

Transportation Analysis

**King Mill – Lambert
DRI# 2035
Henry County, Georgia**

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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts of a proposed 180-acre warehouse development (King Mill - Lambert) bounded by Nail Mill Road to the north, Iris Lake Road to the east, King Mill Road to the south, and vacant land to the west. This report is being prepared as part of a submittal requesting rezoning from RA (Residential-Agricultural District) to M-2 (Heavy Manufacturing District). Because the warehouse/distribution facility will exceed 500,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) review. The Henry County 2030 Comprehensive Future Land Use Plan (Dated April 20, 2009) identifies the area as industrial.

The proposed development is expected to consist of two separate buildings with approximately 3,048,300 total square feet of warehouse space. The development is scheduled to be completed in one phase with build-out by the year 2014.

The results of the detailed intersection analysis for the 2009 Existing, 2014 No-Build, and 2014 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. Per GRTA's Letter of Understanding guidelines, improvements were made to the intersections until the Level of Service was elevated to an appropriate range. These improvements are listed below:

2009 Existing recommended improvements (based on the existing traffic conditions):

SR 155 at King Mill Road (Intersection #3)

- Widen SR 155 to accommodate two through lanes in the eastbound direction.

SR 42 at King Mill Road South (Intersection #6)

- Install a signal at the intersection.
- * Note: This signal is programmed in the Henry County SPLOST (in conjunction with the King Mill Road realignment project) and will be constructed by the build out of the development.

2014 No-Build recommended improvements (includes background growth in traffic and traffic associated with other DRIs in the area, but does not include the King Mill - Lambert DRI project traffic):

King Mill Road Realignment (Henry County SPLOST project). This project will include:

- King Mill Road east of SR 42 will be realigned with the southern intersection of King Mill Road at SR 42.
- A signal will be installed at the proposed four-leg intersection.
- Each of the four approaches along SR 42 and King Mill Road will be improved to consist of one left-turn lane, one through lane, and one right-turn lane.

I-75 Southbound Ramps at SR 155 (Intersection #1)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.

I-75 Northbound Ramps at SR 155 (Intersection #2)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.
- * Note: The through lanes are not necessarily needed to satisfy GRTA's level-of-service 'D' or 'E' standard; however, due to the proximity to the surrounding intersections, and the desire to widen SR 155 at intersections to the east and west, the roadway widening is recommended at this intersection.

SR 155 at King Mill Road (Intersection #3)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.
- Install an additional northbound left-turn lane along King Mill Road, creating dual left-turn lanes with protected-only phasing.

SR 155 at SR 42 (Intersection #4)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.

SR 42 at Bill Gardner Parkway (Intersection #8)

- Provide an additional eastbound right-turn lane along Bill Gardner Parkway.
- * Note: An additional southbound through lane along SR 42 south of the intersection with Bill Gardner Parkway is needed to receive the dual right-turn lanes.

I-75 Northbound Ramps at Bill Gardner Parkway (Intersection #9)

- Provide an eastbound right-turn lane along Bill Gardner Parkway.
- * Note: This improvement is required according to the GRTA Notice of Decision for DRI #1610 (Locust Grove Retail).

2014 Build recommended improvements (2014 No-Build conditions plus the King Mill - Lambert DRI project traffic):

Note: These improvements are in addition to the 2014 No-Build recommended improvements.

Improve King Mill Road to standard 12-foot travel lanes across the property's frontage, from the County's SPLOST project to the easternmost driveway (Driveway #2, Intersection #12). Currently, King Mill Road consists of approximately two (2) 10' travel lanes.

The following intersection geometry and improvements are recommended at the project site driveways:

King Mill Road at Driveway #1 (Intersection #11)

- Provide an eastbound left-turn lane along King Mill Road.

King Mill Road at Driveway #2 (Intersection #12)

- Provide an eastbound left-turn lane along King Mill Road.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts of a proposed 180-acre warehouse development (King Mill - Lambert) bounded by Nail Mill Road to the north, Iris Lake Road to the east, King Mill Road to the south, and vacant land to the west. This report is being prepared as part of a submittal requesting rezoning from RA (Residential-Agricultural District) to M-2 (Heavy Manufacturing District). Because the warehouse/distribution facility will exceed 500,000 square feet, the proposed development is a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) review. The Henry County 2030 Comprehensive Future Land Use Plan (Dated April 20, 2009) identifies the area as industrial.

The proposed development is expected to consist of two separate buildings with approximately 3,048,300 total square feet of warehouse space. The development is scheduled to be completed in one phase with build-out by the year 2014.

