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#### EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts of a proposed +/-900-acre mixed-use development (Henderson Farms) located along both sides of SR 20 in the vicinity of McDonough Street, west of I-75 and east of US 19/41, in Henry County, Georgia. This report is being prepared in conjunction with the submittal to Henry County for Concept Plan Review and subsequent rezoning application. Because the mixed-use project will exceed 400,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review.

The proposed development is expected to consist of approximately 164 single-family residential units, 145 estate residential units, 66 senior adult housing units, 495 multi-family residential units (401 apartments and 94 patio apartments), an 80-bed assisted living facility, a 390-room hotel (three 130-room hotels), 310,000 SF of office, 918,000 SF of retail, and a church. The development is scheduled to be completed by the year 2025.

Based on the existing 2008 conditions, two of the study area intersections currently operate below the acceptable Level of Service standard (LOS D).

The results of the detailed intersection analysis for the projected 2025 No-Build and projected 2025 Build conditions identified improvements that will be necessary in order to maintain the Level of Service standard (LOS D or E) within the study network. These improvements are listed below:

Projected 2025 No-Build recommended improvements (includes background growth but does not include the Henderson Farms DRI project traffic):

SR 20 (Bruton Smith Parkway) @ I-75 Northbound (Intersection #1)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound.

SR 20 (Bruton Smith Parkway) @ I-75 Southbound (Intersection #2)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a southbound right-turn lane along the I-75 southbound ramps creating dual right-turn lanes.
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound ramps.

SR 20 (Bruton Smith Parkway) @ McDonough Street (Intersection #3)

• Install a traffic signal when warranted.

SR 20 (Bruton Smith Parkway) @ South Hampton Road (Intersection #5)

• Install a northbound left-turn lane along South Hampton Road.

SR 20 (Bruton Smith Parkway) @ SR 81 (Intersection #8)

- Install a westbound left-turn lane along SR 20 (Bruton Smith Parkway) creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a southbound left-turn lane along SR 81 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound ramps.

US 19/ US 41@ McDonough Road / Old Highway 3 (Intersection #11)

- Install a southbound thru lane along US 19/ US 41.
- Install a northbound thru lane along US 19/ US 41.
- Install a southbound left-turn lane along US 19/ US 41 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a northbound left-turn lane along US 19/ US 41 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a westbound thru lane along Old Highway 3.
- Install an eastbound thru lane along Old Highway 3.

Old Highway 3 @ SR 81 (Intersection #12)

- Install a traffic signal when warranted.
- Install a southbound left-turn lane along Old Highway 3.
- Install a westbound right-turn lane along SR 81.

Old Highway 3 @ Fears Drive / Pineview Drive (Intersection #13)

• Install an eastbound left-turn lane along Pineview Drive.

SR 155 @ Hampton Locust Grove Road (Intersection #18)

• Install a northbound right-turn lane along SR 155.

Projected 2025 Build recommended improvements (2025 No-Build conditions plus the Henderson Farms DRI project traffic) (Note: These improvements are in addition to the 2025 No-Build recommended improvements.):

SR 20 (Bruton Smith Parkway) @ I-75 Northbound (Intersection #1)

• Install a northbound right-turn lane along the I-75 northbound ramps creating dual right-turn lanes.

SR 20 (Bruton Smith Parkway) @ I-75 Southbound (Intersection #2)

• Convert one southbound right-turn lane along the I-75 southbound ramps into a free flow right-turn lane.

SR 20 (Bruton Smith Parkway) @ Hampton Locust Grove Road (Intersection #4)

- Install an eastbound right-turn lane along Hampton Locust Grove Road.
- Install a westbound right-turn lane along Hampton Locust Grove Road.

SR 20 (Bruton Smith Parkway) @ SR 81 (Intersection #8)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).

US 19/ US 41 @ SR 20 (Intersection #10)

• Install a traffic signal when warranted.

Wynn Drive @ Fears Drive / Proposed Road 'A' (Intersection #17)

• Install stop signs to create an all-way stop controlled intersection.

SR 155 @ Hampton Locust Grove Road (Intersection #18)

• Install an eastbound right-turn lane along Hampton Locust Grove Road.

*The following intersection geometry and improvements are recommended at the project site driveways (Note: The attached site plan includes these improvements):* 

McDonough Street / Driveway #2 @ SR 20 – Intersection #3

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane along Driveway #2, exiting the site.

SR 20 (Bruton Smith Parkway) @ RIRO Driveway #1 - Intersection #19

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound right-turn lane, stop controlled, exiting the site.

SR 20 (Bruton Smith Parkway) @ RIRO Driveway #3 – Intersection #20

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound right-turn lane, stop controlled, exiting the site.

SR 20 (Bruton Smith Parkway) @ Proposed Road 'A' / Driveway #4 - Intersection #21

- Install a traffic signal when warranted.
- Install northbound and southbound right-turn lanes along SR 20 (Bruton Smith Parkway).
- Install northbound and southbound left-turn lanes along SR 20 (Bruton Smith Parkway).
- Install an eastbound left-turn lane and an eastbound shared thru/right-turn lane along Proposed Road 'A' exiting the site.
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane along Driveway #4 exiting the site.

SR 20 (Bruton Smith Parkway) @ Driveway #5 – Intersection #22

- Install northbound and southbound right-turn lanes along SR 20 (Bruton Smith Parkway).
- Install northbound and southbound left-turn lanes along SR 20 (Bruton Smith Parkway).
- Install an eastbound left-turn lane and an eastbound shared thru/right-turn lane, stop controlled, along Driveway #5 exiting the site.
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane, stop controlled, along Driveway #5 exiting the site.

Note: A traffic signal would improve the level of service at this intersection. The anticipated volumes, however, are not anticipated to meet signal warrants.

McDonough Street @ Driveway #6 – Intersection #23

- Install eastbound and westbound left-turn lanes along McDonough Street.
- Install a southbound shared left/thru/right-turn lane, stop controlled, along Driveway #6 exiting the site.
- Install a northbound shared left/thru/right-turn lane, stop controlled, along Driveway #6 exiting the site.

Hampton Locust Grove Road @ Driveway #7 – Intersection #24

- Install eastbound and westbound left-turn lanes along Hampton Locust Grove Road.
- Install a southbound left-turn lane and a shared thru/right-turn lane, stop controlled, along Driveway #7 exiting the site.
- Install a northbound shared left/thru/right-turn lane, stop controlled, along Driveway #7 exiting the site.

Hampton Locust Grove Road @ Driveway #8 – Intersection #25

- Install a traffic signal when warranted.
- Install eastbound and westbound left-turn lanes along Hampton Locust Grove Road.
- Install a southbound left-turn lane and a southbound shared thru/right-turn lane along Driveway #7 exiting the site.
- Install a northbound left-turn lane and a northbound shared thru/right-turn lane along Driveway #7 exiting the site.

Hampton Locust Grove Road @ RIRO Driveway #9 – Intersection #26

- Install a northbound right-turn lane, stop controlled, along Driveway #9 exiting the site.
- Install an eastbound right-turn lane along Hampton Locust Grove Road.

South Hampton Road @ Driveway #10 – Intersection #27

• Install a southbound egress lane, stop controlled, along Driveway #10 exiting the site.

Doresy Road @ Driveway #11 – Intersection #28

• Install a northbound egress lane, stop controlled, along Driveway #11 exiting the site.

Wynn Drive @ Driveway #12 – Intersection #29

• Install a westbound egress lane, stop controlled, along Driveway #12 exiting the site.

Hampton Locust Grove Road @ RIRO Driveway #13 – Intersection #30

- Install a northbound right-turn lane, stop controlled, along Driveway #13 exiting the site.
- Install an eastbound right-turn lane along Hampton Locust Grove Road.

### **1.0 PROJECT DESCRIPTION**

#### 1.1 Introduction

This report presents the analysis of the anticipated traffic impacts of a proposed +/-900-acre mixed-use development (Henderson Farms) located along both sides of SR 20 in the vicinity of McDonough Street, west of I-75 and east of US 19/41, in Henry County, Georgia. This report is being prepared in conjunction with the submittal to Henry County for Concept Plan Review and subsequent rezoning application. Because the mixed-use project will exceed 400,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review.

