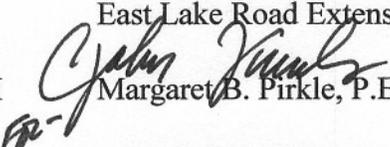


D.O.T. 66

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** P. I. No. 0004645, Henry County **OFFICE** Preconstruction  
MSL-0004-00(645)  
East Lake Road Extension-Phase 2 **DATE** August 3, 2005

**FROM**  Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

**TO** SEE DISTRIBUTION

**SUBJECT APPROVED PROJECT CONCEPT REPORT**

Attached for your files is the approval for subject project.

MBP/cj

Attachment

DISTRIBUTION:

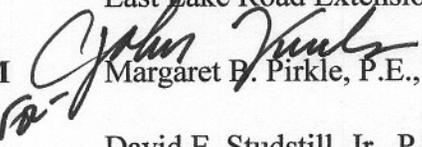
- Brian Summers
- Harvey Keepler
- Ken Thompson
- Jamie Simpson
- Michael Henry
- Keith Golden
- Joe Palladi (file copy)
- Paul Liles
- Babs Abubakari
- Thomas Howell
- BOARD MEMBER

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

---

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** P.I. No. 0004645, Henry County **OFFICE** Preconstruction  
MSL-0004-00(645)  
East Lake Road Extension-Phase 2 **DATE** July 20, 2005

**FROM**  Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

**TO** David E. Studstill, Jr., P.E., Chief Engineer

**SUBJECT** PROJECT CONCEPT REPORT

This project comprises the East Lake Road Extension, Phase 2, from Springdale Road to SR 155. Henry County currently has a new location project from Eagles Landing Parkway at SR 42 to Springdale Road. This project will begin at Springdale Road where the Henry County project ends and continues on new location to SR 155 at East Lake Road.

Henry County currently has no major east-west corridors to the Kellytown area from Eagles Landing and I-75. The connection is needed to provide access to Henry General Hospital from the eastern portion of the county and an east-west corridor to the Kellytown area from Eagles Landing and I-75. This project, in conjunction with the widening of Eagles Landing Parkway and the Henry County East Lake Road, Phase 1, will provide a continuous four lane facility from I-75 to SR 155. Base year traffic (2007) is 9,450 VPD and the design year (2027) traffic is 20,850 VPD.

The proposed roadway will be approximately 2.0 miles on mostly new location with a four-lane typical section with a 20' raised median and rural 10' shoulders (6.5' of the shoulders are paved and include rumble strips). The paved shoulder behind the rumble strips will be used for a bike lane. Access will be controlled by permit and the proposed speed design is 45 MPH. Traffic will be maintained on existing roads during construction.

Environmental concerns include requiring a COE 404 Permit; a Programmatic Section 4(f) evaluation will be required; a public hearing open house is not required; time saving procedures are appropriate.

The estimated costs for this project are:

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C and inflation)	\$6,800,000	\$6,800,000	RRB	2007
Right-of-Way & Utilities*	Local	Local	RRB	2006

David Studstill

Page 2

P. I. No. 0004645, Henry

July 20, 2005

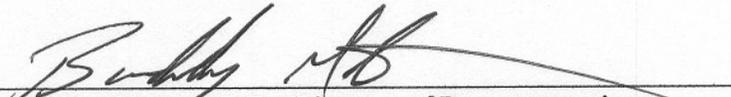
\*Henry County signed PMA on 10-7-03 for PE, right-of-way, utilities and 20% of construction costs.

I recommend this project concept be approved.

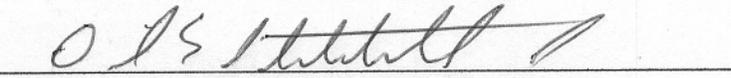
MBP:JDQ/cj

Attachment

CONCUR

  
Buddy Gratton, P.E., Director of Preconstruction

APPROVE

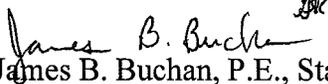
  
David E. Studstill, Jr., P.E., Chief Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

---

**INTERDEPARTMENTAL CORRESPONDENCE**

**FILE** MSL-004-00(645)), Henry County **OFFICE** Urban Design  
East Lake Road Extension from Springdale Road to  
SR 155 – Phase 2  
P.I. No. 0004645 **DATE** June 24, 2005

**FROM**   
James B. Buchan, P.E., State Urban Design Engineer

**TO** Meg Pirkle, P.E., Assistant Director of Preconstruction

**SUBJECT** **Project Concept Report Submittal for Approval**

Transmitted herewith for your review and approval is the Project Concept Report for the proposed extension of East Lake Road located in Henry County.

Please take the necessary steps to process this document through the Department's Project Development Process.

If you have any questions concerning this report, please contact Jan Hilliard or Teresa Lannon at 404-656-5441.

JBB: JCH  
Attachments

*Distribution w/Attachments:*

Brian Summers, P.E.  
Harvey Keepler  
Keith Golden, P.E.  
Joseph P. Palladi, P.E.  
Jamie Simpson  
Thomas B. Howell, Jr., P.E.

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

*Office of Urban Design*

**PROJECT CONCEPT REPORT**

Project Number: MSL-0004-00(645)

County: Henry

P. I. Number: 0004645

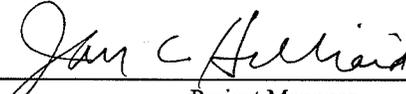
Federal Route Number: N/A

State Route Number: N/A

Recommendation for approval:

DATE 6-24-05

DATE 6-24-05

  
\_\_\_\_\_  
Project Manager

  
\_\_\_\_\_  
State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Financial Management Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
District Engineer

DATE \_\_\_\_\_

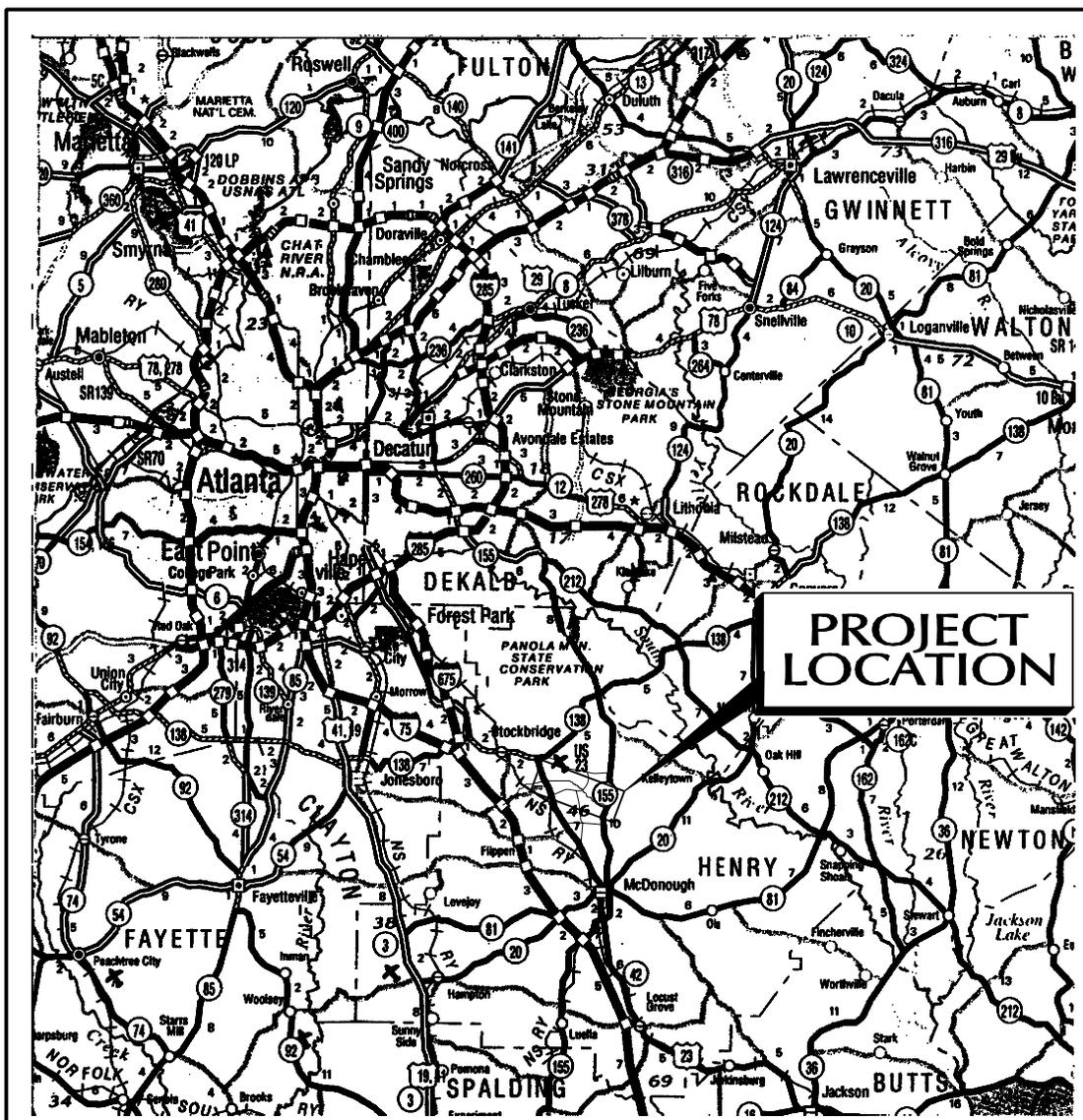
\_\_\_\_\_  
Project Review Engineer

# LOCATION MAP

## Project Number MSL-0004-00(645)

### Henry County

### P.I. Number 0004645



### **Need and Purpose:**

Henry County currently has no major East-West corridors to the Kelleytown Area from Eagles Landing and I-75. The connection is needed to provide access to Henry General Hospital from the eastern portion of the County and an East-West corridor to the Kelleytown Area from Eagles Landing and I-75.

