Traffic Impact Study

for

Southcreek V, DRI 2110

City of Fairburn, Fulton County, Georgia

Prepared for:

Georgia Regional Transportation Authority

Atlanta Regional Commission

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EXECUTIVE SUMMARY

SITE INFORMATION: This report presents a variety of analyses and documentation for submittal as the major portion of the Georgia Regional Transportation Authority (GRTA) Development of Regional Impact (DRI) Review Package. This study presents an analysis of the traffic impact expected to result from a distribution/light industrial/warehouse development located southeast of I-85 and southwest of Bohannon Road in the City of Fairburn, Fulton County, Georgia. The Site is called Southcreek V, and is a new addition to an older non-DRI distribution/light industrial/warehouse development. The Site will be developed in two Phases for tactical purposes, but only Build-Out was analyzed, and this report only addresses the analyses and findings at Site Build-Out. The Build-Out Year for the Site is 2013, and the proposed development will consist of 1,490,850 SF of space on approximately 72 acres. The Site has three access drives on Oakley Industrial Blvd.

The Site will be built under the existing zoning of M-1, Light Industrial Zoning District (allowing bulk distribution, warehousing, storage and related uses), which is appropriate to accommodate the proposed development.

SITE TRIPS: At Site Build-Out (Year 2013), the Site is expected to generate approximately 3,038 new external trips (to/from the site) per day. Approximately 161 new external trips (105 in and 56 out) will be generated during the AM peak hour, and approximately 155 new external trips (51 in and 104 out) will be generated during the PM peak hour.

Approximately 75% of the expected trips during the peak hours will be non-truck trips, and approximately 25% will be truck trips. Approximately 89% of non-trucks and 100% of trucks will use Oakley Industrial Blvd. between the Site and Bohannon Road. Approximately 45% of non-trucks and 95% of trucks will use Oakley Industrial Blvd. between Bohannon Road and SR 74 (Senoia Road). Approximately 26% of non-trucks and 89% of trucks will use I-85.

FINDINGS AND CONCLUSIONS: It is reasonably anticipated that the Site will NOT result in an unplanned and poorly served development, considering it is located in an area where the anticipated level of development and availability of infrastructure within the study network is expected to be reasonably balanced. As shown in the traffic impact analysis, the roadways and intersections serving the Site can be reasonably expected to operate at adequate Levels of Service (LOS), and/or may be mitigated and improved readily so that they will operate at adequate LOS. The required improvements are shown in the following table.

REQUIRED IMPROVEMENTS

Intersection	Existing Conditions	Future No Build Conditions	Future Build Conditions
No. 2 – SR 74 (Senoia Road) at Oakley Industrial Blvd.	Add a second SB Left Turn Lane; and add an exclusive EB Left Turn Lane	Add a second SB Left Turn Lane; and add an exclusive EB Left Turn Lane	Add a second SB Left Turn Lane; and add an exclusive EB Left Turn Lane

PROJECT SUMMARY

Name and Number of DRI	Southcreek V (DRI No. 2110)
Jurisdiction	City of Fairburn, South Fulton County
Local Development Approval Sought	Updated Permits
Location	Southeast of I-85, southwest of Bohannon Road, in Fairburn
Uses and Intensities of Uses	1,490,850 SF high-cube warehouse
Project Phasing and Build-Out	2013
Trip Generation (ADT, AM, PM Peak)	3,038/161/155

1. INTRODUCTION

This report presents a variety of analyses and documentation for submittal as the major portion of the Georgia Regional Transportation Authority (GRTA) Development of Regional Impact (DRI) Review Package for the proposed distribution/light industrial/warehouse development located southeast of I-85 and southwest of Bohannon Road in the City of Fairburn, Fulton County, Georgia.

The Site is called Southcreek V, and is a new addition to an older non-DRI distribution/light industrial/warehouse development. These analyses have been initiated in response to a need to update the existing permits for the site. Due to the size and characteristics of the Site, it qualifies for a DRI level of review and analysis per rules and guidelines established by GRTA, the Atlanta Regional Commission (ARC), and the Georgia Department of Community Affairs (DCA). The Applicant has elicited to undertake the GRTA review via the Non-Expedited Review Process.

The Site will be developed in two Phases for tactical purposes, but this report addresses only the analyses and findings at Site Build-Out. The Build-Out Year for the Site is 2013, and the proposed development will consist of 1,490,850 SF of high cube warehouse space on 71.938 +/- acres.

The Site has three access drives on Oakley Industrial Blvd.

The Site will be built under the existing zoning of M-1, Light Industrial Zoning District (allowing bulk distribution, warehousing, storage and related uses), which is appropriate to accommodate the proposed development.

2.1 Project Description

The Site is located on the southeast side of Oakley Industrial Blvd., on the south side of the City of Fairburn, in South Fulton County. Figure 2-1 shows the Site Orientation with respect to the surrounding communities and interstates and provides a more detailed Site Location Map showing the roadways in the immediate vicinity of the Site. Figure 2-2 shows an aerial photograph of the near vicinity of the Site.

2.2 Site Plan – Types and Amounts of Development

The Site will be developed in two Phases for tactical purposes, but this report only addresses the analyses and findings at Site Build-Out. The Build-Out Year for the Site is 2013, and the proposed development consists of 1,490,850 SF of high cube warehouse space on 71.938 +/- acres.

The adjacent land uses are primarily industrial to the east and north, and vacant land to the west and south.

2.3 Project Phasing Schedule

The Site will be developed in two Phases for tactical purposes, but only Build-Out was analyzed. This report addresses the analyses and findings at Site Build-Out. The first phase will consist of 1,140,322 SF of high cube warehouse, and is expected to be completed by February 2011. The second phase will expand the building by 350,528 SF of high cube warehouse, and is expected to be completed by February 2013. Thus, the total square footage will be 1,490,850 SF of high cube warehouse, with the Build-Out Year for the Site in 2013.

2.4 Site Parking Requirements

Proposed parking is shown on the Site Plan. Proposed passenger vehicle parking includes the initial 221 parking spaces and an expansion of 80 spaces for a total of 201 parking spaces. The number of parking spaces thus far approved by the City Council is 658 spaces. The zoning ordinance states that there be one parking space for every 1,500 SF of floor space used for warehousing or storage. Depending how this is calculated, this would require either 893 or 967 parking spaces.

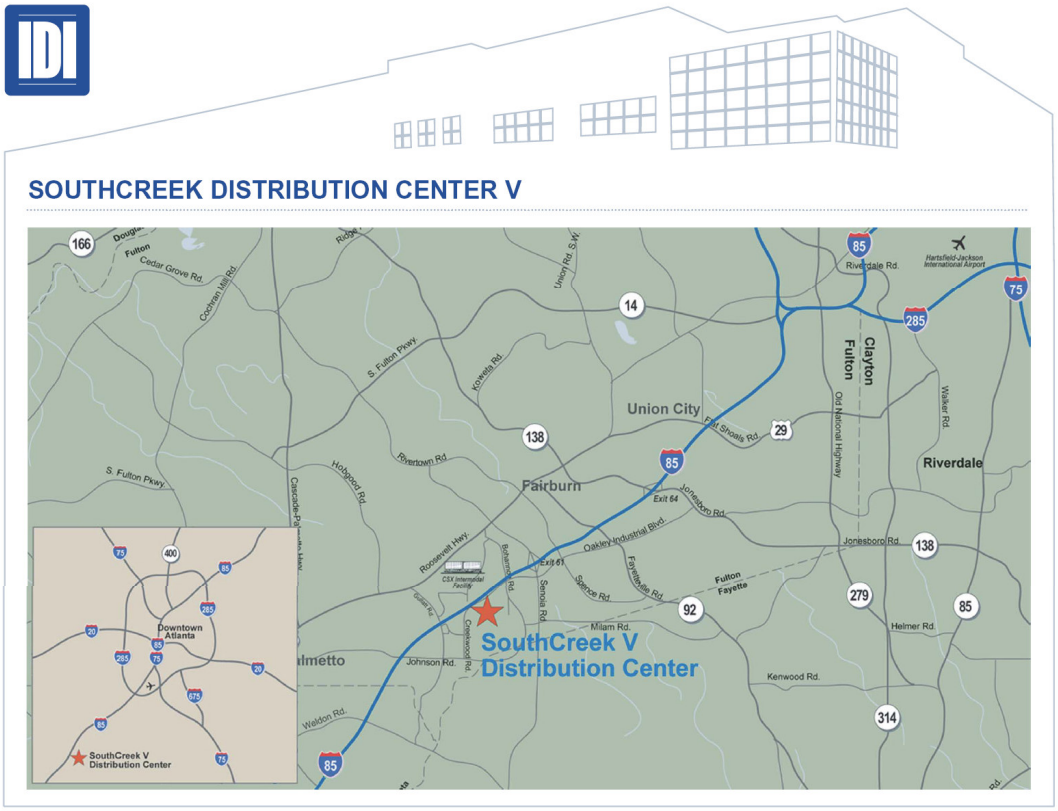
Proposed trailer staging includes the initial 352 staging spaces and an expansion of 121 spaces for a total of 473 staging spaces.

This is a "Build to Suit Building" – not a speculative venture with hopes for a tenant. The known tenant, Clorox, has advised the design team of how many spaces they need to operate this facility, and that is how many are being provided. The development/design team thinks it is more environmentally conscientious to provide only the spaces needed by the tenant as opposed to creating acres of impervious area that is not needed, nor will be used. It is the development/design team's intention to make this a LEED Silver Certified development. One of the facets that LEED looks at is what is referred to as "heat islands". The team is trying to keep the "heat islands" to a minimum, ie., to maximize the green area.

2.5 Site Access Points and Driveways

The site will contain a single use, with one large building centered on the site. Trucks will enter and exit the site from the northern-most, full-movement driveway (Driveway No. 1), and will circulate around the building via the internal circulation roadway. Employees will enter and exit the site via the center full-movement driveway (Driveway No. 2), and will park on the west side of the building. Once the expansion is completed, employees using the eastern side of the building will enter and exit the site via Driveway No. 2, and park on the southeast side of the building. The southern-most, full-movement driveway (Driveway No. 3), is being reserved for fire and rescue equipment access only. The City of Fairburn is the permitting jurisdiction for driveway access permits.

