RESOLUTION NO. 2001-195

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, FINDING A PUBLIC COUNTY PURPOSE AND BENEFIT ATTRIBUTABLE TO A CERTAIN TRAFFIC STUDY SUBMITTED TO THE COUNTY IN ITS DELIBERATIONS CONCERNING ROAD IMPROVEMENTS AND FURTHER DIRECTING THAT UPON COMPLETION OF CERTAIN REQUIREMENTS THE PRODUCER OF THE REPORT BE REIMBURSED FOR ITS COST TO THE PRODUCTION IN AN AMOUNT NOT TO EXCEED $3000.00.

RECITALS

WHEREAS, St. Johns County obtained traffic studies in connection with concurrency requirements for a public library including, as a component, transportation planning with a level of service analysis and identification of traffic improvement projects. Based on the original studies, design of a turn-lane project at the intersection of A1A and Solano Road was undertaken by the county; and

WHEREAS, shortly thereafter, based on concerns expressed by local citizens, county staff instructed a private traffic firm to conduct a new study of the need for the additional turn lane; and

WHEREAS, at the same time and without consultation with the county, certain citizens independently contracted with a separate traffic planning firm for a traffic study of the same issue. The second county staff-ordered study and the citizen's report both recommended deletion of the proposed turn lane; and

WHEREAS, during a subsequent county commission meeting, a majority of the members of the county commissions stated that the citizens' report was influential in making their decision to vote against the construction of the turn lane; and

WHEREAS, a Florida Attorney General's Opinion was requested for an answer to the question, "Is St. Johns County authorized to use county funds to pay the cost of a traffic study that was commissioned by private citizens and presented by them to the county commission at a public meeting, if the study was utilized by the county commission in making its decision on improvements to a county road?" and the Attorney General responded with his opinion # 01-62, incorporated herein by reference.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA that:

1. The above recitals are incorporated herein by reference and adopted as findings of fact.

2. It is further found that County payment of the cost of said study serves a County public purpose and shall benefit the County by obtaining for the County a copy of said report that is signed and sealed by the producing, properly licensed, professional engineer which report has the County named as a client or intended recipient of the report.

3. Now therefore, it is ordered that the amount of the invoice attached as Exhibit A (i.e., $3000) be paid to Transportation Planners-Engineers, Inc., who previously incurred the cost or debt for such report providing that the County is provided an engineers signed, sealed copy of the report with the County named as an intended client or recipient for said report. This payment being in full and payment for said report.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, State of Florida, this ___2nd__ day of _October_, 2001.

BOARD OF COUNTY COMMISSIONERS
OF ST. JOHNS COUNTY, FLORIDA

By: Marc A. Jacalone
Marc A. Jacalone, Chair

Rendition Date: 10-4-01

ATTEST: Cheryl Strickland, Clerk

By: Patricia A. DeGrande
Deputy Clerk

(904) 296-1734
Fax (904) 296-1580

TPE Transportation Planners-Engineers, Inc.

TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

May 3, 2001

Mr. Douglas A. Hudson
57 Solana Road
Ponte Vedra Beach, Fl. 32082

RE: Invoice No. One (1)
Solana Road Traffic at SR A1A Analyses
TPE job no. 01-1740

Dear Mr. Hudson:

This is TPE's Invoice for our traffic engineering work related to the Solana Road proposed new westbound travel lane into SR A1A. The following work tasks were accomplished.

Task 1 Review & analyze Buckholz (BH) Traffic "Ponte Vedra Library SR A1A delay study,dated August 2000.

Task 2 Review TPE traffic study files to obtain recent PM peak hour traffic counts on SR A1A at Solana & Corona Roads to compare with the BH study data

Task 3 Obtain FDOT recent 24-hour & peak hour traffic data and use for study analyses

Task 4 Conduct 4:30 - 6:00 PM green time survey on SR A1A at Sawgrass Village Dr. & at PGA Tour Blvd. for ART-TAB computer analyses for SR A1A

Task 5 Conduct ART-TAB 4.0 computer analyses to update service volume capacity of SR A1A for County review and approval for concurrency reviews.

Task 6 Conduct HCM - signalized computer analyses for SR A1A at Solana Rd. for existing conditions and for various improvement options for comparison purposes. Signal retiming , concurrent lefts on Solana, new westbound lane, etc.

Task 7 Meet with yourself and others to present findings of TPE's work and discuss May 8th Commission meeting.

Task 8 Prepare traffic study report presenting updated data and findings and present to St. Johns County staff and Commissioners at May 8th meeting. Provide 8 copies of report to County.

EXHIBIT A To The Resolution

Mr. Douglas Hudson
TPE Invoice NO. 1
TPE job no. 01-1740
Page 2 5/3/01

Personnel	Hours	Rate	Cost
W.Koutnik, Director	30.0	$ 100.00	$ 3,000.00
W.Oehlman, PE/Engineer	3.0	$ 75.00	$ 225.00
J.Koutnik,Computer Analysis	3.5	$ 80.00	$ 280.00
G.Mixson,Drafting	2.0	$ 45.00	$ 90.00
T.Jordan, Secretary	3.0	$ 35.00	$ 105.00
Subtotal.....			$ 3,700.00

Direct Expenses		
Travel	$ 60.00	
Reproduction	$ 75.50	
Photos	$ 24.50	
Subtotal.....		$ 160.00
Total Due.....		$ 3,860.00
Discounted.....		$ - 860.00
Remaining Due.....		$ 3,000.00

Sincerely,

Joyce Koutnik

Joyce Koutnik, CEO

JK:tj

STATE OF FLORIDA

OFFICE OF ATTORNEY GENERAL
ROBERT A. BUTTERWORTH

August 21, 2001

The Honorable Cheryl Strickland
St. Johns County Clerk of Courts
Post Office Drawer 300
Saint Augustine, Florida 32085

01-62

Dear Ms. Strickland:

You have asked for my opinion on substantially the following question:

> Is St. Johns County authorized to use county funds to pay the cost of a traffic study that was commissioned by private citizens and presented by them to the county commission at a public meeting, if the study was utilized by the county commission in making its decision on improvements to a county road?

In sum:

> A county, upon making the appropriate legislative finding that such an expenditure serves a county purpose, may pay for a traffic study that was commissioned by private citizens, presented to the county commission, and used by the county in determining whether to make improvements to a county road.

According to your letter, St. Johns County obtained traffic studies in connection with concurrency requirements for a public library including, as a component, transportation planning with a level of service analysis and identification of traffic improvement projects. Based on the original studies, design of a turn-lane project was undertaken by the county.

Shortly thereafter, based on concerns expressed by local citizens, county staff instructed a private traffic planning firm to conduct a new study of the need for the additional turn lane.

At the same time and without consultation with the county, certain citizens independently contracted with a separate traffic planning firm for a traffic study of the same issue. The second county staff-ordered study and the citizens' report both recommended deletion of the proposed turn lane.

A public meeting was held before the Board of County Commissioners to present the county's new traffic study and the county staff's recommendation to delete the planned turn lane, and to hear the citizens' concerns. At that meeting, the county staff presented its new study and advised that the proposed turn lane was not necessary. The citizens group then made a presentation of their report to the county commission and requested the cancellation of the additional turn-lane project. A copy of the citizens' traffic study was filed with the commissioners and the clerk of the courts. The board then decided not to approve construction of the proposed additional traffic turn lane. During a subsequent county commission meeting, a majority of the members of the county commission stated that the citizens' report was influential in making their decision to vote against the construction of the turn lane.

The board has directed that you, as clerk of courts, pay for the cost of the report obtained by the citizens, provided that the payment of the bill is lawful. You have requested assistance in determining whether county funds may properly be spent for such a purpose.

Article VIII, section 1(f), Florida Constitution, provides in pertinent part that noncharter counties "shall have such power of self-government as is provided by general or special law." Implementing this constitutional provision, section 125.01(1), Florida Statutes, states that "[t]he legislative and governing body of a county shall have the power to carry on county government." The Florida Supreme Court in Speer v. Olson[1] held that this provision of section 125.01(1) grants to the governing body of a county the full power to carry on county government unless the Legislature has preempted a particular subject relating to county government by either general or special law. The Court held that the governing body of the county, by reason of this first sentence of section 125.01, has full authority to act through the exercise of its home rule powers.[2] Thus, a noncharter county exercising its home rule powers as provided in

01-62

the Florida Constitution and the Florida Statutes, as construed by the Florida Supreme Court, may exercise such powers as it deems necessary to carry on county government, provided that the exercise of these powers has not been preempted to the state and does not conflict with state law or certain constitutional provisions.

Specifically with regard to road projects, section 125.01(1)(m), Florida Statutes, authorizes a board of county commissioners, in the exercise of its home rule powers, to provide for and regulate roads.[3] Section 336.02, Florida Statutes, a section of the Florida Transportation Code, gives the county commission general superintendence and control of county roads and structures within its jurisdiction and authorizes the county to establish new roads, change and discontinue old roads, and keep the same in good repair in the manner provided therein.

Moreover, counties are authorized to "borrow and expend money" for county purposes.[4] The determination of whether a certain action fulfills a county purpose, however, is one that must be made by the governing board of the county.[5]

Article VII, section 10, Florida Constitution, prohibits the state or a county, municipality, special district or any agency thereof from lending or using its taxing power or credit to aid any private corporation, association, partnership or person. The purpose of this provision is "to protect public funds and resources from being exploited in assisting or promoting private ventures when the public would be at most only incidentally benefitted."[6]

Thus, whether the constitutional prohibitions contained in Article VII, section 10, Florida Constitution, apply is dependent in part on whether a valid public purpose is involved. The determination of what constitutes a valid public purpose for the expenditure of public funds is one that must be made by the legislative body of the governmental entity. In this instance, it is the board of county commissioners, acting in its legislative capacity, that must make the determination that payment of the cost of the traffic study ordered by citizens, independent of the county's study, serves a valid public purpose.

01-62

Several opinions issued by this office in the past may be helpful in making this determination. In Attorney General's Opinion 88-52 this office was asked whether a noncharter county was authorized to expend county funds for lobbying. In the absence of any statutory provision either expressly authorizing or prohibiting the use of county funds for this purpose, the opinion relied on the home rule powers of counties to conclude that, upon making appropriate findings that such expenditures served a county purpose, the board of county commissioners could expend county funds for lobbying.

Similarly, in Attorney General's Opinion 89-84, this office determined that Glades County was authorized to "share" a county-paid employee with a municipal service benefit unit, provide an ambulance or other equipment, or make a direct cash contribution to the unit if the county determined that a valid county purpose was served by such actions. The opinion noted that section 125.01(1)(e), Florida Statutes, specifically authorizes counties to provide ambulance service. Further, the statute provides that counties may create special districts for providing municipal services and facilities.[7] Thus, assuming the county commission made the appropriate legislative determinations as to the purpose of the project and the benefits accruing to the county, the opinion concluded that the county could financially assist the special district created to provide countywide ambulance service.

In the situation you have presented, sections 125.01(1)(m) and 336.02, Florida Statutes, authorize the county to provide for and regulate county roads. In addition, counties are authorized to "borrow and expend money" for county purposes. I am aware of no provision of state statute, and you have directed my attention to none, that would prohibit payment of the costs of a traffic study used by the county commission to assess the advisability of a road project. However, the ultimate determination of whether a certain action fulfills a county purpose is one that must be made by the governing board of the county.

In sum, it is my opinion that, in light of the home rule powers granted to counties by the constitution and statutes, the board of county commissioners may expend county funds to pay the cost of a traffic study provided that it first makes appropriate

01-62

legislative findings as to the purpose of the expenditure and the benefits that would accrue to the county.[8]

Sincerely,

Robert A. Butterworth
Attorney General

RAB/tgk

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[1] 367 So. 2d 207, 211 (Fla. 1978).

[2] *And see,* s. 125.01(1)(w), Fla. Stat. (county commission may perform any other acts not inconsistent with law which are in the common interest of the people of the county and exercise all powers and privileges not specifically prohibited by law); and 125.01(3)(b), Fla. Stat. (provisions of section shall be liberally construed in order to effectively carry out purposes of section and secure for counties the broad exercise of home rule powers authorized by State Constitution.)

[3] *See,* s. 334.03(23), Fla. Stat., defining "road" for purposes of the Florida Transportation Code, Chs. 334-339 and 341, Fla. Stat., to include streets, sidewalks, highways and other ways open to travel by the public, including, among other things, the roadbed and right-of-way; *and* s. 335.01(2), Fla. Stat., dividing public roads into four systems, including the county road system.

[4] Section 125.01(1)(r), Fla. Stat.

[5] *See,* Ops. Att'y Gen. Fla. 00-55 (2000), 94-22 (1994), 89-84 (1989) (county must make appropriate legislative determinations as to the purpose of a project and the benefits accruing to the county).

[6] *Bannon v. Port of Palm Beach District,* 246 So. 2d 737, 741 (Fla. 1971); Op. Att'y Gen. Fla. 00-55 (2000).

01-62

[7] Section 125.01(5), Fla. Stat.

[8] *See,* Op. Att'y Gen. Fla. 88-52 (1988), ("Upon making the appropriate findings that an expenditure of county funds for lobbying serves a county purpose and is in the public interest, the board of county commissioners may expend county funds for lobbying.").

TRAFFIC STUDY FOR SR A1A FROM SOLANA ROAD TO PGA TOUR BOULEVARD AND EVALUATION OF PROPOSED NEW SOLANA ROAD WESTBOUND LANE AT SR A1A

PREPARED BY: TRANSPORTATION PLANNERS - ENGINEERS ,INC.
JACKSONVILLE, FLORIDA
TPE JOB NO. 01-1740

DATE: MAY 1, 2001

TRAFFIC JDY FOR SR A1A FROM SOLANA ROAD TO PGA TOUR BOULEVARD AND EVALUATION OF PROPOSED NEW SOLANA ROAD WESTBOUND LANE AT SR A1A

Introduction

Transportation Planners - Engineers, Inc. (TPE) was retained to evaluate the need for the St. Johns County proposed new westbound travel lane on Solana Road east of SR A1A. This improvement was identified by the County as part of the Concurrency Traffic approval for the Ponte Vedra Library expansion west of SR A1A and south of Solana Road. Figure 1 prepared by Buckholz Traffic shows the library site. Figure 2 shows the existing lane configuration at SR A1A and Solana Road as well as the internal access for the library at the Ponte Vedra Square Shopping Center.

TPE determined that the two critical questions are:

1) Is the PM peak hour service volume capacity for SR A1A from Solana Road to Corona Road (Link 146) and to PGA Tour Boulevard (formerly TPC Blvd.) Link 145.2 correct, or does it need to be updated?

2) If the SR A1A at Solana Road intersection really needs improvement, what feasible road improvements and/or traffic signal modifications that can be implemented?

