ORDINANCE NO. 97-26
AMENDMENT TO ORDINANCE NO. 91-04
NASSAU COUNTY, FLORIDA

WHEREAS, on the 28th day of January, 1991, the Board of County Commissioners, Nassau County, Florida, did adopt Ordinance No. 91-04, an ordinance enacting and establishing the Comprehensive Land Use Plan and the Future Land Use Map for the unincorporated portion of Nassau County, Florida; and

WHEREAS, YPC, INC., owner of the real property described in this Ordinance has applied to the Board of County Commissioners to reclassify 225 acres from Rural Residential and 14 acres from Residential Low Density to Residential Medium Density on the Future Land Use Map of Nassau County; and

WHEREAS, the Nassau County Planning and Zoning Board, after due notice and public hearing has considered the application and recommended transmittal of the proposed amendment to the Department of Community Affairs; and

WHEREAS, the Board of County Commissioners held a transmittal hearing on April 28, 1997 and transmitted the amendment to the Department of Community Affairs; and

WHEREAS, the Board of County Commissioners has received the Objections, Recommendations and Comments Report (ORC); and

WHEREAS, the Board of County Commissioners has considered the Objections, Recommendations, and Comments Report issued by the Florida Department of Community Affairs, and the responses to the Report prepared by the Nassau County Planning staff, and the owners of the subject property; and

WHEREAS, taking into consideration the above recommendations and responses, the Board of County Commissioners finds that the amendment to the Future Land Use Map and reclassification is consistent with the overall Comprehensive Land Use Plan and orderly development of the County of Nassau, Florida, and the specific area.

NOW, THEREFORE, BE IT ORDAINED, by the Board of County Commissioners of Nassau County, Florida:

Section 1. PROPERTY CLASSIFIED: The real property described in Section 2 is reclassified from RURAL RESIDENTIAL AND RESIDENTIAL LOW DENSITY to RESIDENTIAL MEDIUM DENSITY on the Future Land Use Map of Nassau County.

SECTION 2. OWNER AND DESCRIPTION: The land reclassified by this ordinance is owned by **YPC, Inc.,** and is described as

follows:

See Exhibit "A" attached hereto and made a part hereof by specific reference.

SECTION 3. The objections and recommendations of the Department of Community Affairs are set forth in the attached Exhibit "B", and have been addressed by the Board of County Commissioners, and the responses that are adopted are set forth on Exhibit "B".

SECTION 4. EFFECTIVE DATE: The effective date of this plan amendment shall be the date a final order is issued by the Department of Community Affairs or Administration Commission find the amendment in compliance in accordance with Section 163.3184, Florida Statutes, whichever occurs earlier. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before it has become effective. If a final order of noncompliance is issued by the Administration Commission, this amendment may nevertheless be made effective by adoption of a resolution affirming its effective status, a copy of which resolution shall be sent to the Department of Community Affairs, Bureau of Local Planning, 2740 Centerview Drive, Tallahassee, FL 32399-2100.

ADOPTED this 22nd day of September, 1997.

CERTIFICATE OF AUTHENTICATION
ENACTED BY THE BOARD

ATTEST:

J. M. "CHIP" OXLEY, JR.
Its: Ex-Officio Clerk

BOARD OF COUNTY COMMISSIONERS
NASSAU COUNTY, FLORIDA

JOHN A. CRAWFORD
Its: Chairman

APPROVED AS TO FORM BY
THE NASSAU COUNTY ATTORNEY:

MICHAEL S. MULLIN

EXHIBIT "A"

YULEE SITE

A PART OF SECTION 42, TOWNSHIP 2 NORTH, RANGE 27 EAST, NASSAU COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: FOR A POINT OF REFERENCE, COMMENCE AT A POINT IN THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE ROAD NUMBER 200 (A1A, A 100 FOOT RIGHT-OF-WAY AS NOW ESTABLISHED) AT ITS INTERSECTION WITH THE WESTERLY RIGHT-OF-WAY LINE OF MINER ROAD (A 60 FOOT RIGHT-OF-WAY AS NOW ESTABLISHED); THENCE SOUTH 22°54'30" EAST ALONG SAID WESTERLY RIGHT-OF-WAY LINE OF MINER ROAD, A DISTANCE OF 764.69 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 22°54'30" EAST CONTINUING ALONG SAID WESTERLY RIGHT-OF-WAY LINE OF MINER ROAD, A DISTANCE OF 7007.18 FEET TO A POINT AT THE NORTHEAST CORNER OF YULEE WOODS SECTION THREE, AS RECORDED IN PLAT BOOK 5, PAGES 239 AND 240 OF THE PUBLIC RECORDS OF SAID COUNTY, SAID POINT ALSO BEING THE SOUTHEASTERLY CORNER OF AN 80 FOOT FLORIDA POWER AND LIGHT EASEMENT, AS RECORDED IN OFFICIAL RECORDS BOOK 671, PAGE 1922 OF SAID PUBLIC RECORDS; THENCE SOUTH 62°57'31" WEST LEAVING SAID WESTERLY RIGHT-OF-WAY LINE OF MINER ROAD AND ALONG THE NORTHERLY LINE OF SAID YULEE WOODS AND THE SOUTHERLY LINE OF SAID 80 FOOT FLORIDA POWER AND LIGHT EASEMENT, A DISTANCE OF 3282.31 FEET; THENCE NORTH 27°02'29" WEST LEAVING SAID NORTHERLY LINE OF YULEE WOODS, A DISTANCE OF 213.41 FEET TO A POINT IN THE EASTERLY LINE OF A WETLAND TRACT, AS RECORDED IN OFFICIAL RECORDS BOOK 765, PAGE 529 OF THE PUBLIC RECORDS OF SAID COUNTY; THENCE CONTINUING ALONG THE EASTERLY LINE OF SAID WETLAND TRACT RUN THE FOLLOWING 79 COURSES: COURSE NO. 1) NORTH 48°55'23" EAST, A DISTANCE OF 53.74 FEET; COURSE NO. 2) NORTH 43°41'24" EAST, A DISTANCE OF 50.45 FEET; COURSE NO. 3) SOUTH 81°26'29" EAST, A DISTANCE OF 24.70 FEET; COURSE NO. 4) NORTH 04°02'50" WEST, A DISTANCE OF 55.47 FEET; COURSE NO. 5) NORTH 56°29'40" EAST, A DISTANCE OF 38.01 FEET; COURSE NO. 6) NORTH 23°08'25" EAST, A DISTANCE OF 42.30 FEET; COURSE NO. 7) NORTH 52°49'12" EAST, A DISTANCE OF 48.85 FEET; COURSE NO. 8) NORTH 40°07'15" EAST, A DISTANCE OF 90.43 FEET; COURSE NO. 9) NORTH 32°51'54" EAST, A DISTANCE OF 39.05 FEET; COURSE NO. 10) NORTH 17°57'11" EAST, A DISTANCE OF 33.73 FEET; COURSE NO. 11) NORTH 57°28'56" EAST, A DISTANCE OF 25.94 FEET; COURSE NO. 12) NORTH 04°06'30" EAST, A DISTANCE OF 68.88 FEET; COURSE NO. 13) NORTH 09°16'40" WEST, A DISTANCE OF 49.04 FEET; COURSE NO. 14) NORTH 82°27'11" EAST, A DISTANCE OF 37.80 FEET; COURSE NO. 15) NORTH 33°30'20" WEST, A DISTANCE OF 44.72 FEET; COURSE NO. 16) NORTH 62°24'02" EAST, A DISTANCE OF 39.12 FEET; COURSE NO. 17) NORTH 05°46'39" WEST, A DISTANCE OF 39.41 FEET; COURSE NO. 18) NORTH 07°29'12" EAST, A DISTANCE OF 49.77 FEET; COURSE NO. 19) NORTH 33°01'24" EAST, A DISTANCE OF 37.05 FEET; COURSE NO. 20) NORTH 21°04'04" EAST, A DISTANCE OF 41.25 FEET; COURSE NO. 21) NORTH 63°58'19" EAST, A DISTANCE OF 13.15 FEET; COURSE NO. 22) NORTH 17°16'54" WEST, A DISTANCE OF 45.00 FEET; COURSE NO. 23) NORTH 09°44'57" EAST, A DISTANCE OF 55.01 FEET; COURSE NO. 24) NORTH 15°53'05" WEST, A DISTANCE OF 82.02 FEET; COURSE NO. 25) NORTH 12°11'39" EAST, A DISTANCE OF 52.84 FEET; COURSE NO. 26) NORTH 23°44'26" WEST, A DISTANCE OF 53.34 FEET; COURSE NO. 27) NORTH 00°41'14" EAST, A DISTANCE OF 38.90 FEET; COURSE NO. 28) NORTH

S:\SHARON\LEGAL\YULEE\BNDY

06°39'44" WEST, A DISTANCE OF 48.84 FEET; COURSE NO. 29) NORTH
80°47'46" WEST, A DISTANCE OF 55.87 FEET; COURSE NO. 30) NORTH
84°16'23" WEST, A DISTANCE OF 43.46 FEET; COURSE NO. 31) NORTH
04°38'45" WEST, A DISTANCE OF 50.22 FEET; COURSE NO. 32) SOUTH
87°18'55" EAST, A DISTANCE OF 23.41 FEET; COURSE NO. 33) SOUTH
58°01'50" EAST, A DISTANCE OF 47.51 FEET; COURSE NO. 34) NORTH
19°56'11" EAST, A DISTANCE OF 31.40 FEET; COURSE NO. 35) NORTH
32°02'31" WEST, A DISTANCE OF 58.94 FEET; COURSE NO. 36) NORTH
39°55'06" WEST, A DISTANCE OF 52.00 FEET; COURSE NO. 37) NORTH
10°25'00" WEST, A DISTANCE OF 58.42 FEET; COURSE NO. 38) NORTH
18°57'31" WEST, A DISTANCE OF 69.03 FEET; COURSE NO. 39) NORTH
10°21'51" WEST, A DISTANCE OF 74.55 FEET; COURSE NO. 40) NORTH
06°54'33" WEST, A DISTANCE OF 82.87 FEET; COURSE NO. 41) NORTH
00°10'34" WEST, A DISTANCE OF 60.02 FEET; COURSE NO. 42) NORTH
06°05'23" EAST, A DISTANCE OF 71.80 FEET; COURSE NO. 43) NORTH
09°49'24" WEST, A DISTANCE OF 49.48 FEET; COURSE NO. 44) NORTH
25°57'17" WEST, A DISTANCE OF 82.05 FEET; COURSE NO. 45) NORTH
11°44'39" WEST, A DISTANCE OF 90.08 FEET; COURSE NO. 46) NORTH
28°36'03" WEST, A DISTANCE OF 78.10 FEET; COURSE NO. 47) NORTH
05°59'22" WEST, A DISTANCE OF 161.11 FEET; COURSE NO. 48) NORTH
32°58'02" WEST, A DISTANCE OF 60.88 FEET; COURSE NO. 49) NORTH
09°09'39" WEST, A DISTANCE OF 42.24 FEET; COURSE NO. 50) NORTH
04°22'39" EAST, A DISTANCE OF 29.73 FEET; COURSE NO. 51) NORTH
01°26'51" WEST, A DISTANCE OF 66.94 FEET; COURSE NO. 52) NORTH
24°56'59" WEST, A DISTANCE OF 89.27 FEET; COURSE NO. 53) NORTH
12°30'19" WEST, A DISTANCE OF 89.21 FEET; COURSE NO. 54) NORTH
11°29'53" WEST, A DISTANCE OF 90.47 FEET; COURSE NO. 55) NORTH
08°50'06" EAST, A DISTANCE OF 99.72 FEET; COURSE NO. 56) NORTH
10°36'36" EAST, A DISTANCE OF 72.84 FEET; COURSE NO. 57) NORTH
21°46'44" WEST, A DISTANCE OF 44.78 FEET; COURSE NO. 58) NORTH
03°59'44" WEST, A DISTANCE OF 80.90 FEET; COURSE NO. 59) NORTH
11°07'10" WEST, A DISTANCE OF 115.57 FEET; COURSE NO. 60) NORTH
01°05'38" WEST, A DISTANCE OF 85.19 FEET; COURSE NO. 61) NORTH
38°05'20" WEST, A DISTANCE OF 71.56 FEET; COURSE NO. 62) NORTH
15°52'24" WEST, A DISTANCE OF 111.99 FEET; COURSE NO. 63) NORTH
16°53'12" WEST, A DISTANCE OF 43.93 FEET; COURSE NO. 64) NORTH
02°39'24" EAST, A DISTANCE OF 59.54 FEET; COURSE NO. 65) NORTH
12°35'20" WEST, A DISTANCE OF 53.46 FEET; COURSE NO. 66) NORTH
10°36'52" EAST, A DISTANCE OF 59.20 FEET; COURSE NO. 67) NORTH
14°44'44" EAST, A DISTANCE OF 72.89 FEET; COURSE NO. 68) NORTH
15°28'47" EAST, A DISTANCE OF 60.35 FEET; COURSE NO. 69) NORTH
26°32'31" EAST, A DISTANCE OF 82.30 FEET; COURSE NO. 70) NORTH
38°13'11" EAST, A DISTANCE OF 77.20 FEET; COURSE NO. 71) NORTH
44°53'07" EAST, A DISTANCE OF 80.78 FEET; COURSE NO. 72) NORTH
13°36'25" EAST, A DISTANCE OF 58.82 FEET; COURSE NO. 73) NORTH
44°22'13" EAST, A DISTANCE OF 88.28 FEET; COURSE NO. 74) NORTH
39°27'21" EAST, A DISTANCE OF 85.16 FEET; COURSE NO. 75) NORTH
22°28'16" EAST, A DISTANCE OF 83.36 FEET; COURSE NO. 76) NORTH
57°49'27" EAST, A DISTANCE OF 82.01 FEET; COURSE NO. 77) NORTH
60°11'07" EAST, A DISTANCE OF 56.71 FEET; COURSE NO. 78) NORTH
83°26'42" EAST, A DISTANCE OF 65.52 FEET; COURSE NO. 79) NORTH
52°57'33" EAST, A DISTANCE OF 53.76 FEET TO A POINT IN THE WESTERLY

S:\SHARON\LEGAL\YULEE\BNDY

LINE OF A 27.54 ACRE TRACT OF LAND DESCRIBED IN OFFICIAL RECORDS BOOK 408, PAGE 667 OF SAID PUBLIC RECORDS; THENCE SOUTH 01°25'50" WEST ALONG SAID 27.54 ACRE TRACT OF LAND, A DISTANCE OF 126.50 FEET; THENCE NORTH 85°45'50" EAST ALONG A SOUTHERLY LINE OF SAME, A DISTANCE OF 360.11 FEET; THENCE NORTH 01°44'40" EAST ALONG AN EASTERLY LINE OF SAME, A DISTANCE OF 2123.70 FEET; THENCE NORTH 85°24'23" WEST ALONG A NORTHERLY LINE OF THE AFORESAID 27.54 ACRE TRACT OF LAND, A DISTANCE OF 164.23 FEET TO A POINT IN THE AFORESAID WETLAND TRACT; THENCE CONTINUING ALONG SAID WETLAND TRACT RUN THE FOLLOWING 40 COURSES: COURSE NO. 1) NORTH 04°59'30" WEST, A DISTANCE OF 64.46 FEET; COURSE NO. 2) NORTH 18°50'08" WEST, A DISTANCE OF 67.27 FEET; COURSE NO. 3) NORTH 07°54'42" WEST, A DISTANCE OF 118.61 FEET; COURSE NO. 4) NORTH 05°08'05" EAST, A DISTANCE OF 86.65 FEET; COURSE NO. 5) NORTH 09°51'42" WEST, A DISTANCE OF 89.20 FEET; COURSE NO. 6) NORTH 10°57'31" EAST, A DISTANCE OF 40.72 FEET; COURSE NO. 7) NORTH 25°25'12" WEST, A DISTANCE OF 34.26 FEET; COURSE NO. 8) NORTH 05°21'34" EAST, A DISTANCE OF 51.55 FEET; COURSE NO. 9) NORTH 14°34'17" WEST, A DISTANCE OF 31.02 FEET; COURSE NO. 10) NORTH 24°17'57" WEST, A DISTANCE OF 84.72 FEET; COURSE NO. 11) NORTH 40°55'26" WEST, A DISTANCE OF 137.91 FEET; COURSE NO. 12) NORTH 88°55'59" WEST, A DISTANCE OF 86.21 FEET; COURSE NO. 13) NORTH 42°04'34" EAST, A DISTANCE OF 32.53 FEET; COURSE NO. 14) NORTH 36°36'50" WEST, A DISTANCE OF 32.45 FEET; COURSE NO. 15) NORTH 60°11'19" WEST, A DISTANCE OF 33.29 FEET; COURSE NO. 16) NORTH 24°01'18" WEST, A DISTANCE OF 69.38 FEET; COURSE NO. 17) NORTH 59°54'22" WEST, A DISTANCE OF 61.19 FEET; COURSE NO. 18) SOUTH 81°12'34" WEST, A DISTANCE OF 54.67 FEET; COURSE NO. 19) NORTH 59°02'01" WEST, A DISTANCE OF 38.64 FEET; COURSE NO. 20) NORTH 73°17'55" WEST, A DISTANCE OF 55.04 FEET; COURSE NO. 21) SOUTH 87°03'45" WEST, A DISTANCE OF 61.52 FEET; COURSE NO. 22) SOUTH 77°39'56" WEST, A DISTANCE OF 46.03 FEET; COURSE NO. 23) SOUTH 65°18'53" WEST, A DISTANCE OF 32.28 FEET; COURSE NO. 24) NORTH 59°42'42" WEST, A DISTANCE OF 71.84 FEET; COURSE NO. 25) SOUTH 77°55'39" WEST, A DISTANCE OF 48.09 FEET; COURSE NO. 26) NORTH 37°33'17" WEST, A DISTANCE OF 58.27 FEET; COURSE NO. 27) NORTH 57°18'19" WEST, A DISTANCE OF 35.34 FEET; COURSE NO. 28) NORTH 35°36'26" WEST, A DISTANCE OF 67.12 FEET; COURSE NO. 29) NORTH 86°26'49" WEST, A DISTANCE OF 40.48 FEET; COURSE NO. 30) NORTH 81°51'34" WEST, A DISTANCE OF 42.43 FEET; COURSE NO. 31) SOUTH 64°17'00" WEST, A DISTANCE OF 26.91 FEET; COURSE NO. 32) NORTH 83°48'36" WEST, A DISTANCE OF 45.71 FEET; COURSE NO. 33) NORTH 55°48'05" WEST, A DISTANCE OF 71.47 FEET; COURSE NO. 34) NORTH 24°44'19" WEST, A DISTANCE OF 30.48 FEET; COURSE NO. 35) NORTH 53°04'40" WEST, A DISTANCE OF 90.02 FEET; COURSE NO. 36) NORTH 58°36'08" WEST, A DISTANCE OF 88.32 FEET; COURSE NO. 37) NORTH 20°30'23" WEST, A DISTANCE OF 60.54 FEET; COURSE NO. 38) NORTH 68°44'29" WEST, A DISTANCE OF 38.91 FEET; COURSE NO. 39) NORTH 05°44'29" EAST, A DISTANCE OF 45.34 FEET; COURSE NO. 40) SOUTH 80°54'32" WEST, A DISTANCE OF 85.56 FEET; THENCE NORTH 72°37'20" EAST LEAVING SAID WETLAND LINE, A DISTANCE OF 1025.42 FEET TO THE POINT OF BEGINNING.

S:\SHARON\LEGAL\YULEE\BNDY

CONTAINING 239.89 ACRES MORE OR LESS.

THE ABOVE DESCRIBED TRACT OF LAND BEING SUBJECT TO AN 80 FOOT FLORIDA POWER AND LIGHT EASEMENT, AS RECORDED IN OFFICIAL RECORDS BOOK 671, PAGE 1922 OF THE PUBLIC RECORDS OF SAID COUNTY.

THE ABOVE DESCRIBED TRACT OF LAND ALSO BEING SUBJECT TO A 30 FOOT EASEMENT FOR INGRESS AND EGRESS TO RICHARD MINER THAT LEADS TO THE AFOREMENTIONED 27.54 ACRE TRACT OF LAND, WHICH WAS CONVEYED IN OFFICIAL RECORDS BOOK 408, PAGE 667 OF THE PUBLIC RECORDS OF SAID COUNTY.

S:\SHARON\LEGAL\YULEE\BNDY

EXHIBIT "B"

Response to the Department of Community Affairs (DCA) Objections. Recommendations and Comments (ORC) Report

Nassau County Amendment 97-004 (YPC, Inc/BHR)

2.a. Objection : The proposed amendment does not include adequate data and analysis to demonstrate: a) suitability of the site for the proposed land use designations demonstrating how the proposed land uses will protect the identified natural resources on-site; b) compatibility of the proposed land uses with the surrounding land uses, especially the adjacent conservation-wetland uses and low density residential uses.

The character of the amendment site is flat and wooded; it is bordered by a Department of Environmental Protection (DEP) jurisdictional wetland on the west. The DEP issued a jurisdictional declaratory statement (dated April 17, 1995) to establish the wetland resources jurisdiction (wetland jurisdictional line). This statement locks-in the DEP's claim of jurisdiction for a period of five years, allowing the owner to proceed with development activities (and other permitting procedures) in reliance upon a fixed wetland/upland boundary. The SJWMD and COE also maintain jurisdiction of certain wetlands, often more restrictive than those identified by DEP. New development adjacent to the wetlands will be adequately separated with a 50 foot buffer of vegetation native to the site as per Policy 1.04.A.02 of the Comprehensive Plan and as directed by various regulatory agencies during development approval process.

Soil types, as identified on the application form, are Leon-Boulogne-Kingferry/Ridgewood-Hurricane-Pottsburg (see exhibit A for further explanation of soil).

A preliminary species assessment was conducted on the site in 1995 for the purpose of determining the presence of protected wildlife and plant species. The site classified as slash pine plantation comprised of the pine flatwoods and mesic forest habitat types. Pine flatwoods vegetation is dominated by slash pine in the canopy with loblolly bay, swamp bay, wax myrtle and various mesic and xeric oak saplings in the subcanopy. Ground cover consists of saw palmetto, wiregrass, runner oak, grape vine, jasmine, green-briar, lop-sided Indian grass, broomedge, red chokecherry and bracken fern with maidencane, cinnamon fern, breakrush and spikerush in lower lying areas. Most of the ground cover within this habitat type was dense and dominated by various lianas (woody vines). Mesic forest plant communities include semi-open upper canopy characterized by slash pine, water oak, chinkapin, laural oak, bluejack oak and turkey oak with saw palmetto, wiregrass, bracken fern, broomsedge, shiny blueberry, highbush blueberry, blackberry, grape vine and green briar on the ground cover.

Based on the preliminary plant and wildlife survey, the site supports gopher tortoise and three listed plant species. The protected plant species are foxtail clubmoss, hooded pitcher plant and netted chain fern are listed as threatened by the Florida Department of Agriculture and Consumer Services. These plants are quite common in Florida and are under no threat of extirpation. There are no restrictions on development of this property as a result of their presence. A pre-

development gopher tortoise survey has been conducted and an application for Gopher Tortoise Incidental Take Permit from the Florida Game and Freshwater Fish Commission has been submitted. The property owner will mitigate for impacts to gopher tortoises through cash contributions. (see exhibit B for outline of current progress)

Residential developments to the east of the site across Miner Road, 60 foot right-of-way, are developed at densities of 2.0 - 3.0 units per acre. Transitional areas that utilize natural vegetation including passive recreational nodes imposed through Nassau County regulations for development will ensure compatibility between land uses is maintained.

b. Objection: The proposed amendment does not include data and analysis of impacts of development on the demand for and availability of public facilities at the adopted level of service standards for the most intensive land use allowed.

The land use amendment proposes a change to medium density residential. This category permits up to 5 dwelling units per acres. Based on developable area, the applicant is proposing a development of up to 400 units which equates to approximately 2.3 dwelling units per acre based on net acreage. Estimated demand for services is provided on the original application as summarized below.

Water and Sewer Demand - Based on 400 dwelling units

	Use	GPD	Peak
Sewage	Single Family	100,000*	250,000**
Water	Single Family	100,000	250,000

*100 GPD/Person/2.5 PPH avg.
**GPD x 2.5

Solid Waste Demand - (LOS 5.12 pounds per person per day)

# of People or Use	Lbs./Day
1,000	5,120

Recreation/Open Space

Facility	**LOS (acres/1,000 population)**	**Projected Need**
Mini-Park	.25 to .5	.25 to .5 acres
Neighborhood Park	1.0 to 2.0	1.0 to 2.0 acres
Community Park	5.0 to 8.0	5.0 to 8.0 acres

	LOS (unit/population served)	
Picnic Tables	1/5,000	.66
Tennis Courts	1/4,000	.25
Football/Soccer Field	1/3,000	.33
Basketball Court	1/2,500	.40
Baseball/Softball Field	1/2,500	.66
Swimming Pool	1/12,500	0.08
Equipped Play Area	1/2,500	.40
Boat Ramps	1/5,000	.20

Traffic

Road name	Existing LOS	Current ADT/TNET	Projected ADT/TNET *
Miner Rd. North			3,300
Miner Rd. South			370
AIA East			1,000
AIA West			2,300

*Use Code 210 ITT

(see exhibit C for a detailed traffic analysis report.)

c. Objection: The proposed amendment is not supported by data and analysis demonstrating that the increase in residential density and intensity of land uses are needed to accommodate the County's projected population growth and land use throughout the planning time frame.

The proposed land use change from agriculture to medium density residential provides Nassau County and particularly unincorporated Yulee with an opportunity to offer the growing population a choice of mid-range conventional single family homes. Changing the land use designation of the 239 acre site, located south of S.R. 200 and west of Miner Road, is consistent with the character of the area and will provide the residents of Yulee and Nassau County with a quality development.

The Future Land Use Element of the Comprehensive Plan identifies several goals. Goal 1.0

states the following:

> "To effectively manage growth and development by designating areas for anticipated future development which satisfy market demand in a cost-efficient and environmentally acceptable manner. Encourage/ accommodate land uses which make Nassau County a viable community, creating a sound revenue base and offering diverse opportunities for a wide variety of living, working, shopping, and leisure activities, with a minimum adverse impact on the natural environment."

This land use change aims to achieve this goal by providing a future opportunity for the development of a residential community.

The proposed development pattern will not create an adverse land use pattern. Instead it will help to implement the objectives set forth in the Comprehensive Plan by directing the development pattern in a manner which will avoid the proliferation of urban sprawl (Objective 1.06). The intent of the Local Government Comprehensive Planning and Development Regulation Act, F.S. Chapter 163, is to promote good development practices with minimal impact to the environment while discouraging urban sprawl. Urban sprawl, as defined in the F.A.C. 9J-5, is characterized by the following:

- Poorly planned conversion of rural land to other uses;
- The creation of areas of urban development or uses which are not functionally related to land uses which predominate the adjacent area; or
- Uses which fail to maximize the use of existing public services or the use of area within which public services are currently provided.

The proposed land use change and the future development of this site aims to convert rural land into a cohesive development consistent with the predominate uses of the adjacent area, and it is within the urban services area where utility service is available.

As well as the proposed land use change promoting good development practices, it also responds to the needs of a growing population. The population of Nassau County in 1990 was 43, 941 a 34 percent increase from the estimated population from the 1980 census which estimated the population at 32,894. The tremendous growth is attributed, in part, to the economic growth in north Jacksonville and the increase in military personnel at the King's Bay Submarine Base in Camden County, Georgia. In addition, the Fernandina International Tradeplex is experiencing an increase in industrial development thereby providing additional jobs for the region. The County has plans to build a central office complex in Yulee due to a shift in population from Amelia Island (Times-Union July 2, 1998). Population projections for the year 2000 is 70,600 for the County as a whole and 52,950 for the unincorporated area. In the year 2005, the population is

estimated at 80,200 for the County as a whole and 60,509 for the unincorporated area. According to the Comprehensive Plan, the Yulee planning district will experience 115 percent growth from 1987 through 2005, or 46 percent of the unincorporated County's total population growth of 28, 219 persons during this period.

