DRAFT ENVIRONMENTAL IMPACT STATEMENT

HARBORFIELD ESTATES

Change of Zone Application
#96-ZM-290

Greenlawn, Town of Huntington
Suffolk County, New York

Volume 2 of 2
Traffic Impact Study

NP&V Project No. 85125

December 1998

DRAFT ENVIRONMENTAL IMPACT STATEMENT

HARBORFIELD ESTATES

CHANGE OF ZONE APPLICATION
#96-ZM-290

Greenlawn, Town of Huntington
Suffolk County, New York

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Date of Acceptance: _____

Date by Which Comments Must Be Submitted: _____

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HARBORFIELD ESTATES
TOWN OF HUNTINGTON
SUFFOLK COUNTY, N.Y.

TRAFFIC IMPACT STUDY

N&P Job No. 85125

FEBRUARY 1998

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PURPOSE OF REPORT

This firm, Nelson & Pope, LLP, has conducted an investigation regarding the potential traffic impacts associated with residential development of the proposed Harborfield Estates residential community. The site contains 39.3 acres and is bordered to the west by Lake Road, to the north by the LIRR, and to the south by Pulaski Road (Suffolk CR 11) in Greenlawn, Town of Huntington, New York (refer to Area Map, Figure 1). As part of this application, the subject property is proposed to be rezoned from R-40 to R-20 residence. It is proposed to construct 59 single family dwelling units. The site layout is depicted on the conceptual layout prepared by Nelson & Pope, LLP.

The report summarizes the results of a detailed investigation of the traffic impact of the proposed development on the adjacent street system. This report reviews existing roadway and traffic conditions in the area, estimates the volume and pattern of traffic which will be generated by the residential development and analyzes the effect of the additional traffic on the roadway network surrounding the site.

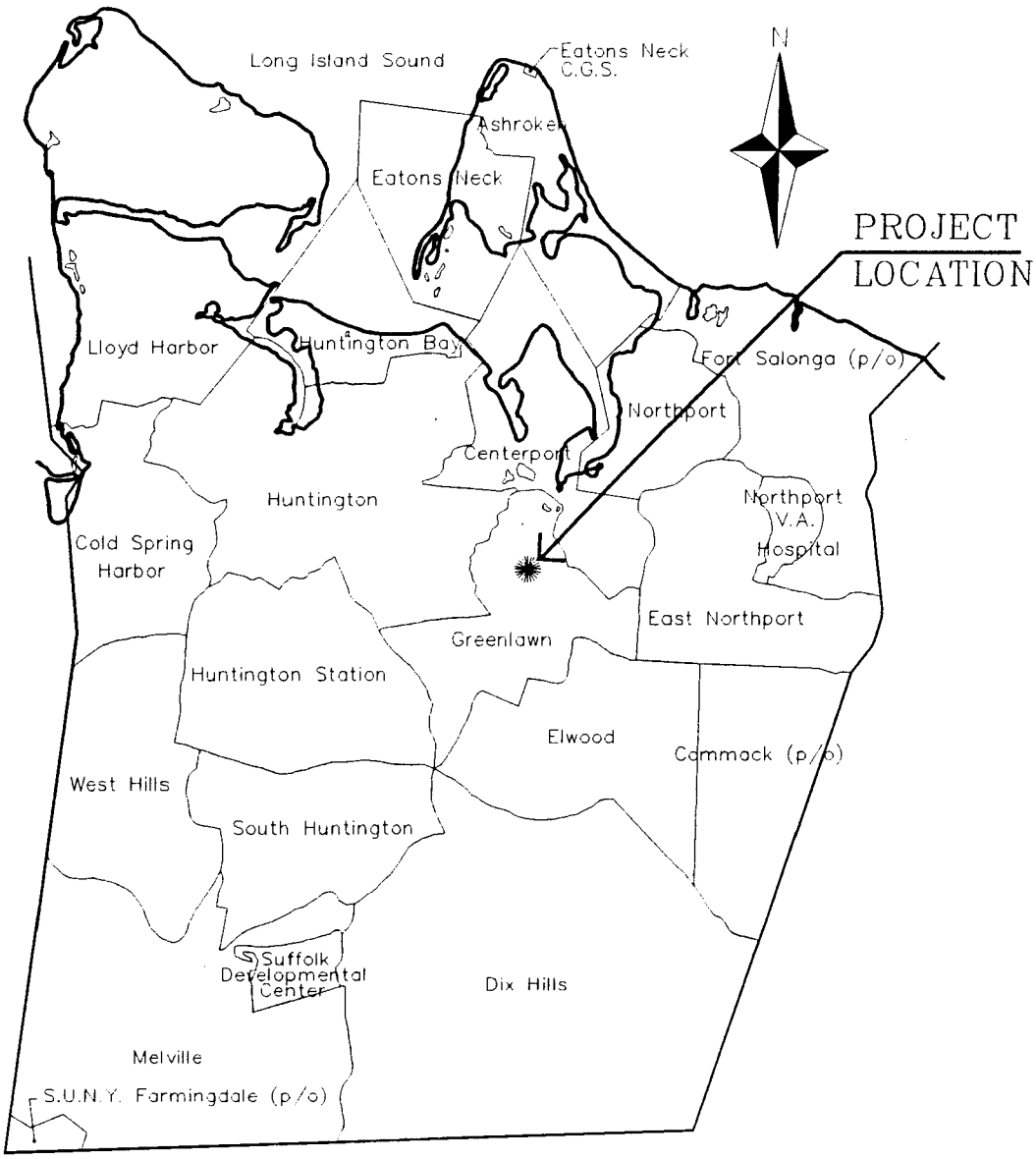
Long Island Sound
Eatons Neck C.G.S.
N
Ashroken
Eatons Neck
PROJECT LOCATION
Lloyd Harbor
Huntington Bay
Fort Salonga (p/o)
Northport
Centerport
Huntington
Northport V.A. Hospital
Cold Spring Harbor
East Northport
Greenlawn
Huntington Station
Elwood
Commack (p/o)
West Hills
South Huntington
Suffolk Developmental Center
Dix Hills
Melville
S.U.N.Y. Farmingdale (p/o)

FIGURE 1

STUDY METHODOLOGY

The study methodology used for this investigation consisted of a detailed review of the existing land use, roadway and traffic conditions in the vicinity of the proposed site. Existing traffic volumes on Pulaski Road (CR 11) were determined from field surveys conducted by this firm. These data were analyzed and in conjunction with field observations, the current level of traffic service (refer to Appendix A) was determined for the locations listed below. These intersections and driveway were chosen based on the scoping meeting with representatives of the Town of Huntington.

A. Pulaski Road (CR 11) at Park Avenue (CR 35)
B. Pulaski Road (CR 11) at Lake Road
C. Pulaski Road (CR 11) at Tulane Place
D. Pulaski Road (CR 11) at Cuba Hill Road/Central Street

Refer to Figure 2 for a visual depiction of the location of the study intersections within the study area.

In addition to analyzing the intersection levels of service (LOS) for the existing conditions, the study analyzed intersection levels of service for the future conditions. The 2000 "No Build" and "Build" are the future conditions.

The 2000 "No Build" condition analyzed the future level of service assuming the current application is not constructed. An ambient growth rate of 1.1% per year, supplied by the Suffolk County Department of Public Works (SCDPW), was applied to the existing volumes collected at the study intersections. In addition, the traffic generated by other proposed developments (Evergreen Homes at 5th Street, CVS Greenlawn, Greenbrush Hollow and Wax Wing Estates) were added to the study intersections. Additionally, the roadway improvements included in the SCDPW Pulaski Road improvement project were assumed to be part of this and subsequent conditions.

The 2000 "Build" condition analyzed the impacts of the traffic generated by the proposed residential community. The traffic volumes associated with the proposal were distributed to the study intersections and added to the "No Build" volumes.

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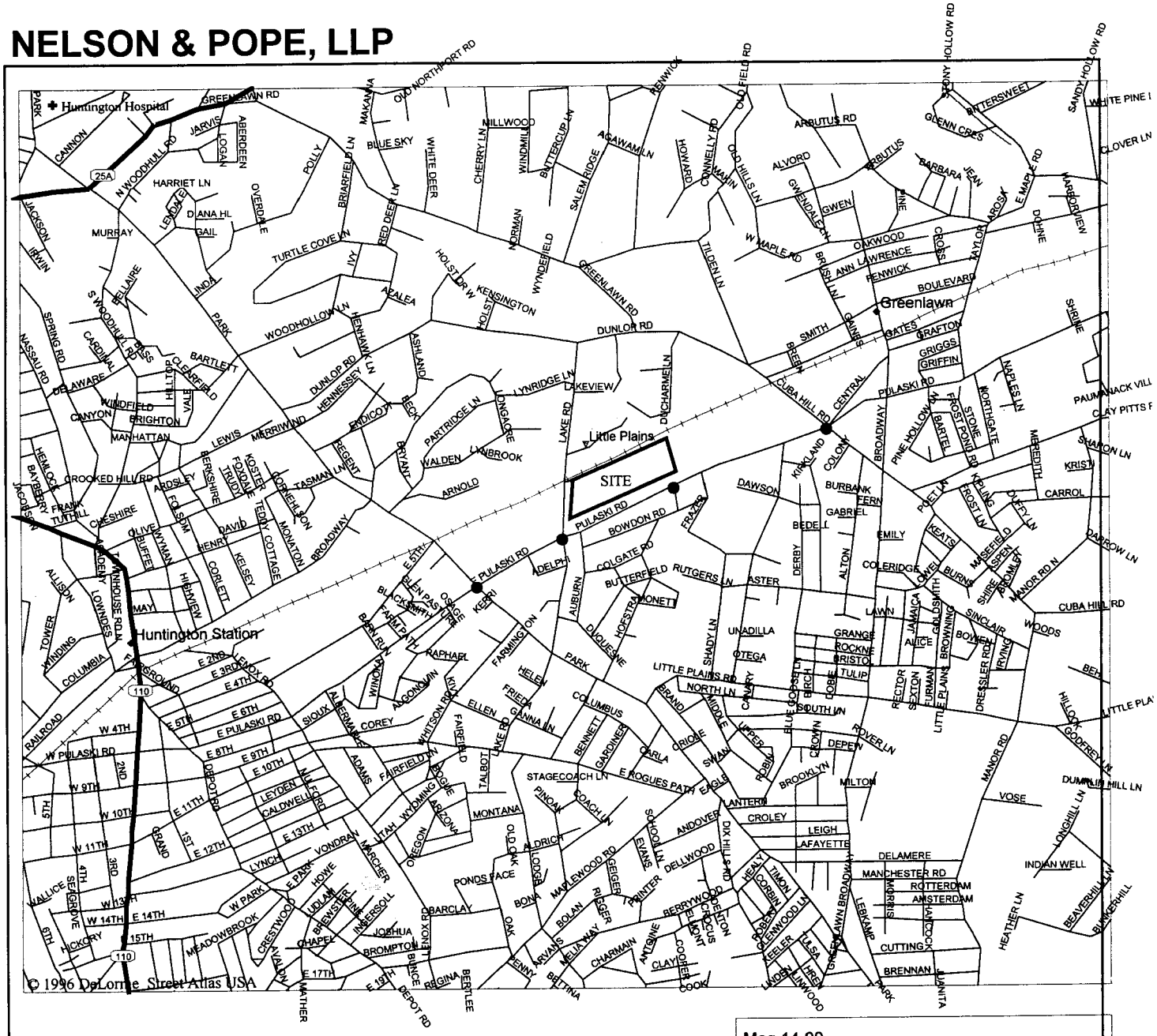

Mag 14.00
Mon Feb 09 10:34 1998
Scale 1:31,250 (at center)
2000 Feet
1000 Meters
● Study Intersection

LOCATION OF
STUDY INTERSECTIONS
FIGURE 2

EXISTING CONDITIONS

Land Use

The subject property contains approximately 39.3 acres and is bordered to the west by Lake Road, to the north by the LIRR, and to the south by Pulaski Road in Greenlawn. (Refer to Location Map, Figure 2). The site is presently undeveloped.

The land uses on Pulaski Road in the vicinity of the site, are a mixture of industrial, office and residential developments.

Roadway Conditions

The primary roadways serving the site are Pulaski Road (CR 11) and Park Avenue (CR 35). Both are major arterials are under the jurisdiction of the SCDPW. Pulaski Road contains one travel lane in each direction. There is a one lane marginal road to the south of Pulaski Road which provides access to residential developments. The intersections of Pulaski Road with Park Avenue, Lake Road and Greenlawn Road/Cuba Hill Road/Central Street are signalized intersections. At each intersection, left turn lanes are provided for eastbound and westbound Pulaski Road. Pulaski Road at Cuba Hill Road/Central Street is a 5-leg intersection controlled by a 4-phase traffic signal. The intersection of Pulaski Road at Tulane Place is an unsignalized T-intersection with northbound traffic stop-controlled.

As previously described, four intersections were included in this study. The geometric configuration and traffic control at each intersection are contained in Table 1.