Figure 2-1. Site Orientation and Site Location Maps



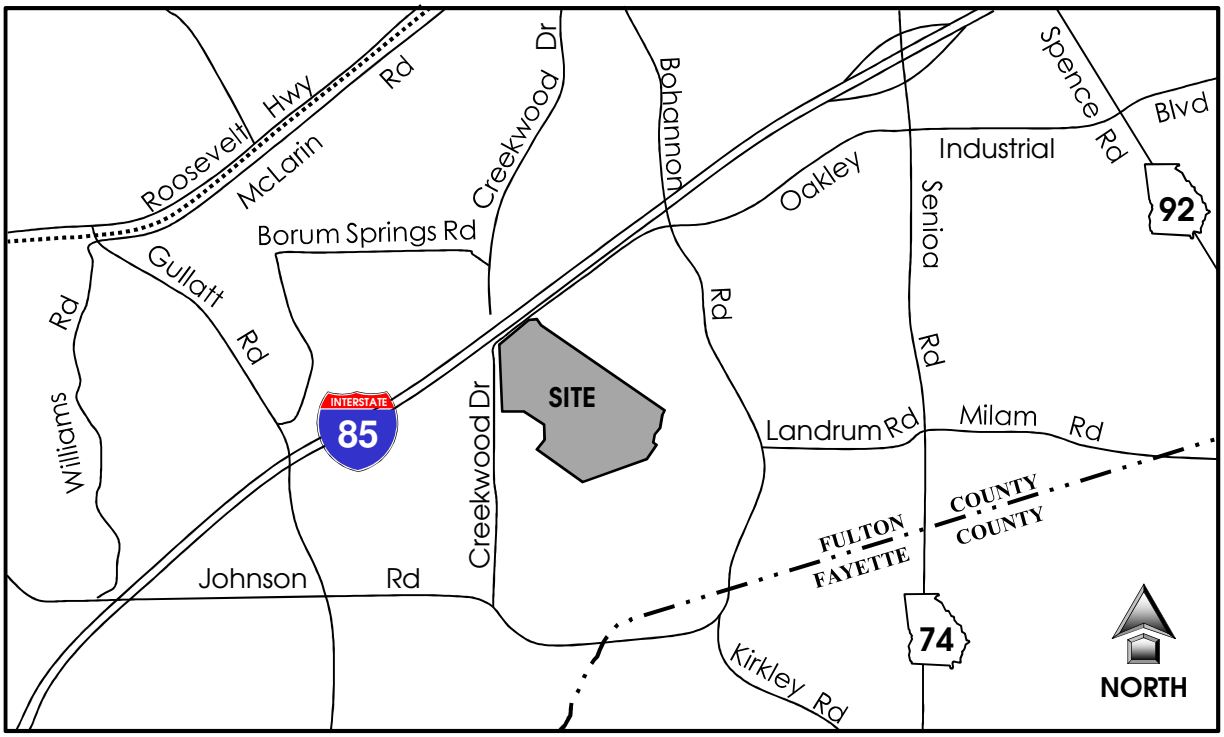


Figure 2-2. Site Aerial

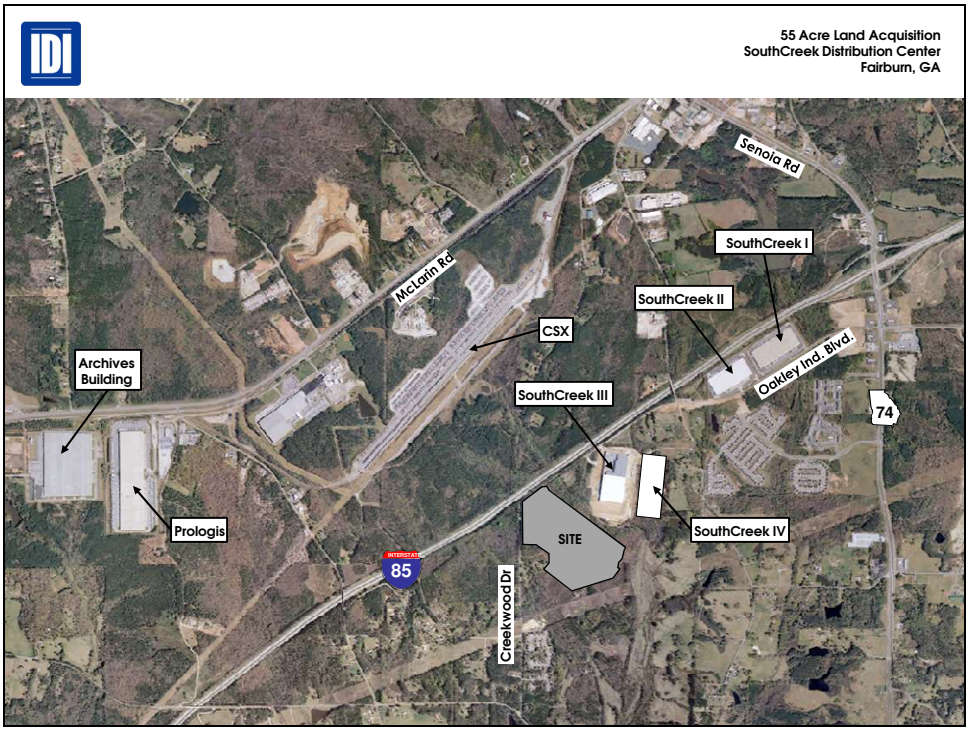
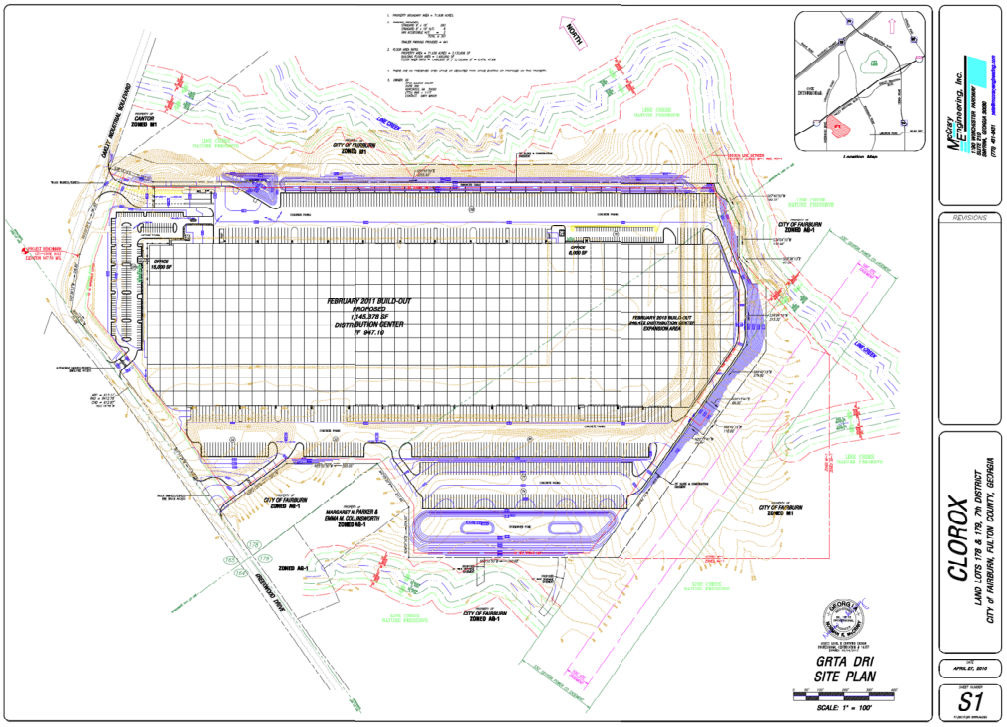


Figure 2-3. Site Plan



3.1 Trip Generation

As noted above, the Site will consist of 1,490,850 SF of high cube warehouse space on 71.938 +/- acres.

The number of vehicle trips expected from the Site was estimated based on the Site Plan and information provided by the developer/owner and their site civil engineer.

The typical procedure for determining the traffic generated by a new development is to apply the rates or equations developed by the Institute of Transportation Engineers (ITE) as published in *Trip Generation, 8th Edition*, 2008, an ITE Informational Report, and related information in the *Trip Generation Handbook*, an ITE Recommended Practice, June 2004. The rates and equations in these documents are calculated from nationally collected data. The rates and equations were used to estimate the number of trips expected for the Site. The ITE Land Use Code used in the analyses is shown in Table 3-1.

Trip Generation has been determined for the Site Build-Out (Year 2013). The results of the trip generation are shown in Table 3-1. The Trip Generation Worksheets are included in Appendix A.

Table 3-1. Site Build-Out Trip Generation

ITE Code	Land Use	Intensity		Daily Total	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
High-Cube Warehouse								
152	High-Cube Warehouse	1,490.85	ksf	3,038	105	56	51	104

From ITE *Trip Generation*, 8th Edition, 2008

3.2 Trip Distribution and Traffic Assignment

For the purposes of developing trip distribution, a radius of fifteen miles was used for both residential and employment types of land uses (with the assumption that the vast majority of home to work trips will be satisfied within that fifteen mile radius).

