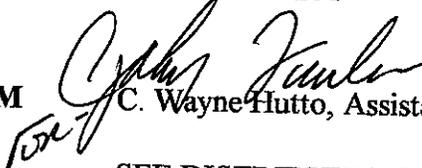


ORIGINAL TO GENERAL FILES

D.O.T. 66

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

**FILE** HPP-0000-00(251) Fulton County **OFFICE** Preconstruction  
P.I. No. 0000251  
**DATE** May 30, 2001  
**FROM**  C. Wayne Hutto, Assistant Director of Preconstruction  
**TO** SEE DISTRIBUTION

**SUBJECT** PROJECT CONCEPT REPORT APPROVAL

Attached for your files is the approval for subject project.

CWH/cj

Attachment

**DISTRIBUTION:**

Tom Turner  
David Mulling  
Harvey Keeper  
Jerry Hobbs  
Herman Griffin  
Michael Henry  
Marion Waters  
Marta Rosen  
Paul Liles  
Jimmy Chambers (ATTN: Ted Cashin)  
Joe Palladi  
Steve Henry

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** HPP-0000-00(251) Fulton County **OFFICE** Preconstruction  
P.I. No. 0000251 **DATE** May 17, 2001  
*CW Hutto*  
**FROM** C. Wayne Hutto, P.E., Assistant Director of Preconstruction  
**TO** Frank L. Danchetz, P.E., Chief Engineer  
**SUBJECT** PROJECT CONCEPT REPORT

This project is the intersection improvements on SR 140/Arnold Mill Road at Green Road in Fulton County. Arnold Mill Road is currently a 2-lane roadway with 12' lanes and rural shoulders. Green Road is currently a 2-lane roadway with 12' lanes and rural shoulders. The existing (2000) traffic volumes on this section of Arnold Mill Road is 21,745 VPD with a projected 26,534 VPD in year 2020. The current Level of Service (LOS) at this intersection is LOS "C." With no improvements, the LOS for this intersection will be LOS "F" in the year 2020. With the proposed improvements, the intersection can expect to operate at a LOS "C" in the year 2020.

The construction proposes to add a left turn lane on southbound Arnold Mill Road, a right turn lane on northbound Arnold Mill Road, and the separation of left turn and right turn movements on westbound Green road. The existing intersection skew angle will be improved and the intersection will be shifted to the south 115±. Cagle Road intersects Arnold Mill road 300± north of Green Road at a substandard skew and will be realigned to a more suitable intersection angle. A left turn lane will also be installed at Cagle Road. A new traffic signal will be installed for the realigned intersection of Arnold Mill Road and Green Road. Traffic will be maintained during construction.

Environmental concerns include requiring a Categorical Exclusion be prepared; a public information meeting will be held; time saving procedures are appropriate.

The estimated costs for this project are:

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>PROG DATE</u>	<u>LET DATE</u>
Construction (includes E&C and inflation)	\$693,000	\$539,000	2001	02-03
Right-of-Way & Utilities*	Local	Local		

\*Fulton County signed LGPA on 6-20-00 for PE, right-of-way, utilities, and construction costs over \$400,000.

Frank L. Danchetz  
Page 2

HPP-0000-00(251) Fulton  
May 17, 2001

This project is in the STIP. I recommend this project concept be approved.

CWH:JDQ/cj

Attachment

CONCUR



Thomas L. Turner, P.E., Director of Preconstruction

APPROVE



Frank L. Danchetz, P.E., Chief Engineer

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

**FILE:** HPP-0000-00(251) Fulton  
P.I. Number 0000251-

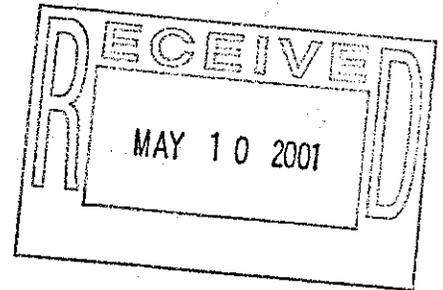
**OFFICE:** Engineering Services

**DATE:** May 9, 2001

**FROM:** David Mulling, <sup>DM</sup> Project Review Engineer

**TO:** Wayne Hutto, Assistant Director of Pre-construction

**SUBJECT:** CONCEPT REPORT



We have reviewed the concept report submitted May 4, 2001 by the letter from Joseph P. Palladi dated May 3, 2001, and have the following comments.

1. The itemized costs for right of way, utilities, grading & earthwork, base & paving, and concrete work on Page 8 is not for this project. These are the same costs as unit (248).
2. At the bottom of Page 10 correct the cost for E&C from \$572,583 to \$57,258.

The costs for the project are:

Construction	\$573,000
Inflation	\$ 57,000
E&C	\$ 63,000
Reimbursable Utilities	\$ 75,000
Right of Way	\$581,000

DTM

c: Joe Palladi

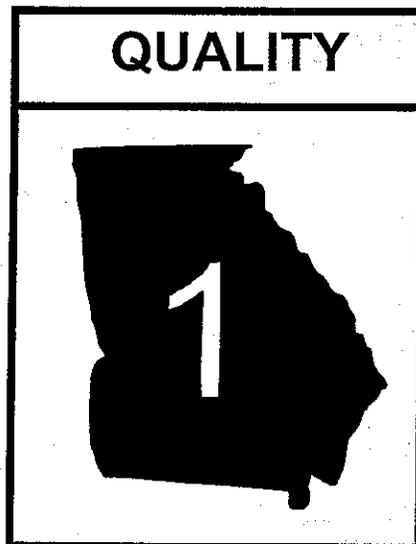
## SCORING RESULTS AS PER MOG 2440-2

<b>Project Number:</b> HPP-0000-00(251)		<b>County:</b> FULTON		<b>PI No.:</b> 0000251	
<b>Report Date:</b> 5/3/01		<b>Concept By:</b> DOT Office: URBAN DESIGN			
<input checked="" type="checkbox"/> CONCEPT		DOT Project Manager: Darrell Richardson			
Consultant: Clark Patterson Associates					
<b>Project Type:</b> Choose One From Each Column		<input type="checkbox"/> Major <input checked="" 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 Reconstruction <input checked="" type="checkbox"/> Intersection Improvement <input type="checkbox"/> Interstate <input type="checkbox"/> New Location <input type="checkbox"/> Widening & Reconstruction <input type="checkbox"/> Miscellaneous	
FOCUS AREAS	SCORE	RESULTS			
<b>Presentation</b>	90%	Part of cost estimate for wrong project.			
<b>Judgement</b>	100%				
<b>Environmental</b>	100%				
<b>Right of Way</b>	100%				
<b>Utility</b>	100%				
<b>Constructability</b>	100%				
<b>Schedule</b>	100%				



## **PROJECT CONCEPT REPORT**

**HPP-0000-00 (251), FULTON  
GDOT P.I. NO. 0000251  
FULTON CO # T104  
ARNOLD MILL RD (SR 140) @ GREEN RD  
INTERSECTION IMPROVEMENT PROJECT**



**PREPARED FOR:**

**FULTON COUNTY  
DEPARTMENT OF PUBLIC WORKS  
141 PRYOR STREET  
ATLANTA, GEORGIA 30303**

**May 1, 2001**

**DESIGN PROFESSIONALS**

3585 LAWRENCEVILLE-SUWANEE ROAD, SUITE 301 ■ SUWANEE, GEORGIA 30024

www.clarkpatterson.com ■ TEL: 770/831-9000 ■ FAX: 770/831-9243

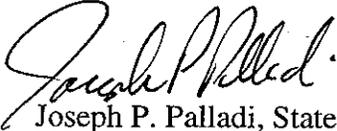
**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENTAL CORRESPONDENCE**

**FILE:** HPP-0000-00(251), Fulton County  
SR 140/Arnold Mill at Green Road  
P.I. No. 0000251

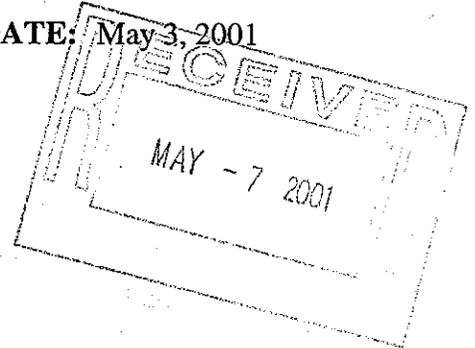
**OFFICE:** Urban Design

**DATE:** May 3, 2001

**FROM:**   
Joseph P. Palladi, State Urban Design Engineer

**TO:** Thomas L. Turner, Preconstruction Division Director  
Attn.: Wayne Hutto

**SUBJECT:** Proposed Project Concept Report



Attached for your further handling is the Project Concept Report and Location and Design Approval for the intersection improvement of SR 140/Arnold Mill at Green Road. The project realigns Green Road and Cagle Road and adds turn lanes at the intersections.

Please process this report through the Departments project development process. Fulton County has requested an expedited review and approval process so that this project can remain on schedule.

JPP:DMR   
Attachment

cc: David Mulling, w/attachment  
Harvey Keepler, w/attachment  
Marion Waters, w/attachment  
Marta Rosen, w/attachment  
Herman Griffin, w/attachment  
Steve Henry, District 7 Engineer w/attachment

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: HPP-0000-00 (251), FULTON CO #T104  
County: FULTON  
P. I. Number: 0000251

Federal Route Number: N/A  
State Route Number: SR 140

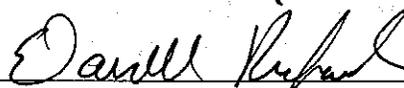
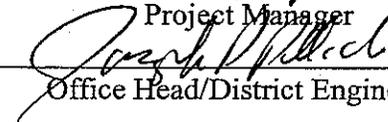
ARNOLD MILL RD (SR 140) @ GREEN RD

**Project Description:** Addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and separating the left turn and the right turn movements on westbound Green Road. The intersection will also include an improved skew angle; same for the Cagle Road intersection (skew angle), and a new traffic signal.