Table 1
Study Intersection Geometry and Traffic Control

Intersection	Approach/Lane Configuration	Control
Pulaski Road at Park Ave.	NB/L-T-TR SB/L-T-R EB/L-T-TR WB/L-T-R	Four Phase Traffic Signal
Pulaski Road at Lake Road	NB/LTR SB/LTR EB/L-TR WB/L-TR	Two Phase Traffic Signal
Pulaski Road at Tulane Place (Proposed Site Access)	NB/LR EB/TR WB/LT	Stop Control on Tulane Pl.
Pulaski Road at Cuba Hill Road/ Central Street	NB/L-TR SB/L-T-R (channelized) EB/L-T-R WB/L-TR SW/LT-R (channelized)	Four Phase Traffic Signal

L-Left	LR-Shared Left/Right Lane
T-Through	LT-Shared Left/Through Lane
R-Right	TR-Shared Through/Right Lane
	LTR-Shared Left/Through/Right Lane

Traffic Volumes

Traffic volume turning movement counts were collected during the weekday A.M. (7-9 A.M.) and P.M. (4-6 P.M.) commuter peak periods, on November 18, 1997. Existing traffic volumes are shown in Figures 3 and 4.

These volume counts were then used to determine the existing capacity and level of service (LOS) of each intersection. The analyses were performed in accordance with guidelines set forth in the **1994 Highway Capacity Manual (Special Report 209)** published by the **Transportation Research Board.**

The capacity of a signalized intersection is evaluated in terms of the ratio of demand flow rate to capacity (V/C ratio). The capacity is defined for each approach and measures the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway and signalization conditions.

The level of service of a signalized intersection is evaluated on the basis of average stopped delay measured in the units seconds per vehicle (sec/veh). Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. Refer to Appendix A for further definition of level of service for a signalized intersection.

The right of way at the two way stop controlled (TWSC) intersection is controlled by stop signs on two opposing legs of an intersection (on one leg of a "T"-type intersection). The capacity of a controlled leg is based on the distribution of gaps in the major street flow, driver judgment in selecting a gap through which to execute the desired maneuver and the follow up time required by each driver in a queue.

The level of service for the subject approach of a TWSC intersection is evaluated based on the average total delay per vehicle. Total delay is defined as the total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. These criteria are applied to both the minor street movements and the major street left turns.

The capacity analyses for the study intersections were performed using **HCS Release 2.1e,** prepared by the **Federal Highway Administration. HCS** is a series of computer programs strictly adhering to the guidelines set forth in the **1994 Highway Capacity Manual.** The results of these analyses are contained in Tables 2 and 3. The capacity analysis/level of service (LOS) worksheets are contained in Appendix E.

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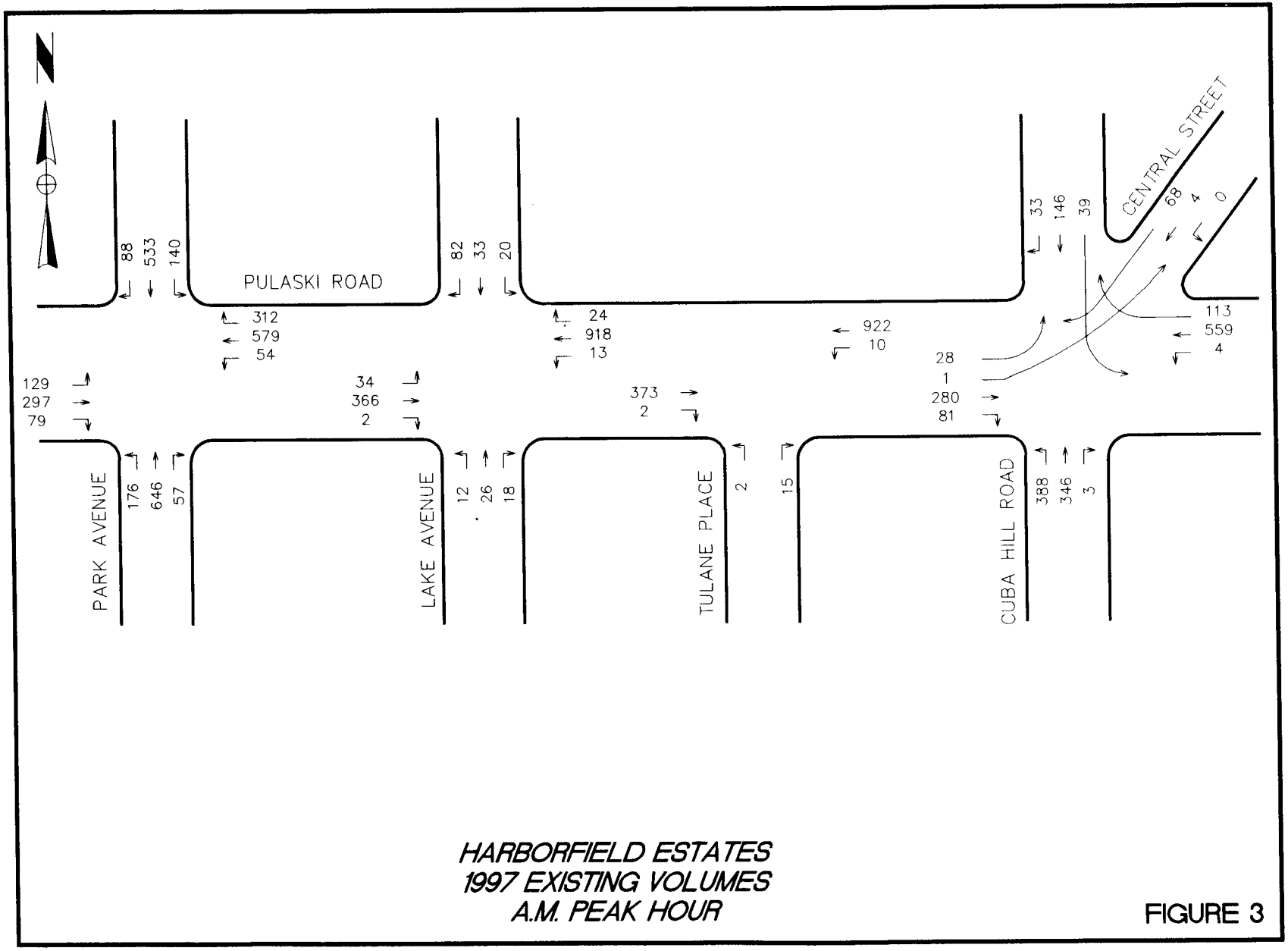

HARBORFIELD ESTATES
1997 EXISTING VOLUMES
A.M. PEAK HOUR

FIGURE 3

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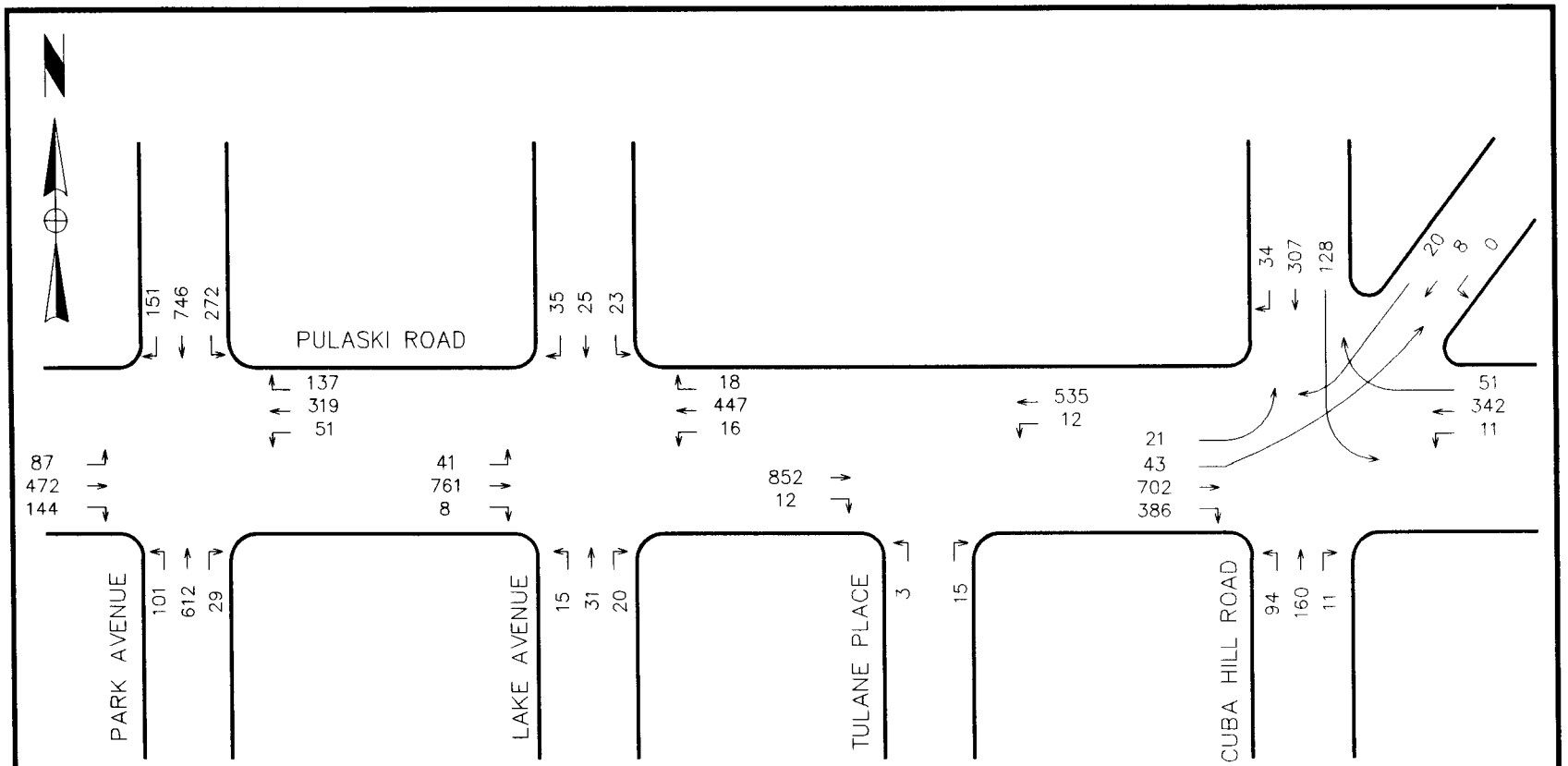

HARBORFIELD ESTATES
1997 EXISTING VOLUMES
P.M. PEAK HOUR

FIGURE 4

It is important to note that the Pulaski Road at Greenlawn Road/Cuba Hill Road/Central Street location is a complex 5-leg intersection. The HCS computer model does not have a specific methodology for 5-leg intersection. Therefore separate analyses were performed for Pulaski Road at Greenlawn Road/Cuba Hill Road and Pulaski Road at Central Street. These analyses were then combined and the **1994 Highway Capacity Manual** methodology was utilized to calculate an overall intersection Level of Service.

As shown in Tables 2 and 3 on the following page, during the peak hours, Pulaski Road at Park Avenue experiences operational difficulties during the peak hours surveyed. The intersection of Pulaski Road at Lake Road operates at LOS B during the A.M., and P.M. peak periods. The intersection of Pulaski Road at Greenlawn Road/Cuba Hill Road/Central Street operates at LOS E during the A.M. peak hour and LOS C during the P.M. peak hour. The vehicles exiting Tulane Place onto Pulaski Road operate at LOS B during the A.M. peak hour and LOS C during the P.M. peak hour.

Accident History

Accident summaries were obtained from the SCDPW through their Traffic Accident Recording System. The SCDPW data is contained in Appendix F.

Upon a review of the summarized information obtained from the SCDPW, there were no indications of any significant occurrence of traffic accidents in the divinity of the driveway to the subject property.

Table 2
Existing Level of Service
Signalized Intersections

	AM Peak			PM Peak		
Intersection	LOS	Int Delay (sec/veh)	V/C Ratio	LOS	Int Delay (sec/veh)	V/C Ratio
Pulaski Road at Park Ave.	*	*	1.650	*	*	1.405
Pulaski Road at Lake Road	B	8.9	0.680	B	7.0	0.560
Pulaski Road at Greenlawn Road/ Cuba Hill Road/Central Street	E	43.9	0.980	C	20.8	0.722

* Delay and LOS not meaningful when any V/C is greater than 1.2 or 1/PHF

Table 3
Existing Level of Service
Unsignalized Intersection

		AM Peak			PM Peak		
Intersection	Lane Grp Mvmt	Mvmt LOS	App Delay (sec/veh)	Int Delay (sec/veh)	Mvmt LOS	App Delay (sec/veh)	Int Delay (sec/veh)
Pulaski Road at Tulane Place	NB-LR	B	6.9		C	12.0	
	WB-L	A	3.3	0.1	B	6.0	0.2

FUTURE CONDITIONS

Other Planned Developments

There are four planned developments in the vicinity of the proposed site: Evergreen Homes at 5th Street, CVS Greenlawn, Greenbrush Hollow Homes and Wax Wing Estates.

Specific information regarding the planned developments were obtained from the following sources:

- Evergreen Homes at 5th Street, Traffic Impact Study, Nelson & Pope, LLP, March 1997.
- CVS Greenlawn, Traffic Impact Study, Nelson & Pope, LLP, January 1998.
- Greenbrush Hollow Homes and Wax Wing Estates, Nelson & Pope, LLP. The trip generation was computed by this firm using the ITE Trip Generation rates. The trip distribution and assignment for each development was also estimated by the firm.

