

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## INTERDEPARTMENT CORRESPONDENCE

**FILE:** STP-0001-00(055) City of McDonough, Henry County  
P.I. No.: 00001055  
SR 155 @ CR 376/Racetrack Road  
Intersection Improvements

**OFFICE:** Traffic Operations  
Atlanta, Georgia  
**DATE:** June 23, 2000

*for KW*  
**FROM:** Marion G. Waters, III, P.E., State Traffic Operations Engineer

**TO:** Glenn Durrence, District Engineer, Thomaston  
**Attn:** David Millen



**SUBJECT: APPROVED CONCEPT REPORT**

Attached is a copy of the approved concept report and a copy of our files on the above listed project for your use and further handling.

This project consists of constructing left & right turn lanes on all approaches and the installation of a traffic signal with protected/permissive left turns.

By copy of this letter, this office is transmitting a copy of the approved concept report to the Office of Environmental/Location for their use in performing the appropriate environmental studies.

Should you have any questions, please contact Ken Werho of this office at 404-635-8125.

MGW:KPW

### Attachments

cc: Frank Danchetz  
Tom Turner, w/attach.  
David Mulling, w/attach.  
Wayne Hutto, w/attach.  
Herman Griffin, w/attach.  
David Studstill, w/attach.  
Keith Rohling, w/attach.  
Dick Graves, w/attach.  
General Files

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

PROJECT CONCEPT REPORT

HENRY COUNTY  
CITY OF McDONOUGH

STP-0001-00(055)

FEDERAL ROUTE NO:

STATE ROUTE NO: 155

GADOT P.I. NO: 00001055

SEE ATTACHED  
LOCATION SKETCH

Date of Report: November 29, 1999

RECOMMENDED: 11-29-99  
DATE

*Maria S. Waters*  
STATE TRAFFIC OPERATIONS ENGINEER

RECOMMENDED: 1/12/00  
DATE

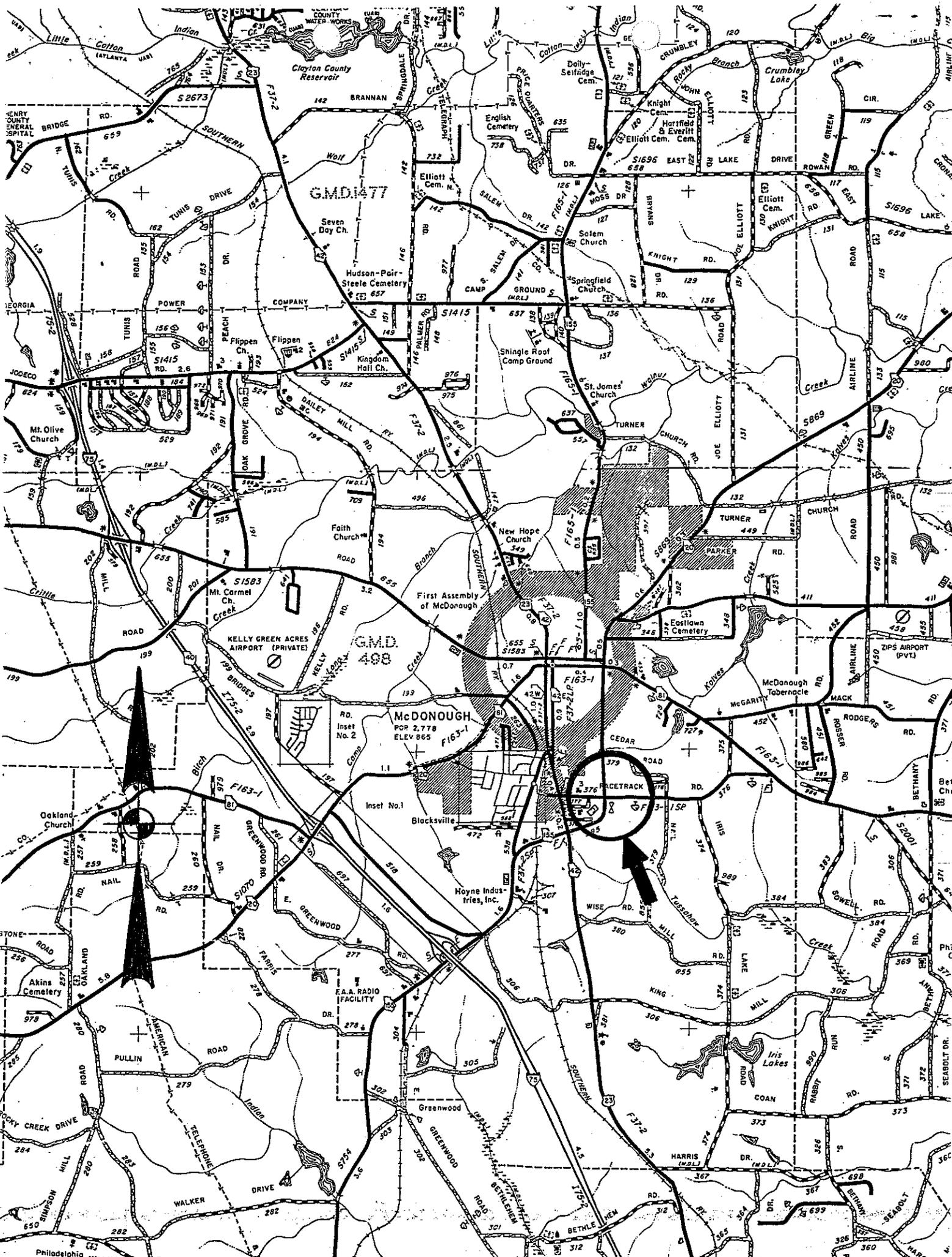
*Be Jo*  
DISTRICT ENGINEER

RECOMMENDED: 2/1/00  
DATE

*Frank L. Dargatzis*  
CHIEF ENGINEER

APPROVED: 2-6-2000  
DATE

*Wayne Shepley*  
COMMISSIONER



GMD. 477

GMD. 408

McDONOUGH  
POP. 2,778  
ELEV. 865

Inset No. 1

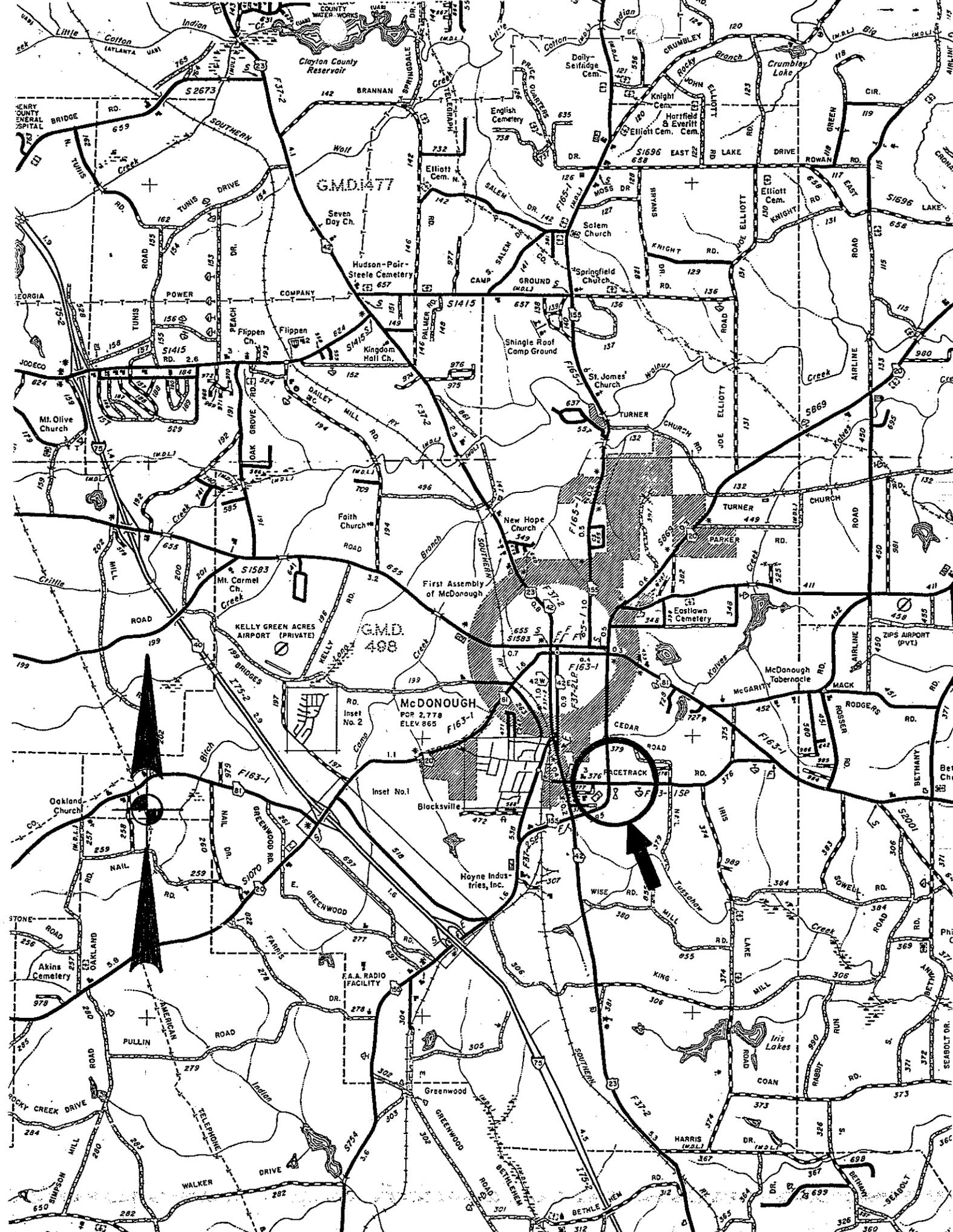
Inset No. 2

RACETRACK

Hoyle Industries, Inc.