Traffic Study Analyses

With a very short time period to conduct the traffic study before the planned May 8, 2001 St. Johns County Board of Commissioners meeting, TPE obtained:1) past Florida Department of Transportation traffic counts along SR A1A and at the SR A1A at Solana Road intersection,

2) the "Ponte Vedra Library SR A1A Delay Study," by Buckholz Traffic, dated August 2000, and

3) TPE's April 1998 traffic movement counts on SR A1A at Solana Road and at Corona Road. Figure 3 shows the Buckholz 1999 traffic counts compared to the FDOT and TPE counts at Solana and Corona Roads.

The October 27, 1999 Buckholz count for 5:00 - 6:00 PM reflected the Corona Road closure for bridge widening west of CR 203 (Ponte Vedra Blvd.) The left and right turns to & from Solana Road East were too high and not typical. The FDOT/TPE previous counts clearly prove this fact.

Figure 4 shows the PM peak hour traffic along SR A1A from Marsh Landing Parkway southward to PGA Tour Boulevard (TPC Blvd.) using the FDOT, TPE, and Buckholz traffic data.

SR A1A PM Peak Hour Traffic and
Traffic Signal System Operations

Table 1 shows the present traffic signal operations during the PM peak hour at SR A1A signalized intersections. All of the signals are coordinated except for Solana Road which is a free operation. The amount of green + yellow + red time for the peak southbound traffic flow is very high ranging from 86% to 46%. The average is 71.2% which is well above the FDOT assumed 44% for general service volume capacity determination.

Table 2 shows the key traffic data factors for SR A1A from Solana Road to PGA Tour Blvd. which are used for ART-TAB 4.0 computer analyses to determine roadway service volume for the PM peak hour. The two major factors are: 1) weighted green time per signal cycle and 2) traffic directional split. FDOT's factors used in their generalized level of service table are 0.44 and 0.568, respectively. However, the segment of SR A1A from Solana Road to PGA Tour Blvd. has a weighted g/C ratio of 0.635 rather than 0.44 and a directional split of 0.524/0.516 rather than 0.568. Hence, the PM peak hour service volume is much higher than the FDOT generalized L.O.S. Table.

Using the FDOT ART-TAB 4.0 computer program and the traffic data shown on Table 2, the peak hour service volume for SR A1A (Links 146 and 145.2) is 5,100 vehicles. The Solana Rd. to Corona Rd. link itself would be 6,180 vehicles. (See Tables A & B for ART-TAB runs).

Table 3 shows a comparison of the present traffic data shown in the St. Johns County Transportation Analyses Spreadsheet and the updated data using recent FDOT, Buckholz, and TPE traffic data as well as traffic signal operation data. The County estimated PM peak hour traffic is too high by about 16%, and the peak hour service volume is way too low (3,480 vs 5,100).

Road Improvements Needed for Library Expansion ?

The planned expansion of the Ponte Vedra Library should be approved for traffic concurrency without any road improvements necessary at Solana Road. The direct road link for the Library is SR A1A (Link 146) and, using the updated traffic data, is not a "deficient" roadway. In fact, the excess service volume capacity is 1,314 vehicles as shown on Table 3.

SR A1A at Solona Road - Potential Improvements

While no improvements are needed related to the Library expansion, the County may want to consider some feasible, low cost improvements to improve traffic flow at the SR A1A and Solana Rd. intersection. Table 4 shows a comparison of average vehicle delay and level of service using the Highway Capacity System: Signals Release 3.1 computer analysis. Four potential improvements were analyzed and compared to the existing traffic signal operation and intersection design. (See Tables 1-7 for computer runs)

Presently, the intersection operates at L.O.S. "F" with an average of 101.8 seconds of delay per vehicle. Modifying the signal timing only to add five seconds more green time for the northbound and southbound thru traffic on SR A1A and reducing other movement times by five seconds results in an L.O.S. "D" operation with only a 52.7 second average vehicle delay.

Modifying the cycle length from 133 seconds to 120 seconds would produce an even lower delay time (50.3 seconds). Other options such as changing to an east-west left-turn phase and a thru-right phase for east-west traffic on Solana Road by itself won't do much to improve the traffic flow of the entire intersection. The best and low cost option is to modify the timing to allow five more seconds of green time per cycle for the north and south traffic movements. An additional lane on Solana Rd. east of SR A1A will not provide any significant improvement for the entire intersection.

It should be emphasized that adding more green time for the predominant traffic flow on SR A1A through the Solana Rd. intersection will increase the service volume for this important north-south roadway.

