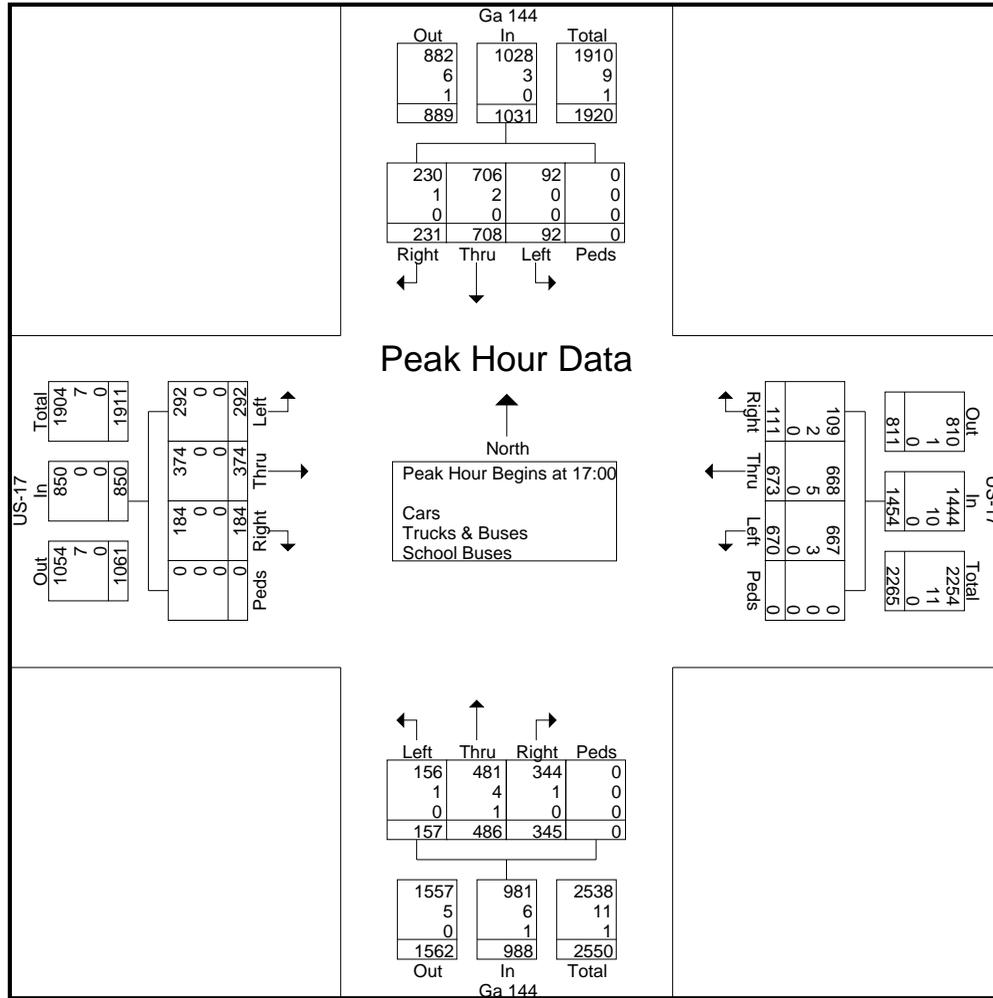
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Abbeville, Ga 31001
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Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-01
Site Code : 01573401
Start Date : 10/28/2015
Page No : 4

Start Time	Ga 144 Northbound					Ga 144 Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	46	120	89	0	255	16	181	74	0	271	83	95	37	0	215	158	147	25	0	330	1071
17:15	44	128	82	0	254	25	144	42	0	211	60	103	50	0	213	162	193	28	0	383	1061
17:30	30	105	94	0	229	25	185	61	0	271	81	89	43	0	213	195	167	29	0	391	1104
17:45	37	133	80	0	250	26	198	54	0	278	68	87	54	0	209	155	166	29	0	350	1087
Total Volume	157	486	345	0	988	92	708	231	0	1031	292	374	184	0	850	670	673	111	0	1454	4323
% App. Total	15.9	49.2	34.9	0		8.9	68.7	22.4	0		34.4	44	21.6	0		46.1	46.3	7.6	0		
PHF	.853	.914	.918	.000	.969	.885	.894	.780	.000	.927	.880	.908	.852	.000	.988	.859	.872	.957	.000	.930	.979
Cars	156	481	344	0	981	92	706	230	0	1028	292	374	184	0	850	667	668	109	0	1444	4303
% Cars	99.4	99.0	99.7	0	99.3	100	99.7	99.6	0	99.7	100	100	100	0	100	99.6	99.3	98.2	0	99.3	99.5
Trucks & Buses																					
% Trucks & Buses	0.6	0.8	0.3	0	0.6	0	0.3	0.4	0	0.3	0	0	0	0	0	0.4	0.7	1.8	0	0.7	0.4
School Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% School Buses	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

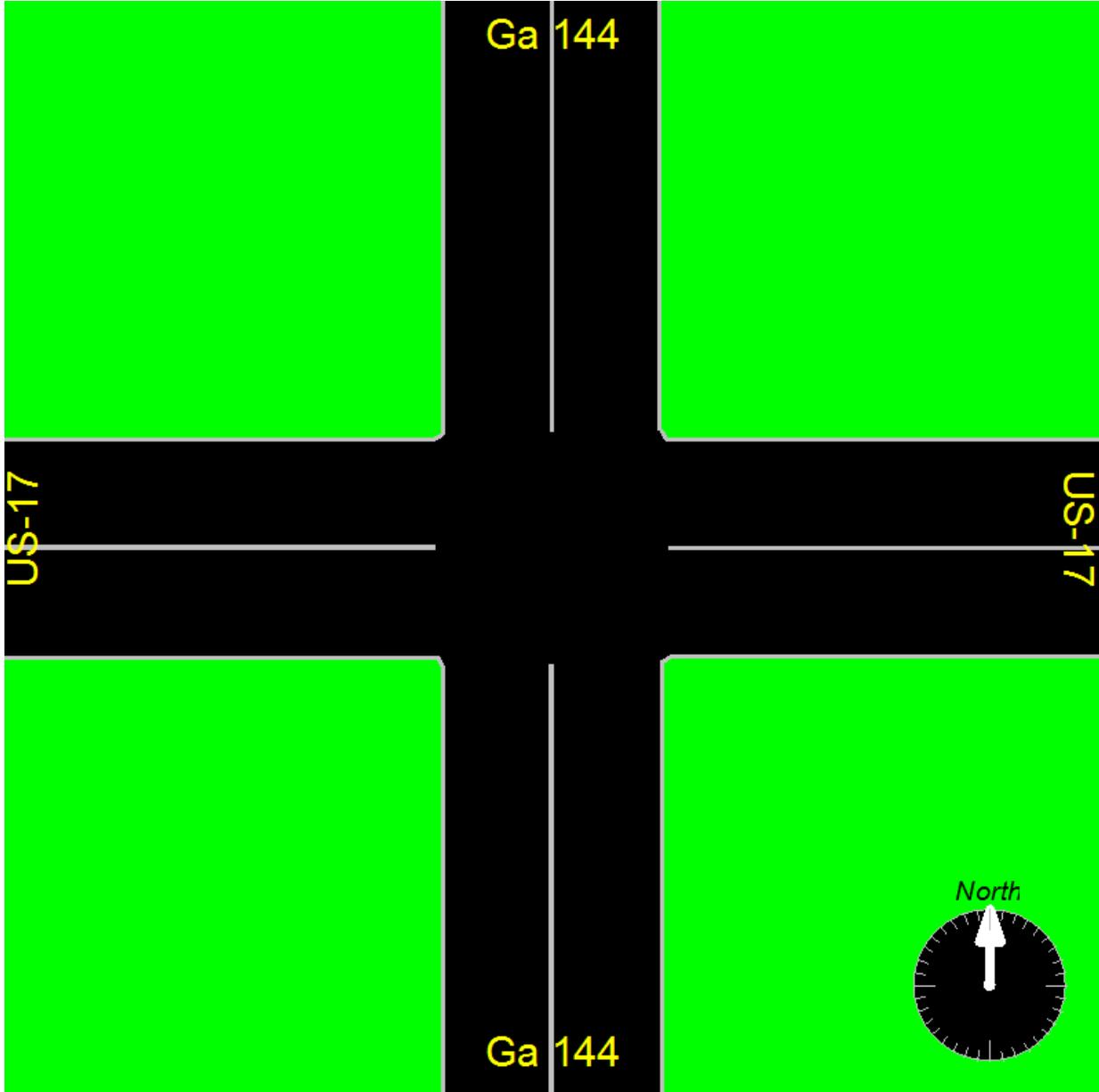


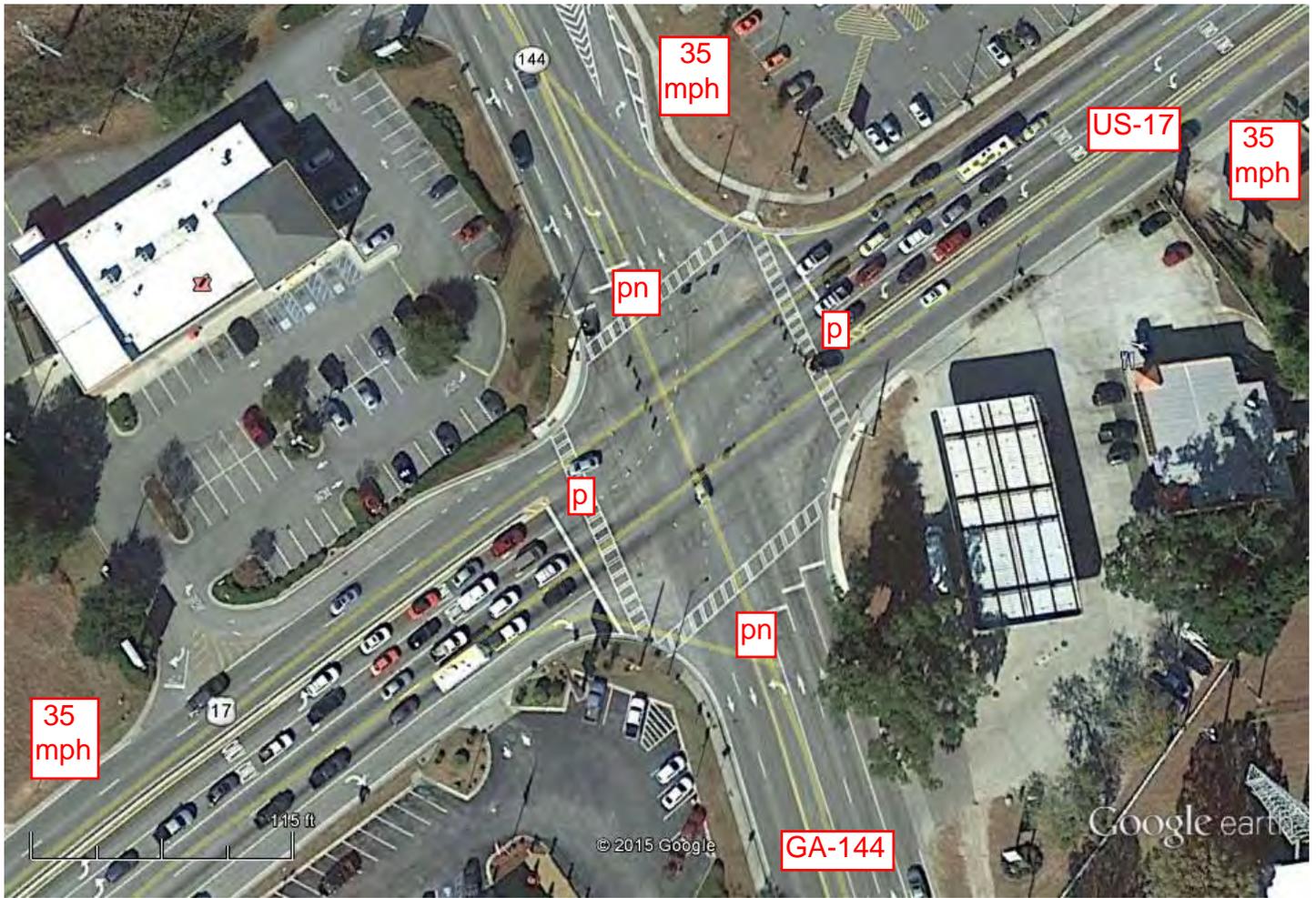
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Weather: Mild
Other: T&H

File Name : 15734-01
Site Code : 01573401
Start Date : 10/28/2015
Page No : 5





Google earth

feet
meters



TDC Job# 15734-01, US-17 & Ga-144, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-07
Site Code : 01573407
Start Date : 10/27/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

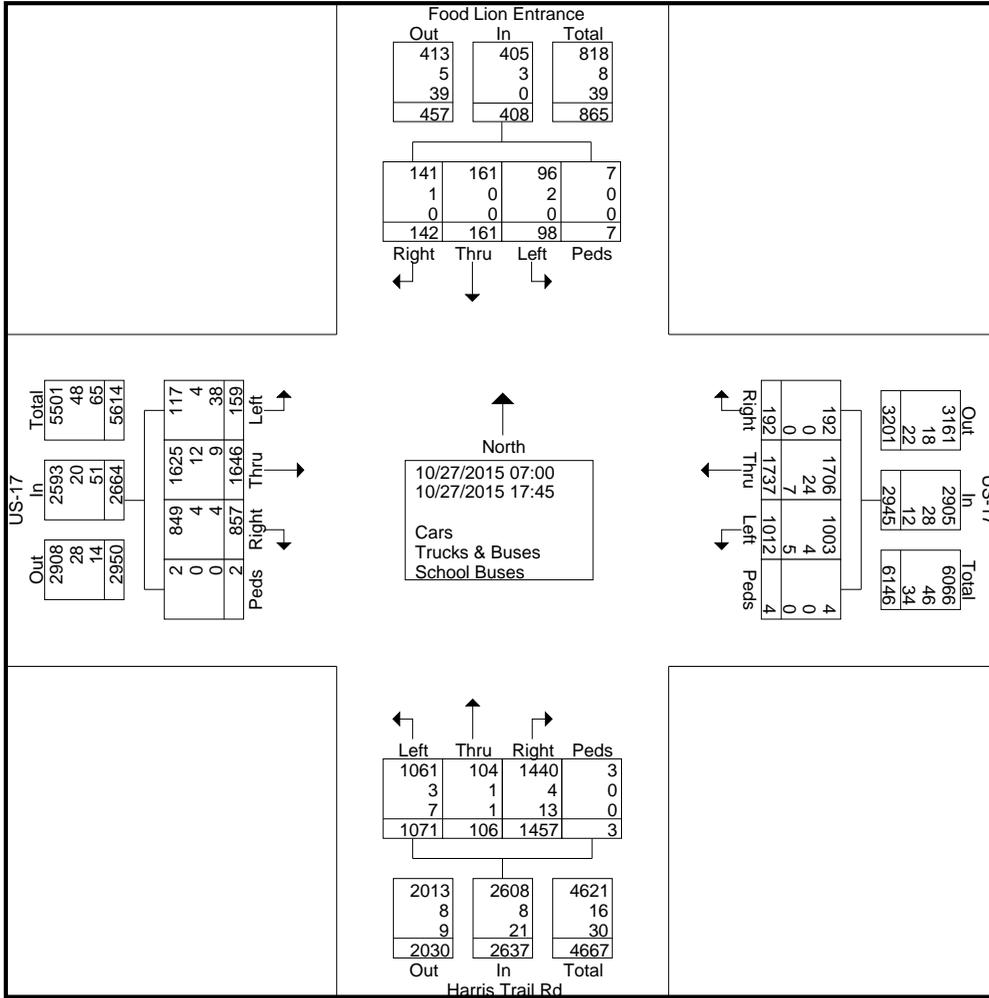
Start Time	Harris Trail Rd Northbound					Food Lion Entrance Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	106	0	108	0	214	2	2	0	0	4	3	116	42	0	161	61	87	4	0	152	531
07:15	122	1	157	0	280	3	2	3	0	8	0	117	53	0	170	66	74	6	0	146	604
07:30	137	0	173	1	311	5	4	1	2	12	5	122	37	1	165	57	70	3	0	130	618
07:45	111	2	118	0	231	7	3	2	0	12	4	108	30	0	142	29	77	4	0	110	495
Total	476	3	556	1	1036	17	11	6	2	36	12	463	162	1	638	213	308	17	0	538	2248
08:00	82	0	105	0	187	0	2	4	1	7	5	111	28	1	145	45	73	0	0	118	457
08:15	65	3	82	0	150	1	2	3	0	6	7	87	21	0	115	23	70	5	0	98	369
08:30	70	6	63	0	139	0	2	9	0	11	5	102	15	0	122	25	72	6	0	103	375
08:45	52	1	77	0	130	3	4	5	0	12	6	114	21	0	141	22	69	4	0	95	378
Total	269	10	327	0	606	4	10	21	1	36	23	414	85	1	523	115	284	15	0	414	1579
*** BREAK ***																					
16:00	42	9	66	0	117	2	6	11	0	19	10	82	40	0	132	75	144	15	0	234	502
16:15	37	5	81	0	123	8	13	15	2	38	10	95	63	0	168	64	129	17	0	210	539
16:30	36	13	60	0	109	7	13	10	1	31	17	96	65	0	178	73	137	30	0	240	558
16:45	35	16	70	0	121	14	24	20	0	58	20	88	61	0	169	81	156	28	1	266	614
Total	150	43	277	0	470	31	56	56	3	146	57	361	229	0	647	293	566	90	1	950	2213
17:00	51	10	57	0	118	13	23	18	0	54	18	107	89	0	214	77	161	18	2	258	644
17:15	47	14	90	1	152	9	14	15	0	38	16	95	87	0	198	108	147	12	0	267	655
17:30	43	15	77	0	135	12	22	16	0	50	18	118	99	0	235	106	153	18	0	277	697
17:45	35	11	73	1	120	12	25	10	1	48	15	88	106	0	209	100	118	22	1	241	618
Total	176	50	297	2	525	46	84	59	1	190	67	408	381	0	856	391	579	70	3	1043	2614
Grand Total	1071	106	1457	3	2637	98	161	142	7	408	159	1646	857	2	2664	1012	1737	192	4	2945	8654
Apprch %	40.6	4	55.3	0.1		24	39.5	34.8	1.7		6	61.8	32.2	0.1		34.4	59	6.5	0.1		
Total %	12.4	1.2	16.8	0	30.5	1.1	1.9	1.6	0.1	4.7	1.8	19	9.9	0	30.8	11.7	20.1	2.2	0	34	
Cars	1061	104	1440	3	2608	96	161	141	7	405	117	1625	849	2	2593	1003	1706	192	4	2905	8511
% Cars	99.1	98.1	98.8	100	98.9	98	100	99.3	100	99.3	73.6	98.7	99.1	100	97.3	99.1	98.2	100	100	98.6	98.3
Trucks & Buses	3	1	4	0	8	2	0	1	0	3	4	12	4	0	20	4	24	0	0	28	59
% Trucks & Buses	0.3	0.9	0.3	0	0.3	2	0	0.7	0	0.7	2.5	0.7	0.5	0	0.8	0.4	1.4	0	0	1	0.7
School Buses	7	1	13	0	21	0	0	0	0	0	38	9	4	0	51	5	7	0	0	12	84
% School Buses	0.7	0.9	0.9	0	0.8	0	0	0	0	0	23.9	0.5	0.5	0	1.9	0.5	0.4	0	0	0.4	1

Traffic Data Connection

PO Box 445
 Abbeville, Ga 31001
 843-412-6222

Counter: D4-1422/4421
 Counted By: LME/BE
 Weather: Mild
 Other: T&H

File Name : 15734-07
 Site Code : 01573407
 Start Date : 10/27/2015
 Page No : 2



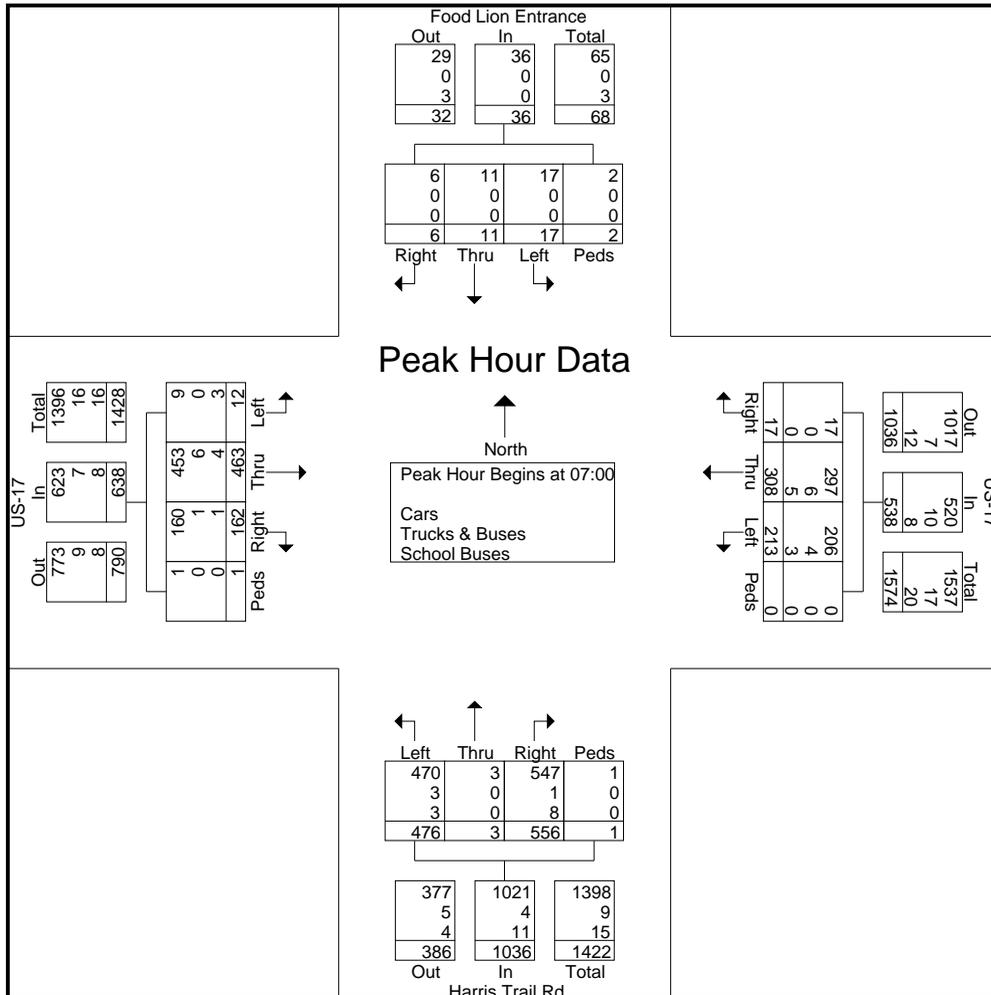
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-07
Site Code : 01573407
Start Date : 10/27/2015
Page No : 3

Start Time	Harris Trail Rd Northbound					Food Lion Entrance Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	106	0	108	0	214	2	2	0	0	4	3	116	42	0	161	61	87	4	0	152	531
07:15	122	1	157	0	280	3	2	3	0	8	0	117	53	0	170	66	74	6	0	146	604
07:30	137	0	173	1	311	5	4	1	2	12	5	122	37	1	165	57	70	3	0	130	618
07:45	111	2	118	0	231	7	3	2	0	12	4	108	30	0	142	29	77	4	0	110	495
Total Volume	476	3	556	1	1036	17	11	6	2	36	12	463	162	1	638	213	308	17	0	538	2248
% App. Total	45.9	0.3	53.7	0.1		47.2	30.6	16.7	5.6		1.9	72.6	25.4	0.2		39.6	57.2	3.2	0		
PHF	.869	.375	.803	.250	.833	.607	.688	.500	.250	.750	.600	.949	.764	.250	.938	.807	.885	.708	.000	.885	.909
Cars	470	3	547	1	1021	17	11	6	2	36	9	453	160	1	623	206	297	17	0	520	2200
% Cars	98.7	100	98.4	100	98.6	100	100	100	100	100	75.0	97.8	98.8	100	97.6	96.7	96.4	100	0	96.7	97.9
Trucks & Buses																					
% Trucks & Buses	0.6	0	0.2	0	0.4	0	0	0	0	0	0	1.3	0.6	0	1.1	1.9	1.9	0	0	1.9	0.9
School Buses	3	0	8	0	11	0	0	0	0	0	3	4	1	0	8	3	5	0	0	8	27
% School Buses	0.6	0	1.4	0	1.1	0	0	0	0	0	25.0	0.9	0.6	0	1.3	1.4	1.6	0	0	1.5	1.2



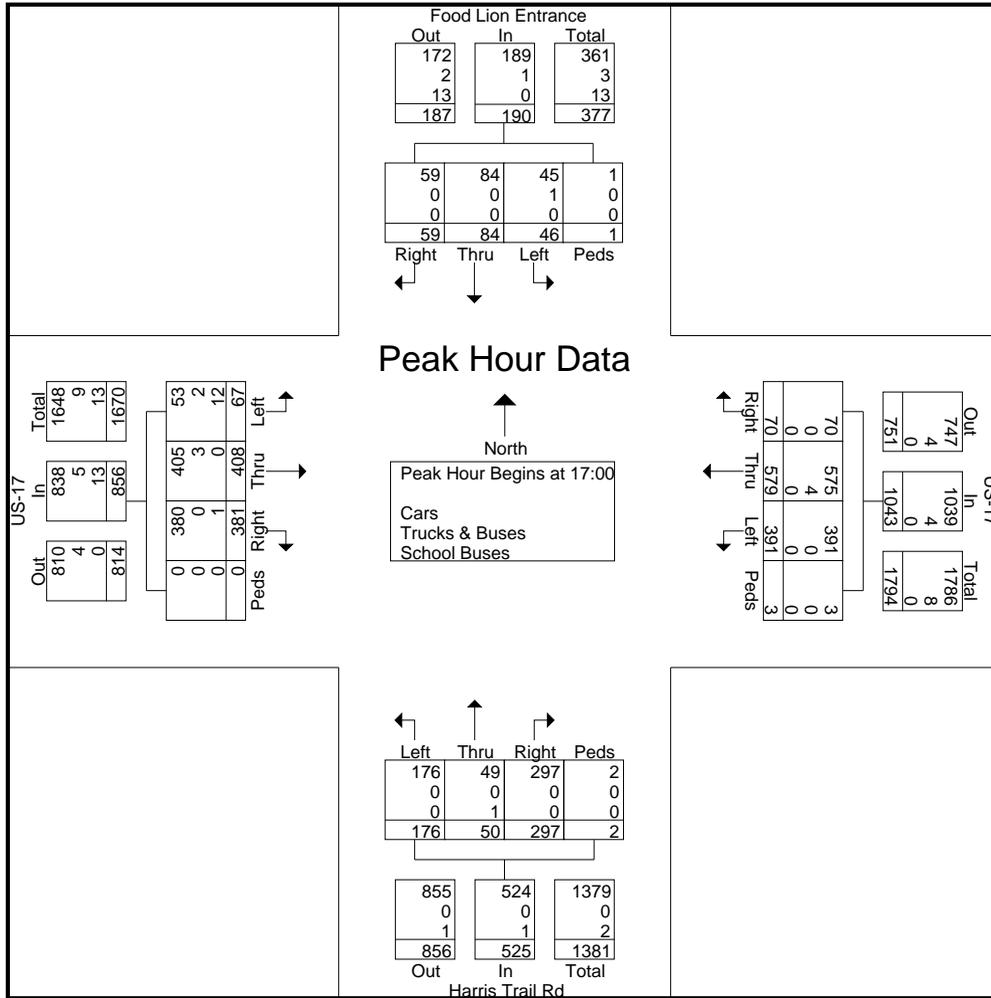
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-07
Site Code : 01573407
Start Date : 10/27/2015
Page No : 4

Start Time	Harris Trail Rd Northbound					Food Lion Entrance Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	51	10	57	0	118	13	23	18	0	54	18	107	89	0	214	77	161	18	2	258	644
17:15	47	14	90	1	152	9	14	15	0	38	16	95	87	0	198	108	147	12	0	267	655
17:30	43	15	77	0	135	12	22	16	0	50	18	118	99	0	235	106	153	18	0	277	697
17:45	35	11	73	1	120	12	25	10	1	48	15	88	106	0	209	100	118	22	1	241	618
Total Volume	176	50	297	2	525	46	84	59	1	190	67	408	381	0	856	391	579	70	3	1043	2614
% App. Total	33.5	9.5	56.6	0.4		24.2	44.2	31.1	0.5		7.8	47.7	44.5	0		37.5	55.5	6.7	0.3		
PHF	.863	.833	.825	.500	.863	.885	.840	.819	.250	.880	.931	.864	.899	.000	.911	.905	.899	.795	.375	.941	.938
Cars	176	49	297	2	524	45	84	59	1	189	53	405	380	0	838	391	575	70	3	1039	2590
% Cars	100	98.0	100	100	99.8	97.8	100	100	100	99.5	79.1	99.3	99.7	0	97.9	100	99.3	100	100	99.6	99.1
Trucks & Buses	0	0	0	0	0	2.2	0	0	0	0.5	3.0	0.7	0	0	0.6	0	0.7	0	0	0.4	0.4
% Trucks & Buses	0	1	0	0	1	0	0	0	0	0	12	0	1	0	13	0	0	0	0	0	14
School Buses	0	2.0	0	0	0.2	0	0	0	0	0	17.9	0	0.3	0	1.5	0	0	0	0	0	0.5
% School Buses																					



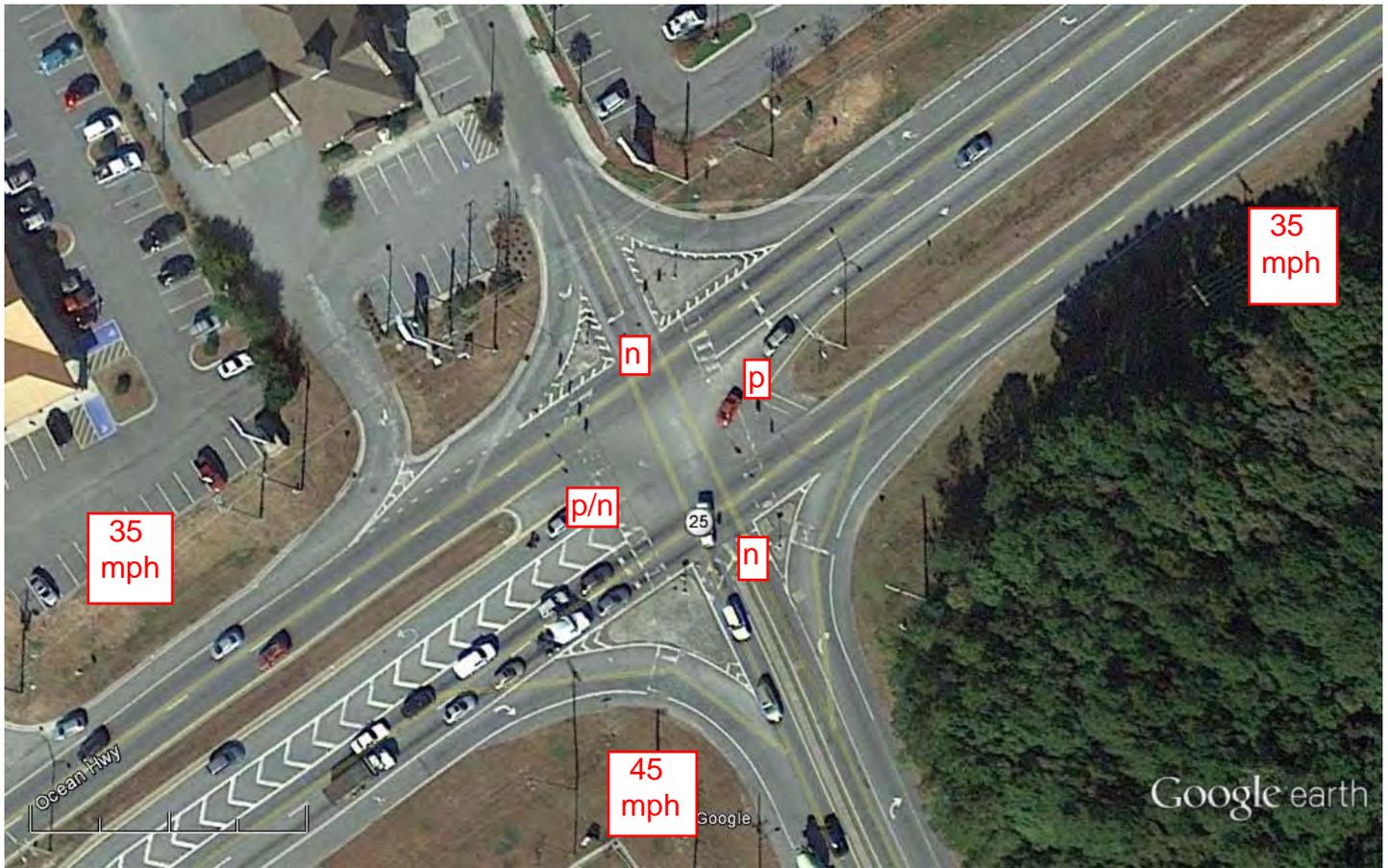
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422/4421
Counted By: LME/BE
Weather: Mild
Other: T&H

File Name : 15734-07
Site Code : 01573407
Start Date : 10/27/2015
Page No : 5





Google earth



TDC Job# 15734-07, US-17 & Harris Trail Rd, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-12
Site Code : 01573412
Start Date : 10/29/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