The purpose of this project is for it to work in conjunction with another project to provide this connection. Henry County currently has a new location project from Eagles Landing Parkway at SR 42 to Springdale Road. This project will pick up at Springdale Road where the Henry County project ends and continue on new location to SR 155 at East Lake Road.

This project will provide the County a major East-West corridor and also add relief to other roads in the area. The projected Average Daily Traffic (ADT) for this project is 9,450 vehicles for the base year 2007 and 20,850 vehicles for the design year 2027.

### **Description of the Proposed Project:**

The proposed roadway would be approximately 2.0 miles on mostly new location with a 4-lane typical section, with a 20-foot raised median and rural 10-foot shoulders. 6.5 feet of the shoulders are paved and include rumble strips. The paved shoulder behind the rumble strips would be used for a bike lane. The project is located in Henry County east of the city of Stockbridge. A 45 mile per hour speed design is proposed and the road will meet current AASHTO guidelines.

The project begins on Springdale Road at a point in which the proposed Henry County project for the East Lake Extension ends. From there, the alignment curves southeast and joins existing Wolf Creek Drive approximately 700 feet east of the Springdale Drive intersection. It then follows the Wolf Creek Drive alignment for approximately 1200 feet, while fronting two homes and crossing Wolf Creek. Neither of these homes would have to be acquired, although parts of the right-of-way would encroach into their front yards.

At the point that existing Wolf Creek Drive curves due east to enter the Henry County Water Authority property, the alignment would continue south, and then curve east immediately north of the Georgia Power Easement. Prior to crossing the easement, the alignment would encroach into the southwest corner of the Water Authority's Spray Field #2, requiring about 0.9 acres. The alignment continues east for approximately 500 feet and then curves south-southwest through the easement, avoiding the electrical towers.

South of the Georgia Power Easement, the alignment continues in a south-southeast direction for approximately 2200 feet, through wooded, undeveloped land. In this section it crosses two unnamed creeks before curving east to meet existing Price Quarters Road approximately 1000 feet from its intersection with SR155. The alignment then continues along existing Price Quarters Road, before terminating at the existing intersection with S.R. 155. This project will also include improvements to the intersection to S.R. 155 which include adding additional left turn lanes to S.R. 155 in each direction and adding a lane to Eastlake Drive which will be dropped as a turn lane into the school driveway.

Other projects in the area include the widening of Eagles Landing Parkway from I-75 to SR 42 from 2 lanes to 4 lanes, STP-0002-00(638), and the Henry County East Lake Road Extension Phase I project. All of these projects combined will form one continuous 4 lane facility from I-75 to Springdale Drive.

Is the project located in a Non-attainment area?  Yes  No

PDP Classification: Major  Minor

Federal Oversight: Full Oversight ( ), Exempt ( ), State Funded(X), or Other ( )

Functional Classification: Rural Principal Arterial

U. S. Route Number(s): N/A State Route Number(s): N/A

**Traffic (AADT):**

Current Year: (2007) 9,450 Design Year: (2027) 20,850

**Existing design features:**

- No existing facility

**Proposed Design Features:**

- Proposed typical section(s): Four-lanes with 20-foot raised median and rural drainage and 6-foot bike shoulders
- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline 5.67 % Maximum grade allowable 6 %.
- Proposed Maximum grade Side Street 4.9 % Maximum grade allowable 15 %.
- Proposed Maximum grade driveway 12% residential, 11% commercial
- Proposed Minimum radius of curve 730 feet min  
Minimum radius allowable: 730 feet (using 4.0 e-max).
- Right of way
  - Width: 150 feet
  - Easements: Temporary (X), Permanent (X), Utility ( ), Other ( ).
  - Type of access control: Full ( ), Partial ( ), By Permit (X), Other ( ).
  - Number of parcels: approx. 29 Number of displacements:
    - Business: 0
    - Residences: 0
    - Mobile homes:
    - Other:
- Structures:
  - Bridges: None expected
  - Retaining walls: None expected
- Major intersections: SR 155
- Traffic control during construction: Construction is mostly on new alignment, staging will be required in the area of Wolf Creek Drive. Traffic is to be maintained on cross roads during construction.

- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	()	()	(X)
ROADWAY WIDTH:	()	()	(X)
SHOULDER WIDTH:	()	()	(X)
VERTICAL GRADES:	()	()	(X)
CROSS SLOPES:	()	()	(X)
STOPPING SIGHT DISTANCE:	()	()	(X)
SUPERELEVATION RATES:	()	()	(X)
HORIZONTAL CLEARANCE:	()	()	(X)
SPEED DESIGN:	()	()	(X)
VERTICAL CLEARANCE:	()	()	(X)
BRIDGE WIDTH:	()	()	(X)
BRIDGE STRUCTURAL CAPACITY:	()	()	(X)

- Design Variances; None expected at this time.
- Environmental concerns: - Potential wetlands, no Archeology anticipated.
- Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes ( ), No (x),
  - Checklist B (x),
  - Environmental Effects Report/Notice of Decision (NOD) ( ), or
  - Environmental Impact Statement (EIS) ( ).
- Utility involvements:
  - Georgia Power – Randy Jones 678-432-2069
  - Georgia Transmission – Tony Pritchett 770-270-7511
  - Henry Co Water Authority – Tony Carnell 770-914-3359
  - Snapping Shoals EMC – Guy Williams 770-385-2877
  - Danella Engr. (AT&T) – Gary Vance 404-432-0362

**Project responsibilities:**

- Design, Henry County
- Right of Way Acquisition, Henry County
- Relocation of Utilities, Henry County
- Letting to contract, Henry County
- Supervision of construction, Henry County
- Providing material pits, Contractor
- Providing detours, Henry County / Contractor

**Coordination**

- Initial Concept Team Meeting was held May 28, 2004. Minutes attached.
- Concept Team meeting was held August 3, 2004. Minutes attached.
- Public Open House was held March 10, 2005. A total of 190 people attended, of which 33 comment forms, no letters, and one verbal statement were received. An additional 19 comments were received during the ten-day comment period for a total of 53 comments. They are summarized as follows:

Opposed – 5      In Support – 36      Uncommitted – 1      Conditional – 11

The major concerns were the consideration of more median cuts from Price Quarters Road to SR 155 to provide access to residences and businesses, the inclusion of a stop sign or traffic signal at the intersection of Springdale Road, and to start the project as soon as possible because it is long overdue.

The result from the comments was that Henry County is to conduct a traffic study to examine the best location for an additional median break between Price Quarters Road and SR155. The inclusion of the traffic signal at Springdale Road is already included with this project, so there was no need to address that comment.

- Other projects in the area.  
Henry County Eastlake Drive Extension from SR42 to Springdale Drive

**Scheduling – Responsible Parties’ Estimate\*:**

- Time to complete the environmental process: 5 Months.
- Time to complete preliminary construction plans: 5 Months.
- Time to complete right of way plans: 1 Months.
- Time to complete the Section 404 Permit: 3 Months.
- Time to complete final construction plans: 8 Months.
- Time to complete to purchase right of way: 12 Months.

\* Note: These activities are to be done concurrently where possible.

**Other alternatives considered:**

1. No-build
2. 1 alignment alternative

While developing alternate alignments, the following criteria were examined:

- Develop horizontal and vertical alignment which conforms to design speed of 45 MPH,
- Minimize the acquisition of existing buildings,
- Minimize the number of stream crossings / keep crossings at 90 degrees,
- Intersect Springdale Drive at a location which avoids the Central Baptist Church site
- Minimize impacts on spray fields, currently being developed by the Henry County Water and Sewage Authority.

The alternative alignment considered did not utilize the Right-of-way on Wolf Creek Drive. Instead, the alignment went behind the houses on the south side of the road. The alignment also approached Price Quarters Road straight on instead from the south. This alternative has not been considered further because of the R/W and property impact on Wolf Creek Drive (potentially 4 relocations), and longitudinal stream and wetland impacts near Price Quarters Road.