The proposed development is expected to consist of approximately 164 single-family residential units, 145 estate residential units, 66 senior adult housing units, 495 multi-family residential units (401 apartments and 94 patio apartments), an 80-bed assisted living facility, a 390-room hotel (three 130-room hotels), 310,000 SF of office, 918,000 SF of retail, and a church. The development is scheduled to be completed by the year 2025.

A summary of the proposed land-uses and densities can be found below in Table 1.

Table 1 Proposed Land Uses					
Single-family Residential Units	164 dwelling units				
Estate Residential Units	145 dwelling units				
Senior Adult Housing Units	66 dwelling units				
Multi-family Residential Units	495 dwelling units; (326 apartments, 94 patio apartments)				
Assisted Living Facility	80 beds				
Hotel	390 rooms; (three 130-room hotels)				
General Office	310,000 square feet				
Retail	918,000 square feet				
Church	80,000 square feet				

Figure 1 and Figure 2 provide a location map and an aerial photograph of the site.

#### *1.2 Site Plan Review*

The project site is located along both sides of SR 20 (Bruton Smith Parkway). The site is bounded by the Towaliga River to the east, Dorsey Road to the north, the City of Hampton to the west, and South Hampton Road to the south. SR 20, Hampton Locust Grove Road and McDonough Street all pass through the site. A middle school and high school are proposed east of the proposed commercial parcels, along Hampton Locust Grove Road, adjacent to the site property.

The site plan illustrates a network of internal streets and connections between the different land uses within the site. The most significant connection is the extension of Fears Drive through to development to connect with SR 20. The detached residential units of the site are located to the north and the south of the development while the multi-family units and commercial uses (retail, office, and hotel) located along SR 20.

**Figure 3** is a small-scale copy of the site plan. A full-size site plan consistent with GRTA's Site Plan Guidelines is also being submitted as part of the Review Package.

#### 1.3 Site Access

The site has thirteen proposed access locations; five along SR 20 (Bruton Smith Parkway), three along Hampton Locust Grove Road, one along South Hampton Road, one along McDonough Street, two along Wynn Drive, and one along Dorsey Road. A description of each follows:

- Driveway #1 Commercial Entrance: Right-in/Right-out driveway located along the eastside of SR 20 between Hampton Locust Grove Road and McDonough Street.
- Driveway #2 Commercial / Residential Entrance: Full movement driveway located along SR 20 and aligned with McDonough Street.
- Driveway #3 Commercial Entrance: Right-in/Right-out driveway located along the east side of SR 20 between McDonough Street and the Fears Drive extension.
- Driveway #4 Commercial Entrance: Full movement driveway located along SR 20 north of McDonough Street. The eastbound approach is the extension of Fears Drive through the development. The westbound approach provides access to commercial portions of the site.
- Driveway #5 Commercial / Residential Entrance: Full movement driveway located along SR 20 north of the extension of Fears Drive. Both the westbound and eastbound approaches provide access to the commercial portions of the site. This driveway aligns with an existing median break.
- Driveway #6 Commercial / Residential Entrance: Full movement driveway located along McDonough Street west of SR 20. The southbound approach provides access to multi-family residential and the northbound approach provides access to commercial uses.
- Driveway #7 Commercial Entrance: Full movement driveway located along Hampton Locust Grove Road west of SR 20.
- Driveway #8 Commercial Entrance: Full movement driveway located along Hampton Locust Grove Road east of SR 20. The northbound approach provides cross access with the single-family residential located south of Hampton Locust Grove Road.
- Driveway #9 Residential Entrance: Right-in/Right-out driveway with a northbound approach located along Hampton Locust Grove Road east of SR 20.
- Driveway #10 Residential Entrance: Full movement driveway with a southbound approach located along South Hampton Road east of SR 20.
- Driveway #11 Residential Entrance: Full movement driveway with a northbound approach located along Dorsey Road east of Wynn Drive.
- Driveway #12 Church Entrance: Full movement driveway with a westbound approach located along Wynn Drive south of Fears Drive.
- Driveway #13 Commercial Entrance: Right-in/Right-out driveway with a northbound approach located along Hampton Locust Grove Road east of SR 20.

### 1.4 Bicycle and Pedestrian Facilities

No sidewalks currently exist in the vicinity of the proposed development. Along the site frontage, SR 20 consists of a rural road cross-section.

The proposed development will provide a network of sidewalks and trails for pedestrian and bicycle traffic within the development. The retail and residential portions of the development are proposed to be connected by sidewalks/trails to potentially reduce the amount of vehicular traffic internal to the site.

A multiuse trail is proposed along the site frontage, SR 20, and will be provided per the Henry County ordinance for the Bruton Smith Parkway Design District.

#### 1.5 Transit Facilities

There is currently no fixed-transit service in the vicinity of this project. However, public transportation is provided on request by Henry County for needs such as banking, grocery shopping, and personal business affairs. Additionally, two GRTA Xpress bus routes operate in the area. Route 440 runs from Hampton to Downtown Atlanta. This Park & Ride lot is located at the Atlanta Motor Speedway, approximately 3.0 miles from the proposed site. Route 430 runs from McDonough to Downtown Atlanta & Midtown Atlanta, including stops at 3 MARTA rail stations. This Park & Ride lot is located just southwest of the I-75/SR 20 interchange, approximately 5.0 miles from the proposed site.

### 2.0 TRAFFIC ANALYSES METHODOLOGY AND ASSUMPTIONS

#### 2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from the Georgia DOT was reviewed for the area surrounding the proposed development, and growth rates were agreed upon during the methodology meeting with GRTA staff. It was determined that a 2.5% growth rate would be utilized for all roadways within the study network until 2015 and a 2.0% growth rate would be utilized for all roadways within the study to the full project buildout (year 2025).

### 2.2 Traffic Data Collection

Existing 2008 weekday peak hour turning movement counts were conducted in April and May of 2008 at ten signalized and eight unsignalized intersections between 7:00-9:00 AM and 4:00-6:00 PM. Additionally, Saturday midday peak hour turning movement counts were conducted at seven intersections between 11:00 AM and 1:00 PM. The weekday morning and afternoon, as well as Saturday midday peak hours varied between the eighteen intersections. The AM, PM, and Saturday midday peak hours are provided in **Table 2**.

Table 2 Peak Hour Summary						
	Intersection	AM Peak	PM Peak	SAT MD Peak		
1	I-75 Northbound @ SR20	7:45-8:45	5:00-6:00	12:15-1:15		
2	I-75 Southbound @ SR 20	7:30-8:30	4:45-5:45	12:30-1:30		
3	McDonough Street @ SR 20	7:00-8:00	4:30-5:30	12:30-1:30		
4	Hampton Locust Grove Road @ SR 20	7:15-8:15	4:45-5:45	11:45-12:45		
5	South Hampton Road @ SR 20	7:00-8:00	4:30-5:30	12:30-1:30		
6	Old Highway 3 @ SR 20 / East Main Street	7:30-8:30	5:00-6:00	12:15-1:15		
7	Hampton Locust Grove Road @ McDonough Street	7:30-8:30	5:00-6:00	11:30-12:30		
8	SR 81 @ SR 20	7:30-8:30	4:45-5:45	-		
9	Westridge Parkway @ SR 20	7:30-8:30	4:45-5:45	-		
10	US 19/ US41 @ SR 20	7:15-8:15	5:00-6:00	-		
11	US 19/ US 41@ McDonough Road / Old Highway 3	7:15-8:15	4:45-5:45	-		
12	Old Highway 3 @ SR 81	7:15-8:15	5:00-6:00	-		
13	Old Highway 3 @ Fears Drive / Pineview Drive	7:15-8:15	4:30-5:30	-		
14	Old Highway 3 @ East Main Street / McDonough Street	7:30-8:30	5:00-6:00	-		



	Table 2 Peak Hour Summary						
	Intersection	AM Peak	PM Peak	SAT MD Peak			
15	Wynn Drive @ SR 81	7:15-8:15	5:00-6:00	-			
16	Wynn Drive @ Dorsey Road	7:00-8:00	4:30-5:30	-			
17	Wynn Drive @ Fears Drive	7:00-8:00	4:15-5:15	-			
18	SR 155 @ Hampton Locust Grove Road	7:00-8:00	4:15-5:15	-			

All raw count data is included in the Appendix.