Although Nassau County does not maintain an inventory of the current vacant acreage for any land use designations, it has identified a need to provide new conventional single-family residential homes to accommodate the increased population. There is a projected a need for 989 units for the planning period 1995-2000, and 1,023 units for the planning period 2000-2005 for a total of 2,012 dwelling units. The following table provides an overview of the projected phasing of the development. It also illustrates that future medium density residential development on this site will help attain the necessary housing to accommodate the projected population.

Project Phasing

	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Units Platted	150		150		100				400
Units Completed / Total	20 / 20	40 / 60	50 / 110	60 / 170	60 / 230	65 / 295	65 / 360	40 / 400	400
Units Occupied / Total (Assumes 90%)	18 / 18	36 / 54	45 / 99	54 / 153	54 / 207	59 / 226	59 / 324	36 / 360	

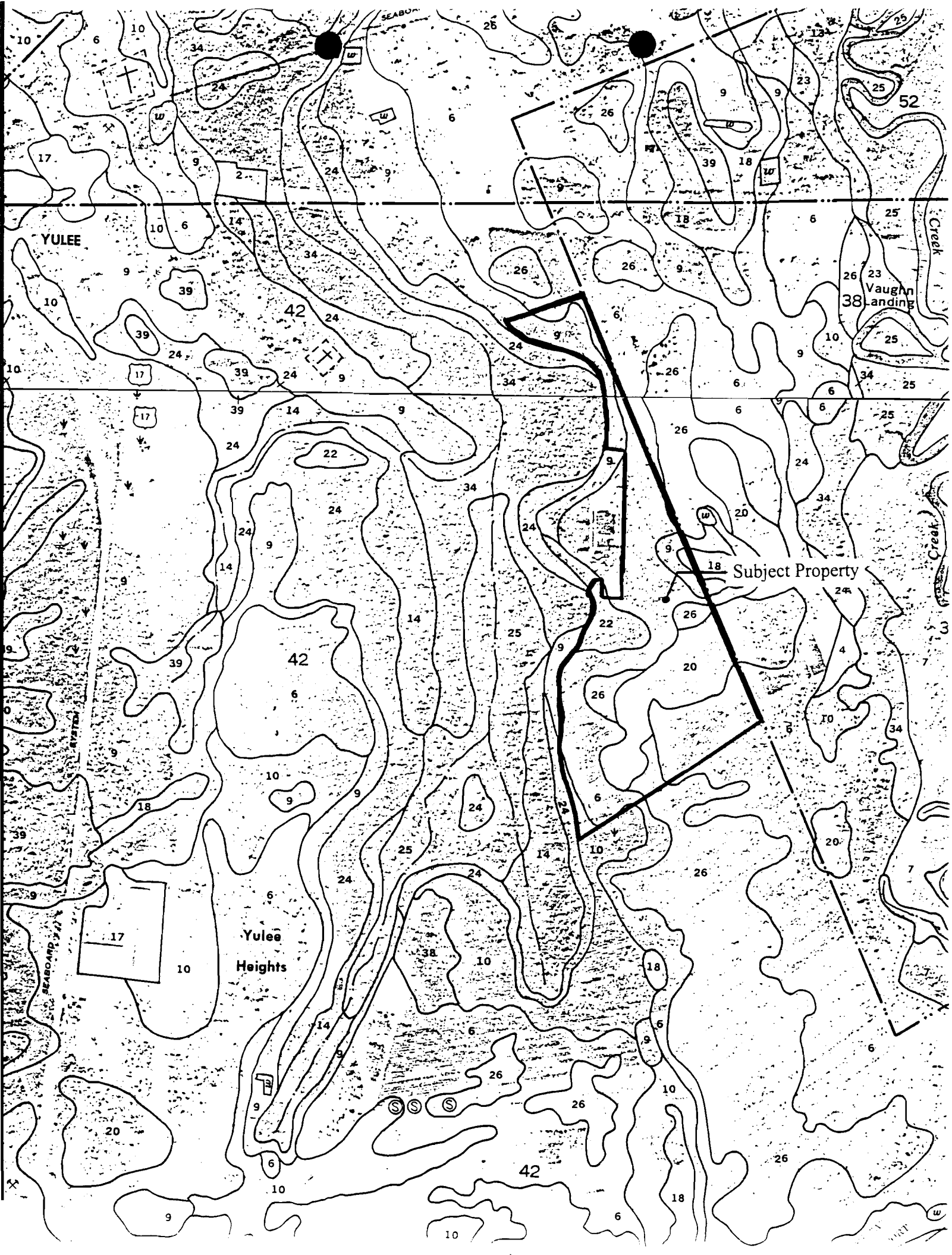
The proposed land use change and future development of this site will aid the County in fulfilling the requirements set forth in the Comprehensive Plan. In addition, good planning practice supports development at higher densities where urban services are available. A 1988 study published by the Urban Land Institute examined the comparative costs for various types of development "... found that public capital costs per dwelling unit increased as the pattern of development became more dispersed and that public capital costs per dwelling unit increased as the pattern of development became more dispersed. In a single family development, increasing the density from one unit per acre to five units per acre reduced the capital cost of streets from 12,308 per unit to 7,526 per unit, and that capital cost for utilities were reduced from 19,789 per unit to 8,843 per unit. When the density was increased to 30 units per acre, the capital cost for road construction declined an astonishing 70 percent, and by about 80 percent for utilities, as opposed to the cost of a single family unit on a one acre lot."

<u>d. Objection:</u> The data and analysis does not include information regarding how the proposed amendment is compatible with the objectives and policies of the plan, including future land use element, conservation element and infrastructure.

Response to this objection is discussed in the previous entry.

Exhibit A

Soil Survey


YULEE
Subject Property
Yulee
Heights
Vaughn
Landing
Creek
SEABOARD

This soil provides good habitat for a variety of shorebirds, such as gulls and terns, for crustaceans, such as crabs and sea turtles, and for mammals, such as mice, raccoons, bobcats, foxes, and skunks. Many songbirds also inhabit areas of this soil. The native grasses and legumes provide a good food source and nesting sites. Wildlife in the urban areas consist mostly of songbirds, shorebirds, and crustaceans. The areas of this soil that have been left in native vegetation provide food, cover, and escape routes for most wildlife.

This soil is moderately suited to urban development. The main limitations are the slope and the droughtiness. Roads and streets should be constructed above the expected level of flooding. If the density of housing is moderate or high, a community sewage system is needed to prevent the contamination of water supplies resulting from seepage. The slope is a concern in installing septic tank absorption fields. Lateral lines should be installed on the contour. Designing access roads so that they have adequate cut-slope grades and installing drains help to control surface runoff and keep soil losses to a minimum. Areas adjacent to the ocean are subject to coastal dune erosion, especially if construction alters the natural processes and destroys excessive amounts of native vegetation. Vegetation is difficult to establish because the soil is infertile, coarse textured, excessively drained, and saline and because of the salt spray. Intensive management practices, including irrigation, are needed to establish and maintain vegetation on this soil. Unless vegetation is established, water and wind erosion can become a problem during and after construction.

Native plants should be used for beautification and landscaping because they are more easily established and require less maintenance than other plants. The native trees consist of cabbage palm, Chickasaw plum, live oak, redbay, red cedar, slash pine, magnolia, and sand pine. The native shrubs include beargrass, pricklypear cactus, coontie, coralbean, yaupon, lantana, marshelder, partridge pea, saw palmetto, Spanish bayonet, and waxmyrtle. The most common grasses are seaoats, marshhay cordgrass, bitter panicum, seashore saltgrass, gulf bluestem, seashore paspalum, seashore dropseed, common bermudagrass, and shoredune panicum. The herbaceous plants and vines are beach morningglory, fiddler-leaf morningglory, blanketflower, largeleaf pennywort, sea purslane, greenbrier, and wild grape.

This soil is poorly suited to recreational development. The main limitations are the slope and the sandy texture of the surface layer. The loose sand makes walking difficult. Because of the slope, recreation areas on this soil are limited to a few paths and trails, which should extend across the slope. A plant cover is difficult to establish and maintain, but it can be maintained by controlling heavy traffic and by irrigating. Vehicles are very easily mired down, and soil blowing can occur if the surface is bare.

The land capability classification is VIIs. This soil has not been assigned a woodland ordination symbol.

6—Hurricane-Pottsburg fine sands, 0 to 5 percent slopes. These nearly level and gently sloping, somewhat poorly drained and poorly drained soils are on narrow to broad ridges and on isolated knolls interspersed with flatwoods. The mapped areas range from about 3 to 150 acres. Slopes are smooth or concave.

In 97 percent of the areas mapped as Hurricane-Pottsburg fine sands, 0 to 5 percent slopes, Hurricane, Pottsburg, and similar soils make up 88 to 93 percent of the map unit. Dissimilar soils make up 7 to 12 percent. They generally are in areas less than 3 acres in size.

Generally, the mapped areas are about 50 percent Hurricane and similar soils, 39 percent Pottsburg soils, and 11 percent dissimilar soils. The soils in this map unit are so intermingled that it is not practical to map them separately at the scale used. The proportions and patterns of the Hurricane, Pottsburg, and similar soils, however, are relatively consistent in most areas.

The Hurricane soil is nearly level and gently sloping and is somewhat poorly drained. Typically, the surface layer is grayish brown fine sand about 5 inches thick. The subsurface layer is fine sand. It extends to a depth of about 68 inches. It is yellowish brown in the upper part, light yellowish brown in the next part, and light gray in the lower part. The subsoil, to a depth of 80 inches or more, is fine sand. It is dark brown in the upper part and dark reddish brown in the lower part. Some soils occurring in areas of this map unit are similar to the Hurricane soil but have a black and very dark gray surface layer about 10 to 30 inches thick. These soils are near the communities of Hedges and Crandall.

The Pottsburg soil is nearly level and is poorly drained. Typically, the surface layer is very dark gray fine sand about 8 inches thick. The subsurface layer, to a depth of about 55 inches, is fine sand. It is brown and dark gray in the upper part and gray in the lower part. The subsoil, to a depth of 80 inches or more, is dark reddish brown fine sand.

Included in this map unit are small areas of dissimilar soils. These are Boulogne, Leon, Mandarin, Resota, and Ridgewood soils. Boulogne, Leon, and Mandarin

soils are on flatwoods. Resota and Ridgewood soils are on the slightly higher ridges.

The Hurricane soil has a seasonal high water table at a depth of 24 to 42 inches for 2 to 6 months of the year. Permeability is rapid in the upper part of the soil and moderately rapid in the lower part. The available water capacity is very low or low in the surface and subsurface layers and moderate in the subsoil. The content of organic matter and natural fertility are low.

The Pottsburg soil has a seasonal high water table at a depth of 12 to 24 inches for 1 to 4 months of the year. The water table may rise to within 6 inches of the surface for brief periods after heavy rainfall. Permeability is rapid in the upper part of the soil and moderate in the lower part. The available water capacity is very low or low in the surface and subsurface layers and moderate in the subsoil. The content of organic matter and natural fertility are low.

These soils are used mainly as woodland. In a few areas they are used for pasture or crops.

The natural vegetation consists of longleaf pine, slash pine, turkey oak, and live oak. The understory includes gallberry, pineland threeawn, bluestem, hairy panicum, lovegrass, and broom sedge.

These soils are well suited to slash pine and loblolly pine and are moderately suited to longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 60 to 65 feet. The potential production is 28 to 34 cords per acre for slash pine and 36 to 42 cords per acre for loblolly pine based on a 25-year rotation *(7)*. The average site index for longleaf pine is 70 to 75 feet. The estimated potential production is 43 to 49 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are seedling mortality, the equipment limitation, and plant competition. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting operations during dry periods can help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations. Construction of access roads, logging activities, and site preparation should be avoided in streambeds and adjacent areas because of the hazard of erosion. Tree limbs and tops should be kept clear of the stream channel because they can block streamflow. Stream crossing should be avoided if possible. Culverts and bridges may be needed.

Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Special site preparation, such as harrowing and bedding, can help to establish seedlings, reduce the seedling mortality rate, and increase the early growth rate. Bedding should be planned so that it does not impair natural surface drainage. Conventional harvesting methods generally are suitable. If heavy equipment is used during wet periods, the extent of soil compaction will increase. Management practices should include selection of appropriate plants and applications of fertilizer during planting operations. These soils commonly are low in organic matter content, and harvesting methods that remove all tree biomass from the site can reduce the fertility of these soils. Logging operations should leave residual biomass distributed over the site.

Because of droughtiness and the low fertility, the Hurricane soil is only moderately well suited to pasture. The Pottsburg soil is well suited. The best suited pasture plants are coastal bermudagrass and bahiagrass.

The Hurricane soil is poorly suited to cultivated crops, and the Pottsburg soil is very poorly suited. The main limitations are the periodic wetness and droughtiness and the low fertility. If water-control and soil-improving measures are applied, these soils are moderately well suited to most cultivated crops. The main crops are corn and grain sorghum. These soils are friable, are easy to keep in good tilth, and can be worked throughout a wide range of moisture content. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture can help to conserve moisture, maintain fertility, and control erosion. Frequent applications of fertilizer and lime generally are needed.

These soils provide good habitat for deer and turkey. Many birds inhabit the area, including warblers, towhees, crested flycatchers, dove, and quail. Several varieties of native legumes provide food for the birds. The harvesting of timber and similar disturbances improve wildlife food values by increasing the amount, availability, and types of herbaceous plants and by producing new sprouts. The areas of these soils that have been left in native vegetation provide good cover, food, and travel and escape routes for most wildlife.

If these soils are used for urban development, the

The land capability classification is VIIs, and the woodland ordination symbol is 3S.

9—Leon fine sand. This nearly level, poorly drained soil is on flatwoods. The mapped areas range from about 3 to 75 acres. Slopes are smooth and are 0 to 2 percent.

In 94 percent of the areas mapped as Leon fine sand, Leon and similar soils make up 89 to 98 percent of the map unit. Dissimilar soils make up 2 to 11 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer, to a depth of about 18 inches, is gray fine sand. The subsoil, to a depth of about 31 inches, is black and dark reddish brown fine sand. Separating the upper and lower parts of the subsoil, to a depth of about 37 inches, is a buried subsurface layer of yellowish brown fine sand. The lower part of the subsoil, to a depth of 80 inches or more, is dark brown and black fine sand. Soils occurring in areas of this map unit that are similar to the Leon soil are Boulogne soils and some soils that have a black or very dark gray surface layer 8 to more than 10 inches thick. The thickness of the surface layer is caused by forestry bedding practices. There are also similar soils that have thin layers of loamy fine sand directly above the lower part of the subsoil.

Included in this map unit are small areas of dissimilar soils. These are Kingsferry, Pottsburg, Ridgewood, Sapelo, and Wesconnett soils. Sapelo soils are in positions on the landscape similar to those of the Leon soil. Kingsferry soils are lower on flatwoods than the Leon soil. Pottsburg and Ridgewood soils are on ridges and knolls. Wesconnett soils are in depressions.

Permeability of this Leon soil is rapid in the surface, subsurface, and buried subsurface layers and moderate or moderately rapid in the subsoil. The available water capacity is very low in the surface, subsurface, and buried subsurface layers and low in the subsoil. The seasonal high water table is at a depth of 6 to 18 inches for 1 to 4 months during periods of heavy rainfall and at a depth of 12 to 42 inches for 2 to 8 months of the year. The soil is very low in natural fertility. Root penetration is obstructed by the subsoil.

This soil is used mainly as woodland. It is also used for urban development.

The natural vegetation consists of slash pine and longleaf pine. The understory includes saw palmetto and gallberry. The most common grasses are pineland threeawn, creeping and chalky bluestems, hairy panicum, and lopsided indiangrass.

This soil is moderately suited to slash pine, loblolly pine, and longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 55 feet. The potential production is 23 cords per acre for slash pine and 31 cords per acre for loblolly pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 65 feet. The estimated potential production is 36 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are the equipment limitation and seedling mortality. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting and planting operations during dry periods can help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations. Construction of access roads, logging activities, and site preparation should be avoided in streambeds and adjacent areas because of the hazard of erosion. Tree limbs and tops should be kept clear of the stream channel because they can block streamflow.

Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Special site preparation, such as harrowing and bedding, can help to establish seedlings, reduce the seedling mortality rate, and increase the early growth rate. Bedding should be planned so that it does not impair natural surface drainage. Short-term drainage is needed on the wet sites until the pine's uptake of water lowers the water table, at which time the drains should be blocked. A major management concern is the low available water capacity, which causes severe seedling mortality and retards plant growth. Management practices should include selection of appropriate plants. The soil commonly is very low in organic matter content. Harvesting methods that remove all tree biomass from the site further reduce the fertility of the soil. Logging operations should leave residual biomass distributed over the site.

This soil is well suited to pasture. The main limitations are the periodic wetness and the very low fertility. Coastal bermudagrass, bahiagrass, and legumes are the best suited pasture plants. Proper

stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is very poorly suited to cultivated crops. The main limitations are the periodic wetness and droughtiness and the very low fertility. Corn and grain sorghum are the best suited crops to plant. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime generally are needed.

This soil provides good habitat for deer, bobcats, skunks, opossums, raccoons, quail, and turkeys and for many birds, particularly warblers. It provides fair habitat for squirrels and poor habitat for doves. Wildlife in the urban areas consists mostly of birds. The areas of this soil that have been left in native vegetation provide good cover and escape routes for most wildlife.

This soil is poorly suited to urban development. The main limitation is the wetness. Drainage is needed if roads and building foundations are constructed. The wetness can be reduced by installing tile drains around the footings. Housing development plans should provide for the preservation of as many trees as possible. Vegetation is difficult to establish because the soil is infertile, coarse textured, and droughty. Mulch, fertilizer, and irrigation help to establish lawn grasses and other small seeded plants. Drainage is needed for the best results with most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Septic tank absorption fields are mounded in most areas. The moderate permeability can be overcome by increasing the size of the absorption field. Unless vegetation is established, erosion and sedimentation commonly are problems in some water management systems. Wind erosion is a problem in unvegetated areas and is especially severe in the spring.

Native plants should be used for beautification and landscaping because they are more easily established and require less maintenance than other plants. The native trees consist of American holly, cabbage palm, common persimmon, live oak, longleaf pine, and slash pine. The native shrubs include American beautyberry, coontie, coralbean, partridge pea, pawpaw, saw palmetto, shining sumac, tarflower, and southern waxmyrtle. The herbaceous plants are blazingstar, Catesby lily, grassleaf goldaster, hibiscus, iris, meadow beauty, sunflower, and zephyr lily.

This soil is poorly suited to recreational development. The main limitations are the wetness and the sandy texture of the surface layer. The loose sand makes walking difficult. Good drainage should be provided for paths and trails.

The land capability classification is IVw, and the woodland ordination symbol is 8W.

10—Mandarin fine sand. This nearly level, somewhat poorly drained soil is on narrow to broad ridges. The mapped areas range from about 3 to 100 acres. Slopes are smooth to slightly convex and are 0 to 2 percent.

In 84 percent of the areas mapped as Mandarin fine sand, Mandarin soils make up 76 to 93 percent of the map unit. Dissimilar soils make up 7 to 24 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer, to a depth of about 20 inches, is gray and light gray fine sand. The subsoil, to a depth of about 59 inches, is dark reddish brown fine sand in the upper part and yellowish brown fine sand in the lower part. The substratum, to a depth of 80 inches or more, is white fine sand.

Included in this map unit are small areas of dissimilar soils. These are Echaw, Hurricane, Leon, and Resota soils. Echaw soils are on the slightly higher ridges. Hurricane and Resota soils are on ridges. Leon soils are on low flatwoods.

Permeability of this Mandarin soil is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is very low or low in the surface and subsurface layers and moderate in the subsoil. The seasonal high water table is at a depth of 18 to 42 inches for 4 to 6 months of the year. It is at a depth of 12 to 18 inches during periods of heavy rainfall. The soil is very low in natural fertility.

In most areas this soil is used as woodland. In a few areas it is used for urban development.

The natural vegetation consists of slash pine, longleaf pine, water oak, and live oak. The understory includes saw palmetto and fetterbush lyonia. The most common grasses are pineland threeawn, creeping bluestem, lopsided indiangrass, panicum, and paspalum.

This soil is moderately suited to slash pine and loblolly pine and is poorly suited to longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation

soils. These are Evergreen soils. They are in the center of the map unit and have an organic surface layer.

Permeability of these Lynn Haven, Wesconnett, and Leon soils is rapid in the upper part of the soil and moderate or moderately rapid in the lower part. The available water capacity is low, moderate, or very high in the surface layer, low or moderate in the subsurface layer, and moderate in the subsoil. These soils are low or medium in natural fertility.

These soils are used mainly as woodland. The natural vegetation consists of cypress and pond pine. The understory includes pondweed. The most common grass is maidencane.

These soils are very poorly suited to pine trees. Under natural conditions, however, they are suited to cypress and hardwoods. The major management concern is the high water table, which causes seedling mortality. The water table and the high organic matter content in the surface layer prevent the use of heavy equipment. Adequate drainage outlets generally are not available; therefore, drainage is not practical in these areas.

These soils are very poorly suited to urban or recreational development because of the ponding.

The land capability classification is VIIw. These soils have not been assigned a woodland ordination symbol.

19—Leon fine sand, tidal. This nearly level, very poorly drained soil is in narrow tidal marshes bordering flatwoods. It is subject to flooding by normal high tides. The mapped areas range from about 3 to 50 acres. Slopes are smooth and are 0 to 2 percent.

In 96 percent of the areas mapped as Leon fine sand, tidal, Leon soils make up 88 to 100 percent of the map unit. Dissimilar soils make up about 0 to 12 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is fine sand about 26 inches thick. It is dark gray in the upper part and very dark gray in the lower part. The upper part of the subsoil, to a depth of about 40 inches, is dark grayish brown and dark brown fine sand. Separating the upper and lower parts of the subsoil, to a depth of about 43 inches, is a buried subsurface layer of light gray fine sand. The lower part of the subsoil, to a depth of about 58 inches, is dark brown fine sand. The substratum, to a depth of 80 inches or more, is dark olive gray fine sand.

Included in this map unit are small areas of dissimilar soils. These are Tisonia soils and Arents. Arents are higher on the landscape than the Leon soils, and Tisonia soils are lower.

Permeability of this Leon soil is moderately rapid in the surface layer and moderate or moderately rapid in the subsoil and the substratum. The available water capacity is low to high. The seasonal high water table is at or near the surface during most of the year. The soil is low in natural fertility.

The natural vegetation consists of saltwort, bushy seaoxeye, marshhay cordgrass, seashore cordgrass, batis, and smooth cordgrass.

This soil is not suited to pine trees, pasture, or cultivated crops because of the excessive salinity, the flooding, and the wetness.

Salt marshes provide good habitat for a variety of wildlife. The habitat generally is maintained by natural forces and influences, such as by tidal action and periodic hurricanes.

Storms generally create "open" water in salt and brackish marshes and also change salinity levels. The resulting effect is that plant succession is set back and a more favorable habitat can be created for waterfowl, furbearers, and other forms of wildlife, such as wading birds. Artificially created dikes that control salinity are used in managing marsh plants for wildlife. Prescribed burning is also used in marsh management.

This soil is very poorly suited to urban or recreational development. The main limitations are the excessive salinity, the wetness, and the flooding.

The land capability classification is VIIIw. This soil has not been assigned a woodland ordination symbol.

20—Ortega fine sand, 0 to 5 percent slopes. This nearly level and gently sloping, moderately well drained soil is on narrow to broad ridges and on isolated knolls. The mapped areas range from about 3 to 85 acres. Slopes are smooth or concave.

In 93 percent of the areas mapped as Ortega fine sand, 0 to 5 percent slopes, Ortega and similar soils make up 88 to 98 percent of the map unit. Dissimilar soils make up about 2 to 12 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is gray fine sand about 6 inches thick. The underlying material is fine sand to a depth of about 80 inches or more. It is brown and light yellowish brown in the upper part, pale brown in the next part, and light gray in the lower part. Soils occurring in areas of this map unit that are similar to the Ortega soil are Blanton and Centenary soils and, in the community of Crandall, Ortega soils that have a dark gray and very dark gray surface layer 10 to 30 inches thick.

Included in this map unit are small areas of dissimilar soils. These are Albany, Hurricane, Kershaw, and

Ridgewood soils. Albany, Hurricane, and Ridgewood soils are on the lower ridges and on flatwoods. Kershaw soils are on the more elevated ridges and knolls.

Permeability of this Ortega soil is rapid. The available water capacity is very low or low. The seasonal high water table is at a depth of 42 to 60 inches for 6 to 8 months of the year. The soil is very low in natural fertility.

In most areas this soil is used as woodland. In a few areas it is used for urban development.

The natural vegetation consists of slash pine, longleaf pine, turkey oak, and live oak. The understory includes saw palmetto. The most common grasses are pineland threeawn, lopsided indiangrass, hairy panicum, grassleaf lovegrass, purple lovegrass, broom sedge, and creeping and chalky bluestems.

This soil is moderately suited to slash pine, loblolly pine, and longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 55 feet. The potential production is 23 cords per acre for slash pine and 31 cords per acre for loblolly pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 60 feet. The estimated potential production is 30 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are the equipment limitation and seedling mortality. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting and planting operations during dry periods can help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations.

Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Hardwood understory can be reduced by controlled burning, applications of herbicide, or girdling or cutting of the unwanted trees. A major management concern is the low available water capacity, which causes severe seedling mortality and retards plant growth. Planting special nursery stock that is larger than usual or that is containerized can reduce the seedling mortality rate. Natural regeneration may be preferable in the drier areas. Management practices should include selecting appropriate plants and leaving debris on the site. The soil commonly is very low in organic matter content. Harvesting methods that remove all tree biomass from the site further reduce the fertility of the soil. Logging operations should leave residual biomass distributed over the site.

This soil is moderately suited to pasture. The main limitations are the available water capacity and rapid leaching of plant nutrients. The very low or low available water capacity is a limitation affecting plant growth during extended dry periods. Deep-rooted plants, such as coastal bermudagrass and bahiagrass, are more drought tolerant if fertilizer and lime are added. Proper stocking rates, pasture rotation, and timely deferment of grazing can help to keep the pasture in good condition.

The soil is poorly suited to cultivated crops. The main limitations are droughtiness and the rapid leaching of plant nutrients. Grain sorghum is the best suited crop to plant. Droughtiness is a concern in management, especially during extended dry periods. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture can help to maintain fertility. Frequent applications of fertilizer and lime generally are needed.

This soil provides habitat for deer and turkeys. Many birds inhabit the area, including warblers, towhees, crested flycatchers, doves, and quail. Several varieties of native legumes furnish food for the birds. The harvesting of timber and similar disturbances improve wildlife food values by increasing the amount, availability, and types of herbaceous plants and by producing new sprouts. Wildlife in the urban areas consists mostly of birds. The areas of this soil that have been left in native vegetation provide a good source of food, cover, and escape routes for most wildlife.

This soil is well suited to urban development. The main limitation is the droughtiness. If the density of housing is moderate or high, a community sewage system is needed to prevent contamination of water supplies resulting from seepage. Septic tank absorption fields are mounded in most areas. Establishing vegetation commonly is difficult because the soil is infertile, coarse textured, and droughty. Intensive management practices are needed to establish and maintain vegetation on this soil, including irrigation and applications of adequate fertilizer. Unless vegetation is established, wind erosion can become a problem during and after construction.

Native plants should be used for beautification and landscaping because they are more easily established and require less maintenance than other plants. The

native trees consist of American holly, Chickasaw plum, longleaf pine, slash pine, live oak, southern redcedar, sand pine, turkey oak, and bluejack oak. The native shrubs include adam's needle, American beautyberry, Carolina holly, coontie, coralbean, Florida chinkapin, pawpaw, pricklypear cactus, saw palmetto, shining sumac, and yaupon. The herbaceous plants are aster, beebalm, crotalaria, blanketflower, blazingstar, goldaster, lupine, morningglory, goldenrod, and sunflower.

This soil is poorly suited to recreational development. The main limitation is the sandy texture of the surface layer. A plant cover is difficult to establish and maintain, but it can be maintained by controlling heavy traffic and by irrigating. Vehicles are easily mired down, and soil blowing can occur if the surface is bare.