**Comments:**

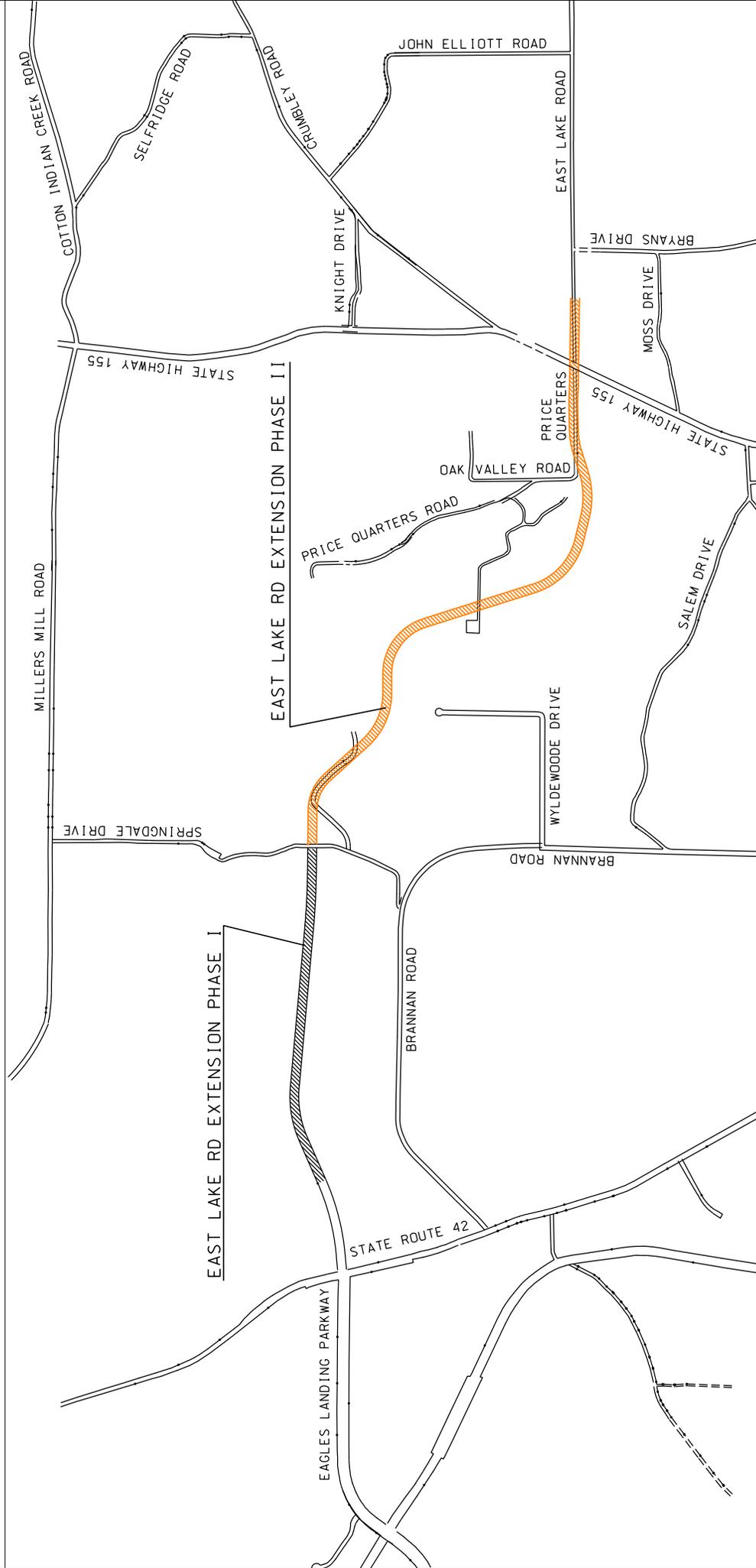
**Attachments:**

- Location Sketch
- Typical Sections
- Concept Layout
- Traffic study w/ traffic diagrams
- Minutes of Initial Concept Team Meeting
- Minutes of Concept Meeting
- Cost Estimate

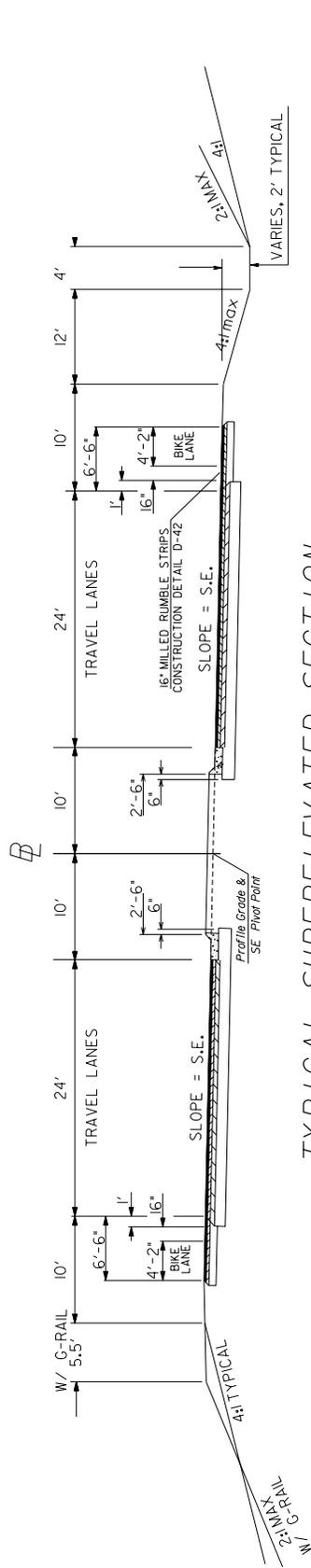
## SCORING RESULTS AS PER TOPPS 2440-2

<b>Project Number:</b> MSL-0004-00(645)		<b>County:</b> Henry		<b>PI No.:</b> 0004645		
<b>Report Date:</b>						
<b>Concept By:</b>						
DOT Office:						
<input type="checkbox"/> CONCEPT						
Consultant: Qk4						
<b>Project Type:</b> Choose One From Each Column		<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural	<input type="checkbox"/> ATMS <input type="checkbox"/> Bridge <input type="checkbox"/> Building <input type="checkbox"/> Interchange <input type="checkbox"/> Intersection <input type="checkbox"/> Interstate <input checked="" type="checkbox"/> New Location <input type="checkbox"/> Widening & Reconstruction <input type="checkbox"/> Miscellaneous		
<b>FOCUS AREAS</b>	<b>SCORE</b>	<b>RESULTS</b>				
<b>Presentation</b>						
<b>Judgement</b>						
<b>Environmental</b>						
<b>Right of Way</b>						
<b>Utility</b>						
<b>Constructability</b>						
<b>Schedule</b>						

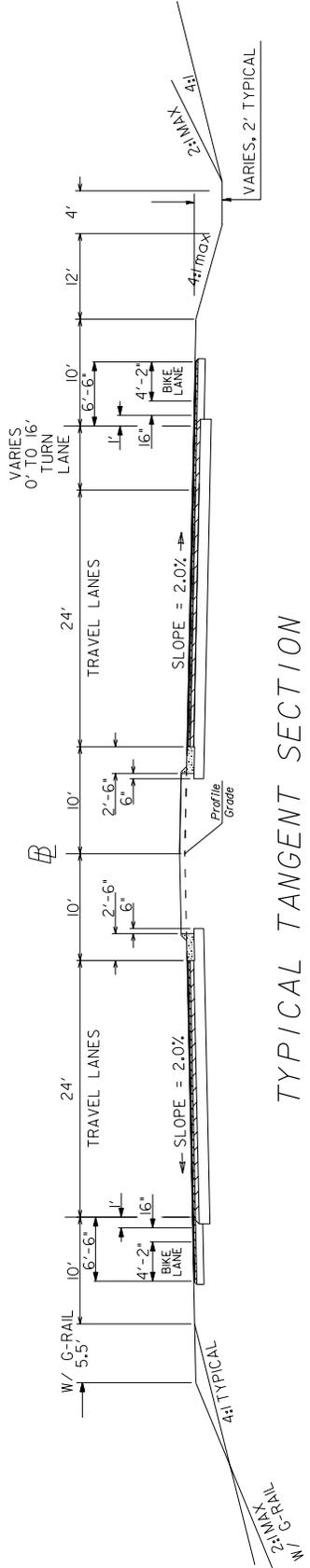
# ***EAST LAKE ROAD EXTENSION PHASE II from Springdale Drive to East Lake Road***



**TYPICAL SECTION**  
**Project Number MSL-0004-00(645)**  
**Henry County**  
**P.I. Number 0004645**



SEE PLAN SHEETS FOR SUPERELEVATION LOCATIONS





*Traffic Study*

# **East Lake Road Extension Henry County, Georgia**

*Prepared for:*  
Henry County

*Prepared by:*  
Kimley-Horn and Associates, Inc.  
Norcross, Georgia

©Kimley-Horn and Associates, Inc.  
April 2004  
015855002

**DRAFT**



### TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 DATA COLLECTION.....	1
3.0 BASE YEAR 2007 TRAFFIC ANALYSIS .....	2
3.1 Level of Service .....	3
3.2 East Lake Extension Analysis .....	4
4.0 DESIGN YEAR 2027 TRAFFIC ANALYSIS.....	5
4.1 Future Development.....	5
4.2 Roadway/Intersection Laneage Recommendations .....	5
4.3 Level of Service .....	6
4.4 East Lake Road Extension Analysis.....	7
5.0 CONCLUSION.....	7
5.1 General Recommendations .....	8

### APPENDIX

## TABLE OF CONTENTS

		<b>Page</b>
1.0	INTRODUCTION.....	1
2.0	DATA COLLECTION.....	1
3.0	BASE YEAR 2007 TRAFFIC ANALYSIS .....	2
3.1	Level of Service .....	3
3.2	East Lake Extension Analysis .....	4
4.0	DESIGN YEAR 2027 TRAFFIC ANALYSIS .....	5
4.1	Future Development.....	5
4.2	Roadway/Intersection Laneage Recommendations .....	5
4.3	Level of Service .....	6
4.4	East Lake Road Extension Analysis.....	7
5.0	CONCLUSION.....	7
5.1	General Recommendations .....	8

## APPENDIX

**LIST OF FIGURES**

	<u>Following Page</u>
Figure 1: Project Location .....	1
Figure 2: Base Year 2007 Traffic Volumes .....	2
Figure 3: Design Year 2027 Traffic Volumes .....	5

**LIST OF TABLES**

	<u>Page</u>
Table 1: ADT for Eagles Landing Parkway .....	2
Table 2: Level of Service Summary, Base Year 2007, Signalized Intersections .....	3
Table 3: Level of Service Summary, Base Year 2007, Unsignalized Intersections .....	4
Table 4: Level of Service Summary, Base Year 2007, East Lake Road Extension .....	4
Table 5: Level of Service Summary, Design Year 2027, Signalized Intersections .....	7
Table 6: Level of Service Summary, Design Year 2027, East Lake Road Extension .....	7

## 1.0 INTRODUCTION

Eagles Landing Parkway is a two-lane roadway located in central Henry County that is oriented in an east-west direction between Interstate 75 (Exit 224) and SR 42. Eagles Landing Parkway is scheduled to be widened to a four-lane roadway by the year 2007. In addition to being widened, Eagles Landing Parkway will be extended approximately 3 miles in an east-west direction to/from the signalized intersections of Eagles Landing Parkway/SR 42 and SR 155/East Lake Road. The proposed extension (East Lake Road Extension) will form a new intersection with Springdale Drive, which is located approximately 1.4 miles east of SR 42 and is developed with residential homes.