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

Table 1 Proposed Land Uses	
Warehousing (Two Buildings)	3,048,300 SF Total

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 east of Interstate 75 with access along King Mill Road. The proposed site is bound by Nail Mill Road to the north, Iris Lake Road to the east, King Mill Road to the south, and vacant land to the west. The development is divided into two buildings: Building “A” which measures 1,540,080 SF, and Building “B” which measures 1,508,220 SF. The existing site is currently vacant.

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

Vehicular access to the development is proposed at two site driveways along King Mill Road. The western driveway, herein referred to as Driveway #1, is proposed to be located approximately 3,650 feet west of Iris Lake Road and will serve the truck and passenger vehicle traffic associated with Building “A”. The eastern driveway, herein referred to as Driveway #2, is proposed to be located approximately 425 feet west of Iris Lake Road and will serve the vehicular and truck traffic associated with Building “B”.

1.4 Bicycle and Pedestrian Facilities

Pedestrian and bicycle facilities currently do not exist along SR 42, King Mill Road, or Iris Lake Road.

1.5 Transit Facilities

There is currently no fixed-transit service in the vicinity of this project.

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 of 2.0% per year along all roadways were agreed upon in the GRTA Letter of Understanding.

In addition to the growth rate, traffic associated with two other proposed DRI's in the vicinity of the project was added to the network as background traffic. The two projects and their respective levels of completeness in 2014 are listed below:

- Majestic Realty Company (DRI #1284) – Northwest corner of the intersection of SR 42/ US 23 and King Mill Road in proximity to I-75
 - 2,884,000 square feet of large scale warehouse distribution buildings on approximately 163 acres.
 - Build-out: 2009
 - Level of completeness during data collection effort: 0%
 - Level of completeness in 2014: 100%
- Bandy Locust Grove Mixed-Use Development (DRI #1610) – Southwest corner of I-75 and Bill Gardner Parkway.
 - 1,195,000 square feet of retail, a 120-room hotel, 20 single-family detached residential units, and 342 apartment units on approximately 236 acres.
 - Build-Out: 2016
 - Level of completeness during data collection effort: 0%
 - Level of completeness in 2014: 70%

2.2 Traffic Data Collection

The majority of the year 2009 existing traffic volumes used in the 2009 Existing Conditions analysis were based upon peak hour turning movement counts conducted at 10 intersections between 6:45-8:45 AM and 4:00-6:00 PM on May 27, 2008. The morning and afternoon peak hours varied between the ten intersections:

- I-75 Southbound Ramp @ SR 155 (AM Peak 7:15-8:15, PM Peak 4:30-5:30)
- I-75 Northbound Ramp @ SR 155 (AM Peak 6:45-7:45, PM Peak 4:00-5:00)
- SR 155 @ King Mill Road (AM Peak 6:45-7:45, PM Peak 5:00-6:00)
- SR 155 @ SR 42 (AM Peak 7:15-8:15, PM Peak 4:30-5:30)
- SR 42 @ King Mill Road (North) (PM Peak 4:30-5:30)
- SR 42 @ King Mill Road (South) (AM Peak 6:45-7:45, PM Peak 4:30-5:30)
- King Mill Road @ Iris Lake Road (PM Peak 5:00-6:00)
- I-75 Southbound Ramp @ Bill Gardner Parkway (AM Peak 7:15-8:15, PM Peak 4:45-5:45)
- I-75 Northbound Ramp @ Bill Gardner Parkway (AM Peak 7:15-8:15, PM Peak 5:00-6:00)
- SR 42 @ Bill Gardner Parkway (AM Peak 6:45-7:45, PM Peak 4:45-5:45)

Existing 2009 traffic volumes were developed by applying a 2% growth rate to the previous counts to represent one year of growth.

In addition, the two intersections below were recounted during the morning peak hour only on July 27, 2009. The morning peak hours are listed below. Note that no growth rate was applied to the morning peak hour at these intersections, since they were counted in 2009.

- SR 42 @ King Mill Road (North) (AM Peak 7:00-8:00)
- King Mill Road @ Iris Lake Road (AM Peak 7:00-8:00)

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 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.

Volume to Capacity (v/c) ratio is also used to describe the operating characteristics of a road segment or intersection in relation to its capacity. The *Highway Capacity Manual* describes the v/c ratio as the ratio of traffic demand on a roadway facility divided by the facility's available capacity. V/C is often referred to as the degree of saturation. A facility with a v/c ratio between 0 and 1 operates with excess capacity; however, values above 1.0 indicate an excess of demand, or a facility operating over capacity.