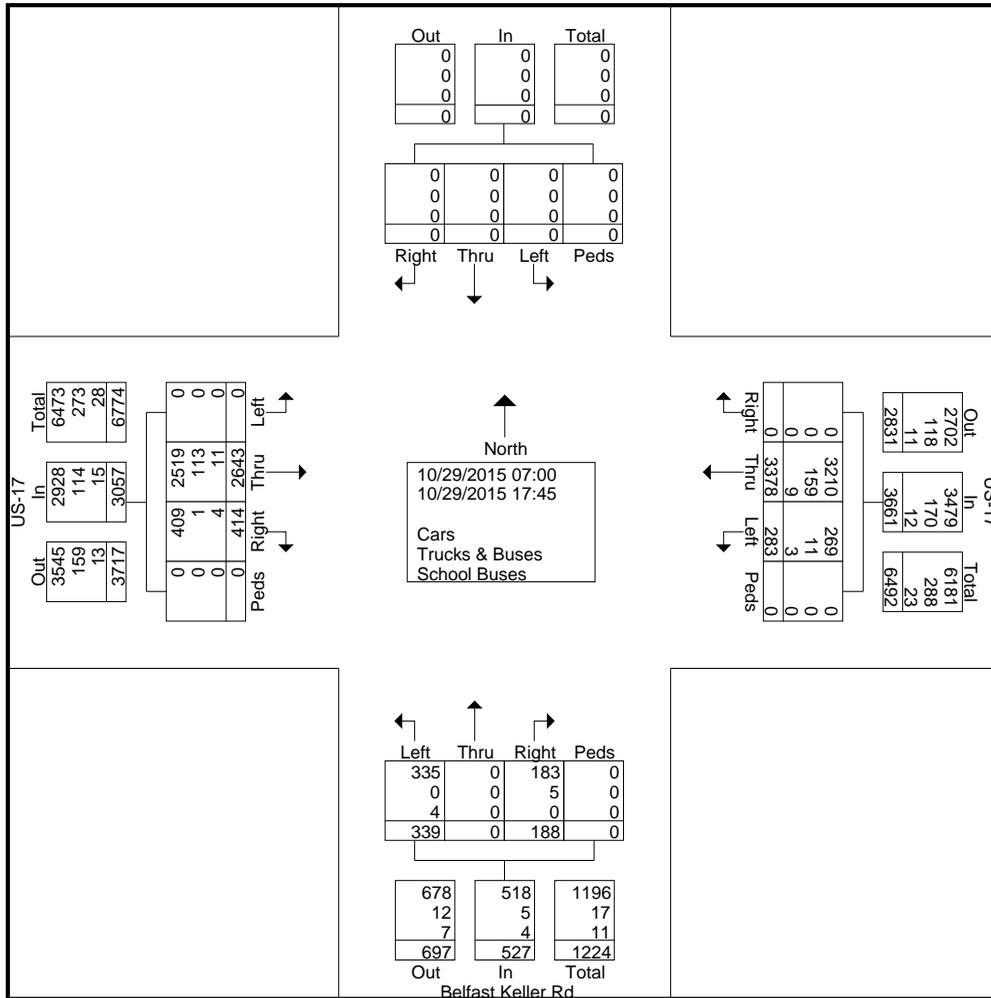
Start Time	Belfast Keller Rd Northbound					Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	63	0	21	0	84	0	0	0	0	0	0	201	14	0	215	11	168	0	0	179	478
07:15	42	0	9	0	51	0	0	0	0	0	0	189	8	0	197	10	168	0	0	178	426
07:30	38	0	17	0	55	0	0	0	0	0	0	153	15	0	168	16	201	0	0	217	440
07:45	31	0	11	0	42	0	0	0	0	0	0	172	12	0	184	20	178	0	0	198	424
Total	174	0	58	0	232	0	0	0	0	0	0	715	49	0	764	57	715	0	0	772	1768
08:00	22	0	7	0	29	0	0	0	0	0	0	133	16	0	149	15	139	0	0	154	332
08:15	28	0	9	0	37	0	0	0	0	0	0	165	17	0	182	14	152	0	0	166	385
08:30	25	0	13	0	38	0	0	0	0	0	0	192	7	0	199	10	139	0	0	149	386
08:45	18	0	14	0	32	0	0	0	0	0	0	169	12	0	181	8	132	0	0	140	353
Total	93	0	43	0	136	0	0	0	0	0	0	659	52	0	711	47	562	0	0	609	1456
*** BREAK ***																					
16:00	12	0	11	0	23	0	0	0	0	0	0	169	17	0	186	16	239	0	0	255	464
16:15	8	0	5	0	13	0	0	0	0	0	0	173	32	0	205	23	224	0	0	247	465
16:30	7	0	7	0	14	0	0	0	0	0	0	179	31	0	210	22	252	0	0	274	498
16:45	5	0	16	0	21	0	0	0	0	0	0	175	38	0	213	20	244	0	0	264	498
Total	32	0	39	0	71	0	0	0	0	0	0	696	118	0	814	81	959	0	0	1040	1925
17:00	6	0	16	0	22	0	0	0	0	0	0	154	64	0	218	21	288	0	0	309	549
17:15	14	0	10	0	24	0	0	0	0	0	0	148	41	0	189	21	286	0	0	307	520
17:30	16	0	14	0	30	0	0	0	0	0	0	139	45	0	184	25	289	0	0	314	528
17:45	4	0	8	0	12	0	0	0	0	0	0	132	45	0	177	31	279	0	0	310	499
Total	40	0	48	0	88	0	0	0	0	0	0	573	195	0	768	98	1142	0	0	1240	2096
Grand Total	339	0	188	0	527	0	0	0	0	0	0	2643	414	0	3057	283	3378	0	0	3661	7245
Apprch %	64.3	0	35.7	0		0	0	0	0		0	86.5	13.5	0		7.7	92.3	0	0		
Total %	4.7	0	2.6	0	7.3	0	0	0	0	0	0	36.5	5.7	0	42.2	3.9	46.6	0	0	50.5	
Cars	335	0	183	0	518	0	0	0	0	0	0	2519	409	0	2928	269	3210	0	0	3479	6925
% Cars	98.8	0	97.3	0	98.3	0	0	0	0	0	0	95.3	98.8	0	95.8	95.1	95	0	0	95	95.6
Trucks & Buses	0	0	5	0	5	0	0	0	0	0	0	113	1	0	114	11	159	0	0	170	289
% Trucks & Buses	0	0	2.7	0	0.9	0	0	0	0	0	0	4.3	0.2	0	3.7	3.9	4.7	0	0	4.6	4
School Buses	4	0	0	0	4	0	0	0	0	0	0	11	4	0	15	3	9	0	0	12	31
% School Buses	1.2	0	0	0	0.8	0	0	0	0	0	0	0.4	1	0	0.5	1.1	0.3	0	0	0.3	0.4

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-12
Site Code : 01573412
Start Date : 10/29/2015
Page No : 2



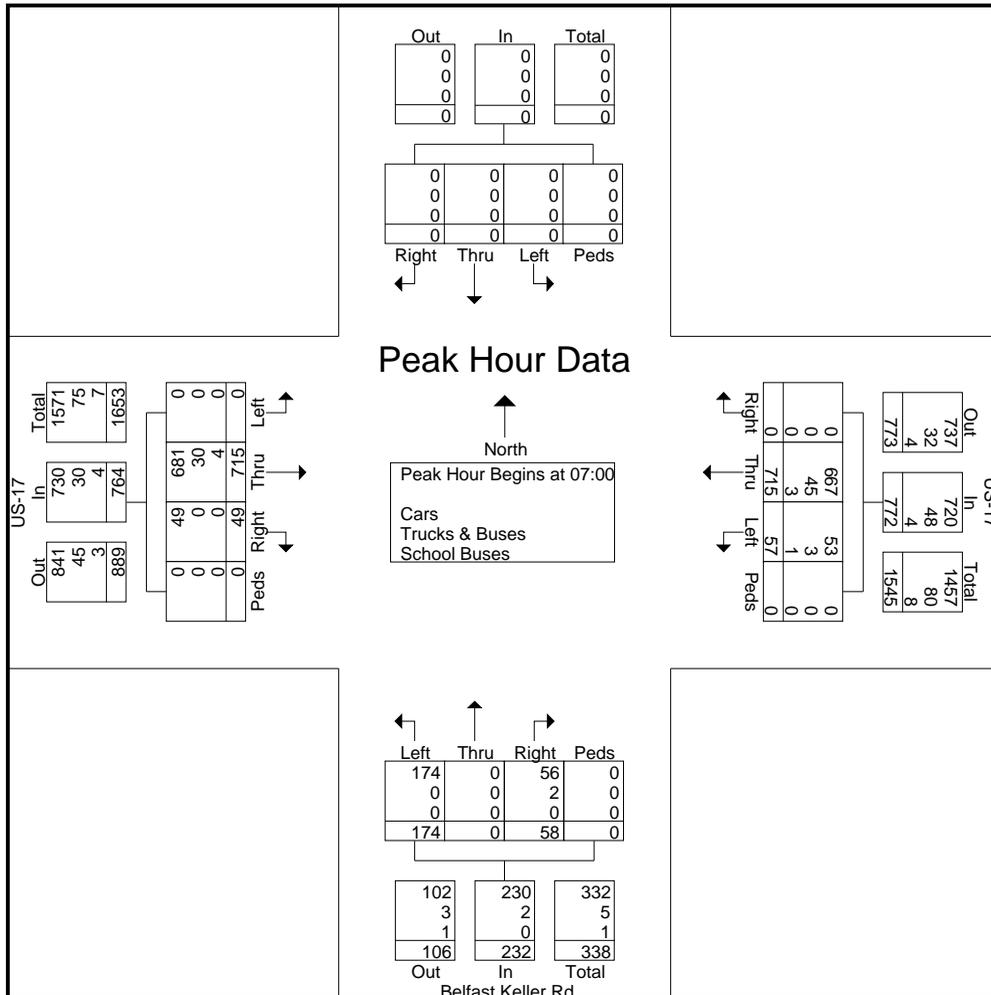
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-12
Site Code : 01573412
Start Date : 10/29/2015
Page No : 3

Start Time	Belfast Keller Rd Northbound					Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	63	0	21	0	84	0	0	0	0	0	0	201	14	0	215	11	168	0	0	179	478
07:15	42	0	9	0	51	0	0	0	0	0	0	189	8	0	197	10	168	0	0	178	426
07:30	38	0	17	0	55	0	0	0	0	0	0	153	15	0	168	16	201	0	0	217	440
07:45	31	0	11	0	42	0	0	0	0	0	0	172	12	0	184	20	178	0	0	198	424
Total Volume	174	0	58	0	232	0	0	0	0	0	0	715	49	0	764	57	715	0	0	772	1768
% App. Total	75	0	25	0		0	0	0	0		0	93.6	6.4	0		7.4	92.6	0	0		
PHF	.690	.000	.690	.000	.690	.000	.000	.000	.000	.000	.000	.889	.817	.000	.888	.713	.889	.000	.000	.889	.925
Cars	174	0	56	0	230	0	0	0	0	0	0	681	49	0	730	53	667	0	0	720	1680
% Cars	100	0	96.6	0	99.1	0	0	0	0	0	0	95.2	100	0	95.5	93.0	93.3	0	0	93.3	95.0
Trucks & Buses	0	0	3.4	0	0.9	0	0	0	0	0	0	4.2	0	0	3.9	5.3	6.3	0	0	6.2	4.5
% Trucks & Buses	0	0	3.4	0	0.9	0	0	0	0	0	0	4.2	0	0	3.9	5.3	6.3	0	0	6.2	4.5
School Buses	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	1	3	0	0	4	8
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0.5	1.8	0.4	0	0	0.5	0.5



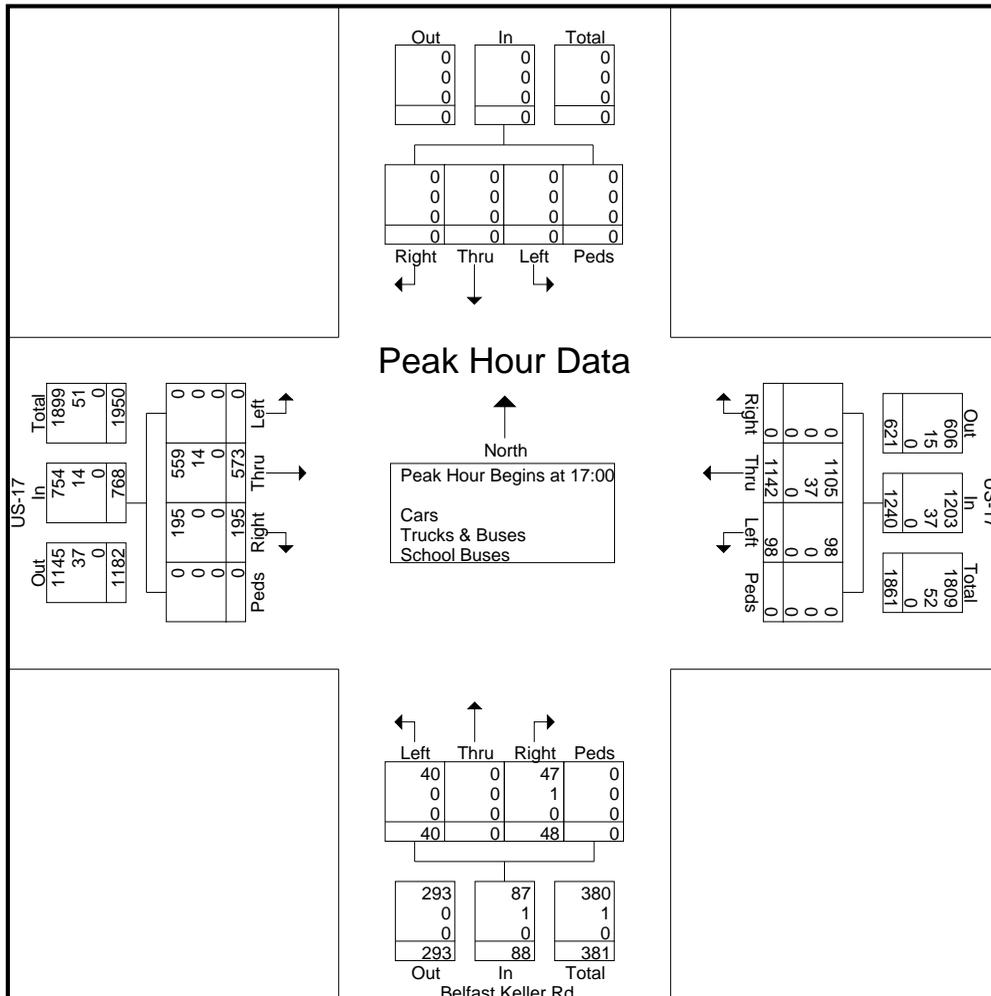
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-12
Site Code : 01573412
Start Date : 10/29/2015
Page No : 4

Start Time	Belfast Keller Rd Northbound					Southbound					US-17 Eastbound					US-17 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	6	0	16	0	22	0	0	0	0	0	0	154	64	0	218	21	288	0	0	309	549
17:15	14	0	10	0	24	0	0	0	0	0	0	148	41	0	189	21	286	0	0	307	520
17:30	16	0	14	0	30	0	0	0	0	0	0	139	45	0	184	25	289	0	0	314	528
17:45	4	0	8	0	12	0	0	0	0	0	0	132	45	0	177	31	279	0	0	310	499
Total Volume	40	0	48	0	88	0	0	0	0	0	0	573	195	0	768	98	1142	0	0	1240	2096
% App. Total	45.5	0	54.5	0		0	0	0	0		0	74.6	25.4	0		7.9	92.1	0	0		
PHF	.625	.000	.750	.000	.733	.000	.000	.000	.000	.000	.000	.930	.762	.000	.881	.790	.988	.000	.000	.987	.954
Cars	40	0	47	0	87	0	0	0	0	0	0	559	195	0	754	98	1105	0	0	97.0	97.5
% Cars	100	0	97.9	0	98.9	0	0	0	0	0	0	97.6	100	0	98.2	100	96.8	0	0		
Trucks & Buses	0	0	1	0	1	0	0	0	0	0	0	14	0	0	14	0	37	0	0	37	52
% Trucks & Buses	0	0	2.1	0	1.1	0	0	0	0	0	0	2.4	0	0	1.8	0	3.2	0	0	3.0	2.5
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-12
Site Code : 01573412
Start Date : 10/29/2015
Page No : 5





Google earth



TDC Job# 15734-12, US-17 & Belfast Keller Rd, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-02
Site Code : 01573402
Start Date : 10/29/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

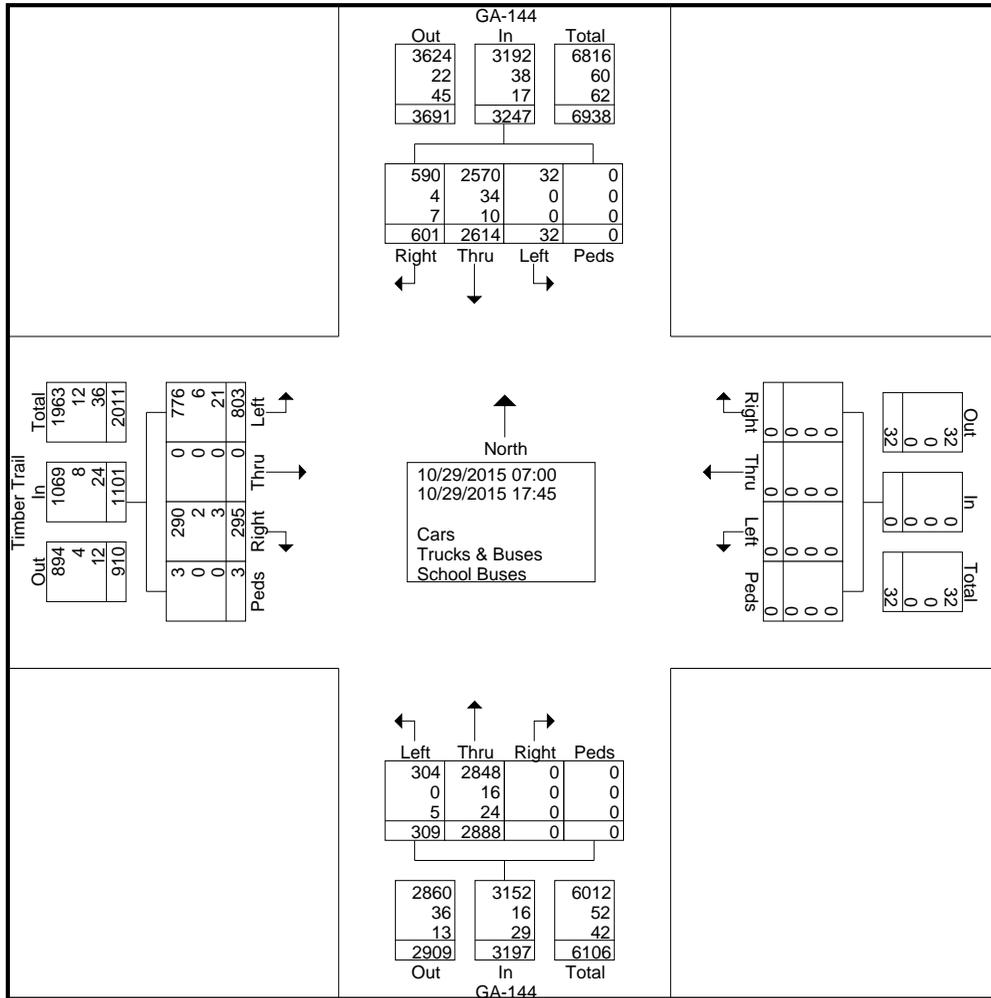
Start Time	GA-144 Northbound					GA-144 Southbound					Timber Trail Eastbound					Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	35	269	0	0	304	0	54	21	0	75	47	0	13	0	60	0	0	0	0	0	439
07:15	36	244	0	0	280	0	68	19	0	87	77	0	15	0	92	0	0	0	0	0	459
07:30	15	264	0	0	279	0	83	27	0	110	93	0	14	0	107	0	0	0	0	0	496
07:45	17	311	0	0	328	0	95	32	0	127	94	0	20	0	114	0	0	0	0	0	569
Total	103	1088	0	0	1191	0	300	99	0	399	311	0	62	0	373	0	0	0	0	0	1963
08:00	10	195	0	0	205	0	136	37	0	173	46	0	9	0	55	0	0	0	0	0	433
08:15	12	196	0	0	208	0	101	22	0	123	35	0	10	0	45	0	0	0	0	0	376
08:30	16	189	0	0	205	0	72	21	0	93	51	0	12	0	63	0	0	0	0	0	361
08:45	17	207	0	0	224	0	93	6	0	99	44	0	10	1	55	0	0	0	0	0	378
Total	55	787	0	0	842	0	402	86	0	488	176	0	41	1	218	0	0	0	0	0	1548
*** BREAK ***																					
16:00	12	131	0	0	143	4	210	44	0	258	36	0	19	0	55	0	0	0	0	0	456
16:15	20	130	0	0	150	3	202	47	0	252	47	0	18	0	65	0	0	0	0	0	467
16:30	20	119	0	0	139	2	189	45	0	236	33	0	13	0	46	0	0	0	0	0	421
16:45	19	116	0	0	135	8	238	34	0	280	40	0	31	0	71	0	0	0	0	0	486
Total	71	496	0	0	567	17	839	170	0	1026	156	0	81	0	237	0	0	0	0	0	1830
17:00	13	128	0	0	141	4	256	60	0	320	38	0	21	0	59	0	0	0	0	0	520
17:15	22	125	0	0	147	4	259	63	0	326	41	0	24	0	65	0	0	0	0	0	538
17:30	20	138	0	0	158	3	296	62	0	361	40	0	32	0	72	0	0	0	0	0	591
17:45	25	126	0	0	151	4	262	61	0	327	41	0	34	2	77	0	0	0	0	0	555
Total	80	517	0	0	597	15	1073	246	0	1334	160	0	111	2	273	0	0	0	0	0	2204
Grand Total	309	2888	0	0	3197	32	2614	601	0	3247	803	0	295	3	1101	0	0	0	0	0	7545
Apprch %	9.7	90.3	0	0		1	80.5	18.5	0		72.9	0	26.8	0.3		0	0	0	0	0	
Total %	4.1	38.3	0	0	42.4	0.4	34.6	8	0	43	10.6	0	3.9	0	14.6	0	0	0	0	0	
Cars	304	2848	0	0	3152	32	2570	590	0	3192	776	0	290	3	1069	0	0	0	0	0	7413
% Cars	98.4	98.6	0	0	98.6	100	98.3	98.2	0	98.3	96.6	0	98.3	100	97.1	0	0	0	0	0	98.3
Trucks & Buses	0	16	0	0	16	0	34	4	0	38	6	0	2	0	8	0	0	0	0	0	62
% Trucks & Buses	0	0.6	0	0	0.5	0	1.3	0.7	0	1.2	0.7	0	0.7	0	0.7	0	0	0	0	0	0.8
School Buses	5	24	0	0	29	0	10	7	0	17	21	0	3	0	24	0	0	0	0	0	70
% School Buses	1.6	0.8	0	0	0.9	0	0.4	1.2	0	0.5	2.6	0	1	0	2.2	0	0	0	0	0	0.9

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-02
Site Code : 01573402
Start Date : 10/29/2015
Page No : 2



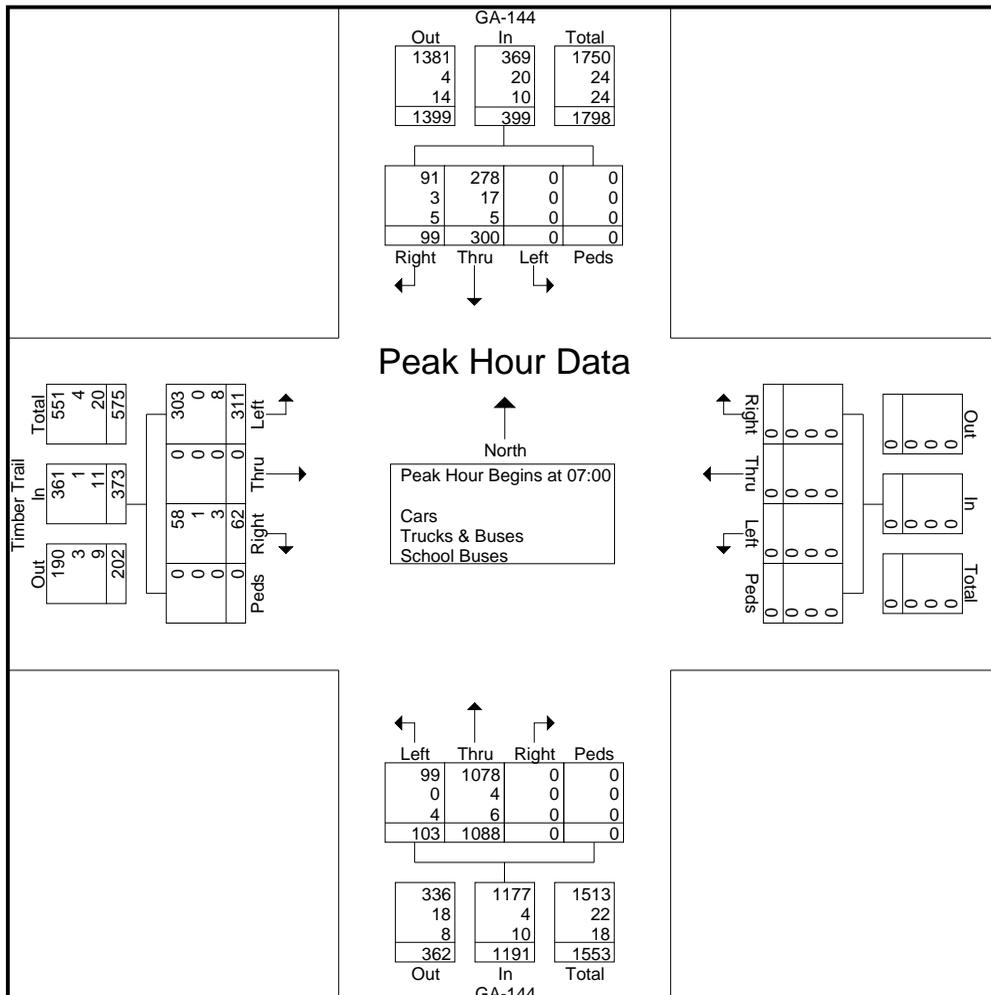
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-02
Site Code : 01573402
Start Date : 10/29/2015
Page No : 3

Start Time	GA-144 Northbound					GA-144 Southbound					Timber Trail Eastbound					Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	35	269	0	0	304	0	54	21	0	75	47	0	13	0	60	0	0	0	0	0	439
07:15	36	244	0	0	280	0	68	19	0	87	77	0	15	0	92	0	0	0	0	0	459
07:30	15	264	0	0	279	0	83	27	0	110	93	0	14	0	107	0	0	0	0	0	496
07:45	17	311	0	0	328	0	95	32	0	127	94	0	20	0	114	0	0	0	0	0	569
Total Volume	103	1088	0	0	1191	0	300	99	0	399	311	0	62	0	373	0	0	0	0	0	1963
% App. Total	8.6	91.4	0	0		0	75.2	24.8	0		83.4	0	16.6	0		0	0	0	0		
PHF	.715	.875	.000	.000	.908	.000	.789	.773	.000	.785	.827	.000	.775	.000	.818	.000	.000	.000	.000	.000	.862
Cars	99	1078																			
% Cars	96.1	99.1	0	0	98.8	0	92.7	91.9	0	92.5	97.4	0	93.5	0	96.8	0	0	0	0	0	97.1
Trucks & Buses	0	4	0	0	4	0	17	3	0	20	0	0	1	0	1	0	0	0	0	0	25
% Trucks & Buses	0	0.4	0	0	0.3	0	5.7	3.0	0	5.0	0	0	1.6	0	0.3	0	0	0	0	0	1.3
School Buses	4	6	0	0	10	0	5	5	0	10	8	0	3	0	11	0	0	0	0	0	31
% School Buses	3.9	0.6	0	0	0.8	0	1.7	5.1	0	2.5	2.6	0	4.8	0	2.9	0	0	0	0	0	1.6



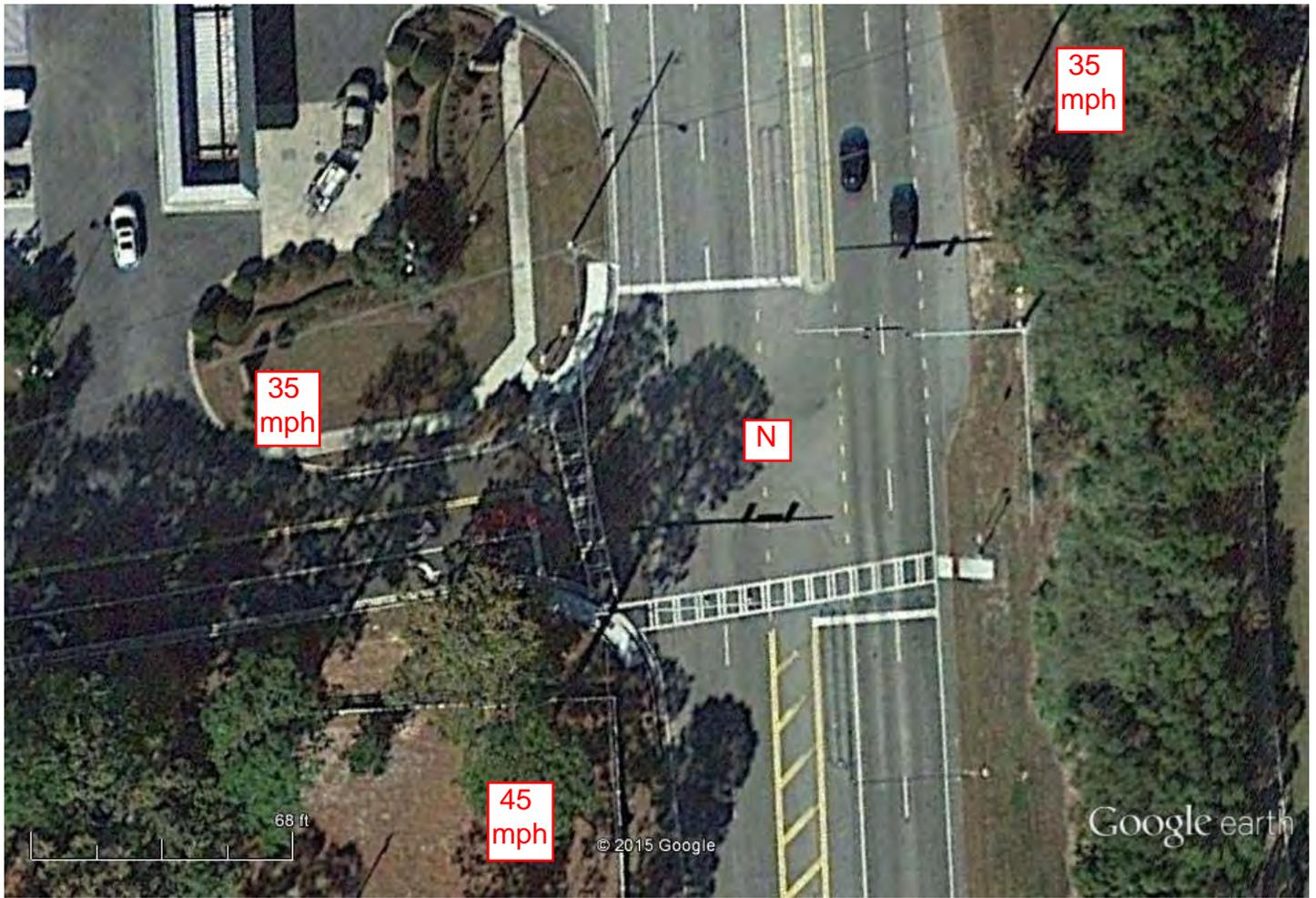
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-02
Site Code : 01573402
Start Date : 10/29/2015
Page No : 5





Google earth

feet
meters

100

50



TDC Job# 15734-02, GA-144 & Timber Trail, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-08
Site Code : 01573408
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

Start Time	Harris Trail Rd Northbound					Harris Trail Rd Southbound					Eastbound					Timber Trail Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	0	158	9	0	167	19	30	0	0	49	0	0	0	0	0	8	0	59	1	68	284
07:15	0	266	26	0	292	34	52	0	0	86	0	0	0	0	0	8	0	96	0	104	482
07:30	0	179	35	0	214	36	54	0	0	90	0	0	0	0	0	6	0	61	0	67	371
07:45	0	119	27	0	146	18	31	0	0	49	0	0	0	0	0	10	0	39	0	49	244
Total	0	722	97	0	819	107	167	0	0	274	0	0	0	0	0	32	0	255	1	288	1381
08:00	0	66	6	0	72	13	37	0	0	50	0	0	0	0	0	18	0	23	1	42	164
08:15	0	64	24	0	88	10	33	0	0	43	0	0	0	0	0	7	0	32	0	39	170
08:30	0	67	21	0	88	13	9	0	0	22	0	0	0	0	0	8	0	16	0	24	134
08:45	0	56	18	0	74	6	21	0	0	27	0	0	0	0	0	0	0	24	0	24	125
Total	0	253	69	0	322	42	100	0	0	142	0	0	0	0	0	33	0	95	1	129	593
*** BREAK ***																					
16:00	0	58	14	0	72	23	45	0	0	68	0	0	0	0	0	6	0	33	0	39	179
16:15	0	47	15	0	62	29	60	0	0	89	0	0	0	0	0	7	0	37	0	44	195
16:30	0	43	14	0	57	27	71	0	0	98	0	0	0	0	0	10	0	23	0	33	188
16:45	0	45	8	0	53	35	63	0	0	98	0	0	0	0	0	11	0	24	1	36	187
Total	0	193	51	0	244	114	239	0	0	353	0	0	0	0	0	34	0	117	1	152	749
17:00	0	48	14	0	62	46	81	0	0	127	0	0	0	0	0	16	0	30	0	46	235
17:15	0	52	20	0	72	43	90	0	0	133	0	0	0	0	0	15	0	45	1	61	266
17:30	0	45	18	0	63	65	104	0	0	169	0	0	0	0	0	14	0	42	1	57	289
17:45	0	48	15	0	63	51	98	0	0	149	0	0	0	0	0	12	0	37	0	49	261
Total	0	193	67	0	260	205	373	0	0	578	0	0	0	0	0	57	0	154	2	213	1051
Grand Total	0	1361	284	0	1645	468	879	0	0	1347	0	0	0	0	0	156	0	621	5	782	3774
Apprch %	0	82.7	17.3	0		34.7	65.3	0	0		0	0	0	0		19.9	0	79.4	0.6		
Total %	0	36.1	7.5	0	43.6	12.4	23.3	0	0	35.7	0	0	0	0	0	4.1	0	16.5	0.1	20.7	
Cars	0	1331	268	0	1599	456	863	0	0	1319	0	0	0	0	0	154	0	607	5	766	3684
% Cars	0	97.8	94.4	0	97.2	97.4	98.2	0	0	97.9	0	0	0	0	0	98.7	0	97.7	100	98	97.6
Trucks & Buses	0	7	0	0	7	1	5	0	0	6	0	0	0	0	0	0	0	1	0	1	14
% Trucks & Buses	0	0.5	0	0	0.4	0.2	0.6	0	0	0.4	0	0	0	0	0	0	0	0.2	0	0.1	0.4
School Buses	0	23	16	0	39	11	11	0	0	22	0	0	0	0	0	2	0	13	0	15	76
% School Buses	0	1.7	5.6	0	2.4	2.4	1.3	0	0	1.6	0	0	0	0	0	1.3	0	2.1	0	1.9	2

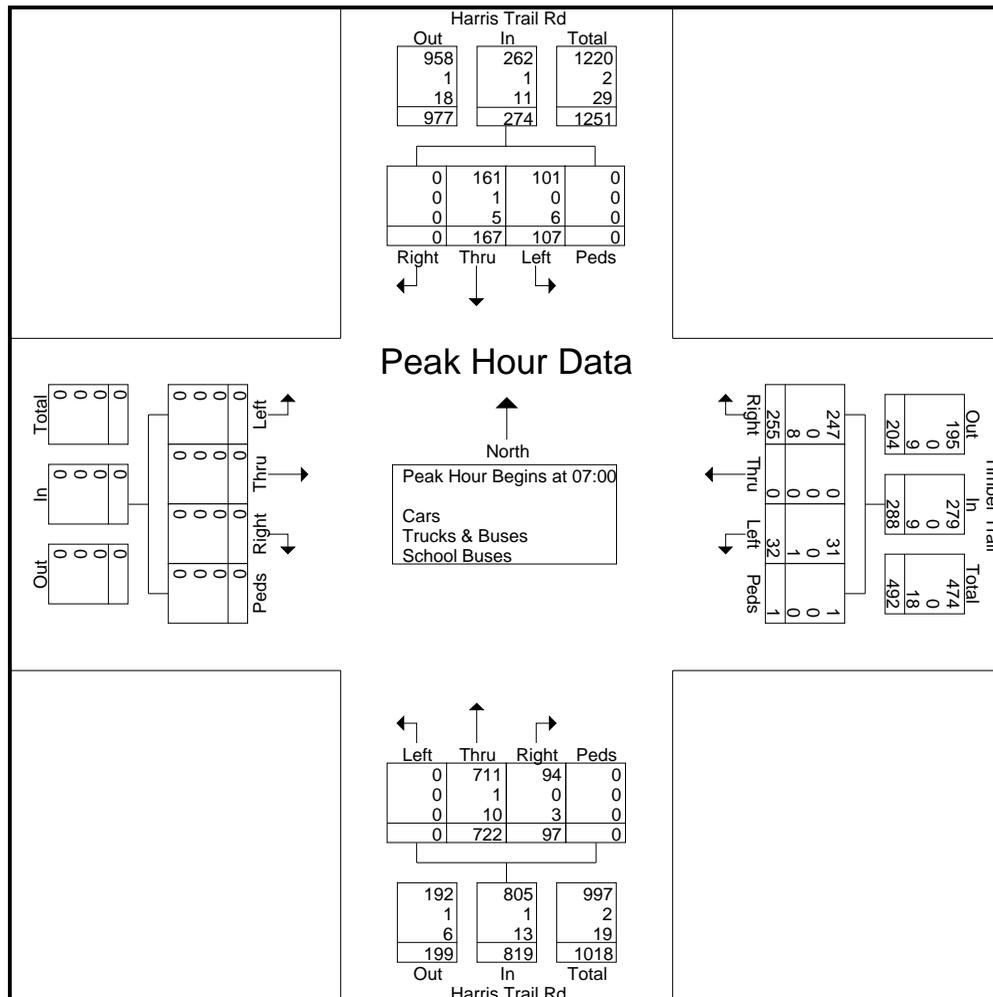
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-08
Site Code : 01573408
Start Date : 10/22/2015
Page No : 3