**Recommendation for approval:**

DATE 5-2-01

DATE 5/3/01

  
Project Manager  
  
Office Head/District Engineer

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

DATE \_\_\_\_\_

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

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Programming Engineer

DATE \_\_\_\_\_

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

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Operations Engineer

DATE \_\_\_\_\_

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

DATE \_\_\_\_\_

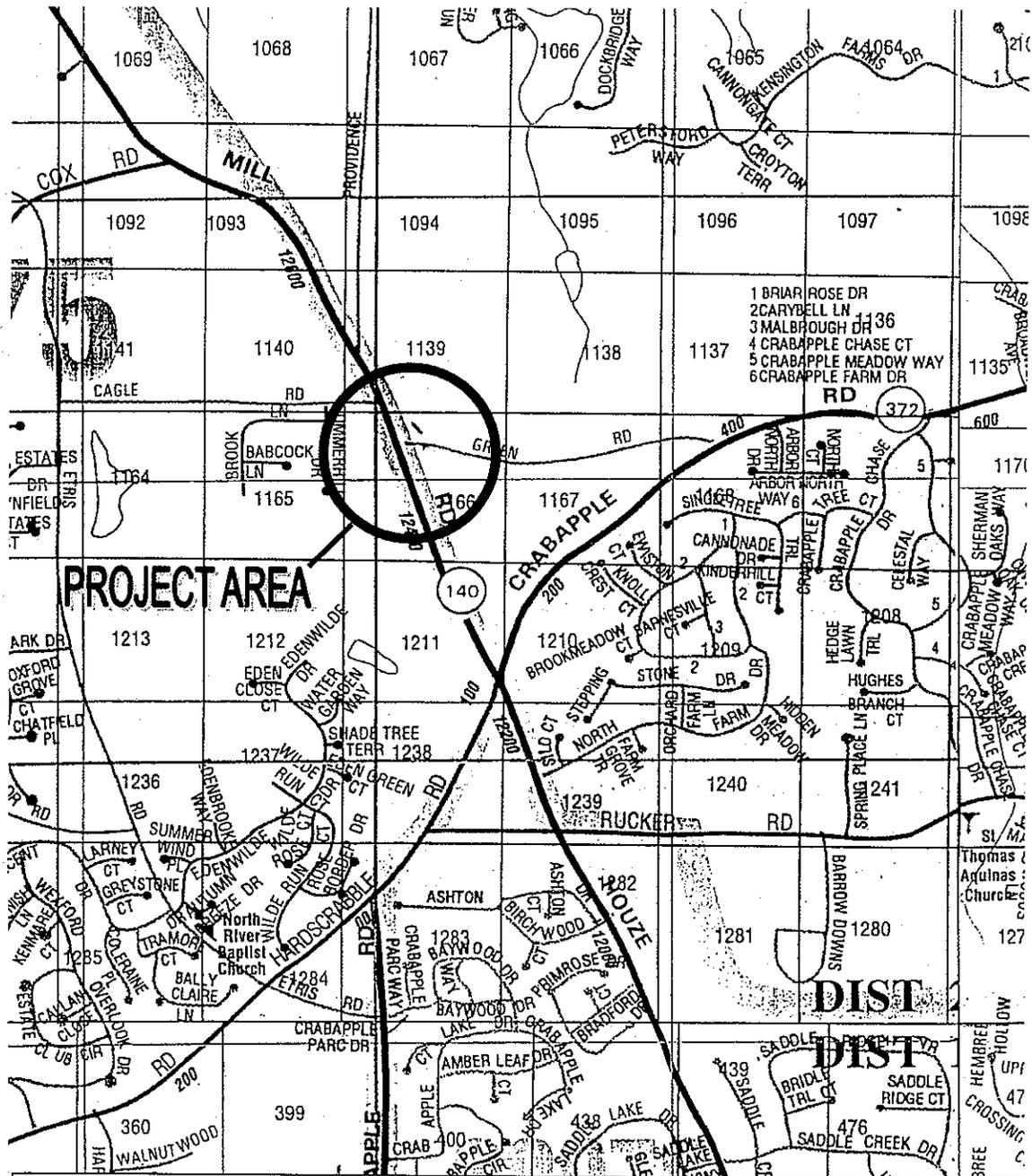
\_\_\_\_\_  
Project Review Engineer

DATE \_\_\_\_\_

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

DATE \_\_\_\_\_

\_\_\_\_\_  
Georgia Dept. of Transportation Project Manager



**INTERSECTION IMPROVEMENT PROJECT**  
ARNOLD MILL ROAD (SR140) @ GREEN ROAD

**Need and Purpose:**

The purpose of project HPP-0000-00(251) consists of reconstructing the intersection of Arnold Mill Road and Green Road in Fulton County to help improve the current unacceptable level of service and delayed traffic congestion at the intersection. The reconstruction consists of adding a left turn lane on southbound Arnold Mill Road, a right turn lane on northbound Arnold Mill Road and the separation of the left turn and right turn movements on westbound Green Road. The intersection sight distance will be improved and the left-turn queue storage length increased for both the northbound and southbound Arnold Mill Road traffic, by shifting the intersection approximately 115-ft to the south, (further away from the Arnold Mill at Cagle Road intersection), and by providing a more desirable intersection skew angle closer to 90 degrees at the new Arnold Mill and Green Road intersection. This project is located 820-ft south and 1230-ft north of the existing intersection of Arnold Mill Road and Green Road. In addition, a new traffic signal will also be installed for the new intersection of Arnold Mill Road and Green Road to help moderate the traffic flow. The total project length is approximately 0.40 miles.

The current (PM) level of service at the intersection of Arnold Mill Road and Green Road is LOS C. With no improvements, the LOS for this intersection will be LOS F in the year 2020. With improvements, the intersection can expect to operate at a LOS C in year 2020, which is acceptable. Continued growth in the area will only add to the existing congestion and without the intersection improvement, will add to existing ecological, air and noise pollution. This project is designed to improve safety, driving stability and to create a smoother traffic flow.

**Description of the proposed project:**

The project consists of the addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and the separation of the left turn and right turn movements on westbound Green Road. The existing intersection skew angle will be improved and the intersection will be shifted to the south approximately 115'. The side road, Cagle Rd, will also be realigned to improve the existing intersection skew angle. A new traffic signal will also be installed for the new intersection of Arnold Mill and Green Rd. The project begins approximately 820' south of the existing intersection of Arnold Mill Rd and Green Road and extends northward along Arnold Mill Rd to a point approximately 1230' north of the Arnold Mill Rd and Green Road intersection. Total project length is approximately 0.40 miles or 2,050 feet.

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

PDP Classification: <sup>MINOR</sup> ~~Major Rural Arterial/Minor Rural Collector~~

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

Functional Classification: Major Rural Arterial/Minor Rural Collector

U. S. Route Number(s): N/A State Route Number(s): S.R. 140

**Traffic (ADT):**

Current Year: (2000) 21,745 Design Year: (2020) 26,534

**Existing design features: Arnold Mill Road**

- Typical Section: See attached.
- Posted speed 45 mph Maximum degree of curvature: 5.5
- Maximum grade: 3 % Main line: Arnold Mill Road Cross Road: Green Road
- Width of right of way: 40 ft.
- Major structures: None
- Major interchanges or intersections along the project: N/A

**Existing design features: Green Road**

- Typical Section: See attached.
- Posted speed 45 mph Maximum degree of curvature: N/A
- Maximum grade: 3 % Main line: Arnold Mill Road Cross Road: Green Road
- Width of right of way: 60 ft.
- Major structures: None
- Major interchanges or intersections along the project: N/A
- Existing length of roadway segment:

**Proposed Design Features: Arnold Mill Road**

- Proposed typical section(s): Two lane Road (12 each) rural section with 12 ft (4ft paved) shoulder.
- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline 4.5 % Maximum grade allowable 4.5 %.
- Proposed Maximum grade Side Street 4.5 % Maximum grade allowable 4.5 %.
- Proposed Maximum grade driveway 11 %
- Proposed Maximum degree of curve 5.0 . Maximum degree allowable 5.0 .

**Proposed Design Features: Green Road**

- Proposed typical section(s): See attached.
- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline 4.5 % Maximum grade allowable 4.5 %.
- Proposed Maximum grade Side Street N/A % Maximum grade allowable N/A %.
- Proposed Maximum grade driveway N/A %
- Proposed Maximum degree of curve 14.0 . Maximum degree allowable 14 .

• **Right of way Arnold Mill Road and Green Road**

- Width: Arnold Mill varies from 80' to 100', Green Road varies from 60' to 80'.
- Easements: Temporary ( ), Permanent ( ), Utility ( ), Other ( ).
- Type of access control: Full ( ), Partial ( ), By Permit (X), Other ( ).
- Number of parcels: 10 Number of displacements:
  - Business: 0
  - Residences: 0
  - Mobile homes: 0
  - Other: 0

**Proposed Design Features cont'd.:**

**Structures:**

- Bridges. N/A
- Retaining walls. N/A
- Major intersections and interchanges.
- Traffic control during construction: Traffic will be maintained during construction on the existing pavement or on temporary pavement.
- 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: No Design Variance necessary
- Environmental concerns: Historic Property on the west side of Arnold Mill Rd.
- Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes (X), No ( )
  - Categorical exclusion (X),
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( ), or
  - Environmental Impact Statement (EIS) ( )
- Utility involvements: The following utility companies are located within the general project vicinity, a more defined list will be provided as the project progresses: Atlanta Gas Light Co., E Spire Communications, Inc., MCI, R & U Investigations, Sawnee EMC, Fulton County Public Works, United Water Services Atlanta, City of Atlanta Public Works, Georgia Power Company, Distribution; Transmission; Underground, AT&T Broadband, Access Transmission Services, City of Alpharetta, Metrex Corporation, Metromedia Fiber Network Services, Teleport Communications Group, and Georgia Transmission Corporation.

**Project responsibilities:**

- Design: Fulton County
- Right of Way Acquisition: Fulton County
- Relocation of Utilities: Fulton County
- Letting to contract: Georgia Department of Transportation
- Supervision of construction: Georgia Department of Transportation
- Providing material pits: by Contractor if required
- Providing detours: as per state construction plans

### Coordination

- Initial Concept Meeting date and brief summary. N/A.
- Concept meeting date and brief summary. October 11, 2000. Minutes Attached.
- P. A. R. meetings, dates and results. N/A
- FEMA, USCG, and/or TVA: N/A
- Public involvement. Public information meeting will be held.
- Local government comments. None
- Other projects in the area. None
- Other coordination to date. None

### Scheduling – Responsible Parties' Estimate

- Time to complete the environmental process: 2 Months.
- Time to complete preliminary construction plans: 6 Months.
- Time to complete right of way plans: 3 Months.
- Time to complete the Section 404 Permit: N/A Months.
- Time to complete final construction plans: 3 Months.
- Time to complete to purchase right of way: 8 Months.
- List other major items that will affect the project schedule: N/A Months.

### Other alternates considered:

1. No Build.
2. Widen of the roadway symmetrically along existing centerline. This alternative was not chosen because of the impact to the historical property located on the west side of Arnold Mill Road.

**Comments:** See Minutes attached

### Attachments:

1. Cost Estimates: pages 8-10
  - a. Construction including E&C,
  - b. Right of Way, and
  - c. Utilities.
2. Sketch location map, page 2
3. Typical sections, pages 11-13
4. Accident summaries, page 14
5. Capacity analysis at Arnold Mill/Green Rd, pages (numbered per traffic study)
6. Capacity analysis at Arnold Mill/Cagle Rd, pages (numbered per traffic study)
7. Minutes of Concept meetings, page 40
8. LGPA's or PMA's,
9. Location and Design Notice
10. Conforming plan's network schematics showing thru lanes

**Approvals:**

Concur: \_\_\_\_\_  
Director of Preconstruction

Approve: \_\_\_\_\_  
Chief Engineer

PRELIMINARY COST ESTIMATE

	<u>Qty</u>	<u>Unit</u>	<u>Cost</u>	<u>Total</u>
<b>A. Right of Way (this cost is subsequently reaffirmed from FCo's Land Dept)</b>				
Right-of-Way Easements	11650	SF	\$ 7.00	\$ 81,550
	40640	SF	\$ 0.70	\$ 28,450
			<b>Subtotal A</b>	<b>\$ 110,000</b>
<b>B. Reimbursable Utilities</b>				
				<b>\$ 75,000</b>
<b>C. Major Structures</b>				
	None		<b>Subtotal B</b>	<b>\$ 75,000</b>
			<b>Subtotal C</b>	<b>\$ 0</b>
<b>D. Grading and Earthwork</b>				
Unclassified Excavation & borrow			Lump Sum	\$ 25,000
Clearing and Grubbing			Lump Sum	\$ 10,000
			<b>Subtotal D</b>	<b>\$ 35,000</b>
<b>E. Drainage</b>				
Storm Drain Pipe, 18"	130	LF	\$ 28.85	\$ 3,751
Catch Basin	5	EA	\$ 1,900.00	\$ 9,500
Storm Sewer Manhole	3	EA	\$ 6,600.00	\$ 19,800
			<b>Subtotal E</b>	<b>\$ 33,051</b>
<b>F. Base &amp; Paving</b>				
Asphalt Concrete 9.5 mm, Super 165#/SY (1-1/2)	1900	TN	\$ 34.64	\$ 65,816
Asphalt Concrete 19.0 mm, Super 220#/SY (2")	2120	TN	\$ 40.96	\$ 86,835
Asphalt Concrete 25mm, Super 440#/SY (4")	4230	TN	\$ 39.34	\$ 166,408
Graded Aggregate Base, incl. Material	3850	TN	\$ 15.51	\$ 59,714
Asphaltic Conc. Leveling	1300	TN	\$ 39.22	\$ 50,986
Bitum. Tack Coat	1160	GL	\$ 0.91	\$ 1,056
			<b>Subtotal F</b>	<b>\$ 430,815</b>
<b>G. Concrete Work</b>				
Conc. Sidewalk, 4in	1820	SY	\$ 32.59	\$ 59,314
Conc. Curb & Gutter, GA. STD. 9032B, type 2, 8"x30"	4830	LF	\$ 12.15	\$ 58,685
Con. Valley Gutter, 8 in.	1200	SY	\$ 34.31	\$ 41,172
			<b>Subtotal G</b>	<b>\$ 159,170</b>

PRELIMINARY COST ESTIMATE cont'd.

**H. Sign, Stripe, & Signal**

Signs			Lump Sum	\$	10,000
Signals	1	EA	\$ 50,000.00	\$	50,000
Mast Arm	4	EA	\$ 5,000.00	\$	20,000
Arrow	5	EA	\$ 78.00	\$	390
Striping-5in SOLID WHITE	4720	LF	\$ 0.54	\$	2,549
5in SOLID YELLOW	1200	LF	\$ 0.55	\$	660
24in SOLID WHITE	84	LF	\$ 4.91	\$	412
THERMOPLASTIC YELLOW	1300	SY	\$ 2.59	\$	3367
			<b>Subtotal H</b>	<b>\$</b>	<b>87,378</b>

**I. Miscellaneous Items**

Field Engineer Office TP3	1	EA	\$ 65,000.00	\$	65,000
			<b>Subtotal I</b>	<b>\$</b>	<b>65,000</b>

**J. Traffic Control & Mobilization**

Traffic Control			Lump Sum	\$	50,000
Mobilization			Lump Sum	\$	40,000
			<b>Subtotal J</b>	<b>\$</b>	<b>90,000</b>

**K. Grassing/Landscaping (Restore)**

Grassing			Lump Sum	\$	40,000
Landscaping			Lump Sum	\$	15,000
			<b>Subtotal K</b>	<b>\$</b>	<b>55,000</b>

**L. Erosion Control**

Temp. Grass	100	LB	\$ 1.00	\$	100
Temp. Mulch	2	TN	\$ 150.00	\$	300
Temp. Silt Fence, Type A	1200	LF	\$ 4.00	\$	4,800
Maintenance of Temp. Silt Fence, Type A	600	LF	\$ 1.50	\$	900
Temp. Silt Fence, Type C	1500	LF	\$ 5.00	\$	7,500
Maintenance of Temp. Silt Fence, Type C	750	LF	\$ 1.50	\$	1,125
Silt Control Gates, Type III	4	EA	\$ 650.00	\$	2,600
Maintenance of Silt Control Gates, Tp. III	4	EA	\$ 250.00	\$	1,000
Construction Entrance	8	EA	\$ 1,500.00	\$	12,000
Maintenance of Erosion Control Check dams/ Ditch Check	10	EA	\$ 250.00	\$	2,500
			<b>Subtotal L</b>	<b>\$</b>	<b>32,825</b>