3.0 STUDY NETWORK

3.1 Gross Trip Generation

The proposed development is expected to consist of approximately 3,048,300 square feet of warehouse. The development is scheduled to be completed in one phase with build-out by the year 2014.

Traffic for the various land uses was estimated by utilizing rates accepted by the Georgia Regional Transportation Authority (GRTA), based on trip generation studies performed in the greater Atlanta area. Gross trips generated are displayed in **Table 2**.

Table 2 King Mill - Lambert DRI Gross Trip Generation							
Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2014)							
3,048,300 SF Warehousing	*	3,181	3,181	424	93	134	400
Total		3,181	3,181	424	93	134	400

*NOTE: For the purposes of this traffic impact study, the GRTA rates were utilized. These GRTA rates are based on empirical data collected for other existing similar warehouse/industrial land uses located in the greater Atlanta area. Additionally, for comparison purposes, using these GRTA rates produces higher projected traffic volumes than using the warehousing rates (if based on employees) but approximately 55% of the ITE rates (if based on square footage).

Note that the truck percentage along each roadway affected by an increase in truck traffic was calculated and incorporated into the Synchro analysis.

3.2 Trip Distribution

The directional distribution and assignment of new project trips was based on the project land use, a review of land use densities in the area, combined with engineering judgment and discussions with 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. Additionally, intersections will be analyzed with a v/c ratio threshold of 1.2.

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. I-75 Southbound Ramp @ SR 155
2. I-75 Northbound Ramp @ SR 155
3. SR 155 @ King Mill Road
4. SR 155 @ SR 42
5. SR 42 @ King Mill Road (North)
6. SR 42 @ King Mill Road (South)
7. King Mill Road @ Iris Lake Road
8. SR 42 @ Bill Gardner Parkway
9. I-75 Southbound Ramp @ Bill Gardner Parkway
10. I-75 Northbound Ramp @ Bill Gardner Parkway

All ten intersections were analyzed for the weekday AM and PM peak hour.

Each of the above listed intersections was analyzed for the Existing 2009 Condition, the 2014 No-Build Condition, and the 2014 Build Condition, with the exception of Intersection #5, SR 42 at King Mill Road (North). For the purposes of this study, it was agreed upon by GRTA staff to include the King Mill Road realignment roadway improvement project to the 2014 No-Build and 2014 Build scenarios. This project would realign King Mill Road at SR 42 to create a 4-leg intersection at the existing SR 42 @ King Mill Road (South) intersection. The existing SR 42 @ King Mill Road (North) intersection would remain, but the east end of the road would be realigned to create a new T-intersection along the realigned King Mill Road. Therefore, traffic was relocated from King Mill Road (North) to the east leg of King Mill Road (South); therefore, only the latter intersection is analyzed in the 2014 No-Build and 2014 Build scenarios. Please refer to the appendix for a draft of the roadway plans for this project.

The 2014 No-Build condition represents the 2009 traffic volumes grown at 2.0% per year for five years, other DRIs in the area at their aforementioned level of completeness, and relocated traffic from the King Mill Road roadway realignment project. The 2014 Build condition adds the projected trips associated with the King Mill - Lambert development to the 2014 No-Build condition.

Additionally, the proposed site driveway listed below was only analyzed for the 2014 Build Condition:

- King Mill Road @ Proposed Driveway #1
- King Mill Road @ Proposed Driveway #2

These intersections were analyzed for the weekday AM and PM peak hour conditions.

3.5 Existing Facilities

SR 42/US 23 in the general vicinity of the proposed development is a two-lane roadway. North of Wise Road SR 42/ US 23 is classified as an urban minor arterial by GDOT, whereas south of Wise Road it is classified as a rural minor arterial by GDOT. SR 42/US 23 is classified as a major arterial by Henry County. The posted speed limit along SR 42/US 23 in the general vicinity of the proposed development is 55 MPH which reduces to 45 MPH just before its intersection with Bill Gardner Parkway.

King Mill Road is a two-lane undivided roadway that extends from SR 155 to Old Jackson Road. East of SR 42 King Mill Road is classified as a rural minor collector by GDOT, while west of SR 42 it is classified as a rural local road by GDOT. King Mill Road is classified as a major arterial by Henry County. The posted speed limit along King Mill Road is 35 MPH west of SR 42, 45 MPH east of SR 42, and 40 MPH east of Iris Lake Road.

Iris Lake Road is a two-lane roadway that is classified as a rural local road by GDOT and a minor arterial by Henry County. Iris Lake Road has a north-south orientation and extends from its intersection with Racetrack Road to Harris Drive. The posted speed limit along Iris Lake Road is 35 MPH.