Start Time	Harris Trail Rd Northbound					Harris Trail Rd Southbound					Eastbound					Timber Trail Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	158	9	0	167	19	30	0	0	49	0	0	0	0	0	8	0	59	1	68	284
07:15	0	266	26	0	292	34	52	0	0	86	0	0	0	0	0	8	0	96	0	104	482
07:30	0	179	35	0	214	36	54	0	0	90	0	0	0	0	0	6	0	61	0	67	371
07:45	0	119	27	0	146	18	31	0	0	49	0	0	0	0	0	10	0	39	0	49	244
Total Volume	0	722	97	0	819	107	167	0	0	274	0	0	0	0	0	32	0	255	1	288	1381
% App. Total	0	88.2	11.8	0		39.1	60.9	0	0		0	0	0	0		11.1	0	88.5	0.3		
PHF	.000	.679	.693	.000	.701	.743	.773	.000	.000	.761	.000	.000	.000	.000	.000	.800	.000	.664	.250	.692	.716
Cars	0	711	94	0	805	101	161	0	0	262	0	0	0	0	0	31	0	247	1	279	1346
% Cars	0	98.5	96.9	0	98.3	94.4	96.4	0	0	95.6	0	0	0	0	0	96.9	0	96.9	100	96.9	97.5
Trucks & Buses	0	0.1	0	0	0.1	0	0.6	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0.1
% Trucks & Buses	0	0.1	0	0	0.1	0	0.6	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0.1
School Buses	0	10	3	0	13	6	5	0	0	11	0	0	0	0	0	1	0	8	0	9	33
% School Buses	0	1.4	3.1	0	1.6	5.6	3.0	0	0	4.0	0	0	0	0	0	3.1	0	3.1	0	3.1	2.4



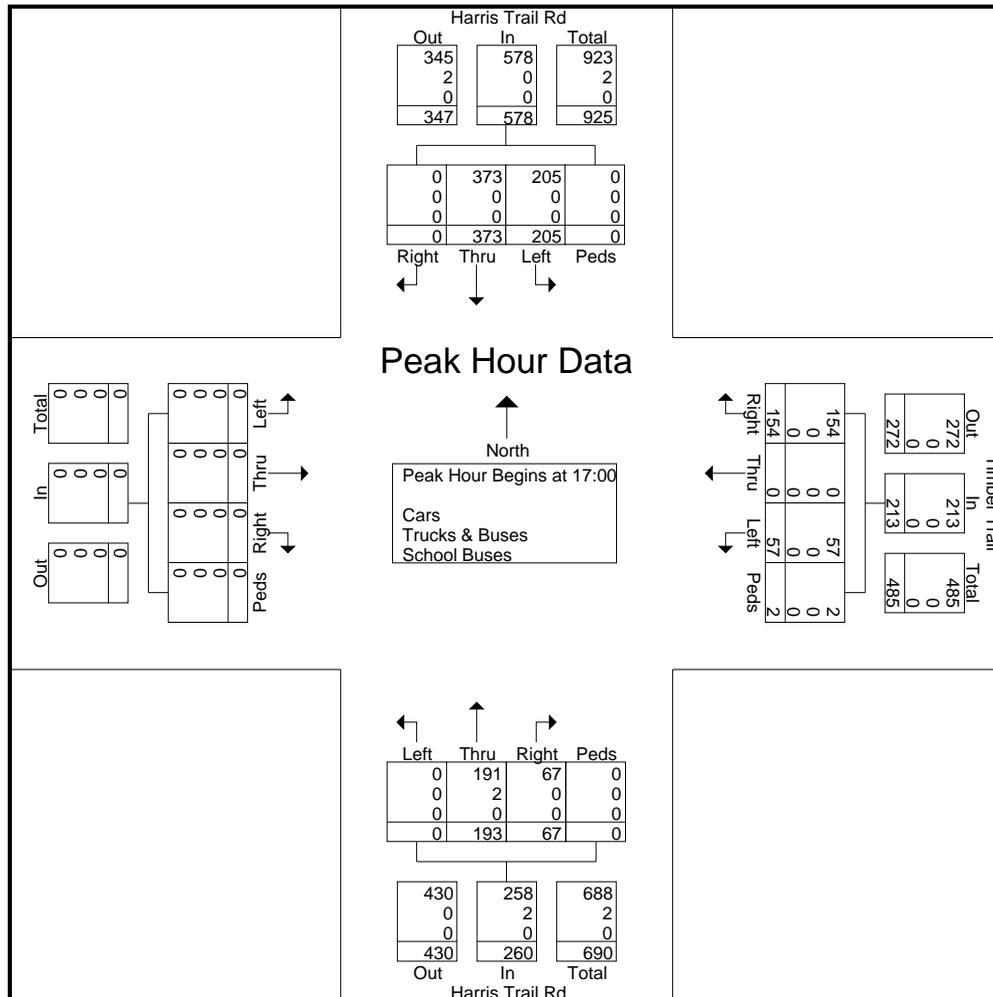
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-08
Site Code : 01573408
Start Date : 10/22/2015
Page No : 4

Start Time	Harris Trail Rd Northbound					Harris Trail Rd Southbound					Eastbound					Timber Trail Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	48	14	0	62	46	81	0	0	127	0	0	0	0	0	16	0	30	0	46	235
17:15	0	52	20	0	72	43	90	0	0	133	0	0	0	0	0	15	0	45	1	61	266
17:30	0	45	18	0	63	65	104	0	0	169	0	0	0	0	0	14	0	42	1	57	289
17:45	0	48	15	0	63	51	98	0	0	149	0	0	0	0	0	12	0	37	0	49	261
Total Volume	0	193	67	0	260	205	373	0	0	578	0	0	0	0	0	57	0	154	2	213	1051
% App. Total	0	74.2	25.8	0		35.5	64.5	0	0		0	0	0	0		26.8	0	72.3	0.9		
PHF	.000	.928	.838	.000	.903	.788	.897	.000	.000	.855	.000	.000	.000	.000	.000	.891	.000	.856	.500	.873	.909
Cars	0	191	67	0	258	205	373	0	0	578	0	0	0	0	0	57	0	154	2	213	1049
% Cars	0	99.0	100	0	99.2	100	100	0	0	100	0	0	0	0	0	100	0	100	100	100	99.8
Trucks & Buses	0	1.0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



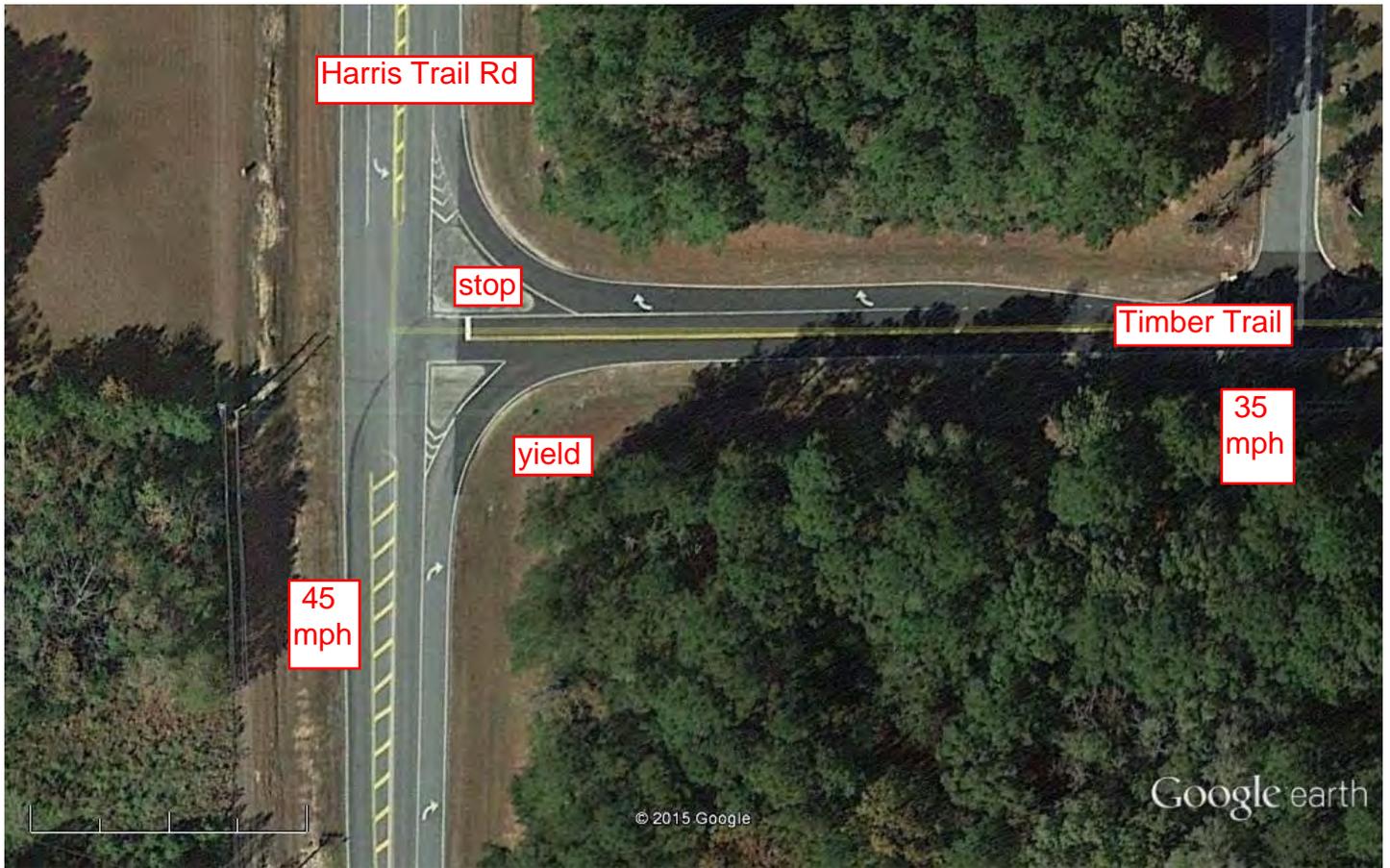
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-08
Site Code : 01573408
Start Date : 10/22/2015
Page No : 5





Google earth



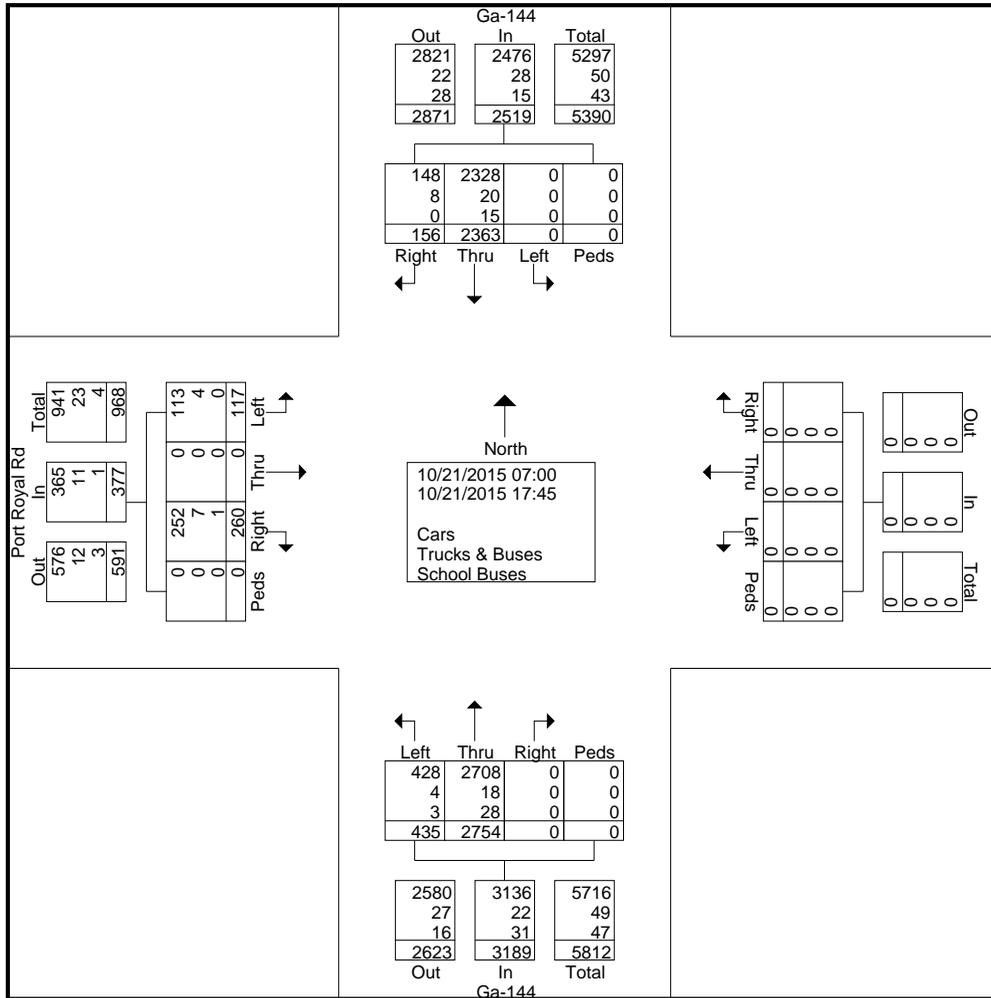
TDC Job# 15734-08, Harris Trail Rd & Timber Trail, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-03
Site Code : 01573403
Start Date : 10/21/2015
Page No : 2



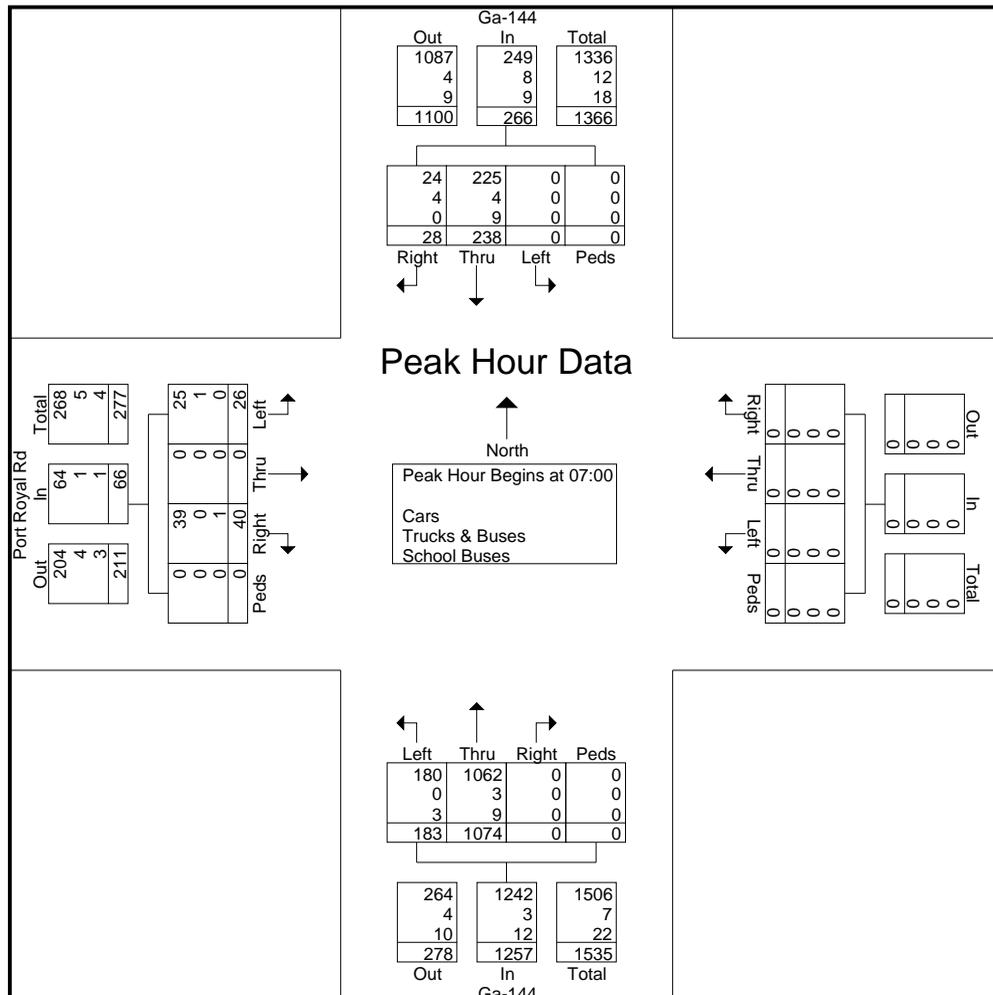
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-03
Site Code : 01573403
Start Date : 10/21/2015
Page No : 3

Start Time	Ga-144 Northbound					Ga-144 Southbound					Port Royal Rd Eastbound					Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	71	260	0	0	331	0	51	3	0	54	2	0	7	0	9	0	0	0	0	0	394
07:15	68	266	0	0	334	0	46	5	0	51	10	0	12	0	22	0	0	0	0	0	407
07:30	26	273	0	0	299	0	59	7	0	66	4	0	10	0	14	0	0	0	0	0	379
07:45	18	275	0	0	293	0	82	13	0	95	10	0	11	0	21	0	0	0	0	0	409
Total Volume	183	1074	0	0	1257	0	238	28	0	266	26	0	40	0	66	0	0	0	0	0	1589
% App. Total	14.6	85.4	0	0		0	89.5	10.5	0		39.4	0	60.6	0		0	0	0	0		
PHF	.644	.976	.000	.000	.941	.000	.726	.538	.000	.700	.650	.000	.833	.000	.750	.000	.000	.000	.000	.000	.971
Cars	180	1062																			
% Cars	98.4	98.9	0	0	98.8	0	94.5	85.7	0	93.6	96.2	0	97.5	0	97.0	0	0	0	0	0	97.9
Trucks & Buses	0	3	0	0	3	0	4	4	0	8	1	0	0	0	1	0	0	0	0	0	12
% Trucks & Buses	0	0.3	0	0	0.2	0	1.7	14.3	0	3.0	3.8	0	0	0	1.5	0	0	0	0	0	0.8
School Buses	3	9	0	0	12	0	9	0	0	9	0	0	1	0	1	0	0	0	0	0	22
% School Buses	1.6	0.8	0	0	1.0	0	3.8	0	0	3.4	0	0	2.5	0	1.5	0	0	0	0	0	1.4



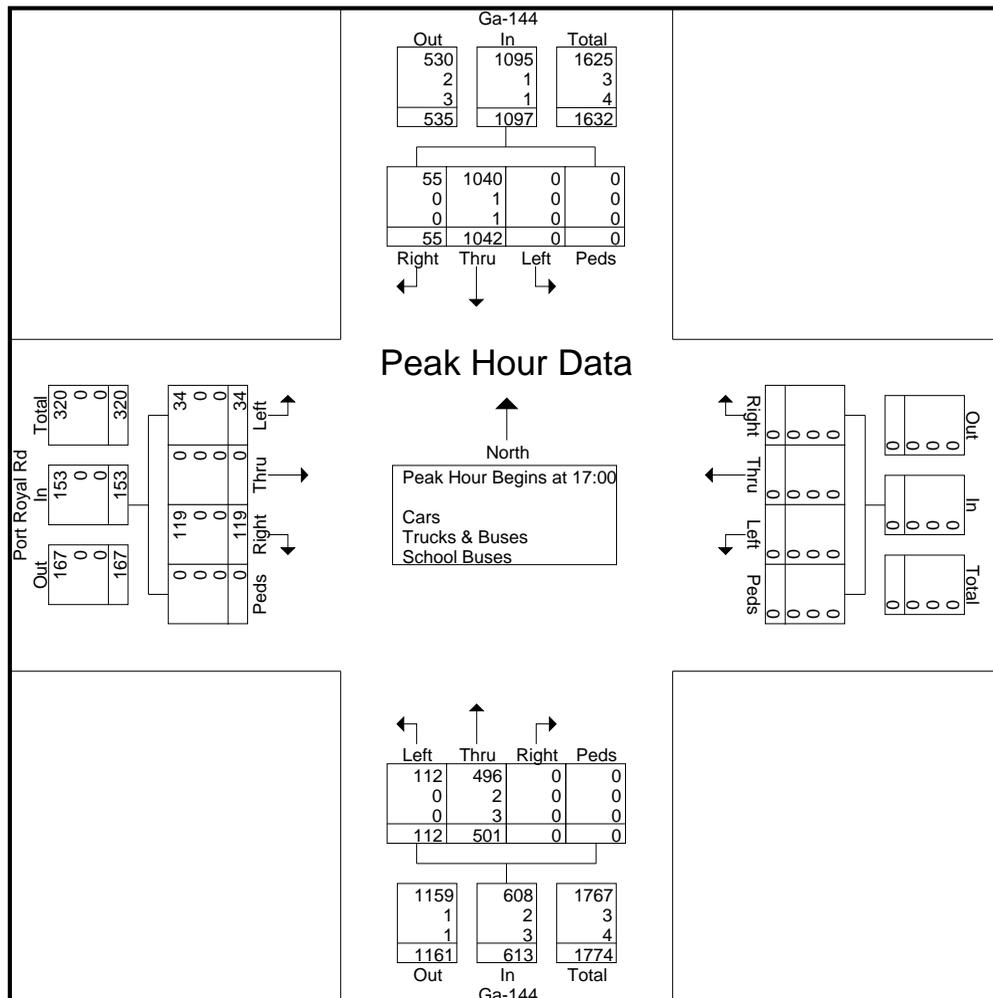
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-03
Site Code : 01573403
Start Date : 10/21/2015
Page No : 4

Start Time	Ga-144 Northbound					Ga-144 Southbound					Port Royal Rd Eastbound					Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	30	111	0	0	141	0	243	12	0	255	13	0	28	0	41	0	0	0	0	0	437
17:15	25	134	0	0	159	0	275	11	0	286	9	0	20	0	29	0	0	0	0	0	474
17:30	29	130	0	0	159	0	247	16	0	263	5	0	30	0	35	0	0	0	0	0	457
17:45	28	126	0	0	154	0	277	16	0	293	7	0	41	0	48	0	0	0	0	0	495
Total Volume	112	501	0	0	613	0	1042	55	0	1097	34	0	119	0	153	0	0	0	0	0	1863
% App. Total	18.3	81.7	0	0		0	95	5	0		22.2	0	77.8	0		0	0	0	0		
PHF	.933	.935	.000	.000	.964	.000	.940	.859	.000	.936	.654	.000	.726	.000	.797	.000	.000	.000	.000	.000	.941
Cars	112	496	0	0	608	0	1040			1040	100	0	100	0	100	0	0	0	0	0	99.6
% Cars	100	99.0	0	0	99.2	0	99.8	100	0	99.8	100	0	100	0	100	0	0	0	0	0	
Trucks & Buses	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
% Trucks & Buses	0	0.4	0	0	0.3	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.2
School Buses	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
% School Buses	0	0.6	0	0	0.5	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.2

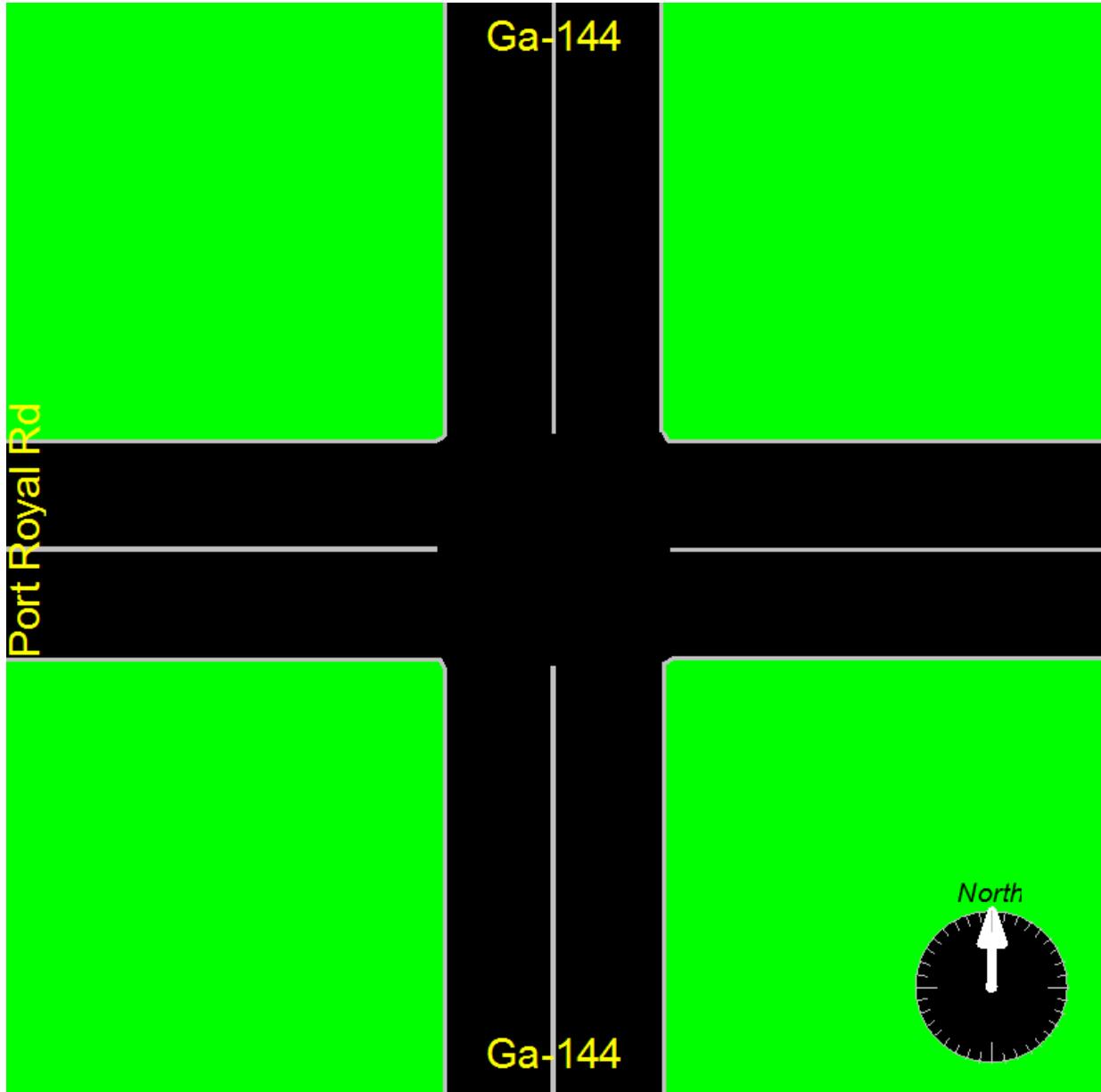


Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: T-2291
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-03
Site Code : 01573403
Start Date : 10/21/2015
Page No : 5





Google earth



TDC Job# 15734-03, GA-144 & Port Royal Rd, Richmond Hill, Ga, 7-9am & 4-6pm

Rabbit Hill Rd- AM	7 out to Lft	9 In Rt
PM	2 out to Lft	20 in Rt

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-09
Site Code : 01573409
Start Date : 10/21/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

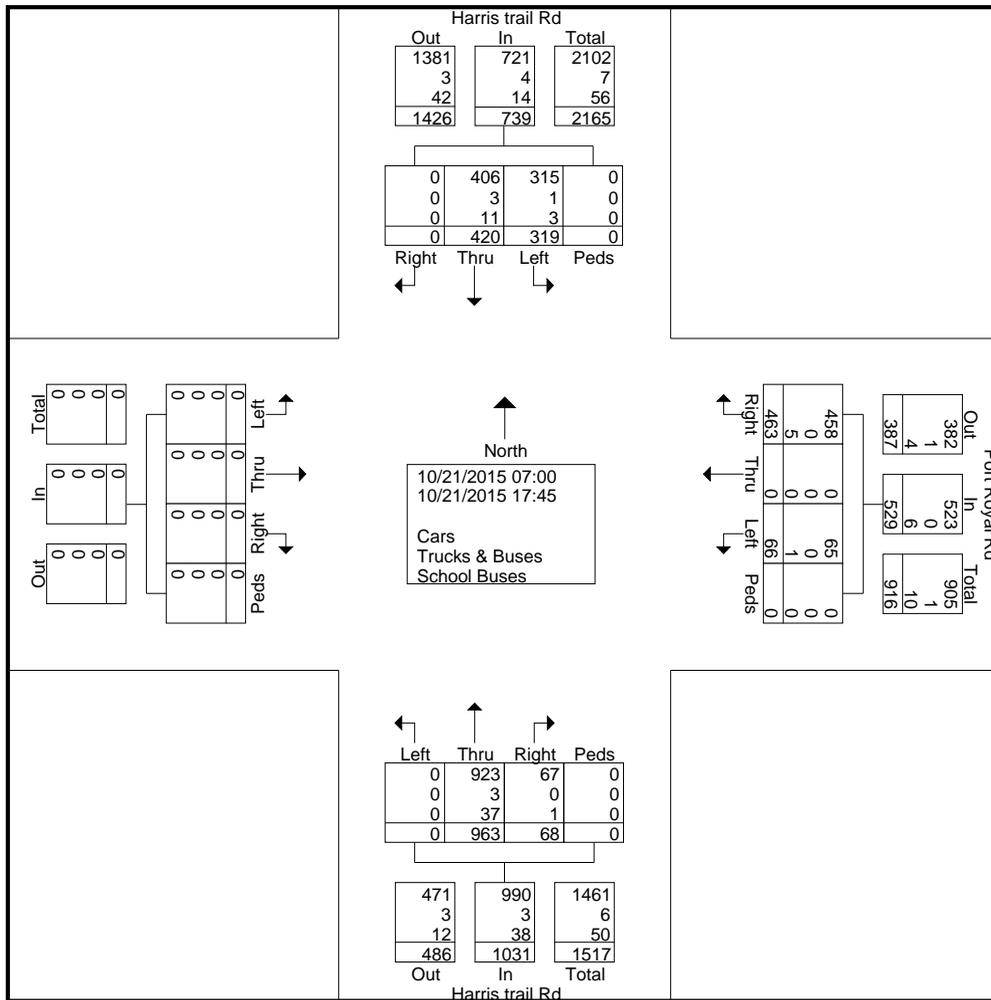
Start Time	Harris trail Rd Northbound					Harris trail Rd Southbound					Eastbound					Port Royal Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	0	78	2	0	80	14	20	0	0	34	0	0	0	0	0	5	0	75	0	80	194
07:15	0	171	10	0	181	11	18	0	0	29	0	0	0	0	0	1	0	98	0	99	309
07:30	0	114	2	0	116	19	25	0	0	44	0	0	0	0	0	0	0	37	0	37	197
07:45	0	66	4	0	70	16	27	0	0	43	0	0	0	0	0	4	0	27	0	31	144
Total	0	429	18	0	447	60	90	0	0	150	0	0	0	0	0	10	0	237	0	247	844
08:00	0	43	0	0	43	10	39	0	0	49	0	0	0	0	0	6	0	21	0	27	119
08:15	0	69	3	0	72	11	22	0	0	33	0	0	0	0	0	1	0	14	0	15	120
08:30	0	65	6	0	71	6	12	0	0	18	0	0	0	0	0	3	0	7	0	10	99
08:45	0	36	5	0	41	10	13	0	0	23	0	0	0	0	0	2	0	9	0	11	75
Total	0	213	14	0	227	37	86	0	0	123	0	0	0	0	0	12	0	51	0	63	413
*** BREAK ***																					
16:00	0	62	5	0	67	20	27	0	0	47	0	0	0	0	0	2	0	20	0	22	136
16:15	0	40	4	0	44	18	23	0	0	41	0	0	0	0	0	1	0	18	0	19	104
16:30	0	32	6	0	38	17	24	0	0	41	0	0	0	0	0	7	0	17	0	24	103
16:45	0	32	5	0	37	27	22	0	0	49	0	0	0	0	0	4	0	25	0	29	115
Total	0	166	20	0	186	82	96	0	0	178	0	0	0	0	0	14	0	80	0	94	458
17:00	0	39	2	0	41	27	34	0	0	61	0	0	0	0	0	5	0	25	0	30	132
17:15	0	35	5	0	40	30	40	0	0	70	0	0	0	0	0	11	0	29	0	40	150
17:30	0	36	6	0	42	39	34	0	0	73	0	0	0	0	0	7	0	21	0	28	143
17:45	0	45	3	0	48	44	40	0	0	84	0	0	0	0	0	7	0	20	0	27	159
Total	0	155	16	0	171	140	148	0	0	288	0	0	0	0	0	30	0	95	0	125	584
Grand Total	0	963	68	0	1031	319	420	0	0	739	0	0	0	0	0	66	0	463	0	529	2299
Apprch %	0	93.4	6.6	0	44	43.2	56.8	0	0	41	0	0	0	0	0	12.5	0	87.5	0	99	
Total %	0	41.9	3	0	44.8	13.9	18.3	0	0	32.1	0	0	0	0	0	2.9	0	20.1	0	23	
Cars	0	923	67	0	990	315	406	0	0	721	0	0	0	0	0	65	0	458	0	523	2234
% Cars	0	95.8	98.5	0	96	98.7	96.7	0	0	97.6	0	0	0	0	0	98.5	0	98.9	0	98.9	97.2
Trucks & Buses	0	3	0	0	3	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	7
% Trucks & Buses	0	0.3	0	0	0.3	0.3	0.7	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0.3
School Buses	0	37	1	0	38	3	11	0	0	14	0	0	0	0	0	1	0	5	0	6	58
% School Buses	0	3.8	1.5	0	3.7	0.9	2.6	0	0	1.9	0	0	0	0	0	1.5	0	1.1	0	1.1	2.5

Traffic Data Connection

PO Box 445
 Abbeville, Ga 31001
 843-412-6222

Counter: D4-4421
 Counted By: BE
 Weather: Mild
 Other: T&H

File Name : 15734-09
 Site Code : 01573409
 Start Date : 10/21/2015
 Page No : 2



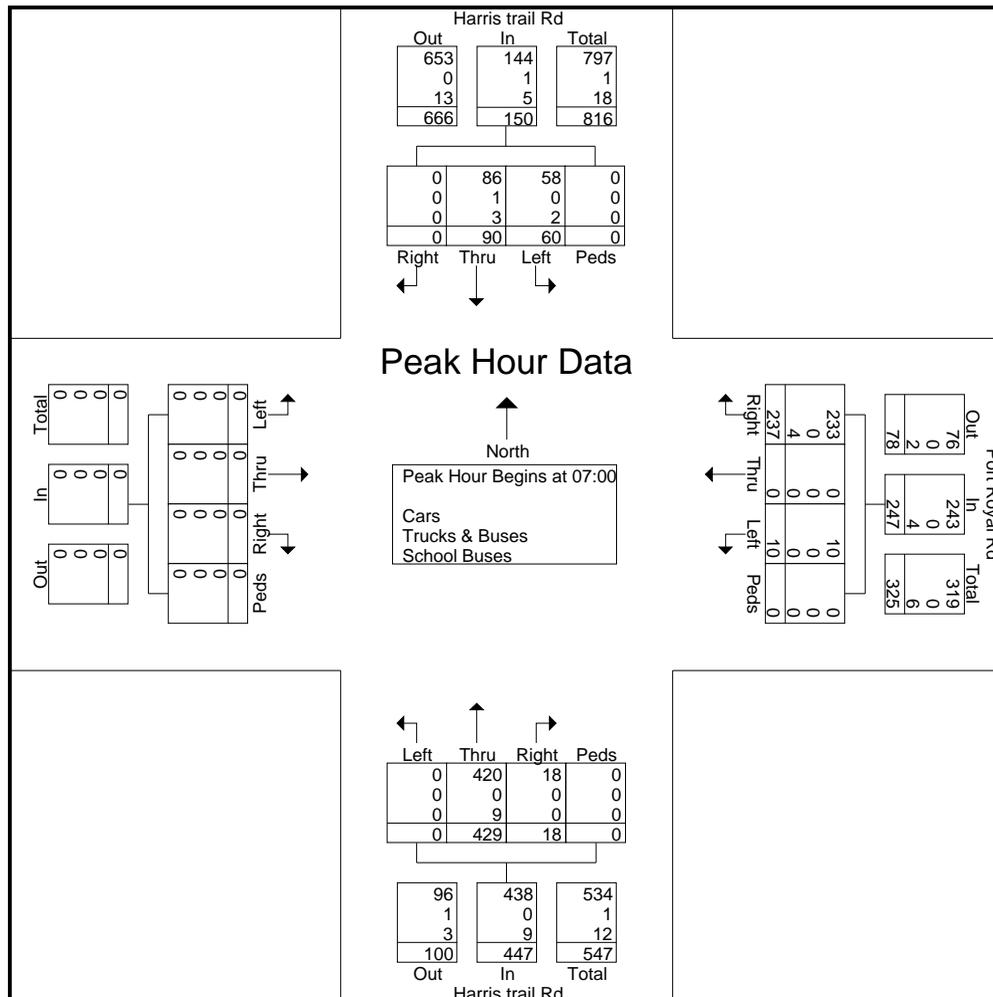
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-09
Site Code : 01573409
Start Date : 10/21/2015
Page No : 3