Ward Koutnik

Ward Koutnik, President

Wayne L. Oehlman

Wayne L. Oehlman, P.E.
FL 21434

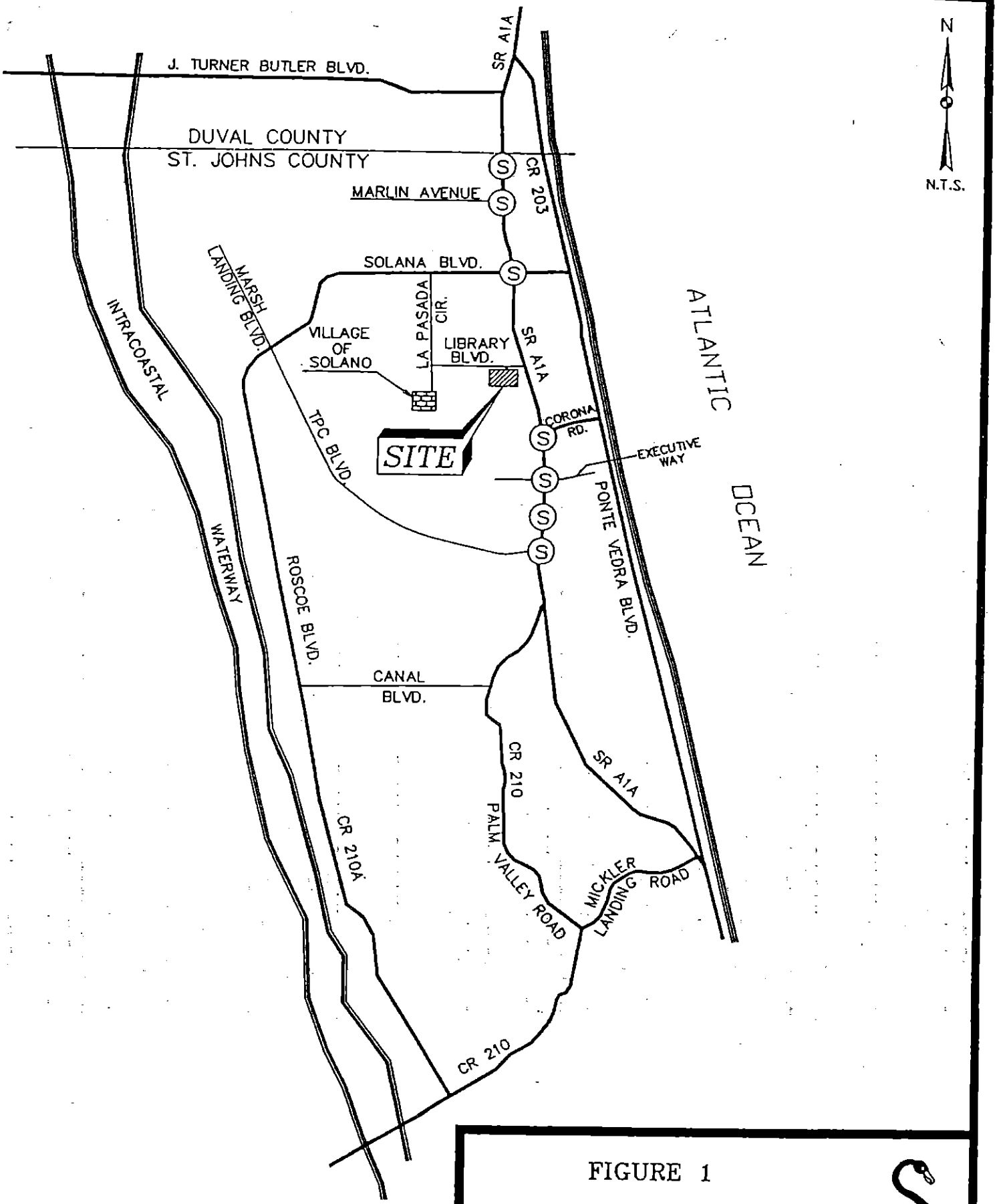


FIGURE 1

SITE LOCATION

PONTE VEDRA LIBRARY

Buckholz Traffic

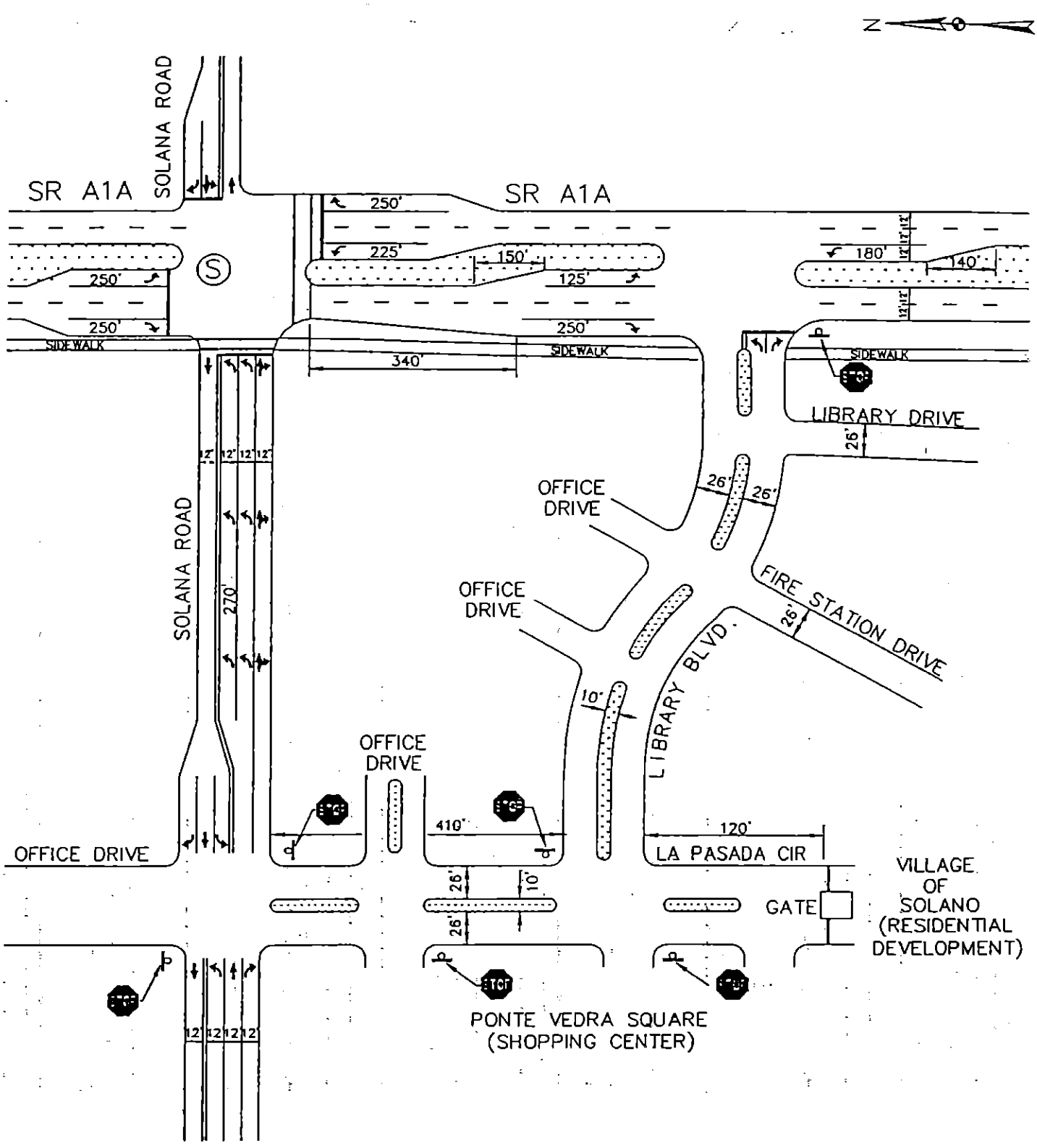


FIGURE 2

EXISTING LANE CONFIGURATION

Buckholz Traffic

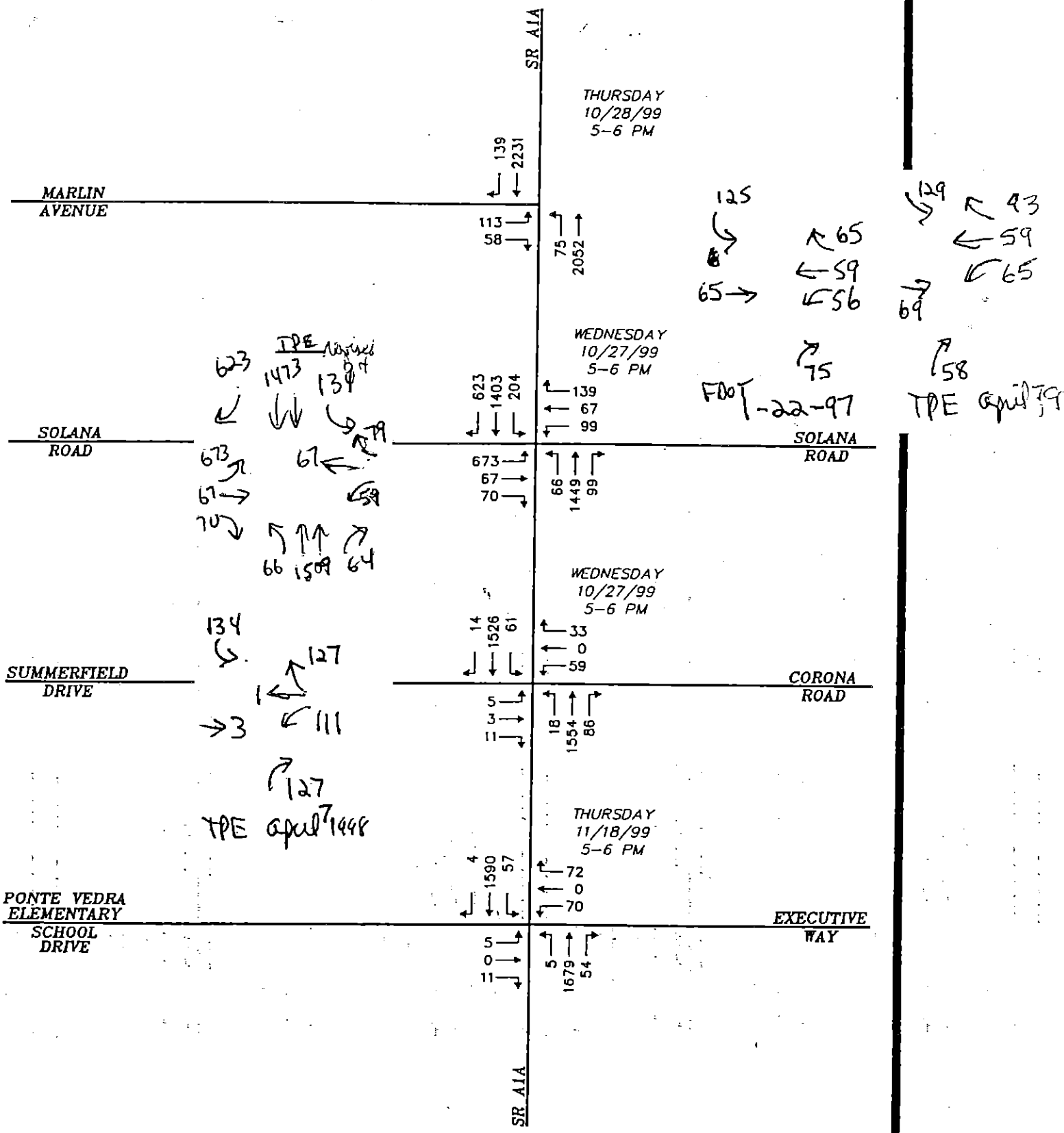
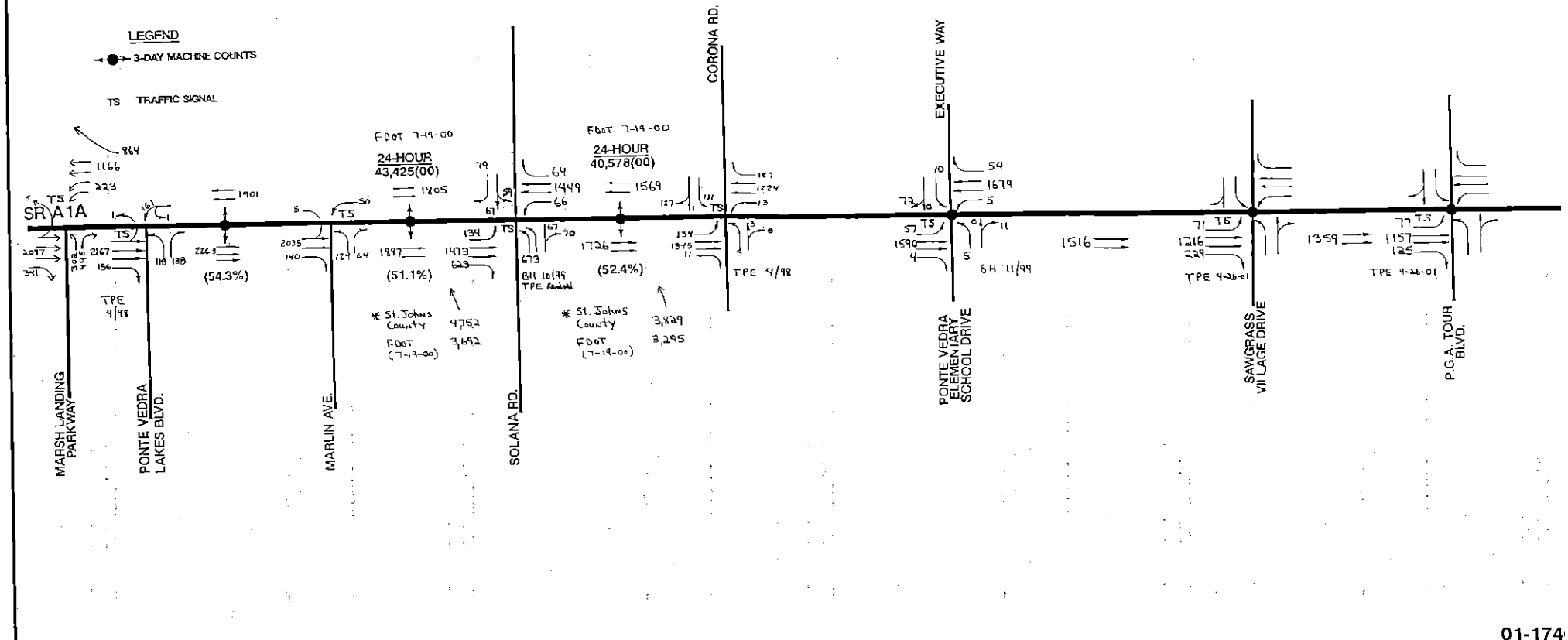


FIGURE 3

1999
EXISTING TRAFFIC

PM PEAK HOUR

ckholz Traffic



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TPE
TRANSPORTATION PLANNERS–ENGINEERS, INC.
TRAFFIC STUDIES, ROAD DESIGN AND ENGINEERING
ROADWAY CONSTRUCTION MANAGEMENT
TRAFFIC SIGNAL DESIGN
8820 SOUTHPOINT DRIVE S. – SUITE 120
JACKSONVILLE, FLORIDA 32216
(904) 296–1734

EXISTING P.M. PEAK HOUR TRAFFIC

APRIL 30, 2001

FIGURE 4

(904) 296-1734
Fax (904) 296-1580

TPE Transportation Planners-Engineers, Inc.

TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

TABLE 1
% OF CYCLE TIME AT S.R. A1A SIGNALIZED INTERSECTIONS
DURING PM PEAK HOUR

SR A1A Intersection at:	Total Cycle Lengths in Seconds	Average Time for Southbound thru (Green+Yellow+Red) Excluding Lost Time(1)	% of Total
1) Ponte Vedra Lakes Blvd.	130	103.5 TPE (4/98)	79.6
2) Marlin Avenue	130	108.43 BH	83.4
3) Solana Road(Free Operation)(2)	133	60.81 BH	45.7
4) Corona Road	100	85.93 BH	85.93
5) Executive Way	100	85.75 BH	85.75
6) Sawgrass Village Drive	100	56.7 TPE	56.7
7) PGA Tour Blvd. (TPC Blvd.)	100	61.5 TPE	61.5

(1) FDOT estimates lost time to be 4.0 seconds per cycle phase
(2) Weighted green time/cycle length
= Effective green time - lost time
A)Duval County to Solana Road g/C = 0.606 Links 147.1, 147.2
B)Solana Road to PGA Tour Blvd. g/C = 0.632 Links 145.2, 146

BH - Buckholz Traffic 11/18/99 5:00 - 6:00 PM

TPE - Transportation Planners - Engineers, Inc. 4/26/01 5:00 - 6:00 PM

Source: Transportation Planners - Engineers, Inc.
TPE job 01-1740 April 30, 2001

(904) 296-1734
Fax (904) 296-1580

TPE Transportation Planners-Engineers, Inc.

TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

TABLE 2
ART-TAB 4.0 COMPUTER ANALYSIS INPUT DATA;
SR A1A - SOLANA RD. TO PGA TOUR BLVD.

	Corona	Executive Way	Sawgrass Village	PGA Tour Blvd.
1) 24-hour traffic (Factored FDOT 10/30/2000)	40,578	40,578	40,578	40,578
2) K-Factor	0.083 FDOT	0.083	0.083	0.083
3) D-Factor	0.524 FDOT 0.508 (B)	0.516	0.516	0.516
4) PHF	0.95 (B)	0.95	0.95	0.95
5) % Turns from Exclusive Lanes	8.6% (B)	3.7% (B) (combined total = 707 ÷ 6196 = 11.4%)	19.8% (TPE)	14.9% (TPE)
6) Weighted thru movement g/C (southbound on SR A1A)	0.8193(B)	0.8175 (B)	0.527 (TPE)	0.575 (TPE)

$$= \frac{\frac{0.82 + 0.82 + 0.58}{3} + 0.53}{2} =$$

$$\frac{0.74 + 0.53}{2} = 0.635$$

FDOT 7/19/00 traffic count
(B) Buckholz Traffic Oct./Nov. 1999 counts
TPE April 26, 2001 Traffic counts

Source: Transportation Planners- Engineers,Inc.
TPE job 01-1740 April 30, 2001

ART-TAB 4.0

Table A

Arterial Level of Service Tables

Based on Chapter 11 of the 1997 Highway Capacity Manual

Florida Department of Transportation

Systems Planning Office - May 2000

Road Name: **SR A1A**

From/To: **Solana /PGA Tour Blv**

User Notes: **FDOT-7/00-Buckholz**

Study Period: **PM PEAK**

Traffic Characteristics

K Factor: **0.083**

D Factor: **0.516**

PHF: **0.950**

Adj. Sat. Flow Rate: **1,850**

% Turns from Exclusive Lanes: **11.4**

Roadway Characteristics

Posted Speed(mph): **45**

Area Type: **Urbanized**

Arterial Class: **2**

Medians: **Yes**

Left Turn Bays: **Yes**

Length of Arterial: **1.80** mi.

Control Characteristics

No. Signalized Intersections: **4**

Signal Type: **Actuated**

Arrival Type: **4**

Cycle Length: **100** sec.

g/C: **0.63**

PEAK HOUR PEAK DIRECTION VOLUME

Level of Service

LANES	A	B	C	D	E
1	740	1,180	1,280	1,320	1,320
2	1,530	2,440	2,590	2,630	2,630
3	2,320	3,730	3,890	3,950	3,950
4	3,120	5,010	5,200	5,260	5,260

PEAK HOUR VOLUME (BOTH DIRECTIONS)

Level of Service

LANES	A	B	C	D	E
2	1,430	2,290	2,490	2,550	2,550
4	2,960	4,730	5,010	5,100	5,100
6	4,500	7,230	7,540	7,650	7,650
8	6,050	9,700	10,070	10,200	10,200

ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Level of Service

LANES	A	B	C	D	E
2	17,300	27,600	30,000	30,700	30,700
4	35,700	57,000	60,400	61,400	61,400
6	54,300	87,200	90,800	92,100	92,100
8	72,900	116,900	121,300	122,900	122,900

PEAK HOUR PEAK DIRECTION Through/Right v/c Ratio

Level of Service

LANES	A	B	C	D	E
1	0	0.89	0.97	1.00	1.00
2	0.58	0.92	0.98	1.00	1.00
3	0.58	0.94	0.98	1.00	1.00
4	0.59	0.95	0.98	1.00	1.00

Printed: 04/29/2001 03:21:40 PM

ART-TAB 4.0

Table B

Arterial Level of Service Tables

Based on Chapter 11 of the 1997 Highway Capacity Manual

Florida Department of Transportation

Systems Planning Office - May 2000

Road Name: **SR A1A**

From/To: **Solana to Corona Rd.**

User Notes: **FDOT-7/00-Buckholz**

Study Period: **PM PEAK**

Traffic Characteristics

K Factor: **0.083**

D Factor: **0.524**

PHF: **0.950**

Adj. Sat. Flow Rate: **1,850**

% Turns from Exclusive Lanes: **8.6**

Roadway Characteristics

Posted Speed(mph): **45**

Area Type: **Urbanized**

Arterial Class: **1**

Medians: **Yes**

Left Turn Bays: **Yes**

Length of Arterial: **0.70** mi.

Control Characteristics

No. Signalized Intersections: **1**

Signal Type: **Actuated**

Arrival Type: **4**

Cycle Length: **100** sec.

g/C: **0.80**

PEAK HOUR PEAK DIRECTION VOLUME

Level of Service

LANES	A	B	C	D	E
1	540	1,520	1,620	1,620	1,620
2	1,080	3,100	3,240	3,240	3,240
3	1,630	4,660	4,860	4,860	4,860
4	2,180	6,230	6,480	6,480	6,480

PEAK HOUR VOLUME (BOTH DIRECTIONS)

Level of Service

LANES	A	B	C	D	E
2	1,020	2,910	3,080	3,090	3,090
4	2,070	5,910	6,180	6,180	6,180
6	3,120	8,890	9,270	9,270	9,270
8	4,170	11,880	12,360	12,360	12,360

ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Level of Service

LANES	A	B	C	D	E
2	12,300	35,000	37,100	37,200	37,200
4	24,900	71,200	74,500	74,500	74,500
6	37,600	107,100	111,700	111,700	111,700
8	50,200	143,100	148,900	148,900	148,900

PEAK HOUR PEAK DIRECTION Through/Right v/c Ratio

Level of Service

LANES	A	B	C	D	E
1	0	0.94	0.99	1.00	1.00
2	0.33	0.95	1.00	1.00	1.00
3	0.33	0.95	1.00	1.00	1.00
4	0.33	0.96	1.00	1.00	1.00

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TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

TABLE 3
COMPARISON OF TRAFFIC DATA AND PM PEAK HOUR
SERVICE VOLUME FOR SR A1A - SOLANA ROAD TO PGA TOUR BLVD.
(TPC BLVD)/ (ROAD LINKS 145.2 AND 146)

Traffic Data	St. Johns County Transportation Analyses Spreadsheet	Updated Information based on FDOT, TPE and/or Buckholtz Traffic Data And Analysis
1) 24-hour traffic	38,366 36,310	40,578 FDOT 10/00
2) K-factor	0.093	0.083 FDOT 10/00
3) Directional split	NA	0.524 FDOT 10/00 0.508 Buckholz 10/99
4) Peak Hour Factor	NA	0.95 Buckholz 10/99
5) PM Peak Hour	3829-3623	3295 FDOT 10/00
6) Other approved traffic	491-444	491 - 444 County
7) PM Peak Hour Committed Traffic	4320-4067	3786-3739
8) PM Peak Hour Service Volume	3,480 vehicles	5,100 vehicles (See TPE Tables A & B)
9) Available Capacity for PM Peak Hour	-(840-587)	+(1,314-1361)

Source: Transportation Planners - Engineers, Inc.
TPE job no. 01-1740 April 30, 2001

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TPE Transportation Planners-Engineers, Inc.

TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

TABLE 4
PROPOSED ROAD IMPROVEMENTS TO IMPROVE SERVICE VOLUME CAPACITY OF SR A1A AND AT SOLANA ROAD TRAFFIC SIGNAL INTERSECTION

Potential Improvements	Peak Hour Peak Direction Southbound Through Traffic (Green+Yellow+Red Time) seconds	g/C	Intersection Vehicle Delay	Level of Service
1) Existing Traffic Signal Operation	57	0.428	101.8	F
2) Change to East-West Left turns Phase 3 thru-Right Phase 4 (Restripe Solana East) (Existing Timing)	57	0.428	106.2	F
3) Modify Signal Timing to add 5 seconds for SR A1A thru Phase	62	0.466	52.7	D
4) Restripe Left turn Together Phase and add 5 seconds to SR A1A Thru Phase	62	0.466	59.8	E
5) Add new Westbound lane & concurrent lefts for Solana	57	0.428	102.8	F
6) Modify Signal Timing from 133 second cycle length to 120 seconds	56.5	0.471	50.3	D
7) Add new Westbound lane & concurrent lefts for Solana and add 5 seconds to SR A1A north-south thru	62	0.466	54.4	D

Source: Transportation Planners - Engineers, Inc.
TPE job no. 01-1740 May 1, 2001

APPENDIX

t or g	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
d Min g		0.0			0.0			0.0			0.0				

PHASE DATA

ase Combination	1	2	3	4		5	6	7	8
Left	A				NB Left	A			
Thru	A				Thru		A		
Right	A				Right	A	A		
Peds					Ped				
Left		A			SB Left	A			
Thru		A			Thru		A		
Right	A	A			Right	A	A		
Peds					Ped				
Right	A	A			EB Right				
Right	A	A			WB Right	A	A		
een	34.5	13.0	0.0			16.0	52.5	0.0	
llow	3.5	3.0				3.0	3.5		
l Red	1.0	1.0				1.0	1.0		

cle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

pr./ vement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
stbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
stbound									
Left	59	0.93	63	0					
Thru	67	0.93	72	1	LT		135	0.47	
Right	79	0.93	81	1	R	4	81		
rthbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
uthbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Transportation Planners-Engineers, Inc.
6620 Southpoint Drive S., Suite 120
Jacksonville, Fl. 32216
Phone: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

Intersection:	Solana Rd @ SR A1A
City/State:	Ponte Vedra Beach,St.Johns Co.
Analyst:	Ward Koutnik
Project No:	01-1740
Time Period Analyzed:	PM Peak Hour
Date:	4/30/01
East/West Street Name:	Solana Rd.
North/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	673	67	70	59	67	79	66	1449	64	134	1113	623
PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
PK 15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat	1900	1900			1900	1900	1900	1900	1900	1900	1900	1900
ParkExist												
NumPark												
% Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
No. Lanes	2	1	0	0	1	1	1	2	1	1	2	1
LGConfig	L	TR			LT	R	L	T	R	L	T	R
Lane Width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			4			4			20			200
Adj Flow	724	143			135	81	69	1525	46	141	1172	445
%InSharedLn												
Prop Turns			0.50	0.47								
NumPeds			0			0			0			0
NumBus	0	0			0	0	0	0	0	0	0	0

Duration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arriv. Type	3	3			3	3	4	4	4	4	4	4
Unit Ext.	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
I Factor		1.000			1.000			1.000			1.000	

TABLE 1

Sum (v/s) critical = 0.7
ost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.87

LEVEL OF SERVICE WORKSHEET

ppr/ ane rp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
astbound												
	0.80	0.259	46.0	1.000	908	0.34	5.3	0.0	51.2	D		
R	0.31	0.259	39.7	1.000	456	0.11	0.4	0.0	40.1	D	49.4	D
estbound												
T	0.74	0.098	58.4	1.000	182	0.30	16.4	0.0	74.8	E	74.8	E
	0.05	1.000	0.0	1.000	1615	0.11	0.0	0.0	0.0+	A		
orthbound												
	0.32	0.120	53.5	1.098	217	0.11	0.9	0.0	59.6	E		
	1.08	0.395	40.3	0.900	1411	0.50	160.9	0.0	197.1	F	191.1	F
	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
outhbound												
	0.65	0.120	55.8	1.098	217	0.23	6.9	0.0	68.2	E		
	0.83	0.395	36.2	0.900	1411	0.37	4.5	0.0	37.2	D	40.5	D
	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 101.8 (sec/veh) Intersection LOS = F

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
ycle Length, C 133.0 sec				
ctual Green Time for Lane Group, G				
ffective Green Time for Lane Group, g				
pposing Effective Green Time, go				
umber of Lanes in Lane Group, N				
umber of Opposing Lanes, No				
djusted Left-Turn Flow Rate, Vlt				
roportion of Left Turns in Opposing Flow, Plto				
djusted Opposing Flow Rate, Vo				
ost Time for Lane Group, tl				
eft Turns per Cycle: LTC=VltC/3600				
pposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
pposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
f=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
pposing Queue Ratio: qro=1-Rpo(go/C)				
q=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
u =g-gq if gq>=gf, =g-gf if gq<gf				
=(gq-gf)/2, n>=0				
tho=1-Plto				
l*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}				

t of g	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
d Min g		0.0			0.0			0.0			0.0	

PHASE DATA

ase Combination	1	2	3	4		5	6	7	8
Left	A				NB Left	A			
Thru		A			Thru		A		
Right		A			Right	A	A		
Peds					Ped				
Left	A				SB Left	A			
Thru		A			Thru		A		
Right		A			Right	A	A		
Peds					Ped				
Right	A	A			EB Right				
Right	A	A			WB Right				
een	34.5	13.0	0.0			16.0	52.5	0.0	
llow	3.5	3.0				3.0	3.5		
l Red	1.0	1.0				1.0	1.0		

cle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

pr./ vement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
stbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
stbound									
Left	59	0.93	63	1	L		63		
Thru	67	0.93	72	1	TR		153		0.53
Right	79	0.93	81	0		4			
rthbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
uthbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

Transportation Planners-Engineers, Inc.
6620 Southpoint Drive S., Suite 120
Jacksonville, Fl. 32216
Phone: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

Intersection:	Solana Rd @ SR A1A
City/State:	Ponte Vedra Beach,St.Johns Co.
Analyst:	Ward Koutnik
Project No:	01-1740
Time Period Analyzed:	PM Peak Hour
Date:	4/30/01
East/West Street Name:	Solana Rd.
North/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	673	67	70	59	67	79	66	1449	64	134	1113	623
PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
PK 15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
ParkExist												
NumPark												
% Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
No. Lanes	2	1	0	1	1	0	1	2	1	1	2	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			4			4			20			200
Adj Flow	724	143		63	153		69	1525	46	141	1172	445
%InSharedLn												
Prop Turns			0.50			0.53						
NumPeds			0			0			0			0
NumBus	0	0		0	0		0	0	0	0	0	0

Duration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Arriv. Type	3	3		3	3		4	4	4	4	4	4
Unit Ext.	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
I Factor		1.000			1.000			1.000			1.000	

TABLE 2

Sum (v/s) critical = 0.
Lost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.89

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.80	0.259	46.0	1.000	908	0.34	5.3	0.0	51.2	D		
TR	0.83	0.098	58.9	1.000	172	0.37	34.2	0.0	93.1	F	58.1	E
Westbound												
L	0.13	0.259	37.8	1.000	468	0.11	0.1	0.0	37.9	D		
TR	0.89	0.098	59.3	1.000	171	0.42	57.4	0.0	116.7	F	93.7	F
Northbound												
L	0.32	0.120	53.5	1.098	217	0.11	0.9	0.0	59.6	E		
T	1.08	0.395	40.3	0.900	1411	0.50	160.9	0.0	197.1	F	191.1	F
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.65	0.120	55.8	1.098	217	0.23	6.9	0.0	68.2	E		
T	0.83	0.395	36.2	0.900	1411	0.37	4.5	0.0	37.2	D	40.5	D
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 106.2 (sec/veh) Intersection LOS = F

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 133.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}				

ansportation Planners-Engineers, Inc.
20 Southpoint Drive S., Suite 120
cksonville, Fl. 32216
one: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

tersection:	Solana Rd @ SR A1A
ty/State:	Ponte Vedra Beach,St.Johns Co.
alyst:	Ward Koutnik
oject No:	01-1740
me Period Analyzed:	PM Peak Hour
te:	4/30/01
st/West Street Name:	Solana Rd.
rth/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
lume	673	67	70	59	67	79	66	1449	64	134	1113	623
F	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
Ln Vol												
Grade		0			0			0			0	
eal Sat	1900	1900			1900	1900	1900	1900	1900	1900	1900	1900
rkExist												
mPark												
Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
. Lanes	2	1	0	0	1	1	1	2	1	1	2	1
Config	L	TR			LT	R	L	T	R	L	T	R
ne Width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
OR Vol			4			4			20			200
j Flow	724	143			135	81	69	1525	46	141	1172	445
nSharedLn												
op Turns			0.50	0.47								
mPeds			0			0			0			0
mBus	0	0			0	0	0	0	0	0	0	0

ration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
it Unmet	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
riv. Type	3	3			3	3	4	4	4	4	4	4
it Ext.	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Factor		1.000			1.000			1.000			1.000	

Ext of g	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ped Min g		0.0			0.0			0.0			0.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right	A	A	
Peds					Ped			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right	A	A			Right	A	A	
Peds					Ped			
NB Right	A	A			EB Right			
SB Right	A	A			WB Right	A	A	
Green	31.5	12.0	0.0		15.0	57.5	0.0	
Yellow	3.5	3.0			3.0	3.5		
All Red	1.0	1.0			1.0	1.0		

Cycle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
Westbound									
Left	59	0.93	63	0					
Thru	67	0.93	72	1	LT		135	0.47	
Right	79	0.93	81	1	R	4	81		
Northbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
Southbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

TABLE 3

Sum (v/s) critical = 0.
Lost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.87

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.87	0.237	48.8	1.000	829	0.40	11.4	0.0	60.3	E		
TR	0.34	0.237	42.2	1.000	416	0.11	0.5	0.0	42.7	D	57.4	E
Westbound												
LT	0.80	0.090	59.3	1.000	168	0.35	28.2	0.0	87.5	F	87.5	F
R	0.05	1.000	0.0	1.000	1615	0.11	0.0	0.0	0.0+	A		
Northbound												
L	0.34	0.113	54.4	1.101	204	0.11	1.0	0.0	60.9	E		
T	0.99	0.432	37.4	0.858	1545	0.49	34.9	0.0	66.9	E	66.7	E
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.69	0.113	56.8	1.101	204	0.26	10.1	0.0	72.6	E		
T	0.76	0.432	31.9	0.858	1545	0.31	2.3	0.0	29.6	C	34.2	C
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 52.7 (sec/veh) Intersection LOS = D

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 133.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]				

nsportation Planners-Engineers, Inc.
0 Southpoint Drive S., Suite 120
ksonville, Fl. 32216
ne: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

ersection:	Solana Rd @ SR A1A
y/State:	Ponte Vedra Beach,St.Johns Co.
lyst:	Ward Koutnik
ject No:	01-1740
me Period Analyzed:	PM Peak Hour
e:	4/30/01
t/West Street Name:	Solana Rd.
th/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
lume	673	67	70	59	67	79	66	1449	64	134	1113	623
	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
Ln Vol												
rade		0			0			0			0	
eal Sat	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
kExist												
nPark												
leavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
Lanes	2	1	0	1	1	0	1	2	1	1	2	1
Config	L	TR		L	TR		L	T	R	L	T	R
e Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
OR Vol			4			4			20			200
Flow	724	143		63	153		69	1525	46	141	1172	445
SharedLn												
p Turns			0.50			0.53						
nPeds			0			0			0			0
nBus	0	0		0	0		0	0	0	0	0	0

cation 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
t Unmet	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
civ Type	3	3		3	3		4	4	4	4	4	4
t Ext.	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Factor		1.000			1.000			1.000			1.000	

													4
Ext of g	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	
Ped Min g		0.0			0.0			0.0			0.0		

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right	A	A	
Peds					Ped			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right	A	A	
Peds					Ped			
NB Right	A	A			EB Right			
SB Right	A	A			WB Right			
Green	31.5	12.0	0.0		15.0	57.5	0.0	
Yellow	3.5	3.0			3.0	3.5		
All Red	1.0	1.0			1.0	1.0		

Cycle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
Westbound									
Left	59	0.93	63	1	L		63		
Thru	67	0.93	72	1	TR		153		0.53
Right	79	0.93	81	0		4			
Northbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
Southbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

TABLE 4

Sum (v/s) critical = 0)
Lost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.89

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.87	0.237	48.8	1.000	829	0.40	11.4	0.0	60.3	E		
TR	0.90	0.090	59.9	1.000	159	0.42	63.2	0.0	123.1	F	70.6	E
Westbound												
L	0.15	0.237	40.1	1.000	428	0.11	0.2	0.0	40.3	D		
TR	0.97	0.090	60.3	1.000	158	0.48	111.8	0.0	172.1	F	133.7	F
Northbound												
L	0.34	0.113	54.4	1.101	204	0.11	1.0	0.0	60.9	E		
T	0.99	0.432	37.4	0.858	1545	0.49	34.9	0.0	66.9	E	66.7	E
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.69	0.113	56.8	1.101	204	0.26	10.1	0.0	72.6	E		
T	0.76	0.432	31.9	0.858	1545	0.31	2.3	0.0	29.6	C	34.2	C
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 59.8 (sec/veh) Intersection LOS = E

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 133.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)))				

HCS: Signals Release 3.1

Table 5
Add new Westbound lane
and concurrent lefts
for Solana

TABLE 5

ransportation Planners-Engineers, Inc.
520 Southpoint Drive S., Suite 120
acksonville, Fl. 32216
hone: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

ntersection:	Solana Rd @ SR A1A
ity/State:	Ponte Vedra Beach,St.Johns Co.
nalyst:	Ward Koutnik
roject No:	01-1740
ime Period Analyzed:	PM Peak Hour
ate:	4/30/01
ast/West Street Name:	Solana Rd.
orth/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
olume	673	67	70	59	67	79	66	1449	64	134	1113	623
HF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
K 15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
i Ln Vol												
Grade		0			0			0			0	
deal Sat	1900	1900		1900	1900	1900	1900	1900	1900	1900	1900	1900
arkExist												
umPark												
Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
o. Lanes	2	1	0	1	1	1	1	2	1	1	2	1
GConfig	L	TR		L	T	R	L	T	R	L	T	R
ane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
TOR Vol			4			4			20			200
dj Flow	724	143		63	72	81	69	1525	46	141	1172	445
InSharedLn												
rop Turns			0.50									
umPeds			0			0			0			0
umBus	0	0		0	0	0	0	0	0	0	0	0

uration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
nit Unmet	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
rriv. Type	3	3		3	3	3	4	4	4	4	4	4
nit Ext.	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Factor		1.000			1.000			1.000			1.000	

ost Time	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext of g	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ped Min g		0.0			0.0			0.0			0.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right	A	A	
Peds					Ped			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right	A	A			Right	A	A	
Peds					Ped			
NB Right	A	A			EB Right			
SB Right	A	A			WB Right	A	A	
Green	34.5	13.0	0.0			16.0	52.5	0.0
Yellow	3.5	3.0				3.0	3.5	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
Westbound									
Left	59	0.93	63	1	L		63		
Thru	67	0.93	72	1	T		72		
Right	79	0.93	81	1	R	4	81		
Northbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
Southbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

TABLE 5

Sum (v/s) critical = 0.
Lost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.88

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.80	0.259	46.0	1.000	908	0.34	5.3	0.0	51.2	D		
TR	0.83	0.098	58.9	1.000	172	0.37	34.2	0.0	93.1	F	58.1	E
Westbound												
L	0.13	0.259	37.8	1.000	468	0.11	0.1	0.0	37.9	D		
T	0.39	0.098	56.3	1.000	186	0.11	1.3	0.0	57.6	E	48.4	D
R	0.05	1.000	0.0	1.000	1615	0.11	0.0	0.0	0.0+	A		
Northbound												
L	0.32	0.120	53.5	1.098	217	0.11	0.9	0.0	59.6	E		
T	1.08	0.395	40.3	0.900	1411	0.50	160.9	0.0	197.1	F	191.1	F
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.65	0.120	55.8	1.098	217	0.23	6.9	0.0	68.2	E		
T	0.83	0.395	36.2	0.900	1411	0.37	4.5	0.0	37.2	D	40.5	D
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 102.8 (sec/veh) Intersection LOS = F