SR 155 is a two-lane to four-lane undivided roadway. North of Wise Road SR 155 is classified as an urban principal arterial by GDOT, whereas south of Wise Road it is classified as a rural principal arterial by GDOT. SR 155 is classified as a major arterial by Henry County. The posted speed limit along SR 155 is 55 MPH approximately one mile west of I-75, 35 MPH east of I-75, and 45 MPH east of SR 42.

Bill Gardner Parkway is a two-lane to four-lane undivided roadway that extends from its intersection with SR 155 to its intersection with SR 42. Bill Gardner Parkway is classified as a rural major collector by GDOT and a minor arterial by Henry County. The posted speed limit along Bill Gardner Parkway is 35 MPH in the general vicinity of the study intersections.

Interstate 75 is a six-lane divided roadway that is classified as a rural interstate principal arterial by GDOT and an interstate by Henry County. The posted speed limit along I-75 is 70 MPH in the general vicinity of the proposed development. I-75 has a north-south orientation and passes to the west of the project site.

Table 3 summarizes the existing facilities in the vicinity of the proposed King Mill - Lambert development.

Table 3 Existing Facilities				
Roadway	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification	Henry County Functional Classification
SR 42/US 23	2-Lane Undivided	55	Urban Minor Arterial (North of Wise Road)	Major Arterial
SR 42/US 23	2-Lane Undivided	55 & 45	Rural Minor Arterial (South of Wise Road)	Major Arterial
King Mill Road	2-Lane Undivided	45 & 40	Rural Minor Collector (East of SR 42)	Major Arterial
King Mill Road	2-Lane w/TWLT	35	Rural Local Road (West of SR 42)	Major Arterial
Iris Lake Road	2-Lane Undivided	35	Rural Local Road	Minor Arterial
SR 155	2-Lane Undivided	35	Urban Principal Arterial (East of Wise Road)	Major Arterial
SR 155	2-Lane Undivided	35	Rural Principal Arterial (West of Wise Road)	Major Arterial
SR 155	2-Lane Undivided	55	Rural Minor Arterial (West of I-75)	Major Arterial
Bill Gardner Parkway	4-Lane w/TWLT	35	Rural Major Collector	Minor Arterial
Interstate 75	6-Lane Divided	70	Rural Interstate Principal Arterial	Interstate

3.6 *Proposed Transportation Improvements*

Section 7.0 lists eight proposed roadway projects improvements in the area. As mentioned previously, the King Mill Road realignment roadway improvement project will be included in the 2014 No-Build and 2014 Build scenarios. This project would realign King Mill Road along SR 42 to create a 4-leg intersection at the existing SR 42 @ King Mill Road (South) intersection. The existing SR 42 @ King Mill Road (North) intersection would remain, but the east end of the road would be realigned to create a new T-intersection along the realigned King Mill Road. The future intersection of King Mill Road (South) at SR 42 is proposed to be signalized with separate right-turn, through, and left-turn lanes, and was modeled as such.

4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the trip generation equations and utilizing rates accepted by the Georgia Regional Transportation Authority (GRTA), based on trip generation studies performed in the greater Atlanta area. There are no transit routes located within the vicinity of the project site. There will be no reduction in vehicle trips due to alternate modes of transportation, internal capture or pass-by trip reductions. The total trips generated and analyzed in the report are listed below in **Table 4**.

Table 4 King Mill - Lambert DRI Net Trip Generation						
Land Use	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Build-Out (Year 2014)						
Gross Trips	3,181	3,181	424	93	134	400
<i>Truck Volumes (25% of total trips)</i>	<i>795</i>	<i>795</i>	<i>106</i>	<i>23</i>	<i>34</i>	<i>100</i>
<i>Car Volumes (75% of total trips)</i>	<i>2,386</i>	<i>2,386</i>	<i>318</i>	<i>70</i>	<i>100</i>	<i>300</i>
New Trips	3,181	3,181	424	93	134	400

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New trips were distributed onto the roadway network using the percentages agreed to during the Pre-Application meeting. **Figure 4** displays the expected distribution percentages for the trucks to warehouse portions of the development throughout the roadway network. **Figure 5** displays the expected distribution percentages for the cars to warehouse portions of 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 peak hour turning movements generated by the proposed development are shown in **Figure 6**.