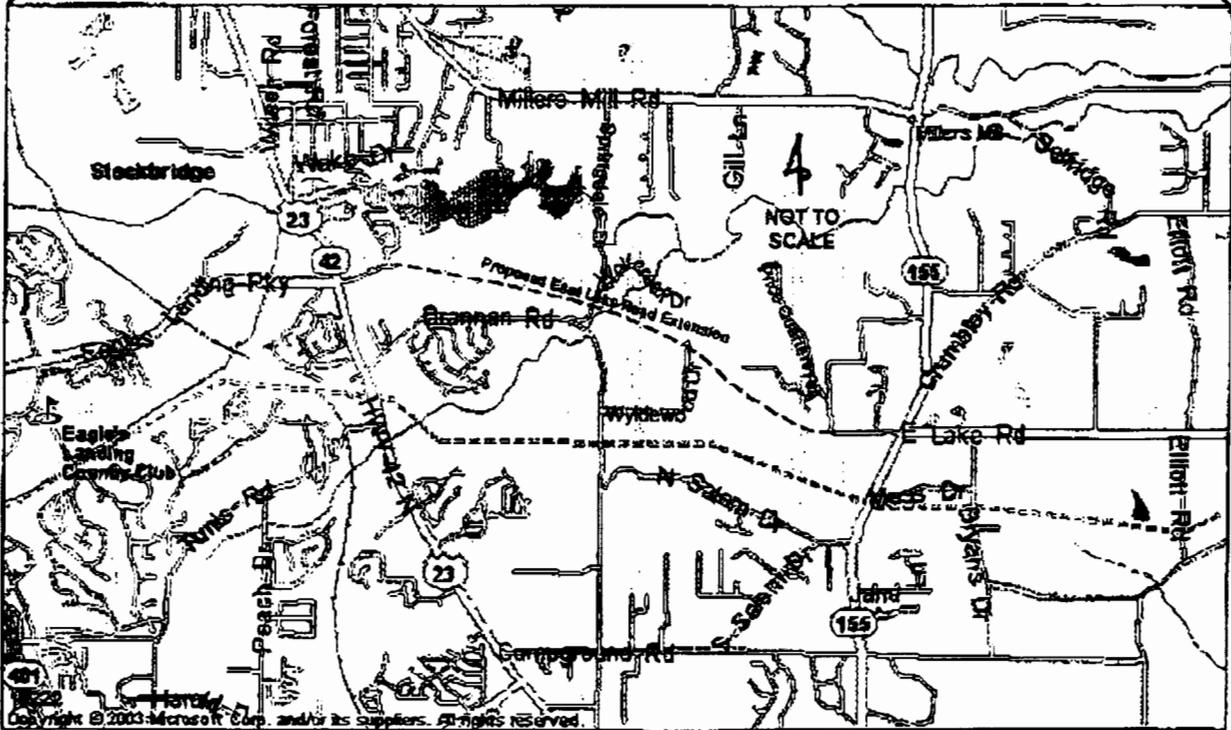
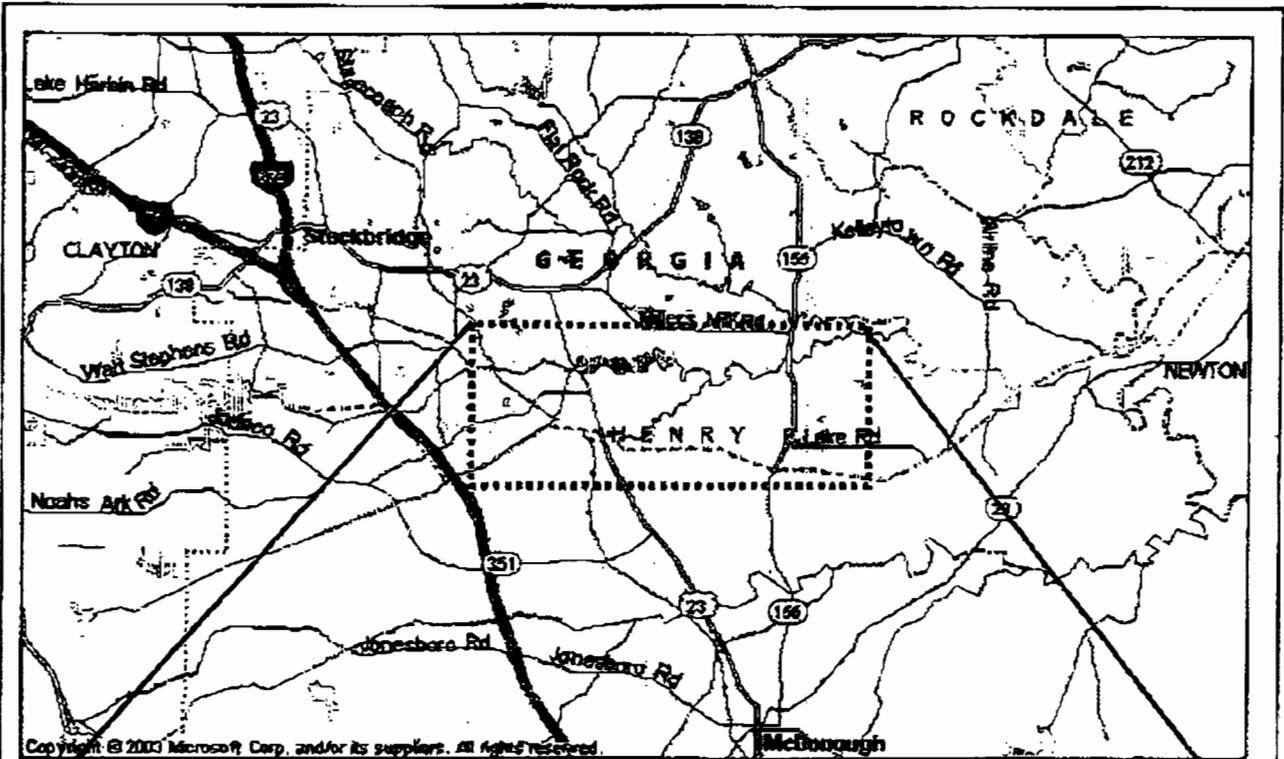
East Lake Road Extension is planned to be constructed (base year) by year 2007 with a 2027 design year. Figure 1 illustrates the location of the proposed project location. The proposed intersections of East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Drive were evaluated under projected base year 2007 and projected design year 2027 traffic conditions. Additionally, the proposed East Lake Road Extension was evaluated under base year 2007 and design year 2027 traffic conditions. For purposes of this report, level of service (LOS) D or better was considered to be an acceptable LOS and the 24-hour average daily traffic volume criterion to warrant construction of a four-lane roadway was 12,000 vehicles a day.

This report summarizes the data collection, analysis of projected traffic conditions, and conclusions from the analysis.

## 2.0 DATA COLLECTION

Vehicle turning movement volume counts were collected at eight intersections, within the vicinity of the proposed extension study area, during the AM peak and PM peak hours to quantify existing peak hour traffic conditions and patterns. The counts were collected at the following intersections:

- Eagles Landing Parkway/SR 42
- SR 42/Millers Mill Road
- Millers Mill Road/Springdale Drive
- SR 155/Millers Mill Road
- SR 155/East Lake Road
- SR 155/Campground Road
- SR 42/Campground Road
- SR 42/Brannan Road



