D.O.T.66

247

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-0004-00(731) Houston County
P.I. No.: 0004730
SR 247 @ CS 567/Booth Road
Safety/Intersection Improvements

OFFICE: Traffic Operations

DATE: July 29, 2002

Phillip M. Allen CAH

FROM: Phillip M. Allen, State Traffic Safety & Design Engineer

TO: Thomas Howell, District Engineer, Thomaston
Attn: David Millen

SUBJECT: APPROVED CONCEPT REPORT

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

This project consists of widen Russell Parkway Eastbound Ramp 10 feet symmetrically to provide two left turn lanes and one right turn lane westbound. The existing southbound ramp will be removed; a traffic signal will be installed along with new striping and signing. A stop and go traffic signal is warranted.

By copy of this letter, this office is requesting for this project be assigned to Chuck Hasty as Project Manager. The design of this project will be handled under our Consultant Design Contract, STP-0001-00(853).

Should you have any questions, please contact Ken Werho of this office at 404-635-8144.

PMA:kms

Attachments
cc: Frank Danchetz
Tom Turner, w/attach.
David Mulling, w/attach.
Wayne Hutto, w/attach.
Herman Griffin, w/attach.
Harvey Keepler, w/attach.
Keith Rohling, w/attach.
General Files

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PROJECT CONCEPT REPORT

HOUSTON COUNTY

STP-0004-00(731)

FEDERAL ROUTE NO: 129
STATE ROUTE NO: 247
GADOT P.I. NO: 0004731

SEE ATTACHED
LOCATION SKETCH

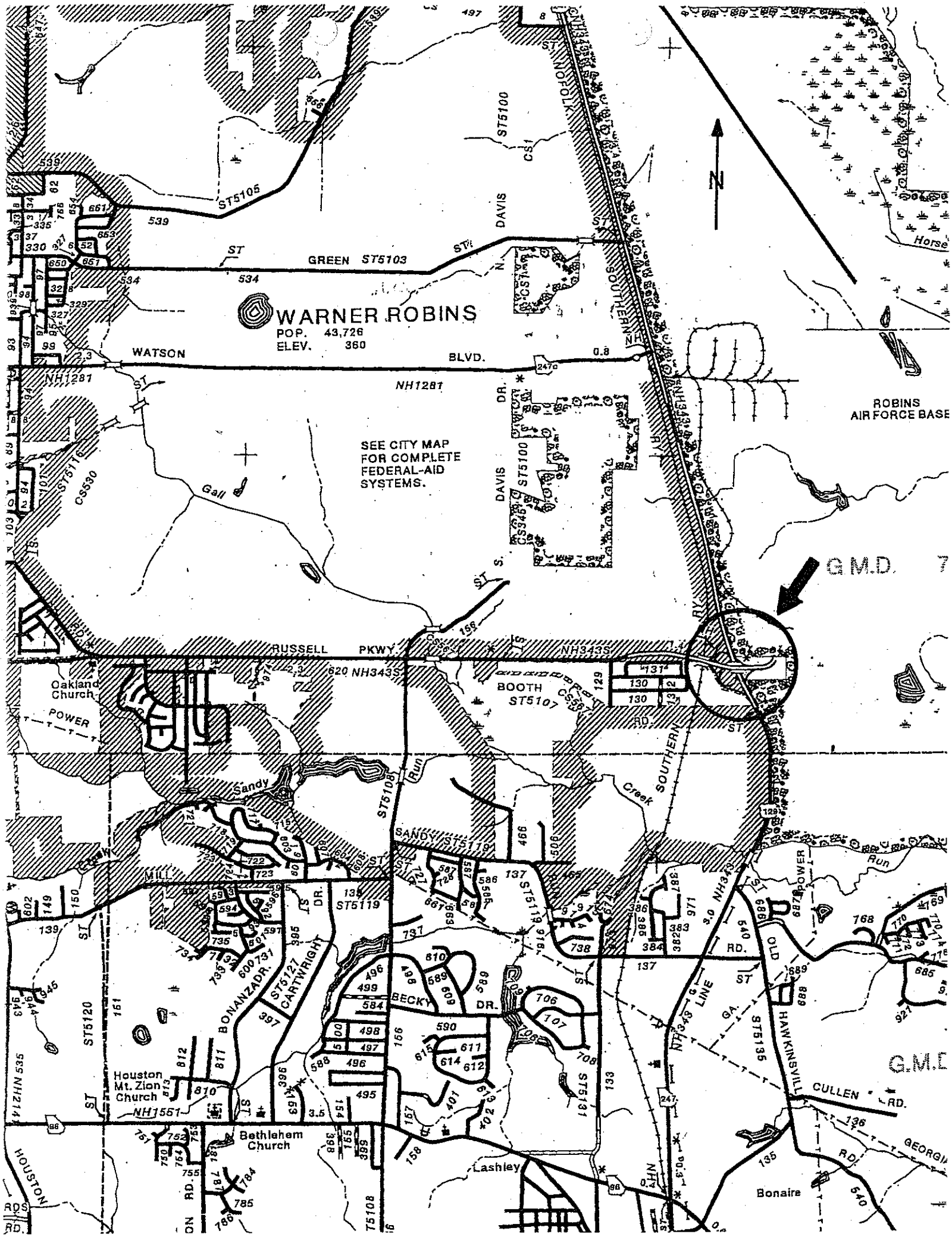
Date of Report: Sept. 17, 2001

RECOMMENDED: 10-15-01 — Phillip M Allen
DATE — STATE TRAFFIC SAFETY AND DESIGN ENGINEER

RECOMMENDED: 10/23/01
DATE — DISTRICT ENGINEER

RECOMMENDED: 11/1/01
DATE — CHIEF ENGINEER

APPROVED: 11-1-01 — J Tom Coleman Jr
DATE — COMMISSIONER


WARNER ROBINS
POP. 43,726
ELEV. 360
WATSON BLVD.
NH1281
GREEN ST5103
ST5105
ST5100
DAVIS
NOFOLK
SOUTHERN
SEE CITY MAP FOR COMPLETE FEDERAL-AID SYSTEMS.
ROBINS AIR FORCE BASE
G.M.D.
RUSSELL PKWY.
NH343S
BOOTH ST5107
Oakland Church
POWER
Sandy
Creek
SANDY ST5119
MILL
BONANZA DR.
ST5127 CARTWRIGHT
BECKY DR.
ST5120
Houston Mt. Zion Church
NH1551
Bethlehem Church
Lashley
HOUSTON
OLD HAWKINSVILLE
CULLEN RD.
Bonaire
GEORGIA
Horse

September 17, 2001

PROJECT CONCEPT REPORT

P.I. No.: STP-0004-00(731)

Project No.: 0004731 Houston County

Route No.: S.R. 247 / U.S. 129
Rp. 762 / Russell Parkway EB Ramp
C.S. 567 / Booth Road / Airline Museum Road

Location: The intersection S.R. 247 and Rp. 762 is located in the City Limits of Warner Robins and is adjacent to Robins Air Force Base.