The trip distribution for the Site was calculated using Census data with the GIS software *Maptitude*. The trip distribution for the Site is as follows:

For Non-Trucks (generally passenger cars):

- From/to the site on Oakley Industrial Blvd. west of Bohannon – 89%
- From/to the site on Oakley Industrial Blvd. between Bohannon and SR 74 – 40%
- From/to the site on Oakley Industrial Blvd. east of SR 74 – 10%
- From/to the site on Bohannon Road south of Oakley Industrial Blvd. – 21%
- From/to the site on Bohannon Road north of Oakley Industrial Blvd. – 28%
- From/to the west via Creekwood – 11%
- From/to the east/north on I-85 – 12%
- From/to the west/south on I-85 – 10%

For Trucks:

- From/to the site on Oakley Industrial Blvd. west of Bohannon – 100%
- From/to the site on Oakley Industrial Blvd. between Bohannon and SR 74 – 95%
- From/to the site on Oakley Industrial Blvd. east of SR 74 – 3%
- From/to the site on SR 74 south of Oakley Industrial Blvd. – 3%
- From/to the site on Bohannon Road south of Oakley Industrial Blvd. – 0%
- From/to the site on Bohannon Road north of Oakley Industrial Blvd. – 5%
- From/to the west via Creekwood – 0%
- From/to the east/north on I-85 – 70%
- From/to the west/south on I-85 – 19%

The trip distributions developed for the Site are shown in Figures 3-1 and 3-2 for Site Build-Out (Year 2013). The appropriate distribution percentages were applied to the trips generated by the Site as shown in Table 3-1 for Site Build-Out (Year 2013), and the traffic volumes were assigned to the road network. The weekday AM and PM peak hour turning volumes expected at the study intersections from the Site are shown in Figure 3-3 for Site Build-Out (Year 2013).

Figure 3-1. Site Build-Out Trip Distribution for Non-Trucks

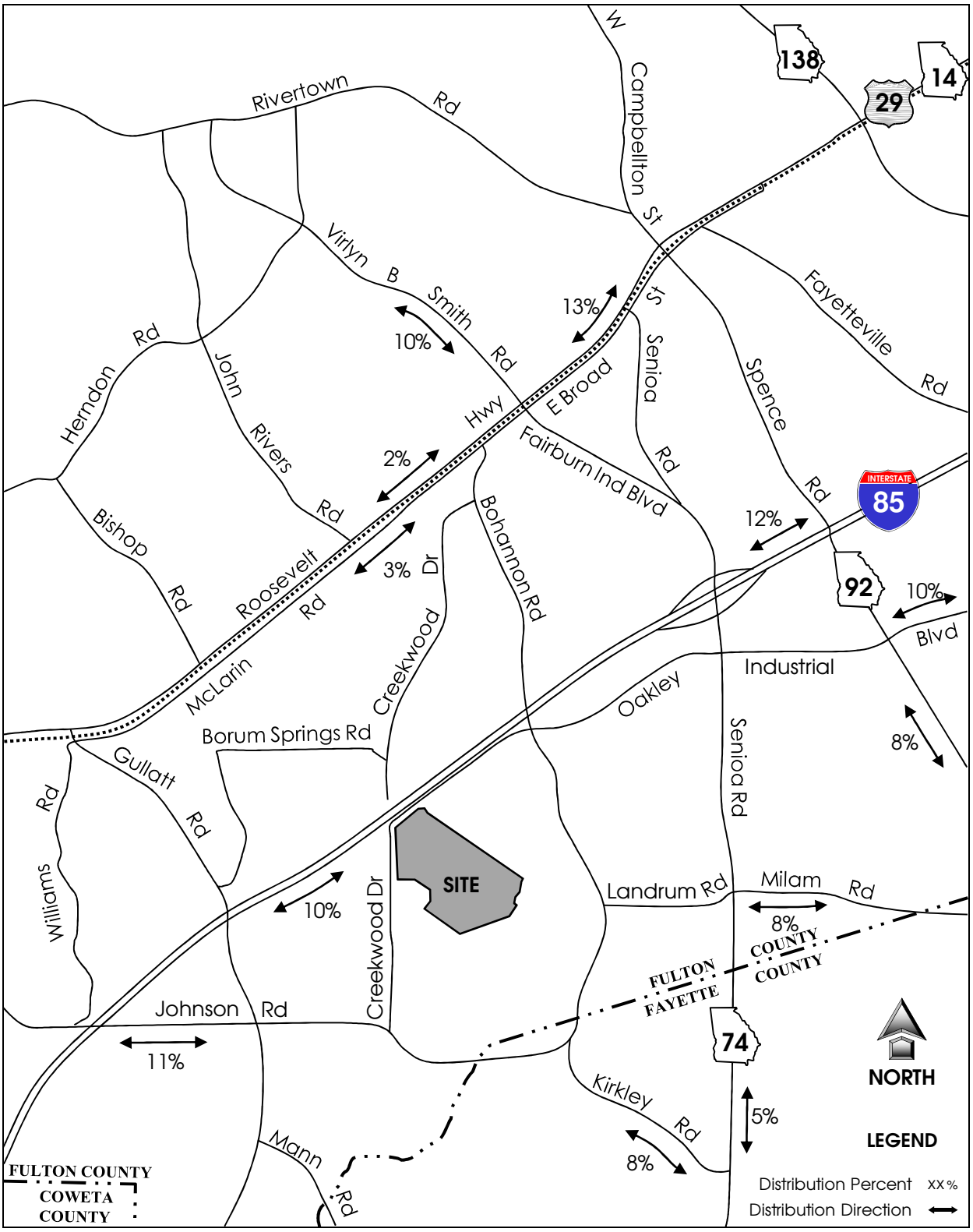


Figure 3-2. Site Build-Out Trip Distribution for Trucks

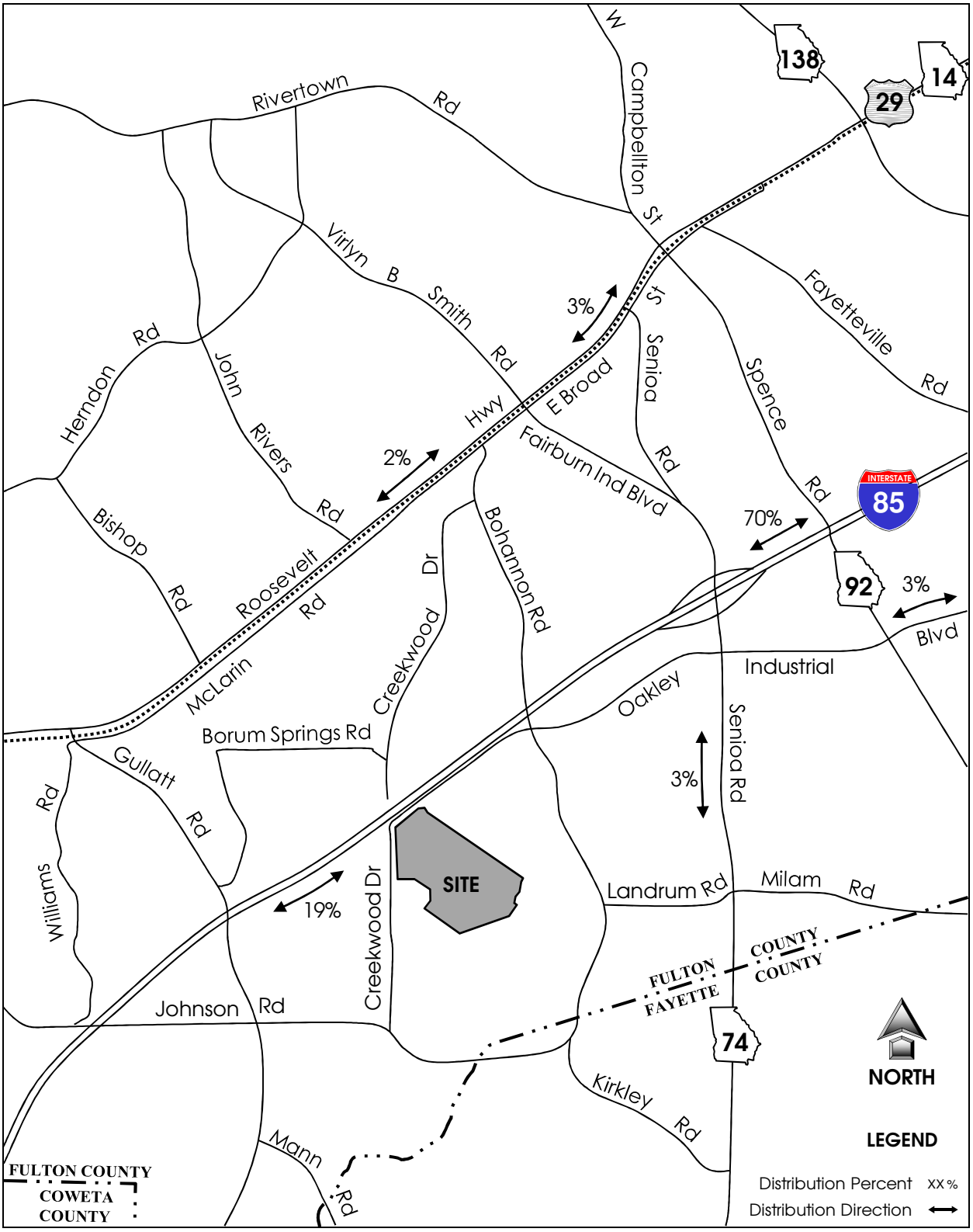
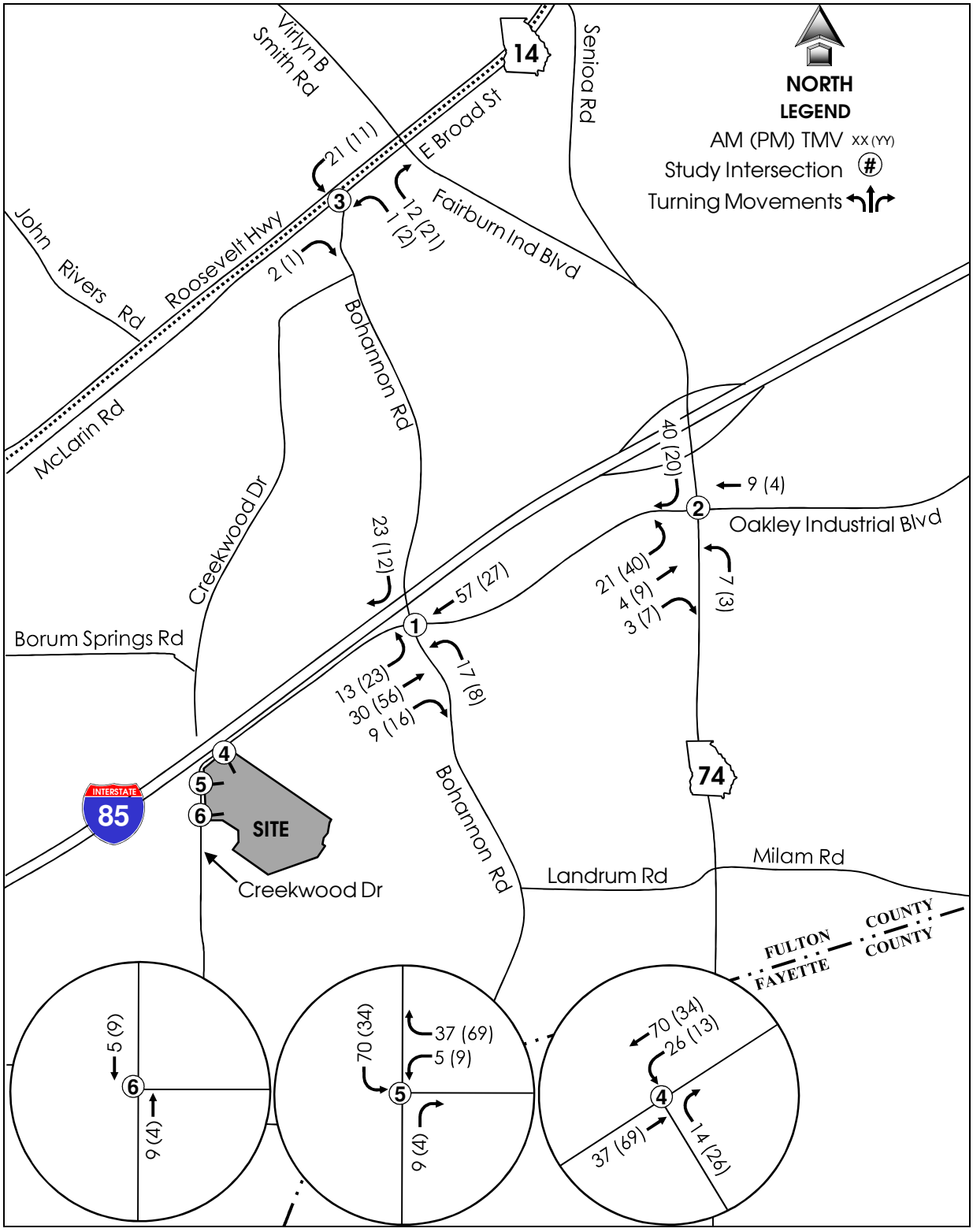