**East Lake Road Extension  
Traffic Study**

**Project  
Location**

**Figure  
1**

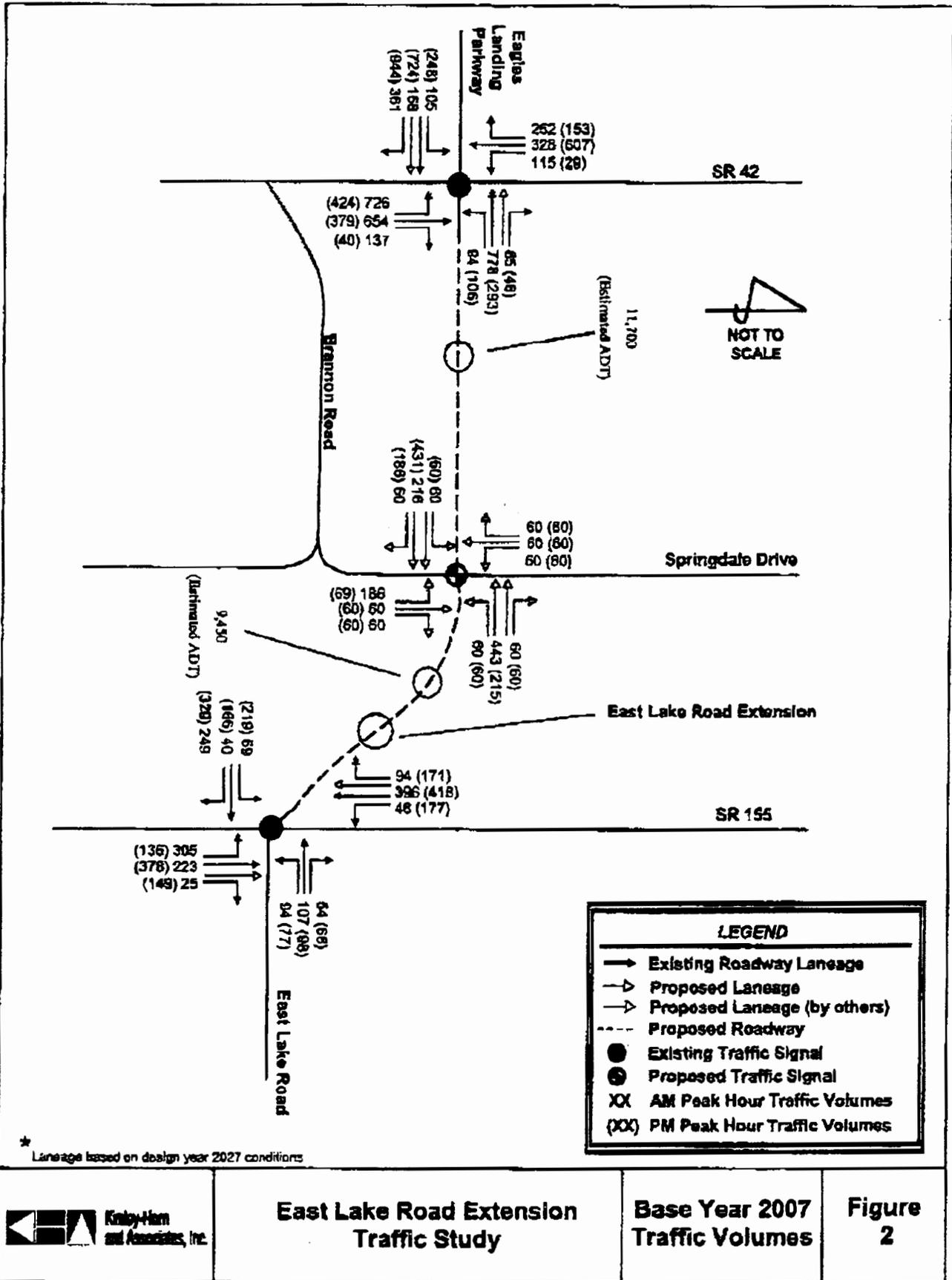
A 24-hour automatic tube count was conducted on Eagles Landing Parkway just west of SR 42 on Thursday, February 19, 2004 and recorded 20,202 vehicles (10,155 westbound and 10,047 eastbound). Table 1 summarizes ADT recorded by Georgia Department of Transportation (GDOT) Count Station 0398 from 1999-2002 located just west of SR 42 along Eagles Landing Parkway. The 2003 ADT was an average from the 2004 tube-count and 2002 GDOT recorded ADT count. The average growth rate per year over the past 7 years (1997-2004) on Eagles Landing Parkway was calculated to be approximately 6.8% per year. Additional GDOT Count Stations were researched in the vicinity of proposed extension. The 5-year growth rate (1997-2002) along East Lake Road, Millers Mill Road, Campground Road, and SR 42 ranged from 5.6% to 39.1% per year.

YEAR	Average ADT
2004	20,202 - from tube count
2003	20,659
2002	21,116
2001	20,611
2000	18,965
1999	17,502
1998	16,876
1997	13,122

The raw counts are provided in the Appendix.

### 3.0 BASE YEAR 2007 TRAFFIC ANALYSIS

The proposed East Lake Road Extension is expected to be constructed by the year 2007. Base year 2007 traffic conditions were analyzed for the intersections of East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Road and the proposed four-lane roadway of East Lake Road Extension. The existing 2004 peak hour traffic volumes were increased at 6% per year for 3 years to account for background growth in traffic and were reassigned to utilize the proposed East Lake Road Extension based on existing traffic flow patterns. Figure 2 illustrates the base year 2007 traffic conditions for the AM and PM peak periods. It should be noted that recommended laneage as well as the proposed signalization of East Lake Road Extension/Springdale Drive intersection is based on design year 2027 traffic volumes.



### 3.1 Level of Service

Level of service determinations were made for the weekday AM and PM peak hours for the East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Drive intersections. Intersection laneage was based on design year 2027 traffic conditions. Both signalized and unsignalized analyses were performed using *Synchro Professional, Version 5.0* (signalization optimization and analysis program).

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 with a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst. Copies of the intersection capacity analyses are included in the Appendix.

Table 2 summarizes the levels of service and delay in seconds (per vehicle) for the intersections of East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Drive. Both intersections are projected to operate at a LOS B in the AM and PM peak periods.

Table 2 Level of Service Summary, Base Year 2007 Signalized Intersections		
Intersection	Overall LOS (Delay in Seconds)	
	AM Peak	PM Peak
East Lake Road Extension/SR 155	B (17.6)	B (17.9)
East Lake Road Extension/Springdale Drive	B (13.0)	B (13.0)

The intersection of East Lake Road Extension/Springdale Drive will need to be a signalized intersection to accommodate projected design year 2027 traffic volumes. Under projected base year 2007 traffic conditions the intersection is expected to meet only the peak hour traffic signal warrant. Therefore, the East Lake Road Extension/Springdale Drive intersection was also analyzed as an unsignalized intersection under base year 2007 traffic conditions. At unsignalized intersections, the critical movement is the minor street approach and its operation with the mainline free-flow traffic. Table 3 summarizes the level of service and control delay (seconds per vehicle) for the unsignalized East Lake

Road Extension/Springdale Drive intersection. The northbound Springdale Drive approach is projected to operate at LOS F during the AM peak hour and LOS E during the PM peak hour. The LOS F is a common occurrence at an unsignalized intersection during the peak hours as side street traffic may find it difficult to turn left onto a major roadway.

Table 3 Level of Service Summary, Base Year 2007 Unsignalized Intersection		
Approach	Approach LOS (Approach Delay in Seconds)	
	AM Peak	PM Peak
Springdale Drive (Northbound Approach)	F (129.8)	E (36.9)
Springdale Drive (Southbound Approach)	D (31.7)	D (29.4)

### 3.2 East Lake Road Extension Analysis

The projected ADT along East Lake Road Extension for base year 2007 traffic conditions is approximately 11,700 vehicles between SR 42 and Springdale Drive and 9,450 vehicles between Springdale Drive and SR 155. The East Lake Road Extension was analyzed as a four-lane roadway under base year 2007 AM and PM peak hour traffic conditions using *Highway Capacity Software* (HCS) multi-lane analysis. The HCS multi-lane analysis determines peak hour LOS by the peak hour density (passenger cars/mile/lane) by direction. The peak hour traffic volumes used in the analysis were from the section of roadway just east of SR 42. This section of East Lake Road Extension is projected to carry the heaviest volume. Table 4 summarizes the results of the multi-lane roadway analysis for East Lake Road Extension under base year 2007 traffic conditions. As a four-lane divided roadway, the East Lake Road Extension is projected to operate at LOS A in both the eastbound and westbound directions during the AM and PM peak hours.

Table 4 Level of Service Summary, Base Year 2007 East Lake Road Extension (Four-Lane Roadway)		
Roadway	Overall LOS	
	AM Peak	PM Peak
East Lake Road Extension, Westbound	A (11.0 pc/mi/ln)	A (4.7 pc/mi/ln)
East Lake Road Extension, Eastbound	A (4.8 pc/mi/ln)	A (9.1 pc/mi/ln)

## 4.0 DESIGN YEAR 2027 TRAFFIC ANALYSIS

The projected design year 2027 traffic conditions were analyzed for the intersections of East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Road and the proposed four-lane roadway of East Lake Road Extension. The base year 2007 peak hour traffic volumes were increased at 3% per year for 20 years to account for background growth in traffic. Figure 3 illustrates the projected design year 2027 traffic conditions and recommended roadway laneage to achieve LOS D or higher for the AM and PM peak periods