F.A.A. RADIO FACILITY

Iris Lakes



**PROJECT CONCEPT REPORT**

**P.I. No.:** 00001055

**Project No.:** STP-0001-00(055) City of McDonough, Henry County

**Route No.:** S.R. 155  
C.R. 376/Racetrack Road

**Location:** The intersection of SR. 155 @ Racetrack Road is located approximately 0.50 miles north of the S.R. 42 and 0.44 south of the McDonough City Limits in Henry County.

**Description:** S.R. 155 will be widened 6 feet symmetrically to provide a left turn lane with an additional 12 foot auxiliary right turn lane in both directions, curb & gutter and sidewalk with wheel chair ramps will be placed in three quadrants and replaced in one. Racetrack Road will be widened 6 feet symmetrically to provide a left turn lane. The existing right turn lane will be replaced in-kind.

**Traffic - Current ADT:**

S.R. 155 -----	7,300 (1998 ADT)
C.R. 376 -----	4,100 (1998 ADT)

**Existing Typical:** S.R. 155: 2 - 12 ft. travel lanes, one in each direction, with 6 ft. grassed shoulders. The NE quadrant has a 12 ft. right turn lane with curb & gutter with sidewalk.

C.R. 376: 2 - 12 ft. travel lanes, one in each direction, with variable shoulders. The NE quadrant has a 12 ft. right turn lane with curb & gutter with sidewalk.

**Existing Right of Way:**

S.R. 155 -----	80' (Estimated)
C.R. 376 -----	80' (Estimated)

**Existing Traffic Control:** This intersection is controlled by a 4-way stop, stop ahead signs, and stop bars.

**Existing Major Structures:** None.

**Statement of Need & Purpose:** Accident history for this intersection shows only four accidents over a four year period, 2 angle intersecting, 1 rear end & 1 overturned. The improvements to the intersection and the instillation of a traffic signal will greatly enhance the operational efficiency of this intersection. To improve the safety and orderly progression of traffic through the intersection, these improvements are recommended.

**Bike & Pedestrian Considerations:** Sidewalk has been added to three quadrants & replaced in one. Curb cuts/wheel chair ramps are also shown.

**Length:** 0.42 miles

**Termini:** - SR 155 - - C.R. 376 -

<b><u>From M.P.:</u></b>	7.58	1.40
<b><u>To M.P.:</u></b>	7.81	1.59

**PDP Class:** Minor Existing

**Functional Class:** S.R. 155 ----- Rural Principal Arterial  
C.R. 376 ----- Rural Minor Arterial

**Max Degree of Curve:** +/- 5 Degrees                      **Max Grades:** +/- 2.0 %

**Design Speed:** 45 mph S.R. 155, 35 & 45 mph C.R.376.

**Proposed Typical Section:** S.R. 155: 2 – 12 ft. travel lanes, one in each direction, with a 12 ft. left & right turn lane in both directions with curb & gutter and sidewalk.

C.R. 376: 2 – 12 ft. travel lanes, with left and right turn lanes in each direction, with curb & gutter and sidewalk.

**Proposed major structures:** None.

**Type Access:** By Permit.

**Traffic Control During Construction:** Existing operation shall be maintained during construction.

**Right-of-Way Requirement:** The City of McDonough, in Henry County, shall be responsible for the acquisition of all Required Right-of-Way for this project.

**Utilities:** The City of McDonough, in Henry County, shall be responsible for all Utility adjustments.

**Estimated Cost:**

<b><u>Item</u></b>	<b><u>Total Amount</u></b>
R/W -----	\$ 194,000 (By City LGPA)
Utilities -----	\$ 76,000 (By City LGPA)
Estimated LGPA Total -----	\$ 270,000
Construction -----	\$ 297,261
Traffic Signal -----	\$ 50,000
Railroad Equipment -----	\$ 0
E & C 10% -----	\$ 34,726
Total Construction -----	\$ 381,987

**Permits Required:** None.

**Level of Environmental Analysis:** Categorical Exclusion.

**Level of Public Involvement:** None.

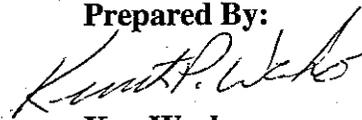
**Time Saving Procedures Appropriate:** Yes (X) No ( )

**Design Variances Required:** None.

**Alternatives Considered:** None.

**Comments:** Bicycles & Pedestrians have been taken into consideration on this project with the immediate residential & commercial growth in the area. In addition, a copy of the District Traffic Engineering Report is attached as part of this Concept.