A summary of the information obtained from these sources, is as follows:

A. Evergreen Homes at 5th Street

- Located on the north side of East 5th Street, west of Park Avenue.
- The site is currently vacant and wooded.
- The proposal is the construction of a 109 unit single family detached home residential community on a 29.61 acre lot.
- Access to the proposed site will be East 5th Street.
- Proposed Vehicular Peak Hour Trips based on ITE Trip Generation Rates (Land Use Code 210) is listed in Table 4:

Table 4

Trip Generation of Evergreen Homes at 5th Street

AM Peak Hour	PM Peak Hour
Enter: 21 T/H Exit: 60 T/H Total: 81 T/H T/H=Trips Per Hour	Enter: 72 T/H Exit: 39 T/H Total: 111 T/H

B. CVS Greenlawn

- Located on the northwest corner of the intersection of Broadway and Central Street.
- The proposed building is 10,125 sf.
- The property of the proposed site currently contains an insurance office.
- Access to the proposed site will be to/from two driveways, one on Broadway and one on Central Street.
- Proposed vehicular Peak Hour Trip Generation obtained from the above mentioned report is listed in Table 5.

Table 5
Trip Generation of CVS Greenlawn

AM Peak Hour	PM Peak Hour
Enter: 4 T/H Exit: 2 T/H Total: 6 T/H T/H= Trips Per Hour	Enter: 87 T/H Exit: 71 T/H Total: 158 T/H

C. Greenbrush Hollow Homes

- Located on Pulaski Road, east of Broadway.
- The site is currently contains a closed Nursery facility.
- The proposal is the construction of a 17 unit single family home residential community.
- Access to the proposed site will be on Pulaski Road opposite Paumonauk Drive.
- Proposed peak hour trips based on ITE Trip Generation Rates (Land Use Code 210) is listed in Table 6:

Table 6
Trip Generation of Greenbrush Hollow Homes

AM Peak Hour	PM Peak Hour
Enter: 5 T/H Exit: 16 T/H Total 21 T/H T/H= Trips Per Hour	Enter: 14 T/H Exit: 8 T/H Total: 22 T/H

D. Wax Wing Estates

- Located on Greenlawn Road, north of Pulaski Road.
- The site currently contains homes which are under construction.
- The proposal is the construction of a 11 unit single family home residential community.
- Access to the proposed site will be on Greenlawn Road.
- Proposed peak hour trips based on ITE Trip Generation Rates (Land Use Code 210) is listed in Table 7:

Table 7
Trip Generation of Proposed Wax Wing Estates

AM Peak Hour	PM Peak Hour
Enter: 4 T/H Exit: 13 T/H Total: 17 T/H T/H= Trips Per Hour	Enter: 9 T/H Exit: 5 T/H Total: 14 T/H

The trip generation computations for the other planned developments are contained in Appendix C.

Traffic Volumes

The future (2000) ambient traffic volumes were obtained by applying a 1.1% annual traffic growth rate, obtained from the SCDPW, to the existing peak hour traffic volumes at the study intersections. The traffic generated by the four planned developments mentioned above were then superimposed onto these volumes. These total volumes will be referred to as the "No Build" volumes during the remainder of this document. These "No Build" volumes are contained in Figures 5 and 6.

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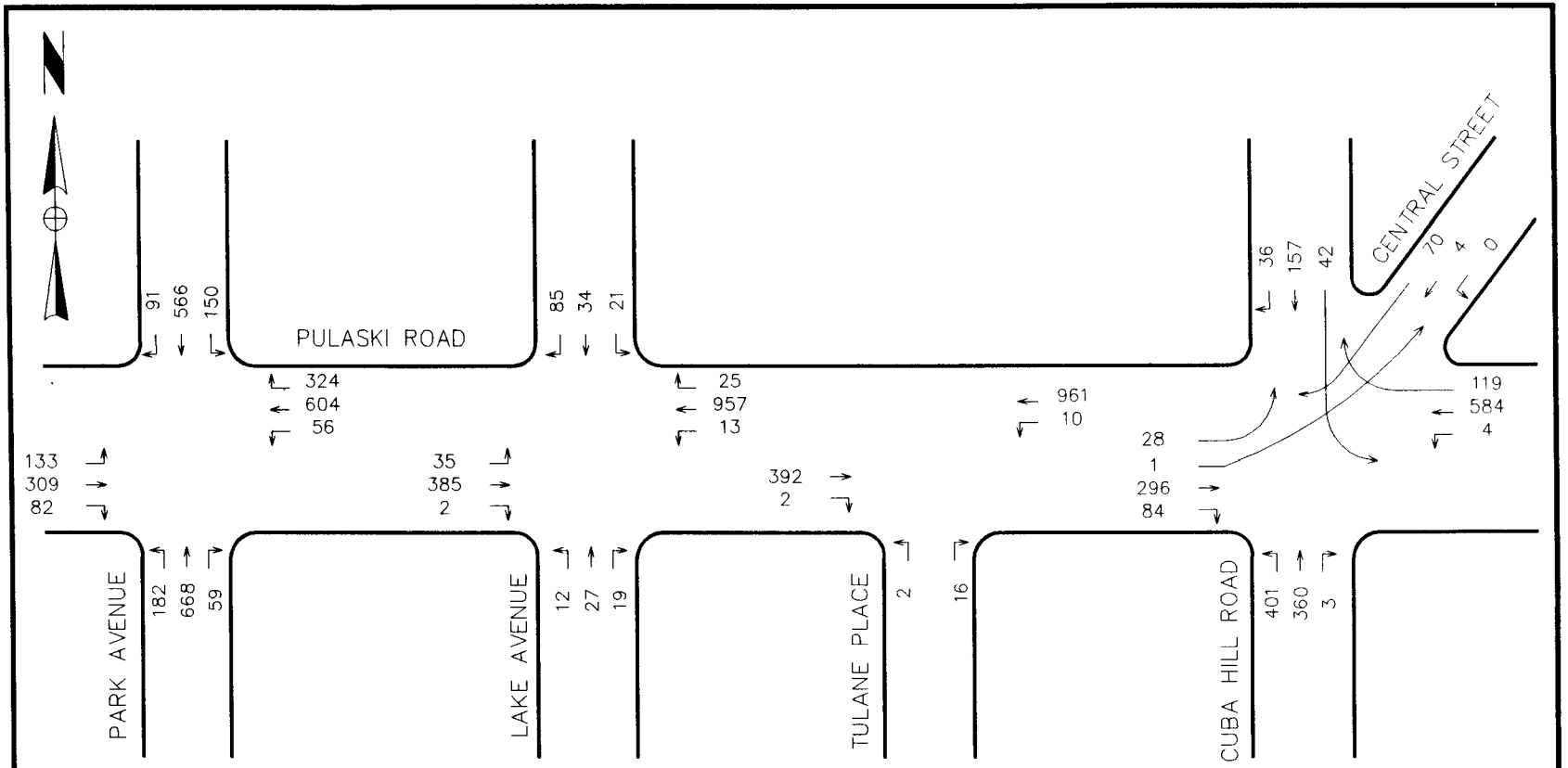

HARBORFIELD ESTATE
2000 NO BUILD VOLUMES
A.M. PEAK HOUR

FIGURE 5

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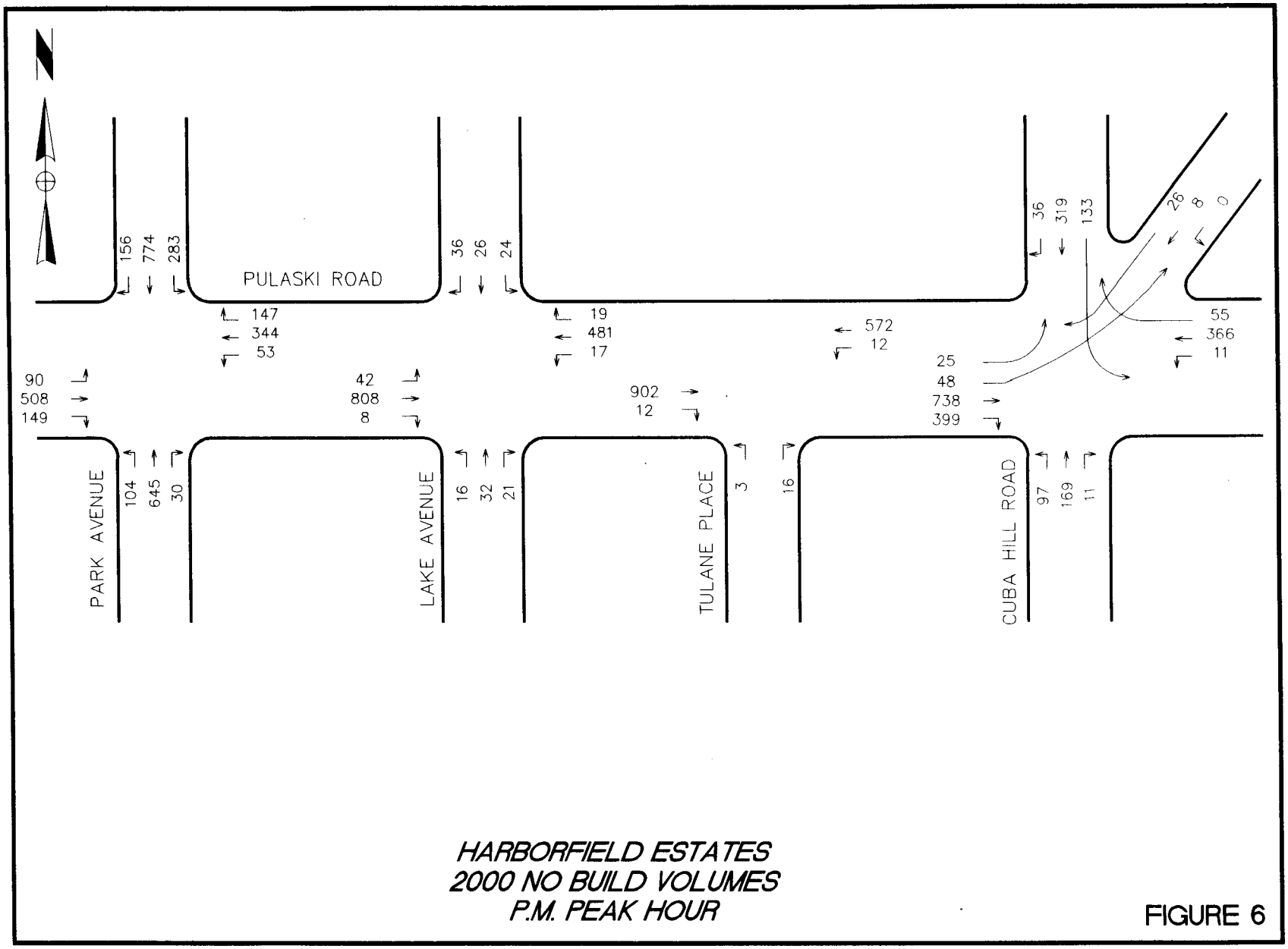

HARBORFIELD ESTATES
2000 NO BUILD VOLUMES
P.M. PEAK HOUR

FIGURE 6

Roadway Improvements

The SCDPW has a project on Pulaski Road (CR 11) in the vicinity of the site. The project primarily consists of drainage, pavement and pavement marking improvements. Specific information regarding this project is as follows:

- Project Title: Reconstruction of CR 11, Pulaski Road from the vicinity of Depot Road to the vicinity of Stony Hollow Road, Town of Huntington, Suffolk County.
- Capital Project No. 5168.310
- Project Fully Funded
- Letting: January 1998
- Construction Commencement: Spring 1998
- Construction Duration: Approximately one year.

These improvements, as obtained from the plans prepared by the SCDPW, will be included in the "No Build" and subsequent traffic conditions.

PROPOSED DEVELOPMENT

Trip Generation

As previously mentioned, it has been proposed to construct a 59 single family dwelling unit residential community on a 39.3 acre site bordered on the west by Lake Road, on the north by the LIRR and on the south by Pulaski Road.

As part of this investigation, an estimate was prepared of the quantity of traffic generated by this development. These estimates were prepared utilizing the **Institute of Transportation Engineers (ITE) Trip Generation Manual, 6th Edition, 1997**. Estimates were based on the trip generation rates for 59 single family dwelling units (Land Use Code 210).

The anticipated traffic generation of the proposed project is contained in Table 8. The trip generation computations are contained in Appendix C.

Table 8
Trip Generation
Proposed 59 Single Family Dwelling Units

AM Peak Hour	PM Peak Hour
Enter: 13 T/H	Enter: 43 T/H
Exit: 38 T/H	Exit: 24 T/H
Total: 51 T/H	Total: 67 T/H
T/H= Trips Per Hour	

Site Access

As depicted on the conceptual layout, prepared by Nelson & Pope, LLP, there will be one driveway for this site on Pulaski Road at the intersection with Tulane Place. The unsignalized T-intersection at Tulane Place will be reconfigured into a 2-way stop controlled, 4-leg intersection allowing full access.

Trip Distribution and Assignment

The next step of the investigation consisted of an analysis of the geographical distribution of the trips to and from the site. In order to determine the distribution of traffic generated by the site, a review of the traffic generators/receptors in the vicinity of the site was performed. In addition to the existing conditions, consideration was given to the nature of the proposed land use. This was necessary due to the distinct travel patterns generated by different land uses.