The land capability classification is IIIs, and the woodland ordination symbol is 10S.

21—Blanton fine sand, 0 to 5 percent slopes. This nearly level and gently sloping, somewhat poorly drained or moderately well drained soil is on narrow to broad ridges and isolated knolls. The mapped areas range from about 3 to 80 acres. Slopes are smooth or concave.

In 90 percent of the areas mapped as Blanton fine sand, 0 to 5 percent slopes, Blanton and similar soils make up 82 to 99 percent of the map unit. Dissimilar soils make up 1 to 18 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is very dark grayish brown fine sand about 6 inches thick. The upper part of the subsurface layer, to a depth of about 42 inches, is pale brown fine sand. The lower part, to a depth of about 56 inches, is light gray fine sand. The subsoil extends to a depth of 80 inches or more. It is brownish yellow sandy clay loam that has mottles in shades of gray, yellow, and brown in the upper part and mixed light gray, brownish yellow, and strong brown sandy clay loam in the lower part. Ortega soils, which are similar to the Blanton soil, are in areas of this map unit.

Included in this map unit are small areas of dissimilar soils. These are Albany, Ocilla, Penney, and Ridgewood soils. Albany, Ocilla, and Ridgewood soils are in slightly lower positions on the landscape than the Blanton soil, and Penney soils are in higher positions.

Permeability of this Blanton soil is rapid in the surface and subsurface layers and moderate in the subsoil. The available water capacity is very low or low in the surface and subsurface layers and moderately rapid in the upper part of the subsoil. The seasonal high water table is at a depth of 30 to 48 inches for 1 to 4 months of the year and at a depth of 48 to 60 inches for 4 to 8 months or more. The soil is low in natural fertility.

In most areas this soil is used as woodland. In a few areas it is used for pasture or crops.

The natural vegetation consists of longleaf pine, slash pine, flowering dogwood, turkey oak, and water oak. The most common grasses are pineland threeawn, broomsedge bluestem, and low panicum.

This soil is moderately suited to slash pine, loblolly pine, and longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 55 feet. The potential production is 23 cords per acre for slash pine and 31 cords per acre for loblolly pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 65 feet. The estimated potential production is 36 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are seedling mortality, the equipment limitation, and plant competition. Using tracks or floatation tires on harvesting and planting machinery and scheduling harvesting operations during dry periods can help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations. Construction of access roads, logging activities, and site preparation should be avoided in streambeds and adjacent areas because of the hazard of erosion. Tree limbs and tops should be kept clear of the stream channel because they can block streamflow. Stream crossing should be avoided if possible. Culverts and bridges may be needed.

Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Special site preparation, such as harrowing and bedding, can help to establish seedlings, reduce the seedling mortality rate, and increase the early growth rate. Bedding should be planned so that it does not impair natural surface drainage. Conventional harvesting methods generally are suitable. If heavy equipment is used during wet periods, the extent of soil compaction will increase. Management practices should include selection of appropriate plants and use of fertilizer during planting operations. The soil commonly is very

low in organic matter content. Harvesting methods that remove all tree biomass from the site further reduce the fertility of the soil. Logging operations should leave residual biomass distributed over the site.

This soil is moderately well suited to pasture. The main limitations are droughtiness and the low fertility. Coastal bermudagrass and bahiagrass are the best suited grasses to plant. Proper stocking rates, pasture rotation, and timely deferment of grazing can help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is poorly suited to cultivated crops. The low fertility and the droughtiness are the main limitations. If water-control and soil-improving measures are applied, the soil is moderately well suited to most cultivated crops. The main crops are corn, grain sorghum, and tobacco. The soil is friable, is easy to keep in good tilth, and can be worked throughout a wide range of moisture content. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime generally are needed.

The mixed hardwoods and pines on this soil provide very good habitat for deer, turkeys, squirrels, and birds. Hardwood mast, such as acorns, nuts, fruits, buds, and berries, is a good source of food for wildlife. The mature hardwoods and snags provide good nesting sites for birds. This soil also provides good habitat for raccoons, opossums, bobwhite quail, and doves; fair habitat for reptiles; and poor habitat for most amphibians. Wildlife in the urban areas consists mostly of birds and squirrels. The areas of this soil that have been left in native vegetation provide good cover and escape routes for most wildlife.

If this soil is used for urban development, the main limitations are the periodic wetness and droughtiness. If the density of housing is moderate or high, a community sewage system is needed to prevent contamination of water supplies resulting from seepage. Septic tank absorption fields are mounded in most areas.

Housing development plans should provide for the preservation of as many trees as possible. Native trees and plants are easily established and require less maintenance than introduced ornamentals. The native trees consist of American holly, laurel cherry, Chickasaw plum, dogwood, hickory, southern magnolia, oak, pine, persimmon, redbud, red maple, red cedar, and sweetgum. The native shrubs include American beautyberry, coralbean, pawpaw, strawberry bush, shining sumac, viburnum, and waxmyrtle. The herbaceous plants are aster, beebalm, blazingstar, iris, and sunflower.

If this soil is used for recreational development, the main limitations are the wetness and the sandy texture of the surface layer. Good drainage is needed for paths and trails. Plant cover can be maintained by controlling heavy traffic and by irrigating. Vehicles are easily mired down, and soil blowing can occur if the surface is bare.

The land capability classification is IIIs, and the woodland ordination symbol is 11S.

22—Sapelo-Leon fine sands. These nearly level, poorly drained soils are on broad flatwoods. The mapped areas range from about 3 to 50 acres. Slopes are smooth and are 0 to 2 percent.

In 93 percent of the areas mapped as Sapelo-Leon fine sands, Sapelo, Leon, and similar soils make up 86 to 99 percent of the map unit. Dissimilar soils make up about 1 to 14 percent. They generally are in areas less than 3 acres in size.

Generally, the mapped areas are about 59 percent Sapelo and similar soils, 34 percent Leon soils, and 7 percent dissimilar soils. The soils in this map unit are so intermingled that it is not practical to map them separately at the scale used. The proportions and patterns of the Sapelo, Leon, and similar soils, however, are relatively consistent in most areas.

Typically, the surface layer of the Sapelo soil is black fine sand about 6 inches thick. The subsurface layer, to a depth of about 21 inches, is gray and light gray fine sand. The upper part of the subsoil, to a depth of about 27 inches, is black fine sand. Separating the upper and lower parts of the subsoil, to a depth of about 43 inches, is a buried subsurface layer of dark brown loamy fine sand. The lower part of the subsoil, to a depth of about 70 inches, is gray fine sandy loam and light brownish gray sandy clay loam. The substratum, to a depth of about 80 inches, is gray loamy fine sand. Chaires soils, which are similar to the Sapelo soil, are in areas of this map unit.

Typically, the surface layer of the Leon soil is very dark gray fine sand about 5 inches thick. The subsurface layer, to a depth of about 20 inches, is gray fine sand. The upper part of the subsoil, to a depth of about 24 inches, is black and dark reddish brown fine sand. Separating the upper and lower parts of the subsoil is a buried subsurface layer of brown fine sand. The lower part of the subsoil, to a depth of 80 inches or more, is thin pale brown fine sand and light gray fine sand.

Included in this map unit are small areas of dissimilar

soils. These are Albany, Leon, Goldhead, and Meadowbrook soils. Albany soils are on slightly elevated ridges. Leon soils are on flatwoods. Goldhead and Meadowbrook soils are in sloughs and depressions.

Permeability of these Sapelo and Leon soils is rapid in the surface, subsurface, and buried subsurface layers and moderate or moderately rapid in the subsoil. The available water capacity is very low or low in the surface, subsurface, and buried subsurface layers and moderate in the subsoil. The seasonal high water table is within 12 inches of the surface for 1 to 4 months of the year. These soils are very low in natural fertility.

These soils are used mainly as woodland. The natural vegetation consists of slash pine, longleaf pine, and water oak. The understory includes saw palmetto, gallberry, southern bayberry, and dwarf huckleberry. The most common grasses are pineland threeawn, creeping bluestem, pineywoods dropseed, and panicum.

These soils are moderately suited to slash pine, loblolly pine, and longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 55 to 60 feet. The potential production is 23 to 28 cords per acre for slash pine and 31 to 36 cords per acre for loblolly pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 65 to 70 feet. The estimated potential production is 36 to 43 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are the equipment limitation and seedling mortality. The wetness is a limitation affecting use of equipment. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting and planting operations during dry periods help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations. Construction of access roads, logging activities, and site preparation should be avoided in streambeds and adjacent areas because of the hazard of erosion. Tree limbs and tops should be kept clear of the stream channel because they can block streamflow.

Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Special site preparation, such as harrowing and bedding, can help to establish seedlings, reduce the seedling mortality rate, and increase the early growth rate. Bedding should be planned so that it does not impair natural surface drainage. Short-term drainage is needed in some of the more wet areas until the pine's uptake of water lowers the water table, at which time the drains should be blocked. A major management concern is the low available water capacity, which causes severe seedling mortality and retards plant growth. Management practices should include selection of appropriate plants and applications of fertilizer during planting operations. These soils commonly are very low in organic matter content. Harvesting methods that remove all tree biomass from the site further reduce the fertility of the soils. Logging operations should leave residual biomass distributed over the site.

These soils are well suited to pasture. The main limitations are the periodic wetness and droughtiness and the very low fertility. The wetness limits the choice of plants that can be grown and the period of grazing. When the soil is wet, grazing causes compaction of the surface layer and damage to the plant community. The low available water capacity limits the production of plants suitable for pasture. Drought-tolerant plants, such as bahiagrass, coastal bermudagrass, and legumes, are the best suited pasture plants. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for optimum growth of grasses and legumes.

These soils are very poorly suited to cultivated crops. The main limitations are the periodic wetness and droughtiness and the very low fertility. Corn and grain sorghum are the best suited crops to plant. Proper row arrangement, field ditches, and vegetated outlets help remove excess surface water. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime generally are needed.

These soils provide very good habitat for deer, bobcats, quail, turkeys, skunks, opossums, and raccoons and for many songbirds, particularly warblers. These soils provide fair habitat for squirrels and poor habitat for doves.

These soils are poorly suited to urban development. The main limitation is the wetness. If the density of housing is moderate or high, a community sewage system is needed to prevent contamination of water supplies resulting from seepage. Septic tank absorption fields are mounded in most areas. The moderate

permeability can be overcome by increasing the size of the septic tank absorption fields. Unless vegetation is established, erosion and sedimentation commonly are problems in some water management systems. Wind erosion is a problem in unvegetated areas and is especially severe in the spring. Drainage is needed if roads and building foundations are constructed. The wetness can be reduced by installing tile drains around the footings.

Housing development plans should provide for the preservation of as many trees as possible. These soils need to be mulched, fertilized, and irrigated to establish and maintain lawn grasses and other small seeded plants. Drainage is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Native plants should be used for landscaping and beautification because they are more easily established and require less maintenance than other plants. The native trees consist of American holly, cabbage palm, common persimmon, live oak, longleaf pine, and slash pine. The native shrubs include American beautyberry, coontie, coralbean, partridge pea, pawpaw, saw palmetto, shining sumac, tarflower, and southern waxmyrtle. The herbaceous plants are blazingstar, Catesby lily, grassleaf goldaster, hibiscus, iris, meadow beauty, sunflower, and zephyr lily.

These soils are poorly suited to recreational development. The main limitations are the wetness and the sandy texture of the surface layer. The loose sand makes walking difficult. Good drainage is needed for paths and trails. Vehicles are easily mired down, and soil blowing can occur if the surface is bare.

The land capability classification is IVw. The woodland ordination symbol is 7W for the Sapelo soil and 8W for the Leon soil.

23—Ocilla fine sand, 0 to 5 percent slopes. This nearly level and gently sloping, somewhat poorly drained soil is on narrow to broad ridges and on isolated knolls. The mapped areas range from about 3 to 90 acres. Slopes are smooth or concave.

In about 94 percent of the areas mapped as Ocilla fine sand, 0 to 5 percent slopes, Ocilla and similar soils make up 84 to 100 percent of the map unit. Dissimilar soils make up 0 to 16 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is gray fine sand about 7 inches thick. The subsurface layer is fine sand to a depth of about 34 inches. It is light yellowish brown in the upper part and light gray in the lower part. The subsoil extends to a depth of about 80 inches. It is brownish yellow loamy fine sand in the upper part, gray sandy clay loam in the next part, and light brownish gray fine sandy loam in the lower part. Albany and Leefield soils, which are similar to the Ocilla soil, are in areas of this map unit.

Included in this map unit are small areas of dissimilar soils. These are Chaires and Goldhead soils. They are on flatwoods.

Permeability of this Ocilla soil is moderately rapid or rapid in the surface and subsurface layers and moderately slow in the subsoil. The available water capacity is low in the surface and subsurface layers and low or moderate in the subsoil. The seasonal high water table is at a depth of 12 to 30 inches for 2 to 6 months of the year. The soil is low in natural fertility.

In most areas this soil is used as woodland. In a few areas it is used for pasture or crops.

The natural vegetation consists of longleaf pine, slash pine, turkey oak, and water oak. The understory includes gallberry. The most common grasses are pineland threeawn, little bluestem, pinehill bluestem, slender bluestem, panicum, toothachegrass, and switchgrass.

This soil is well suited to slash pine and loblolly pine and is moderately suited to longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 65 feet. The potential production is 34 cords per acre for slash pine and 42 cords per acre for loblolly pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 70 feet. The estimated potential production is 43 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are seedling mortality, the equipment limitation, and plant competition. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting and planting operations during dry periods help to overcome the equipment limitation, minimize soil compaction, and minimize root damage during thinning operations. Measures that reduce the hazard of erosion are needed when timber is harvested. Construction of access roads, logging activities, and site preparation should be avoided in streambeds and adjacent areas because of the hazard of erosion. Tree limbs and tops should be kept clear of the stream channel because

woodpecker, and wren. The various hardwoods provide a good source of food and cover for these wildlife species.

The land capability classification is VIIIw. This soil has not been assigned a woodland ordination symbol.

26—Centenary fine sand, 0 to 5 percent slopes. This nearly level and gently sloping, moderately well drained soil is on narrow to broad ridges and on isolated knolls. The mapped areas range from about 3 to 90 acres. Slopes are smooth or concave.

In 88 percent of the areas mapped as Centenary fine sand, 0 to 5 percent slopes, Centenary and similar soils make up 76 to 99 percent of the map unit. Dissimilar soils make up 1 to 24 percent. They generally are in areas less than 3 acres in size.

Typically, the upper 3 inches of the surface layer is dark gray fine sand and the lower 4 inches is light grayish brown fine sand. The subsurface layer, to a depth of about 66 inches, is fine sand. It is light yellowish brown in the upper part and light gray in the lower part. The subsoil, to a depth of about 80 inches, is fine sand. It is dark brown in the upper part and dark reddish brown in the lower part. Some soils occurring in areas of this map unit are similar to the Centenary soil but have a dark subsoil at a depth of more than 80 inches. These soils are near the community of Crandall.

Included in this map unit are small areas of dissimilar soils. These are Hurricane and Ortega soils. Hurricane soils are in lower positions on the landscape than the Centenary soil. Ortega soils are in landscape positions similar to those of the Centenary soil.

Permeability of this Centenary soil is rapid in the surface and subsurface layers and moderately rapid in the subsoil. The available water capacity is very low or low. Depth to the seasonal high water table and the effective rooting depth are about 42 to 60 inches for 2 to 4 months of the year. The soil is very low in natural fertility.

In most areas this soil is used as woodland. In a few areas it is used for urban development.

The natural vegetation consists of slash pine, longleaf pine, turkey oak, and live oak. The understory includes saw palmetto. The most common grasses are pineland threeawn, little bluestem, panicum, toothachegrass, cutover muhly, and switchgrass.

This soil is moderately suited to slash pine and longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine is 60 feet. The potential production is 24 cords per acre for slash pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 70 feet. The estimated potential production is 43 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are the equipment limitation and seedling mortality. Using tracks or floatation tires on planting and harvesting machinery and scheduling harvesting and planting operations during dry periods help to overcome the equipment limitation. Site preparation, such as roller chopping, burning, applications of herbicide, and bedding, can reduce the amount of debris, control immediate plant competition, and facilitate mechanical planting. Hardwood understory can be reduced by controlled burning, applications of herbicide, or girdling or cutting of the unwanted trees. A major management concern is the low available water capacity, which causes severe seedling mortality and retards plant growth. Planting special nursery stock that is larger than usual or that is containerized can reduce the seedling mortality rate. Natural regeneration may be preferable in the drier areas. Management practices should include selecting appropriate plants and leaving debris on the site. These soils commonly are very low in organic matter content. Harvesting methods that remove all tree biomass from the site further reduce the fertility of the soil. Logging operations should leave residual biomass distributed over the site.

This soil is moderately well suited to pasture. The main limitations are the low available water capacity and rapid leaching of plant nutrients. The available water capacity is a limitation affecting plant growth during extended dry periods. Deep-rooted plants, such as coastal bermudagrass and bahiagrass, are more drought tolerant if fertilizer and lime are added. Proper stocking rates, pasture rotation, and timely deferment of grazing help to keep the pasture in good condition.

This soil is poorly suited to cultivated crops. The main limitations are droughtiness and the very low soil fertility. Grain sorghum is a suitable crop to plant. Droughtiness is a concern in management, especially during extended dry periods. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or a grass-legume mixture help to maintain fertility. Frequent applications of fertilizer and lime generally are needed.

This soil provides good habitat for deer and turkeys.

Many birds inhabit the area, including warblers, towhees, crested flycatchers, doves, and quail. Several varieties of native legumes furnish food for the birds. The harvesting of timber and similar disturbances improve wildlife food values by increasing the amount, availability, and types of herbaceous plants and by producing new sprouts. Wildlife in the urban areas consists mostly of birds. The areas of this soil that have been left in native vegetation provide a good source of food, cover, and escape routes for most wildlife.

This soil has few limitations if used for urban development. If the density of housing is moderate or high, a community sewage system is needed to prevent contamination of water supplies resulting from seepage. Septic tank absorption fields should be mounded. Establishing vegetation commonly is difficult because of the droughty soil conditions. Bedding should be on the contour, if possible, to reduce soil erosion. Intensive management practices, including irrigation during dry periods, are needed to establish and maintain vegetation on this soil. Maintenance is a problem without adequate applications of fertilizer. Unless vegetation is established, wind erosion can be a problem during and after construction.

Unless intensive management practices are used to establish and maintain vegetation on this soil, native plants should be used for beautification and landscaping because they are more easily established and require less maintenance than other plants. The native trees consist of American holly, Chickasaw plum, longleaf pine, slash pine, live oak, southern redcedar, sand pine, turkey oak, and bluejack oak. The native shrubs include adam's needle, American beautyberry, Carolina holly, coontie, coralbean, Florida chinkapin, pawpaw, pricklypear cactus, saw palmetto, shining sumac, and yaupon. The herbaceous plants are aster, beebalm, crotalaria, blanketflower, blazingstar, goldaster, lupine, morningglory, goldenrod, and sunflower.

This soil is poorly suited to recreational development. The main limitation is the sandy texture of the surface layer. A plant cover is difficult to establish and maintain, but it can be maintained by controlling heavy traffic and by irrigating. Vehicles are easily mired down, and soil blowing can occur if the surface is bare.

The land capability classification is IIIs, and the woodland ordination symbol is 11S.

27—Ridgewood fine sand, 0 to 5 percent slopes. This nearly level and gently sloping, somewhat poorly drained soil is on narrow to broad ridges and on isolated knolls. The mapped areas range from about 3 to 100 acres. Slopes are smooth or convex.

In 91 percent of the areas mapped as Ridgewood fine sand, 0 to 5 percent slopes, Ridgewood and similar soils make up 83 to 99 percent of the map unit. Dissimilar soils make up 1 to 17 percent. They generally are in areas less than 3 acres in size.

Typically, the surface layer is gray fine sand about 7 inches thick. The subsoil, to a depth of about 24 inches, is light yellowish brown fine sand. The substratum, to a depth of 80 inches or more, is fine sand. It is light yellowish brown in the upper part, pale brown in the next part, and light gray in the lower part. Soils occurring in areas of this map unit that are similar to the Ridgewood soil are the Albany and Hurricane soils. These soils have a water table that is slightly higher than that of the Ridgewood soil where they are on the lower parts of the landscape.

Included in this map unit are small areas of dissimilar soils. These are Centenary, Mandarin, Ortega, and Pottsburg soils. Centenary and Ortega soils are on the higher ridges. Mandarin and Pottsburg soils are on flatwoods.

Permeability of this Ridgewood soil is rapid. The available water capacity is very low or low. The seasonal high water table is at a depth of 18 to 42 inches for 2 to 4 months of the year. It rises to a depth of 15 to 24 inches for brief periods of less than 3 weeks. The soil is very low in natural fertility.

This soil is used mainly as woodland. In a few areas it is used for pasture or crops.

The natural vegetation consists of longleaf pine, slash pine, turkey oak, bluejack oak, and live oak. The understory includes American holly, gallberry, and saw palmetto. The most common grasses are pineland threeawn, broomsedge bluestem, and panicum.

This soil is well suited to slash pine and moderately suited to longleaf pine. Growth estimates are given in feet for the expected height a tree will reach in a specific number of years. Site quality curves, which are based on a growth estimate for 25 years, are often used for short-rotation products, such as cordwood and pulp. Site index curves generally are based on a growth estimate for 50 years or more and are used for slower growing species or products requiring a longer rotation. The average site quality rating for slash pine and loblolly pine is 60 feet. The potential production is 28 cords per acre for slash pine *(7)* based on a 25-year rotation. The average site index for longleaf pine is 70 feet. The estimated potential production is 43 cords per acre for longleaf pine based on a 50-year rotation.

The main concerns in producing and harvesting timber are seedling mortality, the equipment limitation,

Exhibit B

Environmental Survey Update

HARTFORD
JACKSONVILLE

WRITER'S DIRECT DIAL:

(904) 630-5342

ALMATY
LONDON
(A LONDON-BASED
MULTINATIONAL PARTNERSHIP)

August 26, 1997

Mr. Dan Garlington
Senior Planner
Nassau County, Florida

RE: Y.P.C., Inc.; Wetlands Jurisdictional Lines and Gopher Tortoise Survey

Dear Mr. Garlington:

We have been working on behalf of Y.P.C., Inc. to secure certain pre-development environmental clearances for the subject property. I have been asked to provide you with an up-to-date status report on those matters.

The wetland resources jurisdictional line from the Florida Department of Environmental Protection was originally issued on April 17, 1995. In March of this year, we began the process of selecting an environmental consultant to flag the Corps of Engineers and St. Johns River Water Management District wetland jurisdictional lines. Our selected environmental consultant for that project, Pruitt and Associates, Inc., was given a Notice to Proceed on March 26, 1997. On June 18, 1997, our selected surveyor, Rooney and Sons, was authorized to begin a survey of the flagged line. I am advised that the field work has been completed, and the survey drawings are being drafted.

In addition to the wetlands survey, we have been coordinating the Gopher Tortoise Survey of the property. We again selected Pruitt and Associates, Inc. to undertake that project on March 26, 1997. The survey was performed on April 7 and 9, 1997. The report was submitted to us on April 23, 1997. After a thorough review of our mitigation options, we submitted an application for a Gopher Tortoise Incidental Take Permit from the Florida Game and Freshwater Fish Commission on August 8, 1997. The property owner has elected to mitigate for impacts to gopher tortoises on site by the method of a cash contribution based on acreage, which is currently set at $3,833.00 per acre of mitigated habitat. That permit application is currently being processed.

Please let me know if further information is needed.

Sincerely,

Daniel D. Richardson

DDR:dtw

104087

Exhibit C

Traffic Analysis Report

EXHIBIT 1

TRAFFIC COUNTS

INTERSECTION ANALYSIS OF PEAK HOUR TRAFFIC

for

SR A1A @ Miner Road

Nassau County, Florida

Bessent, Hammack & Ruckman, Inc. (BHR) conducted the following analysis to determine the traffic impact of 400 single family housing units, proposed for construction on the YPC tract located adjacent to the intersection of Miner Road and State Road (SR) A1A.

A. BACKGROUND (EXISTING) TRAFFIC

Peak hour turning movement counts were conducted at the intersection of SR A1A and Miner Road on March 20, 1997 from 6:00 a.m. to 9:00 a.m. A three-day 24-hour traffic volume count was also conducted on Miner Road south of SR A1A. The counts are included as Exhibit 1. Prior to analysis, the peak hour through movements on SR A1A were adjusted for weekly volume (seasonal) factors as developed by the Florida Department of Transportation (FDOT). The 24-hour count was not adjusted for axle or weekly volume factors due to the residential nature of the area and the lack of seasonal changes in traffic volume.

Peak hour for the entire intersection occurred from 7:00 am to 8:00 a.m. A total of 2,526 vehicles passed through the intersection, with the greatest volume (1,282 vehicles) westbound on SR A1A toward Interstate (I) 95. Fifty-five percent of through vehicles on SR A1A were westbound, with 45 percent eastbound. For northbound vehicles on Miner Road, 76 percent turned eastbound onto SR A1A toward Fernandina Beach, with 24 percent westbound toward I-95.

B. ROADWAY DESCRIPTION

SR A1A is a four-lane divided highway, with a westbound left turn lane and an eastbound right turn lane at Miner Road. A study conducted by the FDOT indicates that background traffic on SR A1A will grow at a rate of 3 percent per year.

Miner Road is a two-lane local road which begins at the T-intersection with SR A1A and extends south through a low density residential and rural neighborhood. There are no turn lanes at the intersection with SR A1A. To calculate the growth in background traffic, a representative of Northeast Regional Planning Council directed BHR to use the rate on SR A1A, or 3 percent per year.

C. PROJECT TRIPS

The calculation of project trips is based upon the development schedule as shown in Table 1. Using the Institute of Traffic Engineers Trip Generation Manual, Land Use Code 210 - Single Family Detached Housing, the proposed development of 400 single family homes generates 268 a.m. peak hour trips.

Distribution of project trips was based on the following assumptions:

- Ninety percent of vehicles exiting the project during the a.m. peak hour will turn north on Miner Road toward SR A1A. The remaining ten percent will turn south toward United States Highway (US) 17.

- Existing traffic counts indicate that 74 percent of vehicles exiting from Miner Road onto SR A1A turn right. For the analysis of new project trips, BHR modified this distribution to reflect anticipated market variables (i.e. proposed unit types and costs, and location of new job creation such as Jacksonville and Naval Submarine Base Kings Bay, Georgia). Considering these variables, we anticipate that 40 percent of new project trips will turn west toward I-95, and 60 percent will turn east.

D. LOS ANALYSIS

An intersection level of service (LOS) analysis was conducted for the intersection using Highway Capacity Software (HCS), which is based upon the 1985 Highway Capacity Manual (HCM). As described in the HCM, the operating LOS of a unsignalized

TABLE 1 - PROJECT TRIPS

Year	Dwelling Units		AM Peak Hour Trips[1]		
	New	Cumulative	Enter	Exit	Total
1998	20	20	5	15	20
1999	40	60	13	39	52
2000	50	110	23	65	88
2001	60	170	33	95	128
2002	60	230	43	123	166
2003	65	295	54	153	207
2004	65	360	64	181	245
2005	40	400	70	198	268

[1] Project trips based on cumulative constructed units, regardless of occupancy status.

intersection is based upon the availability of gaps in the major street traffic stream and on the unused capacity of the minor street lane(s). LOS is reported in letters "A" through "F" and is related to general delay ranges, as shown in Table 2. Unsignalized LOS are not associated with the delay values for signalized intersections.

The HCS analysis is included as Exhibit 2. Critical gap values were revised to reflect a 55 mph speed limit, a divided highway with center median, and a population less than 250,000 persons.

As shown in Table 3, the intersection is currently operating at LOS B on SR A1A and will continue to do so though 2005. Traffic volumes on Miner Road are currently operating at LOS D, which will drop to LOS F by 1999.

If no intersection improvements are constructed at SR A1A and Miner Road, it is likely that drivers will seek an alternate route to westbound SR A1A and northbound US 17, such as utilizing southbound Miner Road to US 17, making a right turn onto US 17 to the signalized intersection of US 17 and SR A1A.