Start Time	Harris trail Rd Northbound					Harris trail Rd Southbound					Eastbound					Port Royal Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	78	2	0	80	14	20	0	0	34	0	0	0	0	0	5	0	75	0	80	194
07:15	0	171	10	0	181	11	18	0	0	29	0	0	0	0	0	1	0	98	0	99	309
07:30	0	114	2	0	116	19	25	0	0	44	0	0	0	0	0	0	0	37	0	37	197
07:45	0	66	4	0	70	16	27	0	0	43	0	0	0	0	0	4	0	27	0	31	144
Total Volume	0	429	18	0	447	60	90	0	0	150	0	0	0	0	0	10	0	237	0	247	844
% App. Total	0	96	4	0		40	60	0	0		0	0	0	0		4	0	96	0		
PHF	.000	.627	.450	.000	.617	.789	.833	.000	.000	.852	.000	.000	.000	.000	.000	.500	.000	.605	.000	.624	.683
Cars	0	420	18	0	438	58	86	0	0	144	0	0	0	0	0	10	0	233	0	243	825
% Cars	0	97.9	100	0	98.0	96.7	95.6	0	0	96.0	0	0	0	0	0	100	0	98.3	0	98.4	97.7
Trucks & Buses	0	0	0	0	0	0	1.1	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.1
% Trucks & Buses	0	0	0	0	0	0	1.1	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.1
School Buses	0	9	0	0	9	2	3	0	0	5	0	0	0	0	0	0	0	4	0	4	18
% School Buses	0	2.1	0	0	2.0	3.3	3.3	0	0	3.3	0	0	0	0	0	0	0	1.7	0	1.6	2.1



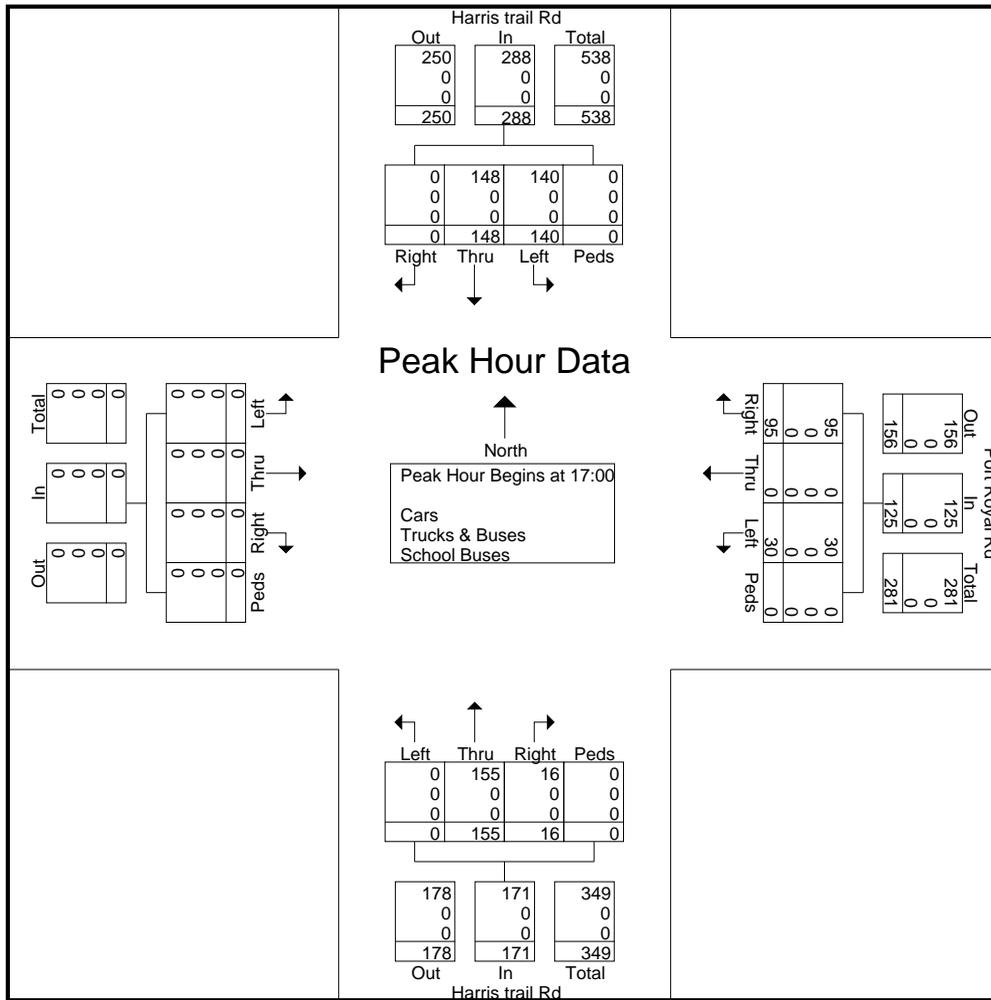
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-09
Site Code : 01573409
Start Date : 10/21/2015
Page No : 4

Start Time	Harris trail Rd Northbound					Harris trail Rd Southbound					Eastbound					Port Royal Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	39	2	0	41	27	34	0	0	61	0	0	0	0	0	5	0	25	0	30	132
17:15	0	35	5	0	40	30	40	0	0	70	0	0	0	0	0	11	0	29	0	40	150
17:30	0	36	6	0	42	39	34	0	0	73	0	0	0	0	0	7	0	21	0	28	143
17:45	0	45	3	0	48	44	40	0	0	84	0	0	0	0	0	7	0	20	0	27	159
Total Volume	0	155	16	0	171	140	148	0	0	288	0	0	0	0	0	30	0	95	0	125	584
% App. Total	0	90.6	9.4	0		48.6	51.4	0	0		0	0	0	0		24	0	76	0		
PHF	.000	.861	.667	.000	.891	.795	.925	.000	.000	.857	.000	.000	.000	.000	.000	.682	.000	.819	.000	.781	.918
Cars	0	155	16	0	171	140	148	0	0	288	0	0	0	0	0	30	0	95	0	125	584
% Cars	0	100	100	0	100	100	100	0	0	100	0	0	0	0	0	100	0	100	0	100	100
Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

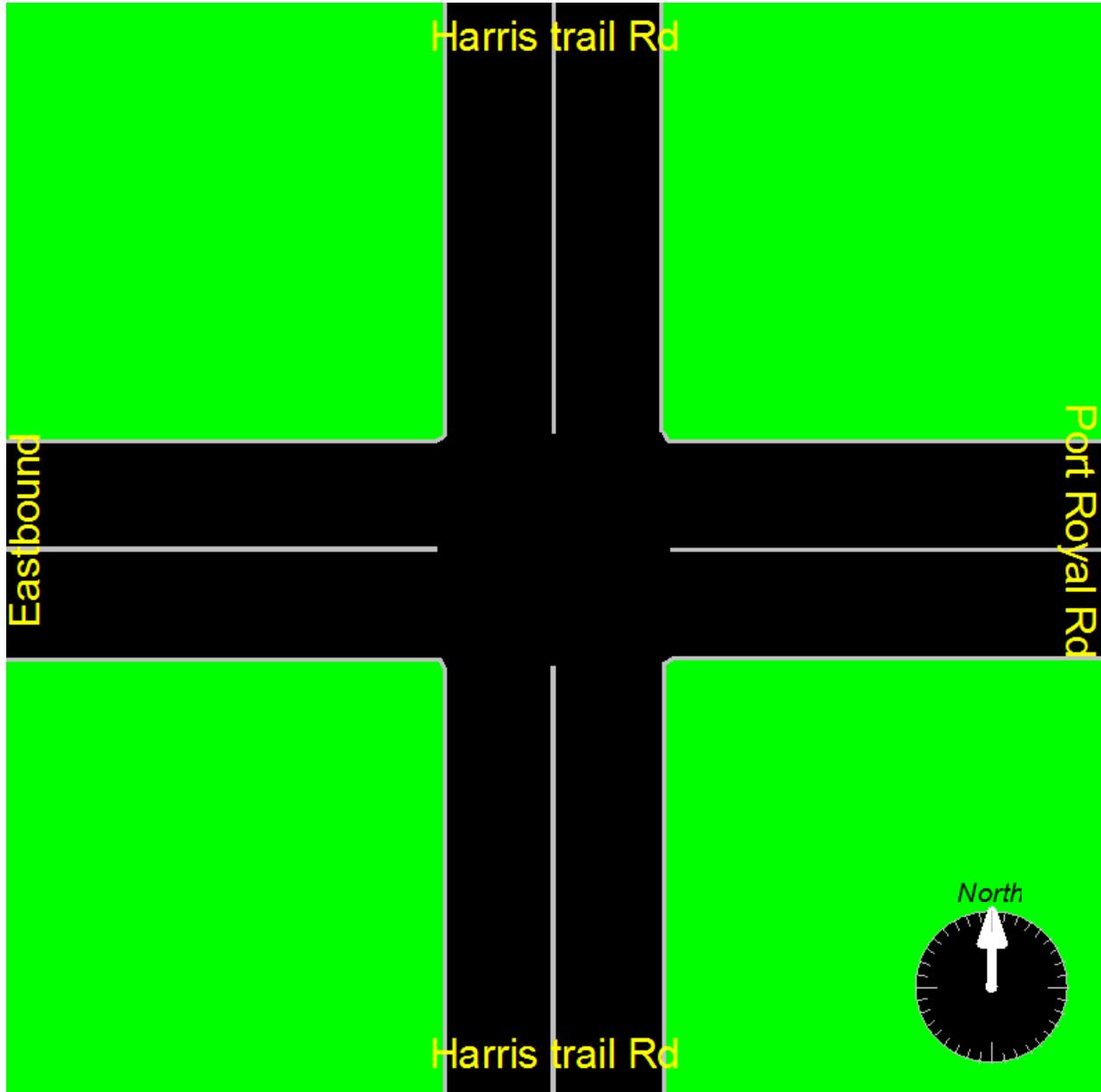


Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-09
Site Code : 01573409
Start Date : 10/21/2015
Page No : 5





Google earth

feet 100
meters 30



TDC Job# 15734-09, Harris Trail Rd & Port Royal Rd, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-04
Site Code : 01573404
Start Date : 10/20/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

Start Time	Ga-144 Northbound					Ga-144 Southbound					Eastbound					Fort McAllister Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	0	230	6	0	236	6	37	0	0	43	0	0	0	0	0	8	0	23	0	31	310
07:15	0	205	2	0	207	7	48	0	0	55	0	0	0	0	0	8	0	39	0	47	309
07:30	0	181	9	0	190	10	52	0	0	62	0	0	0	0	0	6	0	28	0	34	286
07:45	0	165	5	0	170	10	68	0	0	78	0	0	0	0	0	3	0	29	0	32	280
Total	0	781	22	0	803	33	205	0	0	238	0	0	0	0	0	25	0	119	0	144	1185
08:00	0	122	1	0	123	12	85	0	0	97	0	0	0	0	0	4	0	21	0	25	245
08:15	0	126	4	0	130	5	82	0	0	87	0	0	0	0	0	6	0	22	0	28	245
08:30	0	160	10	0	170	6	57	0	0	63	0	0	0	0	0	7	0	17	0	24	257
08:45	0	143	7	0	150	7	57	0	0	64	0	0	0	0	0	6	0	20	0	26	240
Total	0	551	22	0	573	30	281	0	0	311	0	0	0	0	0	23	0	80	0	103	987
*** BREAK ***																					
16:00	0	83	6	0	89	26	122	0	0	148	0	0	0	0	0	8	0	12	0	20	257
16:15	0	88	10	0	98	22	119	0	0	141	0	0	0	0	0	2	0	13	0	15	254
16:30	0	77	5	0	82	27	117	0	0	144	0	0	0	0	0	2	0	8	0	10	236
16:45	0	106	4	0	110	30	154	0	0	184	0	0	0	0	0	10	0	10	0	20	314
Total	0	354	25	0	379	105	512	0	0	617	0	0	0	0	0	22	0	43	0	65	1061
17:00	0	115	10	0	125	28	189	0	0	217	0	0	0	0	0	9	0	12	0	21	363
17:15	0	111	10	0	121	29	176	0	0	205	0	0	0	0	0	3	0	13	0	16	342
17:30	0	114	12	0	126	23	204	0	0	227	0	0	0	0	0	9	0	22	0	31	384
17:45	0	104	13	0	117	32	237	0	0	269	0	0	0	0	0	13	0	12	0	25	411
Total	0	444	45	0	489	112	806	0	0	918	0	0	0	0	0	34	0	59	0	93	1500
Grand Total	0	2130	114	0	2244	280	1804	0	0	2084	0	0	0	0	0	104	0	301	0	405	4733
Apprch %	0	94.9	5.1	0		13.4	86.6	0	0		0	0	0	0		25.7	0	74.3	0		
Total %	0	45	2.4	0	47.4	5.9	38.1	0	0	44	0	0	0	0	0	2.2	0	6.4	0	8.6	
Cars	0	2091	108	0	2199	279	1770	0	0	2049	0	0	0	0	0	103	0	296	0	399	4647
% Cars	0	98.2	94.7	0	98	99.6	98.1	0	0	98.3	0	0	0	0	0	99	0	98.3	0	98.5	98.2
Trucks & Buses	0	0.7	1.8	0	0.7	0	1.2	0	0	1	0	0	0	0	0	1	0	0	0	0.2	0.8
School Buses	0	25	4	0	29	1	13	0	0	14	0	0	0	0	0	0	0	5	0	5	48
% School Buses	0	1.2	3.5	0	1.3	0.4	0.7	0	0	0.7	0	0	0	0	0	0	0	1.7	0	1.2	1

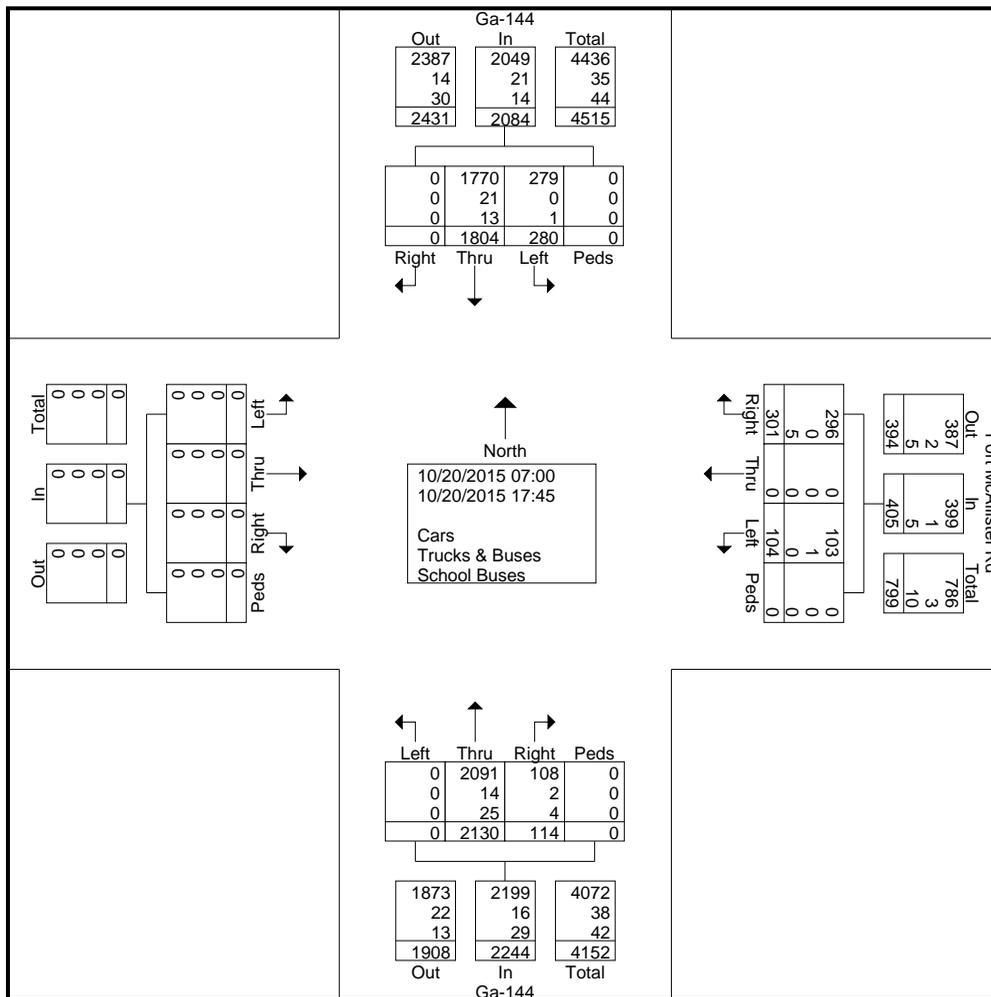
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001

843-412-6222

Counter: D4-1422
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-04
Site Code : 01573404
Start Date : 10/20/2015
Page No : 2



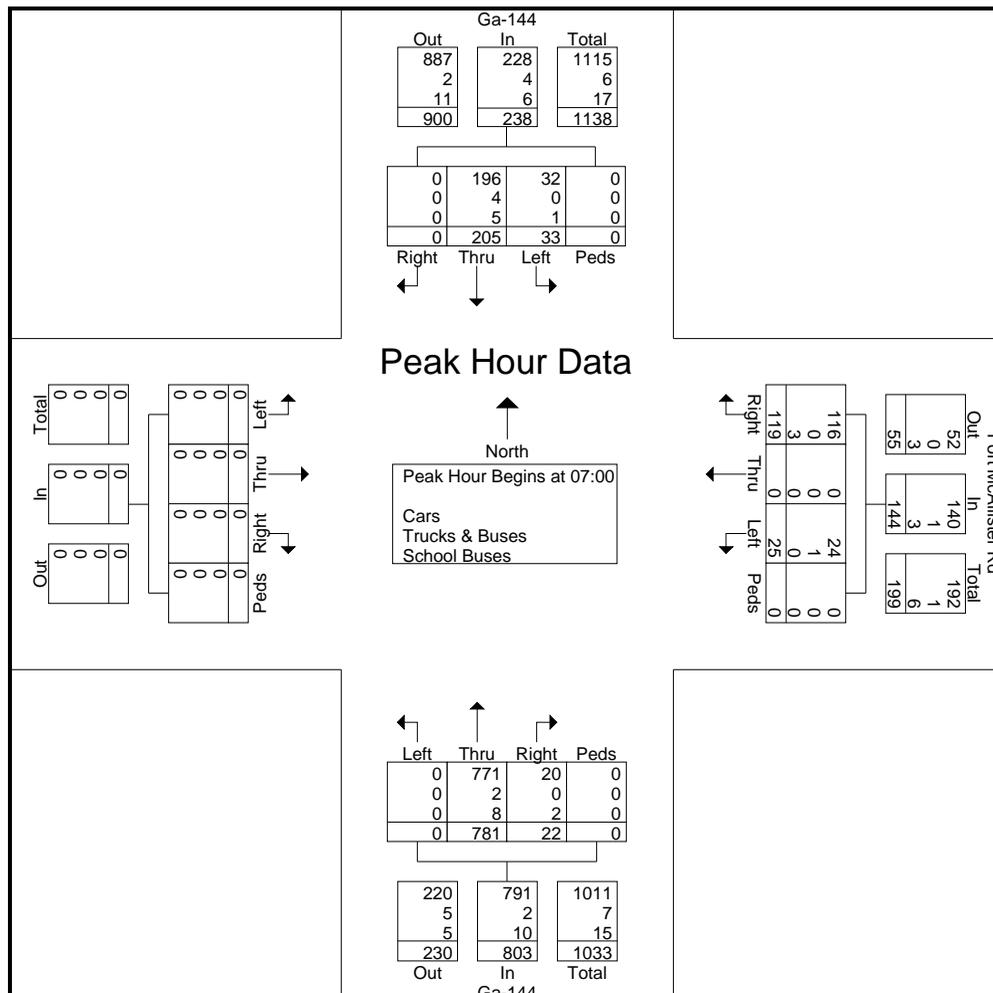
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-04
Site Code : 01573404
Start Date : 10/20/2015
Page No : 3

Start Time	Ga-144 Northbound					Ga-144 Southbound					Eastbound					Fort McAllister Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	230	6	0	236	6	37	0	0	43	0	0	0	0	0	8					310
07:15	0	205	2	0	207	7	48	0	0	55	0	0	0	0	0	8	0	39		47	309
07:30	0	181	9			10	52	0	0	62	0	0	0	0	0	6	0	28	0	34	286
07:45	0	165	5	0	170	10	68			78	0	0	0	0	0	3	0	29	0	32	280
Total Volume	0	781	22	0	803	33	205	0	0	238	0	0	0	0	0	25	0	119	0	144	1185
% App. Total	0	97.3	2.7	0		13.9	86.1	0	0		0	0	0	0	0	17.4	0	82.6	0		
PHF	.000	.849	.611	.000	.851	.825	.754	.000	.000	.763	.000	.000	.000	.000	.000	.781	.000	.763	.000	.766	.956
Cars	0	771	20	0	791	32	196	0	0	228	0	0	0	0	0	24	0	116	0	140	1159
% Cars	0	98.7	90.9	0	98.5	97.0	95.6	0	0	95.8	0	0	0	0	0	96.0	0	97.5	0	97.2	97.8
Trucks & Buses	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	1	0	0	0	0	1
% Trucks & Buses	0	0.3	0	0	0.2	0	2.0	0	0	1.7	0	0	0	0	0	4.0	0	0	0	0.7	0.6
School Buses	0	8	2	0	10	1	5	0	0	6	0	0	0	0	0	0	0	3	0	3	19
% School Buses	0	1.0	9.1	0	1.2	3.0	2.4	0	0	2.5	0	0	0	0	0	0	0	2.5	0	2.1	1.6



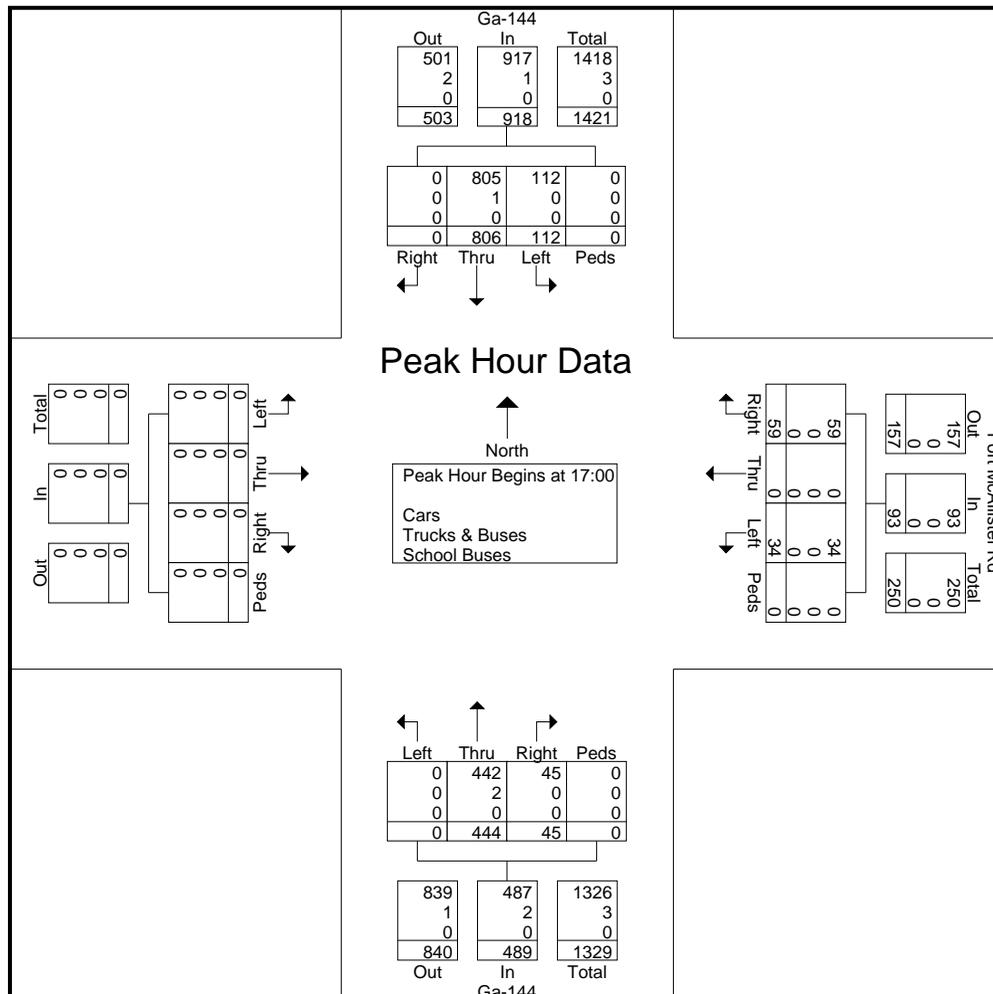
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-04
Site Code : 01573404
Start Date : 10/20/2015
Page No : 4

Start Time	Ga-144 Northbound					Ga-144 Southbound					Eastbound					Fort McAllister Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	115	10	0	125	28	189	0	0	217	0	0	0	0	0	9	0	12	0	21	363
17:15	0	111	10	0	121	29	176	0	0	205	0	0	0	0	0	3	0	13	0	16	342
17:30	0	114	12	0	126	23	204	0	0	227	0	0	0	0	0	9	0	22		31	384
17:45	0	104	13			32	237			269	0	0	0	0	0	13					411
Total Volume	0	444	45	0	489	112	806	0	0	918	0	0	0	0	0	34	0	59	0	93	1500
% App. Total	0	90.8	9.2	0		12.2	87.8	0	0		0	0	0	0		36.6	0	63.4	0		
PHF	.000	.965	.865	.000	.970	.875	.850	.000	.000	.853	.000	.000	.000	.000	.000	.654	.000	.670	.000	.750	.912
Cars	0	442	45	0	487	112	805	0	0	917	0	0	0	0	0	34	0	59	0	93	1497
% Cars	0	99.5	100	0	99.6	100	99.9	0	0	99.9	0	0	0	0	0	100	0	100	0	100	99.8
Trucks & Buses	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
% Trucks & Buses	0	0.5	0	0	0.4	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.2
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

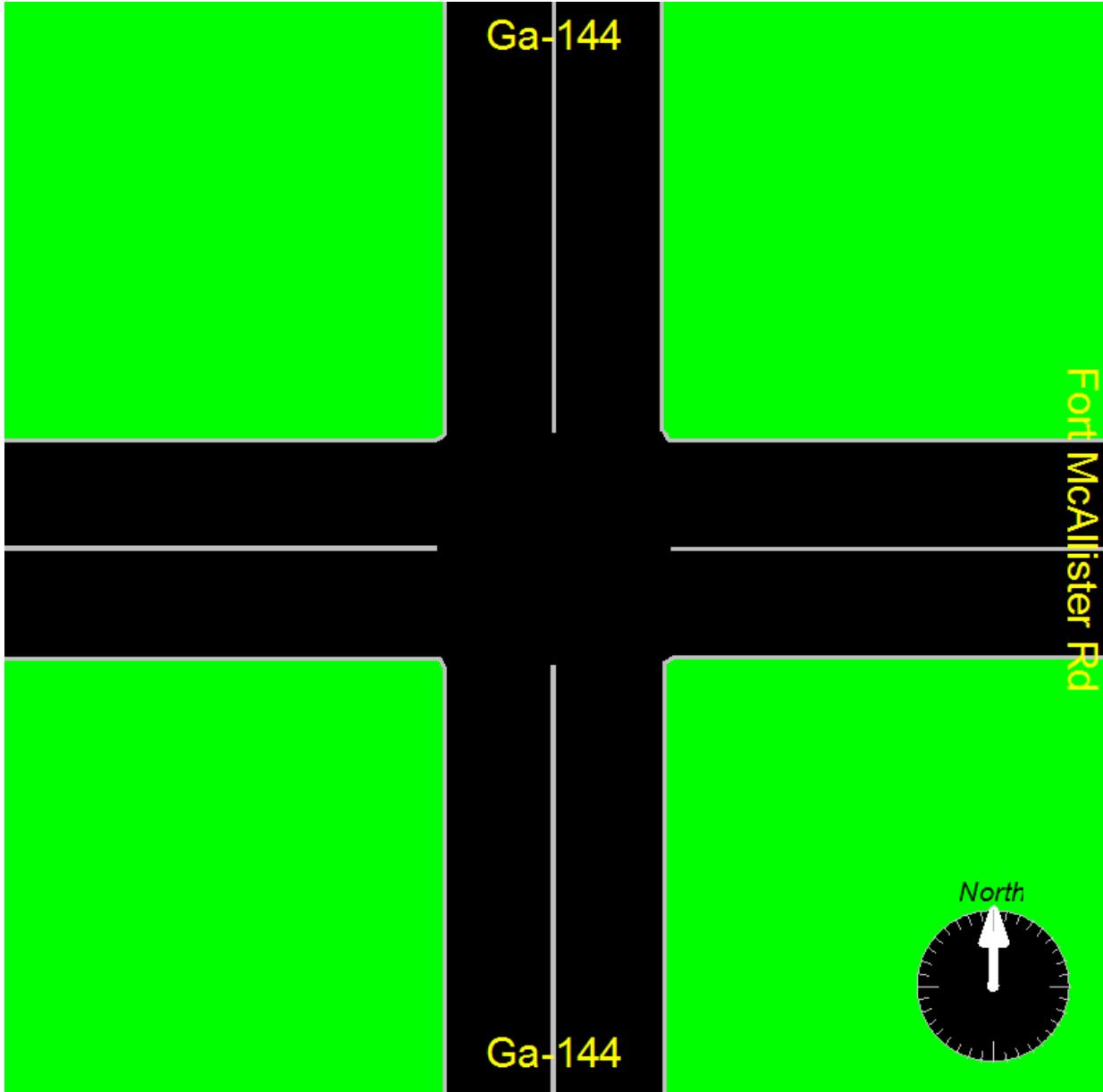


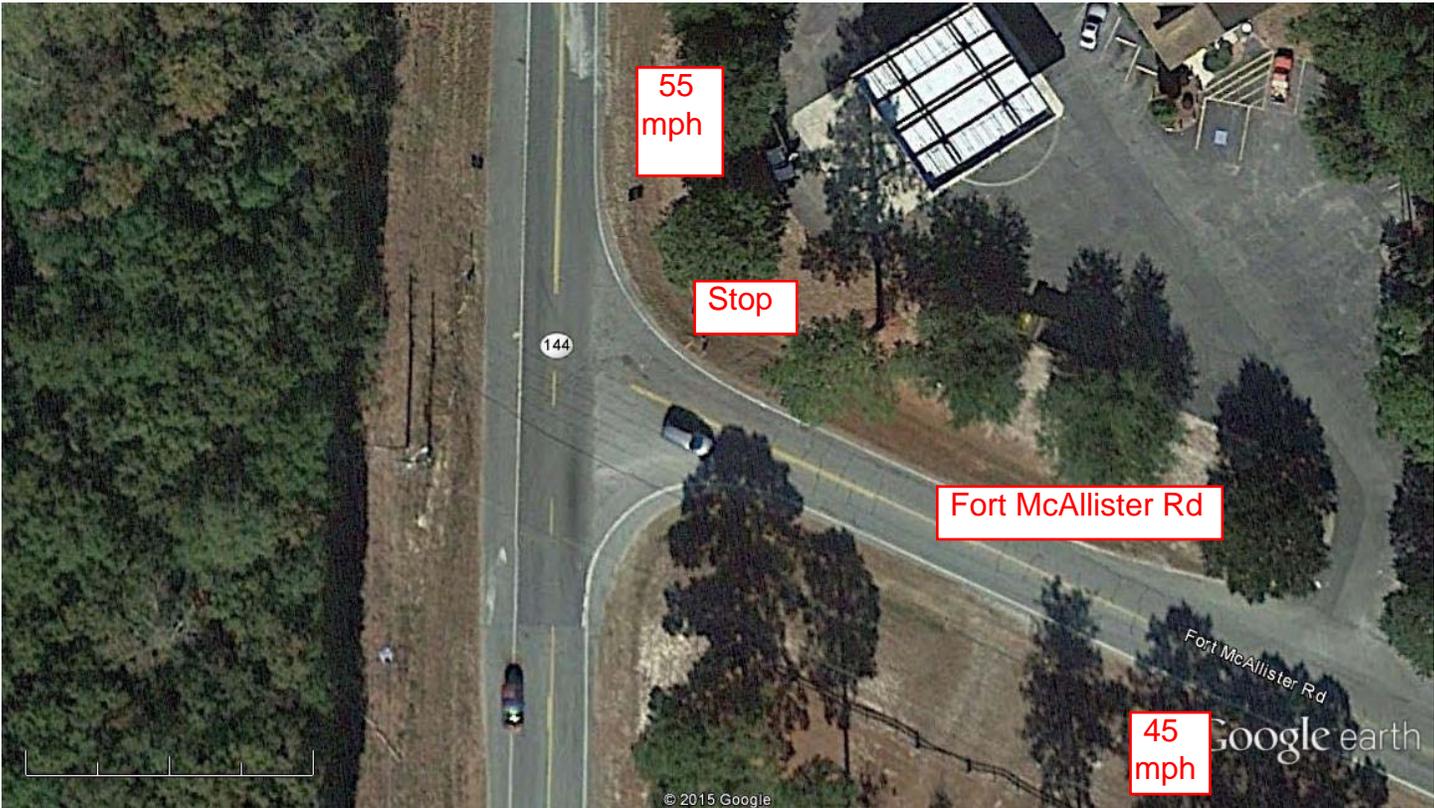
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-1422
Counted By: LME
Weather: Mild
Other: S&S

File Name : 15734-04
Site Code : 01573404
Start Date : 10/20/2015
Page No : 5





Google earth

feet
meters



TDC Job# 15734-04, Ga-144 & Fort McAllister Rd, Richmond Hill Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-05
Site Code : 01573405
Start Date : 10/20/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