Prepared By:

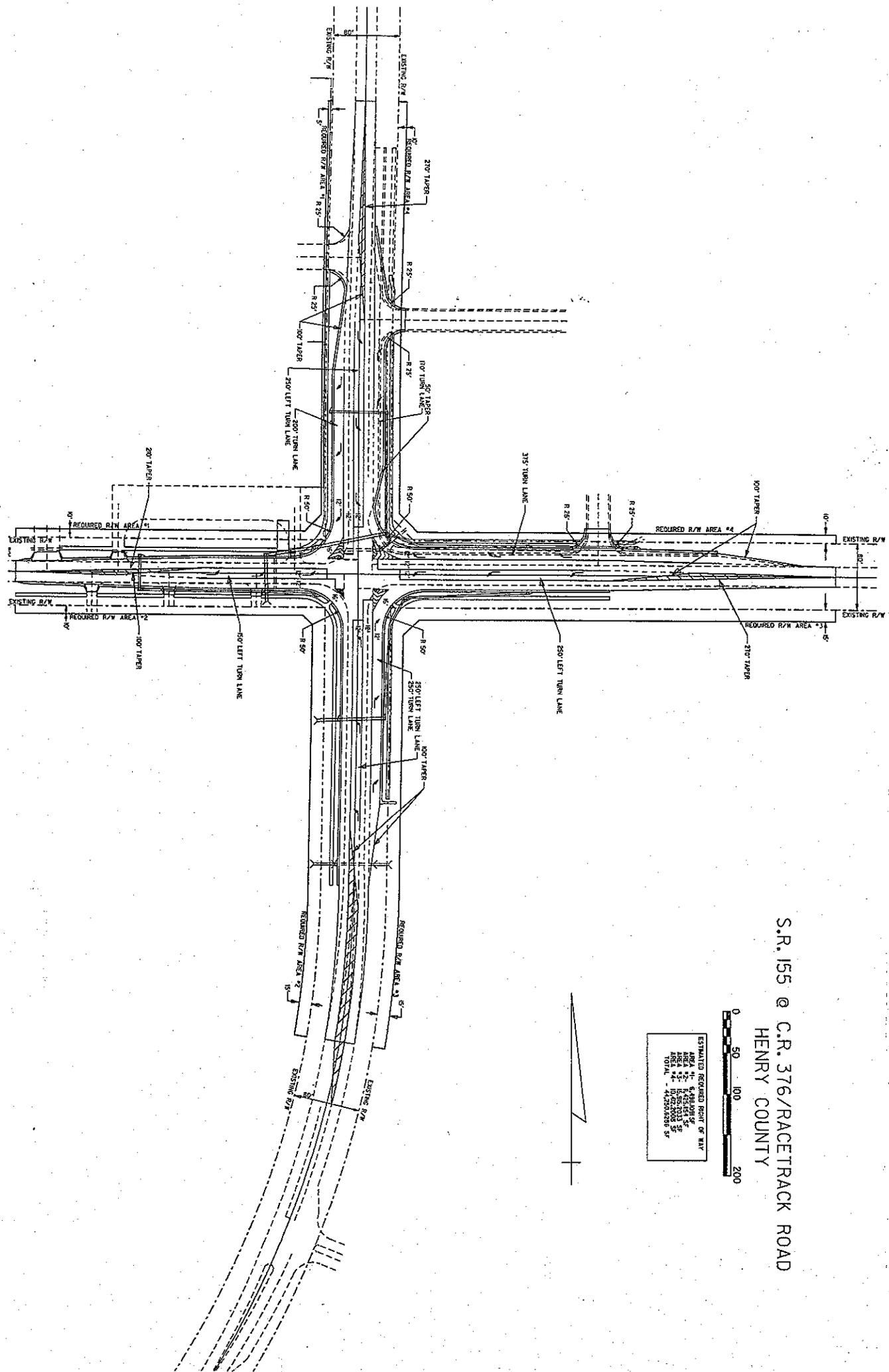


**Ken Werho**

S.R. 155 @ C.R. 376/RACETRACK ROAD  
HENRY COUNTY



ESTIMATED REQUIRED RIGHT OF WAY	
AREA #1	5,499,000 SF
AREA #2	1,425,000 SF
AREA #3	10,000,000 SF
AREA #4	10,000,000 SF
TOTAL	44,500,000 SF



DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

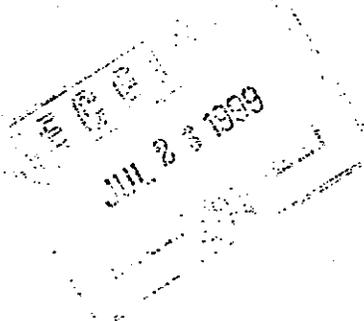
FILE **Henry County** OFFICE **Thomaston**  
DATE **July 21, 1999**  
FROM **Joe B. Street, District Engineer**  
TO **Marion Waters, State Traffic Operations Engineer**  
**Attention: Melinda Boothe**  
SUBJECT **Traffic Engineering Report**

This office has completed a Traffic Engineering Study for the intersection of State Route 155 and Race Track Road. The results of the study are attached. The recommendation is to allow the signal to be installed contingent upon the installation of turn lanes. Henry County is having a survey completed to assist with the concept diagram and the intersection and signalization plan. As soon as this becomes available, we will complete the design and forward to your office.