#### 2.3 Detailed Intersection Analysis

Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists perceptions within a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Level of service analyses were conducted at all intersections within the study network using Synchro Professional, Version 6.0.

Levels of service for signalized intersections and all-way stop-controlled unsignalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low Level of Service, while the intersection as a whole may operate acceptably.

Levels of Service for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. Low Levels of Service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

### **3.0 Study Network**

### 3.1 Gross Trip Generation

As stated in *Section 1.1*, the proposed development is expected to consist of approximately 164 single-family residential units, 145 estate residential units, 66 senior adult housing units, 495 multi-family residential units (401 apartments and 94 patio apartments), an 80-bed assisted living facility, a 390-room hotel (three 130-room hotels), 310,000 SF of office, 918,000 SF of retail, and a church. The development is scheduled to be completed by the year 2025.

Traffic for these land uses was calculated using equations contained in the *Institute of Transportation Engineers'* (*ITE) Trip Generation Manual, Seventh Edition, 2003.* For the purposes of the DRI traffic study analysis, the 168 single-family residential units and the 145 estate residential units were combined into one land use creating 309 single-family detached residential units. Additionally, the 495 multi-family residential units were broken down into two land uses creating 401 apartments and 94 residential condominiums/townhomes. The church was assumed to be 80,000 square feet. Gross trips generated are displayed below in **Table 3**.

Table 3   Henderson Farms DRI   Gross Trip Generation									
	ITE	Daily	Traffic	AM Peak Hour		PM Peak Hour		Saturday MD	
Land Use	Code	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
			Build	d-Out (Yea	ar 2025)				
Single-Family Detached	210	1,468	1,468	57	169	186	110	154	132
Apartment	220	1,280	1,280	40	160	155	83	92	92
Residential Condominium	230	304	304	8	41	38	19	38	32
Senior Adult Housing - Detached	251	190	190	8	12	22	14	14	14
Assisted Living	254	125	125	7	4	8	10	16	16
Hotel	310	1,559	1,559	135	86	122	108	153	120
Church	560	365	365	31	27	28	25	201	82
General Office	710	1,594	1,594	408	56	72	354	50	42
Shopping Center	820	14,347	14,347	361	231	1,298	1,406	1,902	1,755
Total		21,232	21,232	1,055	786	1,929	2,129	2,620	2,285

### 3.2 Trip Distribution

The directional distribution and assignment of new project trips was based on the project land uses, a review of land use densities in the area combined with engineering judgment and discussions with GRTA and Henry County staff at the Pre-Application meeting.

### 3.3 Level of Service Standards

For the purposes of this traffic analysis, a level of service standard of D was assumed for all intersections and segments within the study network. If, however, an intersection or segment currently operates at LOS E or LOS F during an existing peak period, the LOS standard for that peak period becomes LOS E, consistent with GRTA's Letter of Understanding

#### *3.4 Study Network Determination*

A general study area was determined using the 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the Service Volume of the facility (at a previously established LOS standard) be considered for analysis. This general study area was refined during the Pre-Application meeting, and includes the following intersections:

- 1. SR 20 at I-75 northbound ramps (Signalized)
- 2. SR 20 at I-75 southbound ramps (Signalized)
- 3. SR 20 at McDonough Street (Unsignalized)
- 4. SR 20 at Hampton Locust Grove Road (Signalized)
- 5. SR 20 at South Hampton Road (Signalized)
- 6. SR 20 at Old Highway 3 (Signalized)
- 7. McDonough Street at Hampton Locust Grove Road (Signalized)
- 8. SR 20 at SR 81 (Signalized)
- 9. SR 20 at Westridge Parkway (Signalized)
- 10. US 19/41 at SR 20 (Unsignalized)
- 11. US 19/41 at McDonough Road / Old Highway 3 (Signalized)
- 12. Old Highway 3 at SR 81 (Unsignalized)
- 13. Old Highway 3 at Fears Drive (Unsignalized)
- 14. Old Highway 3 at McDonough Street (Unsignalized)
- 15. SR 81 at Wynn Drive (Unsignalized)
- 16. Wynn Drive at Dorsey Road (Unsignalized)
- 17. Wynn Drive at Fears Drive (Unsignalized)
- 18. SR 155 at Hampton Locust Grove Road (Signalized)

All eighteen intersections were analyzed for the weekday AM and PM peak hour. The first seven intersections (bold) were also analyzed for the Saturday peak hour.

Each of the above listed intersections was analyzed for the Existing 2008 Condition, the projected 2025 No-Build Condition, and the projected 2025 Build Condition. The projected 2025 No-Build condition represents the existing traffic volumes grown at 2.5% per year for seven years and then 2.0% per year for ten years. The projected 2025 Build condition adds the project trips associated with the Henderson Farms development to the projected 2025 No-Build condition. (NOTE: The additional proposed site access points and internal site intersections listed below were only analyzed for the projected 2025 Build Condition):

- 19. SR 20 at Commercial Entrance (Driveway #1)
- 20. SR 20 at Commercial Entrance (Driveway #3)
- 21. SR 20 at Fears Drive Extension / Commercial Entrance (Driveway #4)

- 22. SR 20 at Commercial / Residential Entrance (Driveway #5)
- 23. McDonough Street at Commercial Entrance (Driveway #6)
- 24. Hampton Locust Grove at Commercial Entrance (Driveway #7)
- 25. Hampton Locust Grove at Commercial Entrance (Driveway #8)
- 26. Hampton Locust Grove at Residential Entrance (Driveway #9)
- 27. South Hampton Road at Residential Entrance (Driveway #10)
- 28. Dorsey Road at Residential Entrance (Driveway #11)
- 29. Wynn Drive at Church Entrance (Driveway #12)
- 30. Hampton Locust Grove at Commercial Entrance (Driveway #13)

The proposed access points were analyzed for the weekday AM and PM peak periods as well as the Saturday peak period.

#### 3.5 Existing Roadway Facilities

SR 20 (Bruton Smith Parkway) is a two-way, divided, roadway that extends from US 19/41 through I-75. The road is primarily oriented east-west but is oriented north-south through the project site. The functional classification for the road is Urban Minor Arterial / Rural Major Collector. The 2008 ADT just east of McDonough Street was 12,827 vehicles per day (vpd). This count was performed Tuesday, April 19<sup>th</sup>, 2008.

Hampton Locust Grove Road is a two-way, undivided, roadway that extends south from McDonough Street and then east through SR 155. The 2006 ADT east of Rocky Creek Road was 6,010 vehicles per day (vpd) per GDOT.

McDonough Street is a two-way, undivided, east-west oriented roadway. It extends from Old Highway 3 in downtown Hampton to SR 20. The 2006 ADT west of Hampton Locust Grove Road was 9,670 vehicles per day (vpd) per GDOT.

South Hampton Road is a two-way, undivided roadway. It extends south from Hampton Locust Grove Road, through SR 20, and then east to Rocky Creek Road.

Wynn Drive is a two-way, undivided roadway that extends south from SR 81. It intersects with Dorsey Road and Fears Drive before changing names to Elm Street as the roadway continues into downtown Hampton.

Dorsey Road is a two-way, undivided roadway. It extends east from Wynn Drive and continues south to SR 20 at the intersection of North Dorsey Road.

Fears Drive is a two-way, undivided roadway. It extends east from Old Highway 3 to Wynn Drive. The roadway is currently paved at the intersection with Old Highway 3 and unpaved at the intersection with Wynn Drive.

Additional roadways and roadway characteristics are listed below in Table 4.



Table 4 Roadway Classification							
Roadway	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification				
Interstate 75	6	65	Urban Interstate Principal Arterial				
SR 20 (Bruton Smith Pkwy)	4	55	Urban Minor Arterial / Rural Major Collector				
Hampton Locust Grove Road	2	45	Urban Minor Arterial				
South Hampton Road	2	35	Urban Local Street				
Wynn Drive	2	30	Urban Collector Street				
Dorsey Road	2	45	Urban Local Street				
US 19/41	Varies (4-6)	55	Urban / Rural Principal Arterial				
SR 81	2	55	Urban Principal Arterial				
Old Highway 3	2	Varies (25-55)	Urban Minor Arterial				
McDonough Street	2	Varies (35-45)	Urban Minor Arterial				
SR 155	2	55	Rural Minor Arterial				
Fears Drive	2	25	Urban Local Street				

# 4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the ITE *Trip Generation Manual*, Seventh Edition (2003), using equations where available.