ESTIMATE SUMMARY

A. RIGHT OF WAY	\$ 581,000
B. REIMBURSABLE UTILITIES	\$ 75,000

CONSTRUCTION COST SUMMARY

C. MAJOR STRUCTURES	\$ 0
D. GRADING AND EARTHWORK	\$ 75,000
E. DRAINAGE	\$ 45,703
F. BASE & PAVING	\$ 111,106
G. CONCRETE WORK	\$ 10,571
H. SIGN, STRIPE, & SIGNAL	\$ 87,378
I. MISCELLANEOUS ITEMS	\$ 65,000
J. TRAFFIC CONTROL	\$ 90,000
K. GRASSING/LANDSCAPING	\$ 55,000
L. EROSION CONTROL	\$ 32,825

SUBTOTAL CONSTRUCTION COST	\$ 572,583
E & C (10%)	\$ 57,258
INFLATION (5% PER YEAR) 2 YRS.	\$ 64,559
TOTAL CONSTRUCTION COST	\$ 694,400

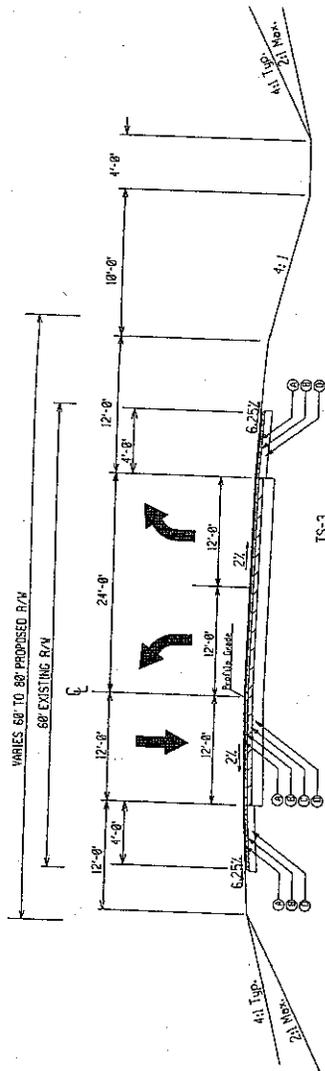
GRAND TOTAL PROJECT COST \$ 1,350,400

ESTIMATED COST

CONSTRUCTION:	\$ 572,583	RIGHT-OF-WAY:	\$ 581,000
E & C (10 %)	\$ 572,583	ACQUIRED BY:	Fulton Co.
INFLATION:	\$ 64,559	UTILITIES:	\$ 75,000
(2 years at 5% per year)		ADJUSTED BY:	LGPA
TOTAL CNST COST:	\$ 694,400	GRAND TOTAL	\$1,350,400

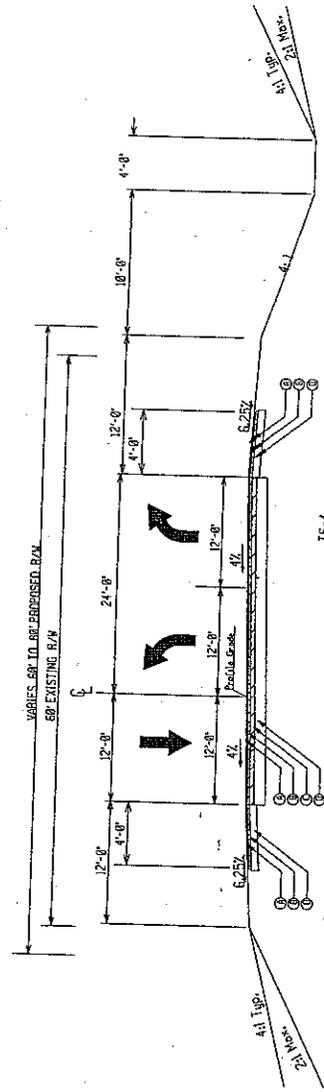


STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	HPP-80090-00(251)	12	12



TS-3  
TANGENT SECTION  
GREEN ROAD  
(N.T.S.)

- ① ASPHALTIC CONC. 9.5 in. SUPERPAVE. 185 LB/5.75.
- ② ASPHALTIC CONC. 19 in. SUPERPAVE. 230 LB/5.75.
- ③ ASPHALTIC CONC. 25 in. SUPERPAVE. 418 LB/5.75.
- ④ GRADED AGGREGATE BASE, 1P.



TS-4  
SUPER-ELEVATED SECTION  
GREEN ROAD  
(N.T.S.)

- ① ASPHALTIC CONC. 9.5 in. SUPERPAVE. 185 LB/5.75.
- ② ASPHALTIC CONC. 19 in. SUPERPAVE. 230 LB/5.75.
- ③ ASPHALTIC CONC. 25 in. SUPERPAVE. 418 LB/5.75.
- ④ GRADED AGGREGATE BASE, 1P.

CASE 1 - Width 12'-0" x 12'-0" (2.0' x 2.0')  
 CASE 2 - Width 12'-0" x 12'-0" (2.0' x 2.0')  
 CASE 3 - Width 12'-0" x 12'-0" (2.0' x 2.0')

Graded Aggregate Base  
 180 SIZE 2" Minimum Class 3 Concrete  
 From Book 500-1993 - Ca. 164.

Note: All vertical curves shall be designed in accordance with the AASHTO Vertical Curve Design Manual. The design shall be based on the design speed of 40 mph. The design shall be based on the design speed of 40 mph. The design shall be based on the design speed of 40 mph.

NOTE: SEE SHEET 10-100-00 FOR  
 SECTION OF SUPER-ELEVATION  
 ARNOLD MILL RD (SR140) AT GREEN RD  
 INTERSECTION IMPROVEMENTS  
 TYPICAL SECTIONS

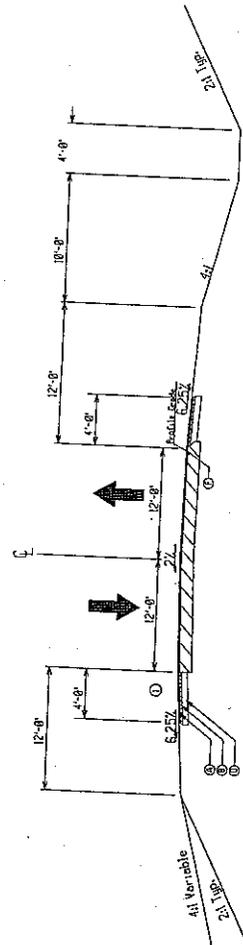
NOTE: ALL VERTICAL CURVES SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO VERTICAL CURVE DESIGN MANUAL. THE DESIGN SHALL BE BASED ON THE DESIGN SPEED OF 40 MPH. THE DESIGN SHALL BE BASED ON THE DESIGN SPEED OF 40 MPH.

NOTE: STANDARD CROSS-SLOPE OF 1/4" PER FOOT MAY BE VARIED AS SHOWN ON THIS SHEET. THE DESIGNER SHALL BE RESPONSIBLE FOR THE EXISTING ROADWAY AS PER SECTION 114 OF THE SUPPLEMENTAL SPECIFICATIONS. SEE ALLOWABLE RANGES TABLE.

NO.	DATE	REVISIONS

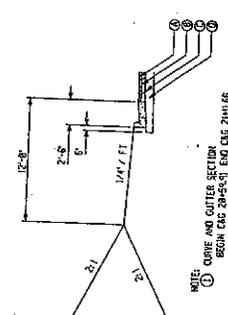
PROFESSIONAL ENGINEER  
 STATE OF GEORGIA  
 No. 12178  
 DATE: 04/06/06

STATE PROJECT NUMBER SHEET TOTALS  
 GA. HPP-8000-00(251) 13

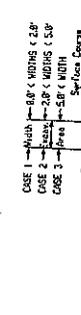


IS-3  
 SUPER-ELEVATED SECTION  
 CAGLE ROAD  
 (N.T.S.)

- ① ASPHALTIC CONC 1 1/2" SUPERPAVE, 65 LBS./S.Y.
- ② ASPHALTIC CONC 1 1/2" SUPERPAVE, 728 LBS./S.Y.
- ③ ASPHALTIC CONC 2" SUPERPAVE, 65 LBS./S.Y.
- ④ ASPHALTIC CONC 2" SUPERPAVE, 448 LBS./S.Y.
- ⑤ ASPHALTIC CONC 1 1/2" SUPERPAVE, 65 LBS./S.Y.
- ⑥ ASPHALTIC CONC 1 1/2" SUPERPAVE, 448 LBS./S.Y.
- ⑦ CONC. CURB & GUTTER, 4" ST. 3002, TYPE 2 @ 2"Ø



NOTE:  
 ① CURB AND GUTTER SECTION  
 FROM (42' 205'51) END CAG 21166



NOTE: SEE G001 FOR 400-C FOR  
 SETTING OF SPEED LIMITATION  
 PROJECT SHALL BE DESIGN LEVEL '0'

NOTE: ALL INTERSECTION (TREES, SHRUBS, GRASS, ETC.) THAT IS NOT DIRECTLY  
 AFFECTED BY THE ACTUAL CONSTRUCTION LIMITS IS NOT TO BE DISTURBED.  
 NOTE: STANDARD CROSS-SLOPE OF 1 1/4% FOR FOOT WAY BE WIDER  
 INDICATED BY THE ENGINEER TO BEST FIT THE EXISTING  
 ROADWAY. SEE SUPPLEMENTAL SPECIFICATIONS.  
 SEE "ALLOWABLE BOUNDS TABLE"

NOTE: SUPERPAVE MIX DESIGN ON THIS  
 PROJECT SHALL BE DESIGN LEVEL '0'

ARNOLD MILL RD (SR140) AT GREEN RD  
 INTERSECTION IMPROVEMENTS  
 TYPICAL SECTIONS

ATTACHMENT 'B2'

NO.	REVISIONS	DATE	BY	CHKD.

**ACCIDENT SUMMARY TABLE**

**ACCIDENTS PER MILLION ENTERING VEHICLES**

Intersection	Incidents by year		
	97	98	99
Arnold Mill Road / Green Road	1.3	0.63	1.6

The numerical values above were compared with the GDOT statewide average accident rate for same/similar roadways of 3.8 per MEV. Accidents at Arnold Mill at Green Road do not exceed the statewide average accident rate for the represented years for same/similar roadways.

ACCIDENT SUMMARY TABLE

# STUDY METHODOLOGY

Traffic conditions are evaluated in terms of average vehicle delay and based on Level of Service (LOS) measurements from the 1997 Highway Capacity Manual (HCM). LOS is a measure of a roadway facility's ability to accommodate a moving stream of vehicles. LOS measurements range from "A" to "F", with LOS A being the best operating conditions and LOS F the worst. Generally, LOS D or better is acceptable. LOS E and F are unacceptable in most cases and warrant improvements to the intersection geometry or signal timing adjustments. Table 1 and Table 2 list the LOS criteria for signalized and unsignalized intersections, respectively.

Table 1 - LOS for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	10.0 - 20.0
C	20.0 - 35.0
D	35.0 - 55.0
E	55.0 - 80.0
F	> 80.0

Reference: Highway Capacity Manual, 1997 Update

Table 2 - LOS for Unsignalized Intersections

LEVEL OF SERVICE	AVERAGE TOTAL DELAY (SEC/VEH)
A	≤ 10.0
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Reference: Highway Capacity Manual, 1997 Update

## EXISTING TRAFFIC OPERATIONS

Using procedures outlined in the Synchro Release 4.0 traffic modeling software, an analysis of the existing intersection capacity during the peak periods identified earlier was performed. The software uses the following data to evaluate traffic conditions at studied intersections.