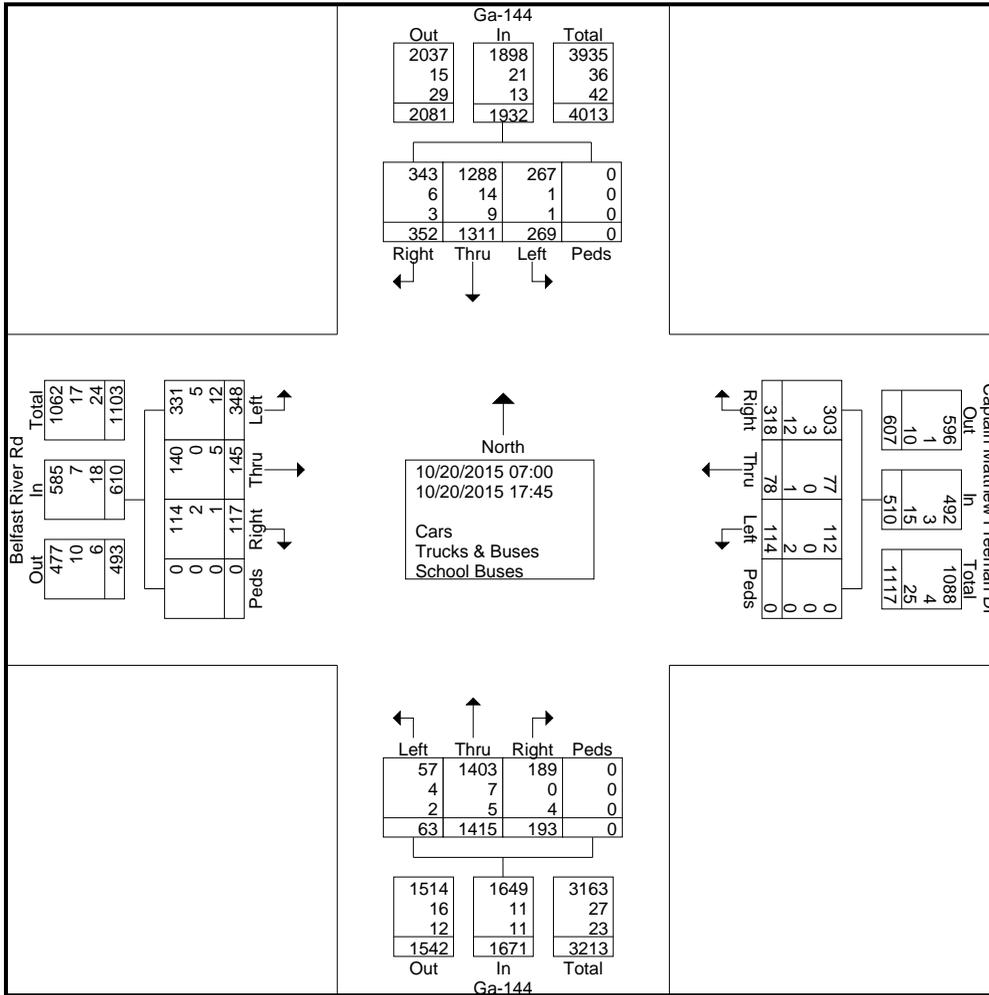
Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast River Rd Eastbound					Captain Matthew Freeman Dr Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	10	172	24	0	206	11	20	10	0	41	19	10	3	0	32	4	4	22	0	30	309
07:15	1	137	70	0	208	4	30	12	0	46	7	20	7	0	34	18	12	47	0	77	365
07:30	2	79	26	0	107	10	28	18	0	56	7	3	6	0	16	27	20	71	0	118	297
07:45	3	127	3	0	133	7	36	30	0	73	5	4	2	0	11	2	4	21	0	27	244
Total	16	515	123	0	654	32	114	70	0	216	38	37	18	0	93	51	40	161	0	252	1215
08:00	9	98	2	0	109	11	40	28	0	79	11	8	5	0	24	1	6	14	0	21	233
08:15	9	93	4	0	106	5	40	42	0	87	31	8	10	0	49	2	4	10	0	16	258
08:30	4	103	1	0	108	9	36	11	0	56	54	13	10	0	77	5	2	12	0	19	260
08:45	2	91	5	0	98	12	50	7	0	69	13	1	3	0	17	2	0	15	0	17	201
Total	24	385	12	0	421	37	166	88	0	291	109	30	28	0	167	10	12	51	0	73	952
*** BREAK ***																					
16:00	1	54	2	0	57	17	106	19	0	142	34	4	3	0	41	7	3	11	0	21	261
16:15	0	49	3	0	52	20	93	16	0	129	17	5	1	0	23	4	3	20	0	27	231
16:30	1	47	1	0	49	11	104	18	0	133	17	2	3	0	22	8	5	16	0	29	233
16:45	5	83	2	0	90	24	118	27	0	169	20	8	1	0	29	9	1	9	0	19	307
Total	7	233	8	0	248	72	421	80	0	573	88	19	8	0	115	28	12	56	0	96	1032
17:00	3	81	7	0	91	18	160	27	0	205	23	8	9	0	40	8	6	17	0	31	367
17:15	4	75	4	0	83	19	138	34	0	191	19	6	12	0	37	11	4	14	0	29	340
17:30	3	69	4	0	76	32	147	27	0	206	40	11	21	0	72	1	3	9	0	13	367
17:45	6	57	35	0	98	59	165	26	0	250	31	34	21	0	86	5	1	10	0	16	450
Total	16	282	50	0	348	128	610	114	0	852	113	59	63	0	235	25	14	50	0	89	1524
Grand Total	63	1415	193	0	1671	269	1311	352	0	1932	348	145	117	0	610	114	78	318	0	510	4723
Apprch %	3.8	84.7	11.5	0		13.9	67.9	18.2	0		57	23.8	19.2	0		22.4	15.3	62.4	0		
Total %	1.3	30	4.1	0	35.4	5.7	27.8	7.5	0	40.9	7.4	3.1	2.5	0	12.9	2.4	1.7	6.7	0	10.8	
Cars	57	1403	189	0	1649	267	1288	343	0	1898	331	140	114	0	585	112	77	303	0	492	4624
% Cars	90.5	99.2	97.9	0	98.7	99.3	98.2	97.4	0	98.2	95.1	96.6	97.4	0	95.9	98.2	98.7	95.3	0	96.5	97.9
Trucks & Buses																					
% Trucks & Buses	6.3	0.5	0	0	0.7	0.4	1.1	1.7	0	1.1	1.4	0	1.7	0	1.1	0	0	0.9	0	0.6	0.9
School Buses	2	5	4	0	11	1	9	3	0	13	12	5	1	0	18	2	1	12	0	15	57
% School Buses	3.2	0.4	2.1	0	0.7	0.4	0.7	0.9	0	0.7	3.4	3.4	0.9	0	3	1.8	1.3	3.8	0	2.9	1.2

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-05
Site Code : 01573405
Start Date : 10/20/2015
Page No : 2



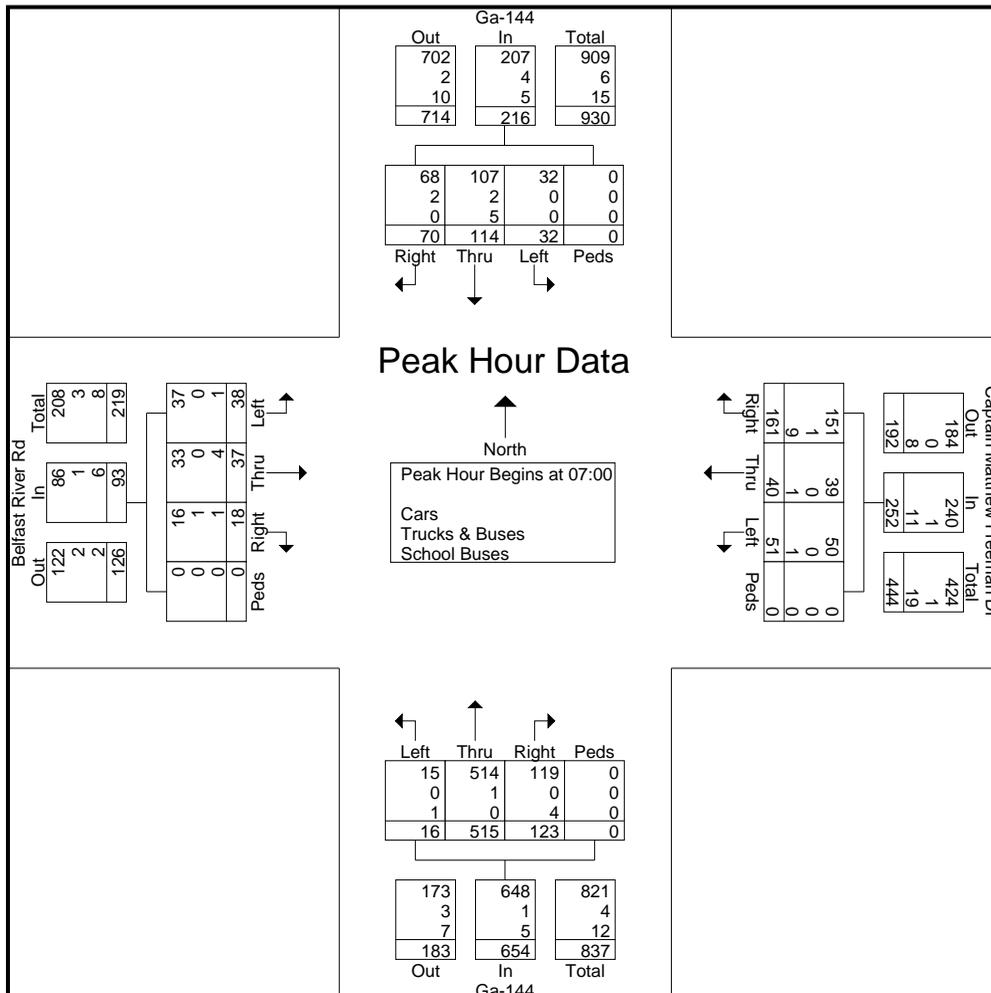
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-05
Site Code : 01573405
Start Date : 10/20/2015
Page No : 3

Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast River Rd Eastbound					Captain Matthew Freeman Dr Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	10	172	24	0	206	11	20	10	0	41	19										
07:15	1	137	70	0	208	4	30	12	0	46	7	20	7	0	34	18	12	47	0	77	365
07:30	2	79	26	0	107	10	28	18	0	56	7	3	6	0	16	27	20	71	0	118	297
07:45	3	127	3	0	133	7	36	30	0	73	5	4	2	0	11	2	4	21	0	27	244
Total Volume	16	515	123	0	654	32	114	70	0	216	38	37	18	0	93	51	40	161	0	252	1215
% App. Total	2.4	78.7	18.8	0		14.8	52.8	32.4	0		40.9	39.8	19.4	0		20.2	15.9	63.9	0		
PHF	.400	.749	.439	.000	.786	.727	.792	.583	.000	.740	.500	.463	.643	.000	.684	.472	.500	.567	.000	.534	.832
Cars	15	514	119	0	648	32	107	68	0	207	37	33	16	0	86	50	39	151	0	240	1181
% Cars	93.8	99.8	96.7	0	99.1	100	93.9	97.1	0	95.8	97.4	89.2	88.9	0	92.5	98.0	97.5	93.8	0	95.2	97.2
Trucks & Buses	0	1	0	0	1	0	2	2	0	4	0	0	1	0	1	0	0	1	0	0	1
% Trucks & Buses	0	0.2	0	0	0.2	0	1.8	2.9	0	1.9	0	0	5.6	0	1.1	0	0	0.6	0	0.4	0.6
School Buses	1	0	4	0	5	0	5	0	0	5	1	4	1	0	6	1	1	9	0	11	27
% School Buses	6.3	0	3.3	0	0.8	0	4.4	0	0	2.3	2.6	10.8	5.6	0	6.5	2.0	2.5	5.6	0	4.4	2.2



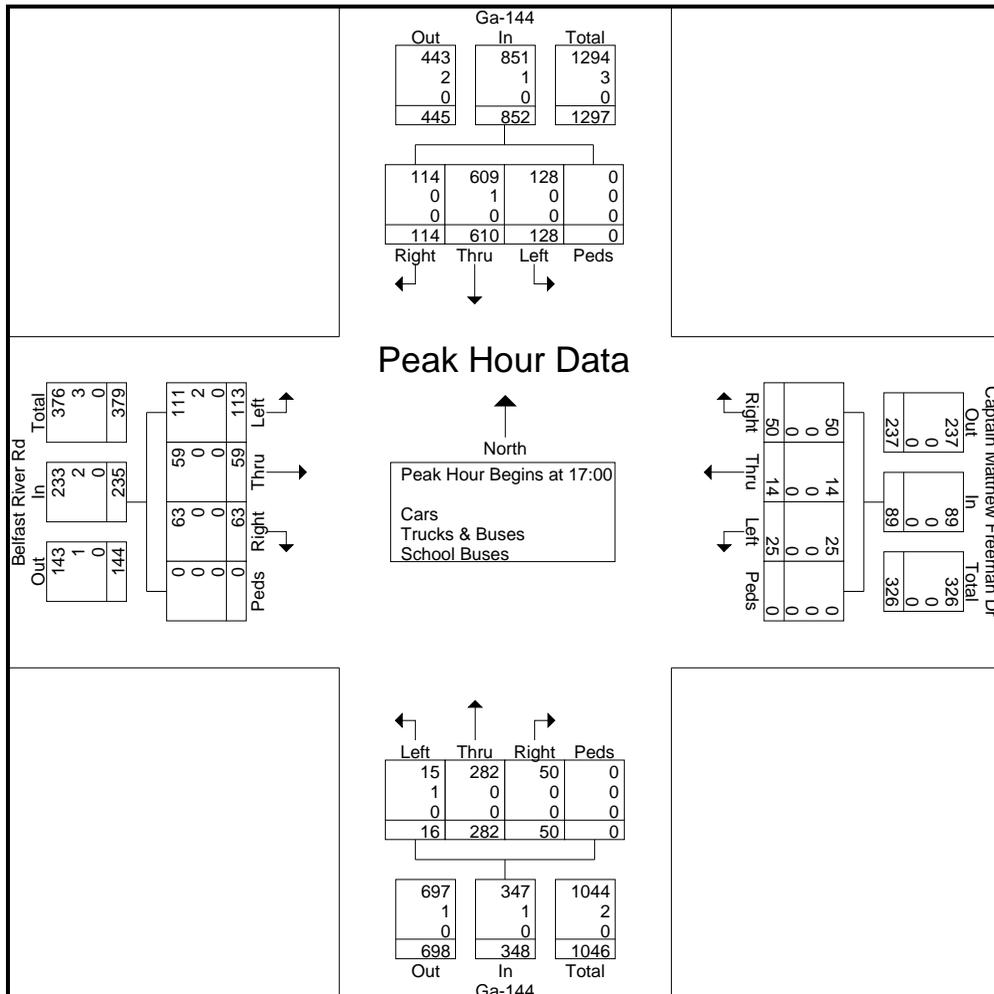
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-05
Site Code : 01573405
Start Date : 10/20/2015
Page No : 4

Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast River Rd Eastbound					Captain Matthew Freeman Dr Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	3	81	7	0	91	18	160	27	0	205	23	8	9	0	40	8	6	17		31	367
17:15	4	75	4	0	83	19	138	34								11					
17:30	3	69	4	0	76	32	147	27	0	206	40	11	21	0	72	1	3	9	0	13	367
17:45	6		35		98	59	165			250	31	34			86	5	1	10	0	16	450
Total Volume	16	282	50	0	348	128	610	114	0	852	113	59	63	0	235	25	14	50	0	89	1524
% App. Total	4.6	81	14.4	0		15	71.6	13.4	0		48.1	25.1	26.8	0		28.1	15.7	56.2	0		
PHF	.667	.870	.357	.000	.888	.542	.924	.838	.000	.852	.706	.434	.750	.000	.683	.568	.583	.735	.000	.718	.847
Cars	15	282	50	0	347	128	609	114	0	851	111	59	63	0	233	25	14	50	0	89	1520
% Cars	93.8	100	100	0	99.7	100	99.8	100	0	99.9	98.2	100	100	0	99.1	100	100	100	0	100	99.7
Trucks & Buses	1	0	0	0	1	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	4
% Trucks & Buses	6.3	0	0	0	0.3	0	0.2	0	0	0.1	1.8	0	0	0	0.9	0	0	0	0	0	0.3
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

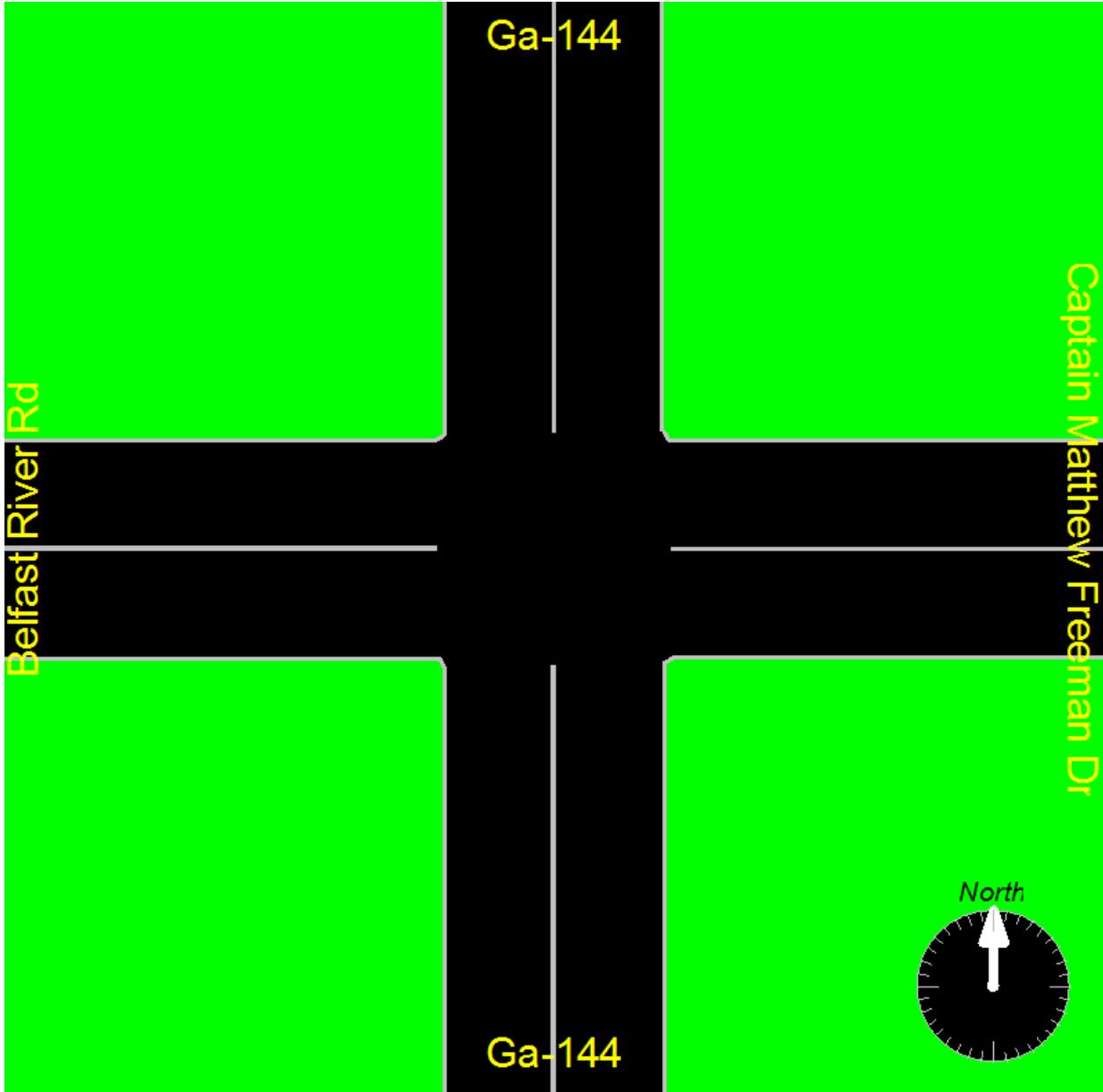


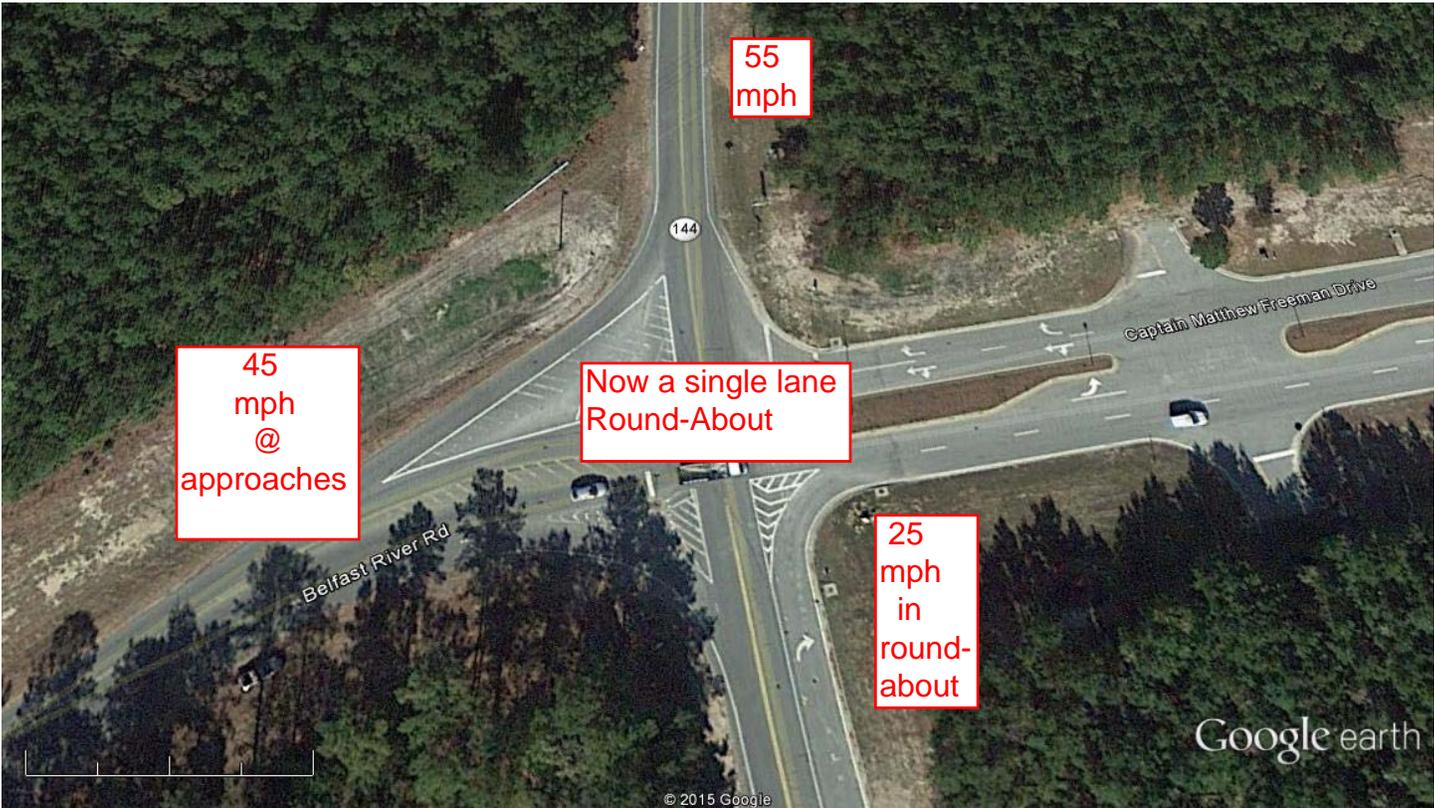
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-05
Site Code : 01573405
Start Date : 10/20/2015
Page No : 5





Google earth

feet
meters



TDC Job# 15734-05, Belfast River Rd & Ga-144, Richmond Hill, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-06
Site Code : 01573406
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

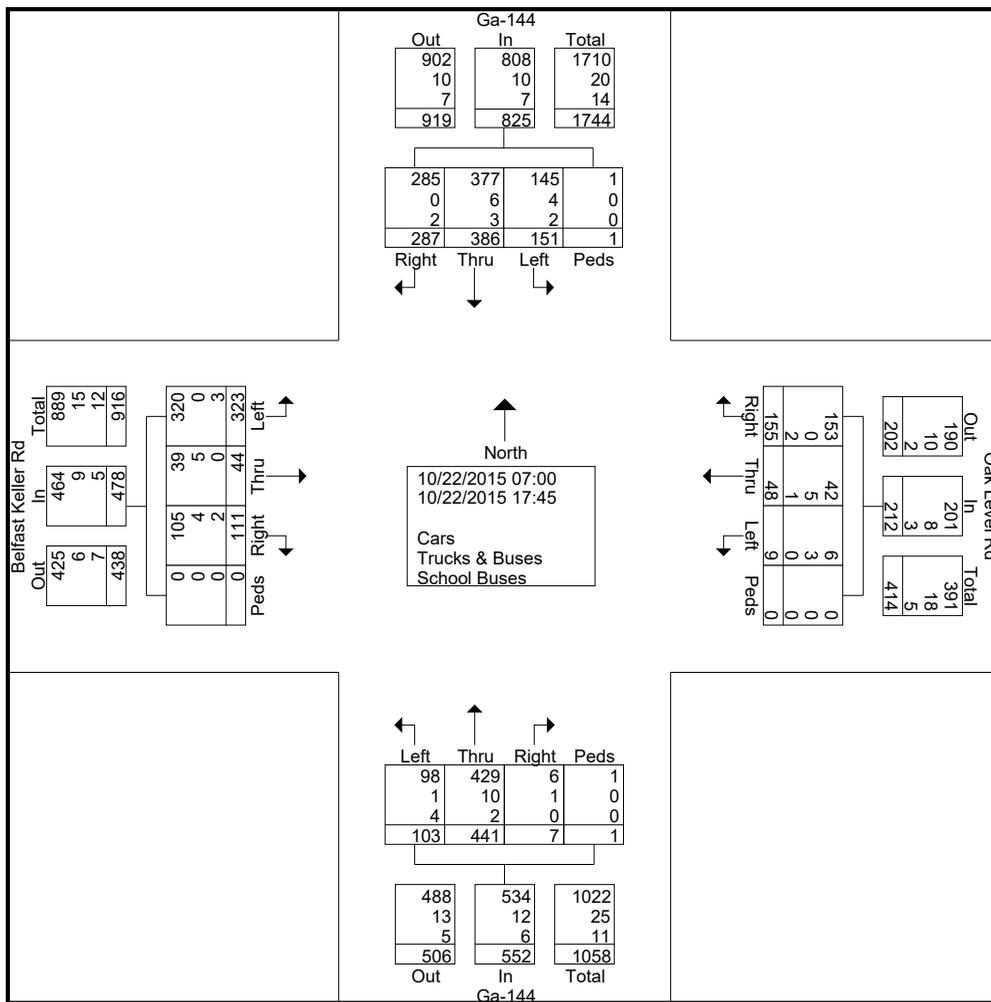
Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast Keller Rd Eastbound					Oak Level Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	14	76	0	0	90	4	9	16	0	29	30	0	5	0	35	1	4	18	0	23	177
07:15	14	49	1	0	64	9	14	17	0	40	25	3	2	0	30	0	2	20	0	22	156
07:30	10	30	2	0	42	9	21	24	0	54	22	4	6	0	32	0	6	9	0	15	143
07:45	4	29	0	0	33	12	18	17	0	47	20	2	3	0	25	3	4	10	0	17	122
Total	42	184	3	0	229	34	62	74	0	170	97	9	16	0	122	4	16	57	0	77	598
08:00	8	41	0	0	49	4	14	13	0	31	17	2	4	0	23	0	1	9	0	10	113
08:15	9	23	1	0	33	9	13	14	0	36	18	1	12	0	31	0	4	7	0	11	111
08:30	5	28	1	0	34	13	16	6	0	35	12	3	5	0	20	2	2	12	0	16	105
08:45	3	23	0	0	26	7	11	9	0	27	19	2	4	0	25	1	1	10	0	12	90
Total	25	115	2	0	142	33	54	42	0	129	66	8	25	0	99	3	8	38	0	49	419
*** BREAK ***																					
16:00	6	18	0	0	24	12	31	21	0	64	15	4	4	0	23	0	5	7	0	12	123
16:15	8	20	0	0	28	5	39	15	0	59	23	5	15	0	43	0	0	10	0	10	140
16:30	5	25	1	1	32	6	24	21	1	52	15	4	6	0	25	0	3	13	0	16	125
16:45	4	16	0	0	20	9	30	20	0	59	23	1	8	0	32	1	2	2	0	5	116
Total	23	79	1	1	104	32	124	77	1	234	76	14	33	0	123	1	10	32	0	43	504
17:00	4	17	1	0	22	16	28	20	0	64	23	4	7	0	34	0	3	3	0	6	126
17:15	1	9	0	0	10	12	34	19	0	65	17	3	6	0	26	0	4	8	0	12	113
17:30	6	18	0	0	24	9	36	25	0	70	20	4	12	0	36	0	3	6	0	9	139
17:45	2	19	0	0	21	15	48	30	0	93	24	2	12	0	38	1	4	11	0	16	168
Total	13	63	1	0	77	52	146	94	0	292	84	13	37	0	134	1	14	28	0	43	546
Grand Total	103	441	7	1	552	151	386	287	1	825	323	44	111	0	478	9	48	155	0	212	2067
Apprch %	18.7	79.9	1.3	0.2		18.3	46.8	34.8	0.1		67.6	9.2	23.2	0		4.2	22.6	73.1	0		
Total %	5	21.3	0.3	0	26.7	7.3	18.7	13.9	0	39.9	15.6	2.1	5.4	0	23.1	0.4	2.3	7.5	0	10.3	
Cars	98	429	6	1	534	145	377	285	1	808	320	39	105	0	464	6	42	153	0	201	2007
% Cars	95.1	97.3	85.7	100	96.7	96	97.7	99.3	100	97.9	99.1	88.6	94.6	0	97.1	66.7	87.5	98.7	0	94.8	97.1
Trucks & Buses	1	10	1	0	12	4	6	0	0	10	0	5	4	0	9	3	5	0	0	8	39
% Trucks & Buses	1	2.3	14.3	0	2.2	2.6	1.6	0	0	1.2	0	11.4	3.6	0	1.9	33.3	10.4	0	0	3.8	1.9
School Buses	4	2	0	0	6	2	3	2	0	7	3	0	2	0	5	0	1	2	0	3	21
% School Buses	3.9	0.5	0	0	1.1	1.3	0.8	0.7	0	0.8	0.9	0	1.8	0	1	0	2.1	1.3	0	1.4	1

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-06
Site Code : 01573406
Start Date : 10/22/2015
Page No : 2



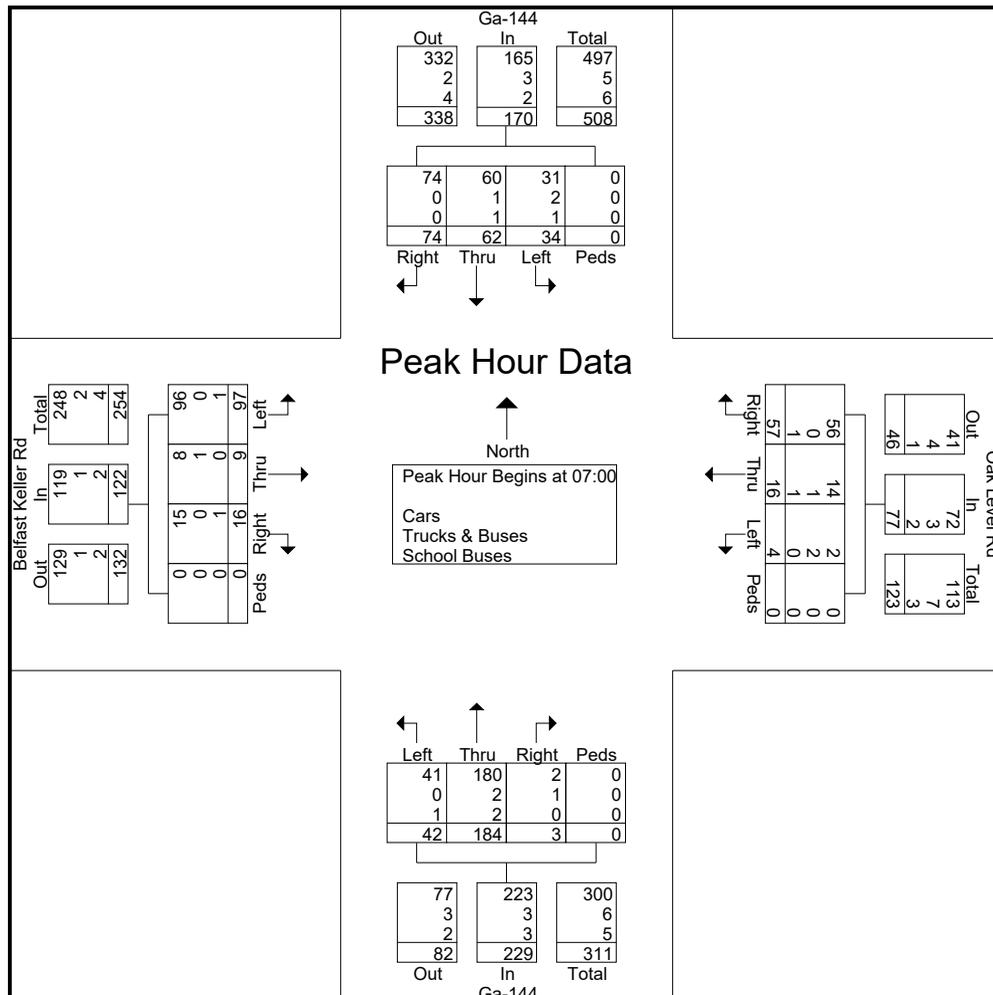
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-06
Site Code : 01573406
Start Date : 10/22/2015
Page No : 3

Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast Keller Rd Eastbound					Oak Level Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	14	76	0	0	90	4	9	16	0	29	30	0	5	0	35	1	4	18	0	23	177
07:15	14	49	1	0	64	9	14	17	0	40	25	3	2	0	30	0	2	20	0	22	156
07:30	10	30	2	0	42	9	21	24	0	54	22	4	6	0	32	0	6	9	0	15	143
07:45	4	29	0	0	33	12	18	17	0	47	20	2	3	0	25	3	4	10	0	17	122
Total Volume	42	184	3	0	229	34	62	74	0	170	97	9	16	0	122	4	16	57	0	77	598
% App. Total	18.3	80.3	1.3	0		20	36.5	43.5	0		79.5	7.4	13.1	0		5.2	20.8	7.4	0		
PHF	.750	.605	.375	.000	.636	.708	.738	.771	.000	.787	.808	.563	.667	.000	.871	.333	.667	.713	.000	.837	.845
Cars	41	180	2	0	223	31	60	74	0	165	96	8	15	0	119	2	14	56	0	72	579
% Cars	97.6	97.8	66.7	0	97.4	91.2	96.8	100	0	97.1	99.0	88.9	93.8	0	97.5	50.0	87.5	98.2	0	93.5	96.8
Trucks & Buses																					
% Trucks & Buses	0	1.1	33.3	0	1.3	5.9	1.6	0	0	1.8	0	11.1	0	0	0.8	50.0	6.3	0	0	3.9	1.7
School Buses	1	2	0	0	3	1	1	0	0	2	1	0	1	0	2	0	1	1	0	2	9
% School Buses	2.4	1.1	0	0	1.3	2.9	1.6	0	0	1.2	1.0	0	6.3	0	1.6	0	6.3	1.8	0	2.6	1.5



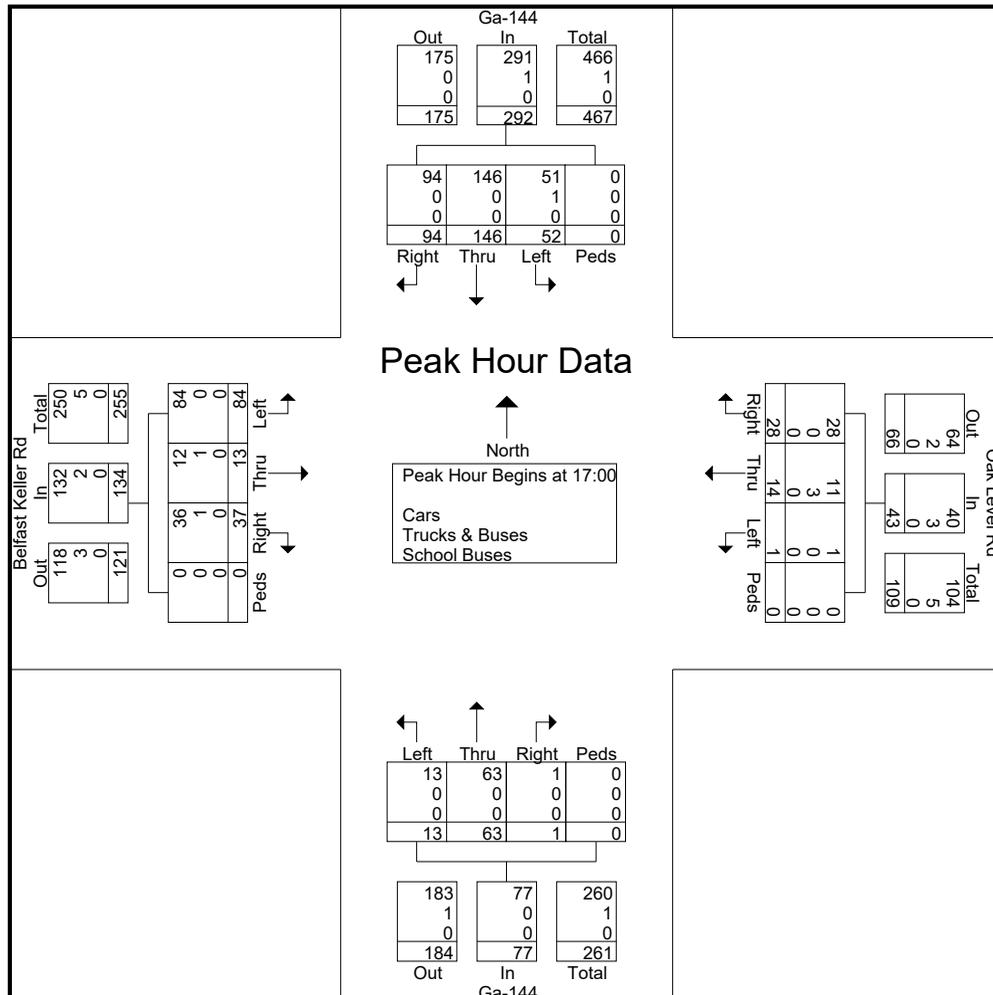
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-06
Site Code : 01573406
Start Date : 10/22/2015
Page No : 4