6.0 TRAFFIC ANALYSIS

6.1 Existing 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 5**.

Table 5 King Mill - Lambert DRI 2009 Existing Intersection Levels of Service (delay in seconds)						
Intersection		Control	AM Peak Hour	V/C	PM Peak Hour	V/C
1	I-75 Southbound Ramp @ SR 155	Signal	C (30.1)	0.99	D (36.6)	0.99
2	I-75 Northbound Ramp @ SR 155	Signal	B (16.1)	0.84	B (14.9)	0.88
3	SR 155 @ King Mill Road	Signal	E (55.0)	1.06	D (40.7)	0.95
4	SR 155 @ SR 42	Signal	D (42.2)	0.87	D (43.2)	0.91
5	SR 42 @ King Mill Road (north)	WB STOP	D (33.8)	0.64	C (22.9)	0.23
6	SR 42 @ King Mill Road (south)	EB STOP	C (15.3)	0.43	F (346.7)	1.68
7	Iris Lake Road @ King Mill Road	ALL WAY STOP	A (7.7)	N/A	A (7.9)	N/A
8	SR 42 @ Bill Gardner Parkway	Signal	C (20.4)	0.94	D (41.4)	1.17
9	I-75 Southbound Ramp @ Bill Gardner Parkway	Signal	B (17.9)	0.53	C (34.3)	0.59
10	I-75 Northbound Ramp @ Bill Gardner Parkway	Signal	A (8.5)	0.72	A (9.3)	0.59

As you can see in the table, the intersection of SR 155 at King Mill Road currently operates below the acceptable Level of Service standard (LOS D) during the AM peak hour, and the intersection of SR 42 at King Mill Road (south) currently operates below the acceptable Level of Service standard during the PM peak hour. Per GRТА'S Letter of Understanding guidelines, improvements were made to the two intersections until the Level of Service was elevated to the GRТА standard. The 2014 Existing with Improvements intersection Levels of Service are displayed below in **Table 6**.

Table 6 King Mill - Lambert DRI 2009 Existing with Improvements Intersection Levels of Service (delay in seconds)						
Intersection		Control	AM Peak Hour	V/C	PM Peak Hour	V/C
3	SR 155 @ King Mill Road	Signal	D (52.4)	1.02	D (35.1)	0.90
6	SR 42 @ King Mill Road (south)	Signal	A (5.3)	0.57	A (8.9)	0.68

The 2009 Existing Conditions recommended improvements made to the intersection are shown in Figure 7 and are listed below by intersection:

SR 155 at King Mill Road (Intersection #3)

- Widen SR 155 to accommodate two through lanes in the eastbound direction.

SR 42 at King Mill Road South (Intersection #6)

- Install a signal at the intersection.
- * Note: This signal is programmed in the Henry County SPLOST (in conjunction with the King Mill Road realignment project) and will be constructed by the build out of the development.

6.2 2014 No-Build Traffic

The 2014 No-Build condition represents the 2009 traffic volumes grown at 2.0% per year for five years, other DRIs in the area at their aforementioned level of completeness, and relocated traffic from the King Mill Road roadway realignment project. The 2014 No-Build traffic volumes were input in Synchro 6.0 and analyses of the projected No-Build conditions were performed. The results are displayed in **Table 7**. The projected volumes for the year 2014 No-Build conditions are shown in **Figure 8**.

Table 7 King Mill - Lambert DRI 2014 No-Build Intersection Levels of Service (delay in seconds)							
Intersection		Control	LOS Standard	AM Peak Hour	V/C	PM Peak Hour	V/C
1	I-75 Southbound Ramp @ SR 155	Signal	D	E (62.9)	1.13	F (83.3)	1.21
2	I-75 Northbound Ramp @ SR 155	Signal	D	D (51.8)	1.10	D (48.5)	1.08
3	SR 155 @ King Mill Road	Signal	E AM/ D PM	F (98.3)	1.25	F (113.2)	1.33
4	SR 155 @ SR 42	Signal	D	E (64.9)	1.00	E (76.1)	1.17
5	SR 42 @ King Mill Road (north)	WB STOP	D	N/A	N/A	N/A -	N/A
6	SR 42 @ King Mill Road (south)	Signal	D AM/ E PM	B (13.8)	0.59	C (24.7)	0.92
7	Iris Lake Road @ King Mill Road	ALL WAY STOP	D	A (7.9)	N/A	A (8.1)	N/A
8	SR 42 @ Bill Gardner Parkway	Signal	D	D (36.6)	1.03	E (76.2)	1.38
9	I-75 Southbound Ramp @ Bill Gardner Parkway	Signal	D	B (19.6)	0.72	E (61.9)	1.06
10	I-75 Northbound Ramp @ Bill Gardner Parkway	Signal	D	B (14.0)	0.82	D (40.3)	1.07

Note: Intersection #5 was not analyzed in the No-Build or Build scenario due to the King Mill Road realignment.