An additional solution to improve the LOS of the intersection is to close the median break on SR A1A. This would force all vehicles to make a right turn onto SR A1A, eliminating the left turn delay. Those drivers wishing to go westbound on SR A1A would make a U-turn at the next median break east of Miner Road.

Traffic flow and LOS would be improved by installing a traffic signal at the intersection, if a signal satisfied the signal warrants specified in the Manual on Uniform Traffic Control Devices. Based on the 24-hour traffic volumes, the intersection does not currently meet the criteria, although the traffic volumes are approaching those required for signalization and a signal will likely be warranted within the next five years, particularly if the proposed 400 single family units are constructed.

TABLE 2 - LOS CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Reserve Capacity (PCPH)[1]	Level of Service	Expected Delay to Minor St. Traffic
400 or greater	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays
[2]	F	[2]

[1] Passenger cars per hour.

[2] When demand volume exceeds the capacity of the lane, extreme delays will be encountered when queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.

TABLE 3 - INTERSECTION LOS

AM PEAK HOUR

Year	LOS
1997	B/D[1]
1998	B/E[1]
1999	B/F[1]
2000	B/F[1]
2001	B/F[1]
2002	B/F[1]
2003	B/F[1]
2004	B/F[1]
2005	B/F[1]

[1] Unsignalized LOS for major street/minor street based on available gaps in traffic.

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY | MANUAL TURNING MOVEMENTS COUNT | Site Code : 9739101(

DATE: 03/20/97 | SR A1A & MINER ROAD | Start Date: 03/20/9

WEATHER: CLOUDY & DAMP | NASSAU COUNTY, FLORIDA | File I.D. : 7391010

BEGIN TIME (MILITARY): 06:00 Hrs | Page : 1

AUTOMOBILES, COMMERCIAL VEHICLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	3	183	0	0	7	0	5	0	0	86	2	0	28
06:15	0	0	0	0	8	293	0	0	17	0	13	0	0	134	1	0	46
06:30	0	0	0	0	0	271	0	0	8	0	18	0	0	195	1	0	49
06:45	0	0	0	0	3	282	0	0	5	0	32	0	0	212	0	0	53
Hr Total	0	0	0	0	14	1029	0	0	37	0	68	0	0	627	4	0	177
07:00	0	0	0	0	9	306	0	0	12	0	31	0	0	240	4	0	60
07:15	0	0	0	0	6	353	0	0	13	0	34	0	0	237	4	0	64
07:30	0	0	0	0	3	327	0	0	12	0	60	0	0	282	8	0	69
07:45	0	0	0	0	8	257	0	0	15	0	42	0	0	237	3	0	56
Hr Total	0	0	0	0	26	1243	0	0	52	0	167	0	0	996	19	0	250
08:00	0	0	0	0	8	208	0	0	17	0	35	0	0	170	4	0	44
08:15	0	0	0	0	9	197	0	0	13	0	29	0	0	242	16	0	50
08:30	0	0	0	0	9	190	0	0	6	0	31	0	0	191	4	0	43
08:45	0	0	0	0	11	180	0	0	6	0	23	0	0	139	8	0	36
Hr Total	0	0	0	0	37	775	0	0	42	0	118	0	0	742	32	0	174
TOTAL	0	0	0	0	77	3047	0	0	131	0	353	0	0	2365	55	0	602

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	26	1243	0	0	52	0	167	0	0	996	19	0	
Percent	0%	0%	0%	0%	2%	98%	0%	0%	24%	0%	76%	0%	0%	98%	2%	0%	
Pk total	0				1269				219				1015				
Highest	06:00				07:15				07:30				07:30				
Volume	0	0	0	0	6	353	0	0	12	0	60	0	0	282	8	0	
Hi total	0				359				72				290				
PHF	.0				.88				.76				.88				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY
DATE: 03/20/97
WEATHER: CLOUDY & DAMP
BEGIN TIME (MILITARY): 06:00 Hrs

MANUAL TURNING MOVEMENTS COUNT
SR A1A & MINER ROAD
NASSAU COUNTY, FLORIDA

Site Code : 97391010
Start Date: 03/20/97
File I.D. : 7391010A
Page : 1

AUTOMOBILES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	3	174	0	0	7	0	5	0	0	77	1	0	267
06:15	0	0	0	0	8	284	0	0	17	0	13	0	0	126	1	0	449
06:30	0	0	0	0	0	261	0	0	7	0	18	0	0	178	1	0	465
06:45	0	0	0	0	3	268	0	0	5	0	32	0	0	192	0	0	500
Hr Total	0	0	0	0	14	987	0	0	36	0	68	0	0	573	3	0	1681
07:00	0	0	0	0	9	294	0	0	11	0	30	0	0	214	3	0	561
07:15	0	0	0	0	5	342	0	0	12	0	32	0	0	210	4	0	605
07:30	0	0	0	0	3	302	0	0	11	0	60	0	0	253	8	0	637
07:45	0	0	0	0	8	234	0	0	14	0	41	0	0	208	3	0	508
Hr Total	0	0	0	0	25	1172	0	0	48	0	163	0	0	885	18	0	2311
08:00	0	0	0	0	8	185	0	0	17	0	34	0	0	146	3	0	393
08:15	0	0	0	0	9	181	0	0	13	0	29	0	0	209	14	0	455
08:30	0	0	0	0	9	170	0	0	5	0	31	0	0	161	4	0	380
08:45	0	0	0	0	10	161	0	0	6	0	22	0	0	111	7	0	317
Hr Total	0	0	0	0	36	697	0	0	41	0	116	0	0	627	28	0	1545
TOTAL	0	0	0	0	75	2856	0	0	125	0	347	0	0	2085	49	0	5537

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	25	1172	0	0	48	0	163	0	0	885	18	0	
Percent	0%	0%	0%	0%	2%	98%	0%	0%	23%	0%	77%	0%	0%	98%	2%	0%	
Pk total	0				1197				211				903				
Highest	06:00				07:15				07:30				07:30				
Volume	0	0	0	0	5	342	0	0	11	0	60	0	0	253	8	0	
Hi total	0				347				71				261				
PHF	.0				.86				.74				.86				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY
DATE: 03/20/97
WEATHER: CLOUDY & DAMP
BEGIN TIME (MILITARY): 06:00 Hrs

MANUAL TURNING MOVEMENTS COUNT
SR A1A & MINER ROAD
NASSAU COUNTY, FLORIDA

Site Code : 9739101C
Start Date: 03/20/97
File I.D. : 7391010A
Page : 1

COMMERCIAL VEHICLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	0	9	0	0	0	0	0	0	0	9	1	0	19
06:15	0	0	0	0	0	9	0	0	0	0	0	0	0	8	0	0	17
06:30	0	0	0	0	0	10	0	0	1	0	0	0	0	17	0	0	28
06:45	0	0	0	0	0	14	0	0	0	0	0	0	0	20	0	0	34
Hr Total	0	0	0	0	0	42	0	0	1	0	0	0	0	54	1	0	98
07:00	0	0	0	0	0	12	0	0	1	0	1	0	0	26	1	0	41
07:15	0	0	0	0	1	11	0	0	1	0	2	0	0	27	0	0	42
07:30	0	0	0	0	0	25	0	0	1	0	0	0	0	29	0	0	55
07:45	0	0	0	0	0	23	0	0	1	0	1	0	0	29	0	0	54
Hr Total	0	0	0	0	1	71	0	0	4	0	4	0	0	111	1	0	192
08:00	0	0	0	0	0	23	0	0	0	0	1	0	0	24	1	0	49
08:15	0	0	0	0	0	16	0	0	0	0	0	0	0	33	2	0	51
08:30	0	0	0	0	0	20	0	0	1	0	0	0	0	30	0	0	51
08:45	0	0	0	0	1	19	0	0	0	0	1	0	0	28	1	0	50
Hr Total	0	0	0	0	1	78	0	0	1	0	2	0	0	115	4	0	201
TOTAL	0	0	0	0	2	191	0	0	6	0	6	0	0	280	6	0	491

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	1	71	0	0	4	0	4	0	0	111	1	0	
Percent	0%	0%	0%	0%	1%	99%	0%	0%	50%	0%	50%	0%	0%	99%	1%	0%	
Pk total	0				72				8				112				
Highest	06:00				07:30				07:15				07:30				
Volume	0	0	0	0	0	25	0	0	1	0	2	0	0	29	0	0	
Hi total	0				25				3				29				
PHF	.0				.72				.67				.97				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY | MANUAL TURNING MOVEMENTS COUNT | Site Code : 97391010

DATE: 03/20/97 | SR A1A & MINER ROAD | Start Date: 03/20/97

WEATHER: CLOUDY & DAMP | NASSAU COUNTY, FLORIDA | File I.D. : 7391010A

BEGIN TIME (MILITARY): 06:00 Hrs | Page : 1

PEDESTRIANS & BICYCLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	BICYCLES				BICYCLES				BICYCLES				BICYCLES				
	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Total
Date 03/20/97																	
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pk total	0				0				0				0				
Highest	06:00				06:00				06:00				06:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	.0				.0				.0				.0				

Volume Count Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... Yes

Monday 03/17/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
										76	71	69	80	90	87	111	107	96	94	38	28	25	10	98
										18	15	13	12	25	28	21	29	20	36	14	8	10	5	
										25	24	12	29	30	19	31	23	32	25	9	8	7	1	
										19	11	21	20	18	21	30	25	27	18	9	6	5	2	
										14	21	23	19	17	19	29	30	17	15	6	6	3	2	

AM Peak Hour ..... 10:00 to 11:00 (76 vehicles)
AM Peak Hour Factor 76.0%
PM Peak Hour ..... 16:15 to 17:15 (119 vehicles)
PM Peak Hour Factor 96.0%

Tuesday 03/18/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
6	5	1	5	9	46	109	206	99	77	79	50	92	86	82	87	137	120	99	62	45	36	31	15	158
3	1	0	1	2	5	18	29	38	18	24	10	22	18	23	14	29	28	29	22	16	12	7	5	
2	1	0	0	2	15	19	59	25	18	25	8	19	20	18	28	35	29	21	17	8	11	11	7	
0	2	0	2	3	20	36	58	22	20	16	23	23	21	26	19	39	31	26	8	14	6	8	3	
1	1	1	2	2	6	36	60	14	21	14	9	28	27	15	26	34	32	23	15	7	7	5	0	

AM Peak Hour ..... 07:15 to 08:15 (215 vehicles)
AM Peak Hour Factor 89.6%
PM Peak Hour ..... 16:00 to 17:00 (137 vehicles)
PM Peak Hour Factor 87.8%

Wednesday 03/19/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Total
7	3	7	2	11	39	103	209	123	95	84	64	80	79	82	68	107	117	125	83	49	39	25	8	160
2	1	0	1	5	3	22	40	48	22	29	14	21	16	34	12	28	24	32	27	12	11	6	1	
1	1	3	0	1	11	15	57	29	20	17	14	17	14	12	21	29	31	26	24	17	13	6	2	
2	1	4	0	2	18	31	69	29	31	20	18	13	26	17	17	29	38	42	19	11	10	8	1	
2	0	0	1	3	7	35	43	17	22	18	18	29	23	19	18	21	24	25	13	9	5	5	4	

AM Peak Hour ..... 07:15 to 08:15 (217 vehicles)
AM Peak Hour Factor 78.6%
PM Peak Hour ..... 17:15 to 18:15 (125 vehicles)
PM Peak Hour Factor 82.2%

Thursday 03/20/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Total
6	4	9	2	10	39	105	224	139	88															62
2	2	1	0	0	3	20	51	42	25															
1	2	4	0	5	9	23	54	35	13															
1	0	1	1	3	17	31	72	37	26															
2	0	3	1	2	10	31	47	25	24															

AM Peak Hour ..... 07:00 to 08:00 (224 vehicles)
AM Peak Hour Factor 77.8%
PM Peak Hour ..... Unavailable
PM Peak Hour Factor ..... Unavailable

Weekly Summary Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 1
Recorder Mode ..... Volume

Week of March 16, 1997. Channel: 1 Direction: N

End Time	16 Sun	17 Mon	18 Tue	19 Wed	20 Thu	21 Fri	22 Sat	Wkday Avg.	Daily Avg.
01:00			6	7	6			6	6
02:00			5	3	4			4	4
03:00			1	7	9			6	6
04:00			5	2	2			3	3
05:00			9	11	10			10	10
06:00			46	39	39			41	41
07:00			109	103	105			106	106
08:00			206	209	224			213	213
09:00			99	123	139			120	120
10:00			77	95	88			87	87
11:00		76	79	84				80	80
12:00		71	50	64				62	62
13:00		69	92	80				80	80
14:00		80	86	79				82	82
15:00		90	82	82				85	85
16:00		87	87	68				81	81
17:00		111	137	107				118	118
18:00		107	120	117				115	115
19:00		96	99	125				107	107
20:00		94	62	83				80	80
21:00		38	45	49				44	44
22:00		28	36	39				34	34
23:00		25	31	25				27	27
24:00		10	15	8				11	11
Totals		982	1584	1609	626			1600	1600

% Avg Wkday	61.4	99.0	100.5	39.1
% Avg Day	61.4	99.0	100.5	39.1
AM Peak Hr	11:00	08:00	08:00	08:00
AM Count	76	206	209	224
PM Peak Hr	17:00	17:00	19:00	
PM Count	111	137	125	

Volume Count Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 2
Divide By 2
Summation ..... No
Two-Way ..... Yes

Monday 03/17/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
										73	79	75	84	94	149	166	185	129	145	92	48	41	23	1383
										18	19	21	22	26	34	28	46	34	44	27	16	6	9	
										21	19	19	25	28	39	42	54	31	38	23	16	12	4	
										13	24	17	22	17	46	49	40	25	37	22	10	12	4	
										21	17	18	15	23	30	47	45	39	26	20	6	11	6	

AM Peak Hour ..... 10:45 to 11:45 (83 vehicles)
AM Peak Hour Factor 86.5%
PM Peak Hour ..... 16:30 to 17:30 (196 vehicles)
PM Peak Hour Factor 90.7%

Tuesday 03/18/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
8	9	5	2	2	9	16	44	64	47	62	57	77	65	102	144	153	181	173	138	64	65	51	32	1570
3	1	1	0	2	0	4	9	26	10	11	15	20	11	28	35	36	61	41	43	21	15	13	7	
3	1	2	0	0	1	6	8	12	15	7	15	23	17	27	33	34	32	48	29	23	19	12	8	
0	6	1	1	0	2	3	13	8	13	14	11	21	20	21	38	43	44	40	29	13	15	16	8	
2	1	1	1	0	6	3	14	18	9	30	16	13	17	26	38	40	44	44	37	7	16	10	9	

AM Peak Hour ..... 10:30 to 11:30 (74 vehicles)
AM Peak Hour Factor 61.7%
PM Peak Hour ..... 17:00 to 18:00 (181 vehicles)
PM Peak Hour Factor 74.2%

Wednesday 03/19/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
14	13	10	2	1	11	12	58	49	64	68	75	68	82	101	106	165	169	166	126	101	62	69	23	161
4	3	5	0	1	1	1	8	18	16	12	10	14	22	31	28	30	43	42	49	26	19	23	4	
2	7	3	0	0	0	5	12	13	13	16	16	21	12	27	18	32	51	42	31	31	18	19	6	
6	2	1	1	0	4	3	18	9	20	16	20	19	26	15	31	45	40	38	25	22	13	15	8	
2	1	1	1	0	6	3	20	9	15	24	29	14	22	28	29	58	35	44	21	22	12	12	5	

AM Peak Hour ..... 11:00 to 12:00 (75 vehicles)
AM Peak Hour Factor 64.7%
PM Peak Hour ..... 16:30 to 17:30 (197 vehicles)
PM Peak Hour Factor 84.9%

Thursday 03/20/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
16	12	5	4	1	6	21	44	68	53															23
7	3	1	3	0	0	4	8	19	15															
5	1	2	1	1	0	8	16	19	9															
0	2	1	0	0	2	3	7	20	9															
4	6	1	0	0	4	6	13	10	20															

AM Peak Hour ..... 07:45 to 08:45 (71 vehicles)
AM Peak Hour Factor 88.8%
PM Peak Hour ..... Unavailable
PM Peak Hour Factor ..... Unavailable

Weekly Summary Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 2
Recorder Mode ..... Volume

Week of March 16, 1997. Channel: 2 Direction: S

End Time	16 Sun	17 Mon	18 Tue	19 Wed	20 Thu	21 Fri	22 Sat	Wkday Avg.	Daily Avg.
01:00			8	14	16			13	13
02:00			9	13	12			11	11
03:00			5	10	5			7	7
04:00			2	2	4			3	3
05:00			2	1	1			1	1
06:00			9	11	6			9	9
07:00			16	12	21			16	16
08:00			44	58	44			49	49
09:00			64	49	68			60	60
10:00			47	64	53			55	55
11:00		73	62	68				68	68
12:00		79	57	75				70	70
13:00		75	77	68				73	73
14:00		84	65	82				77	77
15:00		94	102	101				99	99
16:00		149	144	106				133	133
17:00		166	153	165				161	161
18:00		185	181	169				178	178
19:00		129	173	166				156	156
20:00		145	138	126				136	136
21:00		92	64	101				86	86
22:00		48	65	62				58	58
23:00		41	51	69				54	54
24:00		23	32	23				26	26
Totals		1383	1570	1615	230			1599	1599

% Avg Wkday	86.5	98.2	101.0	14.4
% Avg Day	86.5	98.2	101.0	14.4
AM Peak Hr	12:00	09:00	12:00	09:00
AM Count	79	64	75	68
PM Peak Hr	18:00	18:00	18:00	
PM Count	185	181	169	

PEAK HOUR TURNING MOVEMENTS

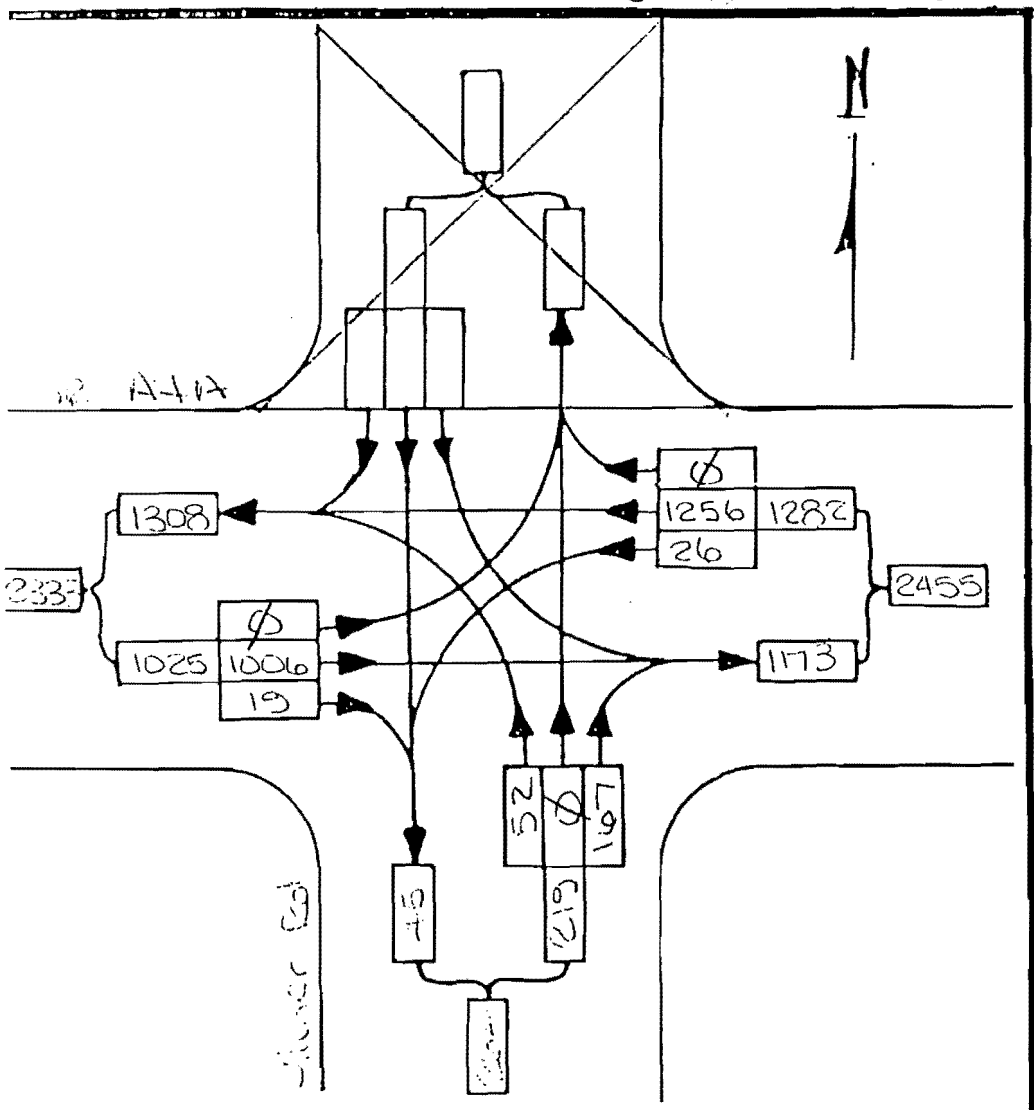
PHASE _____

INTERSECTION SR A1A @ Ocean Rd

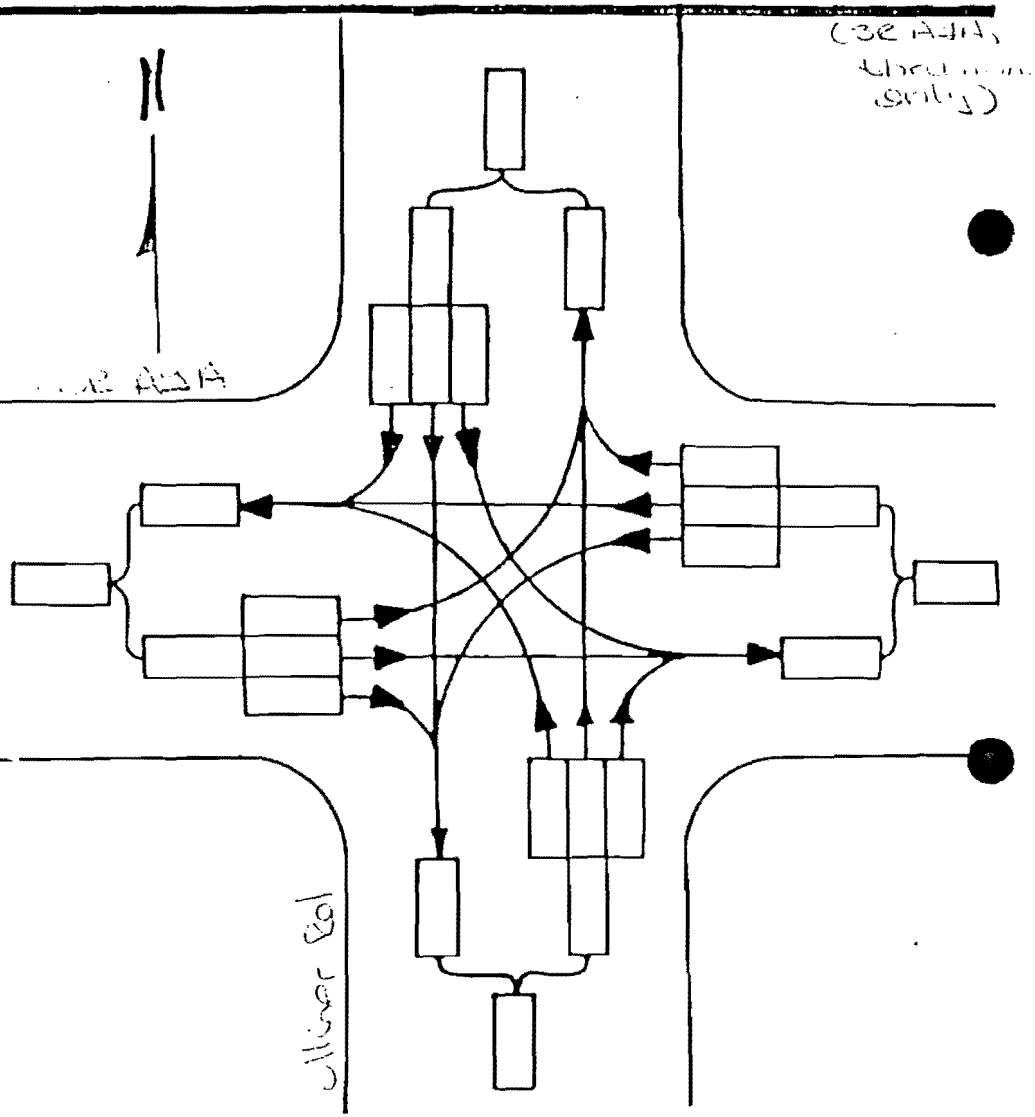
DATE 20 March 97

Existing Traffic Volumes

Adj = 1/0.93



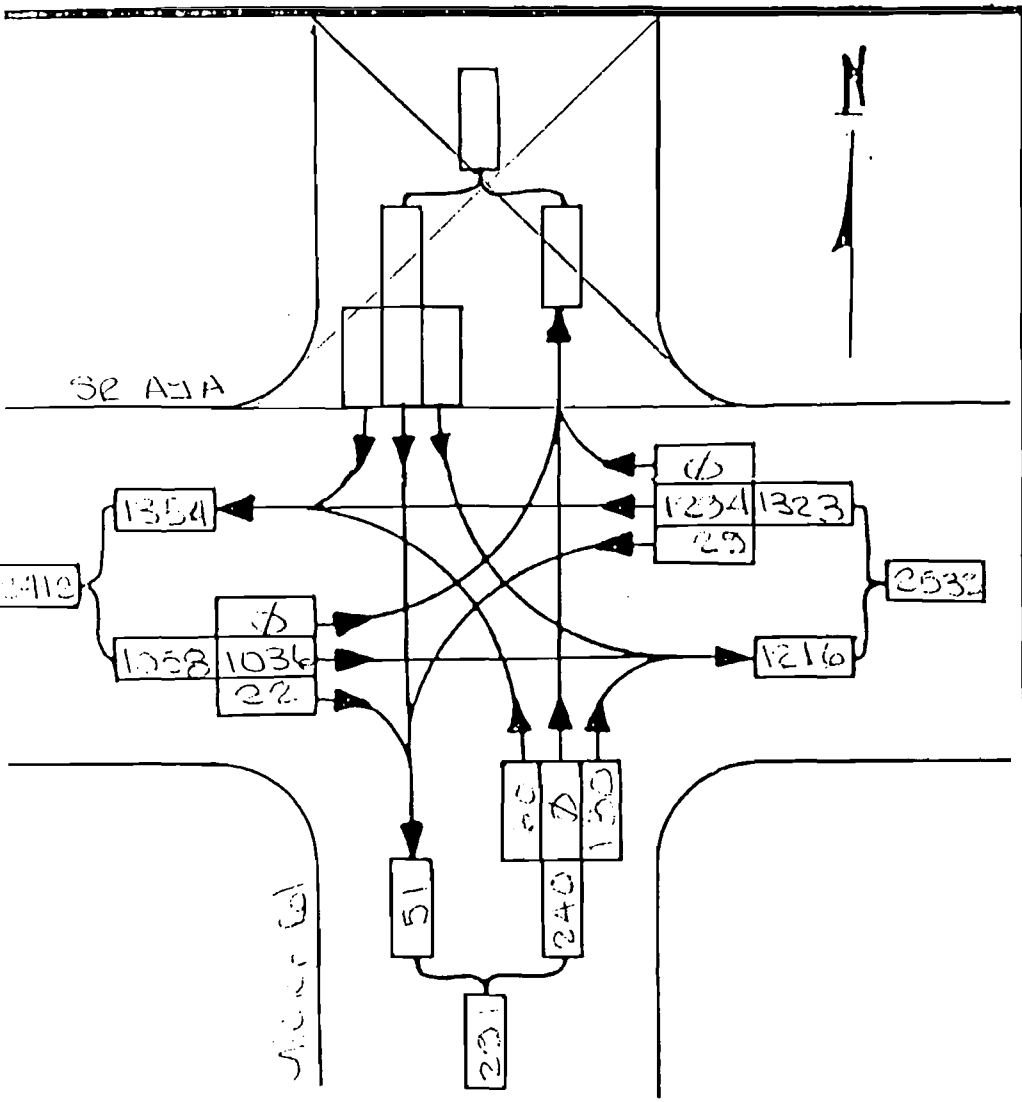
A.M. Peak Hour
(7:00 - 8:00)