Description: R.P. 762 will be widened 10 ft. symmetrically to provide two left turn lanes and one right turn lane westbound. The existing southbound ramp will be removed. A traffic signal will be installed along with new striping and signing.

Traffic – Current ADT:

S.R. 247	----------	22,700
R.P. 762	----------	22,300
C.S. 567	----------	1,000

Existing Typical: SR 247: 4 – 12 ft. travel lanes, two in each direction separated by a 20 foot flush median, and 10 ft. paved shoulders.

Rp. 762: One 16 ft. travel lane with a 2 foot inside paved shoulder and a 10 ft. outside paved shoulder.

C.S. 567: 2 – 12 ft. travel lanes, one in each direction with 10 ft. grassed shoulders.

Existing Right of Way:

S.R. 247	----------	200' (Estimated)
Rp. 762	----------	100' (Estimated)
C.S. 567	----------	50' (Estimated)

Existing Traffic Control: S.R. 247 is a continuous through movement. Rp. 762 eastbound is controlled by a stop sign and stop bar, and the southbound movement is controlled by a yield sign.

Existing Major Structures: None.

Statement of Need & Purpose: Accident history for this intersection shows six accidents in 1998 and six accidents in 1999. Two of these were right-angle accidents, five were rear-end accidents in the SR 247 median, four occurred in the southbound on-ramp gore area, and one was a rear-end accident on the eastbound ramp. The installation of a traffic signal and the removal of the long southbound ramp will greatly enhance the safety of this intersection. To improve the safety and orderly progression of traffic through the intersection, these improvements are recommended.

Bicycle & Pedestrian Considerations: None.

Length: 0.28 mile

Termini:	S.R. 247	Rp. 762	C.S. 567
From M.P.	16.86	0.25	20.00
To M.P.:	17.08	0.31	20.00

PDP Class: Minor Existing

Functional Class:
S.R. 247 ---------- Rural Principal Arterial
Rp. 762 ---------- Rural Local
C.S. 567 ---------- Rural Minor Arterial Street

Max Degree of Curve: +/- 18.0 Degrees **Max Grades:** +/-2.0 %

Design Speed:
S.R.247 ---------- 45 mph
R.P. 762 ---------- 30 mph
C.S. 567 ---------- 35 mph

Proposed Typical Section: SR 247: 4 – 12 ft. travel lanes, two in each direction separated by a 20 foot flush median, and 10 ft. paved shoulders. A 12' ft. southbound left turn lane will be striped at the C.S. 567 intersection.

R.P. 762: 2 – 12' left turn lanes and 1 – 12' right turn lane with a 2 ft. inside paved shoulder and a 10 foot outside paved shoulder.

C.S. 567: 2 – 12' ft. travel lanes with 10' grassed shoulders.

Proposed major structures: None.

Type Access: By permit.

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

Right-of-Way Requirement: The Georgia Department of Transportation shall be responsible for the acquisition of all Required Right of Way for this project.

Utilities: Georgia Department of Transportation shall be responsible for all Utility adjustments.

Estimated Cost:

Item	Total Amount
Right-of-way	$ 0 (By GDOT)
Utilities	$ 0 (By GDOT)
Estimated LGPA Total	$0
Construction	$ 122,187
Traffic Signal	$ 75,000
Railroad Equipment	$ 0
E & C 10 %	$ 19,719
Total Construction	$ 216,906

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.