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 133.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24))}				

Change cycle length from 133 to 120 seconds & adjust timing

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hone: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

tersection:	Solana Rd @ SR A1A
ty/State:	Ponte Vedra Beach,St.Johns Co.
alyst:	Ward Koutnik
oject No:	01-1740
me Period Analyzed:	PM Peak Hour
te:	4/30/01
st/West Street Name:	Solana Rd.
rth/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
lume	673	67	70	59	67	79	66	1449	64	134	1113	623
F	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
Ln Vol												
Grade		0			0			0			0	
eal Sat	1900	1900			1900	1900	1900	1900	1900	1900	1900	1900
rkExist												
mPark												
Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
. Lanes	2	1	0	0	1	1	1	2	1	1	2	1
Config	L	TR			LT	R	L	T	R	L	T	R
ne Width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
OR Vol			4			4			20			200
j Flow	724	143			135	81	69	1525	46	141	1172	445
nSharedLn												
op Turns			0.50	0.47								
mPeds			0			0			0			0
mBus	0	0			0	0	0	0	0	0	0	0

ration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
it Unmet	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
riv. Type	3	3			3	3	4	4	4	4	4	4
it Ext.	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Factor		1.000			1.000			1.000			1.000	

Ext of g	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ped Min g		0.0			0.0			0.0			0.0	

6

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right	A	A	
Peds					Ped			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right	A	A			Right	A	A	
Peds					Ped			
NB Right	A	A			EB Right			
SB Right	A	A			WB Right	A	A	
Green	27.0	11.0	0.0			13.0	52.0	0.0
Yellow	3.5	3.0				3.0	3.5	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
Westbound									
Left	59	0.93	63	0					
Thru	67	0.93	72	1	LT		135	0.47	
Right	79	0.93	81	1	R	4	81		
Northbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
Southbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

TABLE 6

Sum (v/s) critical = 0.
Lost Time/Cycle, L = 13.00 sec Critical v/c(X) = 0.88

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.92	0.225	45.4	1.000	788	0.44	19.9	0.0	65.3	E		
TR	0.36	0.225	39.2	1.000	396	0.11	0.6	0.0	39.8	D	61.1	E
Westbound												
LT	0.79	0.092	53.4	1.000	170	0.34	25.9	0.0	79.3	E	79.3	E
R	0.05	1.000	0.0	1.000	1615	0.11	0.0	0.0	0.0+	A		
Northbound												
L	0.35	0.108	49.6	1.103	196	0.11	1.1	0.0	55.8	E		
T	0.98	0.433	33.6	0.857	1549	0.49	33.0	0.0	61.8	E	61.5	E
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.72	0.108	51.7	1.103	196	0.28	12.9	0.0	70.0	E		
T	0.76	0.433	28.7	0.857	1549	0.31	2.2	0.0	26.8	C	31.4	C
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

Intersection Delay = 50.3 (sec/veh) Intersection LOS = D

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 120.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+{(N-1)g/(gf+gu/El1+4.24)}]				

HCS: Signals Release 3.1

Table 7
New westbound lane & concurrent lefts for Solana, and add 5 seconds to N-S on SR A1A

ransportation Planners-Engineers, Inc.
620 Southpoint Drive S., Suite 120
acksonville, Fl. 32216
hone: 904/296-1734 Fax: 904/296-1580

OPERATIONAL ANALYSIS

ntersection:	Solana Rd @ SR A1A
ity/State:	Ponte Vedra Beach,St.Johns Co.
nalyst:	Ward Koutnik
roject No:	01-1740
ime Period Analyzed:	PM Peak Hour
ate:	4/30/01
ast/West Street Name:	Solana Rd.
orth/South Street Name:	SR A1A

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
olume	673	67	70	59	67	79	66	1449	64	134	1113	623
HF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
K 15 Vol	181	18	19	16	18	21	17	381	17	35	293	164
i Ln Vol												
Grade		0			0			0			0	
deal Sat	1900	1900		1900	1900	1900	1900	1900	1900	1900	1900	1900
arkExist												
umPark												
Heavy Veh	0	0	0	0	0	0	0	1	0	0	1	0
o. Lanes	2	1	0	1	1	1	1	2	1	1	2	1
GConfig	L	TR		L	T	R	L	T	R	L	T	R
ane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
TOR Vol			4			10			20			200
dj Flow	724	143		63	72	74	69	1525	46	141	1172	445
InSharedLn												
rop Turns			0.50									
umPeds			0			0			0			0
umBus	0	0		0	0	0	0	0	0	0	0	0

uration 1.00 Area Type: All other areas

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
nit Unmet	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
rriv. Type	3	3		3	3	3	4	4	4	4	4	4
nit Ext.	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Factor		1.000			1.000			1.000			1.000	

ost Time	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext of g	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ped Min g		0.0			0.0			0.0			0.0	

PHASE DATA

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right	A	A	
Peds					Ped			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right	A	A			Right	A	A	
Peds					Ped			
NB Right	A	A			EB Right			
SB Right	A	A			WB Right	A	A	
Green	31.5	12.0	0.0			15.0	57.5	0.0
Yellow	3.5	3.0				3.0	3.5	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 133.0 secs

VOLUME ADJUSTMENT WORKSHEET

Appr./ Movement	Mvt Volume	PHF	Flow Rate	No. Lanes	Lane Group	RTOR	Adjusted Flow Rate In Lane Grp	Prop. Left Turns	Prop. Right Turns
Eastbound									
Left	673	0.93	724	2	L		724		
Thru	67	0.93	72	1	TR		143		0.50
Right	70	0.93	71	0		4			
Westbound									
Left	59	0.93	63	1	L		63		
Thru	67	0.93	72	1	T		72		
Right	79	0.93	74	1	R	10	74		
Northbound									
Left	66	0.95	69	1	L		69		
Thru	1449	0.95	1525	2	T		1525		
Right	64	0.95	46	1	R	20	46		
Southbound									
Left	134	0.95	141	1	L		141		
Thru	1113	0.95	1172	2	T		1172		
Right	623	0.95	445	1	R	200	445		

* Value entered by user.

SATURATION FLOW ADJUSTMENT WORKSHEET

TABLE 7

Sum (v/s) critical = 0.79
Lost Time/Cycle, L = 13.00 s Critical v/c(X) = 0.68

LEVEL OF SERVICE WORKSHEET

Appr/ Lane Grp	Ratios v/c	Ratios g/C	Unf Del d1	Prog Adj Fact	Lane Grp Cap	Incremental Factor k	Incremental Del d2	Res Del d3	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound												
L	0.87	0.237	48.8	1.000	829	0.40	11.4	0.0	60.3	E		
TR	0.90	0.090	59.9	1.000	159	0.42	63.2	0.0	123.1	F	70.6	E
Westbound												
L	0.15	0.237	40.1	1.000	428	0.11	0.2	0.0	40.3	D		
T	0.42	0.090	57.2	1.000	171	0.11	1.7	0.0	58.9	E	50.2	D
R	0.05	1.000	0.0	1.000	1615	0.11	0.0	0.0	0.0+	A		
Northbound												
L	0.34	0.113	54.4	1.101	204	0.11	1.0	0.0	60.9	E		
T	0.99	0.432	37.4	0.858	1545	0.49	34.9	0.0	66.9	E	66.7	E
R	0.03	1.000	0.0	1.150	1615	0.11	0.0	0.0	0.0+	A		
Southbound												
L	0.69	0.113	56.8	1.101	204	0.26	10.1	0.0	72.6	E		
T	0.76	0.432	31.9	0.858	1545	0.31	2.3	0.0	29.6	C	34.2	C
R	0.28	1.000	0.0	1.150	1615	0.11	0.1	0.0	0.1	A		

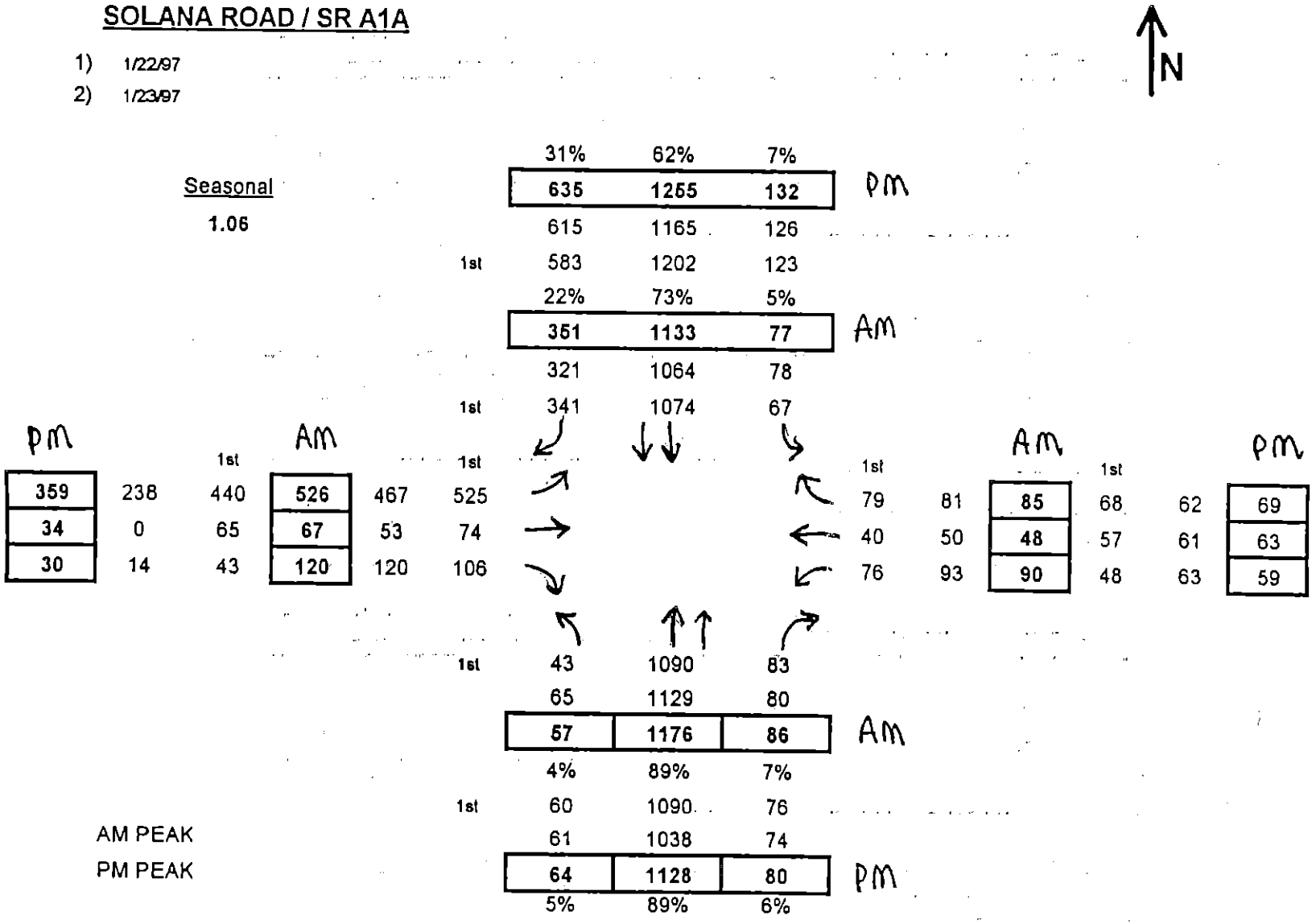
Intersection Delay = 54.4 (sec/veh) Intersection LOS = D

SUPPLEMENTAL PERMITTED LT WORKSHEET
for exclusive lefts

APPROACH	EB	WB	NB	SB
Cycle Length, C 133.0 sec				
Actual Green Time for Lane Group, G				
Effective Green Time for Lane Group, g				
Opposing Effective Green Time, go				
Number of Lanes in Lane Group, N				
Number of Opposing Lanes, No				
Adjusted Left-Turn Flow Rate, Vlt				
Proportion of Left Turns in Opposing Flow, Plto				
Adjusted Opposing Flow Rate, Vo				
Lost Time for Lane Group, tl				
Left Turns per Cycle: LTC=VltC/3600				
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600fluo				
Opposing Platoon Ratio, Rpo (Table 9-2 or Eqn 9-7)				
gf=[Gexp(- a * (LTC ** b))]-tl, gf<=g				
Opposing Queue Ratio: qro=1-Rpo(go/C)				
gq=(4.943Volc**0.762)[(qro**1.061)-tl], gq<=g				
gu =g-gq if gq>=gf, =g-gf if gq<gf				
n=(gq-gf)/2, n>=0				
Ptho=1-Plto				
Pl*=Plt[1+[(N-1)g/(gf+gu/El1+4.24))]				

SOLANA ROAD / SR A1A

1) 1/22/97
2) 1/23/97



AM PEAK
PM PEAK

1st day	2nd day
7:45	7:45
4:30	5:30

Source: FDOT's SR A1A Arterial Investment Study, May 1997

2/27/97

Florida Department of Transportation

December 28, 00

County	Station
78	0080

Start Date	Start Time
July 19, 00	15:00

Site Description:
S.R.AIA SOUTH OF MARLIN BLVD.