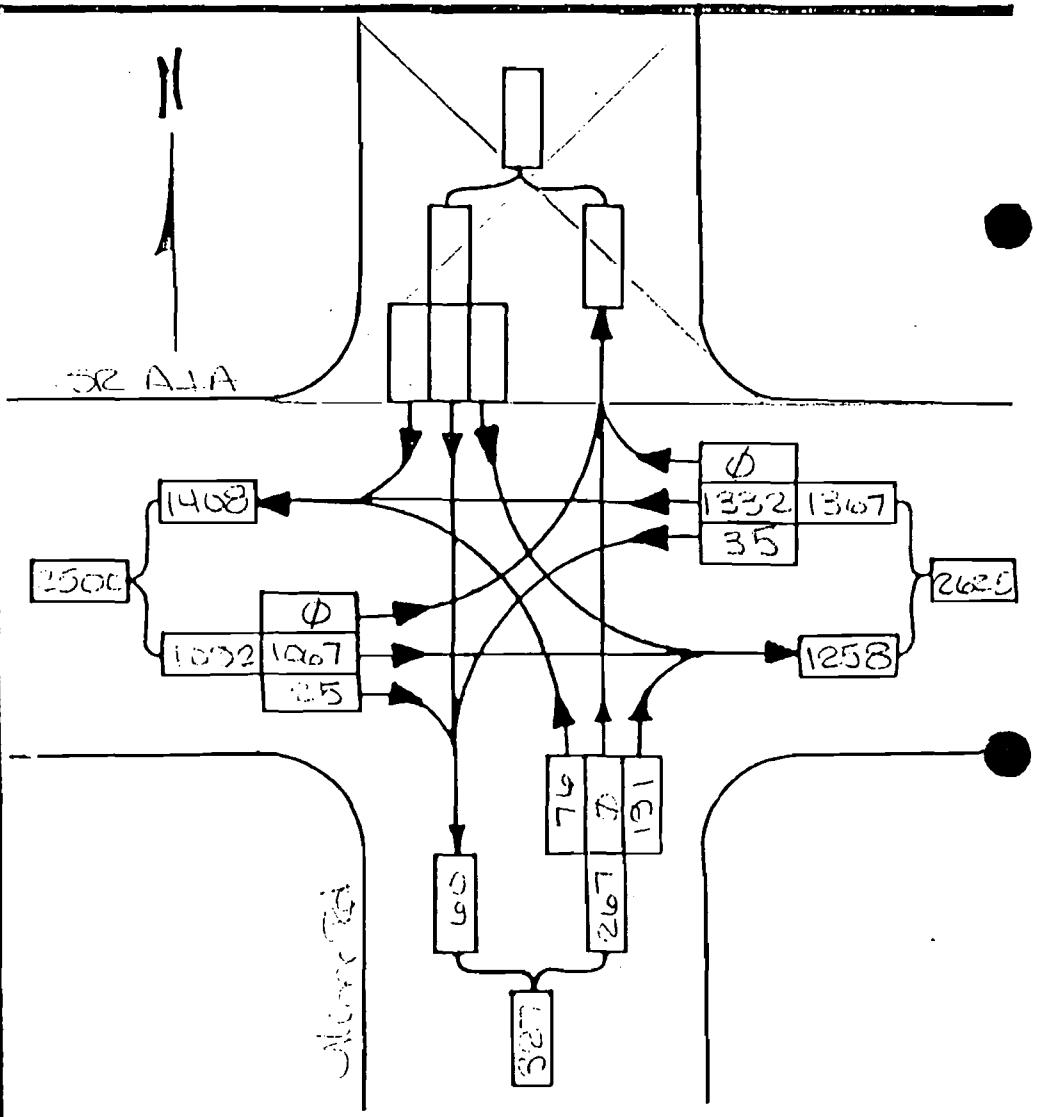
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A & Miner Rd DATE _____



1998 Total Traffic
All Peak Hour

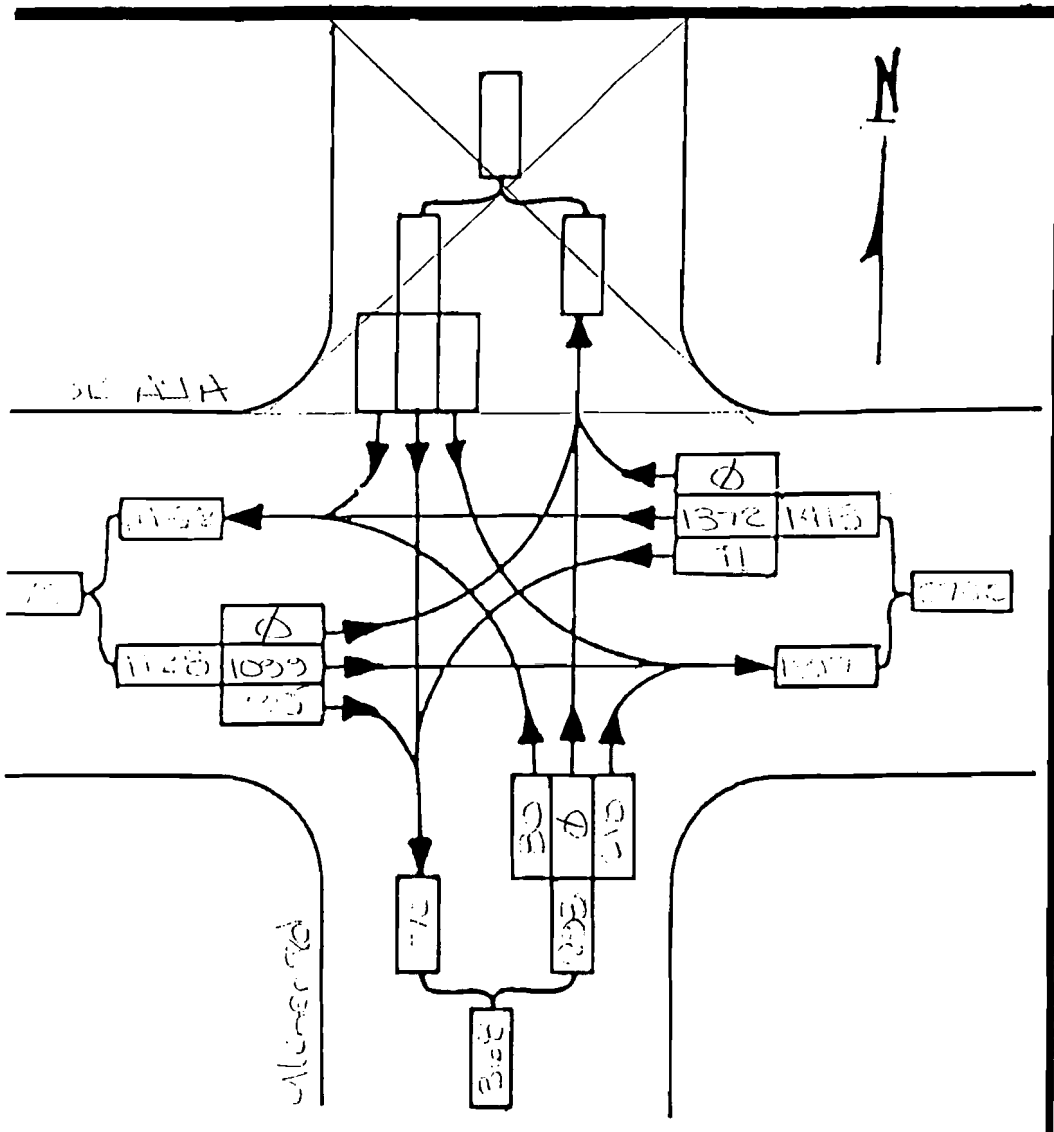


2020 Total Traffic
All Peak Hour

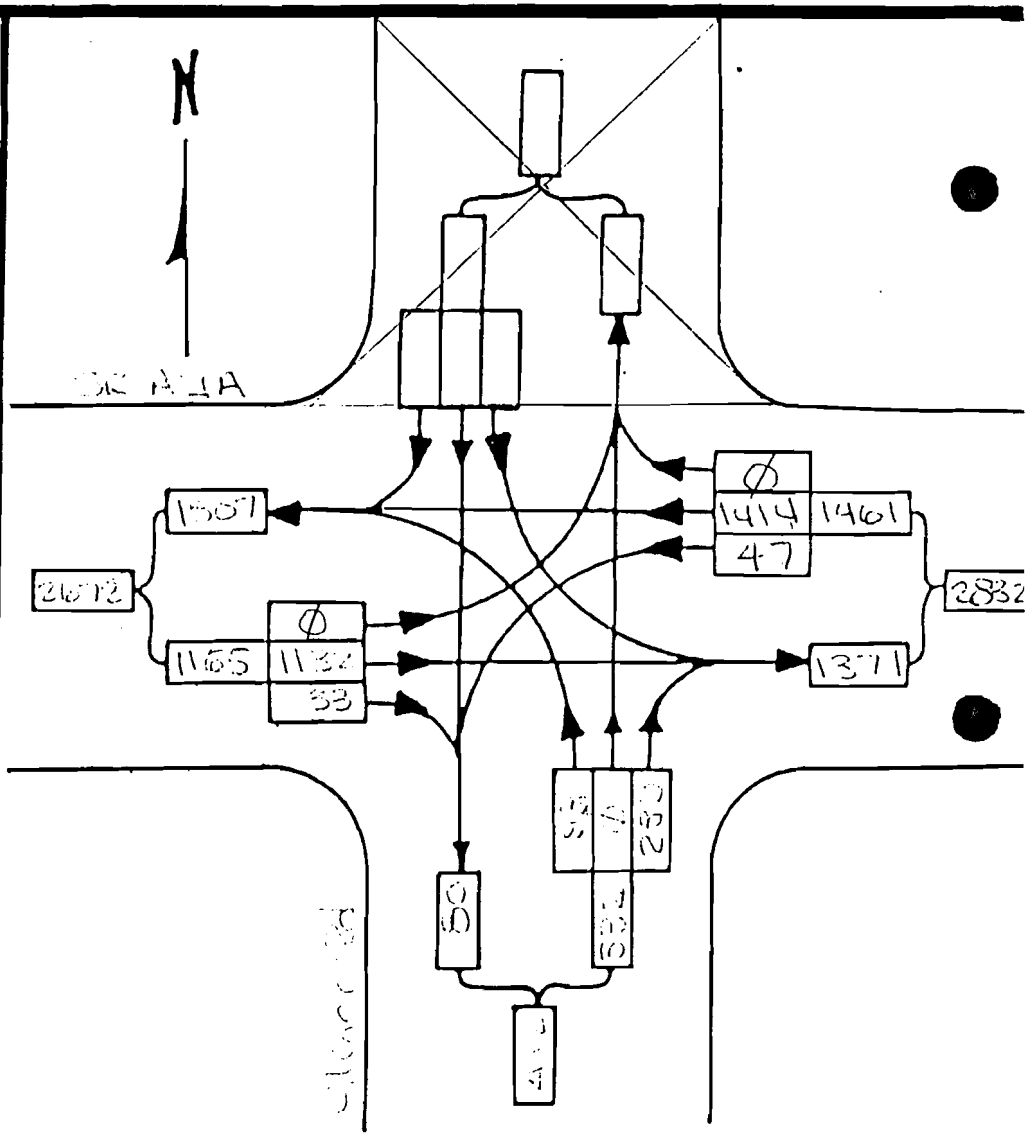
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A & Mickler Rd DATE _____



2000 Total Traffic

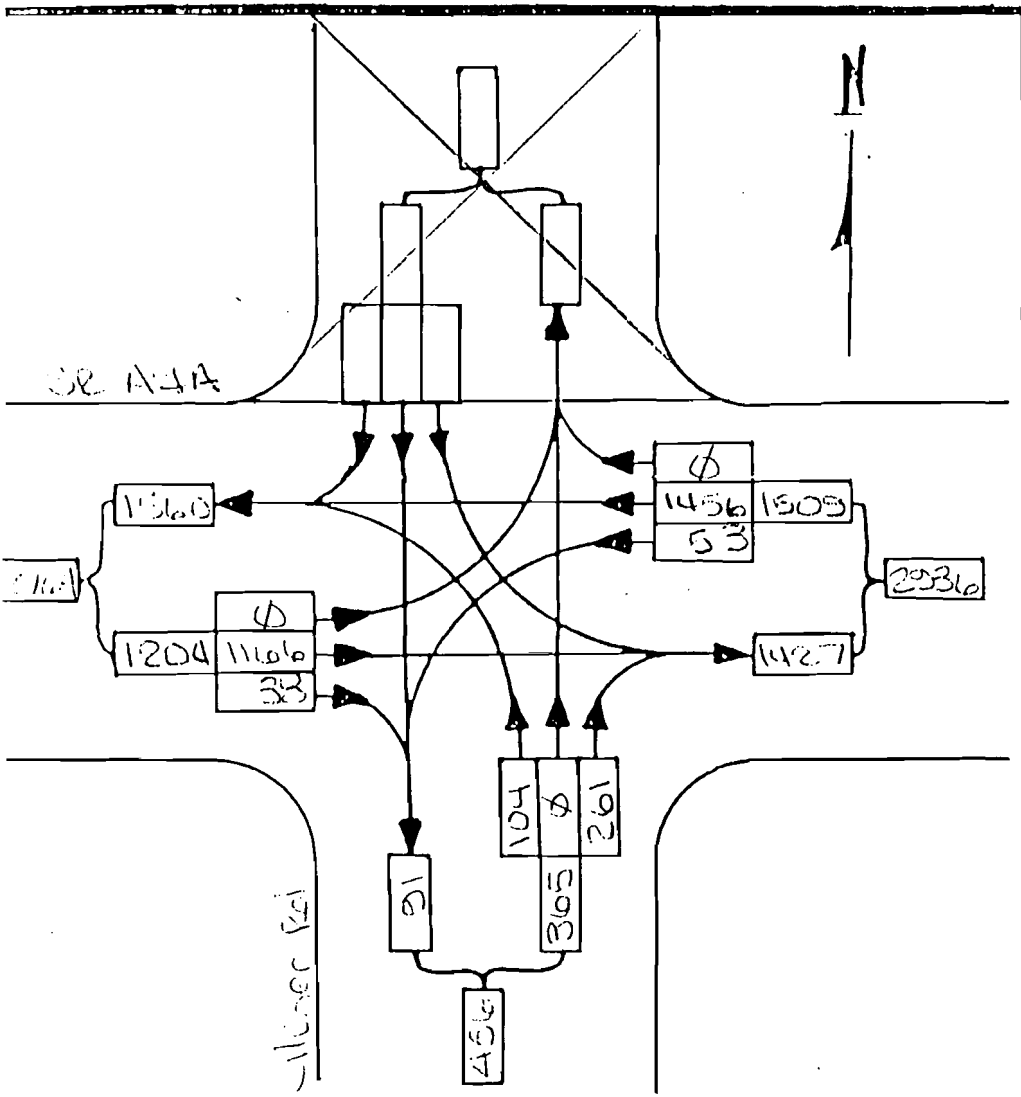


2001 Total Traffic

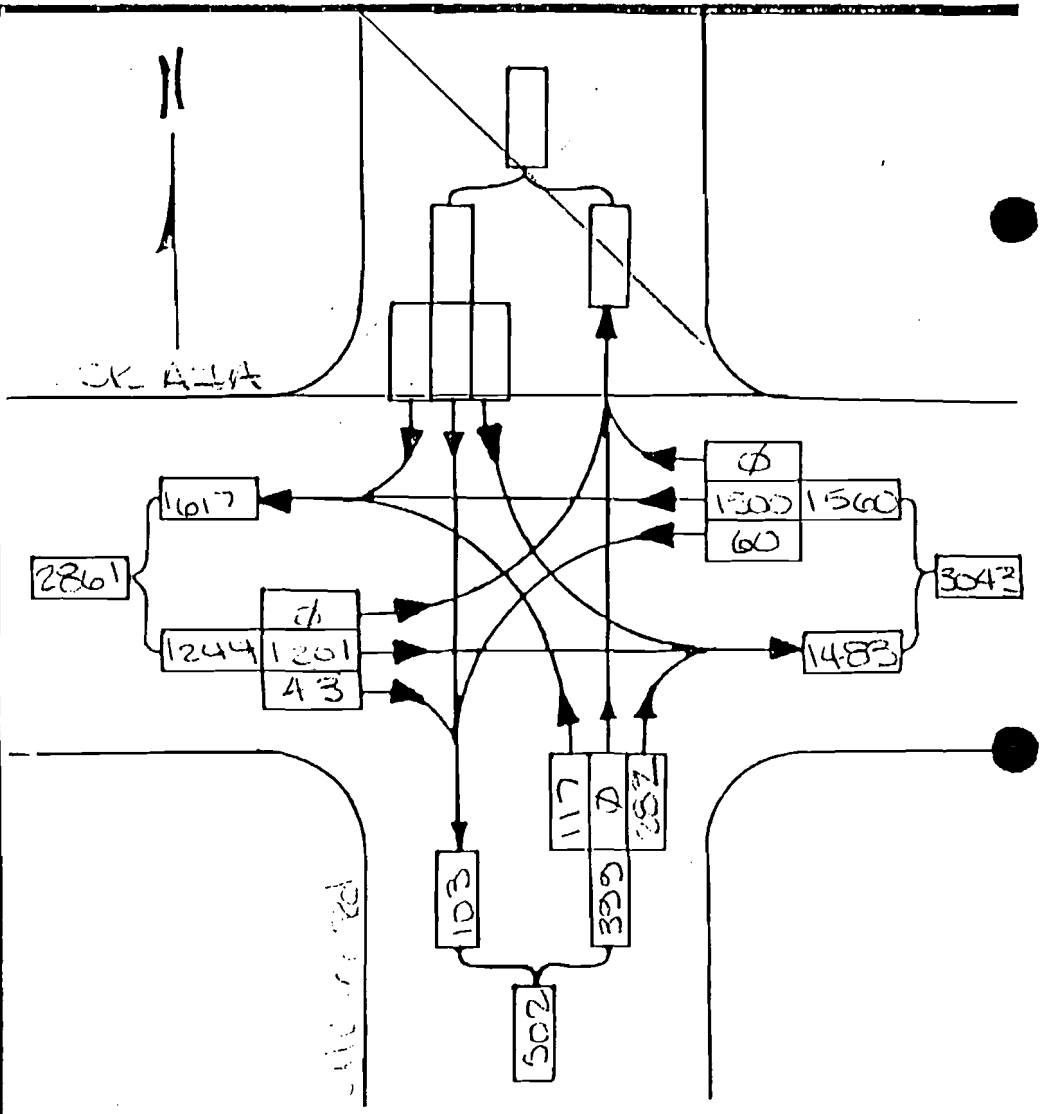
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A @ Minor Rd DATE _____



2002 Total Traffic
AM Peak Hour

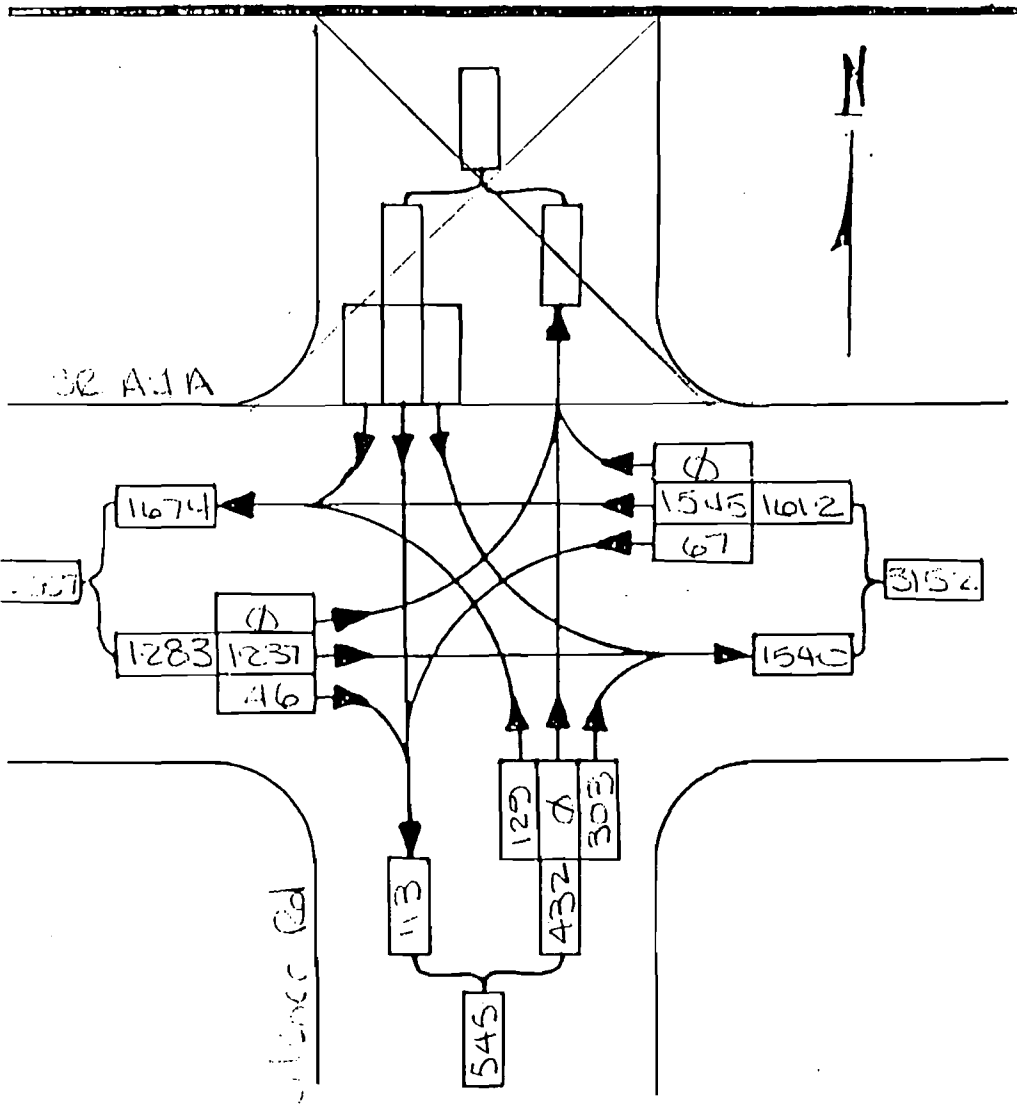


2003 Total Traffic
AM Peak Hour

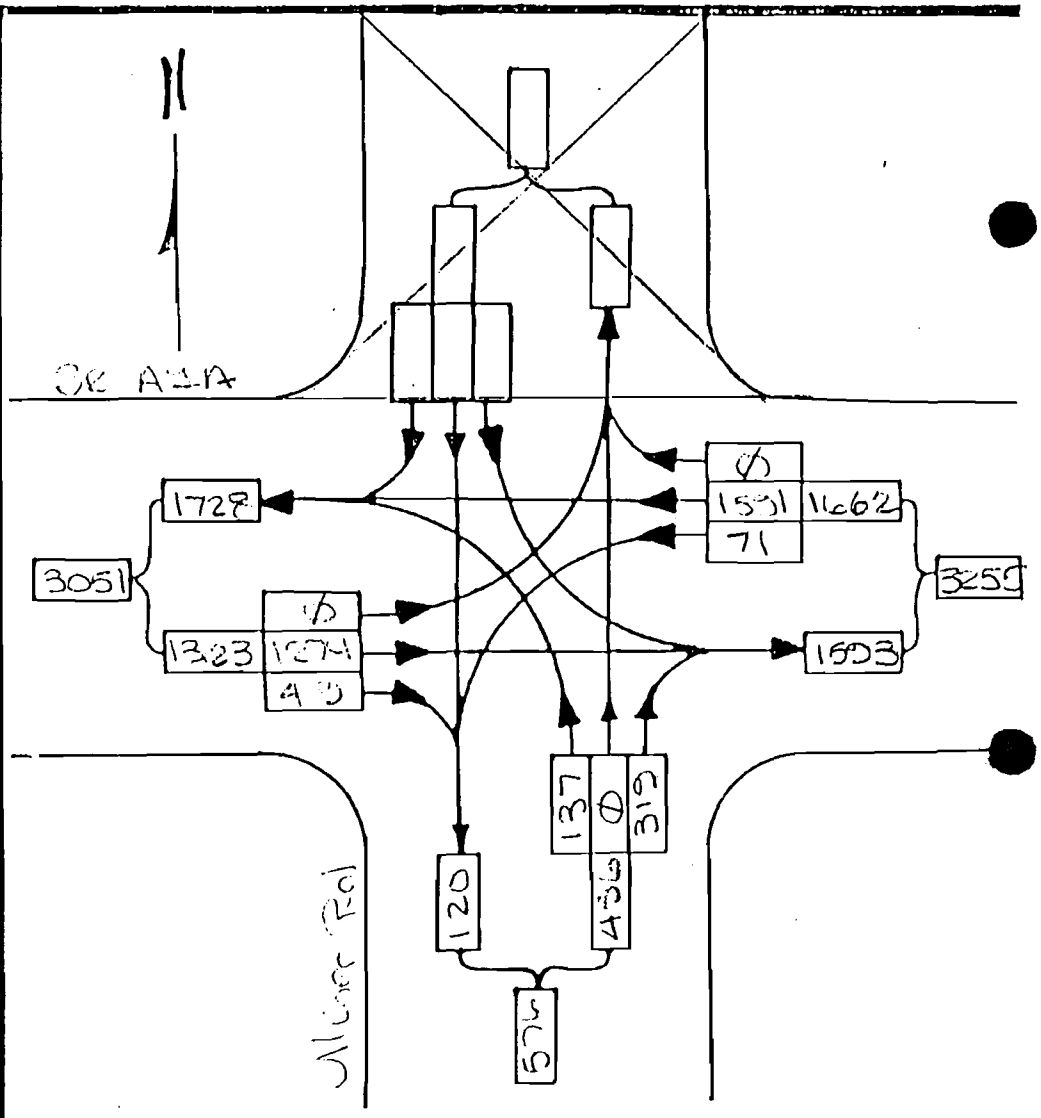
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SE A1A @ Miner Rd DATE _____