Start Time	Ga-144 Northbound					Ga-144 Southbound					Belfast Keller Rd Eastbound					Oak Level Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	4	17	1	0	22	16	28	20	0	64	23	4	7	0	34	0	3	3	0	6	126
17:15	1	9	0	0	10	12	34	19	0	65	17	3	6	0	26	0	4	8	0	12	113
17:30	6	18	0	0	24	9	36	25	0	70	20	4	12	0	36	0	3	6	0	9	139
17:45	2	19	0	0	21	15	48	30	0	93	24	2	12	0	38	1	4	11	0	16	168
Total Volume	13	63	1	0	77	52	146	94	0	292	84	13	37	0	134	1	14	28	0	43	546
% App. Total	16.9	81.8	1.3	0		17.8	50	32.2	0		62.7	9.7	27.6	0		2.3	32.6	65.1	0		
PHF	.542	.829	.250	.000	.802	.813	.760	.783	.000	.785	.875	.813	.771	.000	.882	.250	.875	.636	.000	.672	.813
Cars	13	63	1	0	77	51	146	94	0	291	84	12	36	0	132	1	11	28	0	40	540
% Cars	100	100	100	0	100	98.1	100	100	0	99.7	100	92.3	97.3	0	98.5	100	78.6	100	0	93.0	98.9
Trucks & Buses	0	0	0	0	0	1.9	0	0	0	0.3	0	7.7	2.7	0	1.5	0	21.4	0	0	7.0	1.1
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

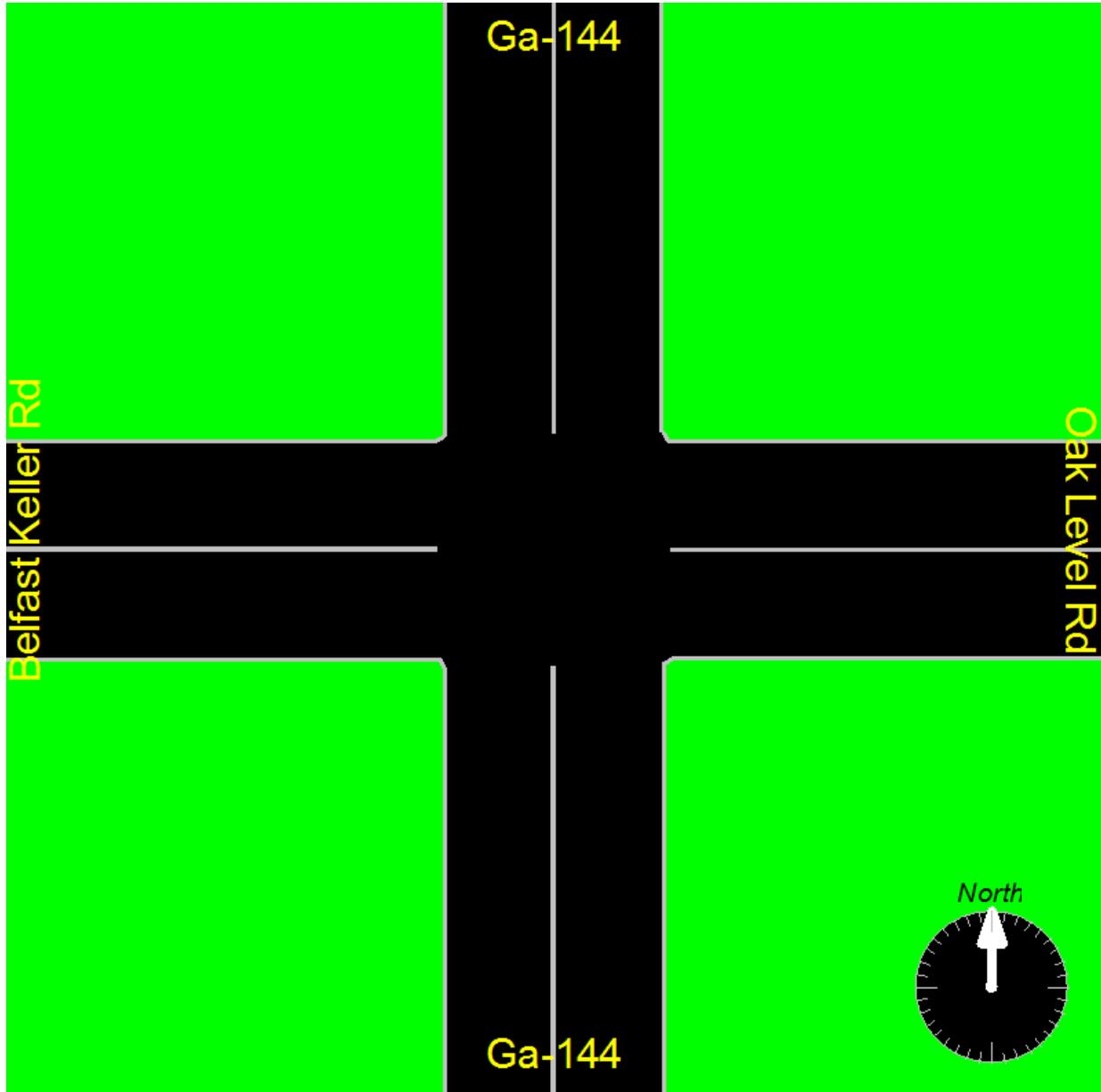


Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4421
Counted By: BE
Weather: Mild
Other: T&H

File Name : 15734-06
Site Code : 01573406
Start Date : 10/22/2015
Page No : 5



TDC Job# 15734-06, Belfast Keller Rd & Oak Level Rd, Richmond Hill, Ga
7-9am & 4-6pm



Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-10
Site Code : 01573410
Start Date : 10/28/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

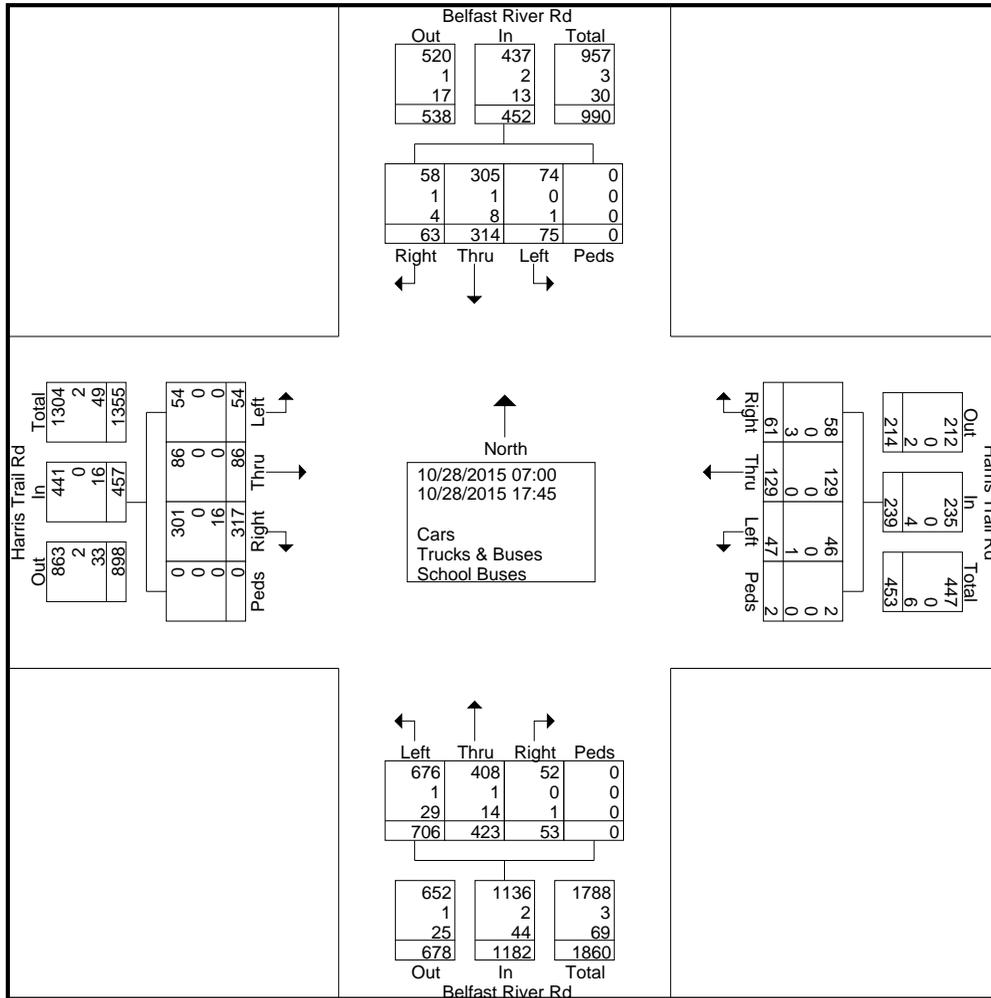
Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Harris Trail Rd Eastbound					Harris Trail Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	57	17	2	0	76	1	15	4	0	20	0	2	21	0	23	12	21	8	0	41	160
07:15	97	24	2	0	123	6	15	11	0	32	2	2	9	0	13	4	12	13	0	29	197
07:30	75	17	0	0	92	7	18	8	0	33	3	3	10	0	16	4	12	3	0	19	160
07:45	50	9	0	0	59	2	20	11	0	33	2	2	16	0	20	1	6	2	1	10	122
Total	279	67	4	0	350	16	68	34	0	118	7	9	56	0	72	21	51	26	1	99	639
08:00	27	9	2	0	38	4	31	2	0	37	0	2	26	0	28	4	5	0	0	9	112
08:15	67	43	1	0	111	2	49	4	0	55	5	3	43	0	51	5	6	1	0	12	229
08:30	67	52	4	0	123	1	32	3	0	36	1	1	27	0	29	3	10	1	0	14	202
08:45	25	24	1	0	50	3	12	1	0	16	0	2	6	0	8	1	6	4	0	11	85
Total	186	128	8	0	322	10	124	10	0	144	6	8	102	0	116	13	27	6	0	46	628
*** BREAK ***																					
16:00	42	26	3	0	71	6	10	1	0	17	5	3	23	0	31	4	6	5	0	15	134
16:15	25	23	2	0	50	6	13	1	0	20	4	5	10	0	19	1	6	3	0	10	99
16:30	15	18	5	0	38	7	11	1	0	19	3	6	14	0	23	1	3	3	0	7	87
16:45	23	21	10	0	54	5	25	3	0	33	8	8	21	0	37	1	4	4	0	9	133
Total	105	88	20	0	213	24	59	6	0	89	20	22	68	0	110	7	19	15	0	41	453
17:00	40	44	5	0	89	5	22	3	0	30	4	6	27	0	37	0	7	5	0	12	168
17:15	28	25	1	0	54	7	14	5	0	26	7	7	15	0	29	3	5	4	0	12	121
17:30	41	40	10	0	91	7	18	1	0	26	7	14	26	0	47	2	10	4	0	16	180
17:45	27	31	5	0	63	6	9	4	0	19	3	20	23	0	46	1	10	1	1	13	141
Total	136	140	21	0	297	25	63	13	0	101	21	47	91	0	159	6	32	14	1	53	610
Grand Total	706	423	53	0	1182	75	314	63	0	452	54	86	317	0	457	47	129	61	2	239	2330
Apprch %	59.7	35.8	4.5	0		16.6	69.5	13.9	0		11.8	18.8	69.4	0		19.7	54	25.5	0.8		
Total %	30.3	18.2	2.3	0	50.7	3.2	13.5	2.7	0	19.4	2.3	3.7	13.6	0	19.6	2	5.5	2.6	0.1	10.3	
Cars	676	408	52	0	1136	74	305	58	0	437	54	86	301	0	441	46	129	58	2	235	2249
% Cars	95.8	96.5	98.1	0	96.1	98.7	97.1	92.1	0	96.7	100	100	95	0	96.5	97.9	100	95.1	100	98.3	96.5
Trucks & Buses	1	1	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	4
% Trucks & Buses	0.1	0.2	0	0	0.2	0	0.3	1.6	0	0.4	0	0	0	0	0	0	0	0	0	0	0.2
School Buses	29	14	1	0	44	1	8	4	0	13	0	0	16	0	16	1	0	3	0	4	77
% School Buses	4.1	3.3	1.9	0	3.7	1.3	2.5	6.3	0	2.9	0	0	5	0	3.5	2.1	0	4.9	0	1.7	3.3

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-10
Site Code : 01573410
Start Date : 10/28/2015
Page No : 2



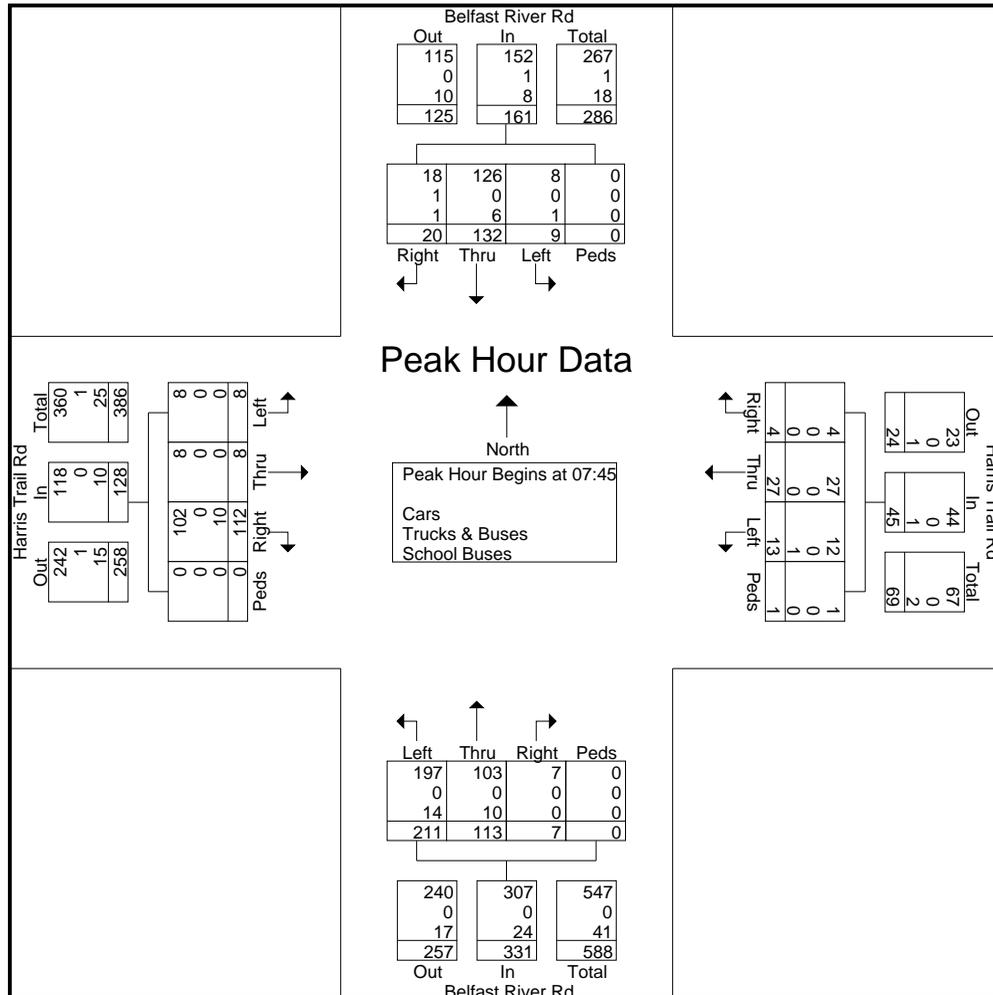
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-10
Site Code : 01573410
Start Date : 10/28/2015
Page No : 3

Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Harris Trail Rd Eastbound					Harris Trail Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	50	9	0	0	59	2	20	11	0	33	2	2	16	0	20	1	6	2	1	10	122
08:00	27	9	2	0	38	4	31	2	0	37	0	2	26	0	28	4	5	0	0	9	112
08:15	67	43	1	0	111	2	49	4	0	55	5	3	43	0	51	5	6	1	0	12	229
08:30	67	52	4	0	123	1	32	3	0	36	1	1	27	0	29	3	10	1	0	14	202
Total Volume	211	113	7	0	331	9	132	20	0	161	8	8	112	0	128	13	27	4	1	45	665
% App. Total	63.7	34.1	2.1	0		5.6	82	12.4	0		6.2	6.2	87.5	0		28.9	60	8.9	2.2		
PHF	.787	.543	.438	.000	.673	.563	.673	.455	.000	.732	.400	.667	.651	.000	.627	.650	.675	.500	.250	.804	.726
Cars	197	103	7	0	307	8	126	18	0	152	8	8	102	0	118	12	27	4	1	44	621
% Cars	93.4	91.2	100	0	92.7	88.9	95.5	90.0	0	94.4	100	100	91.1	0	92.2	92.3	100	100	100	97.8	93.4
Trucks & Buses																					
% Trucks & Buses	0	0	0	0	0	0	0	5.0	0	0.6	0	0	0	0	0	0	0	0	0	0	0.2
School Buses	14	10	0	0	24	1	6	1	0	8	0	0	10	0	10	1	0	0	0	1	43
% School Buses	6.6	8.8	0	0	7.3	11.1	4.5	5.0	0	5.0	0	0	8.9	0	7.8	7.7	0	0	0	2.2	6.5



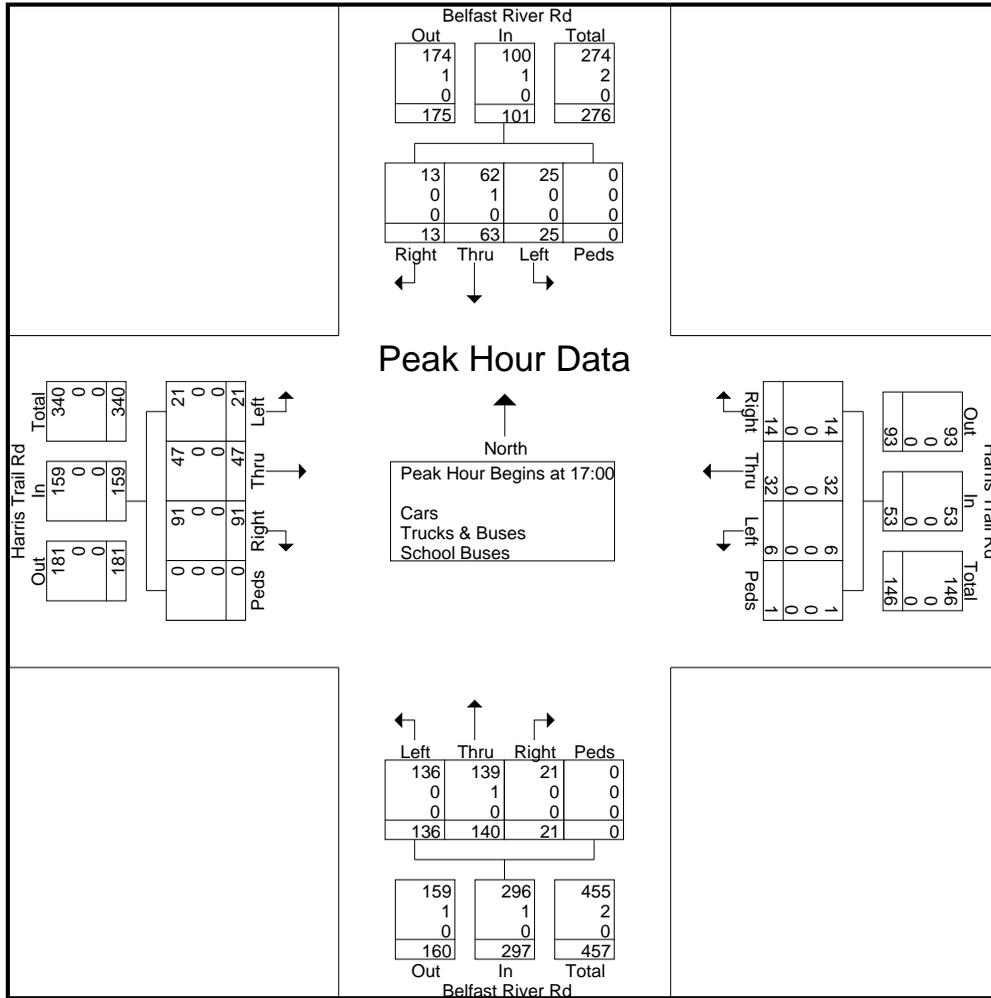
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-10
Site Code : 01573410
Start Date : 10/28/2015
Page No : 4

Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Harris Trail Rd Eastbound					Harris Trail Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	40	44	5	0	89	5	22	3	0	30	4	6	27	0	37	0	7	5	0	12	168
17:15	28	25	1	0	54	7	14	5	0	26	7	7	15	0	29	3	5	4	0	12	121
17:30	41	40	10	0	91	7	18	1	0	26	7	14	26	0	47	2	10	4	0	16	180
17:45	27	31	5	0	63	6	9	4	0	19	3	20	23	0	46	1	10	1	1	13	141
Total Volume	136	140	21	0	297	25	63	13	0	101	21	47	91	0	159	6	32	14	1	53	610
% App. Total	45.8	47.1	7.1	0		24.8	62.4	12.9	0		13.2	29.6	57.2	0		11.3	60.4	26.4	1.9		
PHF	.829	.795	.525	.000	.816	.893	.716	.650	.000	.842	.750	.588	.843	.000	.846	.500	.800	.700	.250	.828	.847
Cars	136	139	21	0	296	25	62	13	0	100	21	47	91	0	159	6	32	14	1	53	608
% Cars	100	99.3	100	0	99.7	100	98.4	100	0	99.0	100	100	100	0	100	100	100	100	100	100	99.7
Trucks & Buses	0	0.7	0	0	0.3	0	1.6	0	0	1.0	0	0	0	0	0	0	0	0	0	0	0.3
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



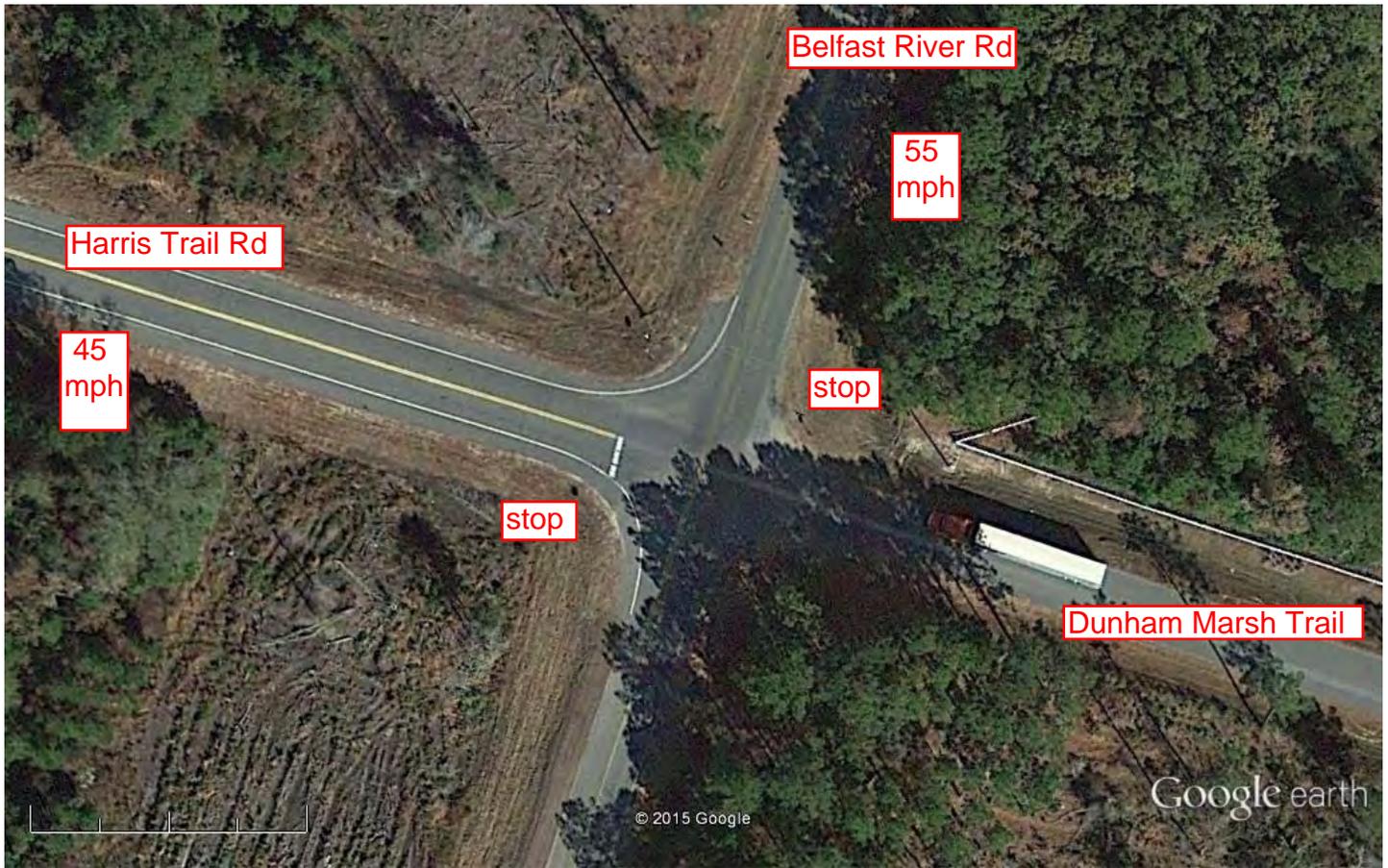
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-10
Site Code : 01573410
Start Date : 10/28/2015
Page No : 5





Google earth

feet
meters



TDC Job # 15734-10, Belfast River Rd & Harris Trail Rd, Richmond Hill Rd, Ga, 7-9am & 4-6pm

Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-11
Site Code : 01573411
Start Date : 10/27/2015
Page No : 1

Groups Printed- Cars - Trucks & Buses - School Buses

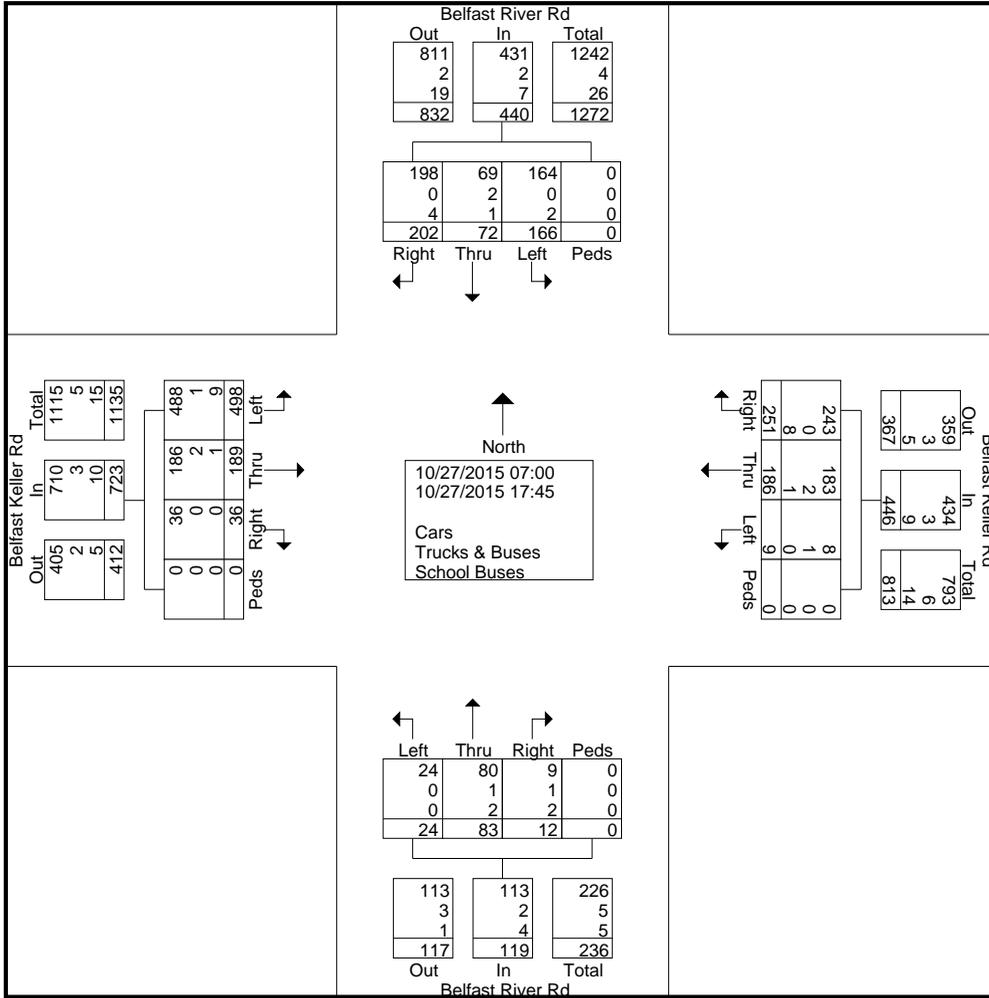
Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Belfast Keller Rd Eastbound					Belfast Keller Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	6	9	0	0	15	1	0	9	0	10	41	5	2	0	48	0	33	37	0	70	143
07:15	1	13	0	0	14	4	3	14	0	21	54	0	0	0	54	1	28	57	0	86	175
07:30	3	5	0	0	8	11	2	10	0	23	41	4	1	0	46	0	14	30	0	44	121
07:45	1	6	2	0	9	5	3	13	0	21	37	1	1	0	39	1	15	13	0	29	98
Total	11	33	2	0	46	21	8	46	0	75	173	10	4	0	187	2	90	137	0	229	537
08:00	0	10	1	0	11	0	2	8	0	10	23	6	0	0	29	0	14	15	0	29	79
08:15	5	10	2	0	17	13	4	15	0	32	23	3	0	0	26	2	13	11	0	26	101
08:30	1	3	0	0	4	20	2	16	0	38	20	7	1	0	28	1	9	20	0	30	100
08:45	1	3	0	0	4	5	2	9	0	16	9	9	1	0	19	0	15	11	0	26	65
Total	7	26	3	0	36	38	10	48	0	96	75	25	2	0	102	3	51	57	0	111	345
*** BREAK ***																					
16:00	1	4	1	0	6	10	5	16	0	31	17	13	4	0	34	1	7	2	0	10	81
16:15	1	0	2	0	3	7	5	14	0	26	17	12	5	0	34	1	4	5	0	10	73
16:30	1	4	0	0	5	8	6	7	0	21	29	17	5	0	51	0	6	3	0	9	86
16:45	1	4	1	0	6	15	2	5	0	22	29	15	5	0	49	0	3	6	0	9	86
Total	4	12	4	0	20	40	18	42	0	100	92	57	19	0	168	2	20	16	0	38	326
17:00	1	3	1	0	5	15	8	18	0	41	43	25	5	0	73	1	2	9	0	12	131
17:15	0	3	1	0	4	11	14	13	0	38	45	32	0	0	77	0	13	10	0	23	142
17:30	1	3	0	0	4	15	9	15	0	39	35	21	3	0	59	0	5	7	0	12	114
17:45	0	3	1	0	4	26	5	20	0	51	35	19	3	0	57	1	5	15	0	21	133
Total	2	12	3	0	17	67	36	66	0	169	158	97	11	0	266	2	25	41	0	68	520
Grand Total	24	83	12	0	119	166	72	202	0	440	498	189	36	0	723	9	186	251	0	446	1728
Apprch %	20.2	69.7	10.1	0		37.7	16.4	45.9	0		68.9	26.1	5	0		2	41.7	56.3	0		
Total %	1.4	4.8	0.7	0	6.9	9.6	4.2	11.7	0	25.5	28.8	10.9	2.1	0	41.8	0.5	10.8	14.5	0	25.8	
Cars	24	80	9	0	113	164	69	198	0	431	488	186	36	0	710	8	183	243	0	434	1688
% Cars	100	96.4	75	0	95	98.8	95.8	98	0	98	98	98.4	100	0	98.2	88.9	98.4	96.8	0	97.3	97.7
Trucks & Buses	0	1	1	0	2	0	2	0	0	2	1	2	0	0	3	1	2	0	0	3	10
% Trucks & Buses	0	1.2	8.3	0	1.7	0	2.8	0	0	0.5	0.2	1.1	0	0	0.4	11.1	1.1	0	0	0.7	0.6
School Buses	0	2	2	0	4	2	1	4	0	7	9	1	0	0	10	0	1	8	0	9	30
% School Buses	0	2.4	16.7	0	3.4	1.2	1.4	2	0	1.6	1.8	0.5	0	0	1.4	0	0.5	3.2	0	2	1.7

Traffic Data Connection

PO Box 445
 Abbeville, Ga 31001
 843-412-6222

Counter: D4-4422
 Counted By: GM
 Weather: Mild
 Other: T&H

File Name : 15734-11
 Site Code : 01573411
 Start Date : 10/27/2015
 Page No : 2



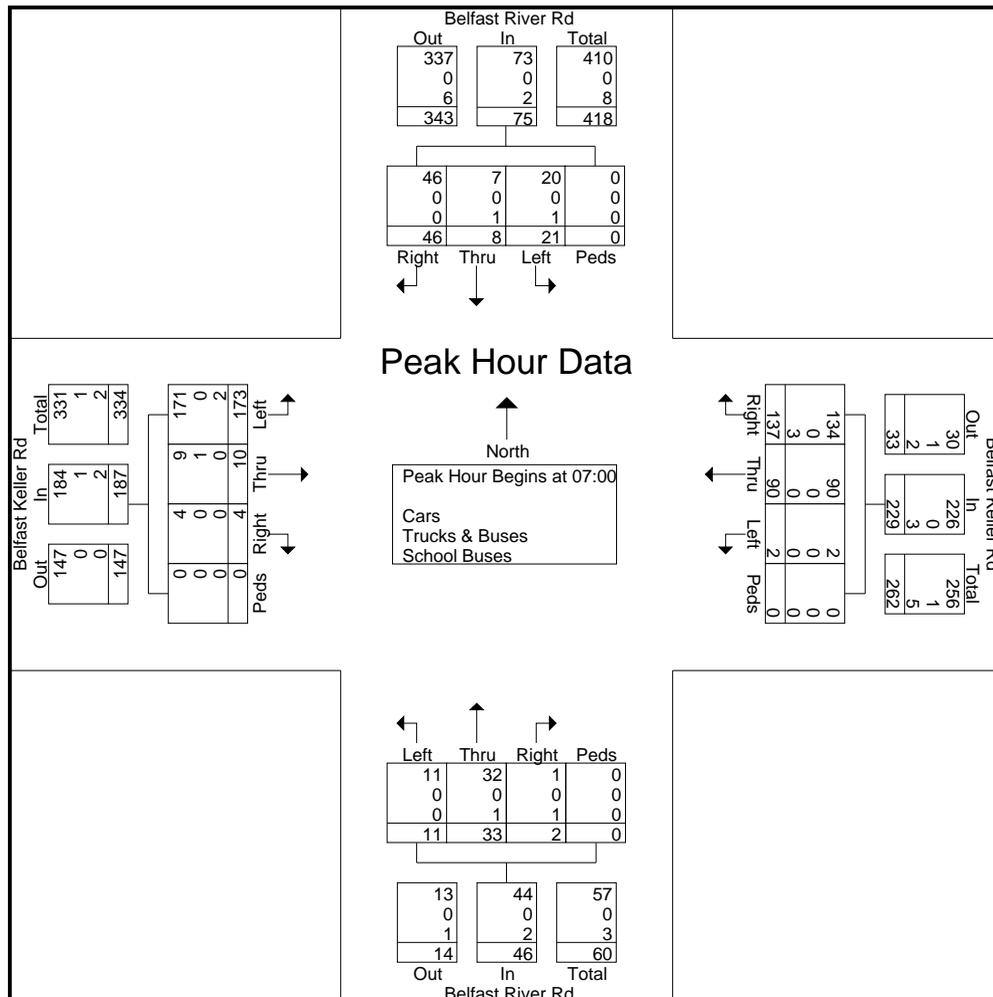
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-11
Site Code : 01573411
Start Date : 10/27/2015
Page No : 3

Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Belfast Keller Rd Eastbound					Belfast Keller Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 12:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	6	9	0	0	15	1	0	9	0	10	41	5	2	0	48	0	33	37	0	70	143
07:15	1	13	0	0	14	4	3	14	0	21	54	0	0	0	54	1	28	57	0	86	175
07:30	3	5	0	0	8	11	2	10	0	23	41	4	1	0	46	0	14	30	0	44	121
07:45	1	6	2	0	9	5	3	13	0	21	37	1	1	0	39	1	15	13	0	29	98
Total Volume	11	33	2	0	46	21	8	46	0	75	173	10	4	0	187	2	90	137	0	229	537
% App. Total	23.9	71.7	4.3	0		28	10.7	61.3	0		92.5	5.3	2.1	0		0.9	39.3	59.8	0		
PHF	.458	.635	.250	.000	.767	.477	.667	.821	.000	.815	.801	.500	.500	.000	.866	.500	.682	.601	.000	.666	.767
Cars	11	32	1	0	44	20	7	46	0	73	171	9	4	0	184	2	90	134	0	226	527
% Cars	100	97.0	50.0	0	95.7	95.2	87.5	100	0	97.3	98.8	90.0	100	0	98.4	100	100	97.8	0	98.7	98.1
Trucks & Buses																					
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	10.0	0	0	0.5	0	0	0	0	0	0.2
School Buses	0	1	1	0	2	1	1	0	0	2	2	0	0	0	2	0	0	3	0	3	9
% School Buses	0	3.0	50.0	0	4.3	4.8	12.5	0	0	2.7	1.2	0	0	0	1.1	0	0	2.2	0	1.3	1.7



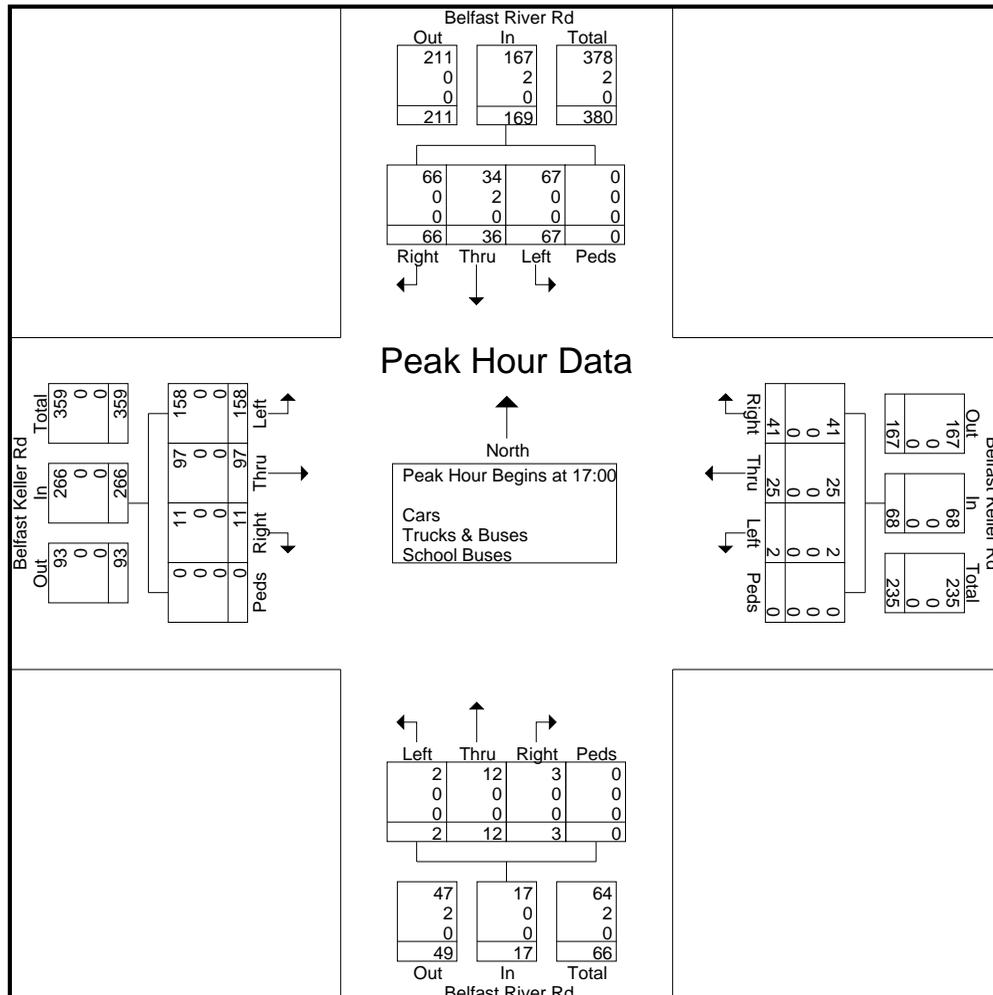
Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
Other: T&H

File Name : 15734-11
Site Code : 01573411
Start Date : 10/27/2015
Page No : 4

Start Time	Belfast River Rd Northbound					Belfast River Rd Southbound					Belfast Keller Rd Eastbound					Belfast Keller Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:45 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	1	3	1	0	5	15	8	18	0	41	43	25	5	0	73	1	2	9	0	12	131
17:15	0	3	1	0	4	11	14	13	0	38	45	32	0	0	77	0	13	10	0	23	142
17:30	1	3	0	0	4	15	9	15	0	39	35	21	3	0	59	0	5	7	0	12	114
17:45	0	3	1	0	4	26	5	20	0	51	35	19	3	0	57	1	5	15	0	21	133
Total Volume	2	12	3	0	17	67	36	66	0	169	158	97	11	0	266	2	25	41	0	68	520
% App. Total	11.8	70.6	17.6	0		39.6	21.3	39.1	0		59.4	36.5	4.1	0		2.9	36.8	60.3	0		
PHF	.500	1.00	.750	.000	.850	.644	.643	.825	.000	.828	.878	.758	.550	.000	.864	.500	.481	.683	.000	.739	.915
Cars	2	12	3	0	17	67	34	66	0	167	158	97	11	0	266	2	25	41	0	68	518
% Cars	100	100	100	0	100	100	94.4	100	0	98.8	100	100	100	0	100	100	100	100	0	100	99.6
Trucks & Buses	0	0	0	0	0	0	5.6	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0.4
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

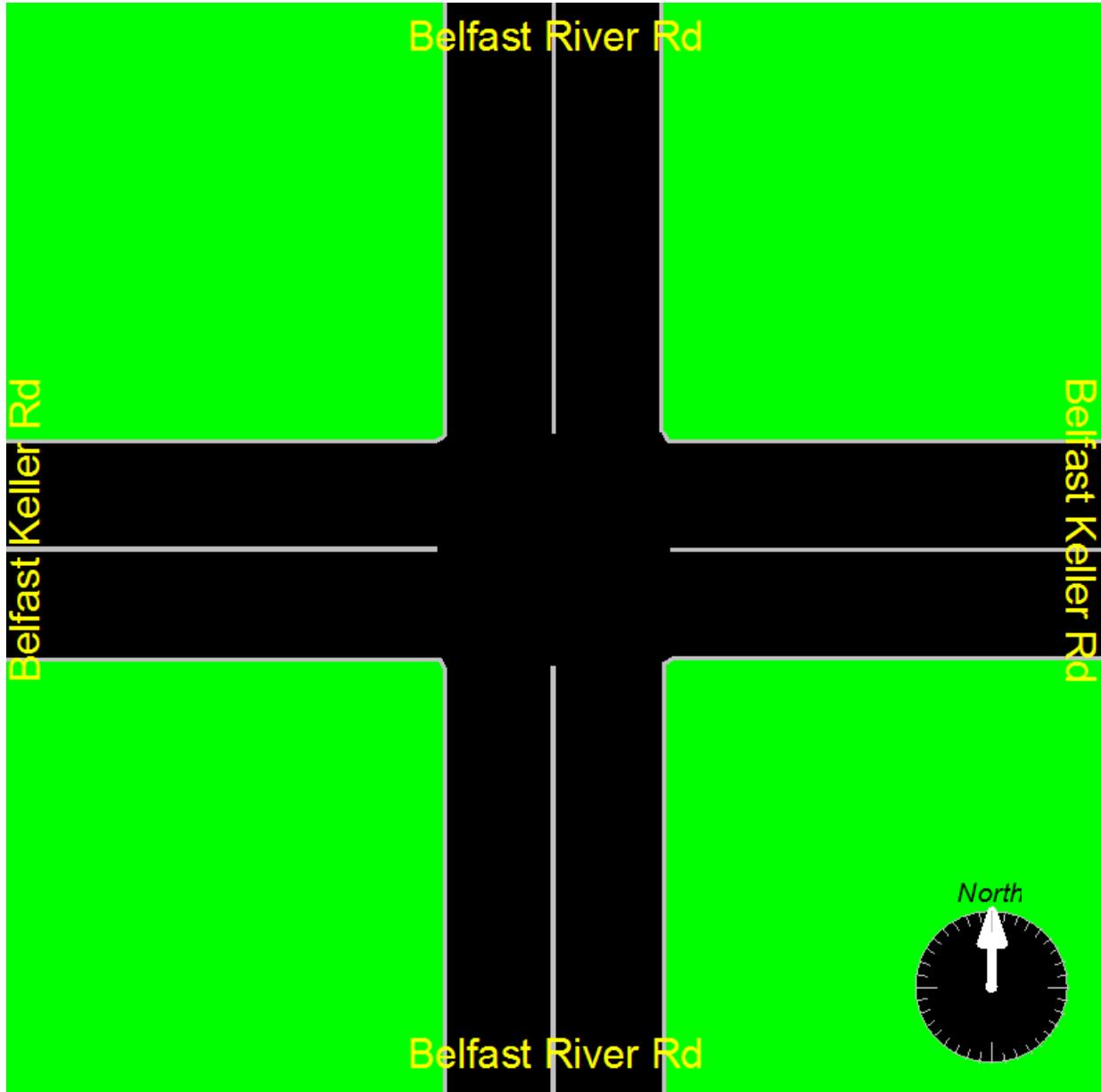


Traffic Data Connection

PO Box 445
Abbeville, Ga 31001
843-412-6222

Counter: D4-4422
Counted By: GM
Weather: Mild
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Site Code : 01573411
Start Date : 10/27/2015
Page No : 5





Google earth



TDC Job# 15734-11, Belfast Keller Rd & Belfast River Rd, Richmond Hill Ga, 7-9am & 4-6pm

Appendix

Traffic Generation

Trip Generation Summary

Weekday Average Daily Trips

Alternative: Alternative 1

Phase:

2030

Open Date: 2/19/2016

Project: Richmond Hill

Analysis Date: 2/19/2016

ITE	Land Use	Size	Units	*	Enter	Exit	Total
A 130	INDUSTRIAL 1	10000	Gross Floor Area 1000 SF		25289	25289	50578
B 270	RESIDENTPUD 1	3750	Dwelling Units		11718	11717	23435
C 270	RESIDENTPUD 2	1250	Dwelling Units		4456	4456	8912
<hr/>							
Unadjusted Volume					41463	41462	82925
Internal Capture Trips					0	0	0
Pass-By Trips					0	0	0
Volume Added to Adjacent Streets					41463	41462	82925

Total Weekday Average Daily Trips Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 2014, TRAFFICWARE, LLC

Trip Generation Summary

Weekday Average Daily Trips

Alternative: Alternative 1

Phase:

Project: Richmond Hill

2040

Open Date: 2/19/2016

Analysis Date: 2/19/2016

ITE	Land Use	Size	Units	*	Enter	Exit	Total
A 130	INDUSTRIAL 1	15000	Gross Floor Area 1000 SF		37764	37764	75528
B 270	RESIDENTPUD 1	6400	Dwelling Units		18755	18755	37510
C 270	RESIDENTPUD 2	2100	Dwelling Units		7035	7034	14069
<hr/>							
			Unadjusted Volume		63554	63553	127107
			Internal Capture Trips		0	0	0
			Pass-By Trips		0	0	0
			Volume Added to Adjacent Streets		63554	63553	127107

Total Weekday Average Daily Trips Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 2014, TRAFFICWARE, LLC

Appendix

2015 AM Capacity Analyses

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	113	608	520	129	350	123	290	595	232	284	265	85
Future Volume (veh/h)	113	608	520	129	350	123	290	595	232	284	265	85
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	122	654	559	139	376	132	312	640	249	305	285	91
Adj No. of Lanes	2	2	1	2	2	0	1	2	0	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	1068	478	198	792	274	540	718	279	338	1010	452
Arrive On Green	0.05	0.30	0.30	0.06	0.31	0.31	0.14	0.29	0.29	0.14	0.29	0.29
Sat Flow, veh/h	3442	3539	1583	3442	2581	894	1774	2492	969	1774	3539	1583
Grp Volume(v), veh/h	122	654	559	139	256	252	312	454	435	305	285	91
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1705	1774	1770	1692	1774	1770	1583
Q Serve(g_s), s	3.9	17.8	34.0	4.5	13.2	13.5	13.8	27.7	27.7	13.4	7.1	4.9
Cycle Q Clear(g_c), s	3.9	17.8	34.0	4.5	13.2	13.5	13.8	27.7	27.7	13.4	7.1	4.9
Prop In Lane	1.00		1.00	1.00		0.52	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	180	1068	478	198	543	523	540	510	487	338	1010	452
V/C Ratio(X)	0.68	0.61	1.17	0.70	0.47	0.48	0.58	0.89	0.89	0.90	0.28	0.20
Avail Cap(c_a), veh/h	275	1068	478	275	543	523	586	534	510	389	1068	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	33.7	39.4	52.2	31.7	31.8	22.7	38.4	38.4	26.9	31.3	30.5
Incr Delay (d2), s/veh	4.5	2.6	97.1	4.7	2.9	3.1	1.2	16.6	17.3	21.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	9.1	27.7	2.3	6.9	6.8	6.9	15.9	15.3	8.6	3.5	2.2
LnGrp Delay(d),s/veh	56.9	36.3	136.5	56.9	34.6	34.9	23.9	55.0	55.7	48.6	31.4	30.7
LnGrp LOS	E	D	F	E	C	C	C	E	E	D	C	C
Approach Vol, veh/h		1335			647			1201			681	
Approach Delay, s/veh		80.1			39.5			47.2			39.0	
Approach LOS		F			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	40.0	21.8	38.5	11.9	40.6	22.1	38.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	34.0	19.0	34.0	9.0	34.0	19.0	34.0				
Max Q Clear Time (g_c+I1), s	6.5	36.0	15.4	29.7	5.9	15.5	15.8	9.1				
Green Ext Time (p_c), s	0.1	0.0	0.3	2.7	0.1	9.5	0.3	8.7				
Intersection Summary												
HCM 2010 Ctrl Delay			55.8									
HCM 2010 LOS			E									

120: US 17 & Harris Trail/Shopping Center access

2015 AM.syn

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	476	3	556	17	11	6	12	463	162	213	308	17
Future Volume (veh/h)	476	3	556	17	11	6	12	463	162	213	308	17
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	529	3	0	19	12	0	13	514	0	237	342	0
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	650	3	654	493	298	654	360	892	399	272	1382	618
Arrive On Green	0.41	0.41	0.00	0.41	0.41	0.00	0.02	0.25	0.00	0.15	0.39	0.00
Sat Flow, veh/h	1400	8	1583	1052	722	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	532	0	0	31	0	0	13	514	0	237	342	0
Grp Sat Flow(s),veh/h/ln	1408	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	34.3	0.0	0.0	0.0	0.0	0.0	0.5	12.6	0.0	12.9	6.5	0.0
Cycle Q Clear(g_c), s	35.3	0.0	0.0	1.0	0.0	0.0	0.5	12.6	0.0	12.9	6.5	0.0
Prop In Lane	0.99		1.00	0.61		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	654	0	654	791	0	654	360	892	399	272	1382	618
V/C Ratio(X)	0.81	0.00	0.00	0.04	0.00	0.00	0.04	0.58	0.00	0.87	0.25	0.00
Avail Cap(c_a), veh/h	880	0	910	1043	0	910	423	892	399	358	1428	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	17.4	0.0	0.0	26.8	32.4	0.0	41.0	20.4	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	16.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	0.0	0.0	0.5	0.0	0.0	0.3	6.5	0.0	7.6	3.2	0.0
LnGrp Delay(d),s/veh	31.7	0.0	0.0	17.4	0.0	0.0	26.9	35.1	0.0	57.3	20.5	0.0
LnGrp LOS	C			B			C	D		E	C	
Approach Vol, veh/h		532			31			527			579	
Approach Delay, s/veh		31.7			17.4			34.9			35.6	
Approach LOS		C			B			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.2	31.0		46.9	7.5	44.7		46.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	20.0	25.0		57.0	5.0	40.0		57.0				
Max Q Clear Time (g_c+I1), s	14.9	14.6		3.0	2.5	8.5		37.3				
Green Ext Time (p_c), s	0.3	4.0		4.3	0.0	6.3		3.6				
Intersection Summary												
HCM 2010 Ctrl Delay			33.8									
HCM 2010 LOS			C									

Intersection							
Int Delay, s/veh	26.5						
Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Traffic Vol, veh/h	175	58	0	715	49	57	715
Future Vol, veh/h	175	58	0	715	49	57	715
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	-	Yield	-	None
Storage Length	0	100	300	-	150	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	5	5	5	5
Mvmt Flow	190	63	0	777	53	62	777
Major/Minor	Minor1	Major1		Major2			
Conflicting Flow All	1290	389	567	0	0	777	0
Stage 1	777	-	-	-	-	-	-
Stage 2	513	-	-	-	-	-	-
Critical Hdwy	6.9	7	6.44	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	2.52	-	-	2.25	-
Pot Cap-1 Maneuver	~ 151	601	628	-	-	816	-
Stage 1	406	-	-	-	-	-	-
Stage 2	557	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	~ 140	601	628	-	-	816	-
Mov Cap-2 Maneuver	~ 140	-	-	-	-	-	-
Stage 1	406	-	-	-	-	-	-
Stage 2	515	-	-	-	-	-	-
Approach	NW		NE		SW		
HCM Control Delay, s	198.6		0		0.7		
HCM LOS	F						
Minor Lane/Major Mvmt	NEU	NET	NERNWLn1	NWLn2	SWL	SWT	
Capacity (veh/h)	628	-	-	140	601	816	-
HCM Lane V/C Ratio	-	-	-	1.359	0.105	0.076	-
HCM Control Delay (s)	0	-	-	260.5	11.7	9.8	-
HCM Lane LOS	A	-	-	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	12.1	0.3	0.2	-
Notes							
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon							

								
Movement	SET	SER	NWL	NWT	NEL	NER		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	300	99	103	1068	311	62		
Future Volume (veh/h)	300	99	103	1068	311	62		
Number	6	16	5	2	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	349	115	120	1242	362	67		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1227	549	524	1891	434	387		
Arrive On Green	0.35	0.35	0.08	0.53	0.24	0.24		
Sat Flow, veh/h	3632	1583	1774	3632	1774	1583		
Grp Volume(v), veh/h	349	115	120	1242	362	67		
Grp Sat Flow(s),veh/h/ln	1770	1583	1774	1770	1774	1583		
Q Serve(g_s), s	3.9	2.8	2.1	13.7	10.5	1.8		
Cycle Q Clear(g_c), s	3.9	2.8	2.1	13.7	10.5	1.8		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1227	549	524	1891	434	387		
V/C Ratio(X)	0.28	0.21	0.23	0.66	0.83	0.17		
Avail Cap(c_a), veh/h	1227	549	551	1891	621	554		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	12.8	12.5	8.8	9.1	19.5	16.2		
Incr Delay (d2), s/veh	0.6	0.9	0.2	1.8	6.6	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	1.3	1.1	7.0	5.9	1.8		
LnGrp Delay(d),s/veh	13.4	13.4	9.1	10.9	26.1	16.4		
LnGrp LOS	B	B	A	B	C	B		
Approach Vol, veh/h	464			1362	429			
Approach Delay, s/veh	13.4			10.7	24.6			
Approach LOS	B			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.0		19.3	10.2	24.8		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		29.0		19.0	5.0	18.0		
Max Q Clear Time (g_c+I1), s		15.7		12.5	4.1	5.9		
Green Ext Time (p_c), s		8.5		0.8	0.0	7.9		
Intersection Summary								
HCM 2010 Ctrl Delay			13.9					
HCM 2010 LOS			B					

Intersection

Int Delay, s/veh 2.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Traffic Vol, veh/h	107	167	722	97	32	255
Future Vol, veh/h	107	167	722	97	32	255
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Free
Storage Length	0	-	-	200	0	250
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	134	209	903	121	40	319

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	904	0	1380
Stage 1	-	-	904
Stage 2	-	-	476
Critical Hdwy	4.13	-	6.43
Critical Hdwy Stg 1	-	-	5.43
Critical Hdwy Stg 2	-	-	5.43
Follow-up Hdwy	2.227	-	3.527
Pot Cap-1 Maneuver	748	-	158
Stage 1	-	-	393
Stage 2	-	-	623
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	748	-	129
Mov Cap-2 Maneuver	-	-	129
Stage 1	-	-	393
Stage 2	-	-	511

Approach	SE	NW	SW
HCM Control Delay, s	4.2	0	45
HCM LOS			E

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	748	-	129	-
HCM Lane V/C Ratio	-	-	0.179	-	0.31	-
HCM Control Delay (s)	-	-	10.9	-	45	0
HCM Lane LOS	-	-	B	-	E	A
HCM 95th %tile Q(veh)	-	-	0.6	-	1.2	-

Intersection						
Int Delay, s/veh	4.4					
Movement	SET	SER	NWL	NWT	NEL	NER
Traffic Vol, veh/h	238	28	183	1074	26	40
Future Vol, veh/h	238	28	183	1074	26	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	150	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	259	30	199	1167	28	43
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	259	0	1824	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	1565	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1306	-	85	780
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	189	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1306	-	48	780
Mov Cap-2 Maneuver	-	-	-	-	48	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	107	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		1.2		83.4	
HCM LOS					F	
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	111	1306	-	-	-	
HCM Lane V/C Ratio	0.646	0.152	-	-	-	
HCM Control Delay (s)	83.4	8.3	0	-	-	
HCM Lane LOS	F	A	A	-	-	
HCM 95th %tile Q(veh)	3.3	0.5	-	-	-	

Intersection

Int Delay, s/veh 6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	10	237	429	18	60	90
Future Vol, veh/h	10	237	429	18	60	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	296	536	23	75	113

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	811	548	0 0 559 0
Stage 1	548	-	- - - -
Stage 2	263	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	349	536	- - 1012 -
Stage 1	579	-	- - - -
Stage 2	781	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	321	536	- - 1012 -
Mov Cap-2 Maneuver	321	-	- - - -
Stage 1	579	-	- - - -
Stage 2	719	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	21.4	0	3.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 522	1012	-
HCM Lane V/C Ratio	-	- 0.591	0.074	-
HCM Control Delay (s)	-	- 21.4	8.8	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 3.8	0.2	-

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	25	119	781	22	33	205
Future Vol, veh/h	25	119	781	22	33	205
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	125	822	23	35	216

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1119	834	0	0	845	0
Stage 1	834	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	229	368	-	-	792	-
Stage 1	426	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	218	368	-	-	792	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	25		0		1.4
HCM LOS	D				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	329	792
HCM Lane V/C Ratio	-	-	0.461	0.044
HCM Control Delay (s)	-	-	25	9.8
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.3	0.1

Intersection				
Intersection Delay, s/veh	16.6			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	113	303	787	260
Demand Flow Rate, veh/h	115	309	802	266
Vehicles Circulating, veh/h	242	698	133	130
Vehicles Exiting, veh/h	154	237	224	877
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	17.0	21.5	6.4
Approach LOS	A	C	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	115	309	802	266
Cap Entry Lane, veh/h	887	562	989	992
Entry HV Adj Factor	0.983	0.981	0.981	0.978
Flow Entry, veh/h	113	303	787	260
Cap Entry, veh/h	872	551	970	971
V/C Ratio	0.130	0.550	0.811	0.268
Control Delay, s/veh	5.4	17.0	21.5	6.4
LOS	A	C	C	A
95th %tile Queue, veh	0	3	9	1

Intersection

Int Delay, s/veh 7.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Vol, veh/h	8	8	112	13	27	4	211	113	7	9	132	20
Future Vol, veh/h	8	8	112	13	27	4	211	113	7	9	132	20
Conflicting Peds, #/hr	0	0	0	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	10	10	140	16	34	5	264	141	9	11	165	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	894	879	178	949	887	147	190	0	0	151	0	0
Stage 1	200	200	-	674	674	-	-	-	-	-	-	-
Stage 2	694	679	-	275	213	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	258	282	855	236	279	889	1360	-	-	1406	-	-
Stage 1	793	728	-	438	447	-	-	-	-	-	-	-
Stage 2	427	445	-	723	719	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	189	220	855	158	218	888	1360	-	-	1406	-	-
Mov Cap-2 Maneuver	189	220	-	158	218	-	-	-	-	-	-	-
Stage 1	625	721	-	345	352	-	-	-	-	-	-	-
Stage 2	303	350	-	591	713	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	13	28.3	5.3	0.4
HCM LOS	B	D		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1360	-	-	209	610	1406	-
HCM Lane V/C Ratio	0.194	-	-	0.263	0.262	0.008	-
HCM Control Delay (s)	8.3	0	-	28.3	13	7.6	0
HCM Lane LOS	A	A	-	D	B	A	A
HCM 95th %tile Q(veh)	0.7	-	-	1	1	0	-

Intersection

Int Delay, s/veh 6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	97	9	16	4	16	57	42	184	3	34	62	74
Future Vol, veh/h	97	9	16	4	16	57	42	184	3	34	62	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	115	11	19	5	19	68	50	219	4	40	74	88

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	563	522	118	535	564	221	162	0	0	223	0	0
Stage 1	199	199	-	321	321	-	-	-	-	-	-	-
Stage 2	364	323	-	214	243	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	437	459	934	456	435	819	1417	-	-	1346	-	-
Stage 1	803	736	-	691	652	-	-	-	-	-	-	-
Stage 2	655	650	-	788	705	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	365	426	934	414	404	819	1417	-	-	1346	-	-
Mov Cap-2 Maneuver	365	426	-	414	404	-	-	-	-	-	-	-
Stage 1	771	712	-	663	626	-	-	-	-	-	-	-
Stage 2	559	624	-	735	682	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19	11.5	1.4	1.6
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1417	-	-	401	648	1346	-	-
HCM Lane V/C Ratio	0.035	-	-	0.362	0.141	0.03	-	-
HCM Control Delay (s)	7.6	0	-	19	11.5	7.8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.5	0.1	-	-

Intersection																
Intersection Delay, s/veh	10.6															
Intersection LOS	B															
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	173	103	4	0	2	90	137	0	11	33	2	0	21	8	46
Future Vol, veh/h	0	173	103	4	0	2	90	137	0	11	33	2	0	21	8	46
Peak Hour Factor	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	216	129	5	0	3	113	171	0	14	41	3	0	26	10	58
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB				SB			
Opposing Approach	WB				EB				SB				NB			
Opposing Lanes	1				1				1				1			
Conflicting Approach Left	SB				NB				EB				WB			
Conflicting Lanes Left	1				1				1				1			
Conflicting Approach Right	NB				SB				WB				EB			
Conflicting Lanes Right	1				1				1				1			
HCM Control Delay	11.9				9.8				9.2				9			
HCM LOS	B				A				A				A			
Lane	NBLn1	EBLn1	WBLn1	SBLn1												
Vol Left, %	24%	62%	1%	28%												
Vol Thru, %	72%	37%	39%	11%												
Vol Right, %	4%	1%	60%	61%												
Sign Control	Stop	Stop	Stop	Stop												
Traffic Vol by Lane	46	280	229	75												
LT Vol	11	173	2	21												
Through Vol	33	103	90	8												
RT Vol	2	4	137	46												
Lane Flow Rate	58	350	286	94												
Geometry Grp	1	1	1	1												
Degree of Util (X)	0.088	0.462	0.348	0.134												
Departure Headway (Hd)	5.523	4.749	4.38	5.131												
Convergence, Y/N	Yes	Yes	Yes	Yes												
Cap	642	756	816	692												
Service Time	3.613	2.804	2.436	3.212												
HCM Lane V/C Ratio	0.09	0.463	0.35	0.136												
HCM Control Delay	9.2	11.9	9.8	9												
HCM Lane LOS	A	B	A	A												
HCM 95th-tile Q	0.3	2.5	1.6	0.5												

Appendix

2015 PM Capacity Analyses

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	292	374	184	129	350	123	92	708	92	157	486	345
Future Volume (veh/h)	292	374	184	129	350	123	92	708	92	157	486	345
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1863	1863	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	307	394	194	139	376	132	97	745	97	165	512	363
Adj No. of Lanes	2	2	1	2	2	0	1	2	0	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	1	1	1	1	1	1
Cap, veh/h	383	1179	527	201	717	249	303	965	126	275	1191	533
Arrive On Green	0.11	0.33	0.33	0.06	0.28	0.28	0.05	0.30	0.30	0.08	0.33	0.33
Sat Flow, veh/h	3476	3574	1599	3442	2581	894	1792	3181	414	1792	3574	1599
Grp Volume(v), veh/h	307	394	194	139	256	252	97	418	424	165	512	363
Grp Sat Flow(s),veh/h/ln	1738	1787	1599	1721	1770	1705	1792	1787	1808	1792	1787	1599
Q Serve(g_s), s	9.2	8.8	9.8	4.2	13.0	13.3	3.9	22.6	22.6	6.6	11.8	20.8
Cycle Q Clear(g_c), s	9.2	8.8	9.8	4.2	13.0	13.3	3.9	22.6	22.6	6.6	11.8	20.8
Prop In Lane	1.00		1.00	1.00		0.52	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	383	1179	527	201	492	474	303	542	548	275	1191	533
V/C Ratio(X)	0.80	0.33	0.37	0.69	0.52	0.53	0.32	0.77	0.77	0.60	0.43	0.68
Avail Cap(c_a), veh/h	557	1179	527	292	492	474	310	623	630	380	1549	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	26.8	27.1	49.0	32.3	32.5	23.7	33.6	33.6	25.3	27.5	30.5
Incr Delay (d2), s/veh	5.3	0.8	2.0	4.2	3.9	4.2	0.6	5.2	5.2	2.1	0.2	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.4	4.6	2.1	6.9	6.8	2.0	11.9	12.1	3.4	5.9	9.4
LnGrp Delay(d),s/veh	51.4	27.6	29.1	53.2	36.3	36.7	24.3	38.8	38.8	27.4	27.8	32.3
LnGrp LOS	D	C	C	D	D	D	C	D	D	C	C	C
Approach Vol, veh/h		895			647			939			1040	
Approach Delay, s/veh		36.1			40.1			37.3			29.3	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	41.0	14.8	38.2	17.7	35.5	11.6	41.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	35.0	15.0	37.0	17.0	27.0	6.0	46.0				
Max Q Clear Time (g_c+I1), s	6.2	11.8	8.6	24.6	11.2	15.3	5.9	22.8				
Green Ext Time (p_c), s	0.1	6.6	0.2	7.6	0.5	4.9	0.0	11.1				
Intersection Summary												
HCM 2010 Ctrl Delay			35.1									
HCM 2010 LOS			D									

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2015 PM.syn

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	176	50	297	46	84	59	67	408	371	391	579	70
Future Volume (veh/h)	176	50	297	46	84	59	67	408	371	391	579	70
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	187	53	0	49	89	0	71	434	0	416	616	0
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	302	65	333	157	260	333	431	1172	524	466	1934	865
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.00	0.05	0.33	0.00	0.26	0.54	0.00
Sat Flow, veh/h	1099	312	1599	486	1248	1599	1792	3574	1599	1792	3574	1599
Grp Volume(v), veh/h	240	0	0	138	0	0	71	434	0	416	616	0
Grp Sat Flow(s),veh/h/ln	1411	0	1599	1734	0	1599	1792	1787	1599	1792	1787	1599
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	2.3	8.2	0.0	19.8	8.4	0.0
Cycle Q Clear(g_c), s	14.3	0.0	0.0	5.7	0.0	0.0	2.3	8.2	0.0	19.8	8.4	0.0
Prop In Lane	0.78		1.00	0.36		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	367	0	333	417	0	333	431	1172	524	466	1934	865
V/C Ratio(X)	0.65	0.00	0.00	0.33	0.00	0.00	0.16	0.37	0.00	0.89	0.32	0.00
Avail Cap(c_a), veh/h	614	0	615	708	0	615	448	1172	524	790	2547	1139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	29.9	0.0	0.0	18.0	22.7	0.0	31.5	11.2	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.5	0.0	0.0	0.2	0.9	0.0	7.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	2.9	0.0	0.0	1.1	4.2	0.0	10.8	4.1	0.0
LnGrp Delay(d),s/veh	35.3	0.0	0.0	30.4	0.0	0.0	18.2	23.6	0.0	38.8	11.3	0.0
LnGrp LOS	D			C			B	C		D	B	
Approach Vol, veh/h		240			138			505			1032	
Approach Delay, s/veh		35.3			30.4			22.9			22.4	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	35.0		24.4	10.1	53.9		24.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	39.0	29.0		34.0	5.0	63.0		34.0				
Max Q Clear Time (g_c+I1), s	21.8	10.2		7.7	4.3	10.4		16.3				
Green Ext Time (p_c), s	1.2	6.8		2.4	0.0	8.7		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			24.7									
HCM 2010 LOS			C									

Intersection

Int Delay, s/veh 1.8

Movement	NWL	NWR	NEU	NET	NER	SWL	SWT
Traffic Vol, veh/h	40	48	0	573	195	98	1142
Future Vol, veh/h	40	48	0	573	195	98	1142
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	Yield	-	-	Yield	-	None
Storage Length	0	100	300	-	150	250	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	43	52	0	616	210	105	1228

Major/Minor	Minor1	Major1		Major2			
Conflicting Flow All	1441	308	896	0	0	616	0
Stage 1	616	-	-	-	-	-	-
Stage 2	825	-	-	-	-	-	-
Critical Hdwy	6.86	6.96	6.46	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.53	-	-	2.23	-
Pot Cap-1 Maneuver	122	685	384	-	-	953	-
Stage 1	498	-	-	-	-	-	-
Stage 2	388	-	-	-	-	-	-
Platoon blocked, %				-	-		
Mov Cap-1 Maneuver	109	685	384	-	-	953	-
Mov Cap-2 Maneuver	109	-	-	-	-	-	-
Stage 1	498	-	-	-	-	-	-
Stage 2	345	-	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	32.2	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NEU	NET	NERNWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	384	-	-	109	685	953
HCM Lane V/C Ratio	-	-	-	0.395	0.075	0.111
HCM Control Delay (s)	0	-	-	58.1	10.7	9.2
HCM Lane LOS	A	-	-	F	B	A
HCM 95th %tile Q(veh)	0	-	-	1.6	0.2	0.4

								
Movement	SET	SER	NWL	NWT	NEL	NER		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	1088	246	80	517	160	111		
Future Volume (veh/h)	1088	246	80	517	160	111		
Number	6	16	5	2	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881		
Adj Flow Rate, veh/h	1088	265	86	556	172	119		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Percent Heavy Veh, %	1	1	1	1	1	1		
Cap, veh/h	1499	671	340	2189	256	228		
Arrive On Green	0.42	0.42	0.07	0.61	0.14	0.14		
Sat Flow, veh/h	3668	1599	1792	3668	1792	1599		
Grp Volume(v), veh/h	1088	265	86	556	172	119		
Grp Sat Flow(s),veh/h/ln	1787	1599	1792	1787	1792	1599		
Q Serve(g_s), s	12.4	5.6	1.2	3.5	4.5	3.4		
Cycle Q Clear(g_c), s	12.4	5.6	1.2	3.5	4.5	3.4		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1499	671	340	2189	256	228		
V/C Ratio(X)	0.73	0.40	0.25	0.25	0.67	0.52		
Avail Cap(c_a), veh/h	1499	671	397	2189	658	588		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.9	9.9	8.4	4.4	19.9	19.5		
Incr Delay (d2), s/veh	3.1	1.7	0.4	0.3	3.1	1.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.7	2.8	0.6	1.8	2.4	3.1		
LnGrp Delay(d),s/veh	15.0	11.6	8.8	4.6	23.0	21.3		
LnGrp LOS	B	B	A	A	C	C		
Approach Vol, veh/h	1353			642	291			
Approach Delay, s/veh	14.3			5.2	22.3			
Approach LOS	B			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		36.0		13.0	9.4	26.6		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		30.0		18.0	5.0	19.0		
Max Q Clear Time (g_c+I1), s		5.5		6.5	3.2	14.4		
Green Ext Time (p_c), s		13.2		0.7	0.0	3.6		
Intersection Summary								
HCM 2010 Ctrl Delay			12.8					
HCM 2010 LOS			B					