Figure 3-3. Site Build-Out Traffic Volumes



4. IDENTIFICATION OF THE STUDY NETWORK

An early step in the GRTA DRI Non-Expedited Review Process is the determination of the Study Network utilizing the 7% Rule. The 7% Rule requires study of each roadway segment that is impacted to determine if traffic from the Site consumes 7% or more of the Service Volume (traffic volume at a specific Level of Service (LOS)) of that roadway segment. LOS D is generally used as a default value for urban. The LOS standard for the City of Fairburn is assumed to be LOS D.

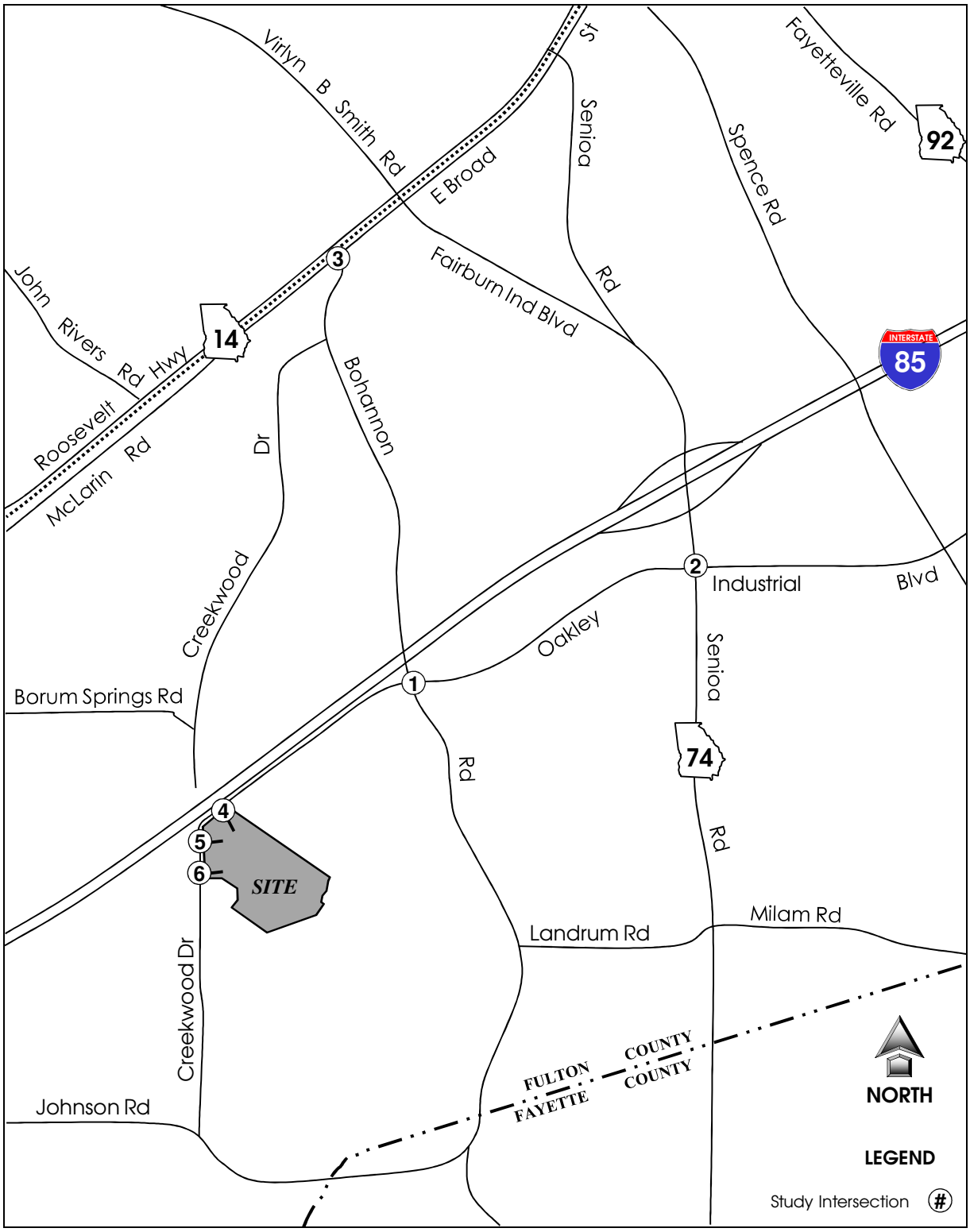
After consultation with GRTA and the City, the following intersections were agreed upon for investigation as part of the Traffic Impact Analysis.

- All Site driveway access points;
- Oakley Industrial Blvd. at Bohannon Road;
- Oakley Industrial Blvd. at SR 74 (Senoia Road) (signalized); and,
- Bohannon Road at McLarin Road.

Figure 4-1 shows the location of the study intersections.

GRTA had requested that we be particularly cognizant of the impact that the train tracks, and train operations, might have upon motor vehicle operations at the intersection of Bohannon Road at McLarin Road. We have reviewed this matter. Multiple train tracks run just north of the subject intersection. However, Bohannon Road at McLaren Road is a three-legged intersection, and there is no north leg. Motor vehicles do not cross nor in any way interact with train operations anywhere near the subject intersection. Thus, there are no negative impacts caused to the intersection by train operations.

Figure 4-1. Location of Study Intersections



5. CAPACITY ANALYSIS METHODOLOGY

5.1 Level of Service Standards

Operating conditions at intersections and roadway segments are evaluated in terms of Levels of Service (LOS). For the GRTA DRI process, the City of Fairburn's LOS Standards for the roadways in the Study Area are assumed to be LOS D. Therefore, LOS A through D are considered to be adequate peak hour operations, and LOS E and F are considered inadequate peak hour conditions. It is desirable, after new development has been put in place, that no less than an LOS D be maintained. However, if a specific location operates at LOS E or F under existing traffic conditions, then GRTA finds as acceptable, after background traffic, and also after the Site's traffic, has been added to the specific location, a return to LOS E.

5.2 Intersection Capacity Analysis Methodology

Capacity analyses of the study intersections were completed using procedures in the *Highway Capacity Manual (HCM)*, 2000. This is the usual methodology for the analysis of traffic conditions. The software program *Synchro 7* (a nationally recognized computer software package for analyzing capacities and Levels of Service) was used to perform the capacity analyses for the study intersections.

An explanation of levels of service can be found in the EXPLANATION OF LEVELS OF SERVICE Section at the end of the report.

6.1 Existing Roadway Facilities

To determine existing traffic conditions of the identified study roadway segments and study intersections in the area, an inventory was made of the major roads surrounding the Site. The physical and traffic control elements of each of the roadways, as well as the functional classification and other important elements for the study roadways, follows:

- **Oakley Industrial Boulevard** is a two-lane undivided roadway with a 40 mph posted speed limit. Oakley Industrial Boulevard serves as a local roadway and runs in the southwest to northeast direction from Bohannon Road to Jonesboro Road. Oakley Industrial Boulevard dead-ends into the Oakley Park Business Park. Oakley Industrial Boulevard is signalized at Senoia Road (SR 74) and at Spence Road. The land uses along Oakley Industrial Boulevard is a mix of sparse residential, sparse commercial, industrial, and undeveloped land.

- **Creekwood Drive** is a two-lane undivided roadway with no posted speed limit within the vicinity of the Site. Southwest of the Site, Creekwood Drive has a 40 mph posted speed limit. Creekwood Drive serves as a local roadway and runs in the north-south direction from Bohannon Road to Johnson Road. Just south of Interstate 85, another roadway named Creekwood Drive runs parallel with Interstate 85 and intersects Bohannon Road at Oakley Industrial Boulevard. The land uses along Creekwood Drive include a mix of sparse residential and undeveloped land.