Mixed-Use reductions were taken to account for internal trips between the residential and non-residential uses. According to the *ITE Trip Generation Handbook*, 2004, the mixed-use reductions should be 16.73% for daily trips, 16.83% for PM peak hour trips, and 14.84% for Saturday peak hour trips. For a conservative analysis, an approximate 10% reduction was utilized for each analysis period. Based on the proposed layout of the project, internally captured trips would utilize the existing road network in order to access various portions of the site. As a result, internally captured trips were assigned to the existing road network through the trip distribution.

Pass-by reductions were taken according to the *ITE Trip Generation Handbook, Second Edition, 2004* and GRTA guidelines. Based on a GRTA's "Limits Test", the total pass-by trips were limited to 10% of the adjacent roadway's existing traffic volumes. No alternate modes of transportation reductions were taken. The total trips generated and analyzed in the report are listed below in **Table 5**.



Table 5 Henderson Farms DRI Net Trip Generation								
	Daily Traffic		AM Peak Hour		PM Peak Hour		Saturday MD	
Land Use	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2025)								
Gross Trips	21,232	21,232	1,055	786	1,929	2,129	2,620	2,285
Mixed-Use Reductions	-2,166	-2,166	-0	-0	-197	-217	-267	-233
Pass-by Reductions	Pass-by Reductions     -1,282     -1,282     0     0     -110     -110     -86     -86							
New Trips	17,784	17,784	1,055	786	1,622	1,802	2,267	1,966

### 5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New trips were distributed onto the roadway network using the percentages discussed during the Pre-Application meeting and based on existing traffic patterns. Internally captured trips were also distributed onto the existing roadway network as described above. Figure 4A + 4B and Figure 5A + 5B display the expected distribution percentages for the development throughout the roadway network. These percentages were applied to the new trips generated by the development (see Table 3, above), and the volumes were assigned to the roadway network. The expected weekday peak hour turning movements generated by the proposed development are shown in Figure 6A + 6B. Figure 6C illustrates the Saturday peak hour project trips.

## 6.0 TRAFFIC ANALYSIS

### 6.1 Existing 2008 Traffic

The existing traffic volumes are shown in **Figure 7**. These volumes were input in Synchro 6.0 and an Existing Conditions analysis was performed. The results are displayed in **Table 6**.

	Table 6 Existing 2008 Intersection Levels of Service (delay in seconds)							
	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour			
1	I-75 Northbound @ SR20	Signal	C (23.2)	B (19.6)	C (24.6)			
2	I-75 Southbound @ SR 20	Signal	C (25.3)	F (92.4)	C (32.7)			
3	McDonough Street @ SR 20	EB Stop Control	C (17.1)	C (15.0)	B (13.0)			
4	Hampton Locust Grove Road @ SR 20	Signal	C (20.5)	B (17.0)	B (13.9)			
5	South Hampton Road @ SR 20	Two-Way Stop Control	NB – C (19.3) SB – B (14.0)	NB – B (13.1) SB – C (17.6)	NB – B (12.6) SB – A (9.5)			
6	Old Highway 3 @ SR 20 / East Main Street	Signal	C (23.9)	C (22.3)	C (20.2)			
7	Hampton Locust Grove Road @ McDonough Street	NB Stop Control	B (12.0)	B (12.6)	B (10.3)			
8	SR 81 @ SR 20	Signal	D (41.3)	D (44.0)	-			
9	Westridge Parkway @ SR 20	Signal	B (15.5)	B (19.8)	-			
10	US 19/ US41 @ SR 20	EB Stop Control	C (17.1)	D (29.4)	-			
11	US 19/ US 41@ McDonough Road / Old Highway 3	Signal	D (39.6)	D (41.1)	-			
12	Old Highway 3 @ SR 81	WB Stop Control	F (*)	F (*)	-			
13	Old Highway 3 @ Fears Drive / Pineview Drive	Two-Way Stop Control	EB – C (16.5) WB – C (15.2)	EB – C (16.9) WB – B (11.2)	-			
14	Old Highway 3 @ East Main Street / McDonough Street	WB Stop Control	B (13.0)	B (12.2)	-			
15	Wynn Drive @ SR 81	NB Stop Control	B (12.3)	B (11.4)	-			
16	Wynn Drive @ Dorsey Road	WB Stop Control	N/A	A (9.2)	-			
17	Wynn Drive @ Fears Drive	EB Stop Control	N/A	A (9.1)	-			
18	SR 155 @ Hampton Locust Grove Road	Signal	C (28.6)	C (23.7)	-			

NB – Northbound Approach; SB – Southbound Approach; EB – Eastbound Approach; WB – Westbound Approach \* delay exceeding 100 seconds

As shown in the table, two of the intersections currently operate below the acceptable Level of Service standard (LOS D).

### 6.2 Projected 2025 No-Build Traffic

The existing traffic volumes were grown at 2.5% per year along all roadway links within the study network from 2008 to 2015 and then 2.0% per year along all roadway links form 2016 to 2025. These volumes were input in Synchro 6.0 and analyses of the projected No-Build conditions were performed. No future transportation projects were included in the No-Build analyses, in accordance with GRTA's Letter of Understanding guidelines. The results are displayed below in **Table 7.** The projected volumes for the year 2025 No-Build conditions are shown in **Figure 8**.

Table 7 Projected 2025 No-Build Intersection Levels of Service (delay in seconds)							
	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour		
1	I-75 Northbound @ SR20	Signal	D (41.2)	D (37.6)	E (63.4)		
2	I-75 Southbound @ SR 20	Signal	F (*)	F (*)	F (*)		
3	McDonough Street @ SR 20	EB Stop Control	E (35.7)	C (23.0)	C (17.1)		
4	Hampton Locust Grove Road @ SR 20	Signal	C (26.0)	C (21.7)	B (15.8)		
5	South Hampton Road @ SR 20	Two-Way Stop Control	NB – F (55.5) SB – C (18.2)	NB – C (17.4) SB – D (25.2)	NB – C (16.1) SB – B (10.2)		
6	Old Highway 3 @ SR 20 / East Main Street	Signal	C (31.1)	C (28.5)	C (23.6)		
7	Hampton Locust Grove Road @ McDonough Street	NB Stop Control	C (16.3)	C (18.4)	B (11.6)		
8	SR 81 @ SR 20	Signal	F (*)	F (*)	-		
9	Westridge Parkway @ SR 20	Signal	B (19.1)	C (25.1)	-		
10	US 19/ US41 @ SR 20	EB Stop Control	E (45.0)	F (*)	-		
11	US 19/ US 41@ McDonough Road / Old Highway 3	Signal	F (*)	F (*)	-		
12	Old Highway 3 @ SR 81	WB Stop Control	F (*)	F (*)	-		
13	Old Highway 3 @ Fears Drive / Pineview Drive	Two-Way Stop Control	EB – E (36.6) WB – C (24.9)	EB – D (33.2) WB – B (13.8)	-		
14	Old Highway 3 @ East Main Street / McDonough Street	WB Stop Control	C (22.2)	C (18.4)	-		
15	Wynn Drive @ SR 81	NB Stop Control	C (17.0)	B (14.3)	-		
16	Wynn Drive @ Dorsey Road	WB Stop Control	N/A	A (9.5)	-		
17	Wynn Drive @ Fears Drive	EB Stop Control	N/A	A (9.4)	-		
18	SR 155 @ Hampton Locust Grove Road	Signal	F (84.4)	D (42.0)	-		

Ten of the intersections failed to meet acceptable Level of Service standards for the year 2025 No-Build condition. Per GRTA's Letter of Understanding guidelines, improvements were made to these intersections until the Level of Service was elevated to the GRTA standard. The 2025 No-Build with Improvement intersection analysis Levels of Service are displayed in **Table 8**.