RAW DATA

Time	Direction: N 1st ¼	2nd ¼	3rd ¼	4th ¼	Total	Direction: S 1st ¼	2nd ¼	3rd ¼	4th ¼	Total	Combined Total
00:00	27.0	30.0	35.0	27.0	119.0	29.0	21.0	34.0	31.0	115.0	234.0
01:00	12.0	13.0	11.0	15.0	51.0	37.0	23.0	29.0	25.0	114.0	165.0
02:00	20.0	13.0	9.0	4.0	46.0	35.0	20.0	11.0	14.0	80.0	126.0
03:00	17.0	4.0	6.0	7.0	34.0	17.0	9.0	12.0	12.0	50.0	84.0
04:00	8.0	5.0	17.0	27.0	57.0	13.0	10.0	13.0	22.0	58.0	115.0
05:00	34.0	32.0	37.0	63.0	166.0	34.0	36.0	35.0	58.0	163.0	329.0
06:00	84.0	159.0	223.0	232.0	698.0	92.0	113.0	183.0	217.0	605.0	1303.0
07:00	275.0	386.0	425.0	415.0	1481.0	184.0	227.0	272.0	401.0	1084.0	2565.0
08:00	444.0	416.0	441.0	450.0	1751.0	332.0	433.0	424.0	429.0	1618.0	3369.0
09:00	351.0	368.0	328.0	316.0	1363.0	353.0	309.0	301.0	356.0	1319.0	2682.0
10:00	342.0	312.0	335.0	381.0	1370.0	296.0	295.0	316.0	289.0	1196.0	2566.0
11:00	320.0	317.0	348.0	391.0	1376.0	328.0	356.0	344.0	379.0	1407.0	2783.0
12:00	413.0	437.0	408.0	358.0	1616.0	387.0	340.0	387.0	409.0	1523.0	3139.0
13:00	407.0	379.0	393.0	408.0	1587.0	394.0	373.0	394.0	375.0	1536.0	3123.0
14:00	372.0	360.0	367.0	400.0	1499.0	412.0	374.0	380.0	382.0	1548.0	3047.0
15:00	378.0	387.0	410.0	482.0	1657.0	329.0	375.0	369.0	394.0	1467.0	3124.0
16:00	341.0	365.0	439.0	456.0	1601.0	404.0	380.0	445.0	436.0	1665.0	3266.0
17:00	471.0	431.0	486.0	454.0	1842.0	484.0	508.0	463.0	470.0	1925.0	3767.0
18:00	374.0	403.0	278.0	284.0	1339.0	430.0	481.0	466.0	419.0	1796.0	3135.0
19:00	263.0	255.0	226.0	213.0	977.0	300.0	321.0	286.0	251.0	1158.0	2135.0
20:00	145.0	172.0	148.0	141.0	606.0	214.0	185.0	208.0	182.0	789.0	1395.0
21:00	152.0	117.0	99.0	109.0	477.0	178.0	171.0	151.0	139.0	639.0	1116.0
22:00	57.0	54.0	30.0	21.0	162.0	121.0	62.0	51.0	72.0	306.0	468.0
23:00	29.0	29.0	24.0	28.0	110.0	51.0	46.0	38.0	26.0	161.0	271.0
			24 Hour Total		21985			24 Hour Total		22322	44307

Peak Information

	Direction: N Hour	Volume	Direction: S Hour	Volume	Combined Directions Hour	Volume
A.M.	08:00	1751	08:15	1639	08:00	3369
P.M.	16:45	1844	17:00	1925	17:00	3767
Daily	16:45	1844	17:00	1925	17:00	3767

← 3692 Factor

0.99 weekly
0.99 axle
= 0.9801

Florida Department of Transportation

December 28, 00

County: 78 | Station: 0266

Site Description: A1A SOUTH OF SOLANA RD. (CR-210-A)

Start Date: October 30, 00 | Start Time: 10:30

RAW DATA

Time	Direction: N 1st ¼	2nd ¼	3rd ¼	4th ¼	Total	Direction: S 1st ¼	2nd ¼	3rd ¼	4th ¼	Total	Combined Total
00:00	21.0	17.0	12.0	11.0	61.0	22.0	21.0	16.0	11.0	70.0	131.0
01:00	15.0	8.0	5.0	0.0	28.0	17.0	11.0	6.0	6.0	40.0	68.0
02:00	11.0	3.0	1.0	4.0	19.0	10.0	5.0	6.0	5.0	26.0	45.0
03:00	4.0	1.0	1.0	2.0	8.0	4.0	9.0	11.0	15.0	39.0	47.0
04:00	5.0	7.0	8.0	27.0	47.0	8.0	3.0	20.0	23.0	54.0	101.0
05:00	28.0	81.0	65.0	81.0	235.0	26.0	36.0	53.0	65.0	180.0	415.0
06:00	125.0	145.0	239.0	223.0	732.0	87.0	124.0	191.0	162.0	564.0	1296.0
07:00	310.0	376.0	405.0	378.0	1471.0	177.0	307.0	401.0	331.0	1216.0	2687.0
08:00	468.0	445.0	395.0	377.0	1685.0	327.0	349.0	350.0	319.0	1345.0	3030.0
09:00	321.0	336.0	317.0	323.0	1297.0	305.0	242.0	286.0	294.0	1127.0	2424.0
10:00	337.0	309.0	306.0	341.0	1293.0	256.0	277.0	282.0	306.0	1121.0	2414.0
11:00	329.0	337.0	354.0	321.0	1341.0	285.0	312.0	319.0	347.0	1263.0	2604.0
12:00	364.0	323.0	378.0	327.0	1392.0	336.0	348.0	334.0	342.0	1360.0	2752.0
13:00	365.0	325.0	302.0	324.0	1316.0	370.0	336.0	347.0	403.0	1456.0	2772.0
14:00	320.0	359.0	337.0	312.0	1328.0	363.0	323.0	350.0	364.0	1400.0	2728.0
15:00	371.0	358.0	366.0	379.0	1474.0	352.0	348.0	359.0	399.0	1458.0	2932.0
16:00	383.0	366.0	352.0	344.0	1445.0	388.0	354.0	396.0	420.0	1558.0	3001.0
17:00	386.0	357.0	422.0	318.0	1483.0	424.0	409.0	407.0	411.0	1651.0	3134.0
18:00	330.0	300.0	270.0	246.0	1146.0	393.0	402.0	295.0	268.0	1358.0	2504.0
19:00	216.0	150.0	147.0	119.0	632.0	235.0	208.0	178.0	174.0	795.0	1427.0
20:00	129.0	125.0	91.0	97.0	442.0	160.0	169.0	187.0	131.0	627.0	1069.0
21:00	104.0	85.0	76.0	65.0	330.0	123.0	122.0	98.0	79.0	422.0	752.0
22:00	68.0	81.0	32.0	39.0	220.0	68.0	56.0	56.0	41.0	223.0	443.0
23:00	40.0	42.0	27.0	25.0	134.0	39.0	35.0	23.0	29.0	126.0	260.0
24 Hour Total					19559					19477	39036

Peak Information

	Direction: N Hour	Volume	Direction: S Hour	Volume	Combined Directions Hour	Volume
A.M.	07:30	1696	07:30	1408	07:30	3104
P.M.	16:45	1509	16:45	1660	16:45	3169
Daily	07:30	1696	16:45	1660	16:45	3169
Truck %	3.00		3.00		3.00	

CLASS SITE: WILL STILL LACK SEASONAL ADJUSTMENT. 1.05 weekly 0.99 axle

TRANSPORTATION PLANNERS–ENGINEERS, INC.

Southpoint Building • Suite 170
Jacksonville, Florida 32216

(904) 296-1734

LOCATION: [illegible] JOB #: [illegible]

DATE: April 26, 2001 DAY OF WEEK: Thursday

WEATHER CONDITION: Clear NAME: Ward Kouttnik

TRAFFIC MOVEMENT	4:30	4:45	5:00	5:15	5:30 – 5:45	5:45 – 6:00	4:45-5:45	5:00-6:00
R A1A S.B. A ↘								
A ↘ RIGHT	35 T	35 STT	28	22	40	38	125	128
B → →	19,23,34,24,33 32,51,36,25	19,41,27,23,37 53,43,19,30	29,29,29,27,36 26,30,30,44,	26,35,23,26,35 25,46,27,38	40,40,29,41,22 27,32,35,36	29,34,38,34,31 25,20,35,33,		
B → →	278	293	280	282	302	279	1157	1143
B → →	T	ST		ST				
B → →								
C ↗	26	16	27	13	21	24	77	85
C ↗							(1359)	(1356)

Table 1 Measured Green + Yellow + Red Time in Seconds for Southbound SR A1A at [redacted] PGA Tour Blvd (April 26, 2001) - PM Peak Hr.

	Southbound Green Begin Time	Total Time in seconds for Green + Yellow + Red
1	4:29:30	58
2		55
3		58
4		62
5		64
6		60
7	4:40	62
8		57
9		65
10	4:44:30	66
11		53
12		58
13		57
14		63
15		65
16		54
17		56
18		84
19	4:59:30	65
20		66
21		52
22		73
23		53
24		58
25		63
26		73
27		53
28	5:14:30	67
29		76

Ward Kortuk
surveyor

Table 1 Measured Green + Yellow + Red Time in Seconds for Southbound SR A1A at [redacted] PGA Tour Blvd (April 26, 2001) - PM Peak Hr.

	Southbound Green Begin Time	Total Time in seconds for Green + Yellow + Red
1	5:19+	54
2	"	57
3	"	57
4		61
5		63
6		73
7	5:29:30	60
8		63
9		66
10		58
11		56
12		53
13		53
14		66
15	5:44:30	80 ~~80~~ 53
16		52
17		66
18		"
19		61
20		60
21		57
22		58
23		59
24		71
25		
26		
27		
28		
29		

4:45-5:45

$\frac{2234}{3600} = 62.06\%$

$\frac{62.06 - 4.0}{100 \text{ cycle}} = 0.5806$ (Lost)

5:00-6:00

$\frac{2215}{3600} = 61.53\%$

$\frac{61.53 - 4.0}{100 \text{ cycle}} = 0.5753$ (Lost)

Ward Koutnik
Surveyor

TRANSPORTATION PLANNERS–ENGINEERS, INC.

(904) 296-1734

LOCATION: [illegible] JOB #: [illegible]

DATE: April 26, 2001 DAY OF WEEK: Thursday

WEATHER CONDITION: NAME: Wayne Oehlhan, P.E.

TRAFFIC MOVEMENT	4:30 – 4:45	4:45 – 5:00	5:00 – 5:15	5:15 – 5:30	5:30 – 5:45	5:45 – 6:00	4:45 – 5:45	5 – 6:00
A ↗	(tally)	(tally)	(tally)	(tally)	(tally)	(tally)		
	72	46	70	60	53	74	229	257
B ↑	21*, 32, 33, 27, 43, 36, 34, 25, 26,	42, 30, 32, 35, 55, 38, 21, 39, 31,	30, 28, 39, 34, 30, 33, 28, 40, 20,	30, 30, 35, 18, 46, 42, 19, 46, 34,	VT 2 cycles 38, 62, 22, 45, 25, 40, 37, 37,	42, 31, 25, 34, 36, 27, 33, 22, 41		
B ↑	278	325	282	303	306	Full cycle 291	1216	1182
B ↑	VT	TT		T VT VT				
C ↰	(tally) 28	(tally) 16	(tally) 18	(tally) 23	(tally) 14	UT (tally) 16	71	71
		* = Partial cycle					(1516)	(1510)

Table II Measured Green + Yellow + Red Time in Seconds for Southbound SR A1A at Sawgrass Village Drive [redacted] - PM Peak Hour (April 26, 2001)

	Southbound Green Begin Time	Total Time in Seconds for Green + Yellow + Red
1	4:32 PM	55
2		71
3		52
4		47
5	4:37	55½
6		62
7	4:42	61
8	4:44	53
9	4:45	58
10		51
11		44
12	4:51	42
13	4:52	64
14		62
15	4:56	51
16	4:57	51
17	4:59	49
18	5:01	55
19	5:02	75
20	5:04	55
21		60
22	5:08	43
23	5:09	42
24	5:11	48
25	5:12	67
26	5:14	45
27	5:15	62
28		51
29		70

Wayne Oehlman
Surveyor

Table II Measured Green + Yellow + Red Time in Seconds for Southbound SR A1A at Sawgrass Village Drive [redacted] – PM Peak Hour (April 26, 2001)

	Southbound Green Begin Time	Total Time in Seconds for Green + Yellow + Red
1	521	65
2		62
3	524	66
4	526	60
5	528	51
6	529	45
7	530	47
8	532	143 (2 cycles)
9	536	55
10		56
11	539	41
12	541	52
13	542	48
14	544	42
15	546	45
16	549	67
17		62
18		74
19		56
~~19~~	554	65
~~20~~	556	49
~~21~~	557	63
~~22~~	559	54 — ended @ 6:00
23		
24		
25		
26		
27		
28		
29		

4:45–5:45

1978 / 3600 = 54.94

54.94 − 4.0 / 100 = 0.5094

5:00–6:00

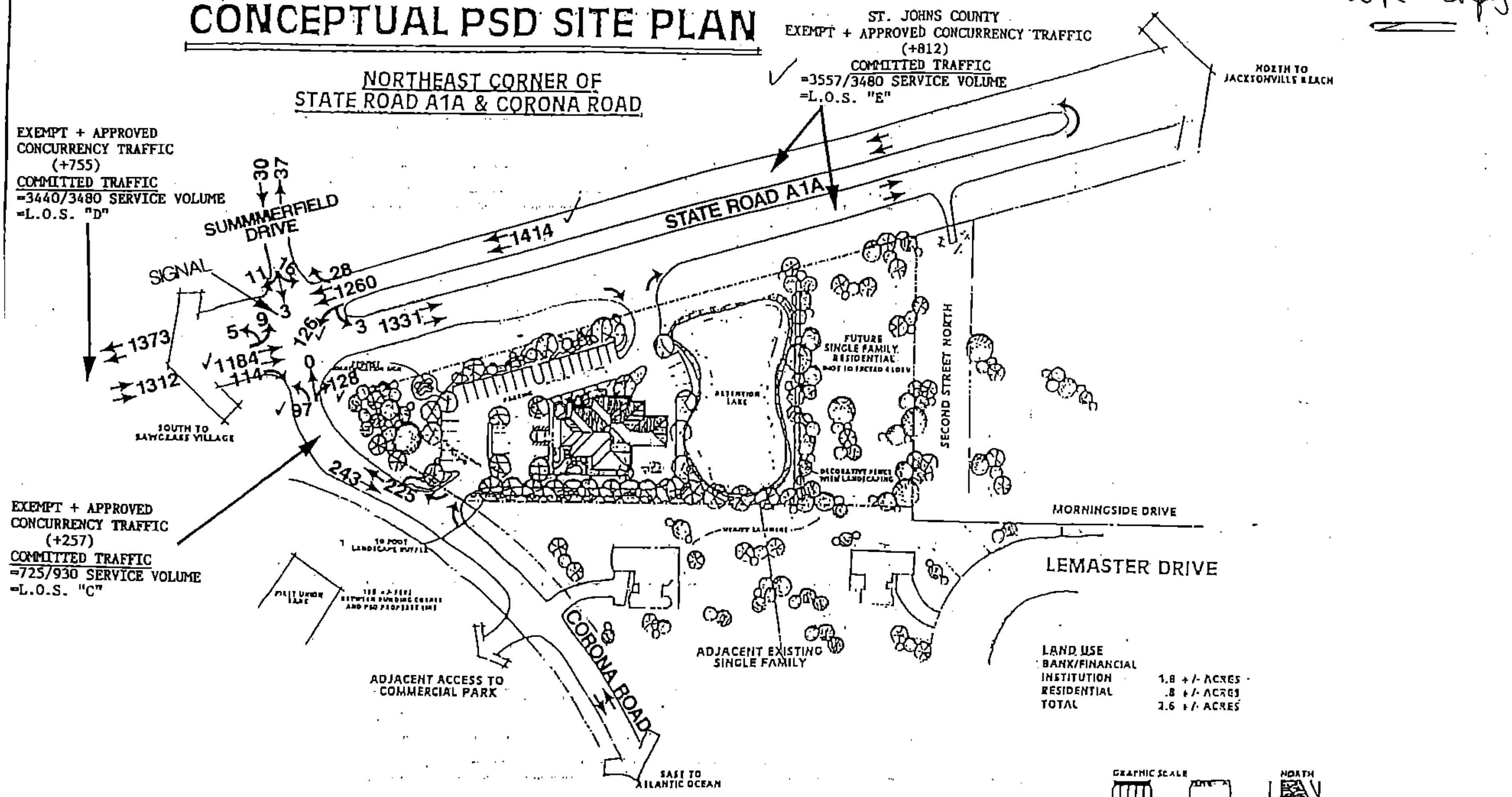
2041 seconds / 3600 = 56.7%

56.7 seconds − 4.0 / 100 = 527

Wayne Oehlman
Surveyor

CONCEPTUAL PSD SITE PLAN

NORTHEAST CORNER OF
STATE ROAD A1A & CORONA ROAD



WK's Copy

NOTE: FDOT'S TRAFFIC ADJUSTMENT FACTOR FOR AUGUST 5TH IS 1.00.