- **Bohannon Road** is a two-lane undivided roadway with a 35 mph posted speed limit, which changes to 40 mph south of Bohannon Drive. Bohannon Road serves as a local roadway and runs primarily north-south in the direct vicinity of the Site. Traveling southbound on Bohannon Road, the roadway curves towards the left and becomes an east-west roadway at Kirkley Road. Continuing westbound, Bohannon Road becomes Johnson Road at the Fulton County/Fayette County border. The land uses along Bohannon Road include a mix of sparse residential and undeveloped land.

- **Senoia Road (SR 74)** serves as a GDOT Urban Principle Arterial, and is a four-lane divided roadway with a 45 mph posted speed limit. Senoia Road (SR 74) runs in the north-south direction from Roosevelt Highway (US 29) (SR 14) and continues south of Tyrone. For a short distance between Roosevelt Highway (US 29) (SR 14) and Fairburn Industrial Boulevard, Senoia Road (SR 74) is a two-lane undivided roadway with a speed limit of 35 mph. The land use along Senoia Road (SR 74) is a mix of sparse residential, commercial, and undeveloped land.

- **Roosevelt Highway (US 29) (SR 14)** serves as a GDOT Urban Principle Arterial northeast of SR 74, and a GDOT Urban Minor Arterila Street southwest of SR 74,

and is a four-lane undivided roadway with a 45 mph posted speed limit from its intersection with Virlyn B Smith Road / Fairburn Industrial Boulevard as it runs in the northeast direction. Roosevelt Highway (US 29) (SR 14) is a five lane undivided roadway with a two way left turn lane and a 55 mph posted speed limit from its intersection with Virlyn B Smith Road / Fairburn Industrial Boulevard as it runs in the southwest direction. The roadway extends from beyond the Palmetto city limits to beyond the city limits of Union City. The land use along this roadway is a mix of commercial, residential, and undeveloped land.

- **McLarin Road / East Broad Street** is a two-lane undivided roadway with a 30 mph posted speed limit within the vicinity of the Site. McLarin Road serves as a local roadway and runs in the southwest to northeast direction from Gullatt Road to Fairburn Industrial Boulevard. At Fairburn Industrial Boulevard, McLarin Road becomes East Broad Street. East Broad Street continues to run in the southwest to northeast direction and dead ends into Fayette St / Fayetteville Road (SR 92). The land uses along McLarin Road / East Broad Street includes a mix of industrial, sparse commercial, sparse residential, and undeveloped land.

Figure 6-1 shows the existing traffic controls and lane configurations at the study intersections.

6.2 Existing Traffic Volumes

After consultation with GRTA, ARC, and the City, it was determined that capacity analyses would be performed at the study intersections for the weekday AM peak hour and the weekday PM peak hour. For these two peak periods, turning movement counts were collected on Tuesday, April 20, 2010, at the following intersections:

- Oakley Industrial Blvd. at Bohannon Road;
- SR 74 (Senoia Road) at Oakley Industrial Blvd; and,
- Bohannon Road at McLarin Road/East Broad Street.

Historical ADT information was acquired from GDOT permanent counting stations located in the study area for the six year period from 2003 to 2008. Twenty-four (24) hour, directional traffic volumes and vehicle classification counts were also collected on Tuesday, April 20, 2010, at the following locations (count data is included in Appendix C):

- Oakley Industrial Blvd. east of Bohannon Road;
- Creekwood Road west of Bohannon Road;
- Bohannon Road north of Oakley Industrial Blvd.; and,
- SR 74 (Senoia Road) south of Oakley Industrial Blve.

Figure 6-2 shows the existing volumes at the study intersections for the weekday AM peak hour and the weekday PM peak hour.

Figure 6-1. Existing Traffic Controls and Lane Configurations

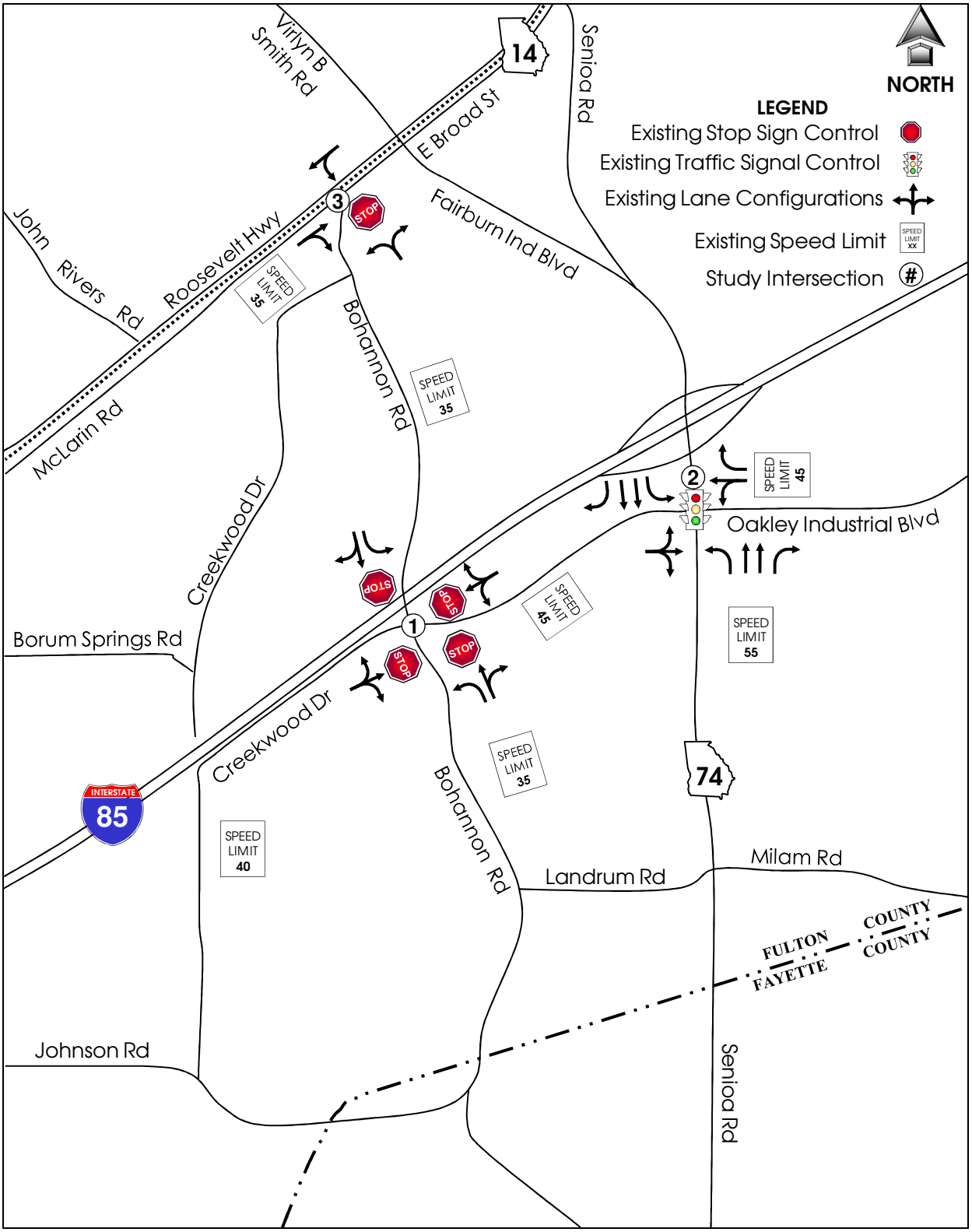
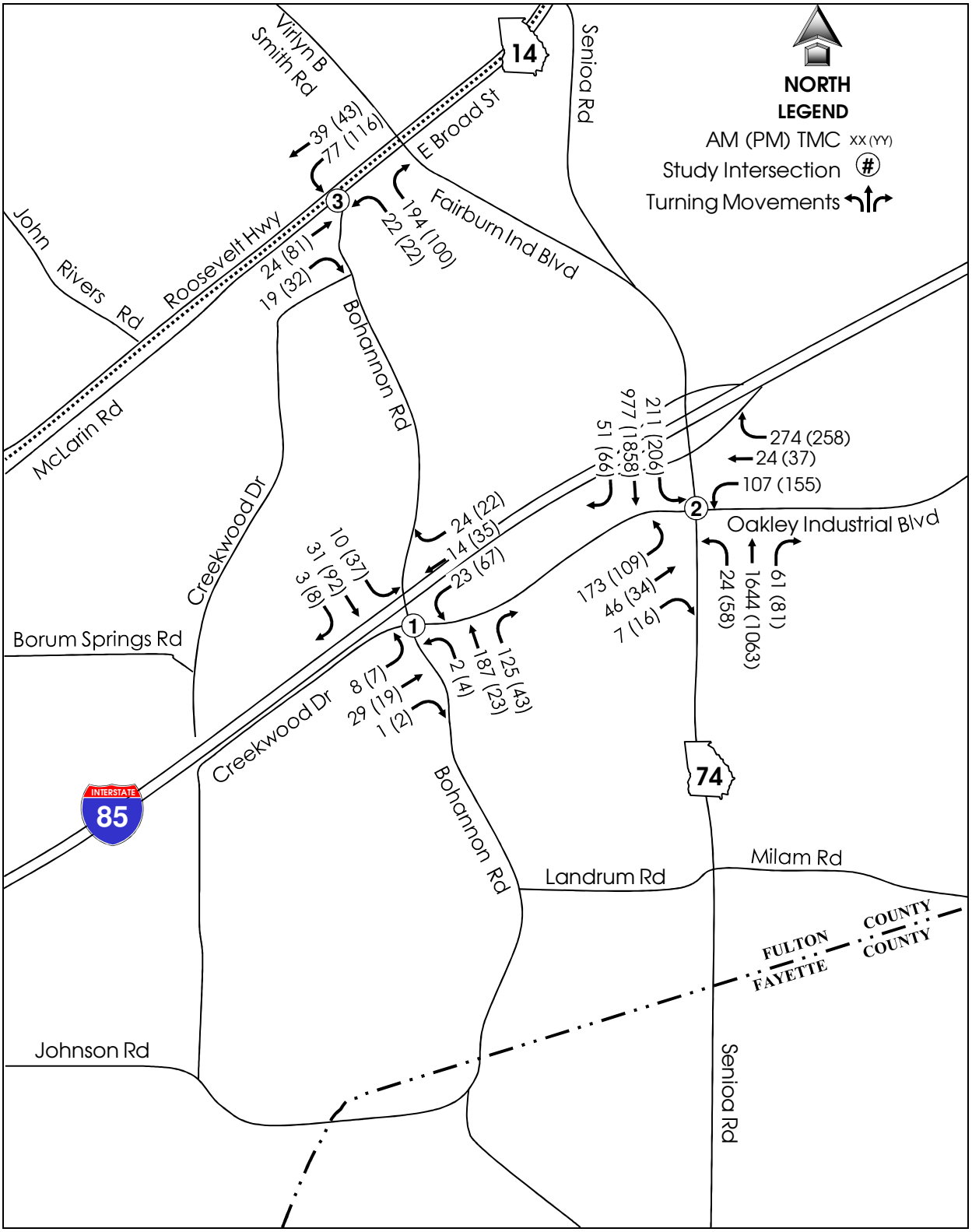