It should be noted that installing a traffic signal at the intersection of US 19/ US41 at SR 20, intersection #10, would raise the level of service to an acceptable level of service. A traffic signal is not recommended, however, because the intersection is not expected to meet signal warrants.

	Table 8       Projected 2025 No-Build IMPROVED Intersection Levels of Service (delay in seconds)							
	Intersection	PM Peak Hour	SAT Peak Hour					
1	I-75 Northbound @ SR20	Signal	C (31.6)	C (22.7)	D (44.7)			
2	I-75 Southbound @ SR 20	Signal	C (28.0)	D (49.1)	C (29.3)			
3	McDonough Street @ SR 20	Signal	A (7.2)	A (5.2)	A (5.7)			
5	South Hampton Road @ SR 20	Two-Way Stop Control	NB - D (31.9) SB - C (18.2)	NB – C (16.0) SB – D (25.2)	NB - B (14.8) SB - B (10.2)			
8	SR 81 @ SR 20	Signal	D (53.7)	D (49.8)	-			
11	US 19/ US 41@ McDonough Road / Old Highway 3	Signal	D (47.5)	D (46.7)	-			
12	Old Highway 3 @ SR 81	Signal	B (19.3)	B (14.1)	-			
13	Old Highway 3 @ Fears Drive / Pineview Drive	Two-Way Stop Control	EB - D (31.6) WB - C (24.9)	EB - D (29.2) WB - B (13.8)	-			
18	SR 155 @ Hampton Locust Grove Road	Signal	D (47.2)	D (42.7)	-			

The 2025 No-Build improvements made to the intersections are shown in Figure 8, and are listed below by intersection:

SR 20 (Bruton Smith Parkway) @ I-75 Northbound (Intersection #1)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound.

SR 20 (Bruton Smith Parkway) @ I-75 Southbound (Intersection #2)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a southbound right-turn lane along the I-75 southbound ramps creating dual right-turn lanes.
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound ramps.

SR 20 (Bruton Smith Parkway) @ McDonough Street (Intersection #3)

• Install a traffic signal when warranted.

SR 20 (Bruton Smith Parkway) @ South Hampton Road (Intersection #5)

• Install a northbound left-turn lane along South Hampton Road.

SR 20 (Bruton Smith Parkway) @ SR 81 (Intersection #8)

- Install a westbound left-turn lane along SR 20 (Bruton Smith Parkway) creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a southbound left-turn lane along SR 81 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).
- Coordinate the traffic signals along SR 20 (Bruton Smith Parkway) from SR 81 through I-75 northbound ramps.

US 19/ US 41@ McDonough Road / Old Highway 3 (Intersection #11)

- Install a southbound thru lane along US 19/ US 41.
- Install a northbound thru lane along US 19/ US 41.
- Install a southbound left-turn lane along US 19/ US 41 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a northbound left-turn lane along US 19/ US 41 creating dual-left turn lanes. Provide protected left-turn phasing.
- Install a westbound thru lane along Old Highway 3.
- Install an eastbound thru lane along Old Highway 3.

Old Highway 3 @ SR 81 (Intersection #12)

- Install a traffic signal when warranted.
- Install a southbound left-turn lane along Old Highway 3.
- Install a westbound right-turn lane along SR 81.

Old Highway 3 @ Fears Drive / Pineview Drive (Intersection #13)

• Install an eastbound left-turn lane along Pineview Drive.

SR 155 @ Hampton Locust Grove Road (Intersection #18)

• Install a northbound right-turn lane along SR 155.

### 6.3 Projected 2025 Build Traffic

The traffic associated with the proposed development (Henderson Farms) was added to the 2025 No-Build volumes. These volumes were then input into the 2025 No-Build <u>with Improvements</u> roadway network and analyzed with Synchro 6.0. The results of the analyses are displayed in **Table 9**. The projected volumes for the year 2025 Build conditions are shown in **Figure 9**.

	Table 9     Projected 2025 Build Intersection Levels of Service (delay in seconds)					
	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour	
1	I-75 Northbound @ SR20	Signal	C (32.2)	C (27.9)	E (56.4)	
2	I-75 Southbound @ SR 20	Signal	C (21.0)	F (86.0)	D (45.8)	
3	McDonough Street / Driveway #2 @ SR 20	Signal	B (10.2)	B (10.2)	B (13.9)	
4	Hampton Locust Grove Road @ SR 20	Signal	C (34.4)	D (46.1)	E (55.8)	
5	South Hampton Road @ SR 20	Two-Way Stop Control	NB - F (98.6) SB - C (23.3)	NB – D (33.0) SB – F (53.9)	NB - E (44.1) SB - B (13.3)	
6	Old Highway 3 @ SR 20 / East Main Street	Signal	D (36.8)	D (45.0)	C (34.3)	
7	Hampton Locust Grove Road @ McDonough Street	NB Stop Control	C (18.0)	D (25.1)	B (13.5)	
8	SR 81 @ SR 20	Signal	D (50.8)	E (71.9)	-	
9	Westridge Parkway @ SR 20	Signal	C (20.1)	D (50.3)	-	
10	US 19/ US41 @ SR 20	EB Stop Control	F (*)	F (*)	-	
11	US 19/ US 41@ McDonough Road / Old Highway 3	Signal	D (52.5)	D (53.7)	-	
12	Old Highway 3 @ SR 81	Signal	C (21.6)	B (18.1)	-	
13	Old Highway 3 @ Fears Drive / Pineview Drive	Two-Way Stop Control	EB - F (57.3) WB - D (30.5)	EB - F (83.3) WB - D (34.7)	-	
14	Old Highway 3 @ East Main Street / McDonough Street	WB Stop Control	D (30.3)	D (31.7)	-	
15	Wynn Drive @ SR 81	NB Stop Control	C (20.5)	D (29.4)	-	
16	Wynn Drive @ Dorsey Road	WB Stop Control	A (9.4)	B (10.4)	-	
17	Wynn Drive @ Fears Drive / Proposed Road	Two-Way	EB - B (11.5)	EB - E (39.8)	EB - C (15.4)	
	'A'	Stop Control	WB – B (10.7)	WB – C (24.2)	WB – C (16.9)	
18	SR 155 @ Hampton Locust Grove Road	Signal	D (52.0)	F (91.1)	-	

As shown in Table 7, nine of the intersections failed to meet the acceptable Level of Service standard. Per GRTA's Letter of Understanding guidelines, improvements were made to these intersections until the Level of Service was elevated to the GRTA standard. The 2025 Build with Improvement intersection analysis Levels of Service are displayed below in **Table 10**.

It should be noted that installing traffic signals at the intersections of South Hampton Road at SR 20, intersection #5, and Old Highway 3 at Fears Drive / Pineview Drive, intersection #13, would raise the level of service to an

acceptable level. The traffic signals are not recommended, however, because the intersections are not expected to meet signal warrants.

	Table 10       Projected 2025 Build IMPROVED Intersection Levels of Service (delay in seconds)							
	Intersection Control AM Peak PM Peak SAT Peak Hour Hour Hour							
1	I-75 Northbound @ SR20	Signal	C (29.7)	C (27.6)	D (46.9)			
2	I-75 Southbound @ SR 20	Signal	B (15.8)	D (38.4)	C (26.6)			
4	Hampton Locust Grove Road @ SR 20	Signal	C (32.3)	D (38.2)	D (38.7)			
8	SR 81 @ SR 20	Signal	D (42.9)	D (51.2)	-			
10	US 19/ US 41 @ SR 20	Signal	B (17.9)	D (53.1)	-			
17	Wynn Drive @ Fears Drive / Proposed Road 'A'	All-Way Stop Control	A (7.4)	A (9.7)	A (8.5)			
18	SR 155 @ Hampton Locust Grove Road	Signal	D (51.9)	D (51.0)	-			

The projected 2020 Build improvements made to the intersections are shown in **Figure 9**, and are listed below by intersection:

SR 20 (Bruton Smith Parkway) @ I-75 Northbound (Intersection #1)

• Install a northbound right-turn lane along the I-75 northbound ramps creating dual right-turn lanes.

SR 20 (Bruton Smith Parkway) @ I-75 Southbound (Intersection #2)

• Convert one southbound right-turn lane along the I-75 southbound ramps into a free flow right-turn lane.