Alternates Considered: None

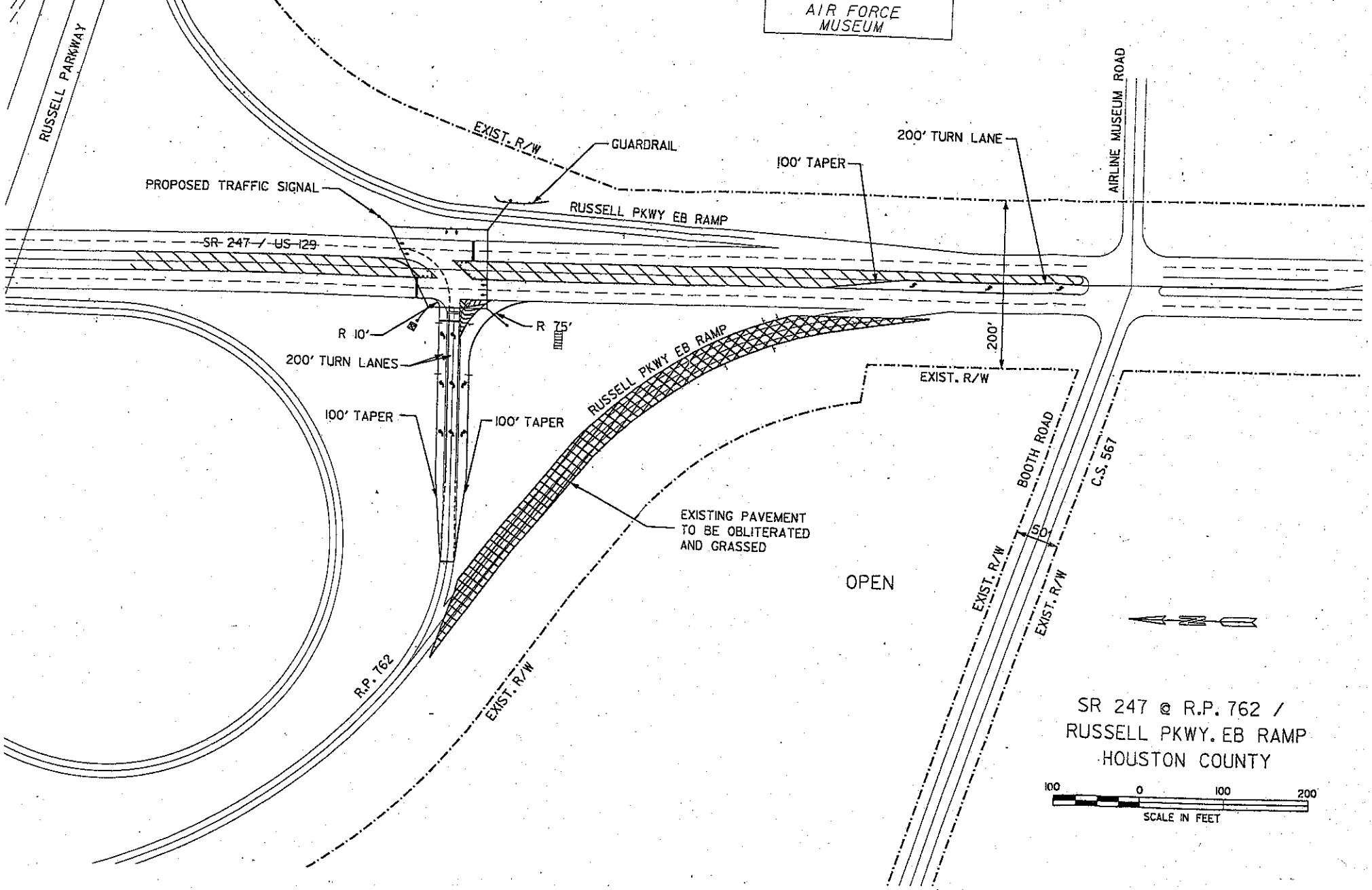
Comments:

Attachments: None

Prepared by Gresham, Smith and Partners on behalf of the Office of Traffic Operations of the Georgia Department of Transportation.

Michael R. Holt

Michael R. Holt, P.E.


AIR FORCE MUSEUM
RUSSELL PARKWAY
EXIST. R/W
GUARDRAIL
PROPOSED TRAFFIC SIGNAL
RUSSELL PKWY EB RAMP
SR 247 / US 129
100' TAPER
200' TURN LANE
AIRLINE MUSEUM ROAD
R 10'
R 75'
200' TURN LANES
100' TAPER
100' TAPER
RUSSELL PKWY EB RAMP
200'
EXIST. R/W
BOOTH ROAD
C.S. 567
EXISTING PAVEMENT TO BE OBLITERATED AND GRASSED
50'
OPEN
EXIST. R/W
EXIST. R/W
R.P. 762
EXIST. R/W
SR 247 @ R.P. 762 /
RUSSELL PKWY. EB RAMP
HOUSTON COUNTY
100
0
100
200
SCALE IN FEET

DEPATMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: SR 247 @ Booth Rd/ Air Museum Dr
Houston County

OFFICE: Traffic Operations
District Three
DATE: May 10, 2000

FROM: Glenn W Durrence, P.E., District Engineer

TO: Marion Waters, PE, State Traffic Operations
Attn: Melinda Boothe

SUBJECT: Traffic Engineering Study

Attached is a traffic engineering study for the above intersection. Based on the recommendations of this study, a study for the Russell Parkway off-ramp at SR 247 will be conducted and follow later.

If you have questions regarding this matter, please contact Dan Woods at 706-646-6567.

KBR:DEW:dw
Att.

GEORGIA DEPARTMENT OF TRANSPORTATION

Traffic Operations Division
Thomaston

TRAFFIC ENGINEERING REPORT

May 9, 2000

LOCATION: SR 247 @ Booth Road/Air Museum Drive

CITY/COUNTY: Houston

REQUESTED BY: State Representative Larry Walker

REASON FOR INVESTIGATION: To determine the need for a stop and go traffic signal

FINDINGS

TOPOGRAPHY: SR 247 is a four lane highway with a narrow flush median. It has a relatively flat grade. Booth Road is a two lane road with a flat grade that intersects SR 247 on a slight skew. Air Museum Drive intersects SR 247 at a 90 degree angle and has a slight uphill grade on approach. Land use surrounding the intersection includes the Museum of Aviation at Robins Air Force Base on the east side. A large glass container manufacturing plant exists in the southeast quadrant. A small restaurant exists just south of the intersection on the east side of the roadway. Entrance and exit ramps to Russell Parkway begin just north of the intersection. Sight distance to the north is excellent but is limited to the south at approximately 480 feet due to a hillcrest.

VEHICLE VOLUME: SR 247 northbound – 10,742 (24 hr. count)
SR 247 southbound – 11,761 (24 hr. count)
Booth Road – 1039 (24 hr. count)
Air Museum Drive – 318 (24 hr. count)

PEDESTRIAN MOVEMENT: No pedestrian traffic has been observed and there is no apparent evidence of such. No sidewalks or crosswalks exist.

PARKING: No parking is allowed on the R/W. There is no visible signs that parking has occurred on the shoulders.

EXISTING TRAFFIC CONTROL: Booth Road and Air Museum Drive are controlled by stop signs. There is an overhead flashing beacon at the intersection which flashes red on the side streets and yellow on SR 247. The Russell Parkway southbound off ramp just north of the intersection is controlled by a yield sign.

ACCIDENT HISTORY: In 1998 there was one rear end, one left turn and two accidents where vehicles lost control. One of these accidents was caused when a vehicle entering SR 247 from Booth Road pulled into the path of a motorcycle and caused it to skid. The other was caused when a vehicle had a flat tire. In 1999 there was one right angle and one side swipe accidents. Out of the six accidents which occurred over the past two years, only three appear correctable by the installation of a traffic signal.

SPEEDS: The posted speed limit on SR 247 is 45 mph. The posted speed on Booth Road is 35 mph.