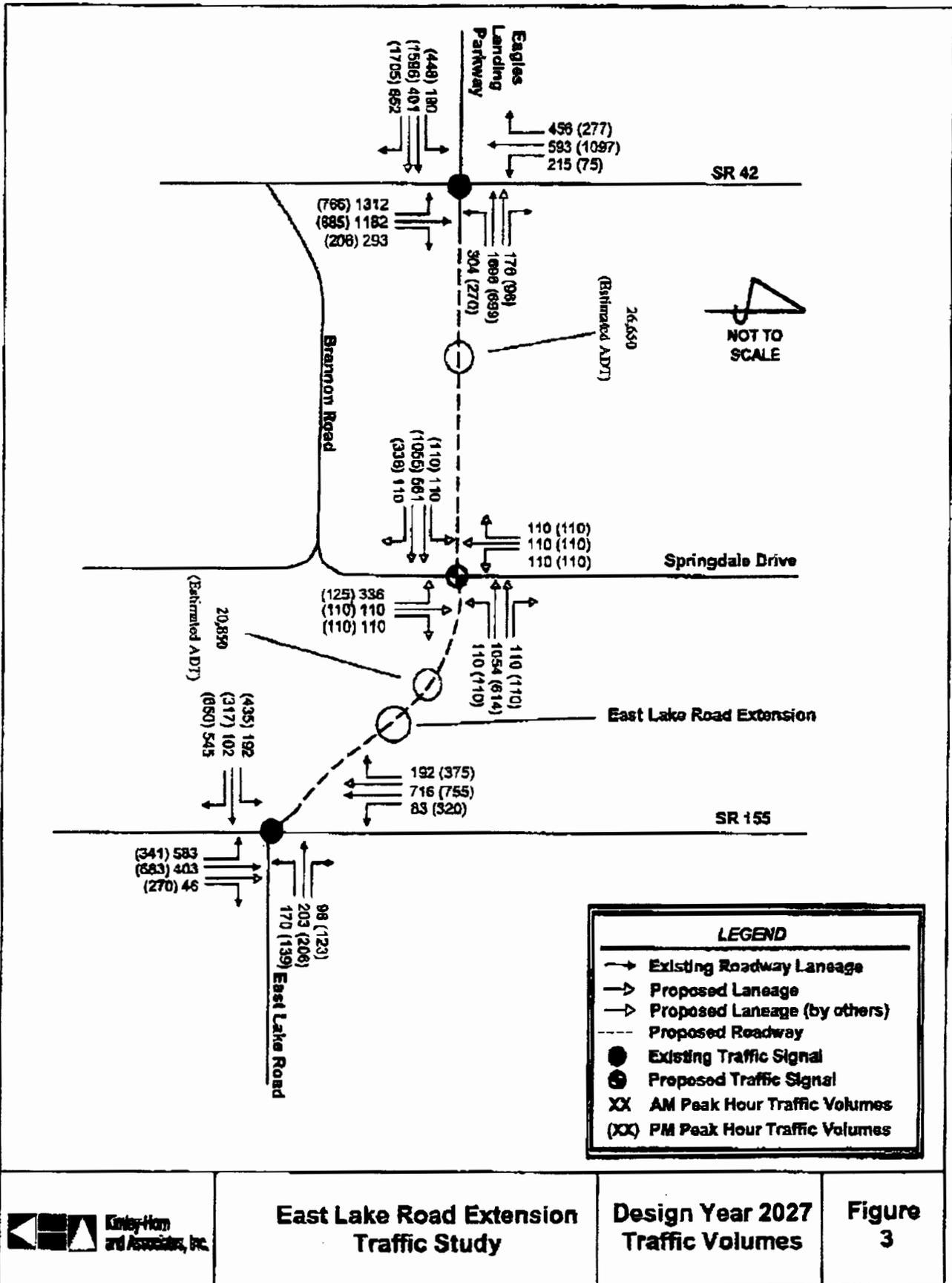
### 4.1 Future Development

In addition to background growth in existing traffic, development will occur along the proposed East Lake Road Extension, which will add traffic volumes onto the new proposed East Lake Road Extension. According to Henry County's *Future Land Use Map*, the land that East Lake Road Extension will cross is zoned low density residential (1.25-2.5 dwellings per acre). Additionally, the land adjacent to the proposed intersections of East Lake Road Extension/SR 42 and East Lake Road Extension/SR 155 is zoned commercial. For purposes of this report, it was determined that 1,200 single-family homes would be developed along East Lake Road Extension with 600 homes between SR 42 and Springdale Drive and 600 homes between Springdale Drive and SR 155. Trips generated by the projected 1,200 single-family homes in the AM and PM peak hours were assigned to the roadway network and are incorporated as part of the design year 2027 traffic volumes. These added trips are in addition to the 3% per year growth. The projected trips generated onto East Lake Road Extension by the commercial development at the East Lake Road Extension/SR 42 and East Lake Road Extension/SR 155 intersections was considered part of the 3% background growth in traffic applied to the base year 2007 traffic volumes.

### 4.2 Roadway/Intersection Laneage Recommendations

The projected design year 2027 roadway and intersection laneage recommendations were proposed to achieve LOS D or better during the AM and PM peak hours.

The East Lake Road Extension should be a four-lane roadway from SR 42 to SR 155. The projected ADT along East Lake Road Extension for design year 2027 traffic conditions is approximately 26,650 vehicles between SR 42 and Springdale Drive and 20,850 vehicles between Springdale Drive and SR 155. The ADT criteria established for this report to warrant a four-lane roadway is 12,000 vehicles a



day. East Lake Road, east of SR 155 should remain a two-lane roadway.

At the four-legged signalized intersection of East Lake Road Extension/SR 155, the eastbound East Lake Road Extension approach should have an exclusive left-turn lane, one through lane, and dual right-turn lanes. The eastbound outside through lane of the proposed East Lake Road Extension should become a right-turn lane at its intersection with SR 155. The existing westbound East Lake Road approach should remain as an exclusive left-turn lane, one through lane, and an exclusive right-turn lane. SR 155 at its intersection approach, both northbound and southbound, with East Lake Road currently has exclusive left-turn lanes, single through lanes, and exclusive right-turn lanes. In order to achieve LOS D under 2027 design year traffic conditions, SR 155 at its intersection with East Lake Road Extension would need to be a four-lane roadway with two through lanes northbound and southbound.

At the new four-legged signalized intersection of East Lake Road Extension/Springdale Drive the eastbound/westbound approaches of East Lake Road Extension should have exclusive left-turn lanes, two through lanes, and exclusive right-turn lanes. The northbound and southbound Springdale Drive approaches should have an exclusive left-turn lane, a single through lane, and an exclusive right-turn lane.

#### 4.3 Level of Service

Level of service determinations were made for the design year 2027 AM and PM peak hour traffic conditions for the East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Drive intersections with the intersection laneage recommendations incorporated. Table 5 summarizes the levels of service and delay in seconds (per vehicle) for the two intersections under design year 2027 traffic conditions. East Lake Road Extension/SR 155 is projected to operate LOS D during the AM and PM peak periods. East Lake Road Extension/Springdale Drive is projected to operate at LOS C during the AM and PM peak periods.

Table 5 Level of Service Summary, Design Year 2027 Signalized Intersections		
Intersection	Overall LOS (Delay in Seconds)	
	AM Peak	PM Peak
East Lake Road Extension/SR 155	D (36.0)	D (44.8)
East Lake Road Extension/Springdale Drive	C (24.5)	C (26.6)

#### 4.4 East Lake Road Extension Analysis

The East Lake Road Extension was analyzed as a four-lane roadway under design year 2027 AM and PM peak hour traffic conditions. The peak hour traffic volumes used in the analysis were from the section of roadway just east of SR 42. This section of East Lake Road Extension is projected carry the heaviest volume. Table 6 summarizes the results of the multi-lane roadway analysis for East Lake Road Extension under design year 2027 traffic conditions. As a four-lane divided roadway the East Lake Road Extension would operate at LOS C or better in both the eastbound and westbound directions in the AM and PM peak hours.

Table 6 Level of Service Summary, Design Year 2027 East Lake Road Extension (Four-Lane Roadway)		
Roadway	Overall LOS	
	AM Peak	PM Peak
East Lake Road Extension, Westbound	C (25.0 pc/mi/ln)	B (12.2 pc/mi/ln)
East Lake Road Extension, Eastbound	A (10.4 pc/mi/ln)	C (21.6 pc/mi/ln)

## 5.0 CONCLUSION

East Lake Road Extension is projected to be completed in 2007 and will extend Eagles Landing Parkway approximately 3 miles in an east/west direction to/from the intersections of SR 42/Eagles Landing Parkway and SR 155/East Lake Road. The proposed extension will intersect Springdale Drive approximately 1.4 miles east of SR 42. Traffic counts were collected at eight intersections in the vicinity of the proposed extension to establish existing 2004 traffic conditions and patterns. The 2004 traffic counts were grown at 6% for three years to establish base year 2007 volumes and were reassigned to the proposed East Lake Road extension based on existing traffic flow patterns in conjunction with the new proposed roadway. The design year 2027 traffic volumes were developed by

growing the base year 2007 traffic volumes by 3% per year for 20 years and incorporating additional traffic volumes resulting from residential development located directly along the East Lake Road Extension. This report analyzed the intersections of East Lake Road Extension/SR 155 and East Lake Road Extension/Springdale Drive as well as the proposed East Lake Road Extension under base year 2007 and design year 2027 traffic conditions. Recommended laneage incorporated in the analyses at the intersections and along East Lake Road Extension was based upon achieving LOS D or better during the design year 2027 traffic conditions

### 5.1 General Recommendations

Based on the design year 2027 traffic conditions, we offer the following:

#### East Lake Road Extension

- The roadway should be designed as a four-lane divided roadway from SR 42 to SR 155.
- The outside eastbound through lane approaching SR 155 should transition into the existing eastbound right-turn lane, therefore leaving one eastbound through lane at the East Lake Extension/SR 155 intersection.

#### East Lake Road Extension/SR 155 Intersection

- The intersection should have an exclusive left-turn lane, single through lane, and an exclusive right-turn lane on the westbound and eastbound approaches.
- In addition to existing exclusive left and right-turn lanes, SR 155 would need to have two through lanes both northbound and southbound for the intersection to achieve LOS D or better under design year 2027 traffic conditions.

#### East Lake Road Extension/Springdale Drive Intersection

- The intersection should be designed as a signalized intersection
- The eastbound and westbound approaches should have exclusive left-turn lanes, two through lanes, and exclusive right-turn lanes. The northbound and southbound approaches should have an exclusive left-turn lane, one through lane, and an exclusive right-turn lane.