2004 Total Traffic
AM Peak Hour



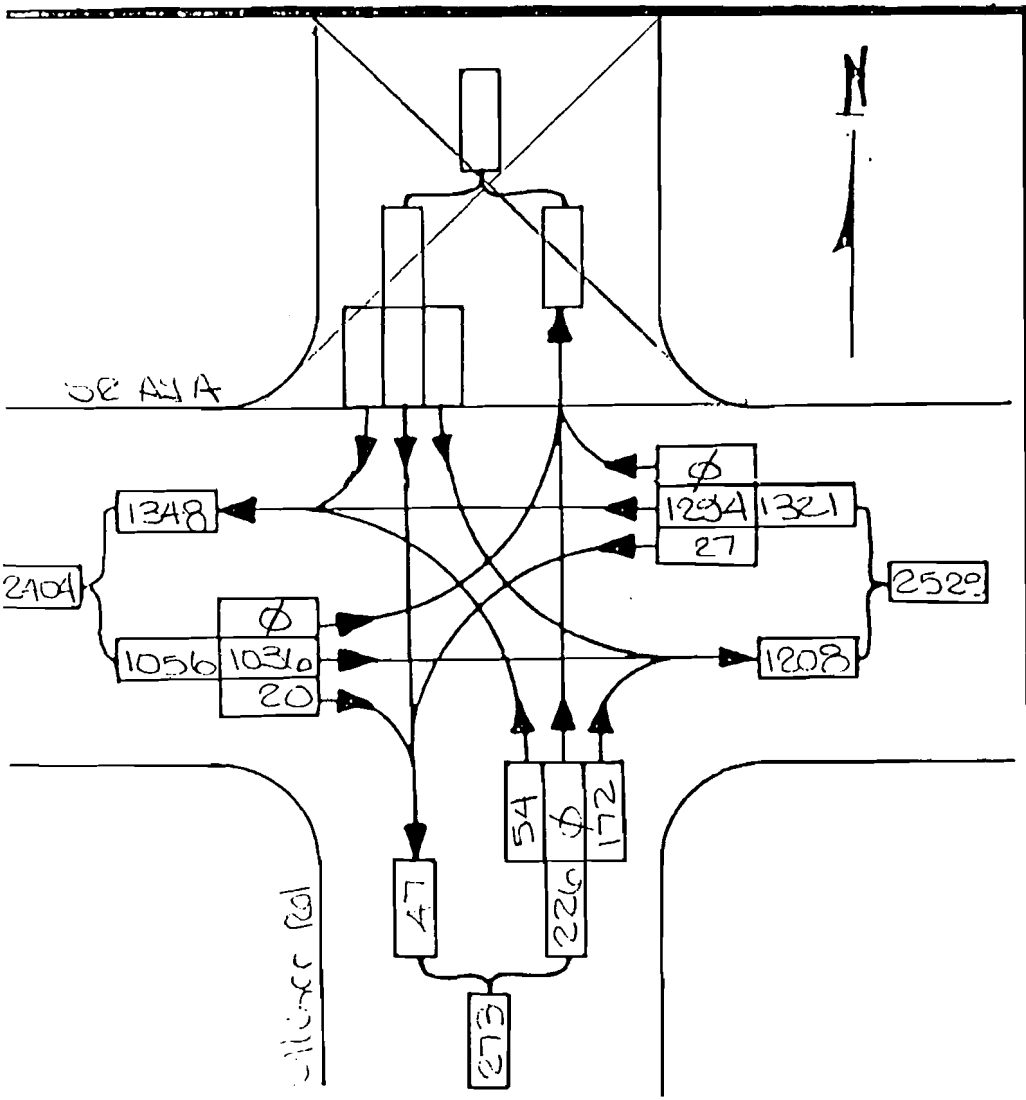
2005 Total Traffic

PEAK HOUR TURNING MOVEMENTS

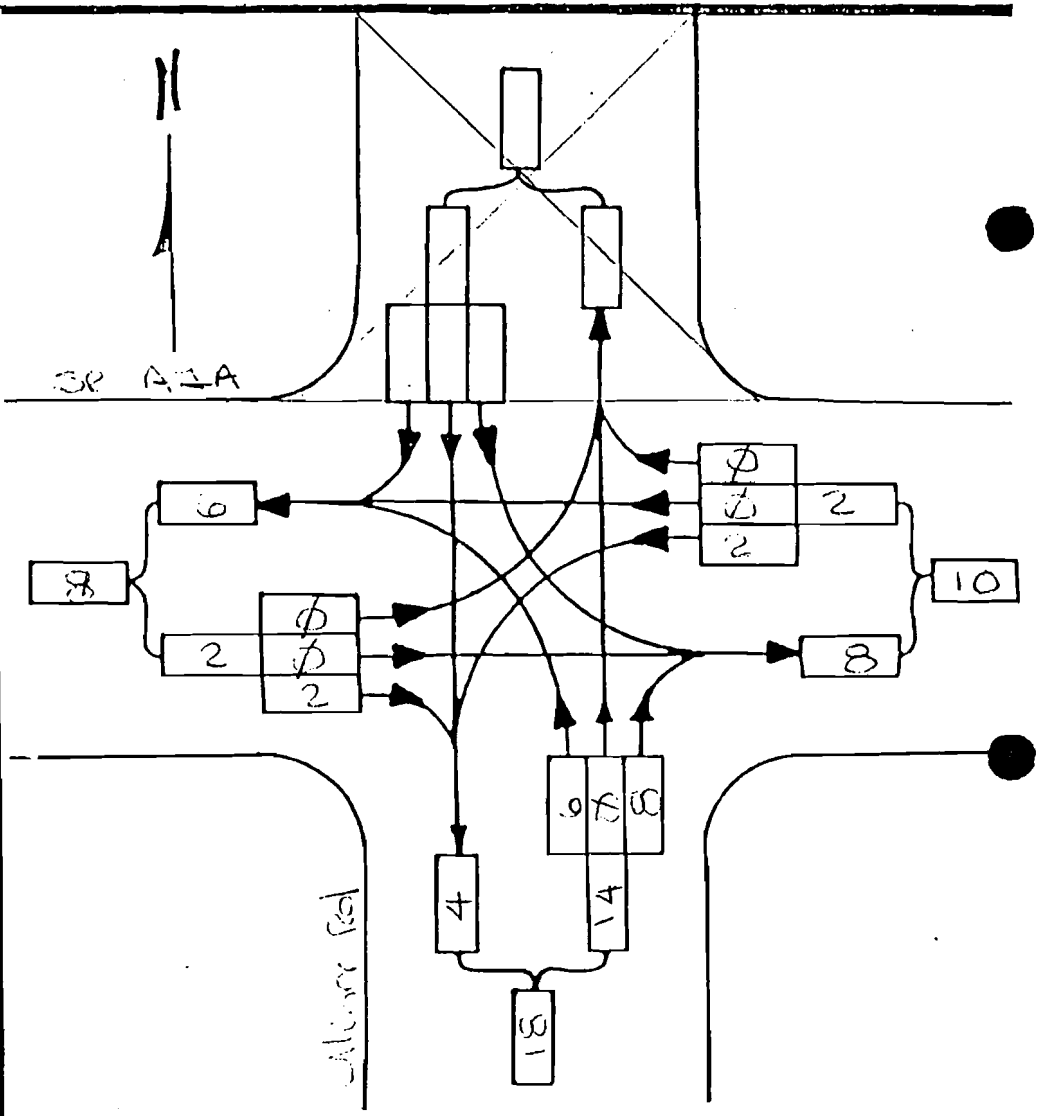
PHASE _____

INTERSECTION SR A1A & Miner Rd

DATE 1998



1998 Background Traffic
AM Peak Hour

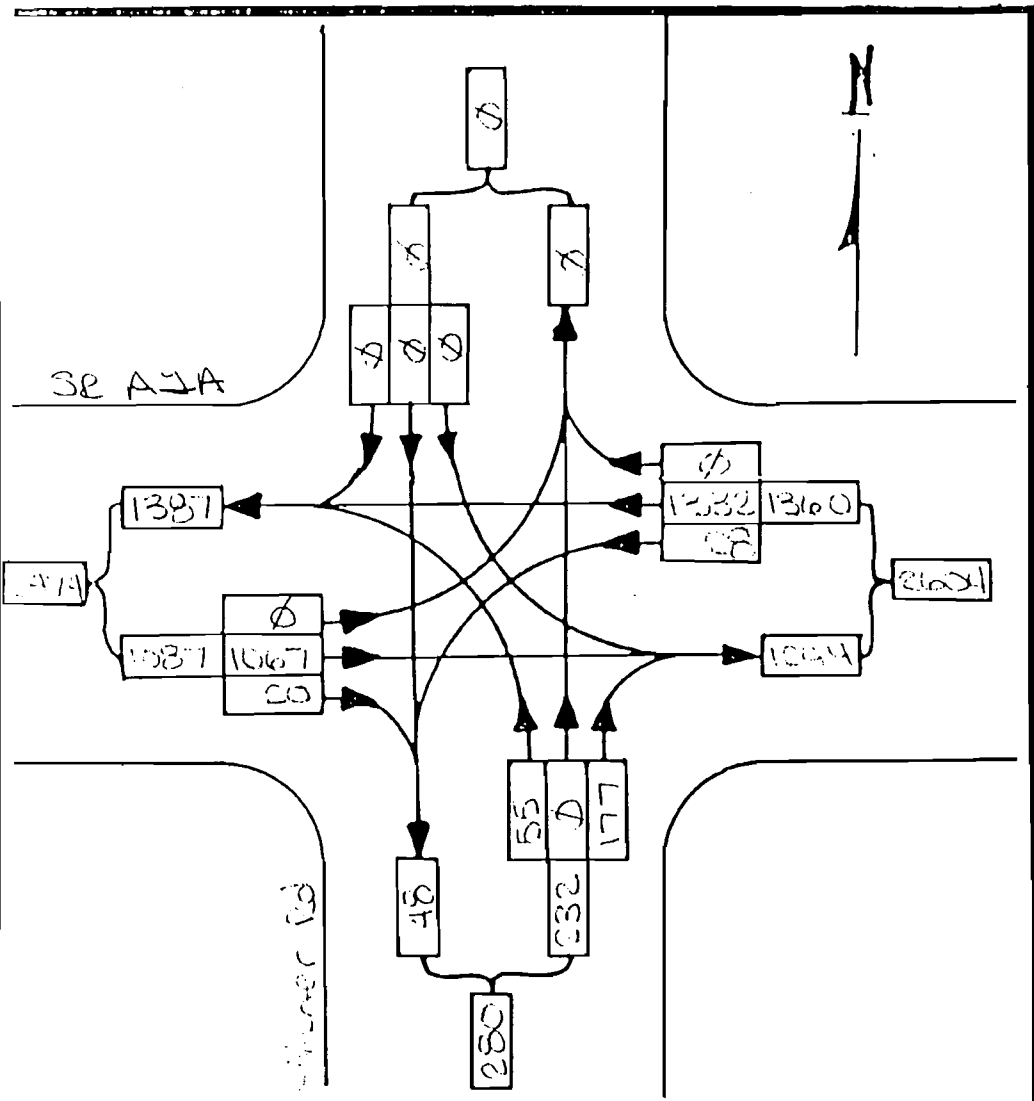


1998 Project Traffic
AM Peak Hour

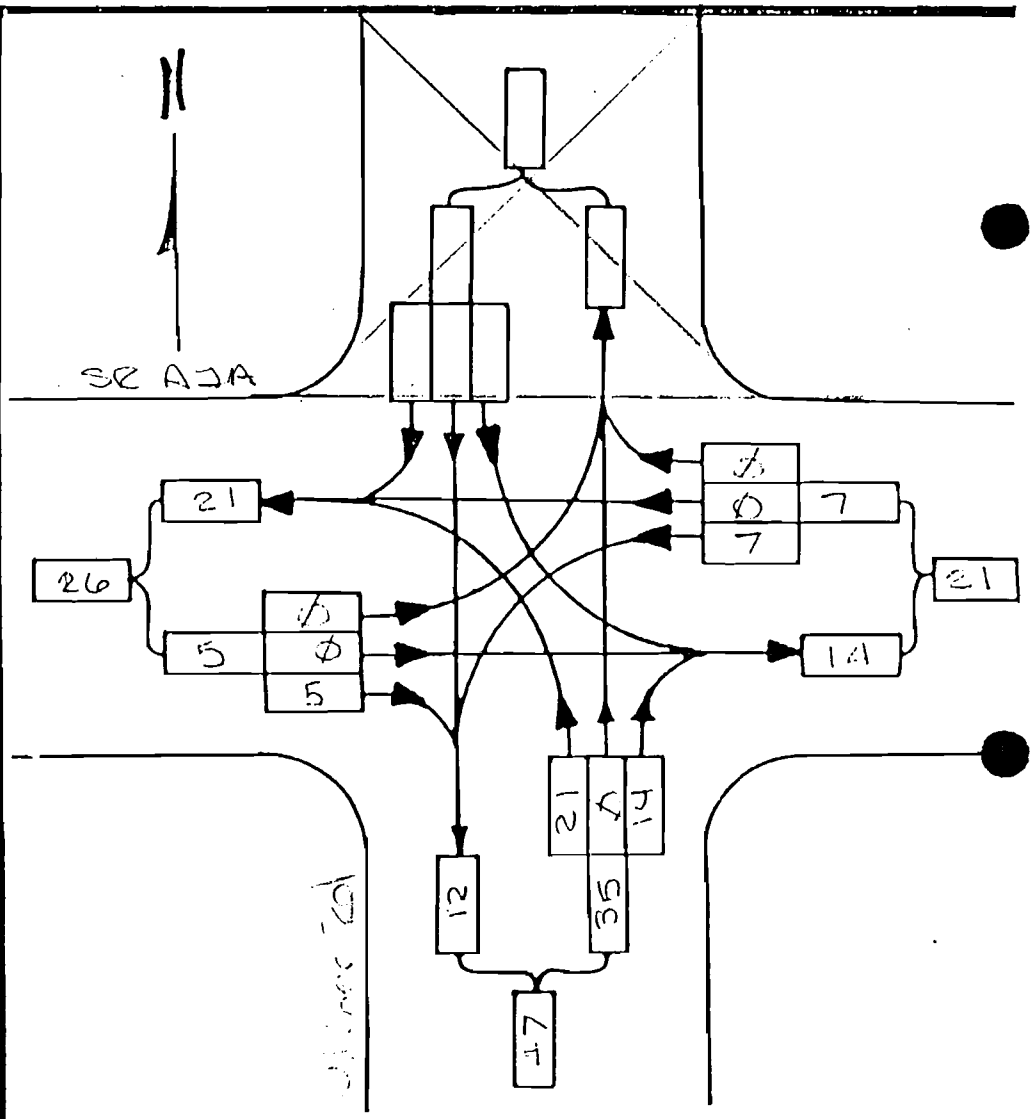
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A @ Ocean Rd DATE 1999



1999 Background Traffic
AM Peak Hour

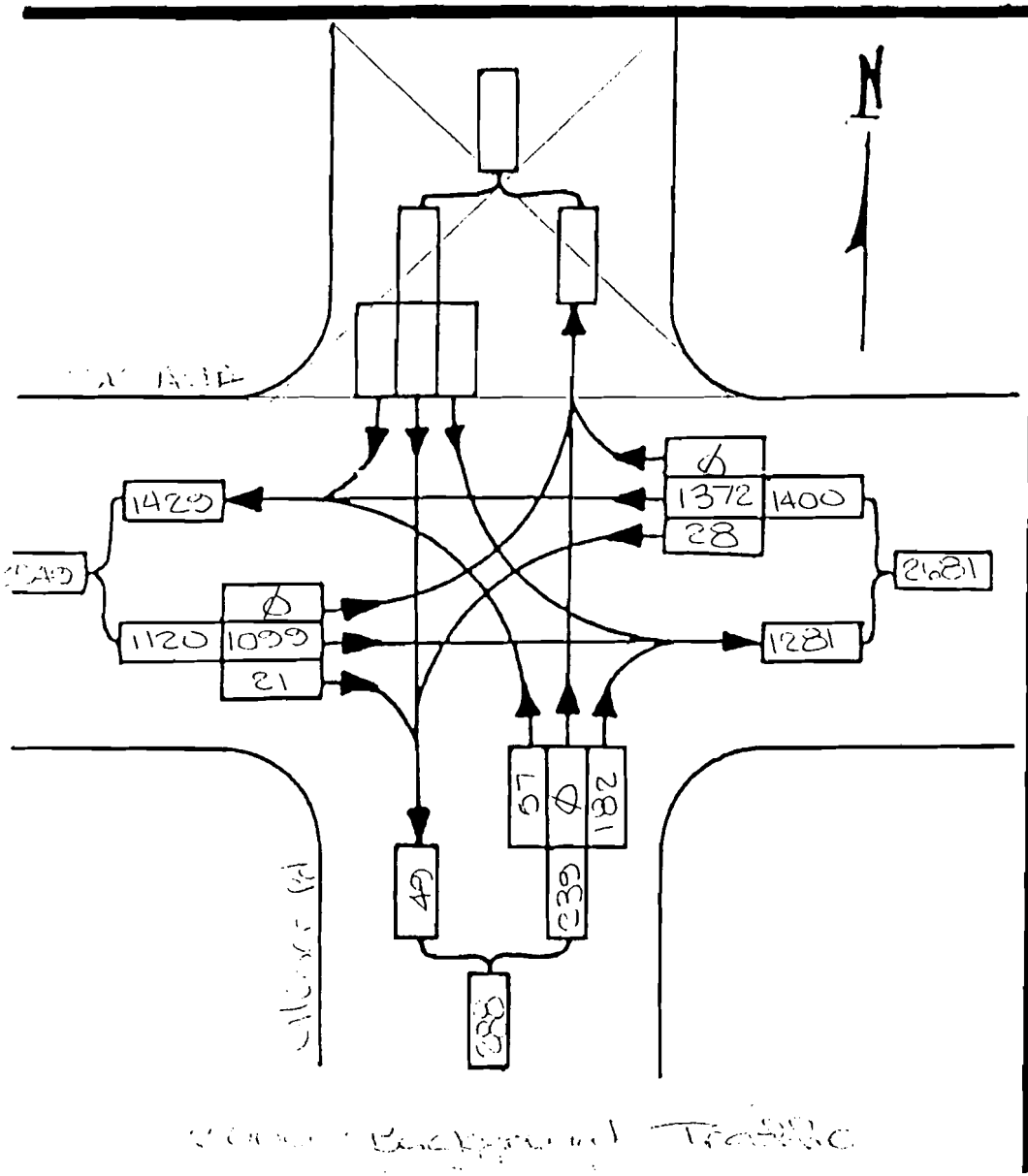


1999 Project Traffic
AM Peak Hour

PEAK HOUR TURNING MOVEMENTS

PHASE _____

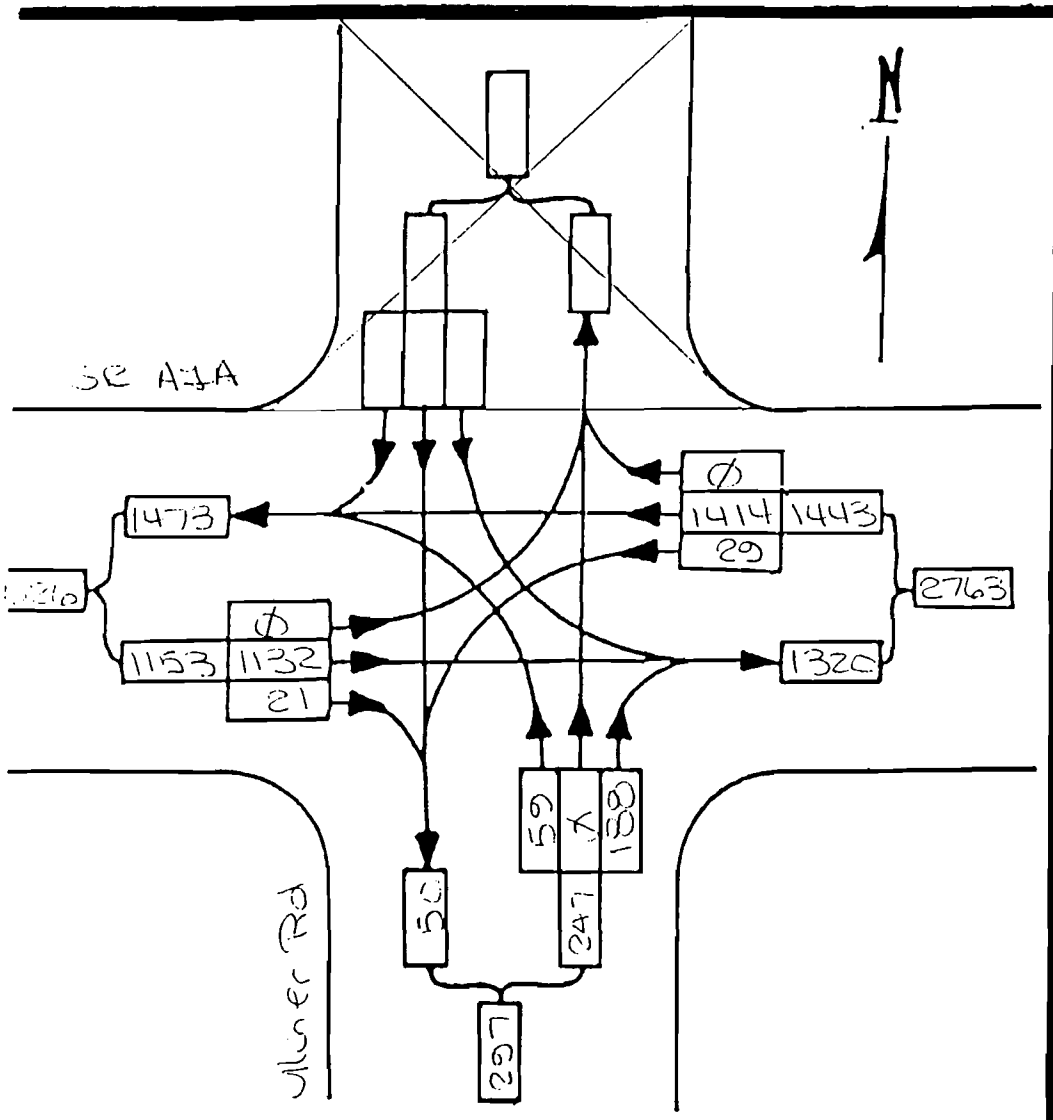
INTERSECTION SR A1A & Ocean Rd DATE 2000



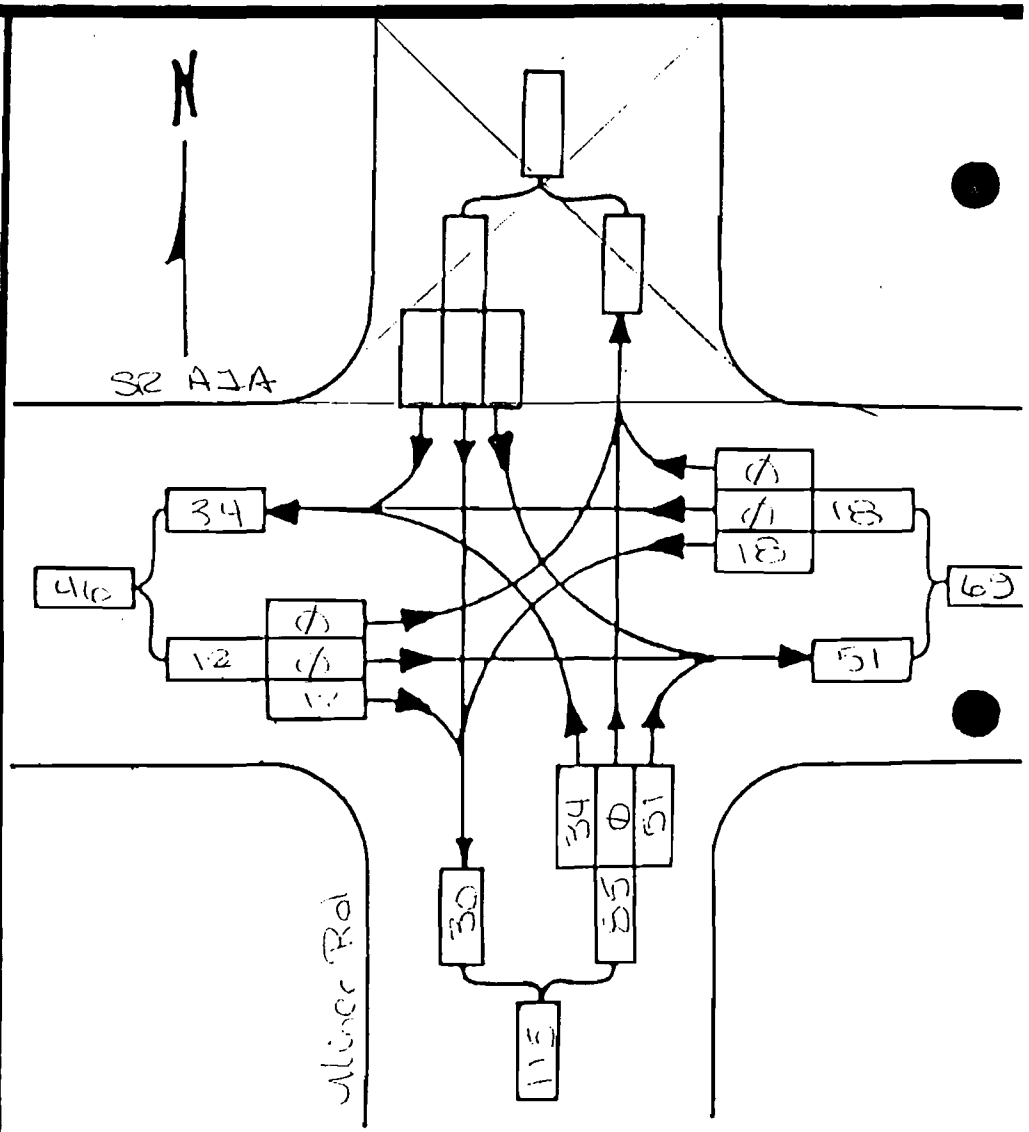
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A @ Miner Rd DATE 2001