As you can see in the table above, five of the intersections currently operate below the acceptable Level of Service standard during one or more of the peak hours. Per GRТА'S Letter of Understanding guidelines, improvements were made to the five intersections until the Level of Service was elevated to the GRТА standard. Additionally, improvements were recommended at Intersection #2 (SR 155 at King Mill Road) because of continuity of the recommended improvement to widen SR 155. The 2014 No-Build with Improvements intersection Levels of Service are displayed in **Table 8**.

Table 8 King Mill - Lambert DRI 2014 No-Build with Improvements Intersection Levels of Service (delay in seconds)							
Intersection		Control	LOS Standard	AM Peak Hour	V/C	PM Peak Hour	V/C
1	I-75 Southbound Ramp @ SR 155	Signal	D	C (23.8)	0.82	C (27.9)	0.92
2	I-75 Northbound Ramp @ SR 155	Signal	D	C (23.2)	0.82	B (15.6)	0.70
3	SR 155 @ King Mill Road	Signal	E AM/ D PM	B (18.6)	0.69	C (32.0)	0.77
4	SR 155 @ SR 42	Signal	D	D (40.8)	0.83	D (43.0)	0.78
8	SR 42 @ Bill Gardner Parkway	Signal	D	D (36.5)	0.96	D (36.6)	1.08
9	I-75 Southbound Ramp @ Bill Gardner Parkway	Signal	D	B (18.9)	0.72	D (43.1)	0.93

The 2014 No-Build recommended improvements made to the intersection are shown in Figure 8 and are listed below by intersection:

King Mill Road Realignment (Henry County SPLOST project). This project will include:

- King Mill Road east of SR 42 will be realigned with the southern intersection of King Mill Road at SR 42.
- A signal will be installed at the proposed four-leg intersection.
- Each of the four approaches along SR 42 and King Mill Road will be improved to consist of one left-turn lane, one through lane, and one right-turn lane.

I-75 Southbound Ramps at SR 155 (Intersection #1)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.

I-75 Northbound Ramps at SR 155 (Intersection #2)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.
- * Note: The through lanes are not necessarily needed to satisfy GRTA's level-of-service 'D' or 'E' standard; however, due to the proximity to the surrounding intersections, and the desire to widen SR 155 at intersections to the east and west, the roadway widening is recommended at this intersection.

SR 155 at King Mill Road (Intersection #3)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.
- Install an additional northbound left-turn lane along King Mill Road, creating dual left-turn lanes with protected-only phasing.

SR 155 at SR 42 (Intersection #4)

- Widen SR 155 to accommodate two through lanes in the eastbound and westbound directions.

SR 42 at Bill Gardner Parkway (Intersection #8)

- Provide an additional eastbound right-turn lane along Bill Gardner Parkway.
- * Note: An additional southbound through lane along SR 42 south of the intersection with Bill Gardner Parkway is needed to receive the dual right-turn lanes.

I-75 Northbound Ramps at Bill Gardner Parkway (Intersection #9)

- Provide an eastbound right-turn lane along Bill Gardner Parkway.
- * Note: This improvement is required according to the GRTA Notice of Decision for DRI #1610 (Locust Grove Retail).

6.3 2014 Build Traffic

The traffic associated with the proposed development (King Mill - Lambert DRI) was added to the 2014 No-Build volumes. These volumes were then input into the 2014 No-Build roadway network (without improvements) and analyzed with Synchro 6.0. The results of the analyses are displayed in **Table 9**. The projected volumes for the year 2014 Build conditions are shown in **Figure 9**.

Table 9 King Mill - Lambert DRI 2014 Build Intersection Levels of Service (delay in seconds)							
Intersection		Control	LOS Standard	AM Peak Hour	V/C	PM Peak Hour	V/C
1	I-75 Southbound Ramp @ SR 155	Signal	D	F (100.8)	1.23	F (97.0)	1.27
2	I-75 Northbound Ramp @ SR 155	Signal	D	F (90.9)	1.26	E (61.6)	1.12
3	SR 155 @ King Mill Road	Signal	E AM/ D PM	F (115.2)	1.33	F (161.1)	1.63
4	SR 155 @ SR 42	Signal	D	E (68.2)	1.04	F (91.1)	1.28
5	SR 42 @ King Mill Road (north)	WB STOP	D	N/A	N/A	N/A	N/A
6	SR 42 @ King Mill Road (south)	Signal	D AM/ E PM	B (15.2)	0.62	C (25.5)	0.92
7	Iris Lake Road @ King Mill Road	ALL WAY STOP	D	A (8.5)	N/A	A (9.8)	N/A
8	SR 42 @ Bill Gardner Parkway	Signal	D	E (60.5)	1.04	E (79.7)	1.38
9	I-75 Southbound Ramp @ Bill Gardner Parkway	Signal	D	B (19.8)	0.72	E (73.4)	1.27
10	I-75 Northbound Ramp @ Bill Gardner Parkway	Signal	D	B (16.0)	0.88	D (53.2)	1.15