Architecture

Engineering

Construction

## MEETING MINUTES

**Project:** MSL-0004-00(645) Henry County P.I. No. 0004645 East Lake Road Extension Phase II

**Purpose:** Initial Concept Team Meeting

**Place:** GDOT – Urban Design Conference Room 352

**Meeting Date:** May 28, 2004

**Prepared By:** Janis Pines

**In Attendance:**

Jan C. Hilliard	GDOT - Urban	404-656-5441
Audrey Gooch	GDOT - Local Gov't	706-646-6602
Glenn Bowman	GDOT - Urban	404-656-5454
Glenn A. Williams	GDOT - Utilities	706-646-6549
Stan Petoski	GDOT – TS&D	404-635-8126
Wade Harris	GDOT – Eng Services	404-651-7462
Gary Vance	Danella Engr. (AT&T)	404-432-0362
Ritchard Spivey	Snapping Shoals EMC	770-385-2748
Guy Williams	Snapping Shoals EMC	770-385-2877
Tony Pritchett	GA Trans	770-270-7511
Tony Carnell	Henry Co. Water Auth.	770-914-3359
Scott Morgan	Georgia Power Co.	404-506-6743
Dan Everitt	Georgia Power Co.	404-506-2889
Andy Ballerstedt	Qk4	404-329-5900
Janis Pines	Qk4	404-329-5900
Andy Pitman	Edwards-Pitman Env.	770-333-9484
Terry L. McMickle	Henry County	770-898-7676
Lynnon H. Bledsoe	Henry County	770-898-7676
Marc Mastronardi	GDOT Dist. Construction	770-228-7339

A Summary of items discussed is provided below.

Andy Ballerstedt described the location of the project as being the second phase of a roadway that is to connect Eagles Landing Parkway at State Route 42 to East Lake Road at State Route 155. Phase I of this corridor start at State Route 42 and ends at Springdale Drive. This project will pick up where phase I ends at Springdale Drive and continue to State Route 155. Construction for this project is proposed for 2007.

Purpose and need statement - Henry County currently has no major East-West corridors to the Kelleytown Area from Eagles Landing and I-75. The proposed project is an East-West corridor on new location that will connect Eagles Landing at SR 42 to SR 155 at East Lake Road. Henry County currently has a new location project from Eagles Landing Parkway at SR 42 to Springdale Road. This project will pick up at



Architecture

Engineering

Construction

## MEETING MINUTES

Springdale Road where the Henry County project ends and continue on new location to Highway 155 at East Lake Road.

This project will provide the County a major East-West corridor. It will be a 4-lane facility that will provide access to Henry General Hospital for the eastern portion of the county and an East-West corridor to the Kelleytown Area from Eagles Landing and I-75.

The project will also add relief to other roads in the area. The projected Average Daily Traffic (ADT) for this project is 9,450 vehicles for the base year 2007 and 20,850 vehicles for the design year 2027. Accident History is Not Applicable since the corridor is on new location.

The Roadway typical is a 20' raised median with two 12' lanes in each direction. The shoulders are 10' wide with 6' wide paved bike shoulders and open drainage. Right-of-Way width is to be 150'.

The design speed is 45 miles per hour, the minimum radius is 730' and the maximum grade is 5.67%. The facility will have no access control.

No Major structures or design exceptions are expected. No displacements are expected.

The construction will have some staging in the Wolf Creek Drive area due to residences

### Environmental:

Andy Pittman discussed environmental issues associated with the project. Wetlands were found in the area and avoided. The project has no 4f issues and a nationwide permit is anticipated.

A Project Information Meeting (PIM) was held when the project was anticipated to be only two lanes. Mr. Pittman will check with OEL to see if another PIM is needed to fulfill requirements.

### Utilities:

AT&T: Gary Vance stated that an AT&T easement east of Springdale is not shown on the display.

Henry County Water and Sewer: The spray fields were designed around the initial alignments from 1998. The original design was only a two-lane facility, so the extra width will need to be checked to see if it impacts the spray fields.

A distribution line is planned from State Route 155 through the alignment and along Price Quarters. There is an existing line from Kroger, north of the alignment, no conflicts are anticipated. Conflicts will occur @ Price Quarters Drive.

A 36" sewer line exists east of Springdale.

Georgia Transmission: Tony Prichett stated that a transmission line runs through the project. The design must make sure that the towers are not in conflict and that the vertical alignment stays near or below existing grade. Access needs to be maintained with driveways.



Architecture

Engineering

Construction

# MEETING MINUTES

## Right-of-Way

Henry County: Terry McMickle said that approximately  $\frac{3}{4}$  of the R/W has been purchased with no limit of access. The easements on these parcels have also been purchased for the south side only because at the time, only a two-lane facility was anticipated. These parcels will need to have the easements on the north side purchased from them. It is also possible that the easements on the south will change.

Henry County will provide designer with the information about parcels that have already been purchased.

## Urban Design

Since the survey was originally done in 1998, all information needs to be verified that it is current. Urban design asked if this project has been updated to a 4-Lane in the ARC model, Terry McMickle stated that it has.

Location of Median openings – the design should have median openings at the Water Authority driveway, Price Quarters Drive, and the McCollum property. Recommended that the maximum of one mile for median openings in rural areas be used. Future development may create the need for more openings, which will be addressed later when the exact locations can be determined. Good spacing will be encouraged.

The median and typical section should go all the way to State Route 155. Since East Lake Drive on the other side of SR 155 has a center turn lane, matching the through lanes shouldn't be a problem. Upgrading the entire intersection will be considered along with determining if turn lanes are needed.

## Traffic, Safety and Design

Traffic diagrams need to be available for the concept team meeting.

The bike lanes need to be 6.5' wide with rumble strips.

Including outside curb and gutter was discussed. Henry County stated that this is a new location project with no businesses. Installing curb and gutter and urban drainage would be too expensive for them. Also, it is anticipated that this area will develop and acceleration and deceleration lanes will be needed and any curb and gutter built now would soon be removed.

## District 3 Construction

Consider building a right turn lane on Eastlake Drive into the school on the east side of SR155.

## Engineering Services

Consider adding 4 feet to the deceleration lanes/turn lanes so they are 16' wide and reducing paved shoulder by 4 feet.

## Concept Team Meeting

Jan Hilliard discussed what was needed for the next concept team meeting:

- Show existing utilities
- Show proposed median openings
- Show environmental constraints (i.e. wetlands, streams, etc.)
- Details of intersections, including tie-in with existing Eastlake Drive.
- Traffic diagrams



Architecture

Engineering

Construction

## MEETING MINUTES

**Project:** MSL-0004-00(645) Henry County P.I. No. 0004645 East Lake Road Extension Phase II

**Purpose:** Concept Team Meeting

**Place:** GDOT – Urban Design Conference Room 352

**Meeting Date:** August 3, 2004

**Prepared By:** Joel Horton

**In Attendance:**

Jan C. Hilliard	GDOT – Urban Design	404-656-5441
Audrey Gooch	GDOT - Local Gov't	706-646-6602
Eddie King	Bell South	770-493-2006
Doug Baily	HCWSA	770-914-3688
Stan Petoski	GDOT – OTSD	404-635-8126
Wade Harris	GDOT – Eng Services	404-651-7462
Jon Davis	Stantec Consulting	478-474-6100
Scott Zehngraft	GDOT-OTSD	404-635-8127
Lamar M. Pruitt, Jr.	GDOT	706-646-6569
Tony Pritchett	GA Transmission	770-270-7511
Randy Jones	Georgia Power Co.	678-432-2069
Andy Ballerstedt	Qk4	404-329-5900
Joel Horton	Qk4	404-329-5900
Andy Pitman	Edwards-Pitman Env.	770-333-9484
Terry L. McMickle	Henry County	770-898-7676
Lynnon H. Bledsoe	Henry County	770-898-7676
Keith Rohling	GDOT	706-646-6557
Nicoe Alexander	GDOT-Urban	404-656-5441
Ben Buchan	GDOT-Urban	404-656-5436
Kerry Gore	GDOT-Utilities	

A Summary of items discussed is provided below.

Andy Ballerstedt described the location of the project as being the second phase of a roadway that is to connect Eagles Landing Parkway at State Route 42 to East Lake Road at State Route 155. This project will pick up where phase I ends at Springdale Drive and continue to State Route 155.

The design speed is 45 miles per hour. No Major structures or design exceptions are expected. No displacements are expected. There are two wetlands along this project. Preparation has been made to minimize disturbance of these areas.



Architecture

Engineering

Construction

## MEETING MINUTES

The typical section has two lanes in each direction with a 20 foot raised median and 10 foot rural shoulders. 6.5 feet of the shoulders are paved and include rumble strips and a 4'-2" bike lane.

### Environmental

Andy Pittman discussed environmental issues associated with the project. There are two wetlands located in this area. One large wetland was avoided and a small one (0.06 ac) was not. No history or archeology exists in the area.

A question was raised about sediment basins on project. Andy Ballerstedt stated that the design for the sediment basins had been done based on the original two-lane design of the project. These easements have been purchased. Calculations will need to be redone for the four-lane section to ensure that the basins are large enough and the easement purchased will be sufficient.

### Utilities

Henry County Water and Sewer: Wolf creek sanitary sewer is PVC, and this will have to change to ductile iron in areas under new road.

There were questions about the size and type of culverts. Andy Ballerstedt said that structure sizes had been calculated but he did not have them with him. GDOT mentioned the sanitary sewer needs to be addressed during the design of the culverts. Additional easements may be needed for this.

Georgia Power: Randy Jones stated that relocation of poles at the Springdale intersection would occur during phase I.

Georgia Transmission: Andy Ballerstedt explained that the roadway was in a cut section at the crossing of the transmission line and clearance should be okay. It was mentioned that driveways need to be included on both sides of the roadway for access to the transmission lines.

Snapping Shoals EMC has utilities on price quarters – This may require minor relocation.

### Right-of-Way

A point was made that less than  $\frac{3}{4}$  of the R/W is purchased. It was decided to hold all R/W acquisitions until environmental studies are complete. It was then discussed and decided to show all easements and acquired R/W as proposed regardless of whether or not it has been purchased.