Figure 6-2. Existing Traffic Volumes



6.3 Intersection Capacity Analysis – Existing Conditions

Using the methodologies described in Explanation of Level of Service (see Appendices), intersection Levels of Service were determined for the study intersections for Existing conditions. Table 6-1 presents the results of the intersection capacity analysis for Existing conditions. Printouts of these analyses are included in Appendix C.

Table 6-1. Intersection LOS – Existing

ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
1	Oakley Industrial Blvd & Bohannon Rd	N/A	4-Way Stop	Overall	B	A
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	N/A	Signal	Overall	E	D
3	Bohannon Rd & McLarn / East Broad	N/A	Stop	NB	B	B
				WB	A	A

As can be seen from Table 6-1, all of the movements, and all of the overall intersection operations, function at adequate Levels of Service for Existing conditions, except at intersection No. 2, SR 74 (Senoia Road) at Oakley Industrial Boulevard. This intersection operates inadequately during the morning peak hour.

6.3.1 Required Improvements

Table 6-1 identifies deficiencies that already exist at study intersection No. 2. Improvements have been identified, that if implemented immediately, could correct the Existing deficiencies. Their impacts on the Existing deficiencies are shown in Table 6-2. Printouts of these analyses are included in Appendix D.

Table 6-2. Intersection LOS – Existing with <u>Required</u> Improvements

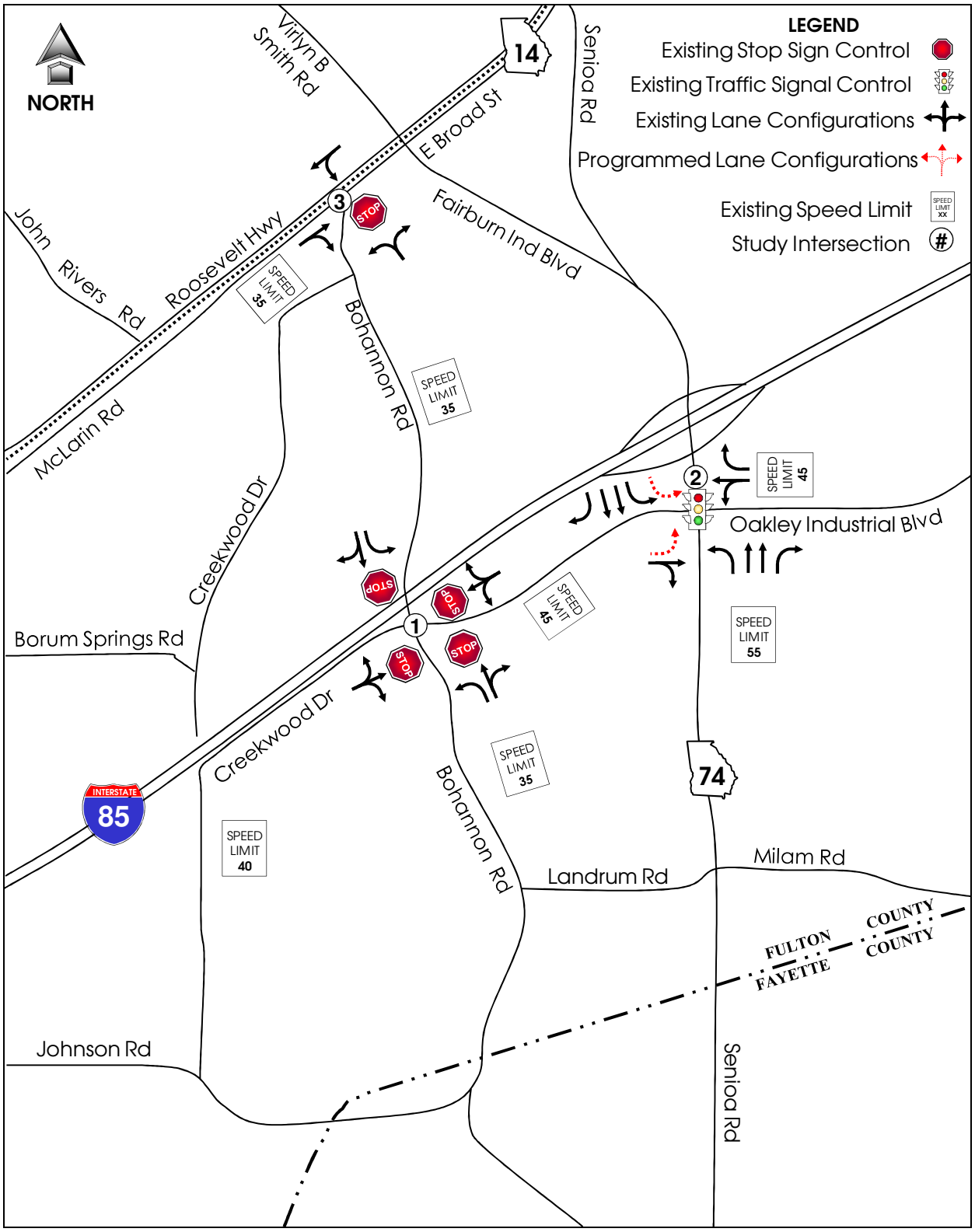
ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	Add a second SB left turn lane (with protected-only phasing); and add an exclusive EB left turn lane (with permitted phasing).	Signal	Overall	D	D

As can be seen from Table 6-2, the following required improvements are expected to bring intersection No. 2 back into adequacy for Existing conditions:

- Add a second southbound left turn lane on SR 74; and.
- Add an exclusive eastbound left turn lane on Oakley Industrial Blvd.

Figure 6-3 shows the lane configurations and traffic control that would be required to mitigate the Existing intersection deficiencies.

Figure 6-3. Required Improvements



6.4 Calculated Level of Service Standards

Based upon the results of the analysis of the Existing conditions, Table 6-3 presents the calculated Level of Service Standards for intersections that must be met when considering Future No Build and Future Build conditions.

Table 6-3. Calculated Intersection LOS Standards

ID	Intersection	LOS Required	
		AM	PM
1	Oakley Industrial Blvd & Bohannon Rd	D	D
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	E	E
3	Bohannon Rd & McLarn / East Broad	D	D

7. PLANNED AND PROGRAMMED IMPROVEMENTS

The local Transportation Improvement Program (TIP), the State Transportation Improvement Program (STIP), the Regional Transportation Plan (RTP), and the GDOT Construction Work Program were researched to determine if there are any proposed transportation improvements, either programmed or planned, that would impact the Site. For identified projects, the opening-to-traffic dates, sponsors, costs of projects, funding sources, and logical termini are usually also identified.

Based upon studies performed for the City of Fairburn and for the Georgia Department of Transportation (GDOT), interim improvements are presently under design for the intersection of SR 74 (Senoia Road) at Oakley Industrial Boulevard. A GDOT Open-House Public Informational Meeting is scheduled for May 25, 2010. It is expected that the present schedule will be confirmed at that meeting. If so, the improvements are expected to be completed and open to traffic by December 2012.

The proposed improvements include:

- Add a second southbound left turn lane on SR 74; and.
- Add an exclusive eastbound left turn lane on Oakley Industrial Blvd.