- Turning Movement Counts
- Traffic Signal Controller Database Settings and Timings, if applicable
- Intersection Geometry (See Exhibits 6 - 9)
- Pedestrian Phasing, if applicable

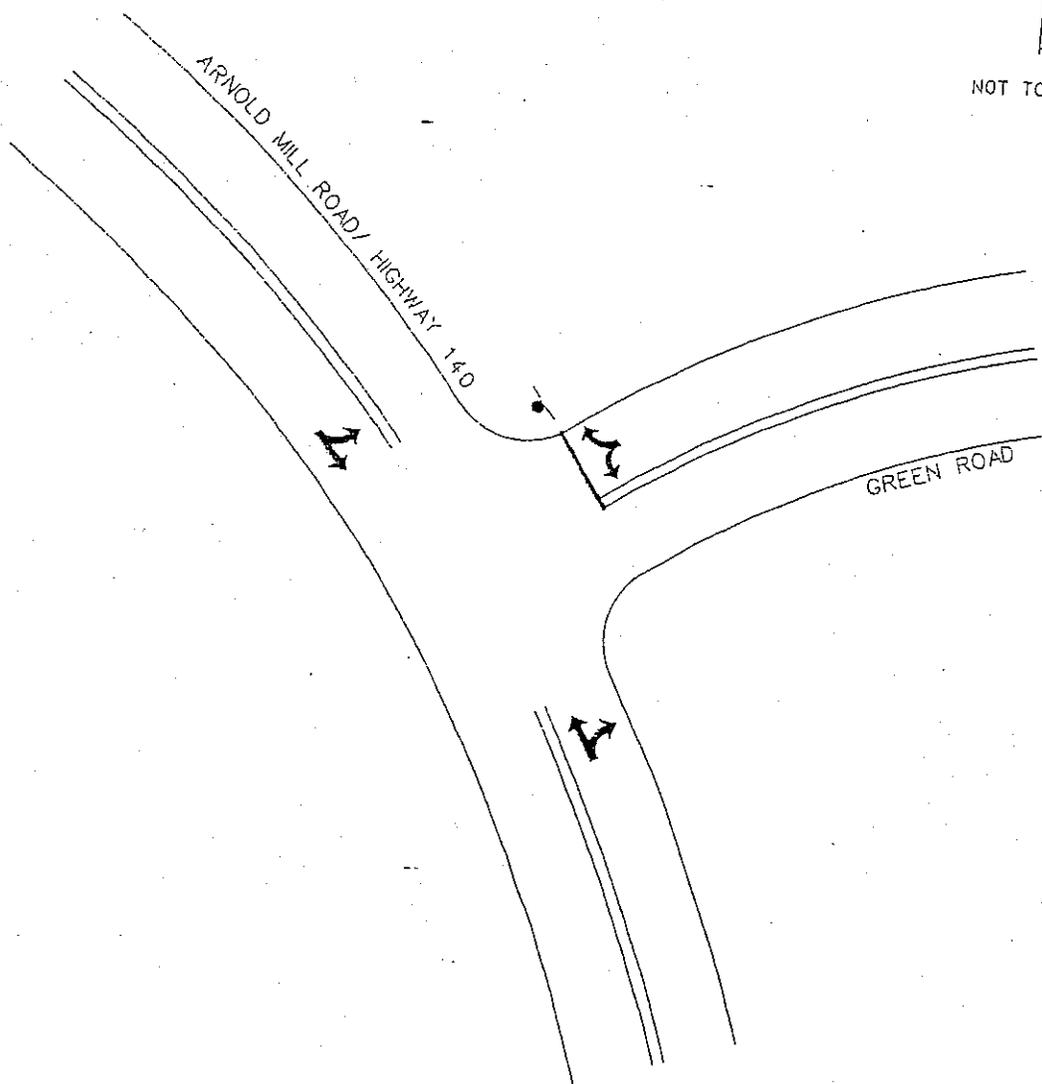
Synchro Release 4.0 was used to model signalized intersections and the Highway Capacity Software (HCS), Version 3.1b was used to analyze the unsignalized intersection. HCS provides the LOS for the approach(s) to the intersection that is controlled by the stop sign. The overall LOS of the intersections is determined by procedures outlined in the HCM (1997).

A capacity analysis was performed for each studied intersection using the existing lane configurations. Table 3 shows the existing LOS for each intersection during the studied peak period.

Table 3 - Existing Intersection Level of Service (LOS)

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Roswell Road at Dunwoody Place	E	F
Roswell Road at Northridge Drive	D	E
Arnold Mill Road at Green Road	A	F
Glenridge Drive at Abernathy Road	C	C

# EXISTING LANE CONFIGURATION ARNOLD MILL ROAD AT GREEN ROAD



NOT TO SCALE

EXHIBIT 8

GA 400 CORRIDOR/NORTH FULTON  
INTERSECTIONS - 1

**GRICE**  
& ASSOCIATES

## FUTURE TRAFFIC OPERATIONS

The GA 400 Intersection Improvement Project consists of intersection improvements located in the vicinity of the GA 400 corridor. The proposed limits extend just beyond the intersections in the immediate project area. Each intersection was analyzed for traffic operations, safety, and geometric lane configuration. This analysis utilized existing (2000), build year (2002), and projected (2020) traffic volumes. Projected build year (2002) traffic volumes are shown on Exhibits 10 - 13 while projected (2020) traffic volumes are shown on Exhibits 14 - 17. These volumes were computed based upon historical ADT volumes collected by GDOT. The volume growth rate was determined to be 2.89 percent per year. Thus, for our purposes, the growth factor used for this analysis was three (3) percent.

### Traffic Signal Warrant Analysis

The determination of the need for a traffic signal at Arnold Mill Road at Green Road was evaluated using the Manual of Uniform Traffic Control Devices (MUTCD) Traffic Signal Warrant Analysis procedure. This analysis processes several iterations of algorithms to analyze the volume of traffic during particular time periods of the day. It evaluates eleven warrants as part of this procedure. The output displays the warrants that are and are not met as a result of the analysis of the studied intersection. The MUTCD provides the following eleven traffic signal warrants:

- Warrant 1 – Minimum Vehicular Volume
- Warrant 2 – Interruption of Continuous Traffic
- Warrant 3 – Minimum Pedestrian Volume
- Warrant 4 – School Crossing
- Warrant 5 – Progressive Movement
- Warrant 6 – Accident Experience
- Warrant 7 – Systems
- Warrant 8 – Combination of Warrants
- Warrant 9 – Four Hour Volumes
- Warrant 10 – Peak Hour Delay
- Warrant 11 – Peak Hour Volume

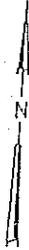
Below is the warrant that was met for the studied intersection.

- Warrant 11 – Peak Hour Volume

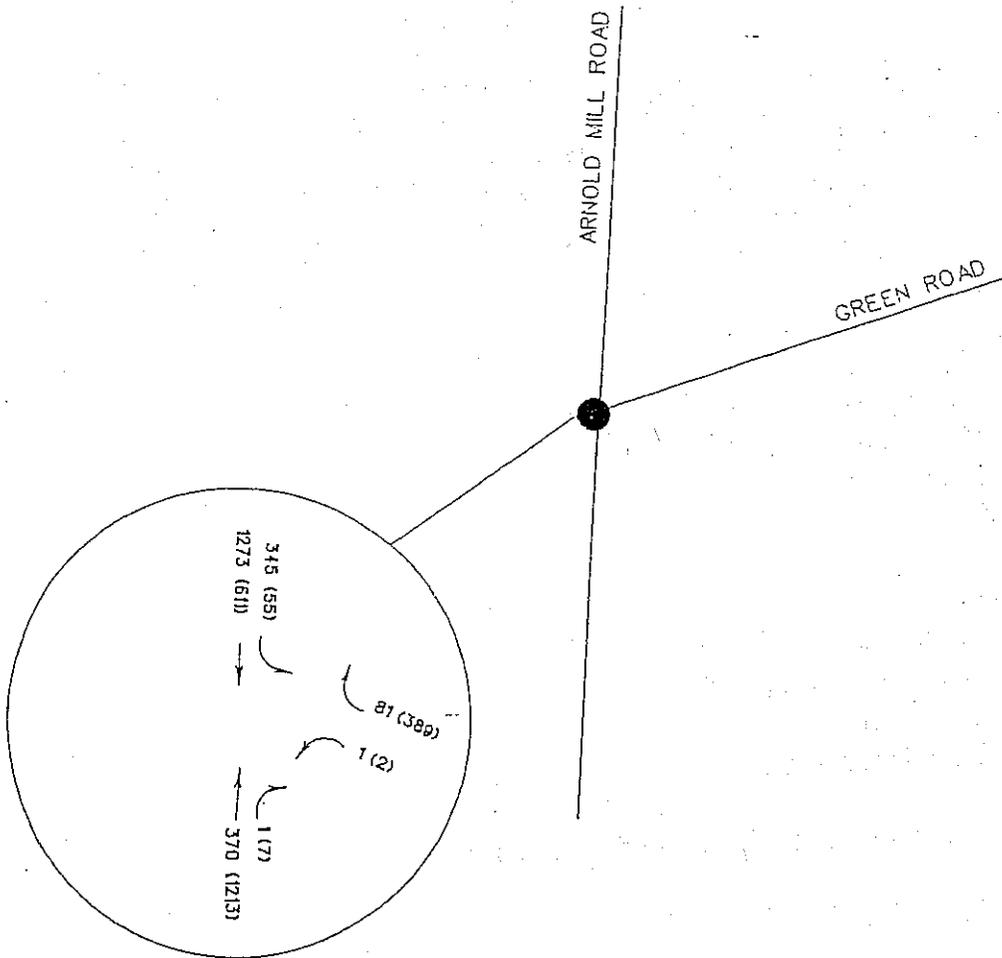
### Geometric Modifications

Based upon traffic engineering principles and specific study area needs and expectations, several geometric modifications were analyzed to improve traffic operations and safety. The recommended geometric modifications can be found in Exhibits 18 - 21 - Proposed Lane Configuration.

# 2002 PROJECTED TURNING MOVEMENT COUNTS ARNOLD MILL ROAD AT GREEN ROAD



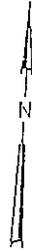
NOT TO SCALE



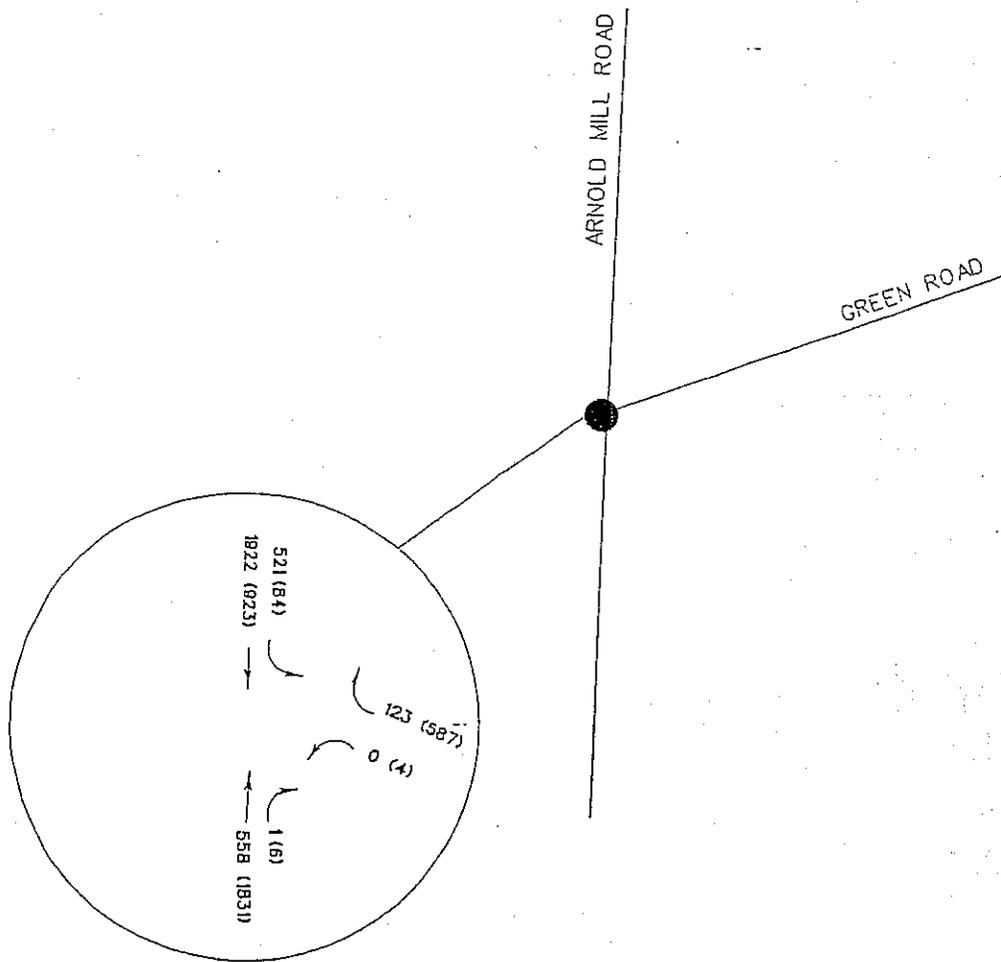
● - Signalized Intersection  
100 (100) - Turning Movements AM(PM)

EXHIBIT 12

# 2020 PROJECTED TURNING MOVEMENT COUNTS ARNOLD MILL ROAD AT GREEN ROAD



NOT TO SCALE



● - Signalized Intersection  
100 (100) - Turning Movements AM(PM)

EXHIBIT 16

Future Level of Service (LOS) Analysis

A capacity analysis was performed for each intersection using the projected traffic volumes and the geometric modifications. Several iterations were developed and analyzed to attempt to produce an acceptable level of service. The capacity analysis results are shown in the following tables – Future Intersection Level of Service (LOS).

2002 Future Intersection Level of Service (LOS) with Fulton's Concept

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Roswell Road at Dunwoody Place	D	F
Roswell Road at Northridge Drive	D	D
Arnold Mill Road at Green Road	A	C
Glenridge Drive at Abernathy Road	C	C

2020 Future Intersection Level of Service (LOS) with Fulton's Concept

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Roswell Road at Dunwoody Place	F	F
Roswell Road at Northridge Drive	F	F
Arnold Mill Road at Green Road	F	F
Glenridge Drive at Abernathy Road	F	F

2020 Future Intersection Level of Service (LOS) with Major Improvements

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Roswell Road at Dunwoody Place	C	D
Roswell Road at Northridge Drive	D	D
Arnold Mill Road at Green Road	B	C
Glenridge Drive at Abernathy Road	C	C

## CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, traffic operations at the intersections are forecasted to be acceptable in 2002 with the exception of the PM peak period at the intersection of Roswell Road at Dunwoody Place. Furthermore, it is recommended to install a traffic signal at the intersection of Arnold Mill Road (Highway 140) at Green Road. Due to the current physical constraints and limitations, the most optimum level of service and the coinciding geometry is recommended (See Exhibits 18 -21).