Architecture

Engineering

Construction

# MEETING MINUTES

## Traffic, Safety and Design

At the Springdale intersection a point was made about the concept not showing exclusive right turn lanes North and South bound. There was a recommendation for it. R/W cost is the main concern. The concept also did not show signalization for Springdale. It was recommended that this be shown in the concept. The traffic study recommends a signal based on 2027 projections. Henry County will install the signal when it is warranted.

The S.R. 155 intersection was discussed at length. GDOT recommends that it be reconstructed and add another exclusive left turn lane northbound and southbound along with extending the project past the intersection to add a right turn lane into a school. Traffic volumes are going to require that this be done in a few years regardless, so point was made to go ahead and reconstruct now in order not to shut down intersection twice to the public. Henry County says it does not have extra money for this. A request was made to Andy Ballerstedt to come up with a cost estimate for the reconstruction and he said it would be done by August 16<sup>th</sup> for the Henry County board meeting on the 19<sup>th</sup>

## Engineering Services

There was a decision about the typical section near the S.R. 155 intersection. The area currently has curb and gutter on the outside shoulder. The section in this area should include curb and gutter with a 16 foot wide shoulder. A 5 foot sidewalk should be offset 5 feet from the back of curb.

There was discussion about the bike lanes and the transition from urban to rural. It was recommended that the bike lanes be kept against the curb except for intersections.

There was also concern about the bike lanes approaching intersections. It was suggested to end bike lanes before turning lane starts and add "share the road signs". Andy Ballerstedt inquired about the possibility of using a multi-use path on the shoulder instead of a sidewalk and bike lanes. No current policy or detail exists for transitioning a bike lane from a rural shoulder to a curb and gutter section. Further investigation will be required to examine the options.

## Public Involvement

Andy Pittman said another PIM meeting is not required, but will be left up to Henry County to decide if they want one. Terry McMickle stated that they would go ahead and have a PIM. He does not foresee any public objections to the project but people will be interested in the schedule.

**Estimate Report for file "East lake Phase II"**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	200000	TRAFFIC CONTROL -	\$200,000.00
153-1300	1	EA	51009.51	FIELD ENGINEERS OFFICE TP 3	\$51,009.51
163-0232	40.38	AC	460.68	TEMPORARY GRASSING	\$18,602.26
163-0240	263.45	TN	189.79	MULCH	\$50,000.18
163-0300	2	EA	1113.6	CONSTRUCTION EXIT	\$2,227.20
163-0530	3000	LF	2.37	CONSTRUCT AND REMOVE BALED STRAW EROSION CHECK	\$7,110.00
165-0010	6000	LF	0.91	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	\$5,460.00
165-0030	2000	LF	1.19	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	\$2,380.00
165-0101	2	EA	353.91	MAINTENANCE OF CONSTRUCTION EXIT	\$707.82
167-1000	6	EA	2076.47	WATER QUALITY MONITORING AND SAMPLING	\$12,458.82
171-0010	12000	LF	1.76	TEMPORARY SILT FENCE, TYPE A	\$21,120.00
171-0030	4000	LF	3.09	TEMPORARY SILT FENCE, TYPE C	\$12,360.00
201-1500	1	LS	400000	CLEARING & GRUBBING -	\$400,000.00
205-0001	199000	CY	3.32	UNCLASS EXCAV	\$660,680.00
207-0203	332	CY	34.4	FOUND BK FILL MATL, TP II	\$11,420.80
208-0100	44500	CY	5.74	IN PLACE EMBANKMENT	\$255,430.00
310-1101	46190	TN	13.88	GR AGGR BASE CRS, INCL MATL	\$641,117.20
318-3000	250	TN	15.69	AGGR SURF CRS	\$3,922.50
402-1812	250	TN	39.12	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	\$9,780.00
402-3112	7800	TN	45.62	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM	\$355,836.00
402-3121	13540	TN	36.85	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM	\$498,949.00
402-3130	7400	TN	37.34	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM	\$276,316.00
413-1000	9000	GL	0.95	BITUM TACK COAT	\$8,550.00
441-0104	10450	SY	22.66	CONC SIDEWALK, 4 IN	\$236,797.00
441-0204	600	SY	25.86	PLAIN CONC DITCH PAVING, 4 IN	\$15,516.00
441-0748	960	SY	24.42	CONCRETE MEDIAN, 6 IN	\$23,443.20
441-6022	1050	LF	10.1	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	\$10,605.00
441-6720	21120	LF	10.75	CONC CURB & GUTTER, 6 IN X 30 IN, TP 7	\$227,040.00
456-2012	4	GLM	817.88	INDENTATION RUMBLE STRIPS - GROUND-IN-PLACE (CONTINUOUS)	\$3,271.52
500-3800	100	CY	616.6	CLASS A CONCRETE, INCL REINF STEEL	\$61,660.00
500-9999	55	CY	135	CLASS B CONC, BASE OR PVMT WIDENING	\$7,425.00
513-9000	1	Lump Sum	87762.5	PRECAST CONC. ARCH CULVERT	\$87,762.50
550-1180	1818	LF	28.08	STORM DRAIN PIPE, 18 IN, H 1-10	\$51,049.44
550-1181	150	LF	29.49	STORM DRAIN PIPE, 18 IN, H 10-15	\$4,423.50
550-1240	48	LF	32.96	STORM DRAIN PIPE, 24 IN, H 1-10	\$1,582.08
550-1300	352	LF	42.71	STORM DRAIN PIPE, 30 IN, H 1-10	\$15,033.92
550-1301	304	LF	44.67	STORM DRAIN PIPE, 30 IN, H 10-15	\$13,579.68
550-1421	144	LF	76.99	STORM DRAIN PIPE, 42 IN, H 10-15	\$11,086.56
550-1966	190	LF	250	Storm drain pipe, 96in, H35-40	\$47,500.00
550-2180	9624	LF	23.08	SIDE DRAIN PIPE, 18 IN, H 1-10	\$222,121.92
550-2240	72	LF	28.95	SIDE DRAIN PIPE, 24 IN, H 1-10	\$2,084.40
550-3418	10	EA	498.88	SAFETY END SECTION 18 IN, SIDE DRAIN, 4:1 SLOPE	\$4,988.80
550-3424	4	EA	724.24	SAFETY END SECTION 24 IN, SIDE DRAIN, 4:1 SLOPE	\$2,896.96
550-4218	8	EA	422.05	FLARED END SECTION 18 IN, STORM DRAIN	\$3,376.40
550-4224	2	EA	491.31	FLARED END SECTION 24 IN, STORM DRAIN	\$982.62
550-4230	8	EA	663.31	FLARED END SECTION 30 IN, STORM DRAIN	\$5,306.48
550-4242	2	EA	1007.47	FLARED END SECTION 42 IN, STORM DRAIN	\$2,014.94
603-2182	786	SY	42.6	STN DUMPED RIP RAP, TP 3, 24 IN	\$33,483.60
603-7000	786	SY	3.98	PLASTIC FILTER FABRIC	\$3,128.28
634-1200	35	EA	84.67	RIGHT OF WAY MARKERS	\$2,963.45
636-1020	124	SF	13.16	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	\$1,631.84
636-2070	500	LF	6.77	GALV STEEL POSTS, TP 7	\$3,385.00
641-1200	3557	LF	11.99	GUARDRAIL, TP W	\$42,648.43
641-5001	12	EA	442.88	GUARDRAIL ANCHORAGE, TP 1	\$5,314.56
641-5012	12	EA	1428.14	GUARDRAIL ANCHORAGE, TP 12	\$17,137.68
643-8103	1600	LF	3.8	BARBED WIRE FENCE, 3 STRAND	\$6,080.00
647-1000	2	LS	75000	TRAFFIC SIGNAL INSTALLATION NO -	\$150,000.00
653-0120	50	EA	56.11	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	\$2,805.50
653-0210	25	EA	89.33	THERMOPLASTIC PVMT MARKING, WORD, TP 1	\$2,233.25
653-1501	31000	LF	0.25	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	\$7,750.00
653-1502	31000	LF	0.23	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	\$7,130.00
653-1704	250	LF	3.17	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	\$792.50
653-3502	800	GLF	0.14	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, YELLOW	\$112.00
653-6004	2600	SY	2.4	THERMOPLASTIC TRAF STRIPING, WHITE	\$6,240.00
653-6006	1000	SY	2.52	THERMOPLASTIC TRAF STRIPING, YELLOW	\$2,520.00
654-1001	50	EA	3.21	RAISED PVMT MARKERS TP 1	\$160.50
654-1002	164	EA	2.9	RAISED PVMT MARKERS TP 2	\$475.60
654-1003	236	EA	3.19	RAISED PVMT MARKERS TP 3	\$752.84
668-1100	38	EA	1720.77	CATCH BASIN, GP 1	\$65,389.26
700-6910	57	AC	767.58	PERMANENT GRASSING	\$43,752.06
700-7000	26	TN	56.74	AGRICULTURAL LIME	\$1,475.24
700-8000	20	TN	226.28	FERTILIZER MIXED GRADE	\$4,525.60
700-8100	1500	LB	1.43	FERTILIZER NITROGEN CONTENT	\$2,145.00
710-9000	800	SY	4.35	PERMANENT SOIL REINFORCING MAT	\$3,480.00
715-2200	2000	SY	1.96	BITUMINOUS TREATED ROVING, WATERWAYS	\$3,920.00
716-2000	37840	SY	1.11	EROSION CONTROL MATS, SLOPES	\$42,002.40
<b>Section Sub Total:</b>					<b>\$5,030,419.79</b>