The recommendation of this office is to either program a safety project, (not enough accidents) or an operational improvement project, or for the County and City to allot SPLOST funds to get the intersection upgraded.

If you have any questions, please contact Keith Rohling of this office at 706-646-6557.

KBR





**Department of Transportation**  
**State of Georgia**  
Thomaston District Office

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**Traffic Engineering Report**

Thomaston District Three

July 21, 1999

**LOCATION:** State Route 155, South Cedar Street at Racetrack Road

**CITY/COUNTY:** Henry County

**REQUESTED BY:** Henry County DOT

**REASON FOR INVESTIGATION:** To determine appropriate method of eliminating the delay and excessive queue of traffic.

**FINDINGS**

**TOPOGRAPHY:** State Route 155 is a 24' wide asphalt roadway oriented north and south at this intersection. Racetrack Road is a 24' wide roadway oriented east and west. Both roadways have 3 to 5 feet wide dirt shoulders. State Rout 155 has a crest vertical curve with the crest at the intersection centerline. Both approaches of State Route 155 enter the intersection on a positive 2± grade. Racetrack road approaches on a slight positive grade. There are no auxiliary lanes on any approach to the intersection.

**EXISTING TRAFFIC CONTROL:** The intersection is presently controlled using a four-way stop condition.

Traffic Engineering Study  
State Route 155 at Racetrack Road  
June 17, 1999

**VEHICLE VOLUME:** See attached counts.

**VEHICULAR SPEEDS:** The posted speed limit on all approaches is 45mph. The 85<sup>th</sup> percentile speed was not measured, however vehicle paces estimated the speeds above 50 MPH.

**PEDESTRIAN MOVEMENTS:** No pedestrians were observed.

**PARKING:** No vehicles were observed parking in this area and there were no signs of parking on the existing shoulders.

**ACCIDENT HISTORY:** The accident history is low for this intersection due to the four-way stop condition. The accident warrant was not met for this intersection since the four way stop condition helps eliminate the right angle accidents and get similar results to what a traffic signal would accomplish.

**WARRANT ANALYSIS:** See attached warrant analysis.

A Delay Study was conducted indicating that in the AM peak hour, there is an average delay per vehicle is 3.10 minutes. The delay specified in the MUTCD for a side street approach is 4 vehicle hours. The total delay for this approach during the peak hour amounts to over 24 hours.

#### **OTHER INFORMATION**

There are two signals in the area. These signals are located at the intersections of State Route 42 and State Route 155 (1500 feet south) and Racetrack Road (1000 feet west). There are several businesses on the corners. The northeast corner is a Dollar General Store with another undetermined retail shop (under construction). There is a day-care center on the north west corner along with a mini-storage just to the north. South of the intersection is a new subdivision being constructed with ultimate build-out of approximately 500+ homes. There is a traffic signal on State Route 155 at the intersection of State Route 42, approximately 0.5 miles south of the study intersection. There is also a signal at the intersection of State Route 42 and Racetrack Road, approximately 0.39 miles to the west. The distance between the two signalized intersections on State Route 42 is 0.31 miles.

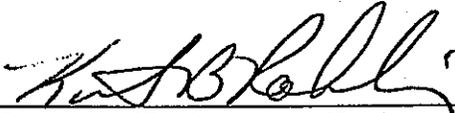
Traffic Engineering Study  
State Route 155 at Racetrack Road  
July 21, 1999

### CONCLUSIONS

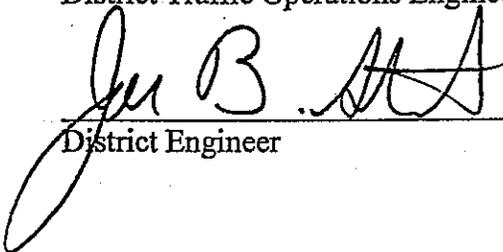
It can be concluded from the information gathered that the intersection would benefit from stop and go signal control provided the right conditions exist. These conditions include left turn lanes on all approaches and right turn lanes on the northbound and eastbound approaches. Coordination with the adjacent signals is also important to the efficiency of the roadway system.

### RECOMMENDATIONS

It is recommended that Henry County be issued a permit for the installation and operation of a stop and go signal at the subject intersection. This permit should be contingent upon the installation of the recommended turn lanes.