### Proposed Conditions with Geometric Improvements

To obtain the Level of Service (LOS) as described in the 2002 table, the following geometric improvements are required:

#### Roswell Road at Dunwoody Place

- Southbound
  - One right turn storage lane – 150 feet
  - Two through lanes
  - Two Left turn storage lanes – 350 feet each
- Northbound
  - One right turn lane – 150 feet
  - Two through lanes
  - One Left turn storage lane – 100 feet
- Eastbound
  - One right turn lane – 150 feet
  - One left and through shared lane
- Westbound
  - One right turn lane – 150 feet
  - One through lane
  - Two Left turn storage lanes – 125 feet each

#### Roswell Road at Northridge Drive

- Northbound
  - One right turn lane – 150 feet
  - Two through lanes
  - One Left turn storage lane – 100 feet
- Southbound
  - One right turn lane – 150 feet
  - Two through lanes
  - Two Left turn storage lanes – 475 feet each

- Eastbound  
One through and right shared lane  
One Left turn lane – 100 feet

- Westbound  
One right turn lane – 150 feet  
One left and through shared lane  
One Left turn storage lane – 450 feet

Arnold Mill Road at Green Road

- Northbound  
One right turn lane – 150 feet  
One through lane

- Southbound  
One through lane  
One Left turn storage lane – 200 feet

- Westbound  
One right turn lane  
One Left turn storage lane – 100 feet

Glenridge Drive at Abernathy Road

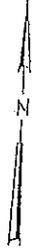
- Northbound  
One through and right shared lane  
One Left turn storage lane – 275 feet

- Southbound  
One right turn lane – 150 feet  
One through lane  
One Left turn storage lane – 150 feet

- Eastbound  
One through and right shared lane  
One through lane  
One Left turn storage lane – 150 feet

- Westbound  
One through and right shared lane  
One through lane  
One Left turn storage lane – 150 feet

# PROPOSED LANE CONFIGURATION ARNOLD MILL ROAD AT GREEN ROAD



NOT TO SCALE

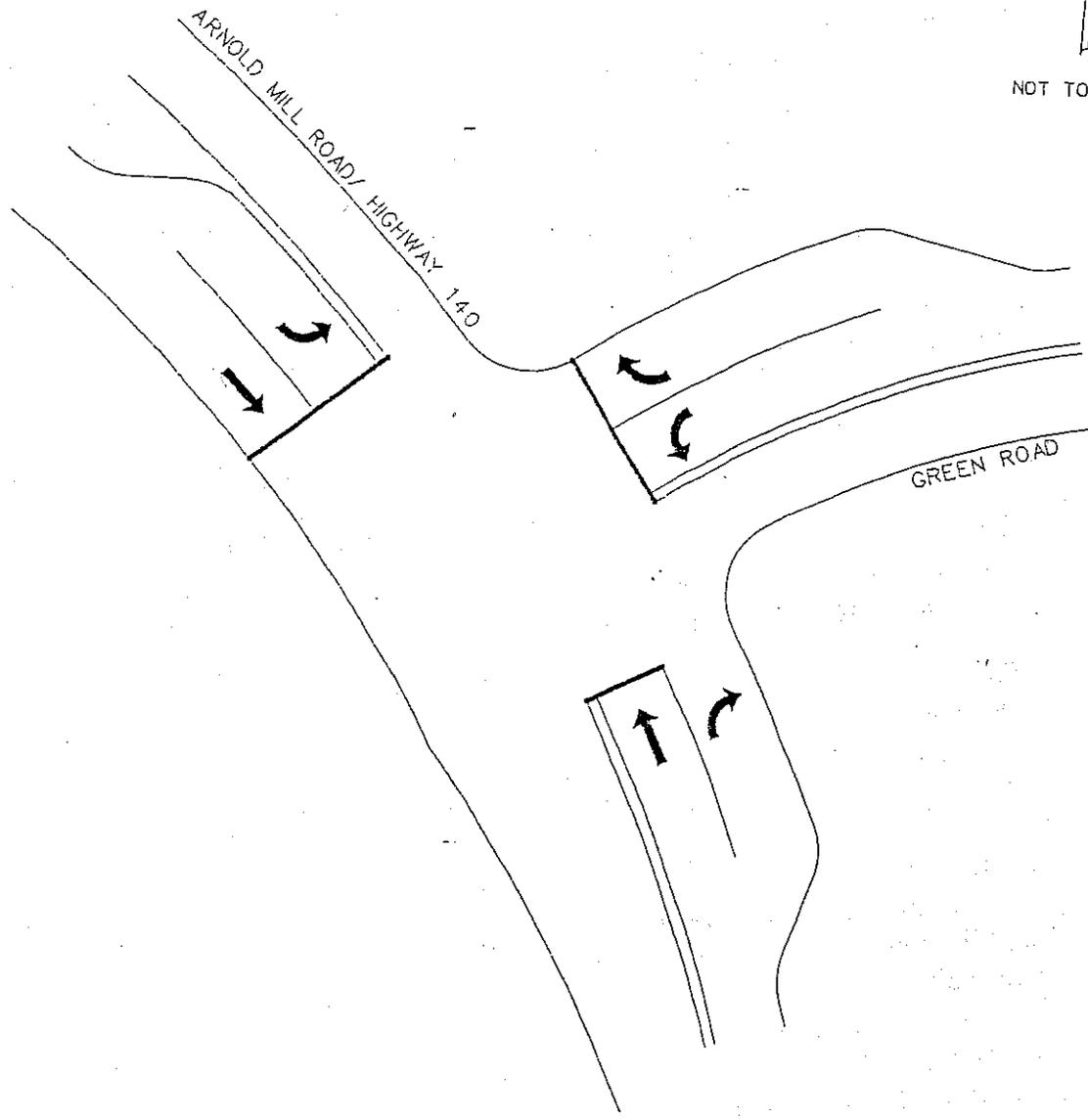


EXHIBIT 20

The projected year analysis for 2020 forecasted unacceptable levels of service for all intersections studied. Current physical constraints limit the potential for further geometric improvements beyond the design year. Therefore, these intersections should be further analyzed in conjunction with major roadway improvement (widening) projects to produce an acceptable level of service for all intersections in the year 2020.

To obtain acceptable Levels of Service (LOS) in the year 2020, the following major geometric improvements are recommended:

#### Roswell Road at Dunwoody Place

- Southbound
  - One right turn storage lane – 150 feet
  - Four through lanes
  - Two Left turn storage lanes – 525 feet each
- Northbound
  - One right turn lane – 150 feet
  - Four through lanes
  - One Left turn storage lane – 125 feet
- Eastbound
  - One right turn lane – 150 feet
  - One through lane
  - One left and through shared lane
  - One Left turn storage lane – 150 feet
- Westbound
  - Two right turn storage lanes – 100 feet each
  - Two through lanes
  - Two Left turn storage lanes – 200 feet each

#### Roswell Road at Northridge Drive

- Northbound
  - One right turn lane – 150 feet
  - Four through lanes
  - One Left turn storage lane – 100 feet
- Southbound
  - One right turn lane – 150 feet
  - Three through lanes
  - Three Left turn storage lanes – 500 feet each

- Eastbound  
One right turn lane – 150 feet  
Two through lanes  
One Left turn storage lane – 100 feet
- Westbound  
One right turn lane – 150 feet  
Three through lanes  
Three Left turn lanes – 450 feet each

Arnold Mill Road at Green Road

- Northbound  
One right turn lane – 150 feet  
Two through lanes
- Southbound  
Two through lanes  
One Left turn storage lane – 700 feet
- Westbound  
One right turn lane  
One Left turn storage lane – 150 feet

Glenridge Drive at Abernathy Road

- Northbound  
One through and right shared lane  
One through lane  
Two Left turn storage lanes – 225 feet each
- Southbound  
One right turn lane – 150 feet  
Two through lanes  
One Left turn storage lane – 200 feet
- Eastbound  
One through and right shared lane  
Two through lanes  
One Left turn storage lane – 200 feet

- Westbound
  - One through and right shared lane
  - Two through lanes
  - One Left turn storage lane - 200 feet

Based on the location of the studied intersections, it is recommended to analyze other signals in the immediate area to determine the need for signal system tie-in or signal coordination.

## STUDY METHODOLOGY

Traffic conditions are evaluated in terms of average vehicle delay and based on Level of Service (LOS) measurements from the 1997 Highway Capacity Manual (HCM). LOS is a measure of a roadway facility's ability to accommodate a moving stream of vehicles. LOS measurements range from "A" to "F", with LOS A being the best operating conditions and LOS F the worst. Generally, LOS D or better is acceptable. LOS E and F are unacceptable in most cases and warrant improvements to the intersection geometry or signal timing adjustments. Table 1 and Table 2 list the LOS criteria for signalized and unsignalized intersections, respectively.

**Table 1 - LOS for Signalized Intersections**

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	10.0 – 20.0
C	20.0 – 35.0
D	35.0 – 55.0
E	55.0 – 80.0
F	> 80.0

Reference: Highway Capacity Manual, 1997 Update

**Table 2 - LOS for Unsignalized Intersections**

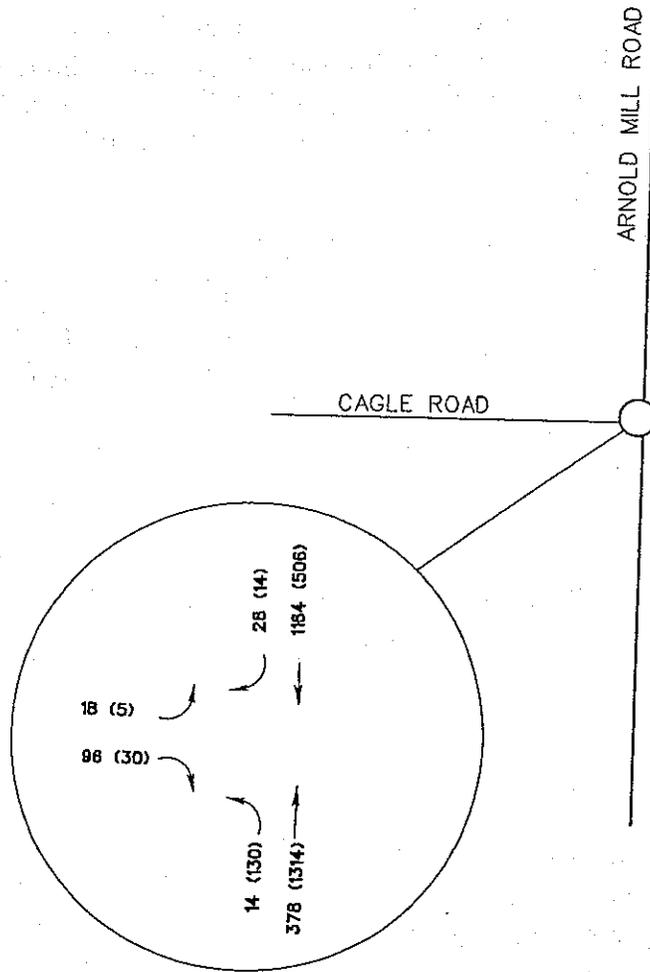
LEVEL OF SERVICE	AVERAGE TOTAL DELAY (SEC/VEH)
A	< 10.0
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Reference: Highway Capacity Manual, 1997 Update

# EXISTING TURNING MOVEMENT COUNTS ARNOLD MILL ROAD AT CAGLE ROAD



NOT TO SCALE



○ - Unsignalized Intersection  
 100 (100) - Turning Movement Counts AM(PM)

EXHIBIT 2

## EXISTING TRAFFIC OPERATIONS

Using procedures outlined in the Highway Capacity Software 3.2 (HCS) traffic modeling software, an analysis of the existing intersection's capacity during the peak periods identified earlier was performed. The software uses the following data to evaluate traffic conditions at the studied intersection:

- Turning Movement Counts
- Intersection Geometry (See Exhibit 3)
- Gap availability

HCS provides the LOS for the approach(es) to the intersection that is controlled by a traffic control device and the movement(s) that relies on gap availability to safely clear the intersection. The overall LOS of the intersection is determined by procedures outlined in the HCM (1997). Table 3 shows the existing LOS for the studied intersection during the AM and PM peak periods.

**Table 3 – Existing Intersection Level of Service (LOS)**

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Arnold Mill Road at Cagle Road Eastbound Approach Northbound Left Turn	F B	F A

Results of the analysis of the existing conditions indicate that the eastbound approach to the intersection currently operates with an unacceptable LOS during the peak periods. Due to the current functionality of this intersection, further analysis was performed to evaluate traffic signal warrants using the existing conditions.