In order to properly assess the traffic impact of the proposal, it is necessary to know which roadway(s) will most probably receive the newly generated traffic, in vehicular volume and direction, during the peak hours. The existing roadway network in the vicinity of the site was examined in conjunction with the above mentioned studies. The distribution of site-generated traffic at each intersection was determined. The site volumes were added to the "No Build" peak hour volumes at the study intersections. The site generated volumes are visually depicted on the Figures and in the spreadsheet located in Appendix D. This condition will be referred to as the "Build" condition. The "Build" volumes are visually depicted in Figures 7 and 8.

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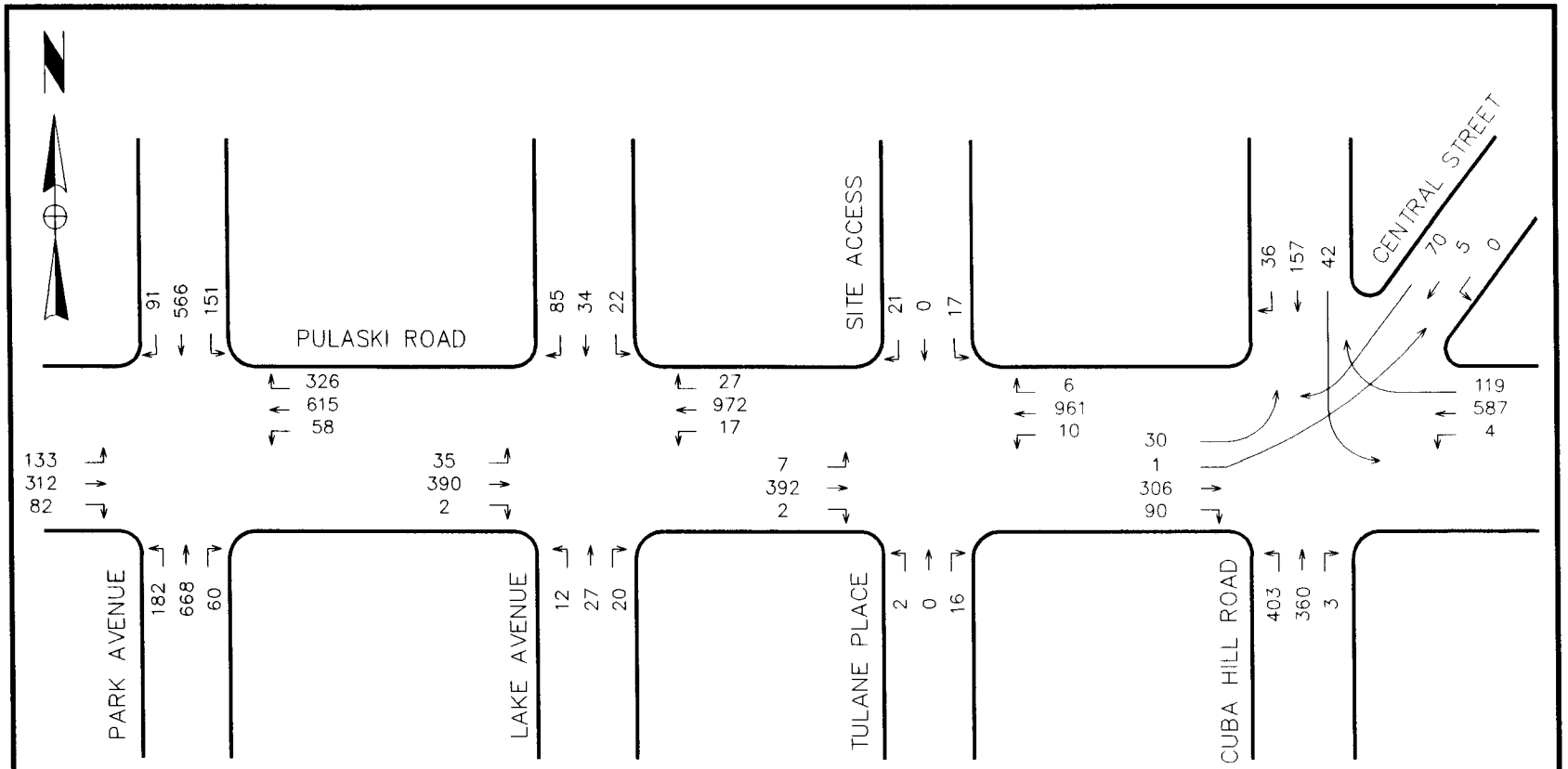

HARBORFIELD ESTATES
2000 BUILD VOLUMES
A.M. PEAK HOUR

FIGURE 7

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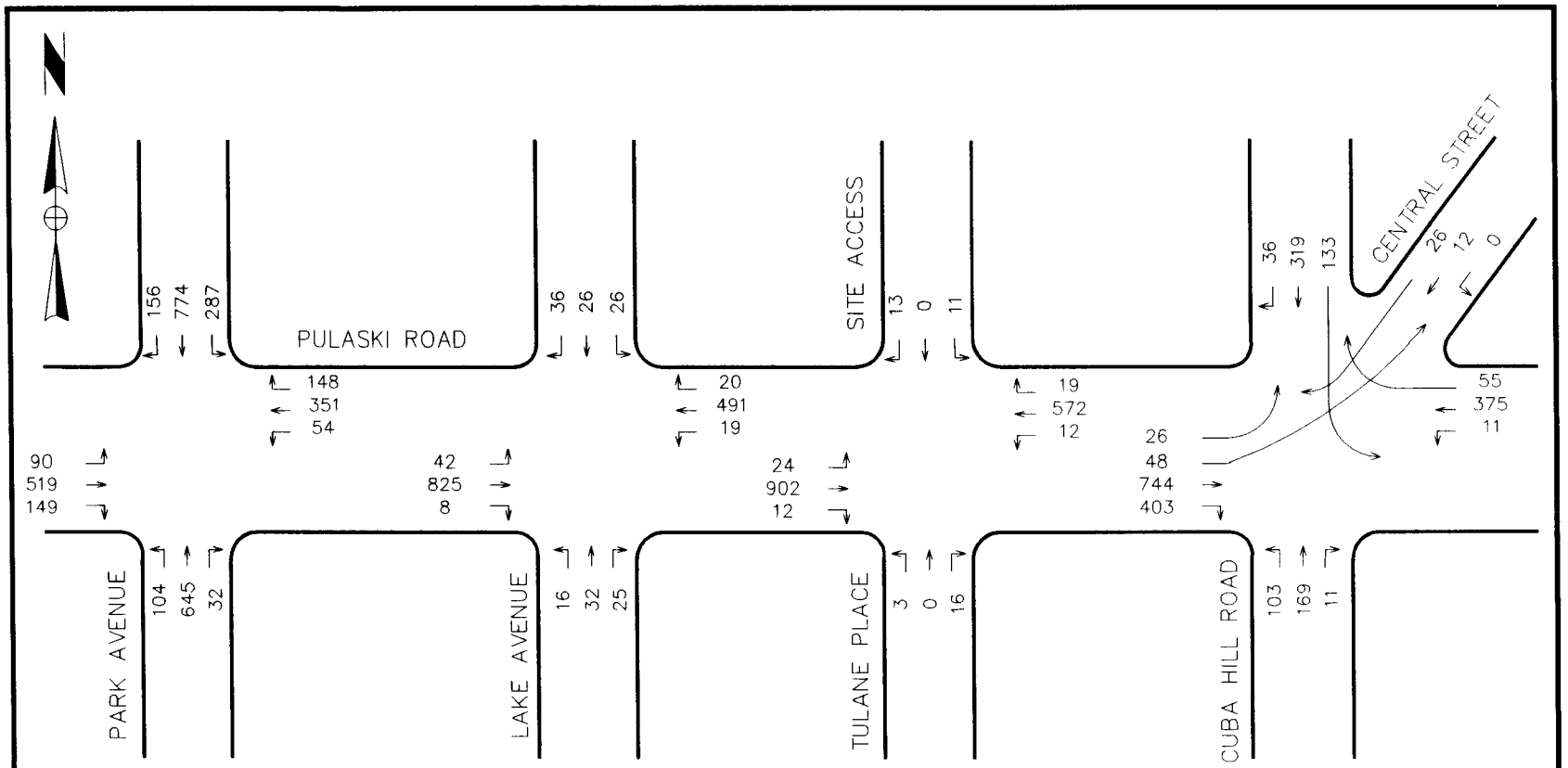

HARBORFIELD ESTATES
2000 BUILD VOLUMES
P.M. PEAK HOUR

FIGURE 8

TRAFFIC IMPACT ANALYSIS

As previously mentioned, future traffic volumes were estimated at the study intersections. These volumes were used to perform the capacity analyses for the 2000 "No Build" and 2000 "Build" conditions. These analyses were performed using the procedures outlined in the **1994 Highway Capacity Manual (Special Report 209)** published by the **Transportation Research Board.** The procedures listed in the **Highway Capacity Manual** permit the computation of intersection capacity and level of service (LOS). The capacity and LOS of an intersection has previously been defined in the existing conditions segment of this report.

The results of these analyses are summarized in Tables 9 and 10. The capacity analysis/level of service worksheets are contained in Appendix E.

Upon a review of these Tables, the following can be stated:

1. The traffic generated by the proposed Harborfield Estates residential community will have an imperceptible impact on the overall operation at all of the study intersections. As shown in Table 9 and 10, these intersections will remain in operation at their respective LOS. There will be no change in operation at these locations.

2. The vehicles exiting the site at the driveway on to Pulaski Road will operate at LOS D during both peak hours. However, the delay experienced (25.1 sec/veh in A.M., 27.7 sec/veh in P.M) is similar to the delay experienced on the side street approach at a traffic signal.

3. No mitigation is required as a result of the construction of this project.

Table 9

Signalized Intersections
Capacity Analysis Summary

Intersection Condition	AM LOS	AM Delay (sec/veh)	AM V/C	PM LOS	PM Delay (sec/veh)	PM V/C
Pulaski Road at Park Avenue						
No Build	*	*	1.820	*	*	1.239
Build	*	*	1.828	*	*	1.268
Pulaski Road at Lake Road						
No Build	B	7.1	0.704	B	5.7	0.601
Build	B	7.3	0.716	B	5.8	0.615
Pulaski Road at Greenlawn Road/ Cuba Hill Road/Central Street						
No Build	*	*	1.071	C	22.9	0.780
Build	*	*	1.079	C	23.3	0.846

Table 10
Unsignalized Intersection
Capacity Analysis Summary

Intersection Condition	Critical Mvmnt	AM LOS	AM App Delay (sec/veh)	AM Int Delay	PM LOS	PM App Delay (sec/veh)	PM Int. Delay
Pulaski Road at Tulane Place/ Site Access							
No Build	NB - LR	B	7.1	0.1	C	13.1	0.2
Build	SB-LR	D	25.1	0.8	D	27.7	0.7

SUMMARY

This firm Nelson & Pope, LLP has conducted an investigation regarding the potential traffic impacts associated with the proposed development of a 59 unit single family detached housing. This is a development which could be constructed in accordance with the application for rezoning and is bordered on the west side by Lake Road, to the north by LIRR and to the south by Pulaski Road.

1. Four (4) intersections were included in this study. They are as follows:

   A. Pulaski Road at Park Avenue
   B. Pulaski Road at Lake Road
   C. Pulaski Road at Tulane Place
   D. Pulaski Road at Cuba Hill Road/Central Street

2. An ambient growth rate of 1.1% per year, was applied to the existing (1997) volumes for three years. The traffic generated by other planned projects were superimposed onto the expanded volumes.

3. The proposed 59 unit single family detached housing is projected to generate 51 vehicle trips (13 enter, 38 exit) during the weekday A.M. commuter peak period, 67 vehicle trips (43 enter, 24 exit) during the weekday P.M. commuter period.

4. There will be one access driveway to the site at the intersection of Pulaski Road and Tulane Place, providing full access for all turning movements.

5. The traffic generated by the proposed site will have an imperceptible impact on the overall operation of all of the study intersections. These intersections will remain in operation at their respective LOS.

6. At the Pulaski Road Site Access, the driveway operates at level of service "D" during the peak hours studied. The delay experienced by exiting vehicles is similar to that on the side street approach at a signalized intersection.

7. No mitigation is required as a result of the construction of this project.

HARBORFIELD ESTATES
TOWN OF HUNTINGTON
SUFFOLK COUNTY, N.Y.

TRAFFIC IMPACT STUDY

N&P Job No. 85125

APPENDICES

FEBRUARY 1998

APPENDIX A: LEVEL OF SERVICE DESCRIPTION

I. Signalized Intersection

II. Unsignalized Intersection

I. Signalized Intersection

LEVEL OF SERVICE
SIGNALIZED INTERSECTION

The level of service and capacity of a signalized intersection are the criteria by which the quality of traffic service is measured. The levels of service range between level of service A (relatively congestion-free) and level of service F (congested).

The capacity of a signalized intersection is based upon the concepts of saturation flow and saturation flow rate. This is the maximum rate of flow that can pass through a given lane group under prevailing traffic and roadway conditions. The volume-to-capacity ratio is the ratio of the traffic flow for a given lane group or approach to the capacity. A V/C ratio of 1.0 indicates that the flow rate equals the capacity. Values over 1.0 indicate a temporary excess of demand. This does not necessarily indicate an intersection failure.

The level of service of a signalized intersection is evaluated on the basis of average stopped delay measured in the units seconds per vehicle. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time.