POWERS & MERRITT

CONCEPTUAL PSD SITE PLAN

TPE TRANSPORTATION PLANNERS-ENGINEERS, INC.
TRAFFIC STUDIES, ROAD DESIGN AND ENGINEERING
ROADWAY CONSTRUCTION MANAGEMENT
TRAFFIC SIGNAL DESIGN
4820 SOUTHPOINT DRIVE S. – SUITE 120
JACKSONVILLE, FLORIDA 32216
(904) 296-1734

P.M. PEAK HOUR TRAFFIC
4:15 - 5:15
AUGUST 5, 1997

AUGUST 6, 1997

97-1316

FIGURE 1

TRANSPORTATION PLANNERS-ENGINEERS, INC

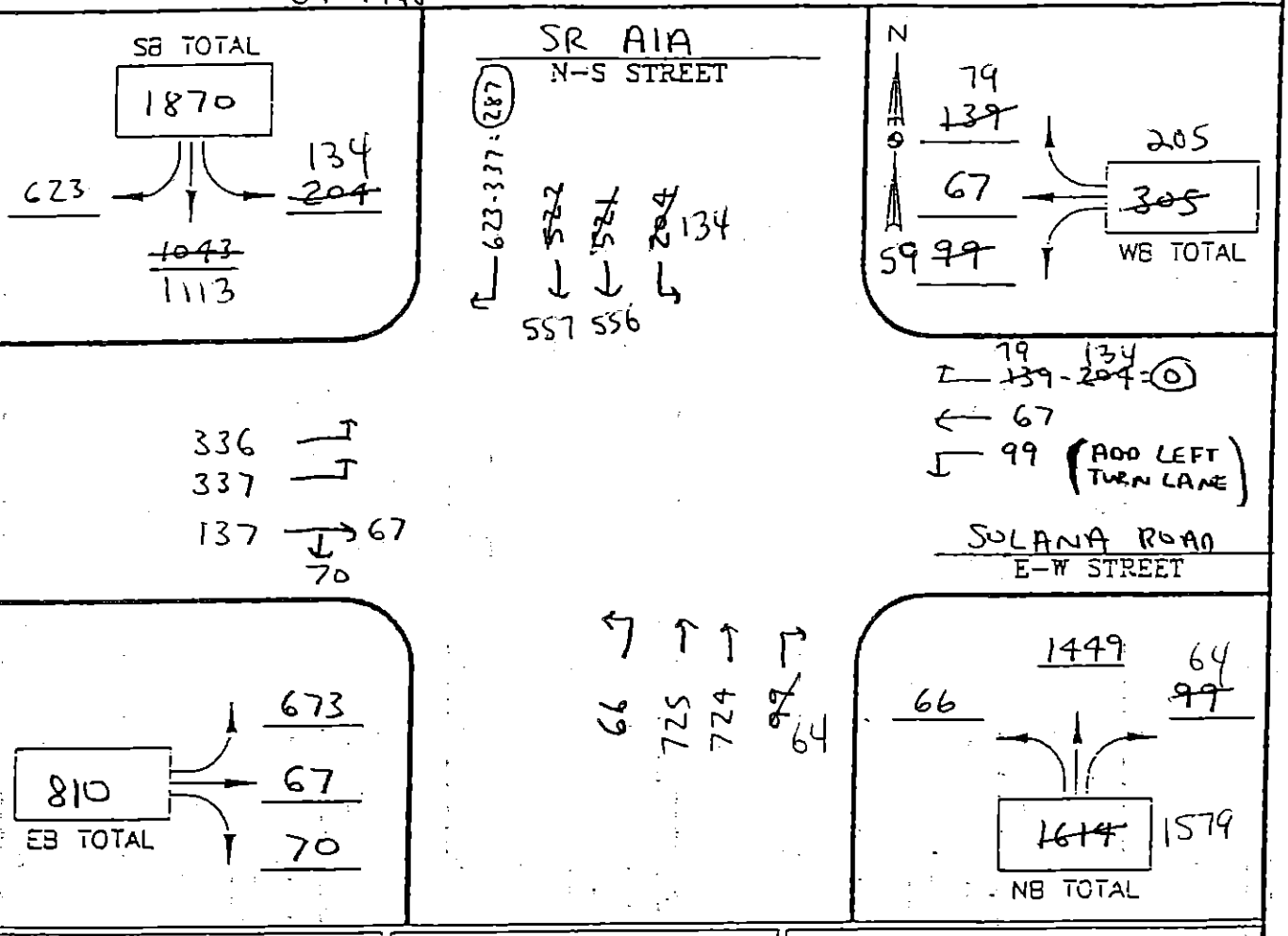
JW BUCKHOLZ TRAFFIC ENGINEERING INC

PLANNING APPLICATION WORKSHEET

INTERSECTION: SR A1A / SOLANA ROAD DATE: ~~1/26/00~~ 4-26-01

ANALYST: ~~LIT PETRUSE~~ KOUTNIK TIME PERIOD: PM PEAK HOUR

PROJECT NO. ~~99-599~~ 01-1740 REMARKS: PROPOSED CRITICAL LANE VOLUME



EB LT = 337

WB TH = 67

404

WB LT = 59 ~~99~~

EB TH = 137

OR

196 ~~236~~

NB LT = 66

SB TH = ~~522~~ 557

623

~~588~~

SB LT = 134 ~~204~~

NB TH = 725

OR

859 ~~929~~

MAXIMUM SUM OF CRITICAL VOLUMES	CAPACITY LEVEL
0 TO 1,200	UNDER
1,201 TO 1,400	NEAR
> 1,400	OVER

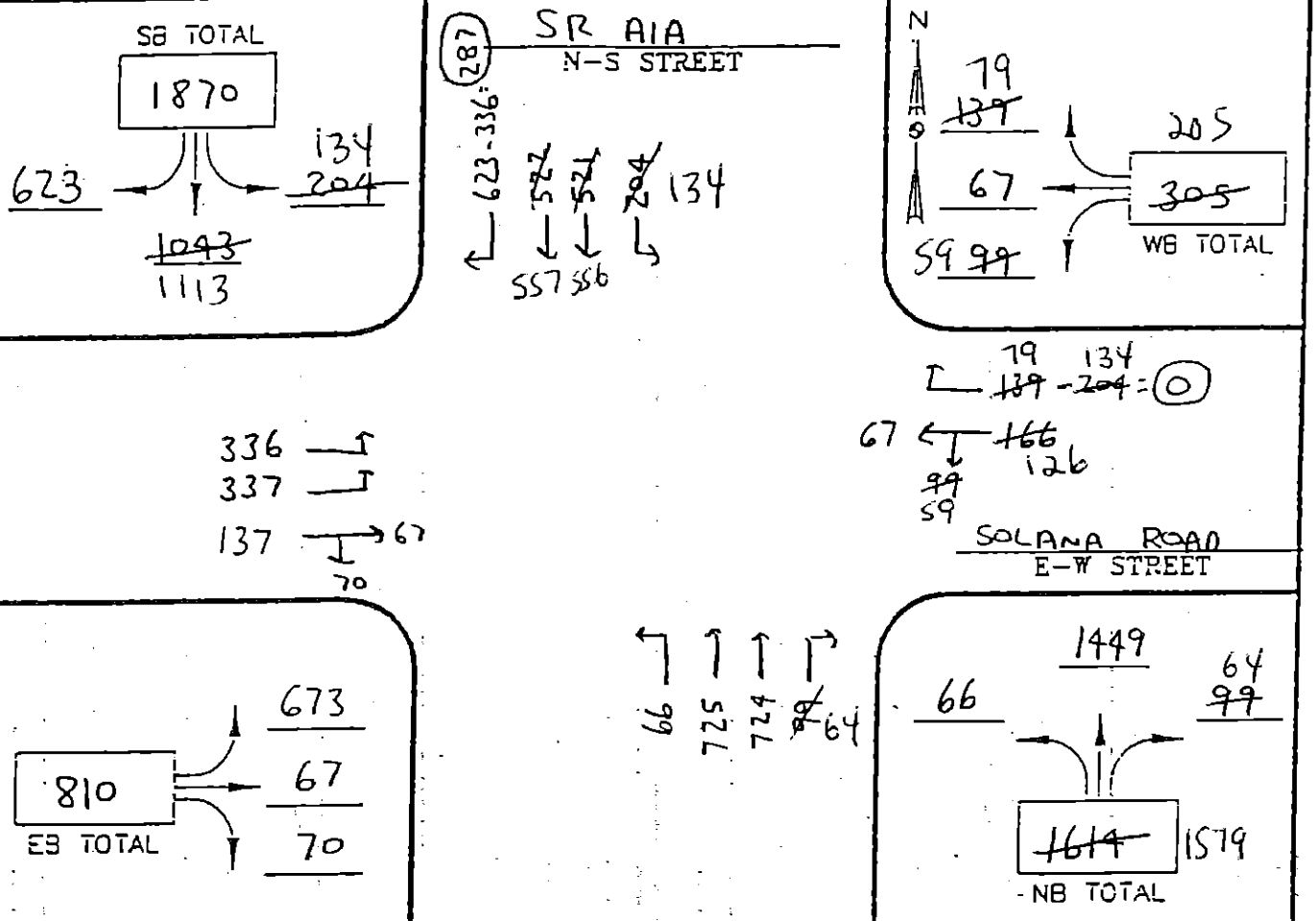
404 (E-W CRITICAL) + ~~929~~ 859 (N-S CRITICAL) = ~~1333~~ 1263 STATUS? NEAR

TRANSPORTATION PLANNERS-ENGINEERS, INC

JW BUCKHOLZ TRAFFIC ENGINEERING INC

PLANNING APPLICATION WORKSHEET

INTERSECTION: SR AIA / SOLANA ROAD DATE: ~~11/26/00~~ 4-26-01
ANALYST: ~~WT PETRONE~~ KOUTNIK TIME PERIOD: PM PEAK HOUR
PROJECT NO. ~~99-599~~ 01-1740 REMARKS: EXISTING CRITICAL LANE VOLUME

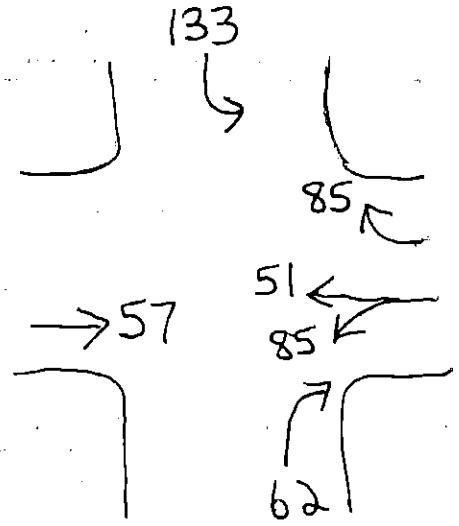


EB LT = 337	NB LT = 66	MAXIMUM SUM OF CRITICAL VOLUMES	CAPACITY LEVEL
~~WB TH~~ = —	SB TH = ~~522~~ 557	0 TO 1,200	UNDER
WB LT = 337 + ~~166~~ 126	623 ~~588~~	1,201 TO 1,400	NEAR
~~EB TH~~ = —	SB LT = 134 ~~204~~ OR NB TH = 725	> 1,400	OVER
SPLIT PHASE	929 859		

$$\frac{337 + \sout{166}\ 126}{\text{E-W CRITICAL}} + \frac{\sout{929}\ 859}{\text{N-S CRITICAL}} = \frac{\sout{1432}}{1322} \quad \text{STATUS? } \sout{\text{OVER}}\ \text{NEAR}$$

Solana Road
Tuesday, May 1, 2001

Time - P.M.	3:30-3:45	3:45-4:00	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	5:00-5:15	5:15-5:30	5:30-5:45	5:45-6:00	6:00-6:15
Right In	14	19	17	18	16	9	12	21	14	15	21
Straight In	13	14	19	14	12	17	14	14	15	14	16
Left In	24	28	29	38	39	36	33	36	29	35	27
Left Out	26	14	23	18	20	11	20	20	16	29	11
Straight Out	15	17	5	11	27	9	14	14	8	15	15
Right Out	34	29	30	27	33	22	20	20	19	26	16