2001 Background Traffic



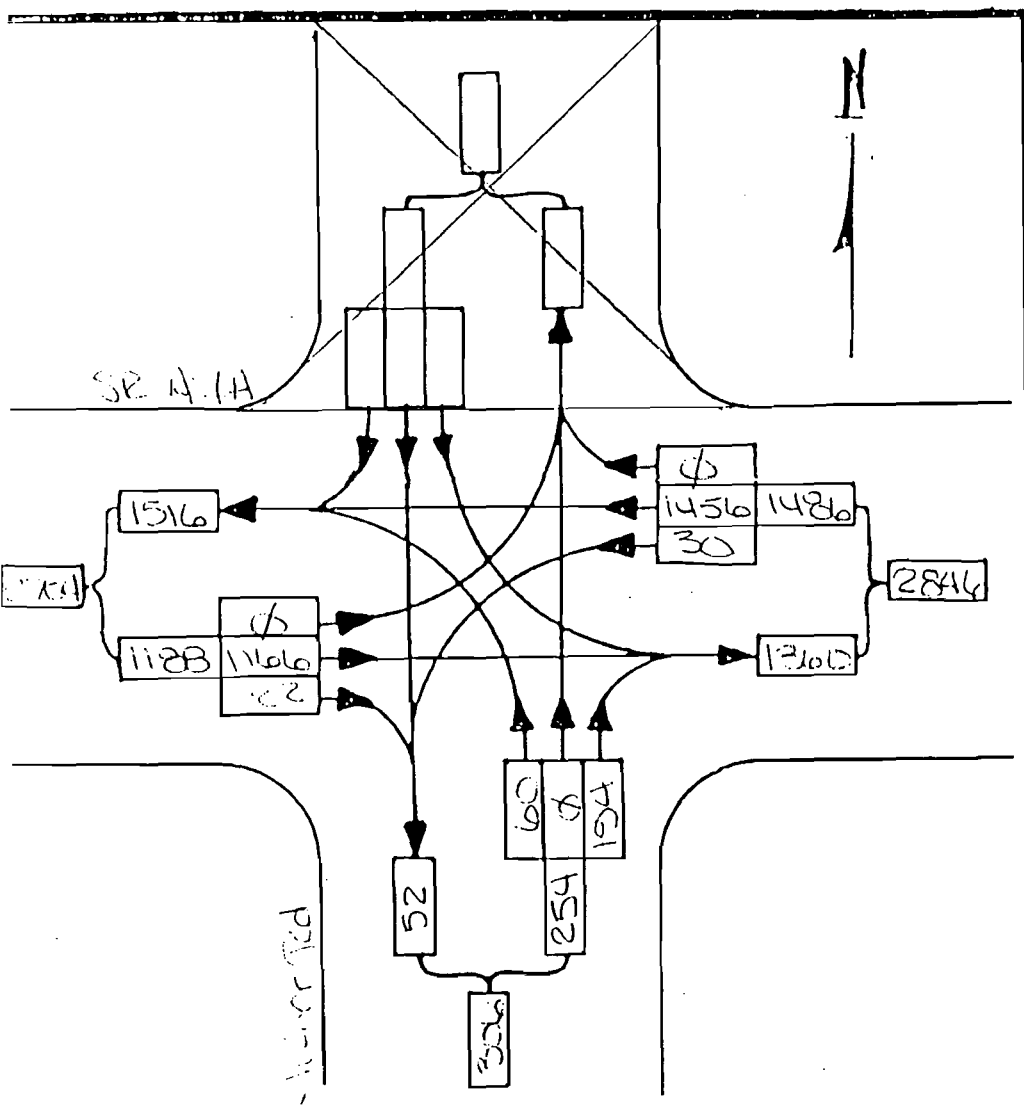
2001 Project Traffic

PEAK HOUR TURNING MOVEMENTS

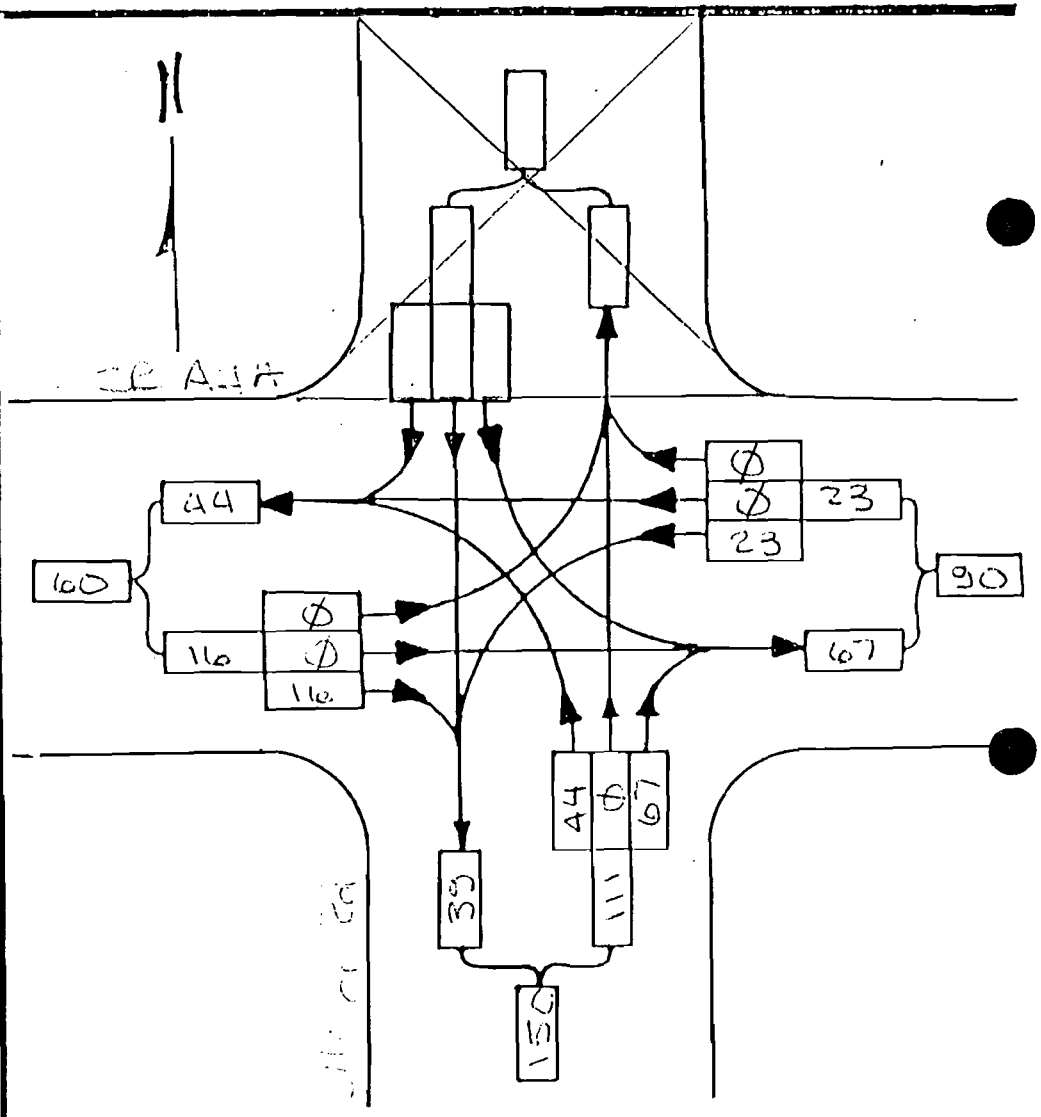
PHASE _____

INTERSECTION SR A1A & Miner Rd

DATE 2002



2002 Background Traffic
AM Peak Hour

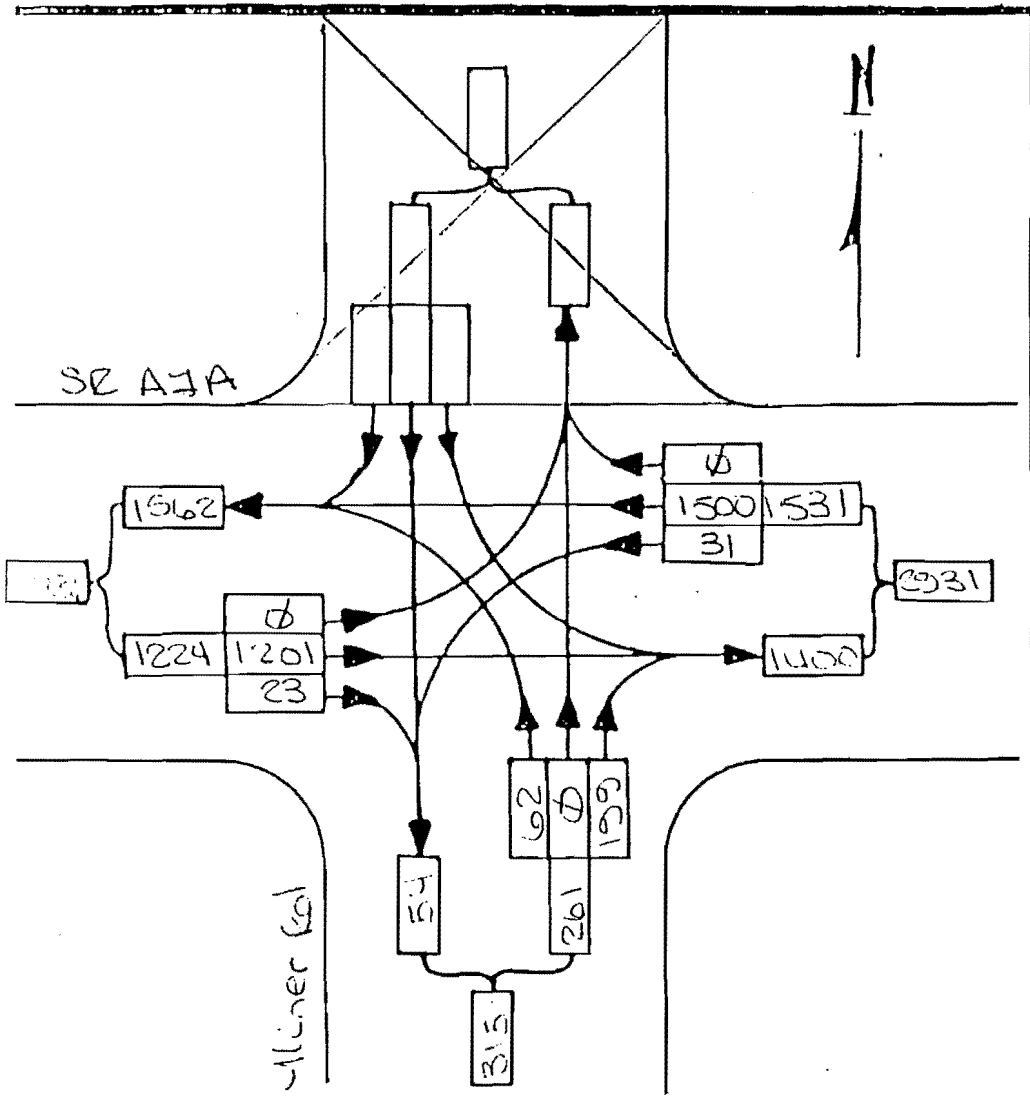


2002 Project Traffic

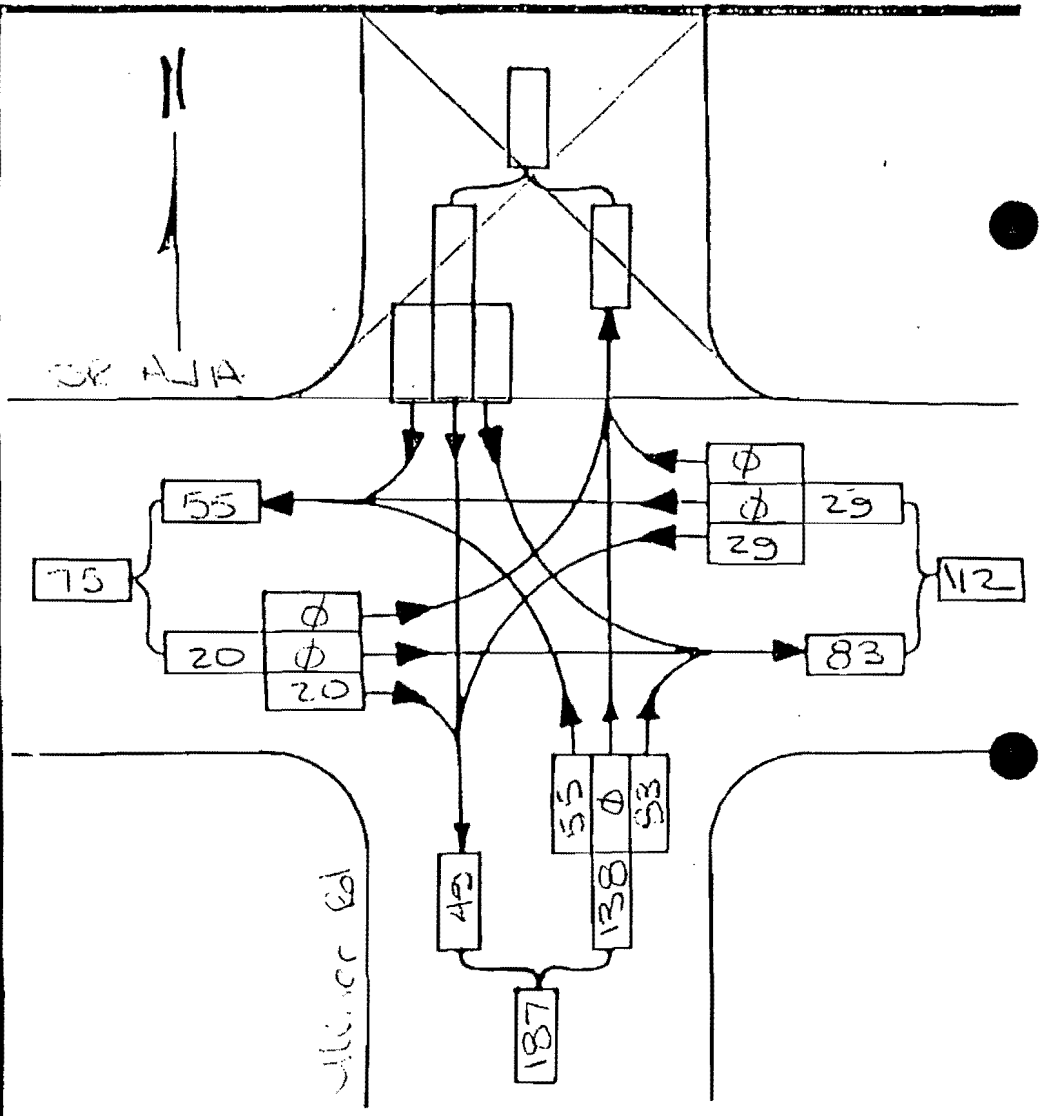
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A @ Hiner Rd DATE [illegible]



2003 Background Traffic
A.M. Peak Hour

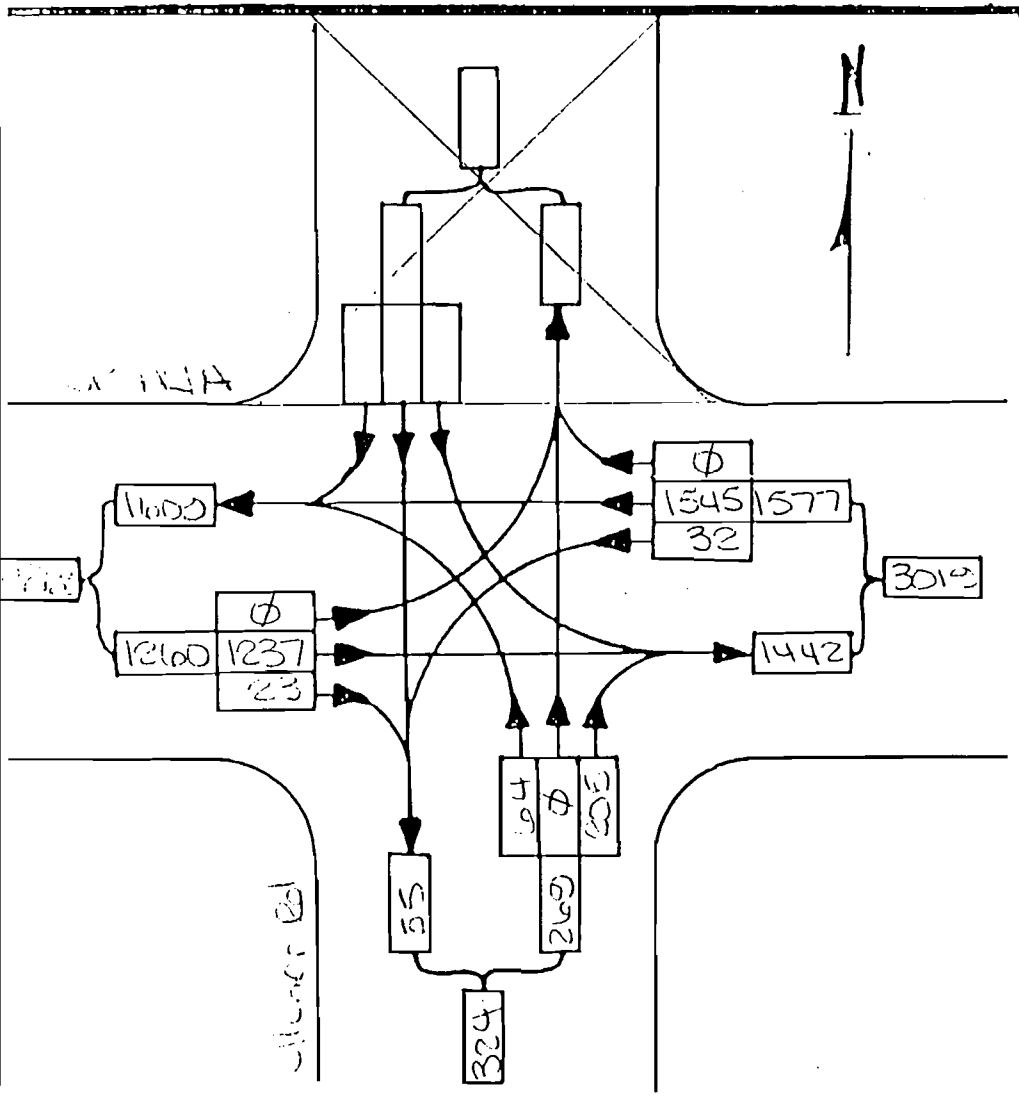


2003 Project Traffic
A.M. Peak Hour

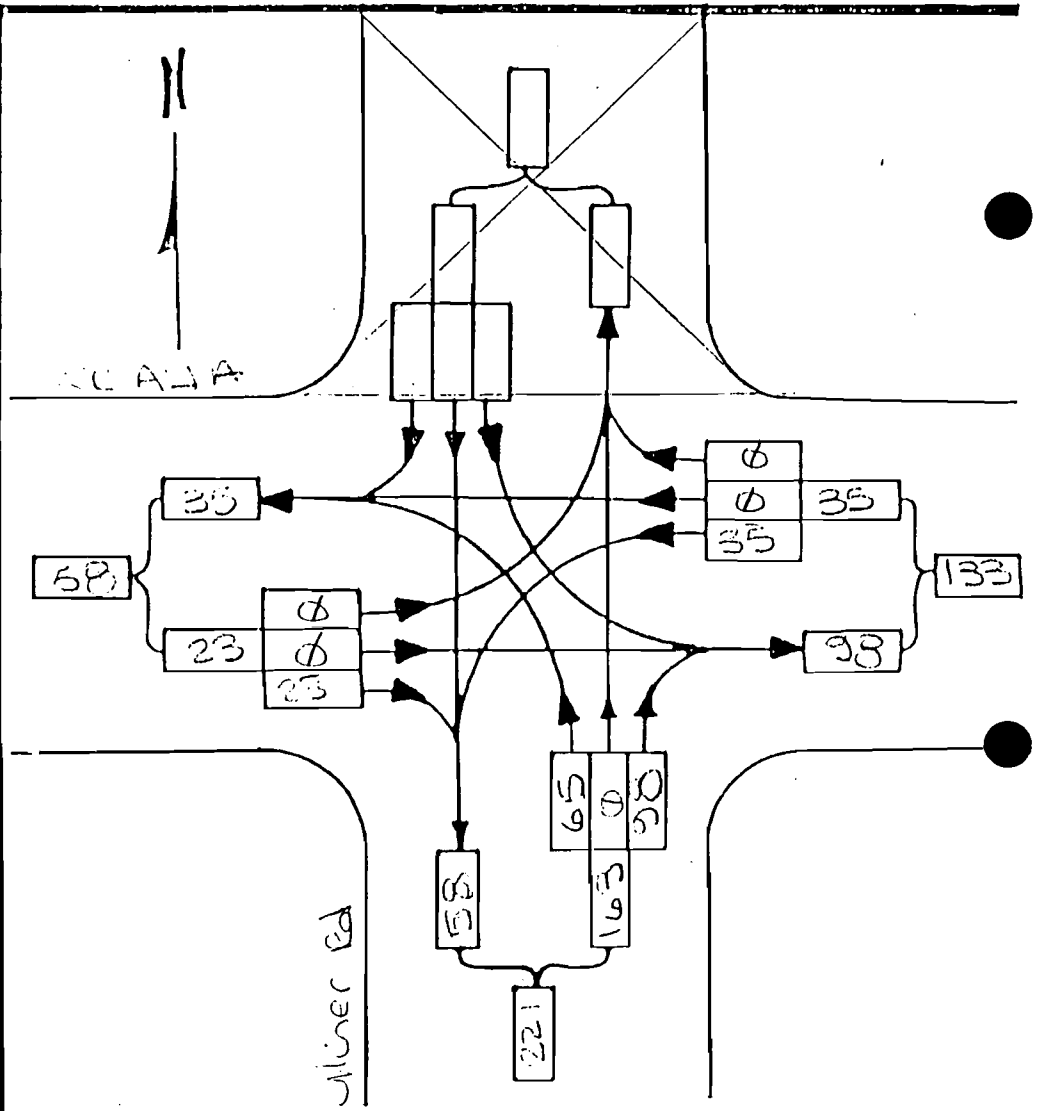
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A & Miner Rd DATE 2004



2004 Background Traffic
AM Peak Hour

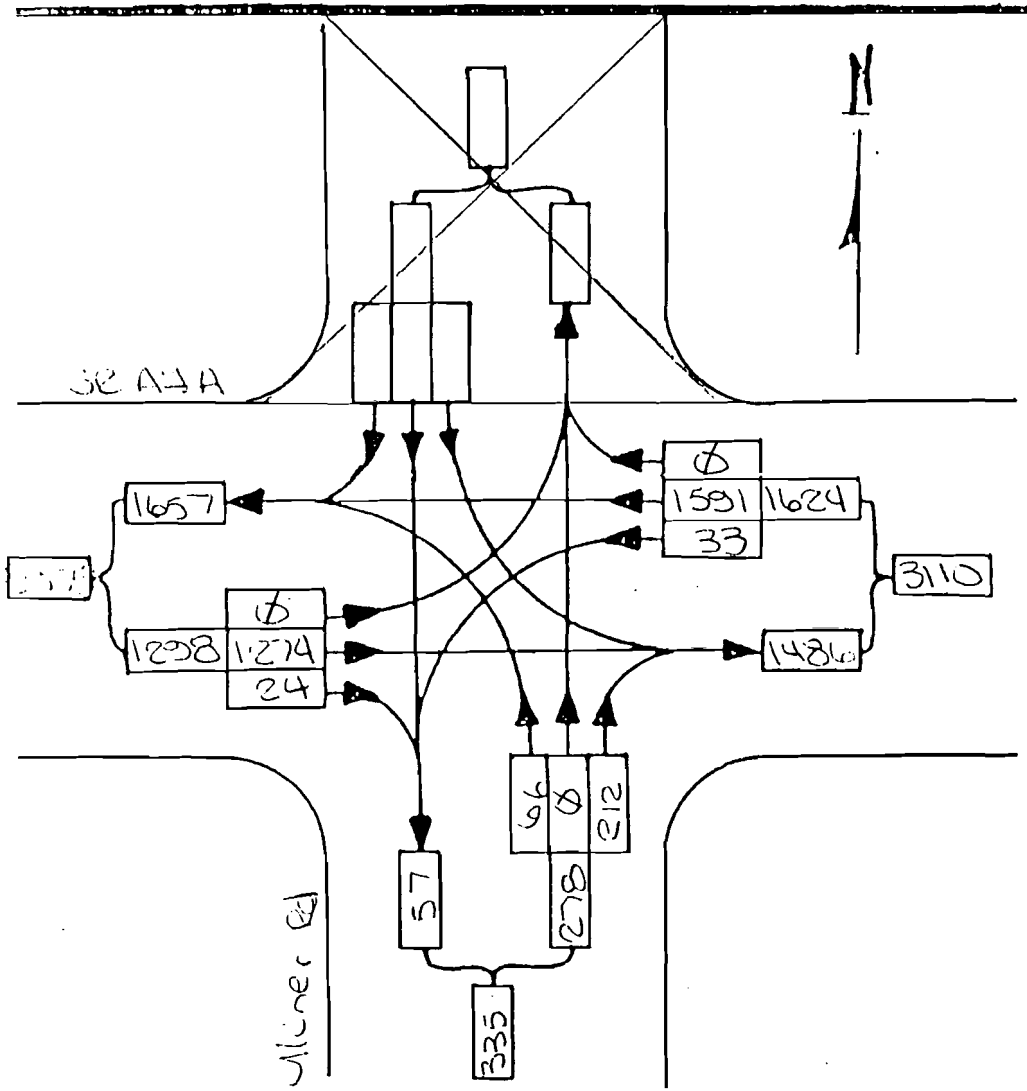


2004 Rojct Traffic
AM Peak Hour

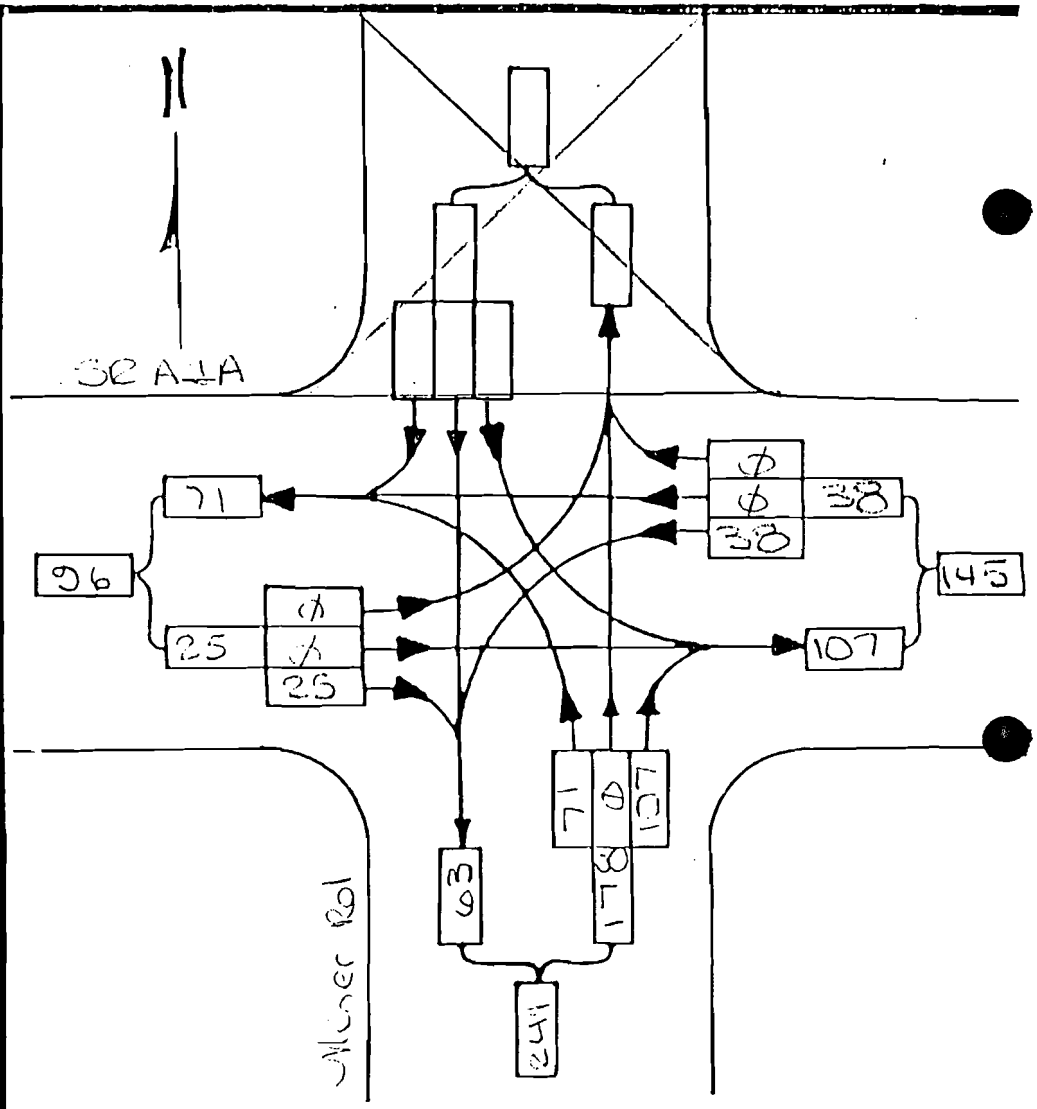
PEAK HOUR TURNING MOVEMENTS

PHASE _____

INTERSECTION SR A1A @ Miner Rd DATE 2005



2005 Background Traffic



2005 Project Traffic

EXHIBIT 2

HCS ANALYSIS

EXHIBIT II

Intersection Analysis - A1A and Miner Road
YPC Site, Yulee, Florida

INTERSECTION ANALYSIS OF PEAK HOUR TRAFFIC

for

State Road (SR) A1A @ Miner Road

Nassau County, Florida

SUMMARY

Miner Road, in the vicinity of the YPC tract, is currently operating at an acceptable level of service for a two-lane major county roadway and will continue to do so through buildout of the proposed residential tract. An analysis of the intersection of Miner Road and A1A, however, reveals current and future operational problems with the left turn movement. On a grading scale of A through F, the current level of service of A1A is B and the left turn from Miner Road to A1A is D. By 1999 the left turn movement will be operating at level of service F.

A potential solution to this problem is to close the median opening so that left turns are not allowed, forcing motorists to turn right and make a U-turn at the next available median opening. This is a solution frequently sought by the Florida Department of Transportation(FDOT). Another solution is to install a traffic signal to control turning movements. This will provide adequate gaps for left turns, but would increase delay on A1A. A preliminary signal warrant analysis reveals that there are currently adequate traffic volumes to warrant a signal at this location.

Discussions with County engineers and planners reveal that there is currently interest from FDOT to install a traffic signal at this location and that the County is interested in installing a signal at Felmor Road, approximately 400 feet to the west. Two locations this close together do not meet FDOT spacing requirements for each to receive a signal. It was suggested by the County engineers that Miner Road be realigned to match the Felmor Road alignment so that a single traffic light will serve both at one intersection. The proposed realignment, shown on Exhibit 4, will require additional right-of-way across commercial property currently controlled by YPC.