Intersection

Int Delay, s/veh 3.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Traffic Vol, veh/h	205	373	193	67	57	154
Future Vol, veh/h	205	373	193	67	57	154
Conflicting Peds, #/hr	0	0	0	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	Free
Storage Length	0	-	-	200	0	250
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	228	414	214	74	63	171

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	216	0	1086
Stage 1	-	-	216
Stage 2	-	-	870
Critical Hdwy	4.11	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.209	-	3.509
Pot Cap-1 Maneuver	1360	-	240
Stage 1	-	-	822
Stage 2	-	-	412
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1360	-	199
Mov Cap-2 Maneuver	-	-	199
Stage 1	-	-	820
Stage 2	-	-	342

Approach	SE	NW	SW
HCM Control Delay, s	2.9	0	31.3
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1360	-	199	-
HCM Lane V/C Ratio	-	-	0.167	-	0.318	-
HCM Control Delay (s)	-	-	8.2	-	31.3	0
HCM Lane LOS	-	-	A	-	D	A
HCM 95th %tile Q(veh)	-	-	0.6	-	1.3	-

Intersection

Int Delay, s/veh 18.2

Movement	SET	SER	NWL	NWT	NEL	NER
Traffic Vol, veh/h	1042	55	112	501	34	119
Future Vol, veh/h	1042	55	112	501	34	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	150	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	1133	60	122	545	37	129

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1133
Stage 1	-	-	1133
Stage 2	-	-	788
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	620
Stage 1	-	-	309
Stage 2	-	-	450
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	620
Mov Cap-2 Maneuver	-	-	53
Stage 1	-	-	309
Stage 2	-	-	323

Approach	SE	NW	NE
HCM Control Delay, s	0	2.2	212.3
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	136	620	-	-	-
HCM Lane V/C Ratio	1.223	0.196	-	-	-
HCM Control Delay (s)	212.3	12.2	0	-	-
HCM Lane LOS	F	B	A	-	-
HCM 95th %tile Q(veh)	10	0.7	-	-	-

Intersection

Int Delay, s/veh 4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	30	95	155	16	140	148
Future Vol, veh/h	30	95	155	16	140	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	33	103	168	17	152	161

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	642	177	0 0 186 0
Stage 1	177	-	- - - -
Stage 2	465	-	- - - -
Critical Hdwy	6.41	6.21	- - 4.11 -
Critical Hdwy Stg 1	5.41	-	- - - -
Critical Hdwy Stg 2	5.41	-	- - - -
Follow-up Hdwy	3.509	3.309	- - 2.209 -
Pot Cap-1 Maneuver	440	869	- - 1395 -
Stage 1	856	-	- - - -
Stage 2	634	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	387	869	- - 1395 -
Mov Cap-2 Maneuver	387	-	- - - -
Stage 1	856	-	- - - -
Stage 2	558	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	3.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 669	1395	-
HCM Lane V/C Ratio	-	- 0.203	0.109	-
HCM Control Delay (s)	-	- 11.7	7.9	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.8	0.4	-

Intersection

Int Delay, s/veh 3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	34	59	444	45	112	806
Future Vol, veh/h	34	59	444	45	112	806
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	37	64	483	49	122	876

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1627	507	0 0 532 0
Stage 1	507	-	- - - -
Stage 2	1120	-	- - - -
Critical Hdwy	6.41	6.21	- - 4.11 -
Critical Hdwy Stg 1	5.41	-	- - - -
Critical Hdwy Stg 2	5.41	-	- - - -
Follow-up Hdwy	3.509	3.309	- - 2.209 -
Pot Cap-1 Maneuver	113	568	- - 1041 -
Stage 1	607	-	- - - -
Stage 2	313	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	87	568	- - 1041 -
Mov Cap-2 Maneuver	87	-	- - - -
Stage 1	607	-	- - - -
Stage 2	242	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	44.4	0	1.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 188	1041	-
HCM Lane V/C Ratio	-	- 0.538	0.117	-
HCM Control Delay (s)	-	- 44.4	8.9	0
HCM Lane LOS	-	- E	A	A
HCM 95th %tile Q(veh)	-	- 2.8	0.4	-

Intersection				
Intersection Delay, s/veh	27.9			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	276	104	410	1003
Demand Flow Rate, veh/h	279	105	414	1013
Vehicles Circulating, veh/h	907	488	357	64
Vehicles Exiting, veh/h	170	283	829	529
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	22.8	6.9	12.2	37.9
Approach LOS	C	A	B	E
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	279	105	414	1013
Cap Entry Lane, veh/h	456	694	791	1060
Entry HV Adj Factor	0.990	0.989	0.990	0.990
Flow Entry, veh/h	276	104	410	1003
Cap Entry, veh/h	452	686	782	1049
V/C Ratio	0.612	0.151	0.524	0.956
Control Delay, s/veh	22.8	6.9	12.2	37.9
LOS	C	A	B	E
95th %tile Queue, veh	4	1	3	17

Intersection

Int Delay, s/veh 7.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Vol, veh/h	21	47	91	6	32	14	136	140	21	25	63	13
Future Vol, veh/h	21	47	91	6	32	14	136	140	21	25	63	13
Conflicting Peds, #/hr	0	0	0	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	25	55	107	7	38	16	160	165	25	29	74	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	666	651	82	720	646	178	89	0	0	190	0	0
Stage 1	141	141	-	498	498	-	-	-	-	-	-	-
Stage 2	525	510	-	222	148	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	374	389	980	344	392	868	1513	-	-	1390	-	-
Stage 1	864	782	-	556	546	-	-	-	-	-	-	-
Stage 2	538	539	-	783	777	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	301	335	980	240	337	867	1513	-	-	1390	-	-
Mov Cap-2 Maneuver	301	335	-	240	337	-	-	-	-	-	-	-
Stage 1	761	765	-	489	481	-	-	-	-	-	-	-
Stage 2	429	474	-	633	760	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	15.6	16.2	3.5	1.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1513	-	-	382	525	1390	-
HCM Lane V/C Ratio	0.106	-	-	0.16	0.356	0.021	-
HCM Control Delay (s)	7.7	0	-	16.2	15.6	7.6	0
HCM Lane LOS	A	A	-	C	C	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.6	1.6	0.1	-

Intersection

Int Delay, s/veh 5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	84	13	37	1	14	28	13	63	1	52	146	94
Future Vol, veh/h	84	13	37	1	14	28	13	63	1	52	146	94
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	104	16	46	1	17	35	16	78	1	64	180	116

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	503	478	238	508	535	78	296	0	0	79	0	0
Stage 1	367	367	-	110	110	-	-	-	-	-	-	-
Stage 2	136	111	-	398	425	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	481	488	803	477	453	985	1271	-	-	1526	-	-
Stage 1	655	624	-	898	806	-	-	-	-	-	-	-
Stage 2	870	805	-	630	588	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	428	457	803	417	424	985	1271	-	-	1526	-	-
Mov Cap-2 Maneuver	428	457	-	417	424	-	-	-	-	-	-	-
Stage 1	646	592	-	886	796	-	-	-	-	-	-	-
Stage 2	811	795	-	549	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	10.8	1.3	1.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1271	-	-	495	674	1526	-	-
HCM Lane V/C Ratio	0.013	-	-	0.334	0.079	0.042	-	-
HCM Control Delay (s)	7.9	0	-	15.9	10.8	7.5	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.5	0.3	0.1	-	-

Intersection																
Intersection Delay, s/veh	9.5															
Intersection LOS	A															
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	158	97	11	0	2	25	41	0	2	12	3	0	67	36	66
Future Vol, veh/h	0	158	97	11	0	2	25	41	0	2	12	3	0	67	36	66
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1
Mvmt Flow	0	174	107	12	0	2	27	45	0	2	13	3	0	74	40	73
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Approach	EB				WB				NB				SB			
Opposing Approach	WB				EB				SB				NB			
Opposing Lanes	1				1				1				1			
Conflicting Approach Left	SB				NB				EB				WB			
Conflicting Lanes Left	1				1				1				1			
Conflicting Approach Right	NB				SB				WB				EB			
Conflicting Lanes Right	1				1				1				1			
HCM Control Delay	10.3				7.9				8.1				9.1			
HCM LOS	B				A				A				A			
Lane	NBLn1	EBLn1	WBLn1	SBLn1												
Vol Left, %	12%	59%	3%	40%												
Vol Thru, %	71%	36%	37%	21%												
Vol Right, %	18%	4%	60%	39%												
Sign Control	Stop	Stop	Stop	Stop												
Traffic Vol by Lane	17	266	68	169												
LT Vol	2	158	2	67												
Through Vol	12	97	25	36												
RT Vol	3	11	41	66												
Lane Flow Rate	19	292	75	186												
Geometry Grp	1	1	1	1												
Degree of Util (X)	0.026	0.372	0.091	0.239												
Departure Headway (Hd)	4.925	4.581	4.387	4.637												
Convergence, Y/N	Yes	Yes	Yes	Yes												
Cap	724	783	814	773												
Service Time	2.973	2.614	2.428	2.673												
HCM Lane V/C Ratio	0.026	0.373	0.092	0.241												
HCM Control Delay	8.1	10.3	7.9	9.1												
HCM Lane LOS	A	B	A	A												
HCM 95th-tile Q	0.1	1.7	0.3	0.9												

Appendix

ro e t i t

**ADDENDUM: 2040 TOTAL MOBILITY PLAN
MODIFICATION FOR EXPANDED METROPOLITAN PLANNING AREA**

**Coastal Region Metropolitan Planning Organization (CORE MPO)
Metropolitan Transportation Plan Modification for MPO Boundary Expansion**

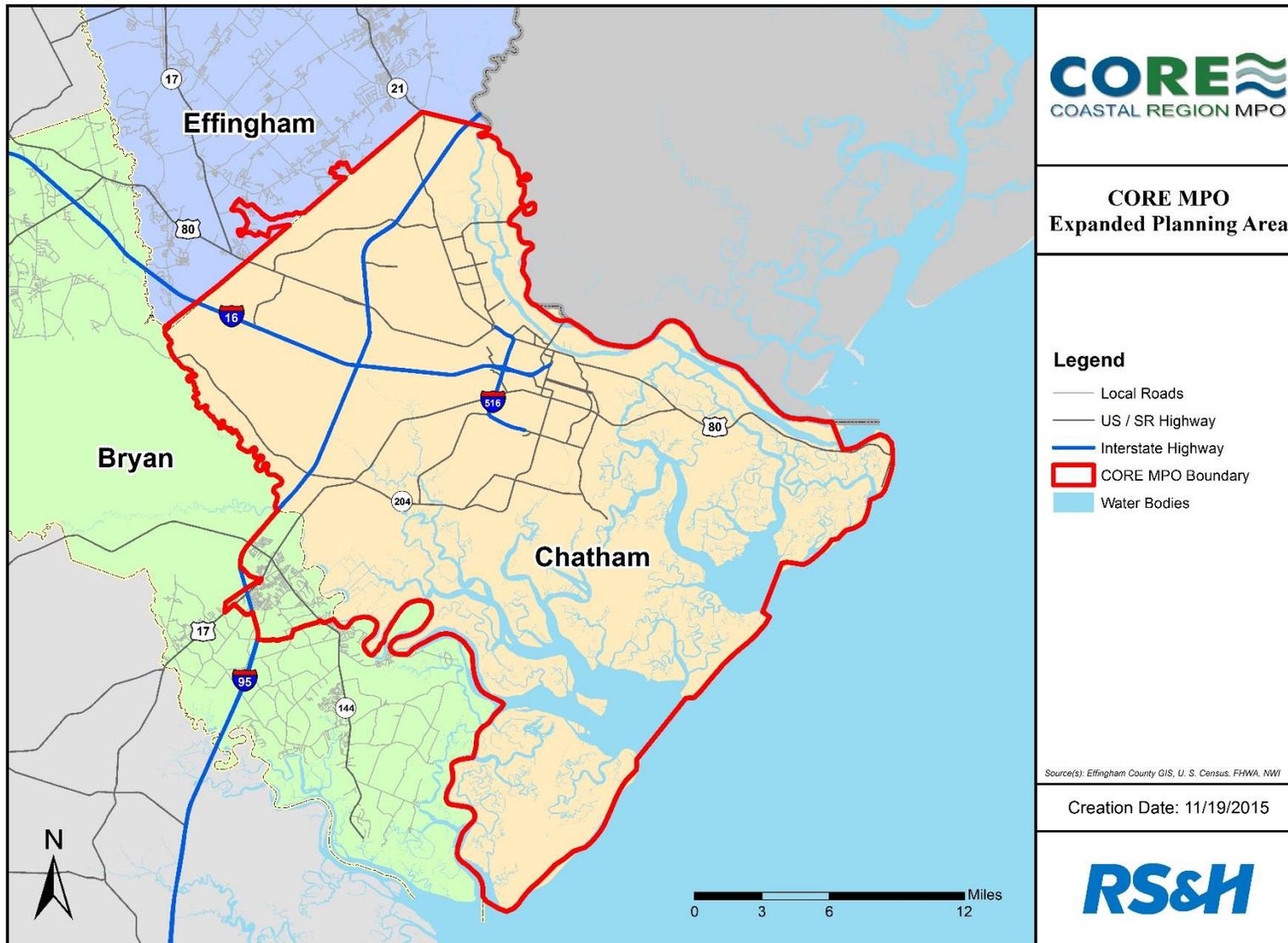
INTRODUCTION

As a result of the 2010 US Census and the growth in the region, the designated Urbanized Area was expanded to include portions of Bryan and Effingham Counties. With this expanded Urbanized Area, the Metropolitan Planning Area for the CORE MPO also was expanded to encompass the growth areas.

At the time of the adoption of the 2040 Total Mobility Plan, the boundary expansion had not been finalized. The boundary for the Metropolitan Planning Area incorporates the area included in the designated Urbanized Area, as well as additional areas expected to experience growth and become urbanized within the next twenty years.

Through coordination with Bryan and Effingham Counties, as well as the Georgia Department of Transportation and the Federal Highway Administration, the boundary was identified and adopted. The area in Effingham County includes two small areas of growth in southern Effingham County adjacent to Chatham County. In Bryan County, the growth area includes the municipality of Richmond Hill, which is adjacent to western Chatham County. With the designation of the expanded planning area, the Total Mobility Plan, which is the required Metropolitan Transportation Plan (MTP), must be amended to encompass the additional areas. The expanded planning area is shown in Figure 1, found on page 2.

Figure 1. CORE MPO Expanded Boundary



EXISTING COUNTY TRANSPORTATION PLANS

The Georgia Department of Transportation Office of Planning coordinates with the local governments outside of the MPO areas for transportation planning and the development of countywide transportation plans. Both Bryan County and Effingham County had plans completed within the last several years and these plans include the sub-areas that are now incorporated into the CORE MPO area. These plans, which include the goals and objectives developed through the planning process with input from officials, stakeholders and the public, and projects identified to address defined transportation needs, serve as the foundation for this addendum. The plans were reviewed to identify the goals and objectives, the transportation needs and projects to address those needs, and any other pertinent data or information.

2035 Bryan County Transportation Study

Through the planning process, coordination with local officials and staff, and input from the public and stakeholders, the goals and objectives for the transportation study were developed. These goals and objectives included the following:

- Encourage Multi-modal Transportation Corridors
 - *Increase capacity along major corridors while improving pedestrian access and connectivity*
- Expand the Bicycle/Pedestrian Network
 - *Expand the bicycle and pedestrian network along major corridors and greenways*
- Coordinate Land Use and Transportation
 - *Identify transportation improvements that are consistent with future land use plans*
 - *Identify transportation improvements that avoid and/or mitigate impacts to the natural environment*
 - *Identify transportation improvements that help preserve the rural-suburban character of the County*
- Increase Safety and Operations of Transportation Network
 - *Improve operations to reduce the number of crashes at critical intersections and hot spots*
 - *Reduce the number of unpaved roadways and provide lighting and sidewalks*

The transportation projects incorporated in this plan include capacity projects, operational, safety and maintenance projects, and bicycle and pedestrian projects. The projects from this plan that were located partially or completely within Richmond Hill were identified. These projects include:

Capacity Projects

PI #	Project	Project Description	2008 Estimated Cost
511035	I-95	Widen from 6 to 8 lanes from I-16 (Chatham Co) to SR 144	\$9,116,000*
N/A	US 17	Widen from 4 to 6 lanes from SR 196 (Liberty Co) to I-95	\$49,827,000
N/A	Harris Trail	Widen from 2 to 4 lanes from Timber Trail to Port Royal Road	\$10,980,000
532370	SR 144	Widen from 2 to 4 lanes from S of CR 100 to S of CR 154	\$9,762,464**

* Cost shown for 2 miles of project in Bryan County

**Cost shown for portion in MPA area

Operations/Systems Management/ Safety Projects

PI #	Project	Project Description	2008 Estimated Cost
0012830	I-95@ US 17	Interchange operational improvements	\$3,323,000
0010740	US 17 @ SR 144	Intersection operational/safety improvements	\$1,588,000
N/A	US 17 @ Harris Trail Rd.	Intersection operational/safety improvements	\$ 829,000
N/A	US 17 @ Mulberry St.	Intersection operational/safety improvements	\$ 125,000
N/A	SR 144 @ Timber Trail Rd	Intersection operational/safety improvements	\$ 738,000
N/A	SR 144 @ Ivey St.	Intersection operational/safety improvements	\$ 738,000
N/A	SR 144: I-95 to Timber Trail Rd	Access management	\$2,781,000

Pedestrian Projects

PI #	Project	Project Description	2008 Estimated Cost
N/A	Wildcat Drive	SW: Harris Trail Rd to Richmond Hill High School	\$ 84,500
N/A	Richmond Hill Middle Sch	SW: Harris Trail Rd to Richmond Hill Middle Sch.	\$ 13,000
N/A	Frances Meeks Way	SW: Ford Avenue to Maple Street	\$ 18,835
N/A	Ivey Street	SW: Ford Avenue to Laurel Hill Circle	\$ 260,000
N/A	Maple Street	SW: Constitution Way to Pre-K Center Walkway	\$ 58,500
N/A	Constitution Way	SW: Cherry Street to Ford Avenue	\$ 227,500
N/A	Cherry Street	SW: Ford Avenue to Constitution Way	\$ 84,500
N/A	Richmond Hill High Sch	Shared Use Path: County Recreation Center to Richmond Hill High School	\$ 38,000
N/A	Ford Avenue	SW: Railroad Tracks to I-95	\$ 1,105,000
N/A	Ford Avenue	SW: Ford Avenue to Timber Trail	\$ 78,000
N/A	Timber Trail Road	SW: Ford Avenue to Development	\$ 104,000

The identified projects were evaluated and prioritized using a multiple step process utilizing the guidelines from the Project Prioritization Process established by the Georgia Department of Transportation. The prioritization criteria included the following categories and weights:

- Safety (30%)
 - Reduction in crashes
- Congestion (30%)
 - Reduction in delay
- Connectivity, Access and Mobility (40%)
 - Travel time savings on key corridors (20%)
 - Consistency with local plans (20%)

Multimodal Transportation Study for Effingham County

Through the planning process, coordination with local officials and staff, and input from the public and stakeholders, the goals and objectives for the transportation study were developed. These goals and objectives, focused on both transportation and land use, included the following:

- Transportation Planning
 - *Develop a long-range transportation plan for the county*
 - *Promote comprehensive, long-range transportation planning in conjunction with comprehensive planning*
 - *Promote alternative modes of transportation, such as walking, bicycling and public transit*
- Accessibility and mobility
 - *Encourage mixed-use development and design standards that are pedestrian oriented to promote mobility and access for all citizens*
 - *Ensure that new and reconstructed roadways will support multiple modes of transportation and enhance the aesthetics of the community*
 - *Support access management strategies to improve the safety and aesthetics of commercial corridors*
- Network connectivity
 - *Ensure connectivity between road network, public transit, and pedestrian/bike paths*
 - *Promote higher-density and mixed-use developments in areas conducive to walking and bicycling*
 - *Promote a continuous network of bicycle routes and provide bicycle facilities (e.g., parking racks) at destinations throughout the county*
 - *Promote pedestrian and bicycle mobility and circulation in and between residential subdivisions and surrounding commercial uses*
- Public transportation
 - *Promote county participation in a regional bus system, such as commuter routes to Chatham County and rural routes between populated areas of the county*
 - *Identify potential linkages with social service agencies and proposed rural transit to provide transportation for those with special needs*
 - *Protect opportunities for the future re-use of railroad infrastructure for public transit*
- Aesthetics and scenic corridors
 - *Reduce the visual impact of the automobile in both commercial and residential areas of the county/city*
 - *Protect scenic corridors including preservation of existing trees within the right-of-way; Create a “sense of place” along the county’s gateways and entrance corridors*
 - *Adopt and enforce a signage ordinance to minimize the negative aesthetic impacts of inappropriate signage on the landscape*
 - *Evaluate the entryways into the community and develop landscaping, signage, etc., at all points of entry in conjunction with private landowners and the Georgia Department of Transportation*
 - *Develop a vision for the aesthetic quality of future arterial highways, gateway interchanges, and collector streets*

Land Use and Related Goals

- General Policies
 - *Address compatible land uses in all districts, especially industrial and commercial uses adjacent to residential*
 - *Coordinate future land use with transportation*
 - *Allow greater residential densities in areas where water/sewer infrastructure already exists*
 - *Protect residential areas from intrusion of incompatible and conflicting non-residential land uses*
 - *Promote efficient use of land by creating well designed, pedestrian-friendly development patterns that contain a mix of uses [where people have easy access to schools, parks, residences and businesses through walkways, bike paths and other pedestrian-friendly infrastructure*
 - *Target reinvestment in declining, existing neighborhoods to further encourage private sector redevelopment and accommodate future growth*
 - *Encourage efficient land use*
 - *Promote the development of mixed-uses and the redevelopment/revitalization of existing and underutilized commercial and industrial areas over development of new land for commercial purposes*
 - *Encourage innovative land use planning techniques to be used in building higher density and mixed-use developments, as well as infill developments*
 - *Accommodate new development while enhancing existing local assets*
 - *Promote mixed-use development by right in appropriate areas*
- Existing infrastructure and services
 - *Encourage development in areas where infrastructure and services already exist to maximize efficiency of services and reduce costs associated with sprawling development patterns*
 - *Promote increases in residential densities in areas that meet community design standards, environmental constraints and available infrastructure and service capacities*

There were no projects identified in the plan that were located in the CORE MPO planning area.

Consistency of Goals and Objectives

The goals and objectives established for the plans form the framework of the overall planning process. With the review of the two county plans and the goals and objectives established for those plans identified, they were compared to the established goals and objectives of the 2040 Total Mobility Plan, which is the adopted Metropolitan Transportation Plan for the CORE MPO. Those goals and the federal planning factors are listed below. The comparison found the goals from the county plans to be consistent with the goals in the Total Mobility Plan, as well as the required federal planning factors. The comparison of the goals from the three plans and the federal requirements are shown in Figure 2.

Total Mobility Plan Goals

- Support Economic Vitality
- Ensure and Increase Safety
- Ensure and Increase Security
- Accessibility, Mobility and Connectivity

MAP -21 Planning Factors

- Support Economic Vitality
- Increase Safety
- Increase Security
- Increase Accessibility & Mobility

Protect and Enhance the Environment and Quality of Life	Environmental and Quality of Life
System Management and Maintenance	Enhance System Integration and Connectivity
Intergovernmental Coordination	Promote System Management and System Preservation

Figure 2. Comparison of Planning Goals

	Total Mobility Plan Goals Relationship	Federal Planning Factors Relationship
Bryan County Transportation Plan Goals		
Encourage multimodal transportation corridors	<i>Accessibility, mobility and connectivity</i>	<i>Increase accessibility</i>
		<i>Enhance system integration and connectivity</i>
Expand bicycle and pedestrian networks	<i>Accessibility, mobility and connectivity</i>	<i>Increase accessibility</i>
	<i>Environment and quality of life</i>	<i>Environment and quality of life</i>
		<i>Enhance system integration and connectivity</i>
Coordinate land use and transportation	<i>Intergovernmental coordination</i>	<i>Enhance system integration and connectivity</i>
	<i>Accessibility, mobility and connectivity</i>	
Increase safety and operations	<i>Increase safety</i>	<i>Increase safety</i>
	<i>System management and maintenance</i>	<i>Promote system management and operations</i>
Effingham County Multimodal Transportation Study Goals		
Transportation planning	<i>Relates to all goals</i>	<i>Relates to all factors</i>
Accessibility and mobility	<i>Accessibility, mobility and connectivity</i>	<i>Increase accessibility</i>
		<i>Enhance system integration and connectivity</i>
Network connectivity	<i>Accessibility, mobility and connectivity</i>	<i>Enhance system integration and connectivity</i>
Public transportation	<i>Accessibility, mobility and connectivity</i>	<i>Increase accessibility</i>
		<i>Enhance system integration and connectivity</i>
Aesthetics and scenic corridors	<i>Environment and quality of life</i>	<i>Environment and quality of life</i>

FINANCIAL ANALYSIS

The MTP is required to include a financially feasible project list, which requires that the project costs are balanced with the anticipated revenues for the planning period. The list of financially balanced projects comprises the Cost Feasible Plan; those projects which are not included in the Cost Feasible Plan are incorporated into the Vision Plan, or the unfunded project list.

Revenues

The first step in the development of the financially balanced project list is the identification of the anticipated federal revenues over the planning period. The development of these revenues is accomplished in coordination with the Georgia Department of Transportation (GDOT). GDOT reviewed the funding of projects within the expanded area and developed the historical financial data from the last ten years. There were no projects funded in the Effingham County portion of the expanded area from 2006 to 2014. In the Richmond Hill area, the revenues over the ten year period were a combined \$11,511,346 which occurred with the funding of one project in 2013 and 2014.

The next step in the development of available revenues is the projection of the anticipated funding over the planning period through the horizon year of 2040. In order to be consistent with the methodology utilized in the Total Mobility Plan, anticipated revenues were escalated with an annual inflation rate of 2.5%.

With the recognition that the escalation of the total amount of historical funding that occurred during the two years would artificially inflate the anticipated revenues, the amount was averaged over the ten-year period, with an annual funding amount of \$1,151,134. This annual amount was escalated using the 2.5% inflation factor through 2040. The total anticipated revenues for the planning horizon from 2016 to 2040 were calculated to be \$41,454, 323.

Project Costs

The next step in the process was the development of the project costs. All projects within the planning area that were already underway and had funding programmed were identified. The one project that was identified was the widening of SR 144, with Preliminary Engineering and Right of Way acquisition already underway and Construction planned for 2017. The total funding for the construction of this project is \$20,634,299; however, the project does extend outside of the expanded MPO planning area and into the unincorporated area of Bryan County. Based on the mileage of the project within the Richmond Hill municipal boundary and the MPO boundary, the cost for the project is \$9,762,464.

The projects and estimated costs that were identified in the previous 2035 Bryan County Transportation Plan were also identified and those costs were also escalated with an annual inflation factor of 2.5%. The MTP is structured with three cost bands, which include:

- Cost Band 1: 2015 – 2020
- Cost Band 2: 2021 – 2030
- Cost Band 3: 2031 – 2040

The inflated cost estimates for projects used in the development of the Cost Feasible Plan use the mid-point cost of the band in which the project is included. For example, a project included in Cost Band 2 utilizes the inflated cost for 2025.

Financial Summary

Once the project cost estimates have been developed and any projects already programmed for construction identified, the revenues that will be available for additional projects is calculated. This information is shown below:

Revenue Projects and Available Funding	
Available Revenues	\$41,454,323
Programmed Projects	\$ 9,762,464
Funding Available for Additional Projects	\$ 31,691,859

PROJECT IDENTIFICATION AND PRIORITIZATION

From the review of the 2035 Bryan County Plan, several projects were identified as needs. These projects, located in the planning area, included:

- SR 144 Widening (Currently Underway)
- Harris Trail Widening from Timber Trail to Port Royal Road
- I-95 Widening from I-16 to SR 144 (2 miles in Bryan County)
- I-95/SR 144 Interchange Improvements
- US 17 @ SR 144 Intersection Operation/Safety Improvements
- I-95 @ US 17 Interchange Improvements

GDOT has undertaken several of the projects from the list above through the lump sum program. These projects include the I-95/SR 144 and I-95/US 17 interchange improvements, and the completion of the US 17/SR 144 intersection improvements.

Richmond Hill identified several other projects as needs for their City, as well as modified projects from the previous plan based on changing conditions. Through coordination with the Richmond Hill staff, these projects were included in the needs list. The projects located inside the planning area include:

- Port Royal Road Widening from SR 144 to Harris Trail Road
- I-95 Frontage Road from SR 144 to US 17
- I-95/SR 144 Interchange Reconstruction

Cost estimates for each of these projects were developed and inflated annually through the planning horizon year of 2040 based on the described methodology. These cost estimates were developed based on information from the previous plan, GDOT, and from the Richmond Hill planning and engineering staff. Project costs are also stratified by project implementation phase of Preliminary Engineering, Right of Way, and Construction.

The next step in the plan development process was to identify the local priorities for inclusion in the Cost Feasible Plan and to balance the project costs against the available revenues. In coordination with the Richmond Hill staff, these priorities were identified based on addressing the existing transportation needs and the provision of needed transportation improvements for existing and/or anticipated growth areas.

The widening of SR 144 from CR 100 to CR 154 is already programmed for Construction in 2017 and is incorporated in the first cost band of 2015 to 2020. The other projects identified as the highest priorities included:

- Harris Trail Widening from Timber Trail to Port Royal Road
- Port Royal Road Widening from SR 144 to Harris Trail
- I-95/SR 144 Interchange Improvements

The above project priorities and the implementation phases were incorporated into the Cost Feasible Plan, with the remaining project needs included in the Vision Plan. In addition, the pedestrian and bicycle projects identified in the 2035 Bryan County Plan and by Richmond Hill staff were also incorporated into the Vision Plan.

2040 Total Mobility Plan Modification - DRAFT 11/9/15

GDOT PI #	Identified Projects			2015-2020				2021-2030				2031-2040				Outside of Constrained Plan: Vision Plan										
	NAME	TERMINI		PE	ROW	CST	Total Project Cost - Band 1	PE	ROW	CST	Total Project Cost-Band 2	PE	ROW	CST	Total Project Cost-Band 3	PE	ROW	CST	Total Project Cost							
		FROM	TO																							
532370	SR 144 Widening*	South of CR 100	South of CR 154	\$ -	\$ -	\$ 9,762,464	\$ 9,762,464																			
N/A	Harris Trail Widening from 2 to 4 lanes*	Timber Trail	Port Royal Road					\$ 993,617	\$ 3,292,782	\$ 12,420,970	\$ 16,707,369															
N/A	Port Royal Road Widening from 2 to 4 lanes**	SR 144	Harris Trail Road					\$ 992,808	\$ 2,978,424	\$ 5,956,848	\$ 9,928,080															
0010739	I-95 Interchange Improvements/Bridge Replacement*	@ I-95 and SR 144										\$ 5,000,000			\$ 5,000,000		\$ 1,966,340	\$ 58,285,587	\$ 65,003,914							
511025	I-95 Widening*	Chatham County	US 17													\$ 7,601,171	\$ 1,092,668	\$ 95,014,635	\$ 103,708,474							
N/A	I-95 Frontage Road**	SR 144	US 17													\$ 1,890,560	\$ 1,638,616	\$ 15,376,288	\$ 18,905,465							
							Total Band 1	\$ 9,762,464					Total Band 2	\$ 26,635,448					Total Band 3	\$ 5,000,000					Total Vision Plan	\$ 187,617,853

- Utilities are included in CST costs
 * Projects identified in 2035 Bryan County Transportation Plan
 ** Project identified by Richmond Hill

Total Project Costs	\$	41,397,912
Total Costs	\$	41,397,912
Total Available Revenues	\$	41,454,323
Balance	\$	56,411

2040 Total Mobility Plan Modification Vision Plan - Pedestrian and Bicycle				
Project Number*	Identified Projects			Estimated Cost (in 2015 \$)
	NAME	TERMINI		
		FROM	TO	
N/A	US 17 South Sidewalk	Mulberry	Harris Trail	\$ 1,437,000
N/A	Harris Trail Sidewalk	Timber Trail	Cypress Point	\$ 165,000
PED11*	Frances Meeks Way - Sidewalk	Ford Avenue	Maple Street	\$ 22,389
PED12*	Ivey Street - Sidewalk	Ford Avenue	Laurel Hill Circle	\$ 309,058
PED13*	Maple Street - Sidewalk	Constitution Way	Pre-K Center Walkway	\$ 69,538
PED14*	Constitution Way - Sidewalk	Cherry Street	Ford Avenue	\$ 270,426
PED15*	Cherry Street - Sidewalk	Ford Avenue	Constitution Way	\$ 100,444
N/A	Port Royal Road Sidewalk	SR 144	Sterling Links Way	\$ 171,000
N/A		Sterling Links Way	Demorest	
PED17*	Ford Avenue - Sidewalk	Railroad Tracks	I-95	\$ 1,313,498
PED 18*	Ford Avenue - Sidewalk	Ford Avenue	Timber Trail	\$ 92,717
Total: Pedestrian and Bicycle Vision Plan				\$ 3,951,070

* Projects and project numbers identified in 2035 Bryan County Transportation Plan
 Additional projects identified by Richmond Hill

COORDINATION AND PUBLIC PARTICIPATION

Coordination with local staff and elected officials and public involvement was a critical element in the planning process. These coordination and input efforts were accomplished on multiple levels to ensure all interested parties had the opportunity to voice their opinions and provide input.

The first step was to provide a project overview presentation to the Effingham County Commission and to the Richmond Hill City Council. This presentation was developed to provide background information regarding the MPO expansion, the MPO planning process, and the steps and schedule involved in the development of the plan modification. In addition to the presentation, a project information sheet was also developed and distributed.

In conjunction with these presentations, an open house for the public was also held. This open house provided meeting attendees with the opportunity to ask questions and provide feedback and information to the project team. A public survey regarding transportation was also developed and distributed at the open house along with the project information sheet. In addition to the hard copy survey, the survey was also posted on the CORE MPO website for completion on-line by interested parties. The open houses were advertised in conjunction with the regularly scheduled County and City Council meetings and were held in locations accessible to all citizens.

The Effingham County presentation and open house was held on August 18, 2015 at the Effingham County Administrative Complex in Springfield and the Richmond Hill presentation and open house was held on September 1, 2015. A second round of presentations and open house formats was held at the Richmond Hill City Council meeting on January 19, 2016 during the 30-day public comment period for the draft Addendum, which ran from January 11 through February 9.

The survey respondents primarily utilized the on-line opportunity, with one hard copy response. There were a total of 23 responses, with 12 of the respondents identifying Bryan County as their place of residence; 2 respondents identifying Effingham County as their place of residence; 8 respondents identifying Chatham County as their place of residence, and 1 respondent did not answer the question. These survey responses provided input as to priorities, needs, and concerns regarding the transportation system. The following elements were the areas of concern identified by the respondents as very important or important.

Survey Elements Ranked Very Important or Important	
Safety and Security	95.7%
Maintenance of Roads	95.5%
Addressing Traffic Congestion	78.3%
Presence of Pedestrian and Bicycle Facilities	78.3%
Movement of Freight	78.3%
Addressing Lack of Travel Options	78.3%

With the small geographic area of the expanded boundary extending into Effingham County, there were no projects identified within the boundary in the previous county plan or through coordination with the County staff. However, extensive coordination with the City of Richmond Hill staff was important in the development of the project list. The project team met with the City staff to review the projects identified in the 2035 Bryan County Plan, identify those projects located within the planning area, as well as any additional projects, and to prioritize the identified projects. Ongoing coordination was undertaken through the financial balancing process, resulting in the final prioritized project list.

In addition to the ongoing coordination with the Richmond Hill staff, the project team also coordinated with the GDOT Office of Planning on an ongoing basis. This ongoing coordination ensured the resulting project list was consistent with the state and federal process and requirements. In addition, all agency comments that were received were addressed.

The project team also provided updates to the MPO committees regarding the project status through presentations at their August, October, and December meetings. The final draft of the update was presented to the MPO committees at their February and March meetings and formal public hearings were held to obtain comments from interested members of the public, however, no comments were received.

The MPO Board adopted the addendum at the meeting held on March 9, 2016.

APPENDIX

- Public Meeting # 1
 - Project Information Sheet
 - Survey
 - Presentation: Effingham County Commission, August 18, 2016
 - Presentation: Richmond Hill City Council, September 1, 2016
 - Project Information for Effingham and Bryan Counties

- Public Meeting # 2: Richmond Hill City Council, January 19, 2016
 - Presentation: Richmond Hill
 - Sign-in Sheet
 - Workshop Summary