SR 20 (Bruton Smith Parkway) @ Hampton Locust Grove Road (Intersection #4)

- Install an eastbound right-turn lane along Hampton Locust Grove Road.
- Install a westbound right-turn lane along Hampton Locust Grove Road.

SR 20 (Bruton Smith Parkway) @ SR 81 (Intersection #8)

- Install a westbound thru lane along SR 20 (Bruton Smith Parkway).
- Install an eastbound thru lane along SR 20 (Bruton Smith Parkway).

US 19/ US 41 @ SR 20 (Intersection #10)

• Install a traffic signal when warranted.



Wynn Drive @ Fears Drive / Proposed Road 'A' (Intersection #17)

• Install stop signs to create an all-way stop controlled intersection.

SR 155 @ Hampton Locust Grove Road (Intersection #18)

• Install an eastbound right-turn lane along Hampton Locust Grove Road.

The proposed project driveways were analyzed for the 2025 Build conditions. The results of the analyses are presented in **Table 11**. The projected volumes and recommended intersection geometry are shown in **Figure 9**.

	Table 11 Projected 2025 Build Driveway Intersection Levels of Service (delay in seconds)					
	Intersection	Control	AM Peak Hour	PM Peak Hour	SAT Peak Hour	
19	SR 20 @ RIRO Driveway #1	WB Stop Control	B (13.4)	C (18.0)	C (21.5)	
20	SR 20 @ RIRO Driveway #3	WB Stop Control	B (14.0)	C (15.6)	C (16.3)	
21	SR 20 @ Proposed Road 'A' / Driveway #4	Signal	B (11.4)	C (31.2)	D (36.6)	
22	SP 20 @ Driveryou #5	Two-Way	EB - D (31.7)	EB - F (138.5)	EB - F (135.7)	
22	SK 20 @ Dilveway #5	Stop Control	WB – C (16.0)	WB – D (29.6)	WB – D (31.4)	
22	McDonough Street @ Driveway #6	Two-Way	NB - A (9.6)	NB – B (10.2)	NB - B (10.4)	
23	McDonough Street @ Driveway #0	Stop Control	SB – B (11.3)	SB – B (13.9)	SB – B (14.6)	
24	Hampton Locust Grove Road @ Driveway #7	Two-Way	NB - A (9.4)	NB – A (9.6)	NB - A (9.0)	
27		Stop Control	SB – B (14.0)	SB – D (33.9)	SB – E (36.6)	
25	Hampton Locust Grove Road @ Driveway #8	Signal	B (12.0)	B (15.0)	B (18.3)	
26	Hampton Locust Grove Road @ Driveway #9	NB Stop Control	B (11.9)	B (13.9)	B (12.2)	
27	South Hampton Road @ Driveway #10	SB Stop Control	A (9.5)	A (8.9)	A (9.0)	
28	Dorsey Road @ Driveway #11	NB Stop Control	A (9.2)	A (9.3)	A (8.6)	
29	Wynn Drive @ Driveway #12	WB Stop Control	A (9.0)	A (9.7)	A (9.6)	
30	Hampton Locust Grove Road @ Driveway #13	NB Stop Control	B (12.8)	C (15.8)	B (14.6)	

*The following intersection geometry and improvements are recommended at the project site driveways. (Note: The attached site plan includes these improvements):* 

McDonough Street / Driveway #2 @ SR 20 – Intersection #3

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane along Driveway #2, exiting the site.

SR 20 (Bruton Smith Parkway) @ RIRO Driveway #1 - Intersection #19

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound right-turn lane, stop controlled, exiting the site.

SR 20 (Bruton Smith Parkway) @ RIRO Driveway #3 – Intersection #20

- Install a northbound right-turn lane along SR 20 (Bruton Smith Parkway).
- Install a westbound right-turn lane, stop controlled, exiting the site.

SR 20 (Bruton Smith Parkway) @ Proposed Road 'A' / Driveway #4 – Intersection #21

- Install a traffic signal when warranted.
- Install northbound and southbound right-turn lanes along SR 20 (Bruton Smith Parkway).
- Install northbound and southbound left-turn lanes along SR 20 (Bruton Smith Parkway).
- Install an eastbound left-turn lane and an eastbound shared thru/right-turn lane along Proposed Road 'A' exiting the site.
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane along Driveway #4 exiting the site.

SR 20 (Bruton Smith Parkway) @ Driveway #5 – Intersection #22

- Install northbound and southbound right-turn lanes along SR 20 (Bruton Smith Parkway).
- Install northbound and southbound left-turn lanes along SR 20 (Bruton Smith Parkway).
- Install an eastbound left-turn lane and an eastbound shared thru/right-turn lane, stop controlled, along Driveway #5 exiting the site.
- Install a westbound left-turn lane and a westbound shared thru/right-turn lane, stop controlled, along Driveway #5 exiting the site.

Note: A traffic signal would improve the level of service at this intersection. The anticipated volumes, however, are not anticipated to meet signal warrants.

McDonough Street @ Driveway #6 – Intersection #23

- Install eastbound and westbound left-turn lanes along McDonough Street.
- Install a southbound shared left/thru/right-turn lane, stop controlled, along Driveway #6 exiting the site.
- Install a northbound shared left/thru/right-turn lane, stop controlled, along Driveway #6 exiting the site.

Hampton Locust Grove Road @ Driveway #7 – Intersection #24

- Install eastbound and westbound left-turn lanes along Hampton Locust Grove Road.
- Install a southbound left-turn lane and a shared thru/right-turn lane, stop controlled, along Driveway #7 exiting the site.
- Install a northbound shared left/thru/right-turn lane, stop controlled, along Driveway #7 exiting the site.

Hampton Locust Grove Road @ Driveway #8 – Intersection #25

- Install a traffic signal when warranted.
- Install eastbound and westbound left-turn lanes along Hampton Locust Grove Road.
- Install a southbound left-turn lane and a southbound shared thru/right-turn lane along Driveway #7 exiting the site.
- Install a northbound left-turn lane and a northbound shared thru/right-turn lane along Driveway #7 exiting the site.

Hampton Locust Grove Road @ RIRO Driveway #9 – Intersection #26

- Install a northbound right-turn lane, stop controlled, along Driveway #9 exiting the site.
- Install an eastbound right-turn lane along Hampton Locust Grove Road.

South Hampton Road @ Driveway #10 – Intersection #27

• Install a southbound egress lane, stop controlled, along Driveway #10 exiting the site.

Doresy Road @ Driveway #11 - Intersection #28

• Install a northbound egress lane, stop controlled, along Driveway #11 exiting the site.

Wynn Drive @ Driveway #12 – Intersection #29

• Install a westbound egress lane, stop controlled, along Driveway #12 exiting the site.

Hampton Locust Grove Road @ RIRO Driveway #13 – Intersection #30

- Install a northbound right-turn lane, stop controlled, along Driveway #13 exiting the site.
- Install an eastbound right-turn lane along Hampton Locust Grove Road.

# 7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

According to ARC's Transportation Improvement Program, Draft Envision 6 Regional Transportation Plan, Regional Transportation Improvement Program, GDOT's Construction Work Program, the STIP, and the Henry County SPLOST program, the following projects are programmed or planned to be completed by the respective years:

	Year	Project Number	Project Description
1	2020:	ARC HE-126A1 GDOT 343265-	Widening of Hampton-Locust Grove Road from 2 to 4 lanes between SR 20 and SR 155 (5.2 miles). The first phase will extend from SR 20 to Strickland Road.
2	2020:	ARC SP-166 GDOT 0000294	Widening of US 19/US 41 from 4 to 6 lanes between Laprade Road in Spalding County and SR 20 in Henry County (8.5 miles). The widened facility will help to improve traffic flow during race days at the Atlanta Motor Speedway.
3	2010:	ARC AR-268B GDOT 770321-	Atlanta-Macon Commuter Rail Service. This project will provide rail stations and park-and-ride lots for the Lovejoy section.
4	2010:	ARC AR-941	Metro Arterial Connector (MAC) Corridor Development Study. This study will analyze a network of 180 miles in length encircling the Atlanta region, including SR 920.
5	2020:	ARC HE-920B GDOT 342970-	Widening of SR 920 (Jonesboro Road/McDonough Road) from 2 to 4 lanes between US 19/US 41 in Clayton County to I-75 in Henry County. This is listed as a proposed corridor in the MAC.
6	2020:	ARC CL-101 GDOT 742870-	Widening of SR 920 (McDonough Road) from 2 to 4 lanes between SR 54 (Jonesboro Road) in Fayette County and US 19/US 41 in Clayton County. This is listed as a proposed corridor in the MAC.
7	2012:	ARC HE-126B GDOT 0000562	Widening of Bill Gardner Parkway from 2 to 4 lanes between SR 155 and Lester Mill Road – from 4 to 6 lanes between Lester Mill Road and I-75. This project is approximately 3.4 miles in length.
8	2014:	Henry Co SPLOST 3	Intersection improvement for Hampton-Locust Grove Road at Rocky Creek Road.
9	2014:	Henry Co SPLOST 3	Intersection improvement for Old Highway 3 at SR 81.
10	2014:	Henry Co SPLOST 3	Dirt road paving of Simpson Mill Road.