INTERSECTION ANALYSIS OF PEAK HOUR TRAFFIC

for

SR A1A @ Miner Road

Nassau County, Florida

Bessent, Hammack & Ruckman, Inc. (BHR) conducted the following analysis to determine the traffic impact of 400 single family housing units, proposed for construction on the YPC tract located adjacent to the intersection of Miner Road and State Road (SR) A1A.

A. BACKGROUND (EXISTING) TRAFFIC

Peak hour turning movement counts were conducted at the intersection of SR A1A and Miner Road on March 20, 1997 from 6:00 a.m. to 9:00 a.m. A three-day 24-hour traffic volume count was also conducted on Miner Road south of SR A1A. The counts are included as Exhibit 1. Prior to analysis, the peak hour through movements on SR A1A were adjusted for weekly volume (seasonal) factors as developed by the Florida Department of Transportation (FDOT). The 24-hour count was not adjusted for axle or weekly volume factors due to the residential nature of the area and the lack of seasonal changes in traffic volume.

Peak hour for the entire intersection occurred from 7:00 am to 8:00 a.m. A total of 2,526 vehicles passed through the intersection, with the greatest volume (1,282 vehicles) westbound on SR A1A toward Interstate (I) 95. Fifty-five percent of through vehicles on SR A1A were westbound, with 45 percent eastbound. For northbound vehicles on Miner Road, 76 percent turned eastbound onto SR A1A toward Fernandina Beach, with 24 percent westbound toward I-95.

B. ROADWAY DESCRIPTION

SR A1A is a four-lane divided highway, with a westbound left turn lane and an eastbound right turn lane at Miner Road. A study conducted by the FDOT indicates that background traffic on SR A1A will grow at a rate of 3 percent per year.

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	518	
Potential Capacity: (pcph)	704	
Movement Capacity: (pcph)	704	
Prob. of Queue-free State:	0.63	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1058	
Potential Capacity: (pcph)	537	
Movement Capacity: (pcph)	537	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1036	
Potential Capacity: (pcph)	199	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	199	

Miner Road is a two-lane local road which begins at the T-intersection with SR A1A and extends south through a low density residential and rural neighborhood. There are no turn lanes at the intersection with SR A1A. To calculate the growth in background traffic, a representative of Northeast Regional Planning Council directed BHR to use the rate on SR A1A, or 3 percent per year.

C. PROJECT TRIPS

The calculation of project trips is based upon the development schedule as shown in Table 1. Using the Institute of Traffic Engineers Trip Generation Manual, Land Use Code 210 - Single Family Detached Housing, the proposed development of 400 single family homes generates 268 a.m. peak hour trips.

Distribution of project trips was based on the following assumptions:

- Ninety percent of vehicles exiting the project during the a.m. peak hour will turn north on Miner Road toward SR A1A. The remaining ten percent will turn south toward United States Highway (US) 17.

- Existing traffic counts indicate that 74 percent of vehicles exiting from Miner Road onto SR A1A turn right. For the analysis of new project trips, BHR modified this distribution to reflect anticipated market variables (i.e. proposed unit types and costs, and location of new job creation such as Jacksonville and Naval Submarine Base Kings Bay, Georgia). Considering these variables, we anticipate that 40 percent of new project trips will turn west toward I-95, and 60 percent will turn east.

D. LOS ANALYSIS

An intersection level of service (LOS) analysis was conducted for the intersection using Highway Capacity Software (HCS), which is based upon the 1985 Highway Capacity Manual (HCM). As described in the HCM, the operating LOS of a unsignalized

TABLE 1 - PROJECT TRIPS

Year	Dwelling Units		AM Peak Hour Trips[1]		
	New	Cumulative	Enter	Exit	Total
1998	20	20	5	15	20
1999	40	60	13	39	52
2000	50	110	23	65	88
2001	60	170	33	95	128
2002	60	230	43	123	166
2003	65	295	54	153	207
2004	65	360	64	181	245
2005	40	400	70	198	268

[1] Project trips based on cumulative constructed units, regardless of occupancy status.

intersection is based upon the availability of gaps in the major street traffic stream and on the unused capacity of the minor street lane(s). LOS is reported in letters "A" through "F" and is related to general delay ranges, as shown in Table 2. Unsignalized LOS **are not** associated with the delay values for signalized intersections.

The HCS analysis is included as Exhibit 2. Critical gap values were revised to reflect a 55 mph speed limit, a divided highway with center median, and a population less than 250,000 persons.

As shown in Table 3, the intersection is currently operating at LOS B on SR A1A and will continue to do so though 2005. Traffic volumes on Miner Road are currently operating at LOS D, which will drop to LOS F by 1999.

If no intersection improvements are constructed at SR A1A and Miner Road, it is likely that drivers will seek an alternate route to westbound SR A1A and northbound US 17, such as utilizing southbound Miner Road to US 17, making a right turn onto US 17 to the signalized intersection of US 17 and SR A1A.

An additional solution to improve the LOS of the intersection is to close the median break on SR A1A. This would force all vehicles to make a right turn onto SR A1A, eliminating the left turn delay. Those drivers wishing to go westbound on SR A1A would make a U-turn at the next median break east of Miner Road.

Traffic flow and LOS would be improved by installing a traffic signal at the intersection, if a signal satisfied the signal warrants specified in the Manual on Uniform Traffic Control Devices. Based on the 24-hour traffic volumes, the intersection does not currently meet the criteria, although the traffic volumes are approaching those required for signalization and a signal will likely be warranted within the next five years, particularly if the proposed 400 single family units are constructed.

TABLE 2 - LOS CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Reserve Capacity (PCPH)[1]	Level of Service	Expected Delay to Minor St. Traffic
400 or greater	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays
[2]	F	[2]

[1] Passenger cars per hour.

[2] When demand volume exceeds the capacity of the lane, extreme delays will be encountered when queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.

TABLE 3 - INTERSECTION LOS

AM PEAK HOUR

Year	LOS
1997	B/D[1]
1998	B/E[1]
1999	B/F[1]
2000	B/F[1]
2001	B/F[1]
2002	B/F[1]
2003	B/F[1]
2004	B/F[1]
2005	B/F[1]

[1] Unsignalized LOS for major street/minor street based on available gaps in traffic.

Center For Microcomputers In Transportation
HCS: Unsignalized Intersection Release 2.1 Page 1
****

File Name MNR-97E.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... Existing AM Peak Hour Traffic Volumes (1997)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1006	19	0	0		52		167			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

Center For Microcomputers In Transportation
HCS: Unsignalized Intersection Release 2.1 Page 1
****

File Name MNR-98T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (1998 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1036	22	0	0		60		180			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	518	
Potential Capacity: (pcph)	704	
Movement Capacity: (pcph)	704	
Prob. of Queue-free State:	0.63	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1058	
Potential Capacity: (pcph)	537	
Movement Capacity: (pcph)	537	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1036	
Potential Capacity: (pcph)	199	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	199	

Center For Microcomputers In Transportation
HCS: Unsignalized Intersection Release 2.1 Page 1
****

File Name MNR-99T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (1999 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1067	25	0	0		76		191			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	534	
Potential Capacity: (pcph)	690	
Movement Capacity: (pcph)	690	
Prob. of Queue-free State:	0.60	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1092	
Potential Capacity: (pcph)	517	
Movement Capacity: (pcph)	517	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1068	
Potential Capacity: (pcph)	189	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	189	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB	L	110	189	393	121.4	F	121.4
NB	R	276	690				

Intersection Delay = 23.9

Center For Microcomputers In Transportation
HCS: Unsignalized Intersection Release 2.1 Page 1
****

File Name MNR-00T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2000 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1099	29	0	0		80		218			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	550	
Potential Capacity: (pcph)	675	
Movement Capacity: (pcph)	675	
Prob. of Queue-free State:	0.53	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1128	
Potential Capacity: (pcph)	497	
Movement Capacity: (pcph)	497	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1100	
Potential Capacity: (pcph)	180	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	180	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB	L	116	180	388	281.7	F	281.7
NB	R	316	675				

Intersection Delay = 58.9

****

File Name MNR-01T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2001 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1132	33	0	0		93		239			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	566	
Potential Capacity: (pcph)	661	
Movement Capacity: (pcph)	661	
Prob. of Queue-free State:	0.48	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1165	
Potential Capacity: (pcph)	477	
Movement Capacity: (pcph)	477	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1132	
Potential Capacity: (pcph)	171	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	171	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB	L	134	171	>		>	>	
					367	598.3	F	598.3
NB	R	345	661	>		>	>	

Intersection Delay = 132.7

****

File Name MNR-02T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2002 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1166	38	0	0		104		261			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	583	
Potential Capacity: (pcph)	647	
Movement Capacity: (pcph)	647	
Prob. of Queue-free State:	0.42	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1204	
Potential Capacity: (pcph)	457	
Movement Capacity: (pcph)	457	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1166	
Potential Capacity: (pcph)	162	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	162	

****

File Name MNR-03T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2003 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1201	43	0	0		117		282			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	600	
Potential Capacity: (pcph)	633	
Movement Capacity: (pcph)	633	
Prob. of Queue-free State:	0.36	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1244	
Potential Capacity: (pcph)	438	
Movement Capacity: (pcph)	438	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1200	
Potential Capacity: (pcph)	153	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	153	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB	L	169	153	330	*	F	*
NB	R	408	633				

Intersection Delay = 335.9

* The calculated delay was greater than 999.9 sec.

****

File Name MNR-04T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2004 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1237	46	0	0		129		303			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	618	
Potential Capacity: (pcph)	618	
Movement Capacity: (pcph)	618	
Prob. of Queue-free State:	0.29	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1283	
Potential Capacity: (pcph)	419	
Movement Capacity: (pcph)	419	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1237	
Potential Capacity: (pcph)	144	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	144	

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB L	187	144	312	*	F	*
NB R	439	618				

Intersection Delay = 464.9

* The calculated delay was greater than 999.9 sec.

****

File Name MNR-05T.HC0
Streets: (N-S) Miner Road (E-W) SR A1A
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... M.L. Moore
Date of Analysis..... 3/25/97
Other Information..... AM Peak Hour Traffic Volumes (2005 Total Trips)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes		1274	49	0	0		137		319			
PHF		.88	.88	.88	.88		.76		.76			
Grade		0			0			0			0	
MC's (%)		0	0	0	0		0		0			
SU/RV's (%)		0	0	0	0		0		0			
CV's (%)		0	0	0	0		0		0			
PCE's		1.1	1.1	1.1	1.1		1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	*5.00	2.10
Right Turn Minor Road	*6.00	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	637	
Potential Capacity: (pcph)	603	
Movement Capacity: (pcph)	603	
Prob. of Queue-free State:	0.23	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1323	
Potential Capacity: (pcph)	401	
Movement Capacity: (pcph)	401	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1274	
Potential Capacity: (pcph)	136	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	136	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
NB	L	198	136	297	*	F	*
NB	R	462	603				

Intersection Delay = 572.6

* The calculated delay was greater than 999.9 sec.

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY | MANUAL TURNING MOVEMENTS COUNT | Site Code : 97391010

DATE: 03/20/97 | SR A1A & MINER ROAD | Start Date: 03/20/97

WEATHER: CLOUDY & DAMP | NASSAU COUNTY, FLORIDA | File I.D. : 7391010A

BEGIN TIME (MILITARY): 06:00 Hrs | Page : 1

AUTOMOBILES, COMMERCIAL VEHICLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	3	183	0	0	7	0	5	0	0	86	2	0	286
06:15	0	0	0	0	8	293	0	0	17	0	13	0	0	134	1	0	466
06:30	0	0	0	0	0	271	0	0	8	0	18	0	0	195	1	0	493
06:45	0	0	0	0	3	282	0	0	5	0	32	0	0	212	0	0	534
Hr Total	0	0	0	0	14	1029	0	0	37	0	68	0	0	627	4	0	1779
07:00	0	0	0	0	9	306	0	0	12	0	31	0	0	240	4	0	602
07:15	0	0	0	0	6	353	0	0	13	0	34	0	0	237	4	0	647
07:30	0	0	0	0	3	327	0	0	12	0	60	0	0	282	8	0	692
07:45	0	0	0	0	8	257	0	0	15	0	42	0	0	237	3	0	562
Hr Total	0	0	0	0	26	1243	0	0	52	0	167	0	0	996	19	0	2503
08:00	0	0	0	0	8	208	0	0	17	0	35	0	0	170	4	0	442
08:15	0	0	0	0	9	197	0	0	13	0	29	0	0	242	16	0	506
08:30	0	0	0	0	9	190	0	0	6	0	31	0	0	191	4	0	431
08:45	0	0	0	0	11	180	0	0	6	0	23	0	0	139	8	0	367
Hr Total	0	0	0	0	37	775	0	0	42	0	118	0	0	742	32	0	1746
TOTAL	0	0	0	0	77	3047	0	0	131	0	353	0	0	2365	55	0	6028

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	26	1243	0	0	52	0	167	0	0	996	19	0	
Percent	0%	0%	0%	0%	2%	98%	0%	0%	24%	0%	76%	0%	0%	98%	2%	0%	
Pk total	0				1269				219				1015				
Highest	06:00				07:15				07:30				07:30				
Volume	0	0	0	0	6	353	0	0	12	0	60	0	0	282	8	0	
Hi total	0				359				72				290				
PHF	.0				.88				.76				.88				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY
DATE: 03/20/97
WEATHER: CLOUDY & DAMP
BEGIN TIME (MILITARY): 06:00 Hrs

MANUAL TURNING MOVEMENTS COUNT
SR A1A & MINER ROAD
NASSAU COUNTY, FLORIDA

Site Code : 97391010
Start Date: 03/20/97
File I.D. : 7391010A
Page : 1

AUTOMOBILES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	3	174	0	0	7	0	5	0	0	77	1	0	267
06:15	0	0	0	0	8	284	0	0	17	0	13	0	0	126	1	0	449
06:30	0	0	0	0	0	261	0	0	7	0	18	0	0	178	1	0	465
06:45	0	0	0	0	3	268	0	0	5	0	32	0	0	192	0	0	500
Hr Total	0	0	0	0	14	987	0	0	36	0	68	0	0	573	3	0	1681
07:00	0	0	0	0	9	294	0	0	11	0	30	0	0	214	3	0	561
07:15	0	0	0	0	5	342	0	0	12	0	32	0	0	210	4	0	605
07:30	0	0	0	0	3	302	0	0	11	0	60	0	0	253	8	0	637
07:45	0	0	0	0	8	234	0	0	14	0	41	0	0	208	3	0	508
Hr Total	0	0	0	0	25	1172	0	0	48	0	163	0	0	885	18	0	2311
08:00	0	0	0	0	8	185	0	0	17	0	34	0	0	146	3	0	393
08:15	0	0	0	0	9	181	0	0	13	0	29	0	0	209	14	0	455
08:30	0	0	0	0	9	170	0	0	5	0	31	0	0	161	4	0	380
08:45	0	0	0	0	10	161	0	0	6	0	22	0	0	111	7	0	317
Hr Total	0	0	0	0	36	697	0	0	41	0	116	0	0	627	28	0	1545
TOTAL	0	0	0	0	75	2856	0	0	125	0	347	0	0	2085	49	0	5537

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	25	1172	0	0	48	0	163	0	0	885	18	0	
Percent	0%	0%	0%	0%	2%	98%	0%	0%	23%	0%	77%	0%	0%	98%	2%	0%	
Pk total	0				1197				211				903				
Highest	06:00				07:15				07:30				07:30				
Volume	0	0	0	0	5	342	0	0	11	0	60	0	0	253	8	0	
Hi total	0				347				71				261				
PHF	.0				.86				.74				.86				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY
DATE: 03/20/97
WEATHER: CLOUDY & DAMP
BEGIN TIME (MILITARY): 06:00 Hrs

MANUAL TURNING MOVEMENTS COUNT
SR A1A & MINER ROAD
NASSAU COUNTY, FLORIDA

Site Code : 97391010
Start Date: 03/20/97
File I.D. : 7391010A

COMMERCIAL VEHICLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Left	Thru	Right	Other	Total
Date 03/20/97																	
06:00	0	0	0	0	0	9	0	0	0	0	0	0	0	9	1	0	19
06:15	0	0	0	0	0	9	0	0	0	0	0	0	0	8	0	0	17
06:30	0	0	0	0	0	10	0	0	1	0	0	0	0	17	0	0	28
06:45	0	0	0	0	0	14	0	0	0	0	0	0	0	20	0	0	34
Hr Total	0	0	0	0	0	42	0	0	1	0	0	0	0	54	1	0	98
07:00	0	0	0	0	0	12	0	0	1	0	1	0	0	26	1	0	41
07:15	0	0	0	0	1	11	0	0	1	0	2	0	0	27	0	0	42
07:30	0	0	0	0	0	25	0	0	1	0	0	0	0	29	0	0	55
07:45	0	0	0	0	0	23	0	0	1	0	1	0	0	29	0	0	54
Hr Total	0	0	0	0	1	71	0	0	4	0	4	0	0	111	1	0	192
08:00	0	0	0	0	0	23	0	0	0	0	1	0	0	24	1	0	49
08:15	0	0	0	0	0	16	0	0	0	0	0	0	0	33	2	0	51
08:30	0	0	0	0	0	20	0	0	1	0	0	0	0	30	0	0	51
08:45	0	0	0	0	1	19	0	0	0	0	1	0	0	28	1	0	50
Hr Total	0	0	0	0	1	78	0	0	1	0	2	0	0	115	4	0	201
TOTAL	0	0	0	0	2	191	0	0	6	0	6	0	0	280	6	0	491

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	1	71	0	0	4	0	4	0	0	111	1	0	
Percent	0%	0%	0%	0%	1%	99%	0%	0%	50%	0%	50%	0%	0%	99%	1%	0%	
Pk total	0				72				8				112				
Highest	06:00				07:30				07:15				07:30				
Volume	0	0	0	0	0	25	0	0	1	0	2	0	0	29	0	0	
Hi total	0				25				3				29				
PHF	.0				.72				.67				.97				

JW BUCKHOLZ TRAFFIC ENGINEERING INC

DAY: THURSDAY
DATE: 03/20/97
WEATHER: CLOUDY & DAMP
BEGIN TIME (MILITARY): 06:00 Hrs

MANUAL TURNING MOVEMENTS COUNT
SR A1A & MINER ROAD
NASSAU COUNTY, FLORIDA

Site Code : 97391010
Start Date: 03/20/97
File I.D. : 7391010A

PEDESTRIANS & BICYCLES

	From North				SR A1A From East				MINER ROAD From South				SR A1A From West				
	BICYCLES				BICYCLES				BICYCLES				BICYCLES				
	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Left	Thru	Right	PEDS	Total
Date 03/20/97																	
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 08:00 on 03/20/97

Peak start	07:00				07:00				07:00				07:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pk total	0				0				0				0				
Highest	06:00				06:00				06:00				06:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	.0				.0				.0				.0				

Volume Count Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 1
Divide By 2
Summation ..... No
Two-Way ..... Yes

Monday 03/17/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
										76	71	69	80	90	87	111	107	96	94	38	28	25	10	982
										18	15	13	12	25	28	21	29	20	36	14	8	10	5	
										25	24	12	29	30	19	31	23	32	25	9	8	7	1	
										19	11	21	20	18	21	30	25	27	18	9	6	5	2	
										14	21	23	19	17	19	29	30	17	15	6	6	3	2	

AM Peak Hour ..... 10:00 to 11:00 (76 vehicles)
AM Peak Hour Factor 76.0%
PM Peak Hour ..... 16:15 to 17:15 (119 vehicles)
PM Peak Hour Factor 96.0%

Tuesday 03/18/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
6	5	1	5	9	46	109	206	99	77	79	50	92	86	82	87	137	120	99	62	45	36	31	15	1584
3	1	0	1	2	5	18	29	38	18	24	10	22	18	23	14	29	28	29	22	16	12	7	5	
2	1	0	0	2	15	19	59	25	18	25	8	19	20	18	28	35	29	21	17	8	11	11	7	
0	2	0	2	3	20	36	58	22	20	16	23	23	21	26	19	39	31	26	8	14	6	8	3	
1	1	1	2	2	6	36	60	14	21	14	9	28	27	15	26	34	32	23	15	7	7	5	0	

AM Peak Hour ..... 07:15 to 08:15 (215 vehicles)
AM Peak Hour Factor 89.6%
PM Peak Hour ..... 16:00 to 17:00 (137 vehicles)
PM Peak Hour Factor 87.8%

Wednesday 03/19/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
7	3	7	2	11	39	103	209	123	95	84	64	80	79	82	68	107	117	125	83	49	39	25	8	1609
2	1	0	1	5	3	22	40	48	22	29	14	21	16	34	12	28	24	32	27	12	11	6	1	
1	1	3	0	1	11	15	57	29	20	17	14	17	14	12	21	29	31	26	24	17	13	6	2	
2	1	4	0	2	18	31	69	29	31	20	18	13	26	17	17	29	38	42	19	11	10	8	1	
2	0	0	1	3	7	35	43	17	22	18	18	29	23	19	18	21	24	25	13	9	5	5	4	

AM Peak Hour ..... 07:15 to 08:15 (217 vehicles)
AM Peak Hour Factor 78.6%
PM Peak Hour ..... 17:15 to 18:15 (125 vehicles)
PM Peak Hour Factor 82.2%

Thursday 03/20/97 Channel: 1 Direction: N

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
6	4	9	2	10	39	105	224	139	88															626
2	2	1	0	0	3	20	51	42	25															
1	2	4	0	5	9	23	54	35	13															
1	0	1	1	3	17	31	72	37	26															
2	0	3	1	2	10	31	47	25	24															

AM Peak Hour ..... 07:00 to 08:00 (224 vehicles)
AM Peak Hour Factor 77.8%
PM Peak Hour ..... Unavailable
PM Peak Hour Factor ..... Unavailable

Weekly Summary Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 1
Recorder Mode ..... Volume

Week of March 16, 1997. Channel: 1 Direction: N

End Time	16 Sun	17 Mon	18 Tue	19 Wed	20 Thu	21 Fri	22 Sat	Wkday Avg.	Daily Avg.
01:00			6	7	6			6	6
02:00			5	3	4			4	4
03:00			1	7	9			6	6
04:00			5	2	2			3	3
05:00			9	11	10			10	10
06:00			46	39	39			41	41
07:00			109	103	105			106	106
08:00			206	209	224			213	213
09:00			99	123	139			120	120
10:00			77	95	88			87	87
11:00		76	79	84				80	80
12:00		71	50	64				62	62
13:00		69	92	80				80	80
14:00		80	86	79				82	82
15:00		90	82	82				85	85
16:00		87	87	68				81	81
17:00		111	137	107				118	118
18:00		107	120	117				115	115
19:00		96	99	125				107	107
20:00		94	62	83				80	80
21:00		38	45	49				44	44
22:00		28	36	39				34	34
23:00		25	31	25				27	27
24:00		10	15	8				11	11
Totals		982	1584	1609	626			1600	1600

% Avg Wkday	61.4	99.0	100.5	39.1
% Avg Day	61.4	99.0	100.5	39.1
AM Peak Hr	11:00	08:00	08:00	08:00
AM Count	76	206	209	224
PM Peak Hr	17:00	17:00	19:00	
PM Count	111	137	125	

Volume Count Report

Location ..... MINER ROAD - WEST OF SR A1A
Location Code 97391001
County ..... NASSAU
Recorder Set 03/17/97 09:07
Recording Start ... 03/17/97 10:00
Recording End 03/20/97 10:00
Sample Time ..... 15 Minutes
Operator Number ... 104
Machine Number 6
Channel 2
Divide By 2
Summation ..... No
Two-Way ..... Yes

Monday 03/17/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
										73	79	75	84	94	149	166	185	129	145	92	48	41	23	1383
										18	19	21	22	26	34	28	46	34	44	27	16	6	9	
										21	19	19	25	28	39	42	54	31	38	23	16	12	4	
										13	24	17	22	17	46	49	40	25	37	22	10	12	4	
										21	17	18	15	23	30	47	45	39	26	20	6	11	6	

AM Peak Hour ..... 10:45 to 11:45 (83 vehicles)
AM Peak Hour Factor 86.5%
PM Peak Hour ..... 16:30 to 17:30 (196 vehicles)
PM Peak Hour Factor 90.7%

Tuesday 03/18/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
8	9	5	2	2	9	16	44	64	47	62	57	77	65	102	144	153	181	173	138	64	65	51	32	1570
3	1	1	0	2	0	4	9	26	10	11	15	20	11	28	35	36	61	41	43	21	15	13	7	
3	1	2	0	0	1	6	8	12	15	7	15	23	17	27	33	34	32	48	29	23	19	12	8	
0	6	1	1	0	2	3	13	8	13	14	11	21	20	21	38	43	44	40	29	13	15	16	8	
2	1	1	1	0	6	3	14	18	9	30	16	13	17	26	38	40	44	44	37	7	16	10	9	

AM Peak Hour ..... 10:30 to 11:30 (74 vehicles)
AM Peak Hour Factor 61.7%
PM Peak Hour ..... 17:00 to 18:00 (181 vehicles)
PM Peak Hour Factor 74.2%

Wednesday 03/19/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
14	13	10	2	1	11	12	58	49	64	68	75	68	82	101	106	165	169	166	126	101	62	69	23	1615
4	3	5	0	1	1	1	8	18	16	12	10	14	22	31	28	30	43	42	49	26	19	23	4	
2	7	3	0	0	0	5	12	13	13	16	16	21	12	27	18	32	51	42	31	31	18	19	6	
6	2	1	1	0	4	3	18	9	20	16	20	19	26	15	31	45	40	38	25	22	13	15	8	
2	1	1	1	0	6	3	20	9	15	24	29	14	22	28	29	58	35	44	21	22	12	12	5	

AM Peak Hour ..... 11:00 to 12:00 (75 vehicles)
AM Peak Hour Factor 64.7%
PM Peak Hour ..... 16:30 to 17:30 (197 vehicles)
PM Peak Hour Factor 84.9%

Thursday 03/20/97 Channel: 2 Direction: S

0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	Totals
16	12	5	4	1	6	21	44	68	53															230
7	3	1	3	0	0	4	8	19	15															
5	1	2	1	1	0	8	16	19	9															
0	2	1	0	0	2	3	7	20	9															
4	6	1	0	0	4	6	13	10	20															

AM Peak Hour ..... 07:45 to 08:45 (71 vehicles)
AM Peak Hour Factor 88.8%
PM Peak Hour ..... Unavailable
PM Peak Hour Factor ..... Unavailable

Location Code ..... MINER RD - WEST OF SR A1A
County 97391001
Recorder Set ..... NASSAU
Recording Start ... 03/17/97 09:07
Recording End 03/17/97 10:00
Sample Time 03/20/97 10:00
Operator Number ... 15 Minutes
Machine Number 104
Channel 6
Recorder Mode 2
Volume

Week of March 16, 1997. Channel: 2 Direction: S

End Time	16 Sun	17 Mon	18 Tue	19 Wed	20 Thu	21 Fri	22 Sat	Wkday Avg.	Daily Avg.
01:00			8	14	16			13	13
02:00			9	13	12			11	11
03:00			5	10	5			7	7
04:00			2	2	4			3	3
05:00			2	1	1			1	1
06:00			9	11	6			9	9
07:00			16	12	21			16	16
08:00			44	58	44			49	49
09:00			64	49	68			60	60
10:00			47	64	53			55	55
11:00		73	62	68				68	68
12:00		79	57	75				70	70
13:00		75	77	68				73	73
14:00		84	65	82				77	77
15:00		94	102	101				99	99
16:00		149	144	106				133	133
17:00		166	153	165				161	161
18:00		185	181	169				178	178
19:00		129	173	166				156	156
20:00		145	138	126				136	136
21:00		92	64	101				86	86
22:00		48	65	62				58	58
23:00		41	51	69				54	54
24:00		23	32	23				26	26
Totals		1383	1570	1615	230			1599	1599

% Avg Wkday	86.5	98.2	101.0	14.4
% Avg Day	86.5	98.2	101.0	14.4
AM Peak Hr	12:00	09:00	12:00	09:00
AM Count	79	64	75	68
PM Peak Hr	18:00	18:00	18:00	
PM Count	185	181	169	