### Traffic Signal Warrant Analysis

To determine the need for a traffic signal at Arnold Mill Road at Cagle Road, the Manual of Uniform Traffic Control Devices (MUTCD) Traffic Signal Warrant Analysis procedure was used. This analysis processes several iterations of algorithms to analyze the volume of traffic during particular time periods of the day. It evaluates eleven warrants and displays the applicable warrants that are met and are not met as a result of the analysis. The following are the eleven warrants:

- Warrant 1 – Minimum Vehicular Volume
- Warrant 2 – Interruption of Continuous Traffic
- Warrant 3 – Minimum Pedestrian Volume
- Warrant 4 – School Crossing
- Warrant 5 – Progressive Movement

- Warrant 6 – Accident Experience
- Warrant 7 – Systems
- Warrant 8 – Combination of Warrants
- Warrant 9 – Four Hour Volumes
- Warrant 10 – Peak Hour Delay
- Warrant 11 – Peak Hour Volume

According to the analysis results, Warrant 11 was met for the PM peak period. Generally, to justify signalization, an intersection is required to meet a minimum of two or three warrants.

Since the studied intersection did not meet enough warrants for signalization, geometric modifications to the existing lane configuration were considered.

### Geometric Modifications

Based upon traffic engineering principles and specific study area needs and expectations, geometric modifications were analyzed to improve traffic operations and safety. Because the eastbound approach operates unacceptably, an additional lane was added to Cagle Road to determine the impact of this addition on the intersection's operation. Analyzing the intersection using the existing turning movement counts with the additional lane, yielded the capacity results as shown in Table 4.

**Table 4 – Intersection Level of Service (LOS) with Geometric Improvements**

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Arnold Mill Road at Cagle Road		
Eastbound Left Turn	F	F
Eastbound Right Turn	E	B
Northbound Left Turn	B	A

As a result of the aforementioned geometric modifications, the eastbound left turning movement functions unacceptably during both the AM and PM peak periods. The eastbound right turning movement operates unacceptably during the AM peak and acceptably during the PM peak periods. Results of the analysis indicate that geometric modifications to the eastbound approach will not improve the operations of the intersection; therefore, major roadway improvements were considered.

Cagle Road intersects Arnold Mill Road approximately 400 feet north the intersection of Green Road at Arnold Mill Road. Roadway improvements at the intersection of Green Road at Arnold Mill Road were addressed in a previously submitted traffic study. In that study, traffic signal installation and roadway realignment is recommended at Green Road to improve operations and safety. As part of those major roadway improvements, realigning Cagle Road 200 feet south and Green Road 200 feet north to form a four-way approach intersection with Arnold Mill Road was considered and analyzed.

# EXISTING LANE CONFIGURATION ARNOLD MILL ROAD AT CAGLE ROAD

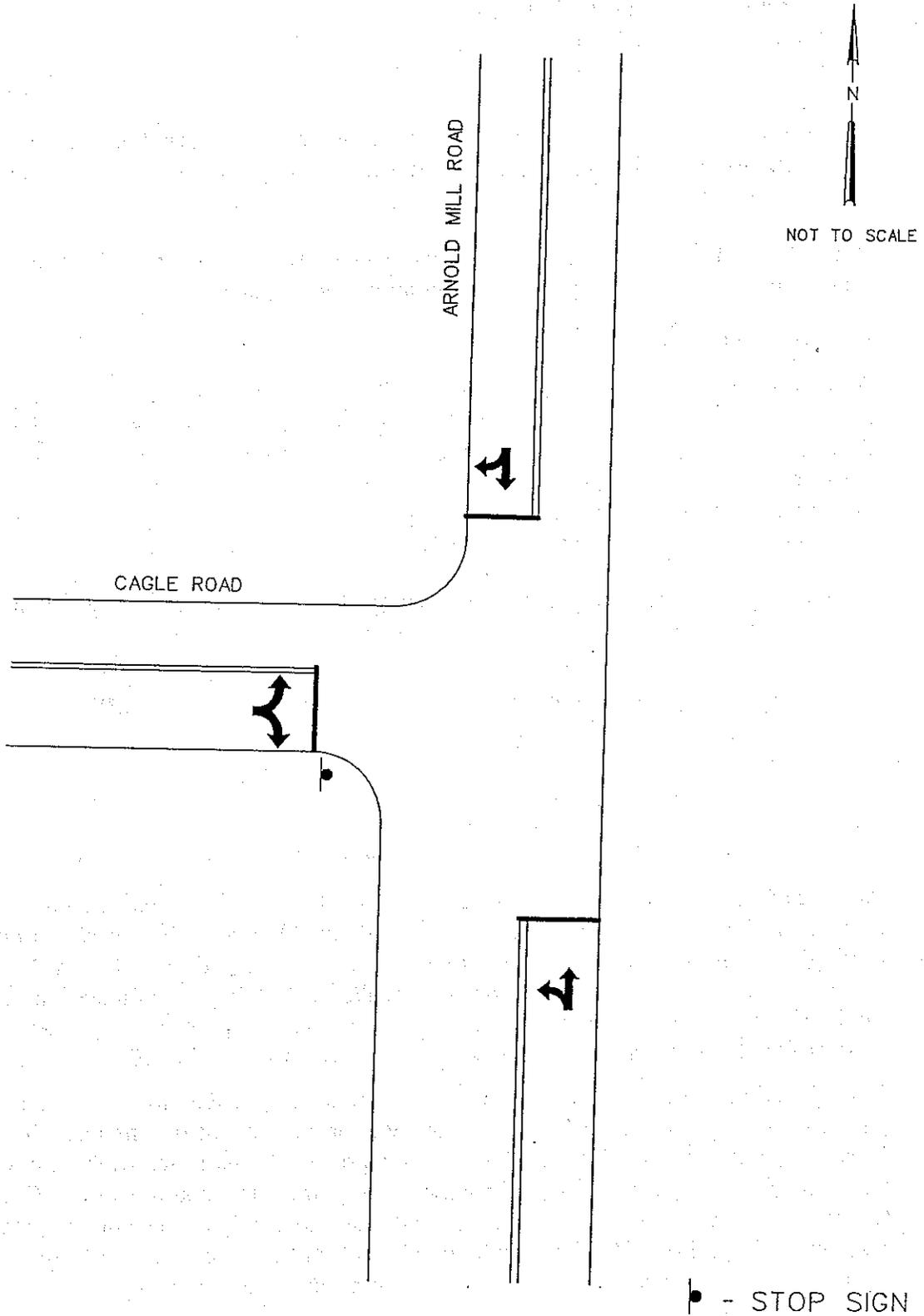


EXHIBIT 3

## FUTURE TRAFFIC OPERATIONS

The four-way approach intersection (Cagle Road/Green Road at Arnold Mill Road) was analyzed for the build year (2002) and the projected year (2020). Analyses evaluated traffic operations, safety, and geometric lane configuration. This analysis utilized build year (2002) and projected year (2020) traffic volumes. Build year (2002) traffic volumes and projected year (2020) volumes are shown on Exhibits 4 and 5, respectively. Traffic volumes along Green Road were extracted from the previously submitted traffic study and included in the intersection analysis. These volumes were computed based upon historical ADT volumes collected by GDOT. The volume growth rate was determined to be 2.89 percent per year. Thus, for our purposes, the growth factor used for this analysis was three (3) percent.

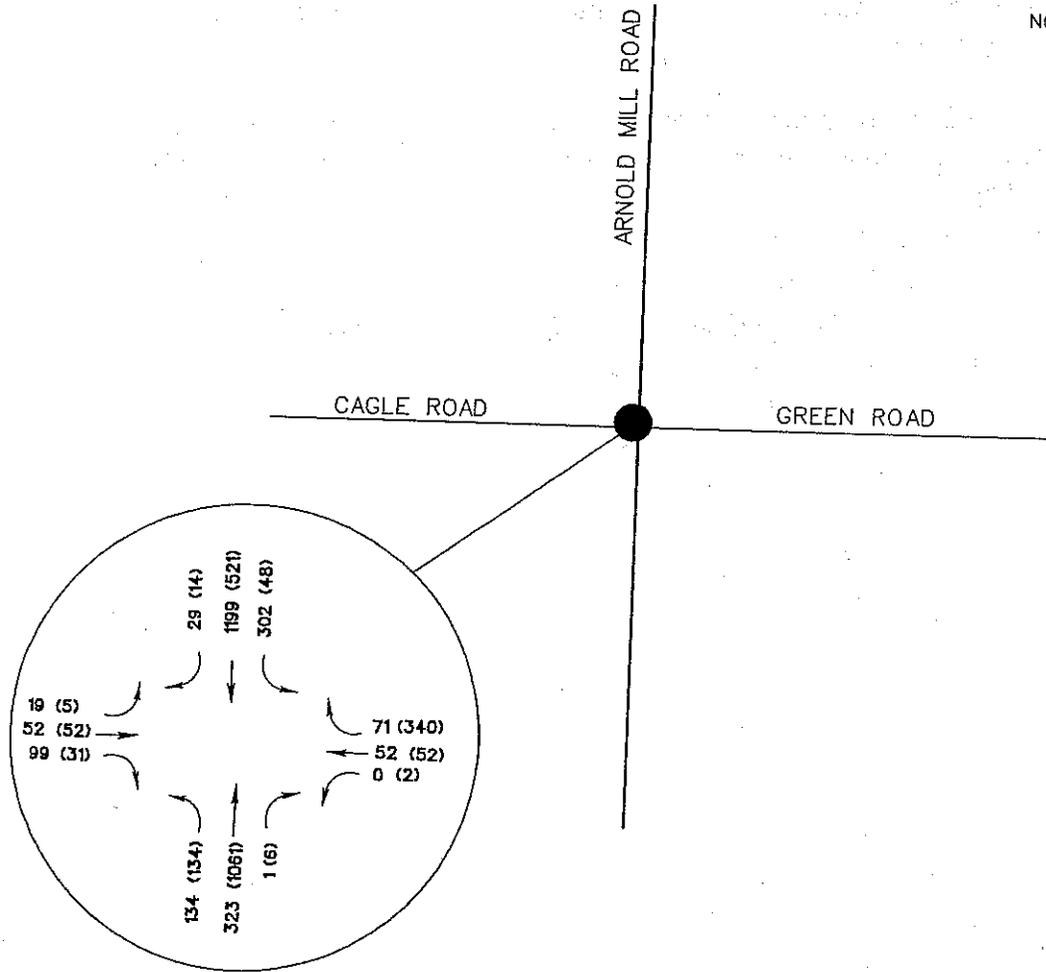
Using procedures outlined in the Synchro Release 4.0 traffic modeling software, an analysis of the proposed intersection was completed using the projected traffic volumes and the major geometric improvements. The software uses the following data to evaluate traffic conditions at signalized intersections.

- Turning Movement Counts
- Traffic Signal Controller Database Settings and Timings, if applicable
- Intersection Geometry (Exhibit 6)
- Pedestrian Phasing, if applicable

# 2002 PROJECTED TURNING MOVEMENT COUNTS ARNOLD MILL ROAD AT CAGLE ROAD/GREEN ROAD



NOT TO SCALE



● - Signalized Intersection  
100 (100) - Turning Movement Counts AM(PM)

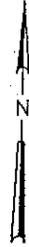
EXHIBIT 4

GA 400 CORRIDOR/NORTH FULTON  
INTERSECTIONS - I

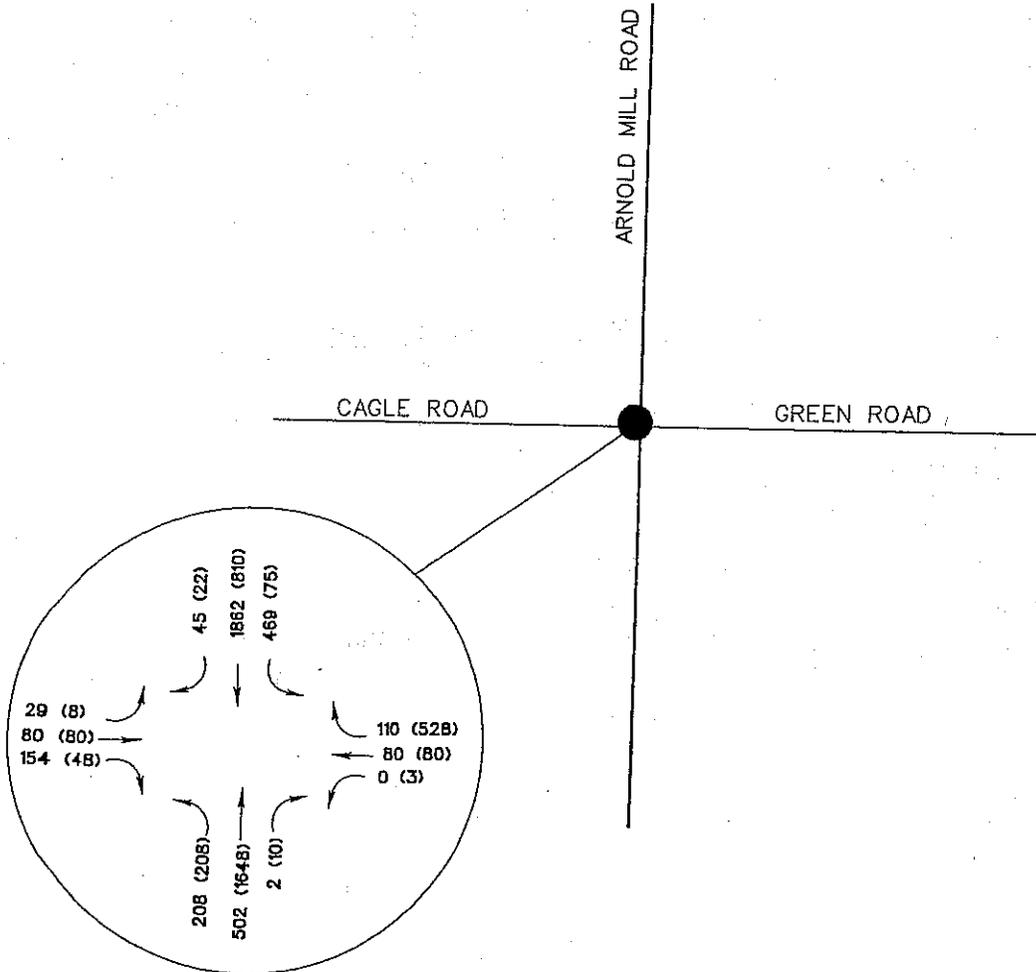
**GRICE**  
& ASSOCIATES

APRIL 2001

# 2020 PROJECTED TURNING MOVEMENT COUNTS ARNOLD MILL ROAD AT CAGLE ROAD/GREEN ROAD



NOT TO SCALE



● - Signalized Intersection  
100 (100) - Turning Movement Counts AM(PM)

EXHIBIT 5

GA 400 CORRIDOR/NORTH FULTON  
INTERSECTIONS - I

**GRICE**  
& ASSOCIATES

APRIL 2001

## Future Level of Service (LOS) Analysis

A capacity analysis was completed for the studied signalized intersection using the projected traffic volumes and the major geometric modifications as discussed previously. Several iterations were developed and analyzed to produce an acceptable level of service for both the build year and the projected year. The capacity analysis results are shown in the following tables:

**Table 5: 2002 Future Intersection Level of Service (LOS)**

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Arnold Mill Road at Cagle Road/Green Road	B	B

**Table 6: 2020 Future Intersection Level of Service (LOS)**

INTERSECTION	AM PEAK PERIOD	PM PEAK PERIOD
Arnold Mill Road at Cagle Road/Green Road	C	C

Results of the analyses using project traffic volumes and major roadway improvements forecast acceptable levels of service for the AM and PM peak periods through the future year (2020).

## CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, traffic operations at the intersection are forecasted to be acceptable in 2002 and 2020 with the major roadway improvements. The major roadway improvements include realigning Cagle Road 200 feet south of its existing location and Green Road 200 feet north of its current location so that these two roadway systems intersect Arnold Mill Road at the same location. In addition, a traffic signal is recommended to be installed at this intersection. Along with the major geometric improvements, the following lane configurations are recommended to achieve the most optimum level of service through the build year 2020 (See Exhibit 6).

### Arnold Mill Road at Cagle Road

- Southbound
  - One left turn storage lane – 450 feet
  - One through lane
  - One through and right shared lane
  
- Northbound
  - One left turn storage lane – 175 feet
  - One through lane
  - One through and right shared lane
  
- Eastbound
  - One left turn storage lane – 150 feet
  - One through lane
  - One right turn storage lane – 200 feet
  
- Westbound
  - One left turn storage lane – 150 feet
  - One through and right shared lane
  - One right turn storage lane – 300 feet

# RECOMMENDED LANE CONFIGURATION ARNOLD MILL ROAD AT CAGLE ROAD/GREEN ROAD

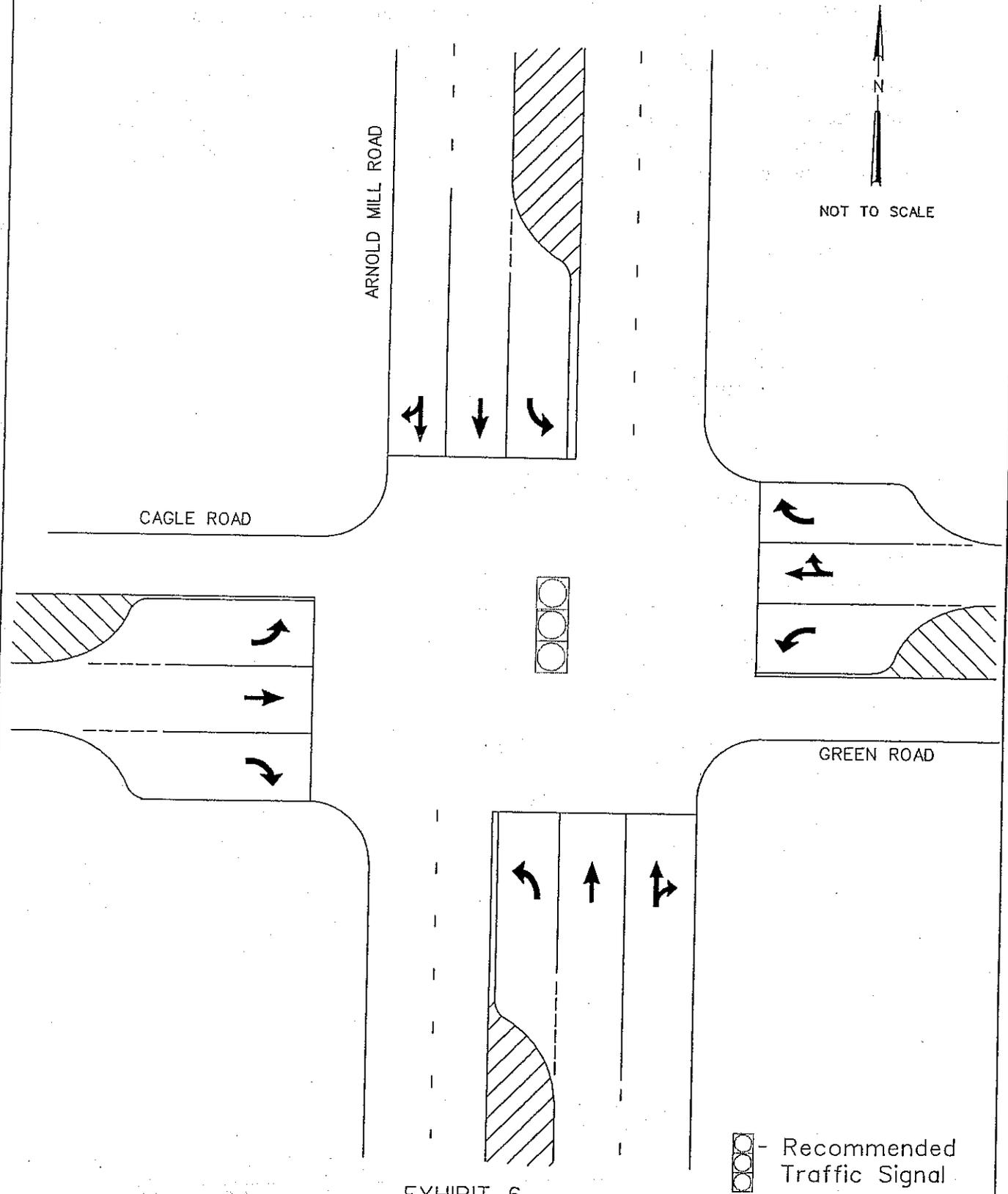


EXHIBIT 6

Concept Team Meeting Minutes  
October 11, 2000

Attendees:

Angela Alexander	GaDOT – Urban Design
Darrell Richardson	GaDOT – Urban Design
Darryl VanMeter	GaDOT – Urban Design
Brook Martin	GaDOT – Traffic Operations
Katie Mullins	GaDOT – Programming
Donald Mills	GaDOT – Planning
David Mulling	GaDOT – Engineering Services
Robert Crawford	GaDOT – District 7 Preconstruction
John McClelland	Fulton Co. – Public Works
Sammye Setzer	Fulton Co. – Public Works
Brian Leavell	Atlanta Gas Light Co.
Frank Stone	Bell South
Kevin Laseter	Sawnee EMC
Jeannine Risfin	Georgia Transmission
Mitchell Fowler	RMJ
Valerie Lee	Grice & Associates
Terri Verdone	Edwards & Pitman
Jim Fuerst	Clark Patterson Associates
Chip Randall	Clark Patterson Associates
Tom Harjung	Clark Patterson Associates
Nikki Graham	Clark Patterson Associates

\* ALL COMMENTS HAVE BEEN CONSIDERED AND INCORPORATED INTO REPORT SUBMITTAL

HPP-0000-00(251)  
PI # 0000251

**Arnold Mill Road & Green Road Intersection Improvements**

**() Response**

Darrell Richardson

- Guardrail is not needed since there is curb & gutter and shoulder (OK)
- Try to avoid wrought iron fence at Castle (OK)

Brook Martin

- If possible, improve skew at Cagle Road. (DONE, SEE CONCEPT LAYOUT)

NOTICE OF LOCATION AND DESIGN APPROVAL

HPP-0000-00 (251)  
GDOT P.I. NO. 0000251

Notice is hereby given in compliance with Georgia Code 22-2-109 that the Georgia Department of Transportation has approved the Location and Design of the above project.

The project begins approximately 820' south of the existing intersection of Arnold Mill Rd and Green Road and extends northward along Arnold Mill Rd to a point approximately 1230' north of the Arnold Mill Rd and Green Road intersection. Total project length is approximately 0.40 miles or 2,050 feet. The project consists of the addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and separating the left turn and the right turn movements on westbound Green Road. The existing intersection skew angle would be improved and the intersection would actually be shifted to the south approximately 115'. The side road of Cagle Rd will also be realigned to improve the existing intersection skew angle. A new traffic signal would also be installed for the new intersection of Arnold Mill and Green Rd.

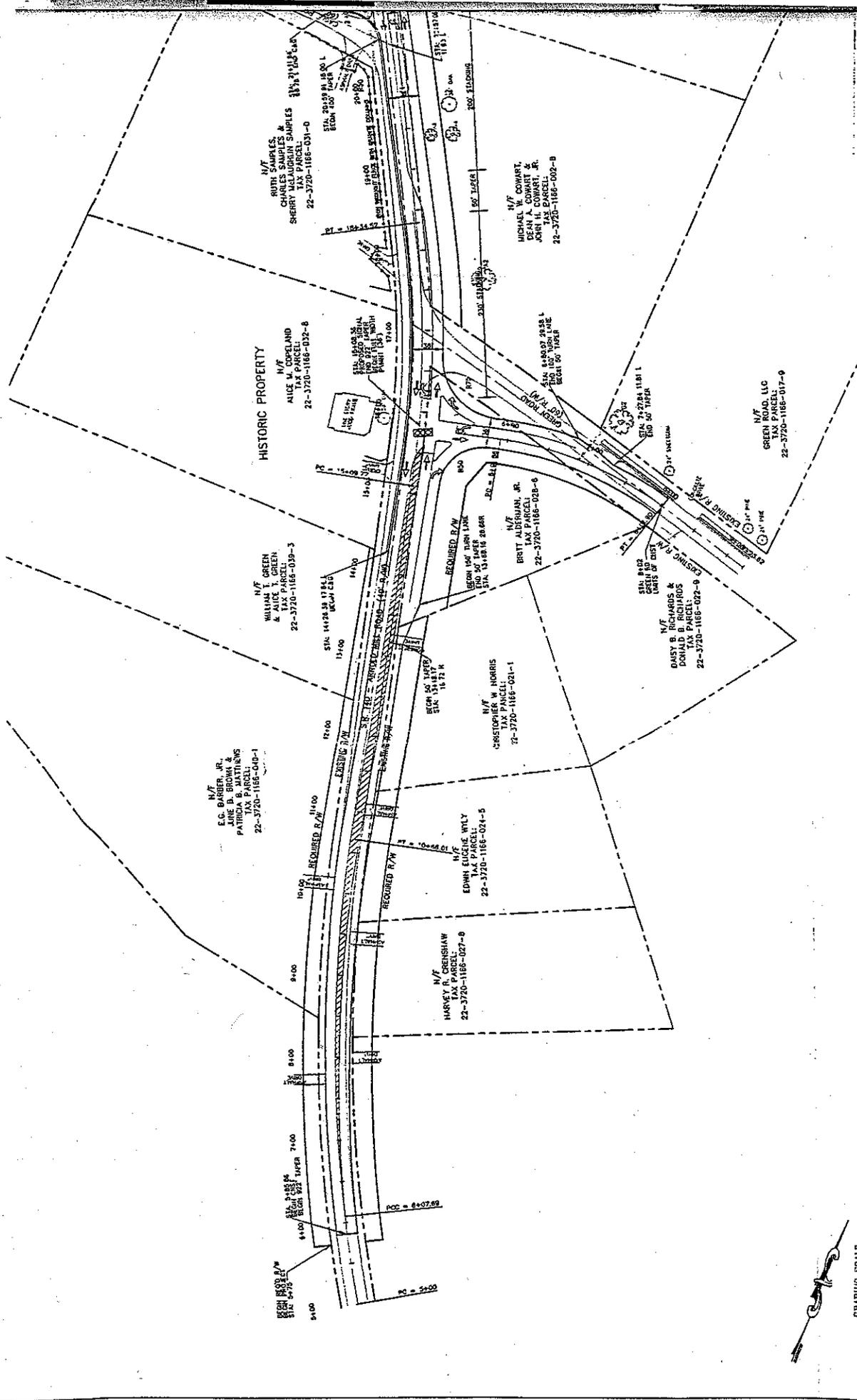
Date of Location and Design Approval: MAY 29, 2001

The project consists of adding an additional left turn lane on southbound Arnold Mill Road, a right turn lane on northbound Arnold Mill Road and separating the left turn and the through movements on westbound Green Road. Replacing the existing signal is also included.