WARRANT ANALYSIS:

Warrant #	Description	Met	Did Not Meet
1	Minimum Vehicular Volume		X
2	Interruption of Continuous Traffic	X	
3	Minimum Pedestrian Volume		N/A
4	School Crossing		N/A
5	Progressive Movement		N/A
6	Accident Experience		X
7	System Warrant		N/A
8	Combination of Warrants		X
9	Four Hour Volume	X	
10	Peak Hour Delay	X	
11	Peak Hour Volume	X	

OTHER INFORMATION

This intersection is located just south of Warner Robins and Robins Air Force Base. Russell Parkway crosses over SR 247 about 1000 feet north of the intersection and serves as a direct access to the Air Base. The Museum of Aviation is situated on 43 acres of property and contains over 85 historical aircraft. SR 247 has a heavy northbound movement from 0700-0900 and a heavy southbound movement from 1600-2000. Traffic volumes are moderate the remainder of the day. The nearest traffic signal to the north is 1.68 miles and to the south is 3.21 miles.

SR 247 at Booth Rd. / Air Museum Dr.
Houston County

CONCLUSIONS

It is concluded that a stop and go signal is not warranted. Traffic counts at the intersection have fallen somewhat since August of 1995 when counts showed a daily traffic volume of 27,241. Counts conducted in October of 1999 showed a daily traffic volume of 23,860. Seasonal variations may account for this. Accident numbers are low with 6 accidents over the years 1998 and 1999. There were 9 accidents within a 1.5 year period in 1994-1995.

RECOMMENDATIONS

It is recommended that the acceleration ramp for vehicles exiting from Russell Parkway onto SR 247 southbound be eliminated. This ramp ends in close proximity to Booth Road. High speed traffic moves down the ramp and merges into SR 247 in a manner similar to interstate ramps. This traffic creates problems for motorists on Booth Road and Air Museum Drive wishing to make turns on SR 247. The southbound ramp traffic may be combined with the northbound traffic. This will be the subject of a future study to determine the traffic control needs of this intersection. A further recommendation is to allow access to the Air Museum from Russell Parkway. There is an existing gate just outside the Air Base which could be utilized for this purpose. This would make access to the museum from Russell Parkway much safer since motorist would not be required to enter SR 247 prior to entry.

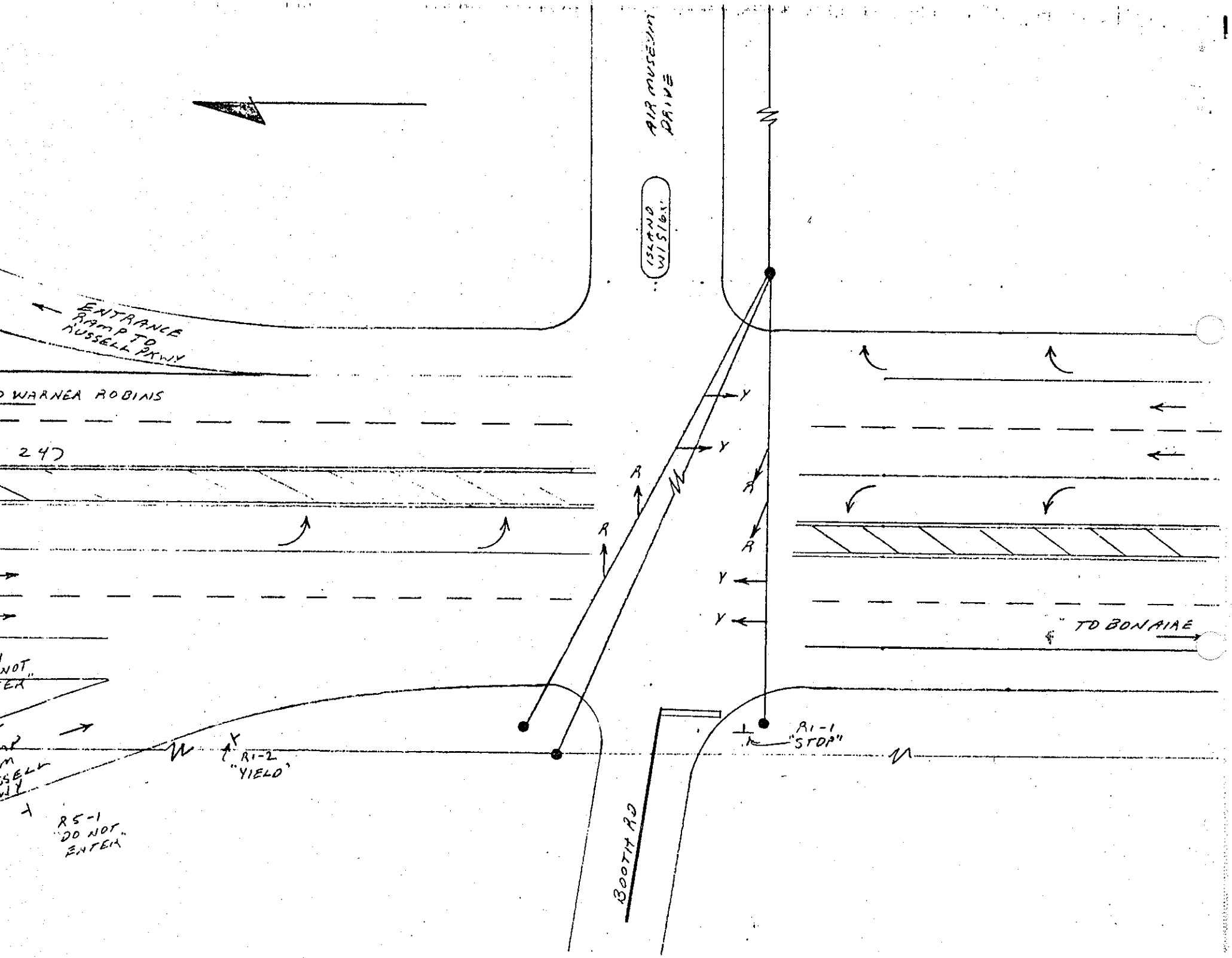
Dan E Woods
District Access Management Supervisor — 5/9/00 **DATE**