  
\_\_\_\_\_  
District Traffic Operations Engineer

7-21-99  
Date

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

7-21-99  
Date

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

\_\_\_\_\_  
Date

\_\_\_\_\_  
Division Director

\_\_\_\_\_  
Date

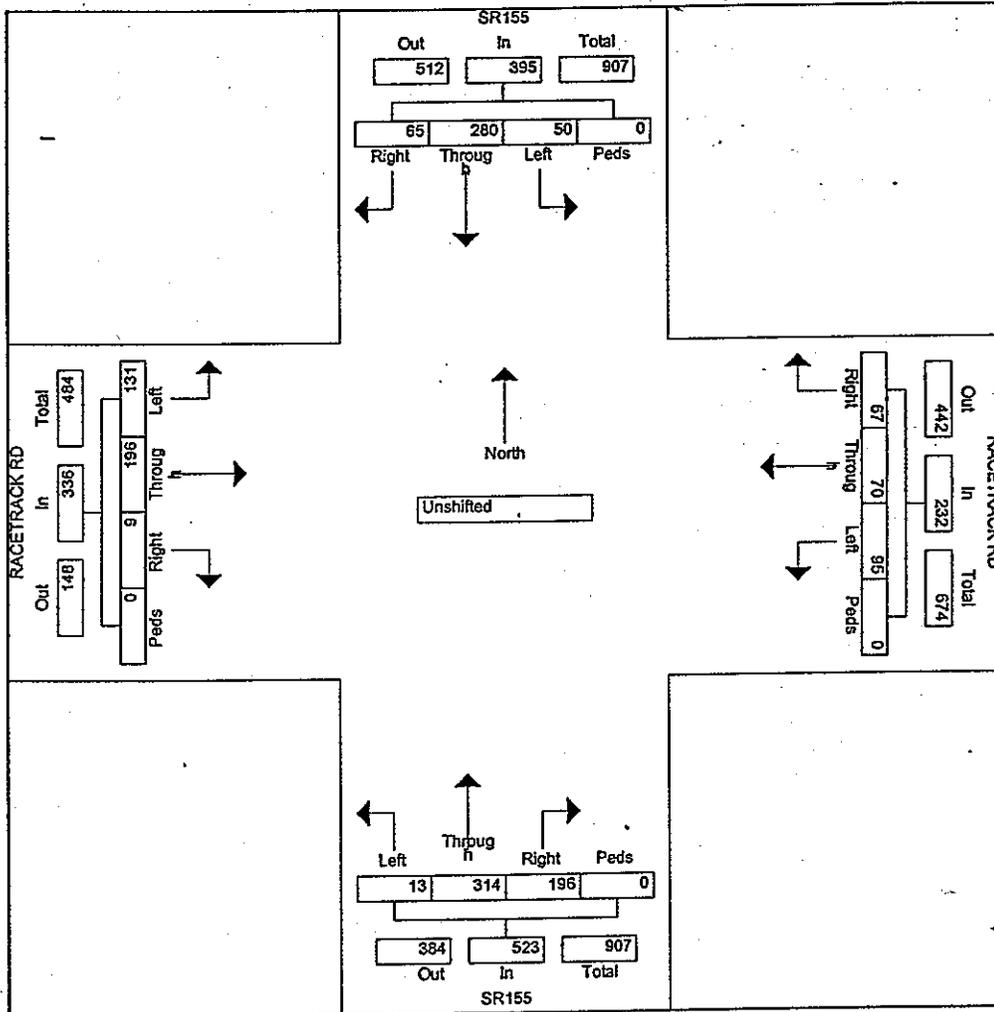
These Are The Default Titles  
 Change These In The Preferences Window  
 Press the 'Saved Titles' Right Arrow  
 To Add A New Set of Titles

File Name : Racetrack155pr  
 Site Code : 00000000  
 Start Date : 05/12/1999  
 Page : 1

Comment Line 1  
 Comment Line 2  
 Comment Line 3  
 Comment Line 4

Groups Printed: Unshifted

Start Time	SR155 Southbound					RACETRACK RD Westbound					SR155 Northbound					RACETRACK RD Eastbound					Int. Total
	Left	Thro u g h	Righ t	Ped s	App. Total	Left	Thro u g h	Righ t	Ped s	App. Total	Left	Thro u g h	Righ t	Ped s	App. Total	Left	Thro u g h	Righ t	Ped s	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
05:15 PM	9	73	16	0	98	29	21	24	0	74	5	62	61	0	128	40	49	2	0	91	391
05:30 PM	15	60	11	0	86	22	19	21	0	62	1	75	40	0	116	37	69	2	0	108	372
05:45 PM	15	75	24	0	114	20	16	11	0	47	2	87	48	0	137	28	45	5	0	78	376
Total	39	208	51	0	298	71	56	56	0	183	8	224	149	0	381	105	163	9	0	277	1139
06:00 PM	11	72	14	0	97	24	14	11	0	49	5	90	47	0	142	26	33	0	0	59	347
Grand Total	50	280	65	0	395	95	70	67	0	232	13	314	196	0	523	131	196	9	0	336	1486
Apprch %	12.7	70.9	16.5	0.0		40.9	30.2	28.9	0.0		2.5	60.0	37.5	0.0		39.0	58.3	2.7	0.0		
Total %	3.4	18.8	4.4	0.0	26.6	6.4	4.7	4.5	0.0	15.6	0.9	21.1	13.2	0.0	35.2	8.8	13.2	0.6	0.0	22.6	