# 8.0 INGRESS/EGRESS ANALYSIS

Vehicular access to the development is proposed at fourteen locations; five along SR 20 (Bruton Smith Parkway), four along Hampton Locust Grove Road, one along South Hampton Road, one along McDonough Street, two along Wynn Drive, and one along Dorsey Road. A description of each follows:

- Driveway #1 Commercial Entrance: Right-in/Right-out driveway located along the east side of SR 20 between Hampton Locust Grove Road and McDonough Street.
- Driveway #2 Commercial / Residential Entrance: Full movement driveway located along SR 20 and aligned with McDonough Street.
- Driveway #3 Commercial Entrance: Right-in/Right-out driveway located along the east side of SR 20 between McDonough Street and the Fears Drive extension.

- Driveway #4 Commercial Entrance: Full movement driveway located along SR 20 north of McDonough Street. The eastbound approach is Proposed Road 'A', the extension of Fears Drive, through the development. The westbound approach provides access to commercial portions of the site.
- Driveway #5 Commercial / Residential Entrance: Full movement driveway located along SR 20 north of the extension of Fears Drive. Both the westbound and eastbound approaches provide access to the commercial portions of the site. This driveway aligns with an existing median break.
- Driveway #6 Commercial / Residential Entrance: Full movement driveway located along McDonough Street west of SR 20. The southbound approach provides access to multi-family residential and the northbound approach provides access to commercial.
- Driveway #7 Commercial Entrance: Full movement driveway located along Hampton Locust Grove Road west of SR 20.
- Driveway #8 Commercial Entrance: Full movement driveway located along Hampton Locust Grove Road east of SR 20. The northbound approach provides cross access with the single-family residential located south of Hampton Locust Grove Road.
- Driveway #9 Residential Entrance: Right-in/Right-out driveway with a northbound approach located along Hampton Locust Grove Road east of SR 20.
- Driveway #10 Residential Entrance: Full movement driveway with a southbound approach located along South Hampton Road east of SR 20.
- Driveway #11 Residential Entrance: Full movement driveway with a northbound approach located along Dorsey Road east of Wynn Drive.
- Driveway #12 Church Entrance: Full movement driveway with a westbound approach located along Wynn Drive south of Fears Drive.
- Driveway #13 Commercial Entrance: Right-in/Right-out driveway with a northbound approach located along Hampton Locust Grove Road east of SR 20.
- Entrance #14 Commercial / Residential Entrance: Full movement driveway located along Wynn Drive and aligned with Fears Drive. This access point becomes Proposed Road 'A'.

# 9.0 INTERNAL CIRCULATION ANALYSIS

The proposed development will generate trips between the residential and retail uses of the development. Using the *ITE Trip Generation Handbook, 2004* as a reference, 16.73% of the gross daily trips would be internal, 16.83% of the PM trips would be internal, and 14.84% of the Saturday trips would be internal. Please refer to the appendix for the internal capture spreadsheet. As stated earlier in the report, however, a conservative analysis was utilized which assumed approximately 10% of the gross daily trips would be internal.

### **10.0** COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The Henry County 2030 Comprehensive Plan identifies the project site as a combination of "Rural Residential" and "Specialty Use Center". The ARC Envision6 'Atlanta Region Unified Growth Policy Map' identifies the area as 'Suburban Neighborhoods'.

# **11.0 NON-EXPEDITED CRITERIA**

#### 11.1 Quality, Character, Convenience, and Flexibility of Transportation Options

There is currently no fixed-transit service in the vicinity of this project. However, public transportation is provided on request by Henry County for needs such as banking, grocery shopping, and personal business affairs. Additionally, two GRTA Xpress bus routes operate in the area. Route 440 runs from Hampton to Downtown Atlanta. Route 430 runs from McDonough to Downtown Atlanta & Midtown Atlanta, including stops at 3 MARTA rail stations.

#### 11.2 Vehicle Miles Traveled

The following table displays the reduction in traffic generation due to internal capture and pass-by trips.

Weekday	Build-out Total
Daily Gross Trip Generation:	42,464
(-)Pass-by trips	-2,565
New Trips	39,899
(-)Internal Interaction	-4,332
Net Trips:	35,567

### 11.3 Relationship Between Location of Proposed DRI and Regional Mobility

The proposed development is not located within an urban core, activity center or town center; it is not within walking distance to a rail station or transit facility; and it is not part of an infill initiative. The development provides access to SR 20 which provide for mobility to the east and west.

### 11.4 Relationship Between Proposed DRI and Existing or Planned Transit Facilities

The proposed DRI is not located near any existing or planned transit facilities or bus stops.

#### 11.5 Transportation Management Area Designation

The proposed development is not located within an established TMA.

#### 11.6 Offsite Trip Reduction and Trip Reduction Techniques

Pass-by trip reductions were taken according to the *ITE Trip Generation Handbook, 1998*; however, according the GRTA's 10% limit test, pass-by trips were limited to 10% of the estimated adjacent roadway volumes.

### 11.7 Balance of Land Uses – Jobs/Housing Balance

Please refer to the Area of Influence Analysis, located in Section 12.0 of the report.

#### 11.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is expected to be adequate to serve the needs of the development upon build-out (2025).

### **12.0** AREA OF INFLUENCE

The proposed development, Henderson Farms, is expected to consist of 309 single-family detached homes, 401 apartments, 94 condominium units/townhomes, 66 senior adult housing units, an 80-bed assisted living facility, 390 hotel rooms, an 80,000 SF church, 310,000 SF of office space, and 918,000 SF of retail. Due to the nature of the development, it will be classified as "predominantly employment" for purposes of the AOI. The following section will describe the Area of Influence demographics, DRI average wage levels, expected AOI housing costs, and the opportunity for workers who are employed in the DRI to find housing within the AOI.

#### 12.1 Criteria

As part of the non-expedited review process for a DRI, an Area of Influence Analysis must be performed to determine the impact of the proposed development on the balance of housing and jobs within the immediate area surrounding the development. For this proposed development classified as "predominantly employment," the non-expedited review criterion is as follows:

#### The proposed DRI:

(b) Is located in an Area of Influence where the proposed DRI is reasonably anticipated to contribute to the balancing of land uses within the Area of Influence such that twenty-five percent (25%) of the persons that are reasonably anticipated to be employed in the proposed DRI have the opportunity to live within the Area of Influence;

### 12.2 Study Area Determination and Characteristics

The Area of Influence is comprised of the area within six road-miles of the proposed development. To determine the AOI, *TransCAD* was used to measure six road miles from the nearest intersection to the project (SR 20 at McDonough Street). The population and housing statistics for the AOI were determined by taking the area outlined in *TransCAD*, creating a boundary in GIS format, and overlaying the boundary with a GIS layer containing census tract information. The Area of Influence (located in Henry, Clayton, and Spalding Counties) can be seen in **Figure 10**.

The total population within the Area of Influence is 13,424, residing within 4,652 households (an average of 2.87 people per household). There are approximately 6,506 workers in the AOI for an average of 1.40 workers per household. The AOI area totals 43,079 acres.