DISTRICT TRAFFIC ENGINEER — 5-10-2000 **DATE**

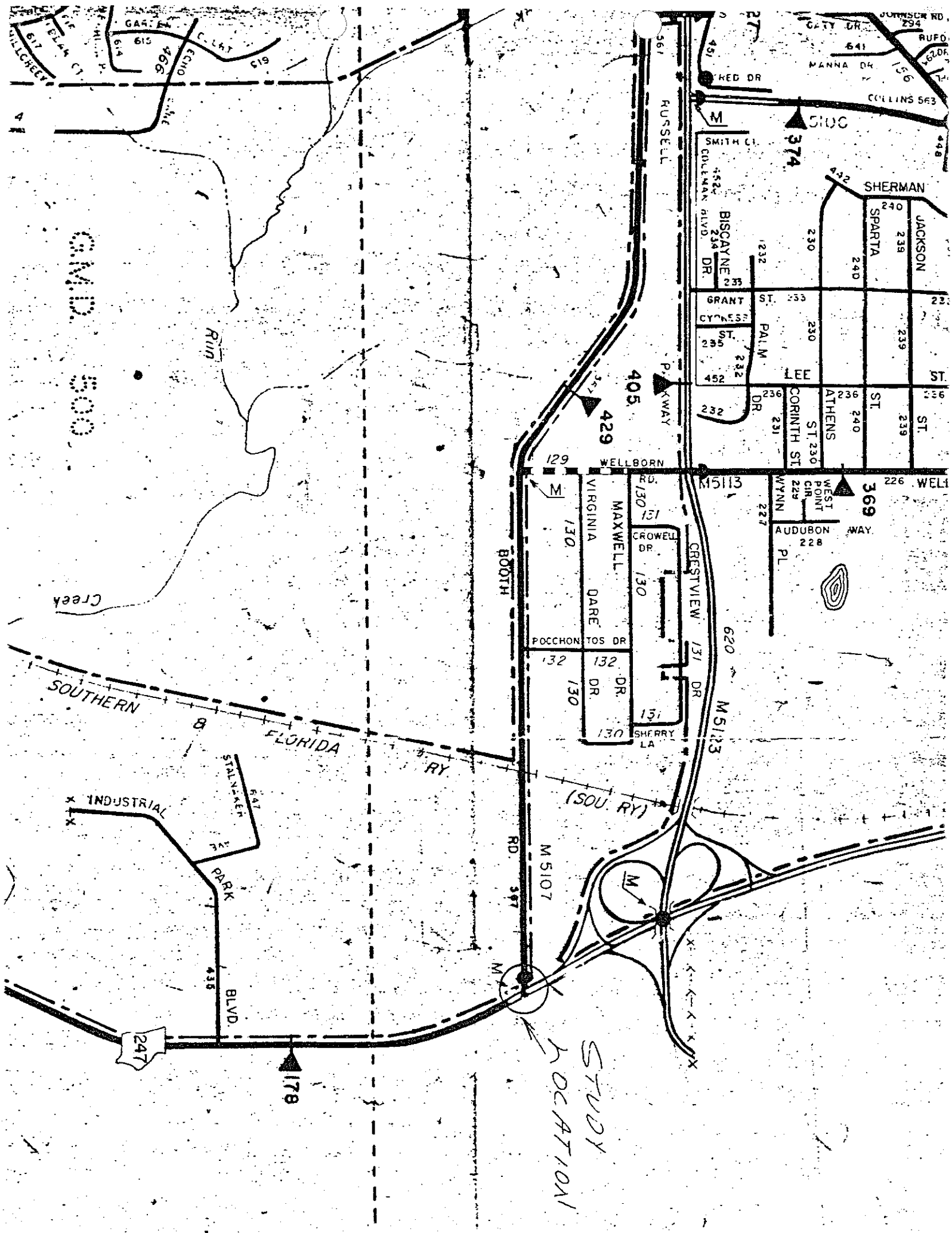
DISTRICT ENGINEER — 5/11/00 **DATE**

STATE TRAFFIC ENGINEER — 5/24/2000 **DATE**

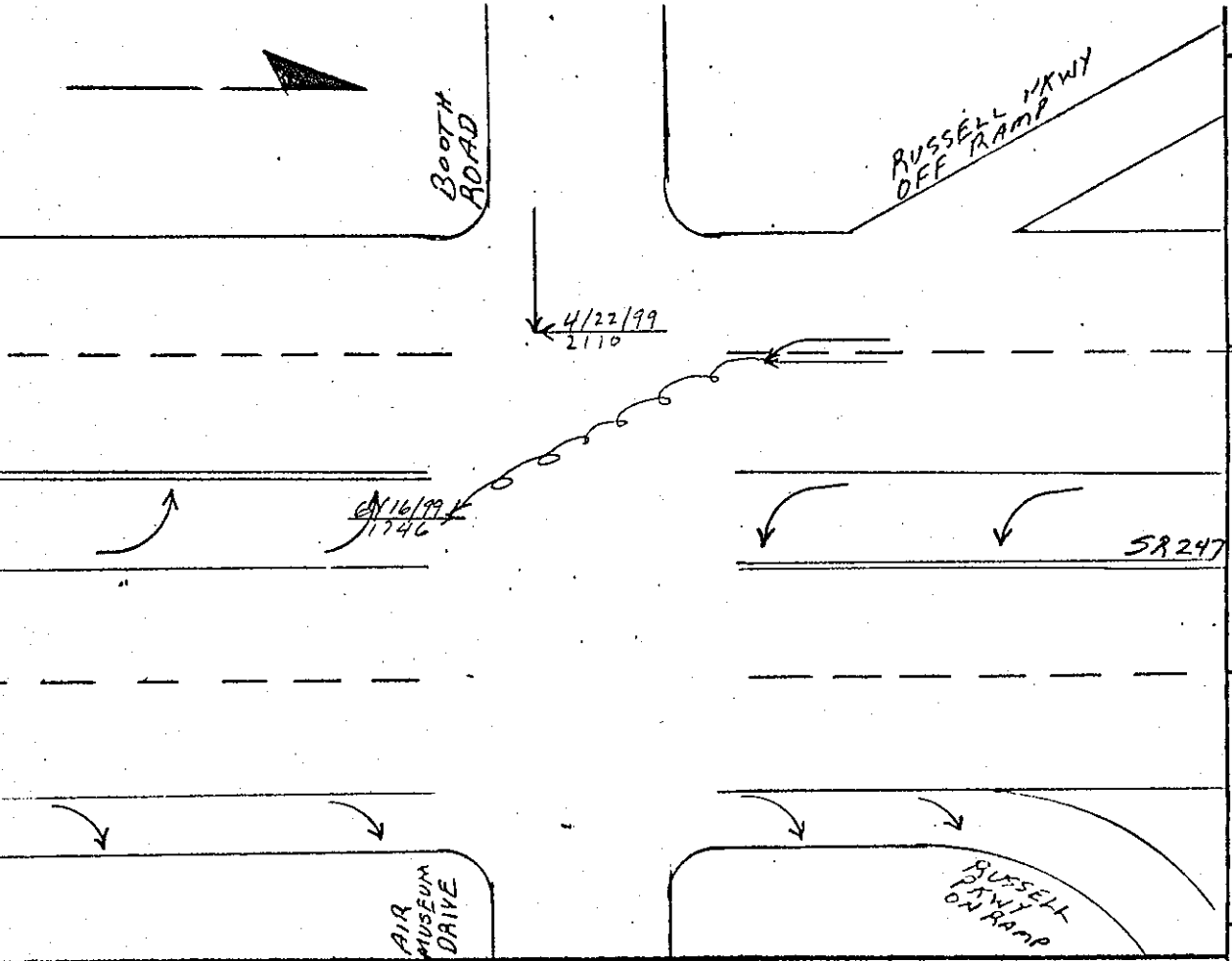
DIVISION DIRECTOR — **DATE**



AIR MUSEUM DRIVE
ISLAND W/ S16X
ENTRANCE RAMP TO RUSSELL PKWY
WARNER ROBINS
247
TO BONAIRE
R1-1 "STOP"
R1-2 "YIELD"
R5-1 "DO NOT ENTER"
BOOTH RD



G.M.D. 500
Run
Creek
SOUTHERN
FLORIDA
RY.
(SOU. RY)
INDUSTRIAL
PARK
BLVD.
STALNAKER
247
178
BOOTH
RD.
M 5107
M 5123
M5113
WELLBORN
RD.
VIRGINIA
MAXWELL
DARE
DR.
CROWELL
DR.
CRESTVIEW
DR.
POCCHONTOS DR
SHERRY
LA
RUSSELL
SMITH CT.
COLEMAN BLVD.
BISCAYNE
DR.
GRANT
ST.
CYPRESS
ST.
PALM
LEE
ST.
CORINTH ST.
ATHENS
ST.
SPARTA
JACKSON
SHERMAN
WYNN
PL.
WEST POINT CIR.
AUDUBON
WAY
COLLINS 563
MANNA DR.
GATY DR.
JOHNSON RD.
RED DR
PARKWAY
374
405
429
369
STUDY LOCATION



RIGHT ANGLE COLL	LEFT TURN COLL	BACKING R.E.
HEAD ON COLL	REAR END COLL	FIXED OBJECT
PARKING VEH.	PARKED VEH.	PEDESTRIAN
MOVING VEH.	SIDE SWIPE	OUT OF CONTR
FATAL ACC.	PERSONAL INJURY	PROP DAMAGE

TE 4/4/00 INTERSECTION SR 247 @ Booth Rd/Air Museum Dr.