The following general statements may be made regarding the level of service of a signalized intersection.

Level of service A describes operations with a very low delay. This occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short traffic signal cycles may contribute to low delay.

Level of service B generally occurs with good progression and/or short traffic signal cycle lengths. More vehicles stop than for level of service A, causing higher average delays.

Level of service C has higher delays than level of service B. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures, where motorists are required to wait through an entire signal cycle, may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths or high volume to capacity ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of service E is considered the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences.

The delays at level of service F are considered unacceptable to most drivers. This condition often occurs with oversaturations, i.e., when arrival flow rates exceed the capacity of the intersection. It may occur at volume to capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

The following average stopped delays are utilized to determine intersection and approach roadway levels of service for signalized intersections:

Level of Service A	< 5.0 sec./veh.
Level of Service B	> 5.0 and < 15.0 sec./veh.
Level of Service C	> 15.0 and < 25.0 sec./veh.
Level of Service D	> 25.0 and < 40.0 sec./veh.
Level of Service E	> 40.0 and < 60.0 sec./veh.
Level of Service F	> 60.0 sec./veh.

II. Unsignalized Intersection

LEVEL OF SERVICE
TWO WAY STOP CONTROLLED INTERSECTIONS

The level of service and capacity of a two way stop controlled (TWSC) intersection are the criteria by which the quality of traffic service is measured. The levels of service range between level of service A (relatively congestion-free) and level of service F (congested).

The right of way at the TWSC intersection is controlled by stop signs on two opposing legs of an intersection (on one leg of a "T"-type intersection). The capacity of a controlled leg is based on the distribution of gaps in the major street traffic flow, driver judgment in selecting a gap through which to execute the desired maneuver and the follow up time required by each driver in a queue.

The level of service for the subject approach of a TWSC intersection is evaluated based on the average total delay per vehicle. Total delay is defined as the total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. These criteria are applied to both the minor street movements and the major street left turns.

The following average vehicle delays are used to determine approach levels of service:

Level of Service A	< 5 sec./veh.
Level of Service B	> 5 and < 10 sec./veh.
Level of Service C	> 10 and < 20 sec./veh.
Level of Service D	> 20 and < 30 sec./veh.
Level of Service E	> 30 and < 45 sec./veh.
Level of Service F	> 45 sec./veh.

While the level of service criteria are applied to each approach of a TWSC intersection, the average delay for an entire intersection can be calculated by taking a weighted average of the vehicles stopped on the minor approaches and the vehicles in the major street traffic flow, which suffer no delays. This total average delay provides a means of comparison for two intersections.

APPENDIX B: TRAFFIC VOLUMES

I. Existing Volumes

Turning Movement Diagrams

I. Existing Volumes

Turning Movement Diagrams

PROJECT NAME: HARBORFIELD ESTATES

PROJECT No.: 85125

INTERSECTION: PARK AVENUE & PULASKI ROAD

CONDITION: EXISTING

DATE COUNTED: 11/18/97

DAY OF WEEK: TUESDAY

PEAK HOURS: (START)

AM	800
MIDDAY	1200
PM	1600

N/S STREET: PARK AVENUE

761	AM	1087
0	MID	0
1169	PM	836

	R	T	L
A	88	533	140
M	0	0	0
P	151	746	272

E/W STREET: PULASKI ROAD

A	M	P		
312	0	137	R	945 AM
579	0	319	T	0 MD
54	0	51	L	507 PM

AM	843
MD	0
PM	571

AM	505	L	129	0	87
MD	0	T	297	0	472
PM	703	R	79	0	144

A	M	P

494 AM
0 MD
773 PM

176	646	57	A
0	0	0	M
101	612	29	P
L	T	R	

666	AM	879	
0	MID	0	
941	PM	742	

PEAK HOUR FACTOR				TOTAL	
EB	WB	NB	SB	VOLUME	
0.80	0.96	0.91	0.89	3090	AM
0.00	0.00	0.00	0.00	0	MD
0.91	0.90	0.88	0.88	3121	PM

NELSON & POPE, LLP

PROJECT NAME: HARBORFIELD ESTATES

PROJECT No.: 85125

INTERSECTION: LAKE ROAD & PULASKI ROAD

CONDITION: EXISTING

DATE COUNTED: 11/18/97

DAY OF WEEK: TUESDAY

PEAK HOURS: (START)

AM	800
MIDDAY	1200
PM	1600

N/S STREET: LAKE ROAD

135	AM	84
0	MID	0
83	PM	90

	R	T	L
A	82	33	20
M	0	0	0
P	35	25	23

E/W STREET: PULASKI ROAD

	A	M	P		
	24	0	18	R	955 AM
	918	0	447	T	0 MD
	13	0	16	L	481 PM

AM	1012
MD	0
PM	497

AM	402	L	34	0	41
MD	0	T	366	0	761
PM	810	R	2	0	8
			A	M	P

404	AM
0	MD
804	PM

12	26	18	A
0	0	0	M
15	31	20	P
L	T	R	

48	AM	56
0	MID	0
49	PM	68

PEAK HOUR FACTOR				TOTAL	
EB	WB	NB	SB	VOLUME	
0.90	0.96	0.82	0.84	1548	AM
0.00	0.00	0.00	0.00	0	MD
0.88	0.85	0.79	0.83	1440	PM

NELSON & POPE, LLP

PROJECT NAME: HARBORFIELD ESTATES

PROJECT No.: 85125

INTERSECTION: TULANE PLACE & PULASKI ROAD

CONDITION: EXISTING

DATE COUNTED: 11/18/97

DAY OF WEEK: TUESDAY

PEAK HOURS: (START)

AM	800
MIDDAY	1200
PM	1600

N/S STREET: TULANE PLACE

0	AM	0
0	MID	0
0	PM	0

	R	T	L
A	0	0	0
M	0	0	0
P	0	0	0

E/W STREET: PULASKI ROAD

	A	M	P			
	0	0	0	R	932	AM
	922	0	535	T	0	MD
	10	0	12	L	547	PM

AM	924
MD	0
PM	538

AM	375	L	0	0	0	
MD	0	T	373	0	852	
PM	864	R	2	0	12	

388	AM
0	MD
867	PM

	A	M	P
	2	0	15
	0	0	0
	3	0	15
	L	T	R

12	AM	17
0	MID	0
24	PM	18

PEAK HOUR FACTOR				TOTAL	
EB	WB	NB	SB	VOLUME	
0.93	0.86	0.71	--	1324	AM
0.00	0.00	0.00	--	0	MD
0.93	0.82	0.75	--	1429	PM

NELSON & POPE, LLP

PROJECT NAME: HARBORFIELD ESTATES

PROJECT No.: 85125

INTERSECTION: CUBA HILL ROAD & PULASKI ROAD

CONDITION: EXISTING

DATE COUNTED: 11/18/97

DAY OF WEEK: TUESDAY

PEAK HOURS: (START)

AM	730
MIDDAY	1200
PM	1700

N/S STREET: CUBA HILL ROAD

		218		AM	484
		0		MID	0
		469		PM	231
	R	T	L		
A	33	146	39		
M	0	0	0		
P	34	307	128		

E/W STREET: PULASKI ROAD

		A	M	P		
	111	0	50	R	674	AM
	559	0	342	T	0	MD
	4	0	11	L	403	PM

AM	980					
MD	0					
PM	470					

AM	388	L	27	0	21	
MD	0	T	280	0	702	
PM	1109	R	81	0	386	

322	AM
0	MD
839	PM

		A	M	P		
	388	346	3	A		
	0	0	0	M		
	94	160	9	P		
	L	T	R			
231	AM	737				
0	MID	0				
704	PM	263				

* CUBA HILL RD

** INCLUDES CENTRAL STREET TRAFFIC

PEAK HOUR FACTOR				TOTAL	
EB	WB	NB	SB*	VOLUME	
0.87	0.93	0.78	0.92	2017	AM
0.00	0.00	0.00	0.00	0	MD
0.98	0.87	0.91	0.83	2244	PM

NELSON & POPE, LLP

PROJECT NAME: HARBORFIELD ESTATES

PROJECT No.: 85125

INTERSECTION: CENTRAL STREET & PULASKI ROAD

CONDITION: EXISTING

DATE COUNTED: 11/18/97

DAY OF WEEK: TUESDAY

PEAK HOURS: (START)		
	AM	730
	MIDDAY	1200
	PM	1700

N/S STREET: CENTRAL STREET

E/W STREET: PULASKI ROAD

				72	AM
				39	MID
				28	PM

	R	T	L
A	68	4	0
M	32	6	1
P	20	8	0

				3	AM
				0	MID
				44	PM

AM	68				
MD	32				
PM	20				

	A	M	P		
	2	0	1	R	2 AM
	0	0	0	T	0 MD
	0	0	0	L	1 PM

AM	1	L	1	0	43	
MD	0	T	0	0	0	
PM	43	R	0	0	0	

0	AM	
1	MD	
0	PM	

	A	M	P
AM	1	0	43
MD	0	0	0
PM	43	0	0

	L	T	R	
	0	0	0	A
	0	0	0	M
	0	0	0	P

4	AM	0	
6	MID	0	
8	PM	0	

* SEE CUBA HILL RD
NOTE: THESE VOLUMES ARE ADDED TO PULASKI RD/CUBA HILL RD

PEAK HOUR FACTOR				TOTAL VOLUME	
EB	WB	NB	SB		
*	*	*	0.86	-	AM
*	*	*	0.89	-	MD
*	*	*	0.88	-	PM

NELSON & POPE, LLP

APPENDIX C: TRIP GENERATION COMPUTATIONS

I. Proposed Site
II. Greenbrush Hollow
III. Wax Wing Estates

I. Proposed Site

85125 - LAKE AND PULASKI ROAD: PROPOSED SITE
SUMMARY OF AVERAGE VEHICLE TRIP GENERATION
FOR 59 DWELLING UNITS OF SINGLE FAMILY DWELLINGS
DRIVEWAY VOLUMES
2/98

	24 HOUR TWO-WAY VOLUME	7-9 AM PK HOUR ENTER	7-9 AM PK HOUR EXIT	4-6 PM PK HOUR ENTER	4-6 PM PK HOUR EXIT
AVERAGE WEEKDAY	638	13	38	43	24

	24 HOUR TWO-WAY VOLUME	PEAK HOUR ENTER	PEAK HOUR EXIT
SATURDAY	625	34	29
SUNDAY	509	36	32

Note: A zero rate indicates no rate data available
Source: Institute of Transportation Engineers
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

II. Greenbrush Hollow

85125-LAKE AND PULASKI ROAD: GREENBRUSH HALLOW
SUMMARY OF AVERAGE VEHICLE TRIP GENERATION
FOR 17 DWELLING UNITS OF SINGLE FAMILY DWELLINGS
DRIVEWAY VOLUMES
2/98

	24 HOUR TWO-WAY VOLUME	7-9 AM PK HOUR		4-6 PM PK HOUR	
		ENTER	EXIT	ENTER	EXIT
AVERAGE WEEKDAY	203	5	16	14	8

	24 HOUR TWO-WAY VOLUME	PEAK HOUR	
		ENTER	EXIT
SATURDAY	190	14	12
SUNDAY	139	19	17

Note: A zero rate indicates no rate data available
Source: Institute of Transportation Engineers
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

III. Wax Wing Estates

85125-LAKE AND PULASKI ROAD: WAX WING
SUMMARY OF AVERAGE VEHICLE TRIP GENERATION
FOR 11 DWELLING UNITS OF SINGLE FAMILY DWELLINGS
DRIVEWAY VOLUMES
2/98

	24 HOUR TWO-WAY VOLUME	7-9 AM PK HOUR ENTER	7-9 AM PK HOUR EXIT	4-6 PM PK HOUR ENTER	4-6 PM PK HOUR EXIT
AVERAGE WEEKDAY	136	4	13	9	5

	24 HOUR TWO-WAY VOLUME	PEAK HOUR ENTER	PEAK HOUR EXIT
SATURDAY	126	11	10
SUNDAY	86	17	15

Note: A zero rate indicates no rate data available
Source: Institute of Transportation Engineers
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

APPENDIX D: TRIP DISTRIBUTION AND ASSIGNMENT SPREADSHEET

NELSON & POPE, LLP

TRIP DISTRIBUTION & ASSIGNMENT
Project Name: HARBORFIELD ESTATES
Project No.: 85125