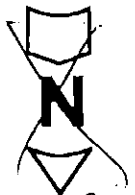


5:00-6:00 PM
Peak Hour

Solana Rd → East

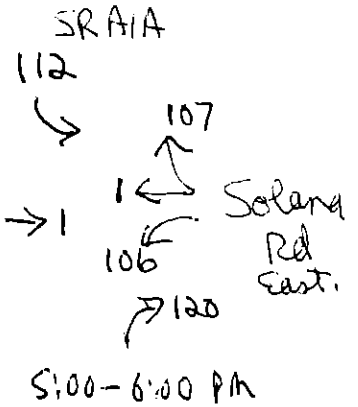
NORTH

Corona Road

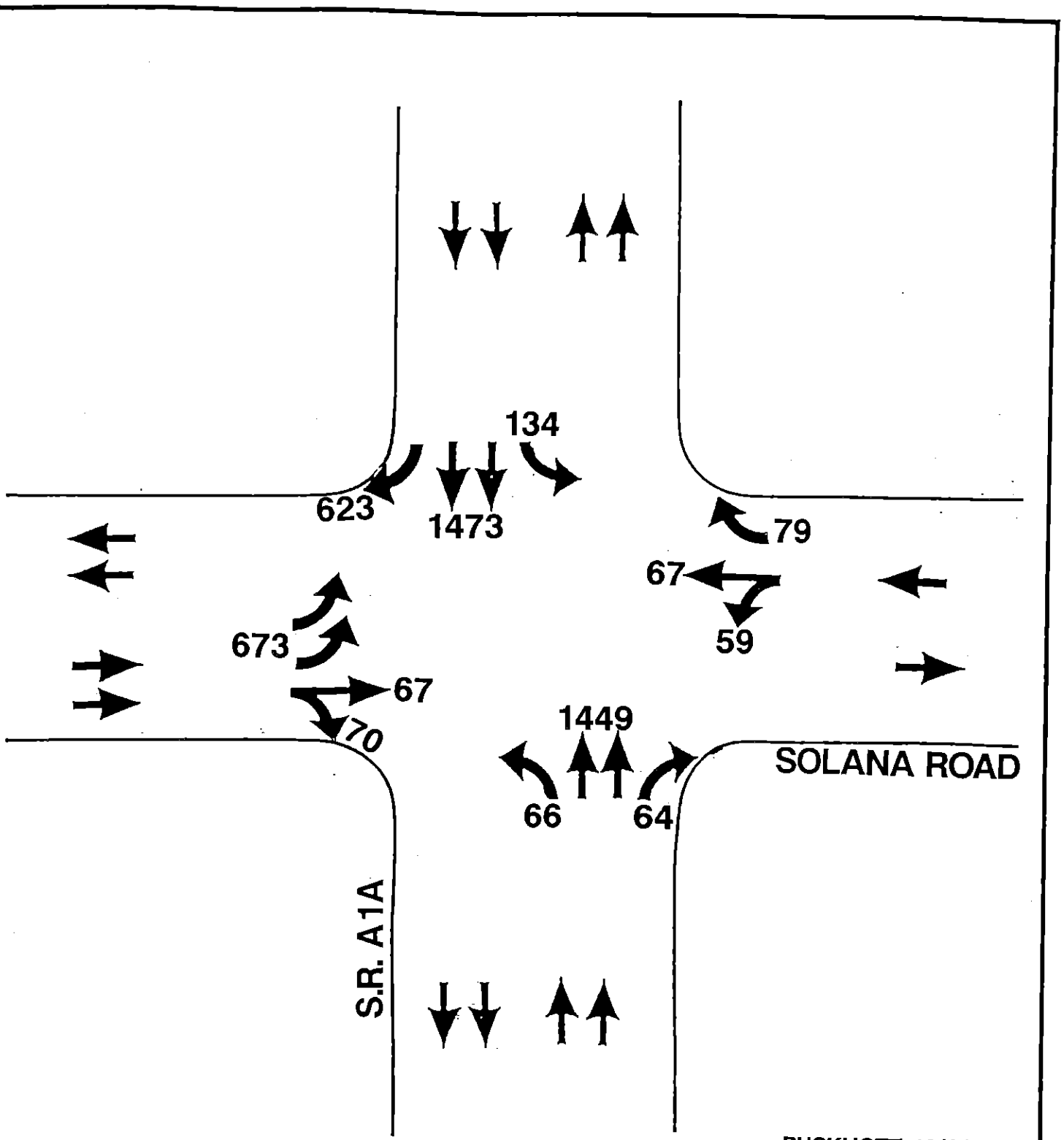


Peak 5:00-6:00

3:45-4:00	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	5:00-5:15	5:15-5:30	5:30-5:45	5:45-6:00	
40	34	31	41	37	30	25	32	33	120 Right In
3		1		1				1	1 Straight In
27	34	22	33	28	28	26	25	33	112 Left In
25	26	36	23	18	30	28	26	22	106 Left Turn Out
				2				1	1 Straight
36	29	31	34	31	24	31	28	24	107 Right Turn Out



Date of Count 5/1/01



BUCKHOTZ 10/99
REVISED BY T.P.E. 4/01

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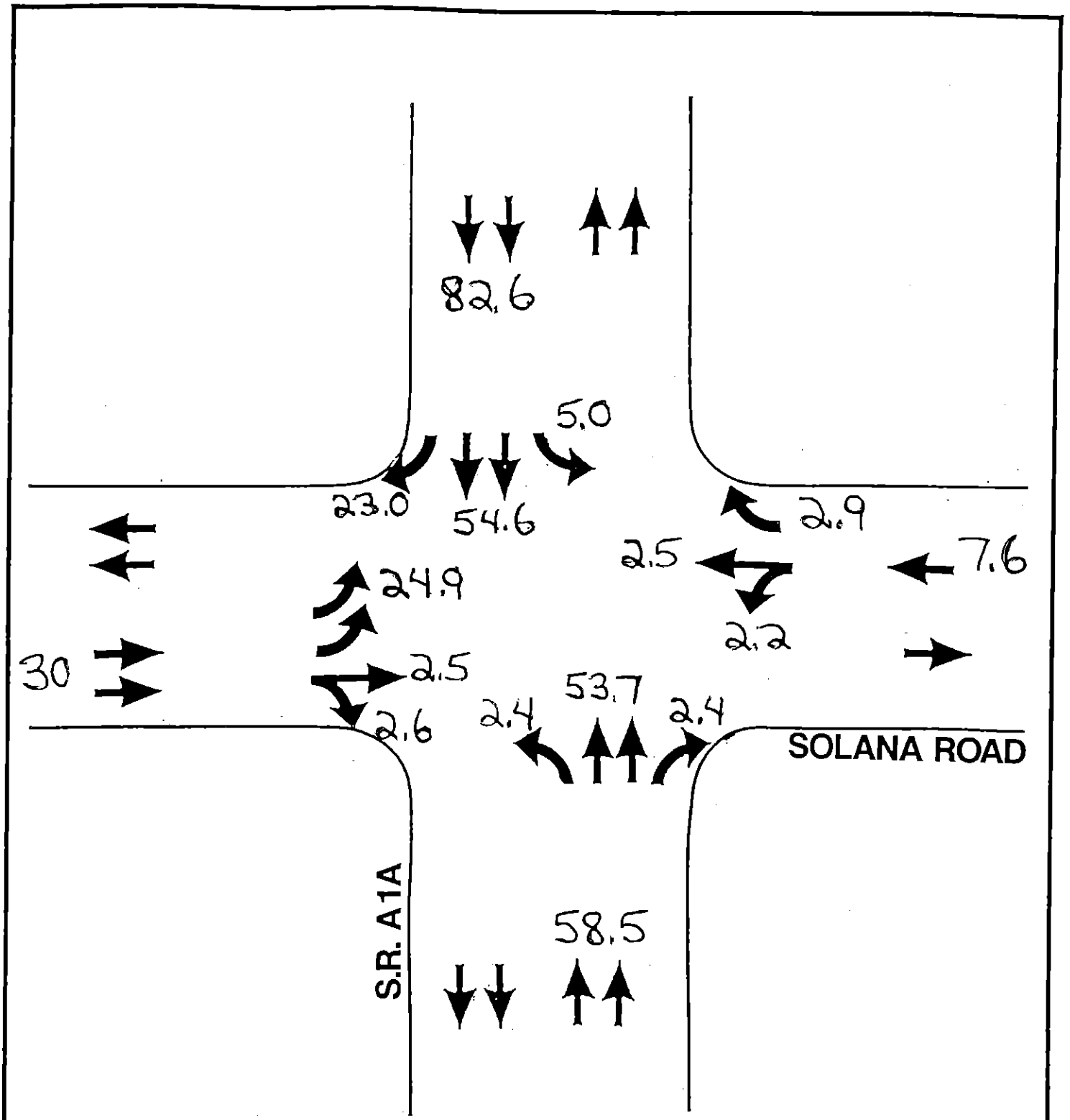
JACKSONVILLE, FLORIDA 32216
(904) 296-1734

P.M. PEAK HOUR TRAFFIC

FIGURE **A**



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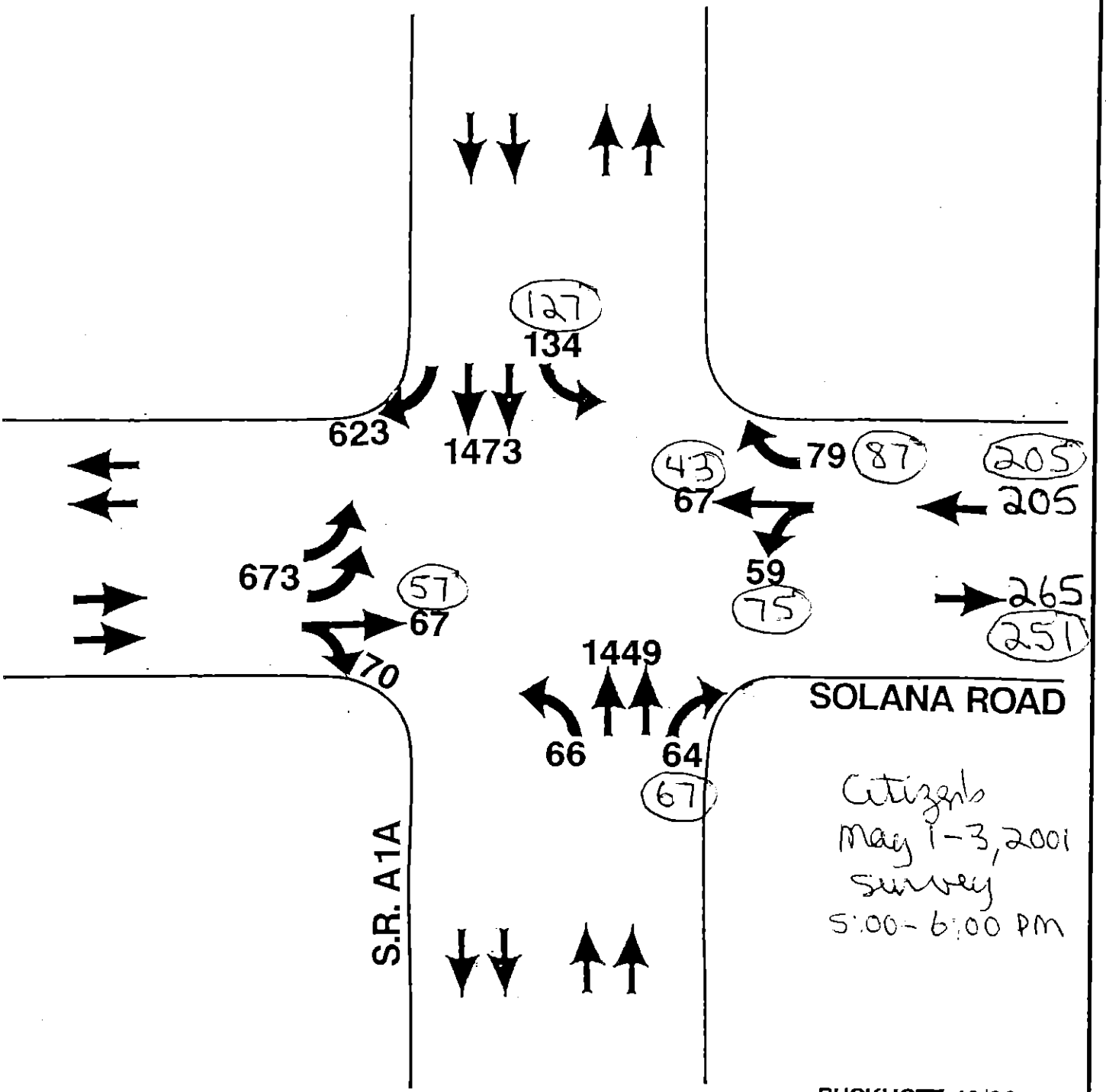
P.M. PEAK HOUR
AVERAGE CYCLE
TRAFFIC

5-7-01

FIGURE AA



BUCKHOTZ 10/99
REVISED BY T.P.E. 4/01

TPE
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(904) 296-1734

P.M. PEAK HOUR TRAFFIC

5-7-01

FIGURE A'

(904) 296-1734
Fax (904) 296-1580

TPE Transportation Planners-Engineers, Inc.

TRAFFIC STUDIES
ROAD DESIGN AND ENGINEERING
TRAFFIC ACCIDENT ANALYSES
EMINENT DOMAIN ANALYSES

TABLE AA
ST. JOHNS COUNTY PM PEAK HOUR SERVICE VOLUME FOR 4-LANE
MINOR ARTERIAL ROADWAYS (1)

Roadway	Link	Segment	Peak Hour Two-way Service Volume (vehicles)
1-SR 13	85-88	Duval County Line to Roberts Road	4,560
2-SR 16	95	Woodlawn Rd. to Masters Drive	4,620
3-SR 312	114.1-114.2	U.S.1 to SR A1A	4,310
4-U.S.1	118-119	Wildwood Dr. to Lewis Point Rd.	4,470
	121	SR 312 to St. Aug. Limits	4,950
5-SR A1A	145.2-146	Solana Road to PGA Tour Blvd.	3,480 ? 5,100 (2) 4,750 (3)

Source: (1) St. Johns County Transportation Analysis Spreadsheet, April 2001

(2) See TPE ART-TAB 4.0 computer analyses
(3) See TPE ART-PLAN 4.0 computer analyses
Transportation Planners - Engineers, Inc.
TPE job no. 01-1740 May 7 , 2001

ART-PLAN 4.0

Arterial Level of Service

Based on Chapter 11 of the 1997 Highway Capacity Manual

Florida Department of Transportation

Systems Planning Office - May 2000

SR A1A From: **Solana Rd.** To: **PGA Tour Blvd**

User Notes: **FDOT/BH-TPE Data** Study Period: **PM PEAK**

K Factor: **0.083** D Factor: **0.516** PHF: **0.950** Adj. Sat. Flow Rate: **1,850**

Arterial AADT: **40,578** Posted Speed: **45** mph Section Length: **1.79** mi.

Area Type: **Urbanized** Arterial Class: **2** Signal Type: **Actuated**

Peak Direction

Level of Service B

Arterial Speed 34.1 mph

Maximum Service Volume

	A	B	C	D	E
AADT	33,500	55,500	57,100	57,100	57,100
PHV	1,440	2,380	2,450	2,450	2,450

From	To	AADT	PHV	% Turns	No Lanes	Cycle Length	g/C	Length (feet)	Arrival Type	Flow Rate	v/c Ratio	Control Delay	Int. LOS	Speed	Link LOS
Solana	Corona	40578	1726	9.7	2	133	0.82	4171	3	1641	0.54	4.0	A	37.8	A
Corona	Exec.Way	40578	1651	3.7	2	100	0.82	792	4	1674	0.55	0.1	A	35.2	A
Exec.Way	Sawgrass	40578	1516	19.8	2	100	0.53	3337	4	1280	0.65	12.7	B	32.8	B
Sawgrass	PGA Tour	40578	1359	14.9	2	100	0.58	1200	4	1217	0.56	8.6	A	27.4	C

Off-Peak Direction

Level of Service B

Maximum service volumes are not calculated for the off-peak direction.

Arterial Speed 29.2 mph

From	To	AADT	PHV	% Turns	No Lanes	Cycle Length	g/C	Length (feet)	Arrival Type	Flow Rate	v/c Ratio	Control Delay	Int. LOS	Speed	Link LOS
PGA Tour	Sawgrass	40578	1450	8.0	2	100	0.55	1200	3	1404	0.69	16.9	B	21.3	D
Sawgrass	Exec.Way	40578	1738	3.4	2.0	100	0.80	3337	4	1767	0.59	0.2	A	39.6	A
Exec.Way	Corona	40578	1756	6.0	2.0	100	0.80	792	4	1738	0.58	0.2	A	34.6	B
Corona	Solana	40578	1569	10.0	2.0	133	0.43	4171	4	1486	0.93	39.7	D	25.7	C

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