UNTY Houston CITY _____ DISTRICT 3

IME PERIOD 1999

MARKS _____

ACCIDENT SUMMARY

TIME OF DAY	# ACC
6AM-10AM	0
10AM-4PM	0
4PM-7PM	1
7PM-12MID	1
12MID-6AM	0
TOTAL	2

WEATHER	# ACC
CLEAR (clr)	
CLOUDY(cly)	
RAIN(R)	
FOG(G)	
SNOW(S)	
TOTAL	

TIME OF YEAR	# ACC
DEC-FEB	0
MAR-MAY	1
JUN-AUG	1
SEPT-NOV	0
TOTAL	2

DIR OF APPROACH	# VEHS
NORTHBOUND	1
SOUTHBOUND	3
EASTBOUND	1
WESTBOUND	0
TOTAL	5

PAVEMENT	# ACC
DRY(D)	
WET(W)	
ICY	
TOTAL	

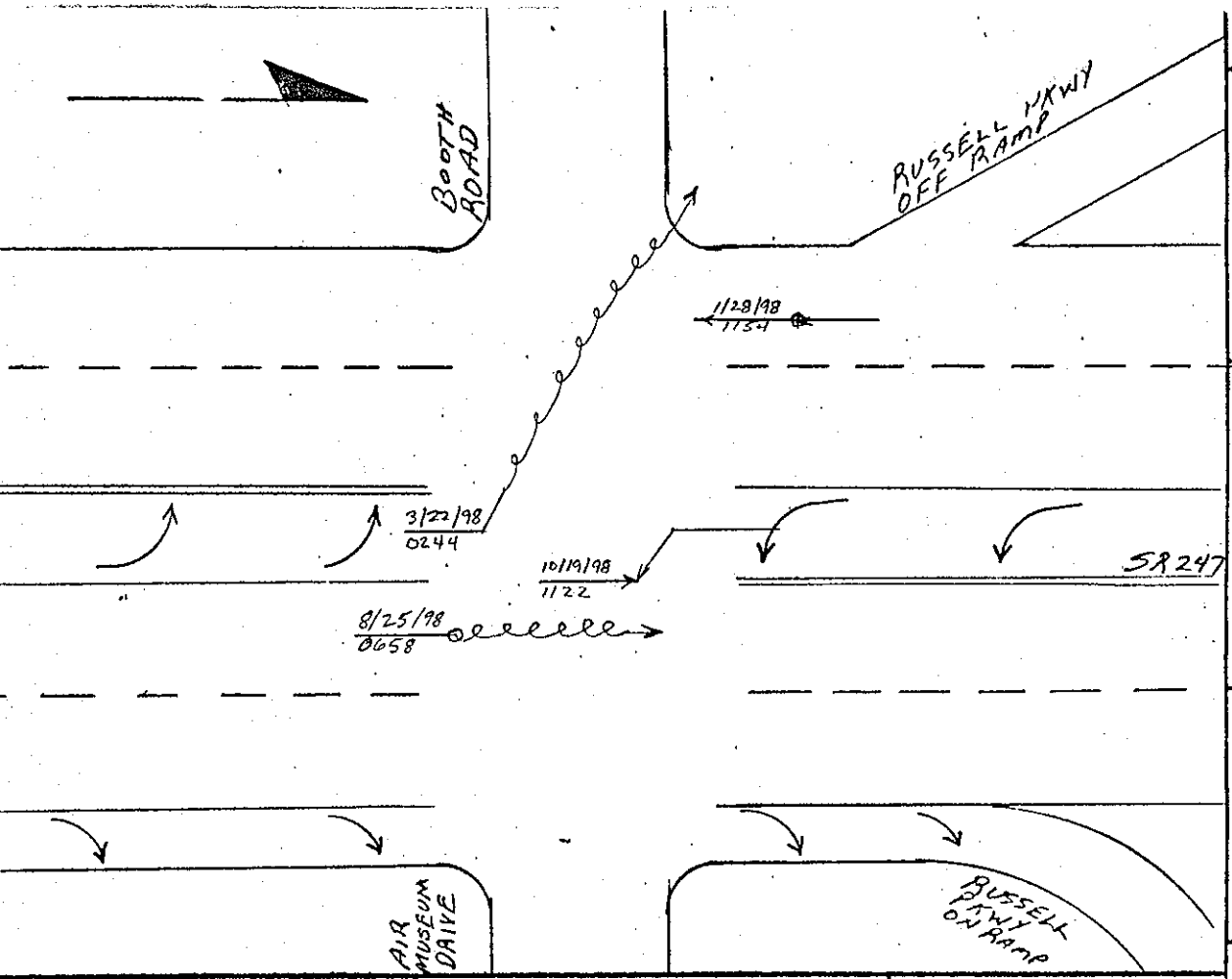
ACCIDENT SEVERITY	# ACC
PROP DAM ONLY	2
NON-FATAL INJ	0
FATAL INJ	0
TOTAL	2

TYPE ACCIDENT	# ACC
SIDESWIPE	1
REAR END	0
RT ANGLE	1
LEFT TURN	0
OTHER	0
TOTAL	2

TYPE VEHICLE	# VEHS
AUTOMOBILE	4
TRUCK	1
MOTOCYCLE	0
OTHER	0
TOTAL	5

DAY OF WEEK TOTAL 2

MON.	TUE.	WED.	THUR.	FRI.	SAT.	SUN.
0	0	1	1	0	0	0



RIGHT ANGLE COLL		LEFT TURN COLL	BACKING R.E.
HEAD ON COLL		REAR END COLL	FIXED OBJECT
PARKING VEH.		PARKED VEH.	PEDESTRIAN
MOVING VEH.		SIDE SWIPE	OUT OF CONTR
FATAL ACC.		PERSONAL INJURY	PROP DAMAGE

TE 1/4/00 INTERSECTION SR 247 @ Booth Rd/Air Museum

UNTY Houston CITY — DISTRICT 3

NE PERIOD 1998

MARKS

ACCIDENT SUMMARY

TIME OF DAY	# ACC	WEATHER	# ACC
6AM-10AM	1	CLEAR (clr)	
10AM-4PM	1	CLOUDY(cly)	
4PM-7PM	0	RAIN(R)	
7PM-12MID	1	FOG(G)	
12MID-6AM	1	SNOW(S)	
TOTAL	4	TOTAL	

TIME OF YEAR	# ACC	DIR OF APPROACH	# VEHS
DEC-FEB	1		
MAR-MAY	1	NORTHBOUND	3
JUN-AUG	1	SOUTHBOUND	3
SEPT-NOV	1	EASTBOUND	0
TOTAL	4	WESTBOUND	0
		TOTAL	6

PAVEMENT	# ACC	ACCIDENT SEVERITY	# ACC
DRY(D)		PROP DAM ONLY	2
WET(W)		NON-FATAL INJ	2
ICY		FATAL INJ	0
TOTAL		TOTAL	4

TYPE ACCIDENT	# ACC	TYPE VEHICLE	# VEHS
SIDESWIPE	0	AUTOMOBILE	5
REAR END	1	TRUCK	0
RT ANGLE	0	MOTOCYCLE	1
LEFT TURN	1	OTHER	0
OTHER	2	TOTAL	6
TOTAL	4		

DAY OF WEEK TOTAL 4

MON.	TUE.	WED.	THUR.	FRI.	SAT.	SUN.
1	1	1	0	0	0	1

State Route 247
Booth Road/Air Museum Drive
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 [55] MPH.
Existing traffic control is . . . SIDE STREET STOP.
Daily traffic volume of [23,860] was counted on
MONDAY, OCTOBER 4, 1999.
Estimated annual traffic volume is [8,708,900] 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 = 1
Warrant 1 is NOT 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 = 9
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 = 6
Number of preventable accidents = 1
Accident rate is .68 per million vehicles
Number of warrant 8 volume requirements met = 1
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 = 1
Volume requirements for warrant 8 are NOT 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

T ; 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.