Note: Intersection #5 was not analyzed in the No-Build or Build scenario due to the King Mill Road realignment.

As shown in Table 7, six intersections failed to meet the acceptable Level of Service standard during one or more of the peak hours. Per GR TA's Letter of Understanding guidelines, improvements were made to the intersections until the Level of Service was elevated to the GR TA standard. The 2014 Build with Improvement intersection Levels of Service are displayed in **Table 10**.

Table 10 King Mill - Lambert DRI 2014 Build Intersection Levels of Service with Improvements (delay in seconds)							
Intersection		Control	LOS Standard	AM Peak	V/C	PM Peak Hour	V/C
1	I-75 Southbound Ramp @ SR 155	Signal	D	C (29.6)	0.91	C (31.8)	0.97
2	I-75 Northbound Ramp @ SR 155	Signal	D	C (24.4)	0.86	B (16.3)	0.84
3	SR 155 @ King Mill Road	Signal	E AM/ D PM	B (18.2)	0.72	D (35.6)	0.87
4	SR 155 @ SR 42	Signal	D	D (42.1)	0.86	D (46.1)	0.81
8	SR 42 @ Bill Gardner Parkway	Signal	D	D (52.5)	1.05	D (40.6)	1.10
9	I-75 Southbound Ramp @ Bill Gardner Parkway	Signal	D	B (18.3)	0.72	D (49.1)	1.00

No additional 2014 Build improvements are necessary outside those listed in Section 6.2 under the 2014 No-Build recommendations, also shown in Figure 8.

Note that no additional improvements are necessary to satisfy GR TA's level-of-service 'D' or 'E' standard; however, King Mill Road should be widened to standard 12-foot travel lanes across the property's frontage, from the County's SPLOST project to the easternmost driveway (Driveway #2, Intersection #12).

The proposed project driveways were analyzed for the 2014 Build Conditions. The results of the analyses are presented in **Table 11**. The projected volumes and recommended intersection geometries are shown in Figure 9.

Table 11 King Mill - Lambert DRI 2014 Build Intersections Levels of Service for Proposed Site Driveways (delay in seconds)							
Intersection		Control	LOS Standard	AM Peak Hour	V/C	PM Peak Hour	V/C
11	King Mill Road at Driveway #1	SB STOP	D	B (10.9)	0.08	B (12.2)	0.30
12	King Mill Road at Driveway #2	SB STOP	D	B (10.3)	0.07	B (10.0)	0.23

Although no additional improvements are necessary to satisfy GRTA's level-of-service 'D' or 'E' standard, improvements are recommended because of general turn-lane requirements at new driveways. The volumes and roadway geometry at the project driveways are shown in Figure 9.

Improve King Mill Road to standard 12-foot travel lanes across the property's frontage, from the County's SPLOST project to the easternmost driveway (Driveway #2, Intersection #12). Currently, King Mill Road consists of approximately two (2) 10' travel lanes.

King Mill Road at Driveway #1 (Intersection #11)

- Provide an eastbound left-turn lane along King Mill Road.

King Mill Road at Driveway #2 (Intersection #12)

- Provide an eastbound left-turn lane along King Mill Road.

7.0 IDENTIFICATION OF PROGRAMMED PROJECTS

According to ARC's Transportation Improvement Program, Regional Transportation Improvement Program, GDOT's Construction Work Program, and the STIP the projects listed in **Table 12** are programmed or planned to be completed by the respective years. The improvements are also shown in **Figure 10**.