8.1 Future No Build Traffic Volumes

Between the time this study is performed and the Site is built out in Year 2013, the traffic volumes on the adjacent roadways are expected to increase. This is due to other development which will take place both in the study area by the Year 2013, as well as growth outside of it, whether or not the Site being studied is built. This growth is called background or "no build" traffic growth. There are generally two components to No Build traffic growth:

(a) growth close to the Site due to specific, identified developments already in the "pipeline" (that is, actual nearby developments already approved, or further along in the approval process, that can reasonably be expected to be built by Site Build-Out (Year 2013)), sometimes called "background development"; and

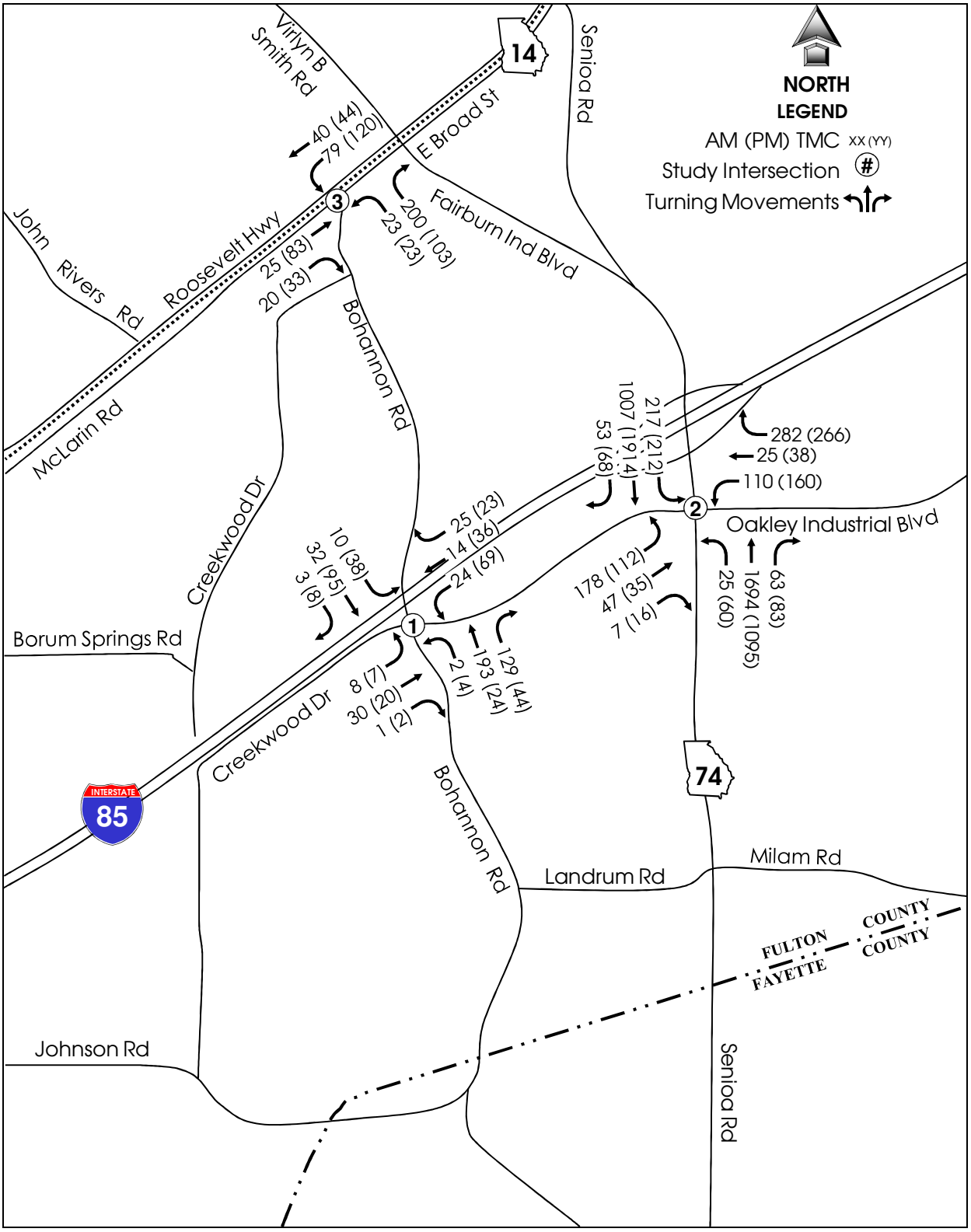
(b) general traffic growth along major roadways due to the expanding nature of the region, and to other non-specific development further from the Site, often simply referred to as "background growth". Growth of this nature can generally be determined by examining historic trends in the vicinity of the Site, and by applying those trends to the appropriate roadways.

Historical traffic volume trends on the study network were taken into account. Where available, the last six years (2003 – 2008) of historical Annual Average Daily Traffic (AADT) collected by GDOT were used to help develop traffic volume trends on the study area roadways.

Based on the historical traffic volumes collected in the vicinity of the Site and after discussion with GRTA and City of Fairburn staff, a 1% annual traffic growth percentage was used.

The Future No Build traffic volumes were developed by adding the background growth out to the Year 2013 to existing traffic. The Future No Build traffic volumes are shown in Figure 8-1.

Figure 8-1. Future No Build Traffic Volumes



8.2 Intersection Capacity Analysis – Future No Build Conditions

Using the methodologies previously described, intersection Levels of Service were determined for the study intersections for Future No Build conditions. Table 8-1 presents the results of the intersection capacity analyses for Future No Build traffic conditions, assuming existing lane configurations and traffic control. Printouts of these analyses are included in Appendix E.

Table 8-1. Intersection LOS – Future No Build

ID	Intersection	Improvement	Control	Movement	HCM LOS AM	HCM LOS PM
1	Oakley Industrial Blvd & Bohannon Rd	N/A	4-Way Stop	Overall	B	A
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	N/A	Signal	Overall	E	D
3	Bohannon Rd & McLarn / East Broad	N/A	Stop	NB	B	B
				WB	A	A

As can be seen from Table 8-1, all of the movements, and all of the overall intersection operations, function at adequate Levels of Service for Future No Build conditions, except at intersection No. 2, SR 74 (Senoia Road) at Oakley Industrial Boulevard. This intersection operates inadequately during the morning peak hour.

8.2.1 Required Improvements

Table 8-1 identifies deficiencies that would exist at study intersection No. 2 under Future No Build conditions. Improvements have been identified, that if implemented, could correct the Future No Build deficiencies. These are the same improvements needed to bring Existing condition deficiencies back to adequacy. Their impacts on the Future No Build deficiencies are shown in Table 8-2. Printouts of these analyses are included in Appendix F.

Table 8-2. Intersection LOS – Future No Build with Required Improvements

ID	Intersection	Improvement	Control	Movement	HCM LOS AM	HCM LOS PM
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	Add a second SB left turn lane (with protected-only phasing); and add an exclusive EB left turn lane (with permitted phasing).	Signal	Overall	D	D

As can be seen from Table 8-2, the following required improvements would be expected to bring intersection No. 2 back into adequacy for Future No Build conditions:

- Add a second southbound left turn lane on SR 74; and.
- Add an exclusive eastbound left turn lane on Oakley Industrial Blvd.

Figure 6-3 shows the lane configurations and traffic control that would be required to mitigate the Future No Build deficiencies. They are the same improvements required to mitigate the Existing condition deficiencies.

8.2.2 Programmed Improvements

Table 8-1 identifies deficiencies that are expected to exist at the study intersections for Future No Build conditions. Table 8-3 identifies the impact of the improvements that have been programmed by GDOT on the Future No Build deficiencies. The Programmed Improvements are the same as the Required Improvements.

Table 8-3. Intersection LOS – Future No Build with Programmed Improvements

ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	Add a second SB left turn lane (with protected-only phasing); and add an exclusive EB left turn lane (with permitted phasing).	Signal	Overall	D	D

The projected volumes for Site Build-Out were added to the Future No Build traffic volumes to represent the total traffic expected in the area when the Site is complete. The Future Build traffic volumes are shown in Figure 9-1.

9.1 Intersection Capacity Analysis – Future Build Conditions

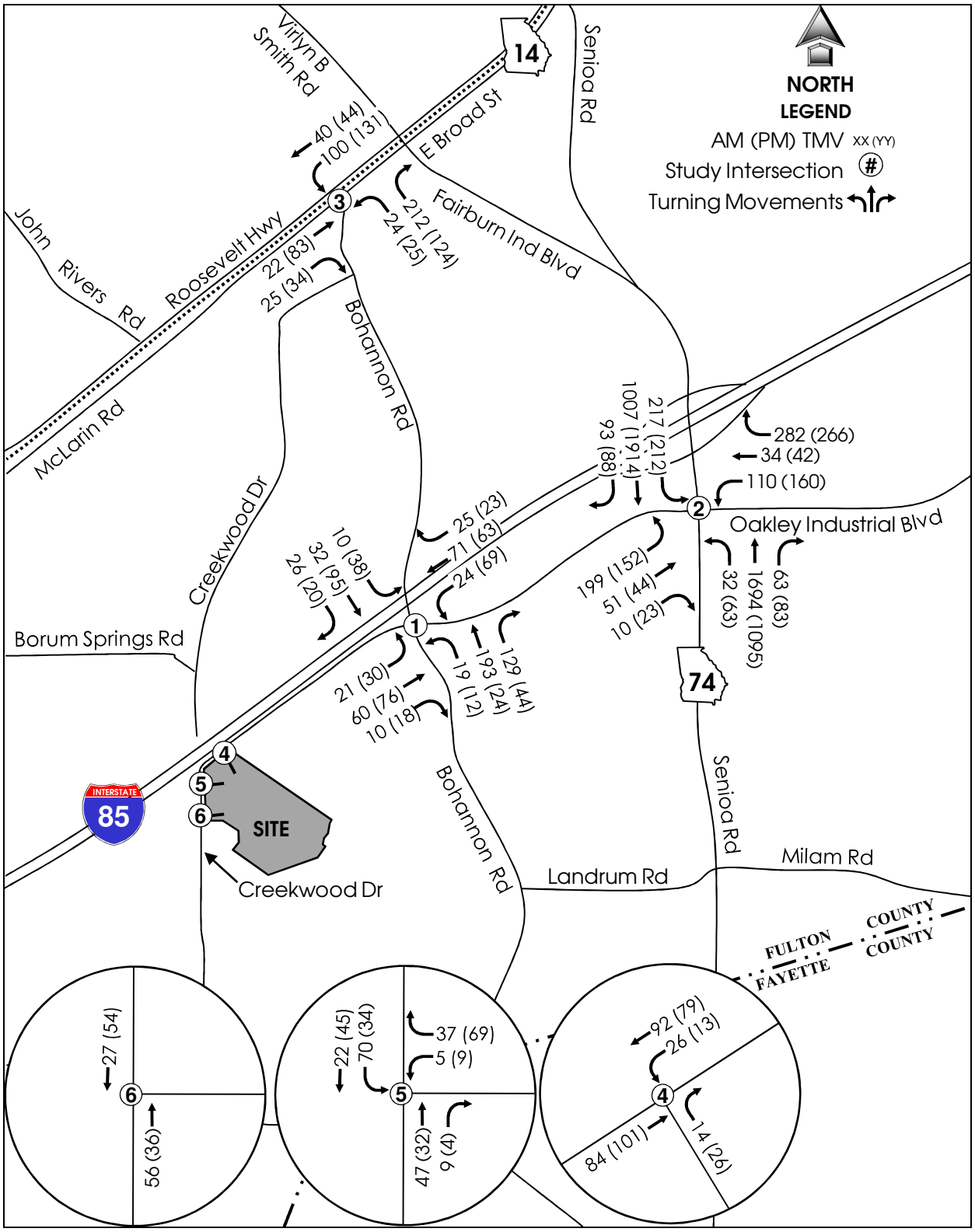
Using the methodologies previously described, intersection Levels of Service were determined for the study intersections for Future Build traffic conditions. Table 9-1 presents the results of the intersection capacity analysis for Future Build traffic conditions, but still assuming the existing lane configurations and traffic control. Printouts of these analyses are included in Appendix I.