### 12.3 DRI Employment and Salary Figures

The DRI is expected to employ approximately 3,220 workers in the following land uses: Hotel, General Office, and Shopping Center. For the hotel land use, the total number of workers is estimated at 351, based on an assumption of 0.9 workers per room from the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003.* The numbers of workers for the office and shopping center land uses are based on assumptions provided in the *Area of Influence (AOI) Guidebook for Non-Expedited Reviews, April 2003.* For the office land use, 1 employee per 300 SF yields 1,033 office employees. For the shopping center land use (general retail), 1 employee per 500 SF results in 1,836 shopping center employees. It was assumed that the number of people employed by the church and assisted living facility would be minimal compared to the hotel, office, and shopping center employees, so these were not included in the analysis.

For the hotel land use, it is assumed that employment will be comprised of the following occupations: lodging managers, bellhops, housekeepers, desk clerks, and food preparers and servers. For the office land use, employees are assumed to work in the following occupations: management, technical, office and administrative support, computers, and business and financial operations. The shopping center land use will include retail managers and retail salespersons.

Using the departmental and occupational guidelines provided by the client, along with the U.S. Department of Labor's *May 2007 Metropolitan Area Occupational Employment and Wage Estimates Atlanta-Sandy Springs-Marietta, GA*, salaries were approximated for each occupation. The following occupational codes were used for the above jobs:

- 11-0000 Management Occupations
- 11-9081 Lodging Managers
- 13-0000 Business and Financial Operations Occupations
- 15-0000 Computer and Mathematical Science Occupations
- 17-0000 Engineering and Architecture Occupations
- 35-0000 Food Preparation and Serving Related Occupations
- 37-2012 Maids and Housekeeping Cleaners
- 39-6011 Baggage Porters and Bellhops
- 41-1011 Managers of Retail Sales
- 41-2031 Retail Salespersons
- 43-0000 Office and Administrative Support Occupations
- 43-4081 Hotel, Motel, and Resort Desk Clerks
- 49-9042 Maintenance and Repair, General

Household salary was calculated based on the computed workers per household ratio of 1.40 multiplied by the salary in each bracket. It is assumed then that each household has 1.40 workers who contribute to the monthly household salary. The affordable housing payment is calculated as 30% of the monthly household salary, as based on GRTA's *Area of Influence (AOI) Guidebook for Non-Expedited Reviews*. **Table 12** displays the department positions, the numbers of employees in each occupation, the monthly employee and household salaries, and the respective affordable housing payments.

	Table 12       Employment, Salary, and Affordable Housing Payment by Occupation						
Land Use	Occupation	Employees	Monthly Employee Salary	Monthly Household Salary	Affordable Housing Payment		
Hotel	Lodging Managers	70	\$4,373	\$6,122	\$1,836		
	Baggage Porters and Bellhops	18	\$1,632	\$2,284	\$685		
	Maids and Housekeeping Cleaners	88	\$1,483	\$2,077	\$623		
	Hotel, Motel, and Resort Desk Clerks	88	\$1,590	\$2,226	\$668		
	Maintenance and Repair, General	18	\$2,860	\$4,004	\$1,201		
	Food Preparation and Serving	70	\$1,558	\$2,181	\$654		
General	Management Occupations	207	\$8,046	\$11,264	\$3,379		
Office	Technical Occupations	258	\$5,403	\$7,565	\$2,269		
	Office and Administrative Support	103	\$2,662	\$3,726	\$1,118		
	Computer Occupations	207	\$5,861	\$8,205	\$2,462		
	Business and Financial Operations	258	\$5,463	\$7,648	\$2,294		
Shopping	Managers of Retail Sales	367	\$2,955	\$4,137	\$1,241		
Center	Retail Salespersons	1,469	\$2,027	\$2,837	\$851		
	Total Employees 3,220						

Given the above calculated salaries, each household is eligible for a specific housing tier within the Area of Influence. Table 13 below displays the number of households that fall into each tier based on the household salary.

Table 13 Number of Households in the DRI by Range of Monthly Income		
Range of Monthly Income for Housing	Number of Households	
\$499 or less	0	
\$500 to \$599	0	
\$600 to \$699	263	
\$700 to \$799	0	
\$800 to \$899	1,469	
\$900 to \$999	0	
\$1,000 to \$1,249	488	
\$1,250 to \$1,499	0	
\$1,500 to \$1,999	70	
\$2,000 or more	930	
Total	3,220	

### 12.4 AOI Occupied Housing Figures

An analysis of existing occupied housing was conducted based on 2000 Census data for owner- and renteroccupied housing. A GIS analysis identified over 4,000 owner-occupied units and 500 renter-occupied units in the AOI. **Table 14** below displays the housing units in comparable price tiers as are shown in **Table 13**. Owneroccupied housing includes housing with and without a mortgage. Renter-occupied housing includes all rental units with the exception of those with no cash rent.

Table 14 Selected Monthly Costs for All Occupied Housing Units in the AOI						
Monthly Dollar Range	Owner-Occupied Housing Units in the AOI	Renter-Occupied Housing Units in the AOI	Total Occupied Housing Units in the AOI			
\$499 or less	1,034	298	1,332			
\$500 to \$599	108	110	218			
\$600 to \$699	211	52	263			
\$700 to \$799	379	38	417			
\$800 to \$899	319	1	320			
\$900 to \$999	361	3	364			
\$1,000 to \$1,249	731	3	734			
\$1,250 to \$1,499	552	0	552			
\$1,500 to \$1,999	283	0	283			
\$2,000 or more	98	0	98			
Total	4,076	505	4,581			

Using the households in the DRI per price tier information in Table 13 and the renter / owner distribution of occupied housing in the AOI in Table 14 above, a comparison was done to analyze the available housing by price range within the AOI against the number of households per price tier expected within the proposed DRI. This comparison is shown below in Table 15.

Table 15     Comparison of Workers' Monthly Household Incomes in the DRI and Monthly Costs of Housing Units in the AOI					
Monthly Dollar Range Total Occupied Housing Units in the AOI		Number of DRI Households with One or More Workers Working in the DRI	Difference in Number of Housing Units in AOI and Number of Households with Workers in DRI		
\$499 or less	1,332	0	1,332		
\$500 to \$599	218	0	218		
\$600 to \$699	263	263	0		
\$700 to \$799	417	0	417		
\$800 to \$899	320	1,469	-1,149		
\$900 to \$999	364	0	364		
\$1,000 to \$1,249	734	488	246		
\$1,250 to \$1,499	552	0	552		
\$1,500 to \$1,999	283	70	213		
\$2,000 or more	98	930	-832		
Total	4,581	3,220	1,361		

As can be seen from **Table 15**, adequate housing opportunities exist for all wage-earning levels in the DRI for both owner and renter properties. For the shaded cells, although sufficient housing opportunities do not exist within the specified monthly dollar range, there are adequate housing opportunities in lower dollar ranges. In general, because the salaries of the employees are concentrated in the upper price tiers while housing is concentrated in the lower price tiers, considerable extra housing is available if a household desires to choose a more conservative price range. Given this information, over 25% of the employees of the DRI have an opportunity to reside within the Area of Influence.

### **13.0 ARC'S AIR QUALITY BENCHMARK**

The development is a mixed-use development, consisting of approximately 164 single-family residential units, 145 estate residential units, 66 senior adult housing units, 495 multi-family residential units (401 apartments and 94 patio apartments), an 80-bed assisted living facility, a 390-room hotel (three 130-room hotels), 310,000 SF of office, 918,000 SF of retail, and a church on approximately 900 acres. The project's residential component is the dominant use with 1.75 dwelling units per acre. The retail gross floor area is approximately 8.1% of the total. Therefore, the development does not warrant a 4% vehicle miles traveled (VMT) reduction for a 'mix' of uses.

The development will provide bicycle/ pedestrian facilities connecting land uses within and adjoining the site, thereby meeting the ARC criteria for a 4% VMT reduction.

The proposed development meets the ARC criteria for a total 4% VMT reduction. These reductions are displayed below in **Table 16**.

Table 16 ARC VMT Reductions		
Mixed-Use Projects where Residential is the dominant use		
Bike/ped networks providing connections to uses within and adjoining the site	-4%	
Total Reductions	4%	