PERCENT GROWTH: 1.10%
NUMBER OF YEARS: 3
GROWTH FACTOR: 1.03

59 UNITS
SINGLE FAMILY HOMES

	AM VOL	PM VOL
ENTER	13	43
EXIT	38	24

			EXISTING VOLUMES		2000 AMBIENT VOLUMES		OTHER PLANNED PROJECTS: EVERGREEN VOLUMES		CVS GREENLAWN VOLUMES		GREENBRUSH VOLUMES		WAX WING VOLUMES		OTHER PROJECTS TOTAL VOLUME		NO BUILD VOLUMES		PROPOSED PROJECT		PROJECT VOLUMES		BUILD VOLUMES	
LOCATION	DIR	MVMT	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	% EN	%EX	AM	PM	AM	PM
PULASKI ROAD	NB	LEFT	176	101	182	104	0	0	0	0	0	0	0	0	0	0	182	104			0	0	182	104
AT		THROUGH	646	612	668	632	0	13	0	0	0	0	0	0	0	13	668	645			0	0	668	645
PARK AVENUE		RIGHT	57	29	59	30	0	0	0	0	0	0	0	0	0	0	59	30	5		1	2	60	32
	SB	LEFT	140	272	145	281	5	2	0	0	0	0	0	0	5	2	150	283	10		1	4	151	287
		THROUGH	533	746	551	771	15	3	0	0	0	0	0	0	15	3	566	774			0	0	566	774
		RIGHT	88	151	91	156	0	0	0	0	0	0	0	0	0	0	91	156			0	0	91	156
	EB	LEFT	129	87	133	90	0	0	0	0	0	0	0	0	0	0	133	90			0	0	133	90
		THROUGH	297	472	307	488	0	0	0	14	2	3	0	3	2	20	309	508	25		3	11	312	519
		RIGHT	79	144	82	149	0	0	0	0	0	0	0	0	0	0	82	149			0	0	82	149
	WB	LEFT	54	51	56	53	0	0	0	0	0	0	0	0	0	0	56	53		5	2	1	58	54
		THROUGH	579	319	598	330	0	0	0	11	4	2	2	1	6	14	604	344		30	11	7	615	351
		RIGHT	312	137	322	142	2	5	0	0	0	0	0	0	2	5	324	147		5	2	1	326	148
PULASKI ROAD	NB	LEFT	12	15	12	16	0	0	0	0	0	0	0	0	0	0	12	16			0	0	12	16
AT		THROUGH	26	31	27	32	0	0	0	0	0	0	0	0	0	0	27	32			0	0	27	32
LAKE ROAD		RIGHT	18	20	19	21	0	0	0	0	0	0	0	0	0	0	19	21	10		1	4	20	25
	SB	LEFT	20	23	21	24	0	0	0	0	0	0	0	0	0	0	21	24	5		1	2	22	26
		THROUGH	33	25	34	26	0	0	0	0	0	0	0	0	0	0	34	26			0	0	34	26
		RIGHT	82	35	85	36	0	0	0	0	0	0	0	0	0	0	85	36			0	0	85	36
	EB	LEFT	34	41	35	42	0	0	0	0	0	0	0	0	0	0	35	42			0	0	35	42
		THROUGH	366	761	378	786	5	2	0	14	2	3	0	3	7	22	385	808	40		5	17	390	825
		RIGHT	2	8	2	8	0	0	0	0	0	0	0	0	0	0	2	8			0	0	2	8
	WB	LEFT	13	16	13	17	0	0	0	0	0	0	0	0	0	0	13	17		10	4	2	17	19
		THROUGH	918	447	949	462	2	5	0	11	4	2	2	1	8	19	957	481		40	15	10	972	491
		RIGHT	24	18	25	19	0	0	0	0	0	0	0	0	0	0	25	19		5	2	1	27	20
PULASKI ROAD	NB	LEFT	2	3	2	3	0	0	0	0	0	0	0	0	0	0	2	3			0	0	2	3
AT		RIGHT	15	15	16	16	0	0	0	0	0	0	0	0	0	0	16	16			0	0	16	16
TULANE PLACE/	SB	LEFT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		45	17	11	17	11
SITE ACCESS		RIGHT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		55	21	13	21	13
	EB	LEFT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	55		7	24	7	24
		THROUGH	373	852	385	880	5	2	0	14	2	3	0	3	7	22	392	902			0	0	392	902
		RIGHT	2	12	2	12	0	0	0	0	0	0	0	0	0	0	2	12			0	0	2	12
	WB	LEFT	10	12	10	12	0	0	0	0	0	0	0	0	0	0	10	12			0	0	10	12
		THROUGH	922	535	953	553	2	5	0	11	4	2	2	1	8	19	961	572			0	0	961	572
		RIGHT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	45		6	19	6	19
PULASKI ROAD	NB	LEFT	388	94	401	97	0	0	0	0	0	0	0	0	0	0	401	97	15		2	6	403	103
AT		THROUGH	346	160	358	165	0	0	0	0	0	0	2	4	2	4	360	169			0	0	360	169
CUBA HILL ROAD/		RIGHT	3	11	3	11	0	0	0	0	0	0	0	0	0	0	3	11			0	0	3	11
CENTRAL STREET	SB	LEFT	39	128	40	132	0	0	0	0	0	0	2	1	2	1	42	133			0	0	42	133
		THROUGH	146	307	151	317	0	0	0	0	0	0	6	2	6	2	157	319			0	0	157	319
		RIGHT	33	34	34	35	0	0	0	0	0	0	2	1	2	1	36	36			0	0	36	36
	EB	LEFT	28	64	29	66	0	0	0	4	0	0	0	3	0	7	29	73		5	2	1	31	74
		THROUGH	280	702	289	725	5	2	0	8	2	3	0	0	7	13	296	738		25	10	6	306	744
		RIGHT	81	386	84	399	0	0	0	0	0	0	0	0	0	0	84	399		15	6	4	90	403
	WB	LEFT	4	11	4	11	0	0	0	0	0	0	0	0	0	0	4	11			0	0	4	11
		THROUGH	559	342	578	353	2	5	0	6	4	2	0	0	6	13	584	366	20		3	9	587	375
		RIGHT	113	51	117	53	0	0	0	0	0	0	2	2	2	2	119	55			0	0	119	55
	SW	LEFT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0
		THROUGH	4	8	4	8	0	0	0	0	0	0	0	0	0	0	4	8	10		1	4	5	12
		RIGHT	68	20	70	21	0	0	0	5	0	0	0	0	0	5	70	26			0	0	70	26

N/A - NOT APPLICABLE, MOVEMENT/APPROACH DOES NOT EXIST UNDER THESE CONDITIONS

APPENDIX E: CAPACITY ANALYSIS/LEVEL OF SERVICE WORKSHEETS

I. Summary Sheets
II. Existing Conditions
III. No Build Conditions
IV. Build Conditions

I. Summary Sheets

NELSON & POPE, LLP
LAKE AND PULASKI - 85125

LEVEL OF SERVICE
SIGNALIZED INTERSECTION
EXISTING AND FUTURE CONDITIONS

INTERSECTION	CONDITION	MOVEMENT	AM PEAK HOUR MVMNT DELAY (sec/veh)	AM PEAK HOUR MVMNT V/C RATIO	AM PEAK HOUR MVMNT LOS	AM PEAK HOUR INT. DELAY (sec/veh)	AM PEAK HOUR CRITICAL V/C RATIO	AM PEAK HOUR INT. LOS	PM PEAK HOUR MVMNT DELAY (sec/veh)	PM PEAK HOUR MVMNT V/C RATIO	PM PEAK HOUR MVMNT LOS	PM PEAK HOUR INT. DELAY (sec/veh)	PM PEAK HOUR CRITICAL V/C RATIO	PM PEAK HOUR INT. LOS
PULASKI ROAD AT PARK AVENUE	EXISTING	NB - L	*	2.149	*	*	1.650	*	*	1.980	*	*	1.405	*
		NB - TR	14.7	0.472	B				14.4	0.441	B			
		SB - L	11.5	0.571	B				77.6	1.066	F			
		SB - T	10.4	0.546	B				14.9	0.773	B			
		SB - R	7.2	0.106	B				7.6	0.185	B			
		EB - L	46.1	0.885	E				20.5	0.500	C			
		EB - TR	18.9	0.377	C				20.6	0.545	C			
		WB - L	25.1	0.334	C				36.2	0.648	D			
		WB - T	*	1.216	*				30.0	0.714	D			
		WB - R	19.6	0.530	C				16.7	0.248	C			
	NO BUILD	NB - L	*	2.291	*	*	1.820	*	*	1.638	*	*	1.239	*
		NB - TR	12.2	0.477	B				14.3	0.473	B			
		SB - L	14.4	0.701	B				*	1.220	*			
		SB - T	9.4	0.580	B				16.2	0.815	C			
		SB - R	3.8	0.095	A				4.4	0.164	A			
		EB - L	57.0	0.965	E				18.7	0.527	C			
		EB - TR	16.5	0.426	C				19.1	0.605	C			
		WB - L	21.9	0.401	C				45.7	0.774	E			
		WB - T	*	1.367	*				32.2	0.816	D			
		WB - R	16.7	0.563	C				14.9	0.262	B			
	BUILD	NB - L	*	2.291	*	*	1.828	*	*	1.638	*	*	1.268	*
		NB - TR	12.2	0.478	B				14.3	0.474	B			
		SB - L	14.6	0.705	B				*	1.240	*			
		SB - T	9.4	0.580	B				16.2	0.815	C			
		SB - R	3.8	0.095	A				4.4	0.164	A			
		EB - L	57.0	0.965	E				18.7	0.527	C			
		EB - TR	16.5	0.430	C				19.2	0.615	C			
		WB - L	22.1	0.419	C				53.3	0.821	E			
		WB - T	*	1.393	*				33.2	0.833	D			
		WB - R	16.8	0.567	C				14.9	0.264	B			
PULASKI ROAD AT LAKE ROAD	EXISTING	NB - LTR	14.8	0.134	B	8.9	0.680	B	14.9	0.157	B	7.0	0.560	B
		SB - LTR	16.2	0.378	C				15.3	0.238	C			
		EB - L	6.7	0.437	B				3.7	0.206	A			
		EB - TR	4.1	0.324	A				7.0	0.693	B			
		WB - L	3.2	0.037	A				3.9	0.218	A			
		WB - TR	9.6	0.805	B				4.7	0.450	A			
	NO BUILD	NB - LTR	18.8	0.137	C	7.1	0.704	B	20.9	0.165	C	5.7	0.601	B
		SB - LTR	20.6	0.389	C				21.5	0.243	C			
		EB - L	5.1	0.488	B				2.0	0.201	A			
		EB - TR	2.1	0.349	A				4.7	0.749	A			
		WB - L	1.6	0.036	A				2.2	0.236	A			
		WB - TR	6.3	0.834	B				2.6	0.477	A			
	BUILD	NB - LTR	18.8	0.139	C	7.3	0.716	B	21.0	0.175	C	5.8	0.615	B
		SB - LTR	20.6	0.392	C				21.5	0.249	C			
		EB - L	5.1	0.488	B				2.0	0.210	A			
		EB - TR	2.1	0.353	A				4.9	0.766	A			
		WB - L	1.6	0.047	A				2.3	0.267	A			
		WB - TR	6.8	0.849	B				2.7	0.489	A			
PULASKI ROAD AT CUBA HILL ROAD/ CENTRAL STREET	EXISTING	EB - L	13.8	0.399	B	43.9	0.980	E	14.4	0.502	B	20.8	0.722	C
		EB - T	12.8	0.420	B				20.3	0.854	C			
		EB - R	11.1	0.143	B				13.3	0.553	B			
		WB - L	10.5	0.018	B				10.6	0.181	B			
		WB - TR	33.1	0.968	D				13.2	0.550	B			
		NB - L	119.6	1.164	F				17.7	0.381	C			
		NB - TR	18.4	0.641	C				16.4	0.277	C			
		SB - L	29.7	0.525	D				30.8	0.653	D			
		SB - T	25.3	0.452	D				39.6	0.864	D			
		SW - LTR	34.5	0.603	D				33.2	0.277	D			
	NO BUILD	EB - L	14.1	0.412	B	*	1.071	*	26.3	0.731	D	22.9	0.780	C
		EB - T	13.0	0.444	B				23.2	0.898	C			
		EB - R	11.2	0.149	B				13.6	0.571	B			
		WB - L	10.6	0.020	B				10.6	0.181	B			
		WB - TR	42.9	1.013	E				13.7	0.589	B			
		NB - L	*	1.236	*				17.9	0.396	C			
		NB - TR	18.9	0.666	C				16.5	0.292	C			
		SB - L	32.0	0.574	D				32.6	0.693	D			
		SB - T	25.6	0.486	D				43.2	0.896	E			
		SW - LTR	35.1	0.618	D				33.8	0.340	D			
	BUILD	EB - L	14.9	0.450	B	*	1.079	*	34.3	0.799	D	23.3	0.846	C
		EB - T	13.1	0.460	B				23.8	0.905	C			
		EB - R	11.2	0.158	B				13.6	0.577	B			
		WB - L	10.6	0.021	B				10.6	0.181	B			
		WB - TR	43.9	1.017	E				13.9	0.601	B			
		NB - L	*	1.243	*				18.1	0.419	C			
		NB - TR	18.9	0.666	C				16.5	0.292	C			
		SB - L	32.0	0.575	D				32.6	0.693	D			
		SB - T	25.6	0.486	D				43.2	0.896	E			
		SW - LTR	35.3	0.624	D				34.2	0.378	D			

* DELAY AND LOS IS MEANINGLESS WHEN ANY V/C IS GREATER THAN 1.2 OR 1/PHF.