County	: HENRY	Type Median:	NONE
Route	: 15500, SR	Add.Lane lf:	NONE
Milepoint	: 0770	Add.Lane rt:	NONE
Number Lanes	: 02	Road system:	RURAL PRINCIPAL ARTERIAL
Travel Width	: 025	Int RD Name:	RACETRACK RD
Truck %	: 10.6	Type Signal:	NONE
97 ADT,98 ADT	: 007500, 007300	Inv Year	: 99
Access Control:	UNCONTROLLED	Yr.Improved:	91
Paces rating	: 79 (1996)	Type Improv:	NEW OR RECONSTRUCTION
Truck Route	: NO	Surface Typ:	ASPHALT CONCRETE
Accident Data	: CALL T&S	Pop Density:	RURAL OUTSIDE INCORP AREA
Right of Way	: EST-080	Operation	: TWO WAY (NON RESTRICTED)
Speed Limit	: 45	Description:	CRX 037600
Left shd width:	08	Lft Shd Typ:	GRASS
Rgt shd width:	08	Rgt Shd Ttp:	GRASS
District	: THOMASTON	Contact	: Melanie Evans (706) 646-6595

advance, =go back, =back to menu:

SR-155  
RACETRACK ROAD  
TRAFFIC SIGNAL WARRANT EVALUATION

INTRODUCTION

This review is based on the methodology presented in the Manual on Uniform Traffic Control Devices (MUTCD), 1978, as amended by the Federal Highway Administration. Please refer to part 4C of that manual.

The intersection under study has the following characteristics:

The 85th percentile speed on the main street is [ 45 ] MPH.  
Existing traffic control is . . . MULTI-WAY STOP.  
Daily traffic volume of [16,180] was counted on  
WEDNESDAY, APRIL 28, 1999.  
Estimated annual traffic volume is [5,905,700] vehicles.

1. INTERSECTING TRAFFIC VOLUMES

The installation of a traffic signal may be necessary to control an intersection with large volumes of conflicting traffic. The required traffic volumes must be present for at least 8 hours of an average weekday. The minimum volumes vary according to the number of lanes on the intersecting streets, the speed of traffic on the main street, and the community size.

Number of hours required traffic present = 13  
Warrant 1 is SATISFIED.

2. INTERRUPTION OF CONTINUOUS TRAFFIC

On major streets with high traffic volume, it may be necessary to use traffic signal control to provide an adequate number of gaps in traffic to allow vehicles to enter from a side street. The application of this warrant is identical to that of warrant 1, above.

Number of hours required traffic present = 11  
Warrant 2 is SATISFIED.

3. CROSSING PEDESTRIAN TRAFFIC

This warrant is similar to warrant 2, but is intended to identify locations where additional gaps are needed to provide safe pedestrian crossing of a major street. A signal installed solely for pedestrians should use a fully actuated controller and, if in a signal system, - be coordinated with that system. A signal installed only under this warrant shall include pedestrian signals. When installed at a midblock location, additional restrictions may apply (See section 4C-5).

Number of hours required traffic present = 0  
Warrant 3 is NOT APPLICABLE.

#### 4. SCHOOL CROSSING

An established school crossing may require signal protection if an engineering study reveals that there is less than one gap per minute during the period of crossing usage. The restrictions on signals installed under this warrant are similar to those of warrant 3.

WARRANT 4 IS NOT APPLICABLE.

#### 5. SIGNAL PROGRESSION

A traffic signal may occasionally be used to maintain vehicle grouping in a coordinated system. Such a signal should not be within 1,000 FT of adjacent signalized intersections in the system.

Warrant 5 is NOT APPLICABLE.

#### 6. ACCIDENT PREVENTION

Many traffic signals are installed on the premise of reducing accidents; however, it must be recognized that signals may actually increase some types of accidents. The result is often contrary to the intended goal. Four conditions must be met before a signal is installed solely to reduce accidents:

- (1) There has been five or more accidents of types preventable by traffic signals in the last 12 months;
- (2) at least one volume requirement of warrant 8 must be satisfied;
- (3) traffic progression would not be seriously disrupted, and
- (4) less restrictive solutions have been tried and enforced with unsatisfactory results.

A signal installed solely under this warrant should be traffic-actuated.