Table 12 Programmed Roadway Projects			
#	Year	Reference Number	Description
1	2010	HE-168	Intersection improvement at SR 42 and Harris Drive (GDOT #0007546).
2	2020	HE-118E	McDonough Parkway Extension (McDonough Bypass): Phase V from SR 20/81 (Hampton Street) to SR 155.
3	2025	AR-H-052	Addition of one HOV lane in both directions along I-75 from Eagles Landing Parkway to SR 155 (GDOT #0003436).
4	2030	HE-113	Widening of SR 155 from I-75 south to SR 42/ US 23 (GDOT #0007856).
5		GDOT #0007347	Installation of traffic signals at the northern and southern intersections of King Mill road with SR 42. Construction of northbound right-turn lane on SR 42 and southbound left-turn lane on SR 42 at northern King Mill Road intersection (GDOT Work Order #57 as referenced in the Development of Regional Impact Transportation Analysis for Allen/Lambert Warehousing S.R. 42 at King Mill Road Henry County, Georgia prepared by URS Corporation in December 2006).
6*		Henry County SPLOST	Realignment of King Mill Road along SR 42 to create a 4-leg intersection at the existing southern SR 42 @ King Mill Road intersection. The existing northern SR 42 @ King Mill Road intersection would remain, but the other end of the road would be realigned to create a new T-intersection along the realigned King Mill Road. The start of construction is anticipated for April/May 2010.
7		Henry County SPLOST	Widening of Bill Gardner Parkway from I-75 to SR 155.
8		Henry County SPLOST	Dirt Road Paving of South Bethany Road and Harris Drive.

* Assumed to be completed when evaluating the 2014 No-Build and 2014 Build conditions.

8.0 INGRESS/EGRESS ANALYSIS

Vehicular access to the development is proposed at two site driveways along King Mill Road. The western driveway, herein referred to as Driveway #1, is proposed to be located approximately 3,650 feet west of Iris Lake Road and will serve the truck and passenger vehicle traffic associated with Building “A”. The eastern driveway, herein referred to as Driveway #2, is proposed to be located approximately 425 feet west of Iris Lake Road and will serve the vehicular and truck traffic associated with Building “B”.

In addition, parking will be provided throughout the development as follows:

Passenger Vehicle Parking:

Parking Required for Building “A”: 219 spaces

Parking Provided for Building “A”: 320 spaces

Parking Required for Building “B”: 215 spaces

Parking Provided for Building “B”: 304 spaces

Total Parking Required: 434 spaces

Total Parking Provided: 624 spaces

Trailer Parking:

Parking Provided for Building “A”: 461 spaces

Parking Provided for Building “B”: 469 spaces

9.0 INTERNAL CIRCULATION ANALYSIS

Internal circulation is not expected to be an issue, since the buildings each have separate driveways. In addition to providing exclusive access to each building, the vehicular parking areas are separated from the trailer parking and circulation areas.

Due to the nature of the development, there will be no reduction in vehicle trips due to internal capture.

10.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The Henry County 2030 Comprehensive Future Land Use Plan (Dated April 20, 2009) identifies the area as industrial.

11.0 NON-EXPEDITED CRITERIA

11.1 Vehicle Miles Traveled

As indicated in **Table 13**, no alternate modes of transportation, mixed-use reductions, or pass-by trips were applied.

Table 13 Vehicle Miles Traveled	
	Build-Out Total
Daily Gross Trip Generation:	6,362
Net Trips:	6,362

11.2 Transportation and Traffic Analysis

11.2.1 Planned and Programmed Improvements

The King Mill Road realignment improvement, funded by the Henry County SPLOST, is expected to be in place by the build out of the King Mill - Lambert development. Other programmed improvements are detailed in Section 7.0.

11.2.2 Preserving Regional Mobility

The proposed development has simple access to I-75, State Route 42, and State Route 155, which provides mobility to the north, south, east and west and allows easy access to other parts of the Atlanta area. The development is not expected to have an effect on regional mobility.

11.2.3 Safe and Efficient Operations

The King Mill Road improvement will widen the existing roadway, providing a more accommodating roadway for truck traffic. Additionally, the roadway realignment is expected change the existing unsignalized intersection into a safer signalized intersection.

11.2.4 Minimize Congestion

The recommendations listed in this report are targeted at reducing vehicular congestion to standards described previously in this report.

11.8 Relationship Between Proposed DRI and Existing Development and Infrastructure

The development is located in an area where, the proposed infrastructure (including the proposed and recommended improvements to King Mill Road) is expected to be adequate to serve the needs of the development upon build-out in 2014.

12.0 ARC'S AIR QUALITY BENCHMARK

The proposed development is expected to consist of approximately 3,048,300 square feet of warehouse. The project's dominant land use is industrial. The ARC VMT credits do not contain many reductions for industrial land uses. The proposed development does not meet any of the ARC VMT credits. Public transportation does not currently serve the area.