NELSON & POPE, LLP

LAKE AND PULASKI ROAD - 85125
LEVEL OF SERVICE
UNSIGNALIZED INTERSECTIONS
EXISTING AND FUTURE CONDITIONS

INTERSECTION	CONDITION	AM PEAK HOUR				PM PEAK HOUR			
		MOVEMENT	MVMNT LOS	MVMNT DELAY (SEC/VEH)	INTER. DELAY (SEC/VEH)	MOVEMENT	MVMNT LOS	MVMNT DELAY (SEC/VEH)	INTER. DELAY (SEC/VEH)
PULASKI ROAD AT TULANE PLACE/ SITE ACCESS	EXISTING	NB - LR	B	6.9	0.1	NB - LR	C	12.0	0.2
		WB - L	A	3.3		WB - L	B	6.0	
	NO BUILD	NB - LR	B	7.1	0.1	NB - LR	C	13.1	0.2
		WB - L	A	3.4		WB - L	B	6.4	
	BUILD	NB - LR	B	7.6	0.8	NB - LR	C	14.3	0.7
		SB - LR	D	25.1		SB - LR	D	27.7	
		EB - L	B	7.3		EB - L	A	4.8	
		WB - L	A	3.4		WB - L	B	6.4	

II. Existing Conditions

A. Pulaski Road at Park Avenue

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	176	646	57	140	533	88	129	297	79	54	579	312
PHF or PK15	0.91	0.91	0.91	0.89	0.89	0.89	0.80	0.80	0.80	0.96	0.96	0.96
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	11.0	12.0		12.0	12.0	12.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	3	3		3	3	3
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*	*		
Thru		*				Thru	*	*		
Right		*				Right	*	*		
Peds						Peds				
SB Left	*	*			WB	Left		*		
Thru	*	*				Thru		*		
Right	*	*				Right		*		
Peds						Peds				
EB Right					NB	Right				
WB Right	*				SB	Right				
Green	15.0A	55.0A			Green		12.0A	30.0P		
Yellow/AR	0.0	6.0			Yellow/AR		0.0	6.0		

Cycle Length: 124 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	176	0.91	193	L	193	1	1.000	1.000	193	1.00	0.00
Thru	646	0.91	710	TR	773	2	1.050	1.000	812	0.00	0.08
Right	57	0.91	63								
SB											
Left	140	0.89	157	L	157	1	1.000	1.000	157	1.00	0.00
Thru	533	0.89	599	T	599	1	1.000	1.000	599	0.00	0.00
Right	88	0.89	99	R	99	1	1.000	1.000	99	0.00	1.00
EB											
Left	129	0.80	161	L	161	1	1.000	1.000	161	1.00	0.00
Thru	297	0.80	371	TR	470	2	1.050	1.000	493	0.00	0.21
Right	79	0.80	99								
WB											
Left	54	0.96	56	L	56	1	1.000	1.000	56	1.00	0.00
Thru	579	0.96	603	T	603	1	1.000	1.000	603	0.00	0.00
Right	312	0.96	325	R	325	1	1.000	1.000	325	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.11	192
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3680
SB										0.11	211
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
EB										0.11	200
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1711
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3608
WB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.34	630
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	124
Actual Green Time for Lane Group, G	55
Effective Green Time for Lane Group, g	58
Opposing Effective Green Time, go	73
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	193
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	6.65
Adjusted Opposing Flow Rate, Vo	599
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	20.63
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.44
gu=g-gq (or g-gf)	50.56
fs=(875-0.625Vo)/1000	0.50
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.18
fmin	0.07
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	SB
Cycle Length, C	124
Actual Green Time for Lane Group, G	70
Effective Green Time for Lane Group, g	61
Opposing Effective Green Time, go	58
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	157
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.41
Adjusted Opposing Flow Rate, Vo	812
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.98
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.53
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	19.22
gu=g-gq (or g-gf)	41.78
fs=(875-0.625Vo)/1000	0.37
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	6.04
fmin	0.07
fm,(min=fmin;max=1.00)	0.11

flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	124
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	36
Opposing Effective Green Time, go	33
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	161
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.55
Adjusted Opposing Flow Rate, Vo	603
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	20.77
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.73
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	36.00
gu=g-gq (or g-gf)	0.00
fs=(875-0.625Vo)/1000	0.50
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	WB
Cycle Length, C	124
Actual Green Time for Lane Group, G	30
Effective Green Time for Lane Group, g	33
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	56
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.93
Adjusted Opposing Flow Rate, Vo	493
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.49
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.64
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	33.00
fs=(875-0.625Vo)/1000	0.57
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.96
fmin	0.12
fm,(min=fmin;max=1.00)	0.34
flt=[fm+0.91(N-1)]/N	0.34

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	193	192	1.005	0.468	90	2.149 *
TR	812	3680	0.221	0.468	1721	0.472
SB Lsec.	0	211	0.000	0.492	104	0.000
Lpri.	157	1770	0.089	0.097	171	0.000 *
Ltot.	157				275	0.571
T	599	1863	0.322	0.589	1097	0.546
R	99	1583	0.063	0.589	932	0.106
EB Lsec.	37	200	0.185	0.290	58	0.638
Lpri.	124	1711	0.072	0.073	124	0.637 *
Ltot.	161				182	0.885
TR	493	3608	0.137	0.363	1309	0.377
WB						
L	56	630	0.089	0.266	168	0.334
T	603	1863	0.324	0.266	496	1.216 *
R	325	1583	0.205	0.387	613	0.530

Sum (v/s) critical = 1.490
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.650

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	2.149	0.468	*	0.850	90	16	*	*	*	*	*
TR	0.472	0.468	17.1	0.850	1721	16	0.2	14.7	B		
SB											
L	0.571	0.589	11.1	0.850	275	16	2.1	11.5	B	10.3	B
T	0.546	0.589	11.7	0.850	1097	16	0.4	10.4	B		
R	0.106	0.589	8.5	0.850	932	16	0.0	7.2	B		
EB											
L	0.885	0.363	24.6	0.850	182	16	25.2	46.1	E	25.6	D
TR	0.377	0.363	22.2	0.850	1309	16	0.1	18.9	C		
WB											
L	0.334	0.266	27.9	0.850	168	16	0.5	24.1	C	*	*
T	1.216	0.266	*	0.850	496	16	*	*	*		
R	0.530	0.387	22.3	0.850	613	16	0.7	19.6	C		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	157
v/c ratio (x)	0.57
Primary phase effective green	12.00
gq from Supplemental LT Worksheet	19.22
gu from Supplemental LT Worksheet	41.78
Red time (r)	51.00
Arrivals qa = v/(3600(max(x,1)))	0.04
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.09
Xperm	0.74
Xprot	0.47
Case	1
Queue at begining of green arrow (Qa)	2.22
Queue at beginning of unsaturated green (Qu)	0.84
Residual queue (Qr)	0.00
Uniform Delay	11.06

Approach	Eastbound
Adj. LT Vol (v)	161
v/c ratio (x)	0.88
Primary phase effective green	9.00
gq from Supplemental LT Worksheet	32.00
gu from Supplemental LT Worksheet	4.00
Red time (r)	79.00
Arrivals qa = v/(3600(max(x,1)))	0.04
Primary Ph. Departures Sp=s/3600	0.48
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.50
Xperm	0.81
Xprot	0.92
Case	1
Queue at begining of green arrow (Qa)	3.53
Queue at beginning of unsaturated green (Qu)	1.43
Residual queue (Qr)	0.00
Uniform Delay	24.56

Center For Microcomputers In Transportation
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Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	101	612	29	272	746	151	87	472	144	51	319	137
PHF or PK15	0.88	0.88	0.88	0.88	0.88	0.88	0.91	0.91	0.91	0.90	0.90	0.90
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	11.0	12.0		12.0	12.0	12.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	3	3		3	3	3
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left		*			EB Left	*	*		
Thru		*			Thru	*	*		
Right		*			Right	*	*		
Peds					Peds				
SB Left	*	*			WB Left		*		
Thru	*	*			Thru		*		
Right	*	*			Right		*		
Peds					Peds				
EB Right					NB Right				
WB Right	*				SB Right				
Green	15.0A	55.0A			Green	12.0A	30.0P		
Yellow/AR	0.0	6.0			Yellow/AR	0.0	6.0		

Cycle Length: 124 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	101	0.88	115	L	115	1	1.000	1.000	115	1.00	0.00
Thru	612	0.88	695	TR	728	2	1.050	1.000	764	0.00	0.05
Right	29	0.88	33								
SB											
Left	272	0.88	309	L	309	1	1.000	1.000	309	1.00	0.00
Thru	746	0.88	848	T	848	1	1.000	1.000	848	0.00	0.00
Right	151	0.88	172	R	172	1	1.000	1.000	172	0.00	1.00
EB											
Left	87	0.91	96	L	96	1	1.000	1.000	96	1.00	0.00
Thru	472	0.91	519	TR	677	2	1.050	1.000	711	0.00	0.23
Right	144	0.91	158								
WB											
Left	51	0.90	57	L	57	1	1.000	1.000	57	1.00	0.00
Thru	319	0.90	354	T	354	1	1.000	1.000	354	0.00	0.00
Right	137	0.90	152	R	152	1	1.000	1.000	152	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.07	124
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3700
SB										0.13	241
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
EB										0.13	232
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1711
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.96	1.00	3595
WB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.18	331
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	124
Actual Green Time for Lane Group, G	55
Effective Green Time for Lane Group, g	58
Opposing Effective Green Time, go	73
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	115
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.96
Adjusted Opposing Flow Rate, Vo	848
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	29.21
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	27.43
gu=g-gq (or g-gf)	30.57
fs=(875-0.625Vo)/1000	0.34
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.07
fm,(min=fmin;max=1.00)	0.07
flt=[fm+0.91(N-1)]/N	0.07

APPROACH	SB
Cycle Length, C	124
Actual Green Time for Lane Group, G	70
Effective Green Time for Lane Group, g	61
Opposing Effective Green Time, go	58
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	309
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	10.64
Adjusted Opposing Flow Rate, Vo	764
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.16
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.53
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	17.78
gu=g-gq (or g-gf)	43.22
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.49
fmin	0.07
fm,(min=fmin;max=1.00)	0.13

flt=[fm+0.91(N-1)]/N	0.13

APPROACH	EB
Cycle Length, C	124
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	36
Opposing Effective Green Time, go	33
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	96
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.31
Adjusted Opposing Flow Rate, Vo	354
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	12.19
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.73
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	22.28
gu=g-gq (or g-gf)	13.72
fs=(875-0.625Vo)/1000	0.65
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.95
fmin	0.11
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	WB
Cycle Length, C	124
Actual Green Time for Lane Group, G	30
Effective Green Time for Lane Group, g	33
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	57
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.96
Adjusted Opposing Flow Rate, Vo	711
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	12.24
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.64
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	4.44
gu=g-gq (or g-gf)	28.56
fs=(875-0.625Vo)/1000	0.43
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	4.88
fmin	0.12
fm,(min=fmin;max=1.00)	0.18
flt=[fm+0.91(N-1)]/N	0.18

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	115	124	0.926	0.468	58	1.980 *
TR	764	3700	0.206	0.468	1731	0.441
SB Lsec.	138	241	0.573	0.492	119	1.160
Lpri.	171	1770	0.097	0.097	171	1.164 *
Ltot.	309				290	1.066
T	848	1863	0.455	0.589	1097	0.773
R	172	1583	0.109	0.589	932	0.185
EB Lsec.	0	232	0.000	0.290	67	0.000
Lpri.	96	1711	0.056	0.073	124	0.000 *
Ltot.	96				192	0.500
TR	711	3595	0.198	0.363	1305	0.545
WB						
L	57	331	0.172	0.266	88	0.648
T	354	1863	0.190	0.266	496	0.714 *
R	152	1583	0.096	0.387	613	0.248

Sum (v/s) critical = 1.269
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.405

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.980	0.468	*	0.850	58	16	*	*	*	*	*
TR	0.441	0.468	16.8	0.850	1731	16	0.1	14.4	B		
SB											
L	1.066	0.589	18.1	0.850	290	16	62.2	77.6	F	28.5	D
T	0.773	0.589	14.6	0.850	1097	16	2.4	14.9	B		
R	0.185	0.589	8.9	0.850	932	16	0.0	7.6	B		
EB											
L	0.500	0.363	22.1	0.850	192	16	1.7	20.5	C	20.6	C
TR	0.545	0.363	23.8	0.850	1305	16	0.4	20.6	C		
WB											
L	0.648	0.266	30.7	0.850	88	16	10.1	36.2	D	27.0	D
T	0.714	0.266	31.3	0.850	496	16	3.3	30.0	D		
R	0.248	0.387	19.6	0.850	613	16	0.0	16.7	C		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	309
v/c ratio (x)	1.07
Primary phase effective green	12.00
gq from Supplemental LT Worksheet	17.78
gu from Supplemental LT Worksheet	43.22
Red time (r)	51.00
Arrivals qa = v/(3600(max(x,1)))	0.08
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.09
Xperm	1.20
Xprot	0.86
Case	3
Queue at begining of green arrow (Qa)	4.94
Queue at beginning of unsaturated green (Qu)	1.43
Residual queue (Qr)	0.83
Uniform Delay	18.14

Approach	Eastbound
Adj. LT Vol (v)	96
v/c ratio (x)	0.50
Primary phase effective green	9.00
gq from Supplemental LT Worksheet	22.28
gu from Supplemental LT Worksheet	13.72
Red time (r)	79.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.48
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.17
Xperm	0.41
Xprot	0.55
Case	1
Queue at begining of green arrow (Qa)	2.11
Queue at beginning of unsaturated green (Qu)	0.59
Residual queue (Qr)	0.00
Uniform Delay	22.07

B. Pulaski Road at Lake Road

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 01-21-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: SM File Name: PRLRAM1.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	12	26	18	20	33	82	34	366	2	13	918	24
PHF or PK15	0.82	0.82	0.82	0.84	0.84	0.84	0.90	0.90	0.90	0.96	0.96	0.96
Lane W (ft)		21.0			14.0		10.0	13.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	20.0A				Green	52.0P			
Yellow/AR	5.5				Yellow/AR	5.5			