Total number of accidents = 4  
Number of preventable accidents = 0  
Accident rate is .67 per million vehicles  
Number of warrant 8 volume requirements met = 2  
Parts 1 and 2 are NOT SATISFIED.

## 7. TRAFFIC SYSTEM OPERATION

Traffic signal control may be used to encourage concentration and organization of vehicles on the major street network. Such a signal may be installed at the intersection of two major routes as defined by section 4C-9 of the MUTCD, with a total volume of 800 vehicles during the typical peak weekday hour, or for five (5) weekend hours.

Warrant 7 is NOT APPLICABLE.

## 8. COMBINATION OF WARRANTS

In exceptional cases, signal control may be justified where no single warrant is satisfied, but where at least two of warrants 1, 2, or 3 are met when the required volumes are reduced to 80% of normal. Adequate trial of other measures which cause less delay and inconvenience must be tried and enforced first.

Number of warrants satisfied at the 80% level = 2  
Volume requirements for warrant 8 are SATISFIED.

## 9. FOUR HOUR VOLUME WARRANT

This warrant was approved as an amendment to the MUTCD on December 31, 1984. This warrant is similar to warrant 1, except that the required traffic volumes must be present for at least four hours of an average weekday. The traffic volumes required are based on curves (Figures 4-3 & 4-4) shown in the MUTCD.

Warrant 9 is SATISFIED.

## 10. PEAK HOUR DELAY

This warrant was approved as an amendment to the MUTCD on December 31, 1984. This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the main street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average day:

- (1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach;
- (2) the volume on the side street equals or exceeds 100 VPH for one moving lane of traffic and 150 VPH for two moving lanes;
- (3) the total traffic volume serviced during 1 hour equals or exceeds 800 VPH for an intersection with four (or more) approaches or 650 VPH for three approaches.

Warrant - 10

Part 1 - Delay to be determined by traffic engineer.

Part 2 - SATISFIED

Part 3 - SATISFIED

## 11. PEAK HOUR VOLUME

This warrant was approved as an amendment to the MUTCD on December 31, 1984. This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This warrant is satisfied when the main street and side street traffic volumes satisfy the curves (Figures 4-5 and 4-6) shown in the MUTCD.

Warrant 11 IS SATISFIED.



# Twenty Four Hour Hourly Counts

Taken By: Henry County DOT

DATE	TIME	Race Track Road	Racetrack Road	State Route 155	State Route 155
		Eastbound	Westbound	Northbound	Southbound
		COUNT	COUNT	COUNT	COUNT
4/28/99	14:00	152	149	348	316
4/28/99	15:00	184	214	411	427
4/28/99	16:00	196	184	448	431
4/28/99	17:00	261	204	464	413
4/28/99	18:00	180	182	471	322
4/28/99	19:00	101	121	313	230
4/28/99	20:00	76	70	191	186
4/28/99	21:00	46	66	180	99
4/28/99	22:00	32	47	107	70
4/28/99	23:00	20	17	76	44
4/29/99	0:00	15	12	41	31
4/29/99	1:00	13	8	28	8
4/29/99	2:00	5	7	23	16
4/29/99	3:00	3	9	23	15
4/29/99	4:00	4	26	22	19
4/29/99	5:00	6	119	36	67
4/29/99	6:00	20	341	162	156
4/29/99	7:00	73	478	313	340
4/29/99	8:00	95	391	369	319
4/29/99	9:00	85	168	229	263
4/29/99	10:00	90	156	219	302
4/29/99	11:00	131	169	272	331
4/29/99	12:00	172	159	360	415
4/29/99	13:00	145	162	290	400
Total		2105	3459	5396	5220
Total Sidestreet			5564	Total SR 155	10616

## Intersection Delay Study

Intersection: Racetrack @ SR155     Henry County

Approach: Westbound     Lanes:1

Date:4/29/99

Day of Week:Thursday

Begin Time:7:30 A

Interval:15sec

End Time:8:00 AM

Observer: Terry McMickle and Keith Rohling

Observations										
17	15	19	18	16	15	15	22	24	23	
24	26	25	27	28	28	27	27	33	32	
28	34	32	33	32	31	31	30	31	30	
30	32	33	34	35	34	35	36	35	36	
37	33	33	32	33	32	34	30	30	28	
33	33	35	28	25	24	25	27	26	25	
26	25	26	24	28	26	25	25	25	23	
24	21	25	25	26	23	25	24	24	24	
26	25	23	26	24	28	24	26	27	26	
26	24	26	25	26	26	30	28	29	23	
24	23	23	20	20	23	24	23	25	24	
24	24	27	25	26	25	25	23	26	25	

Total Elapsed Time:	30 Min.
Sum of Point values	3207 Veh.
Interval between samples	15 Sec.
Total stopped delay	48105 Veh.-Sec.
Volume	259 Veh.
Stopped Delay per vehicle	185.73 Sec.
Average vehicle delay	3.10 Min.