Table 9-1. Intersection LOS – Future Build

ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
1	Oakley Industrial Blvd & Bohannon Rd	N/A	4-Way Stop	Overall	B	A
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	N/A	Signal	Overall	E	E
3	Bohannon Rd & McLarn / East Broad	N/A	Stop	NB	B	B
				WB	A	A
4	Oakley Industrial Blvd & Access Drive No. 1	N/A	Stop	NB	A	A
				WB	A	A
5	Oakley Industrial Blvd & Access Drive No. 2	N/A	Stop	NB	A	A
				WB	A	A
6	Oakley Industrial Blvd & Access Drive No. 3	N/A	Stop	NB	A	A
				WB	A	A

As can be seen from Table 9-1, all of the movements, and all of the overall intersection operations, are expected to function at adequate Levels of Service for Future Build traffic conditions, except at intersection No. 2, SR 74 (Senoia Road) at Oakley Industrial Boulevard. This intersection operates inadequately during both the morning and evening peak hours.

Figure 9-1. Future Build Traffic Volumes



9.1.1 Required Improvements

Table 9-1 identifies deficiencies that would exist at study intersection No. 2 under Future Build conditions. Improvements have been identified, that if implemented, could correct the Future Build deficiencies. These are the same improvements needed to bring Existing condition deficiencies back to adequacy. Their impacts on the Future Build deficiencies are shown in Table 9-2. Printouts of these analyses are included in Appendix G.

Table 9-2. Intersection LOS – Future Build with Required Improvements

ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	Add a second SB left turn lane (with protected-only phasing); and add an exclusive EB left turn lane (with permitted phasing).	Signal	Overall	D	D

As can be seen from Table 9-2, the following required improvements would be expected to bring intersection no. 2 back into adequacy for Future No Build conditions:

- Add a second southbound left turn lane on SR 74; and.
- Add an exclusive eastbound left turn lane on Oakley Industrial Blvd.

Figure 9-2 shows the lane configurations and traffic control that would be required to mitigate the Future Build deficiencies. They are the same improvements required to mitigate the Existing condition deficiencies.

9.1.2 Programmed Improvements

Table 9-1 identifies deficiencies that are expected to exist at the study intersections for Future Build traffic conditions. Table 9-3 identifies the impact of the improvements that have been programmed by GDOT on the Future Build deficiencies. The Programmed Improvements are the same as the Required Improvements.

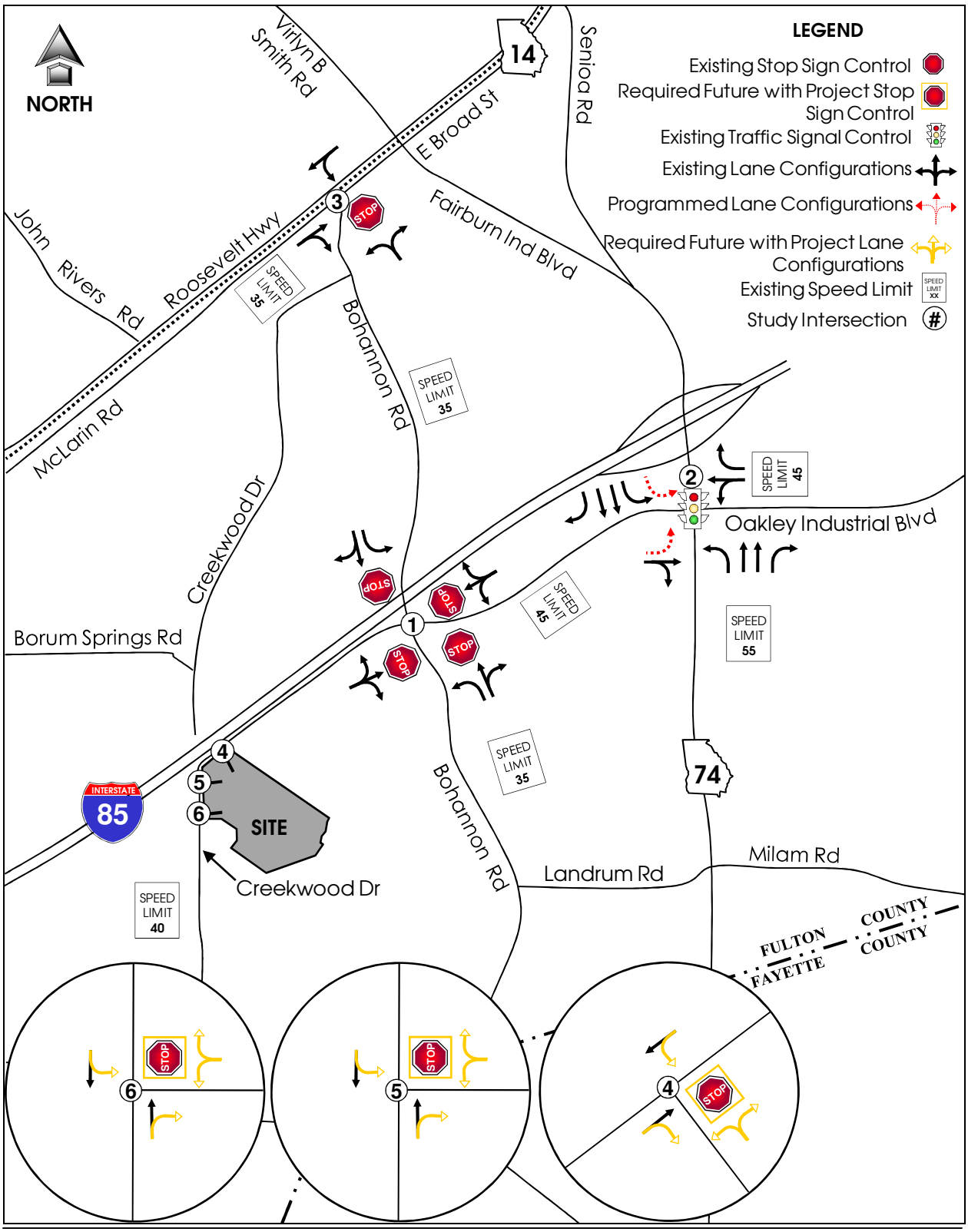
Table 9-3. Intersection LOS – Future Build with Programmed Improvements

ID	Intersection	Improvement	Control	Movement	HCM LOS	
					AM	PM
2	SR 74 (Senoia Rd) & Oakley Industrial Blvd	Add a second SB left turn lane (with protected-only phasing); and add an exclusive EB left turn lane (with permitted phasing).	Signal	Overall	D	D

9.2 Site Access Analysis

As can be seen in Table 9-1, the site access driveways operate at acceptable Levels of Service, if they are provided with the appropriate lane configurations and traffic control. See Figure 9-2 for the desired site access lane configurations and traffic control.

Figure 9-2. Future Build – Required Intersection Improvements



10. GRTA / ARC DRI REVIEW CRITERIA

10.1 Introduction

Part of the GRTA / ARC Review Package for DRI's includes addressing GRTA and ARC DRI Review Criteria contained in the *GRTA/ARC DRI Checklist*, March, 2009, and its companion, *GRTA DRI Review Checklist – User's Guide*, May 2008, with updates. That document is a part of the overall submittal, but is not contained in the Report.

EXPLANATION OF LEVEL OF SERVICE

Capacity analyses of the study intersections were completed using procedures in the Transportation Research Board's Highway Capacity Manual (HCM), 2000. This is the usual methodology for the analysis of traffic conditions. The software program Synchro 6 (a nationally recognized computer software package for analyzing capacities and Levels of Service) was used to perform the capacity analyses for the study intersections.

Levels of Service for signalized intersections are reported in composite fashion, i.e., one LOS for the entire intersection, and are presented in terms of average control delay. Individual turning movements at signalized intersections may experience inadequate LOS, even when those volumes are relatively low, while the intersection as a whole has an adequate LOS. This is because the major movements on the major roadway are given priority in assigning signal green time.

Traffic conditions at unsignalized intersections, with stop sign control on the minor street only, are evaluated for the minor street approach(es) and for the left turns from the major street. This is because the major street traffic is assumed to have no delay since there is no control (no stop sign). Inadequate Levels of Service for minor street approaches to unsignalized intersections are not uncommon, as the continuous flow traffic will always get the priority. For two-way stop controlled intersections, the *Highway Capacity Manual* does not calculate a composite Level of Service for the entire intersection.

Levels of Service for all-way STOP controlled intersections are reported both for study intersection movements, and in composite fashion, i.e., one LOS for the entire intersection, and are based on average control delay.

The *Highway Capacity Manual* Level of Service criteria for signalized and unsignalized intersections are shown in the following table.

Highway Capacity Manual Intersection LOS Criteria

Level of Service	Control Delay (seconds per vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	> 80	> 50

Source: Highway Capacity Manual, 2000.

Appendix A – Trip Generation Worksheets

Appendix B – Peak Hour Turning Movement Counts and 24-Hour Traffic Volume and Classification Counts

Appendix C – Capacity Analyses: Existing Conditions

Appendix D – Capacity Analyses: Existing Conditions with Improvements

Appendix E – Capacity Analyses: Future No Build Conditions

Appendix F – Capacity Analyses: Future No Build Conditions with Improvements

Appendix G – Capacity Analyses: Future Build Conditions

Appendix H – Capacity Analyses: Future Build Conditions with Improvements