Drawings or maps or plats of the proposed project as approved are on file and are available for inspection at the Georgia Department of Transportation, Office of Urban Design, No. 2 Capitol Square, S.W., Room 356, Atlanta, GA 30334. Or any interested party may obtain a copy of the drawings or maps or plats by writing to the Georgia Department of Transportation, Office of Urban Design, No. 2 Capitol Square, S.W., Room 356, Atlanta, GA 30334 and paying a nominal cost therefore.

Any written request in reference to this Notice should include the Project and P.I. Numbers as noted at the top of this Notice and may be referred to:

Joseph P. Palladi, P.E.  
State Urban Design Engineer  
Georgia Department of Transportation  
No. 2 Capitol Square, S.W., Room 356  
Atlanta, GA 30334  
(404) 656-5440



N/T  
E.C. BARBER, JR.  
JANE B. BROWN &  
PATRICIA B. MATTHEWS  
TAX PARCEL  
22-3720-1186-040-1

N/T  
WILLIAM T. GREEN  
&  
AIDEE T. GREEN  
TAX PARCEL  
22-3720-1186-039-3

HISTORIC PROPERTY  
N/T  
ALICE V. COPELAND  
TAX PARCEL  
22-3720-1186-032-8

N/T  
RUTH SAMPLER  
CHARLES SAMPLER &  
SHERRY TAX PARCEL  
22-3720-1186-031-0

N/T  
HARVEY R. CRENSHAW  
TAX PARCEL  
22-3720-1186-027-8

N/T  
EDMUND EUGENE WYLY  
TAX PARCEL  
22-3720-1186-024-5

N/T  
CHRISTOPHER  
TAX PARCEL  
22-3720-1186-021-1

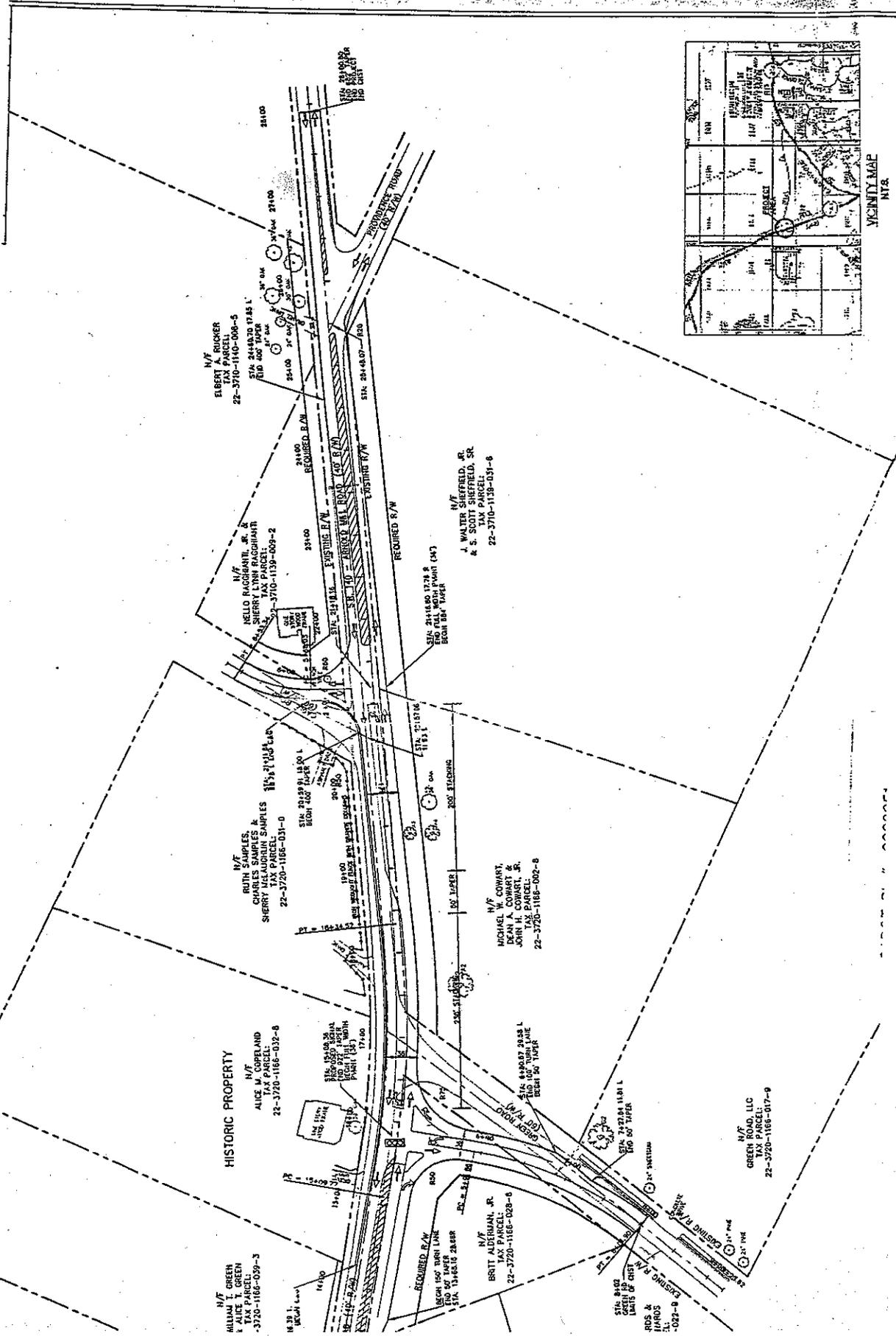
N/T  
BRETT ALVIN, JR.  
TAX PARCEL  
22-3720-1186-028-6

N/T  
MICHAEL W. GOWART,  
JENNIFER L. GOWART, JR.  
TAX PARCEL  
22-3720-1186-002-9

N/T  
DANIEL B. RICHARDS &  
DONALD B. RICHARDS  
TAX PARCEL  
22-3720-1186-022-8

N/T  
GREEN ROAD, LLC  
TAX PARCEL  
22-3720-1186-017-9





N/F  
ELBERT A. RUCKER  
TAX PARCEL  
22-3720-1166-006-5  
S1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.

N/F  
HELLO RAGGHIANI, JR. &  
SHERRY LYNN RAGGHIANI  
TAX PARCEL  
22-3720-1139-009-2  
S1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.

N/F  
RUTH SAMPLES &  
CHARLES SAMPLES &  
CHARLES SAMPLES &  
SHERRY LYNN RAGGHIANI  
TAX PARCEL  
22-3720-1139-009-2  
S1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
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E1/4 2414870 2145 L.

N/F  
ALICE M. COPELAND  
TAX PARCEL  
22-3720-1166-032-8  
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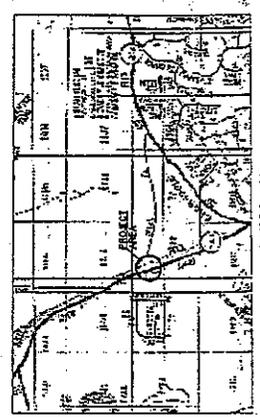
N/F  
MILLIAM T. GREEN  
&  
ALICE T. GREEN  
TAX PARCEL  
22-3720-1166-039-3  
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E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.

N/F  
J. WALTER SHEFFIELD, JR.  
&  
S. SCOTT SHEFFIELD, SR.  
TAX PARCEL  
22-3720-1139-031-8  
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E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.

N/F  
MICHAEL W. COWART,  
DEAN A. COWART &  
JOHN H. COWART, JR.  
TAX PARCEL  
22-3720-1166-002-8  
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E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.

N/F  
BRITT ALDERMAN, JR.  
TAX PARCEL  
22-3720-1166-028-8  
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E1/4 2414870 2145 L.

N/F  
GREEN ROAD, LLC  
TAX PARCEL  
22-3720-1166-017-9  
S1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.  
E1/4 2414870 2145 L.



VICINITY MAP  
NTR

Department of Transportation  
State of Georgia

INTERDEPARTMENTAL CORRESPONDENCE

File: HPP-0000-00(251)/Fulton County  
P.I. No. 000251

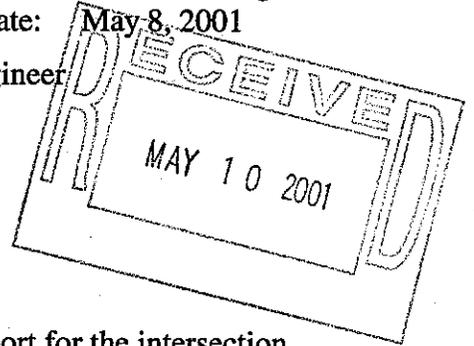
Office: Traffic Operations  
Atlanta, Georgia

Date: May 8, 2001

From:  M.G. Waters, III, P.E., State Traffic Operations Engineer

To: Wayne Hutto, Assistant Director of Preconstruction

Subject: Project Concept Report Review



We have reviewed the above referenced concept report for the intersection improvements on SR 140/Arnold Mill Road at Green Road in Fulton County.

Arnold Mill is currently a 2-lane roadway with 12-foot lanes and rural shoulders. Green Road is currently a 2-lane roadway with 12-foot lanes and rural shoulders. This project proposes to add an additional left turn lane southbound on Arnold Mill Road and westbound on Green Road.

Cagle Road intersects Arnold Mill 300 feet north of Green Road at a substandard skew and will be realigned to a more suitable intersection angle. A left turn lane will also be installed at Cagle Road.

We believe this concept will improve safety and traffic operations within this area, therefore find this report satisfactory for approval.

MGW/BM

Attachment (signature page)

Cc: Harvey Keeper, Office of Environmental Location  
Joseph P. Palladi, State Urban Design Engineer  
David Mulling, Eng. Services, w/ attachment  
Marta Rosen, Office of Planning  
Chuck Hasty, TMC  
General Files

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: HPP-0000-00 (251), FULTON CO #T104

County: FULTON

P. I. Number: 0000251

Federal Route Number: N/A

State Route Number: SR 140

ARNOLD MILL RD (SR 140) @ GREEN RD

**Project Description:** Addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and separating the left turn and the right turn movements on westbound Green Road. The intersection will also include an improved skew angle; same for the Cagle Road intersection (skew angle), and a new traffic signal.

**Recommendation for approval:**

DATE 5-2-01

DATE 5/3/01

Project Manager  
  
Office Head/District Engineer

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

DATE _____	_____
DATE _____	State Transportation Planning Administrator
DATE _____	_____
DATE <u>5/9/01</u>	State Transportation Programming Engineer
DATE _____	_____
DATE _____	State Environmental/Location Engineer
DATE _____	 State Traffic Operations Engineer
DATE _____	_____
DATE _____	District Engineer
DATE _____	_____
DATE _____	Project Review Engineer
DATE _____	_____
DATE _____	State Urban Design Engineer
	_____
	Georgia Dept. of Transportation Project Manager

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: HPP-0000-00 (251), FULTON CO #T104

County: FULTON

P. I. Number: 0000251

Federal Route Number: N/A

State Route Number: SR 140

ARNOLD MILL RD (SR 140) @ GREEN RD

**Project Description:** Addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and separating the left turn and the right turn movements on westbound Green Road. The intersection will also include an improved skew angle; same for the Cagle Road intersection (skew angle), and a new traffic signal.

**Recommendation for approval:**

DATE 5-2-01

DATE 5/3/01

Project Manager

Office Head/District Engineer

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

DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE 5-16-01

DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE \_\_\_\_\_

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

\_\_\_\_\_  
State Transportation Programming Engineer

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

\_\_\_\_\_  
State Traffic Operations Engineer

District Engineer

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

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

\_\_\_\_\_  
Georgia Dept. of Transportation Project Manager

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: HPP-0000-00 (251), FULTON CO #T104  
County: FULTON  
P. I. Number: 0000251

Federal Route Number: N/A  
State Route Number: SR 140

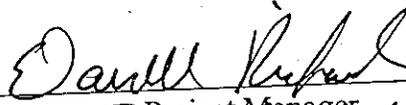
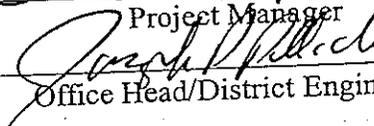
ARNOLD MILL RD (SR 140) @ GREEN RD

**Project Description:** Addition of a left turn lane on Southbound Arnold Mill Road, a right turn lane on Northbound Arnold Mill Rd and separating the left turn and the right turn movements on westbound Green Road. The intersection will also include an improved skew angle; same for the Cagle Road intersection (skew angle), and a new traffic signal.

Recommendation for approval:

DATE 5-2-01

DATE 5/3/01

  
Project Manager  
  
Office Head/District Engineer

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

DATE \_\_\_\_\_

DATE 5/4/01

DATE \_\_\_\_\_

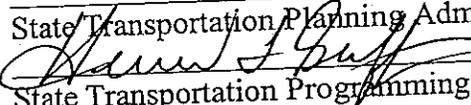
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DATE \_\_\_\_\_

State Transportation Planning Administrator  
  
State Transportation Programming Engineer  
State Environmental/Location Engineer  
State Traffic Operations Engineer  
District Engineer  
Project Review Engineer  
State Urban Design Engineer  
Georgia Dept. of Transportation Project Manager