TABLE 1
TWENTY-FOUR HOUR VEHICULAR TRAFFIC EVALUATION
WARRANTS 1,2 AND 8

HOUR OF DAY	MAIN ST. VOLUME	SIDE ST. VOLUME	WARRANT 1	WARRANT 2	WARRANT 8 PART 1	WARRANT 8 PART 2
12 AM	311	24				
1 AM	159	13				
2 AM	74	14				
3 AM	94	13				
4 AM	83	19				
5 AM	150	9				
6 AM	468	10	MAIN		MAIN	
7 AM	1941	34	MAIN	MAIN	MAIN	MAIN
8 AM	2414	62	MAIN	BOTH	MAIN	BOTH
9 AM	1233	46	MAIN	MAIN	MAIN	BOTH
10 AM	895	50	MAIN	MAIN	MAIN	BOTH
11 AM	864	53	MAIN	BOTH	MAIN	BOTH
12 PM	1160	90	MAIN	BOTH	BOTH	BOTH
1 PM	1221	53	MAIN	BOTH	MAIN	BOTH
2 PM	1023	65	MAIN	BOTH	MAIN	BOTH
3 PM	1256	91	MAIN	BOTH	BOTH	BOTH
4 PM	1972	108	BOTH	BOTH	BOTH	BOTH
5 PM	2272	51	MAIN	MAIN	MAIN	BOTH
6 PM	1837	76	MAIN	BOTH	MAIN	BOTH
7 PM	1095	53	MAIN	BOTH	MAIN	BOTH
8 PM	747	36	MAIN	MAIN	MAIN	MAIN
9 PM	482	20	MAIN		MAIN	
10 PM	439	42	MAIN		MAIN	SIDE
11 PM	313	40				
REQUIRED VOLUMES:	MAIN STREET		420	630	336	504
	SIDE STREET		105	53	84	42

NOTE: SIDE STREET VOLUMES SHOWN ARE FOR EACH HOUR'S PEAK APPROACH.

State Route 247
Booth Road/Air Museum Drive

HOUR OF DAY	**** MAIN STREET TOTAL VOLUME	PEAK DIRECTN	**** BIAS PRCNT	**** SIDE STREET TOTAL VOLUME	PEAK DIRECTN	**** PEAK VOLUME	INTER-SECTION VOLUME
12 AM	311	south	67	24	east	24	335
1 AM	159	south	68	13	east	13	172
2 AM	74	south	64	14	east	14	88
3 AM	94	south	67	13	east	13	107
4 AM	83	north	51	19	east	19	102
5 AM	150	north	77	9	east	9	159
6 AM	468	north	77	10	east	10	478
7 AM	1941	north	84	34	east	34	1975
8 AM	2414	north	77	65	east	62	2479
9 AM	1233	north	66	52	east	46	1285
10 AM	895	north	56	64	east	50	959
11 AM	864	south	51	83	east	53	947
12 PM	1160	south	53	147	west	90	1307
1 PM	1221	south	50	85	east	53	1306
2 PM	1023	south	55	85	east	65	1108
3 PM	1256	south	57	125	east	91	1381
4 PM	1972	south	71	155	east	108	2127
5 PM	2272	south	75	82	east	51	2354
PM	1837	south	73	87	east	76	1924
PM	1095	south	67	53	east	53	1148
8 PM	747	south	69	36	east	36	783
9 PM	482	south	70	20	east	20	502
10 PM	439	south	71	42	east	42	481
11 PM	313	south	65	40	east	40	353

TOTAL INTERSECTION VOLUME IS 23,860

MAIN STREET TOTAL VOLUME IS 22,503
northBOUND APPROACH IS 10,742 (48 %)
southBOUND APPROACH IS 11,761 (52 %)

SIDE STREET TOTAL VOLUME IS 1,357
eastBOUND APPROACH IS 1,039 (77 %)
westBOUND APPROACH IS 318 (23 %)

REPORT PRODUCED WEDNESDAY, MARCH 28, 1900.

COUNTS TAKEN ON MONDAY, OCTOBER 4, 1999.

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.

TABLE 1
TWENTY-FOUR HOUR VEHICULAR TRAFFIC EVALUATION
WARRANTS 1,2 AND 8

HOUR OF DAY	MAIN ST. VOLUME	SIDE ST. VOLUME	WARRANT 1	WARRANT 2	WARRANT 8 PART 1	WARRANT 8 PART 2
12 AM	311	24				
1 AM	159	13				
2 AM	74	14				
3 AM	94	13				
4 AM	83	19				
5 AM	150	9				
6 AM	468	10	MAIN		MAIN	
7 AM	1941	34	MAIN	MAIN	MAIN	MAIN
8 AM	2414	62	MAIN	BOTH	MAIN	BOTH
9 AM	1233	46	MAIN	MAIN	MAIN	BOTH
10 AM	895	50	MAIN	MAIN	MAIN	BOTH
11 AM	864	53	MAIN	BOTH	MAIN	BOTH
12 PM	1160	90	MAIN	BOTH	BOTH	BOTH
1 PM	1221	53	MAIN	BOTH	MAIN	BOTH
2 PM	1023	65	MAIN	BOTH	MAIN	BOTH
3 PM	1256	91	MAIN	BOTH	BOTH	BOTH
4 PM	1972	108	BOTH	BOTH	BOTH	BOTH
5 PM	2272	51	MAIN	MAIN	MAIN	BOTH
6 PM	1837	76	MAIN	BOTH	MAIN	BOTH
7 PM	1095	53	MAIN	BOTH	MAIN	BOTH
8 PM	747	36	MAIN	MAIN	MAIN	MAIN
9 PM	482	20	MAIN		MAIN	
10 PM	439	42	MAIN		MAIN	SIDE
11 PM	313	40				
REQUIRED VOLUMES:	MAIN STREET		420	630	336	504
	SIDE STREET		105	53	84	42

NOTE: SIDE STREET VOLUMES SHOWN ARE FOR EACH HOUR'S PEAK APPROACH.

State Route 247
Booth Road/Air Museum Drive

HOUR OF DAY	**** MAIN STREET TOTAL VOLUME	PEAK DIRECTN	**** BIAS PRCNT	**** SIDE STREET TOTAL VOLUME	PEAK DIRECTN	**** PEAK VOLUME	INTER-SECTION VOLUME
12 AM	311	south	67	24	east	24	335
1 AM	159	south	68	13	east	13	172
2 AM	74	south	64	14	east	14	88
3 AM	94	south	67	13	east	13	107
4 AM	83	north	51	19	east	19	102
5 AM	150	north	77	9	east	9	159
6 AM	468	north	77	10	east	10	478
7 AM	1941	north	84	34	east	34	1975
8 AM	2414	north	77	65	east	62	2479
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, PM	1095	south	67	53	east	53	1148
8 PM	747	south	69	36	east	36	783
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TOTAL INTERSECTION VOLUME IS 23,860

MAIN STREET TOTAL VOLUME IS 22,503
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COUNTS TAKEN ON MONDAY, OCTOBER 4, 1999.