Cycle Length: 83 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	515	1900	0.134	0.271	14.8	B	14.8	B
SB	LTR	425	1569	0.378	0.271	16.2	C	16.2	C
EB	L	87	128	0.437	0.657	6.7	B	4.3	A
	TR	1263	1923	0.324	0.657	4.1	A		
WB	L	382	582	0.037	0.657	3.2	A	9.5	B
	TR	1218	1856	0.805	0.657	9.6	B		

Intersection Delay = 8.9 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.680

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 01-23-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: SM File Name: PRLRPM1.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	15	31	20	23	25	35	41	761	8	16	447	18
PHF or PK15	0.79	0.79	0.79	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85
Lane W (ft)		21.0			14.0		10.0	13.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	20.0A				Green	52.0P			
Yellow/AR	5.5				Yellow/AR	5.5			

Cycle Length: 83 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	528	1947	0.157	0.271	14.9	B	14.9	B
SB	LTR	421	1551	0.238	0.271	15.3	C	15.3	C
EB	L	228	347	0.206	0.657	3.7	A	6.8	B
	TR	1262	1922	0.693	0.657	7.0	B		
WB	L	87	128	0.218	0.657	3.9	A	4.6	A
	TR	1216	1852	0.450	0.657	4.7	A		

Intersection Delay = 7.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.560

C. Pulaski Road at Tulane Place

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) TULANE PLACE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... SM
Date of Analysis..... 12/30/97
Other Information.....EXISTING 1997 AM PEAK HOUR VOLUMES
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		373	2	10	922		2		15			
PHF		.93	.93	.86	.86		.71		.71			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	402	
Potential Capacity: (pcph)	866	
Movement Capacity: (pcph)	866	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	403	
Potential Capacity: (pcph)	1102	
Movement Capacity: (pcph)	1102	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.97	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1486	
Potential Capacity: (pcph)	146	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	141	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	3	141 >	544	6.9	0.0	B	6.9
NB R	23	866 >					
WB L	13	1102		3.3	0.0	A	0.0

Intersection Delay = 0.1 sec/veh

Center For Microcomputers In Transportation
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Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) TULANE PLACE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... SM
Date of Analysis..... 12/30/97
Other Information.....EXISTING 1997 PM PEAK HOUR VOLUMES
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		852	12	12	535		3		15			
PHF		.93	.93	.82	.82		.75		.75			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	922	
Potential Capacity: (pcph)	472	
Movement Capacity: (pcph)	472	
Prob. of Queue-Free State:	0.95	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	929	
Potential Capacity: (pcph)	619	
Movement Capacity: (pcph)	619	
Prob. of Queue-Free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.96	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1590	
Potential Capacity: (pcph)	127	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	121	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	4	121 >	326	12.0	0.2	C	12.0
NB	R	22	472 >					
WB	L	17	619		6.0	0.0	B	0.1

Intersection Delay = 0.2 sec/veh

D. Pulaski Road at Cuba Hill Road/Central Street

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: JANUARY 21, 1998
N&P JOB NO. 85125
EXISTING AM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	32		13.8	
	THRU	322		12.8	12.5
	RIGHT	93		11.1	
WESTBOUND	LEFT	4		10.5	
	TH/RT	723	0.398	33.1	33.0
NORTHBOUND	LEFT	497	0.325	119.6	
	TH/RT	448		18.4	71.6
SOUTHBOUND	LEFT	42	0.099	29.7	
	THRU	159		25.3	26.2
SOUTHWESTBOUND	L/TH/RT	84	0.060	34.5	34.5

OVERALL INTERSECTION DELAY - 43.9 SECONDS/VEHICLE
LEVEL OF SERVICE - E

CYCLE LENGTH: 90 SEC. Xc= 0.980
LOST TIME: 9 SEC.

* *LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

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512 Weil Hall
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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	388	346	3	39	146		28	280	81	4	559	113
PHF or PK15	0.78	0.78	0.78	0.92	0.92		0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0		11.0	12.0		11.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*	*			EB	Left	*			
	Thru	*	*				Thru	*			
	Right	*	*				Right	*			
	Peds						Peds				
SB	Left		*			WB	Left	*			
	Thru		*				Thru	*			
	Right		*				Right	*			
	Peds						Peds				
EB	Right					NB	Right				
WB	Right					SB	Right				
Green		18.0A	14.0A			Green		46.0P			
Yellow/AR		0.0	6.0			Yellow/AR		6.0			

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	388	0.78	497	L	497	1	1.000	1.000	497	1.00	0.00
Thru	346	0.78	444	TR	448	1	1.000	1.000	448	0.00	0.01
Right	3	0.78	4								
SB											
Left	39	0.92	42	L	42	1	1.000	1.000	42	1.00	0.00
Thru	146	0.92	159	T	159	1	1.000	1.000	159	0.00	0.00
EB											
Left	28	0.87	32	L	32	1	1.000	1.000	32	1.00	0.00
Thru	280	0.87	322	T	322	1	1.000	1.000	322	0.00	0.00
Right	81	0.87	93	R	93	1	1.000	1.000	93	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	559	0.93	601	TR	723	1	1.000	1.000	723	0.00	0.17
Right	113	0.93	122								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.39	683
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.24	424
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.08	147
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.35	603
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1816

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	90
Actual Green Time for Lane Group, G	32
Effective Green Time for Lane Group, g	20
Opposing Effective Green Time, go	17
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	497
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	12.43
Adjusted Opposing Flow Rate, Vo	159
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	3.97
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.81
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.07
gu=g-gq (or g-gf)	12.93
fs=(875-0.625Vo)/1000	0.78
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.65
fmin	0.20
fm,(min=fmin;max=1.00)	0.39
flt=[fm+0.91(N-1)]/N	0.39

APPROACH	SB
Cycle Length, C	90
Actual Green Time for Lane Group, G	14
Effective Green Time for Lane Group, g	17
Opposing Effective Green Time, go	35
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	42
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.05
Adjusted Opposing Flow Rate, Vo	448
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.20
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.61
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	17.00
fs=(875-0.625Vo)/1000	0.60
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	4.48
fmin	0.24
fm,(min=fmin;max=1.00)	0.24
flt=[fm+0.91(N-1)]/N	0.24

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	32
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.80
Adjusted Opposing Flow Rate, Vo	723
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.08
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	18.41
gu=g-gq (or g-gf)	30.59
fs=(875-0.625Vo)/1000	0.42
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.08
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	322
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.05
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	2.83
gu=g-gq (or g-gf)	46.17
fs=(875-0.625Vo)/1000	0.67
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.71
fmin	0.08
fm,(min=fmin;max=1.00)	0.35
flt=[fm+0.91(N-1)]/N	0.35

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB Lsec.	222	683	0.325	0.222	152	1.461 *
Lpri.	275	1652	0.166	0.167	275	1.463 *
Ltot.	497				427	1.164
TR	448	1798	0.249	0.389	699	0.641
SB						
L	42	424	0.099	0.189	80	0.525
T	159	1863	0.085	0.189	352	0.452
EB						
L	32	147	0.218	0.544	80	0.400
T	322	1863	0.173	0.544	1014	0.318
R	93	1583	0.059	0.544	862	0.108
WB						
L	4	603	0.007	0.544	329	0.012
TR	723	1816	0.398	0.544	988	0.731 *

Sum (v/s) critical = 0.890
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.953

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.164	0.389	19.0	1.000	427	16	100.6	119.6	F	71.6	F
TR	0.641	0.389	17.0	1.000	699	16	1.4	18.4	C		
SB											
L	0.525	0.189	25.0	1.000	80	16	4.8	29.7	D	26.2	D
T	0.452	0.189	24.6	1.000	352	16	0.7	25.3	D		
EB											
L	0.400	0.544	9.1	0.692	80	12	1.3	7.6	B	5.9	B
T	0.318	0.544	8.6	0.692	1014	12	0.0	6.0	B		
R	0.108	0.544	7.5	0.692	862	12	0.0	5.2	B		
WB											
L	0.012	0.544	7.1	0.692	329	12	0.0	4.9	A	9.6	B
TR	0.731	0.544	11.8	0.692	988	12	1.5	9.6	B		

Intersection Delay = 35.6 sec/veh Intersection LOS = D

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	497
v/c ratio (x)	1.16
Primary phase effective green	15.00
gq from Supplemental LT Worksheet	7.07
gu from Supplemental LT Worksheet	12.93
Red time (r)	55.00
Arrivals qa = v/(3600(max(x,1)))	0.12
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.29
Xperm	0.63
Xprot	1.21
Case	2
Queue at begining of green arrow (Qa)	6.52
Queue at beginning of unsaturated green (Qu)	2.26
Residual queue (Qr)	1.42
Uniform Delay	18.98

Center For Microcomputers In Transportation
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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	388	346	3		4	68	28	280	81	4	559	113
PHF or PK15	0.78	0.78	0.78		0.86	0.86	0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0			11.0		11.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left		*						
NB Thru		*						
NB Right		*						
NB Peds								
SB Left	*							
SB Thru	*							
SB Right	*							
SB Peds								
EB Right								
WB Right								
Green	7.0A	32.0A						
Yellow/AR	5.0	6.0						

		5
EB	Left	*
EB	Thru	*
EB	Right	*
EB	Peds	
WB	Left	*
WB	Thru	*
WB	Right	*
WB	Peds	
NB	Right	
SB	Right	
Green		34.0P
Yellow/AR		6.0

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	388	0.78	497	L	497	1	1.000	1.000	497	1.00	0.00
Thru	346	0.78	444	TR	448	1	1.000	1.000	448	0.00	0.01
Right	3	0.78	4								
SB											
Thru	4	0.86	5	TR	84	1	1.000	1.000	84	0.00	0.94
Right	68	0.86	79								
EB											
Left	28	0.87	32	L	32	1	1.000	1.000	32	1.00	0.00
Thru	280	0.87	322	T	322	1	1.000	1.000	322	0.00	0.00
Right	81	0.87	93	R	93	1	1.000	1.000	93	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	559	0.93	601	TR	723	1	1.000	1.000	723	0.00	0.17
Right	113	0.93	122								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.77	1.00	1392
EB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.11	195
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.30	527
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1816

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	32
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.80
Adjusted Opposing Flow Rate, Vo	723
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.08
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	32.18
gu=g-gq (or g-gf)	4.82
fs=(875-0.625Vo)/1000	0.42
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	322
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.05
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	6.57
gu=g-gq (or g-gf)	30.43
fs=(875-0.625Vo)/1000	0.67
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.71
fmin	0.11
fm,(min=fmin;max=1.00)	0.30
flt=[fm+0.91(N-1)]/N	0.30

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM1.HC9
Area Type: Other 1-13-98 AM PEAK
Comment: EXISTING 1997 AM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	497	1652	0.301	0.389	642	0.774 *
TR	448	1798	0.249	0.389	699	0.641
SB						
TR	84	1392	0.060	0.100	139	0.603 *
EB						
L	32	195	0.164	0.411	80	0.399
T	322	1863	0.173	0.411	766	0.420
R	93	1583	0.059	0.411	651	0.143
WB						
L	4	527	0.008	0.411	217	0.018
TR	723	1816	0.398	0.411	747	0.968 *

Sum (v/s) critical = 0.759
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.844

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.774	0.389	18.3	1.000	642	16	4.1	22.3	C	20.5	C
TR	0.641	0.389	17.0	1.000	699	16	1.4	18.4	C		
SB											
TR	0.603	0.100	29.5	1.000	139	16	5.0	34.5	D	34.5	D
EB											
L	0.399	0.411	14.2	0.882	80	12	1.3	13.8	B	12.5	B
T	0.420	0.411	14.3	0.882	766	12	0.2	12.8	B		
R	0.143	0.411	12.6	0.882	651	12	0.0	11.1	B		
WB											
L	0.018	0.411	12.0	0.882	217	12	0.0	10.5	B	33.0	D
TR	0.968	0.411	19.7	0.882	747	12	15.8	33.1	D		

Intersection Delay = 23.5 sec/veh Intersection LOS = C

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: JANUARY 13, 1998
N&P JOB NO. 85125
EXISTING PM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	65		14.4	
	THRU	716	0.384	20.3	17.6
	RIGHT	394		13.3	
WESTBOUND	LEFT	14		10.6	
	TH/RT	485		13.2	13.1
NORTHBOUND	LEFT	103	0.062	17.7	
	TH/RT	188		16.4	16.9
SOUTHBOUND	LEFT	154		30.8	
	THRU	370	0.199	39.6	37.0
SOUTHWESTBOUND	L/TH/RT	9	0.005	33.2	33.2

OVERALL INTERSECTION DELAY - 20.8 SECONDS/VEHICLE
LEVEL OF SERVICE - C

CYCLE LENGTH: 90 SEC. Xc= 0.722
LOST TIME: 9 SEC.

* *LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

Center For Microcomputers In Transportation
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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	94	160	11	128	307		64	702	386	11	342	51
PHF or PK15	0.91	0.91	0.91	0.83	0.83		0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0		11.0	12.0		11.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*	*			EB	Left	*			
	Thru	*	*				Thru	*			
	Right	*	*				Right	*			
	Peds						Peds				
SB	Left		*			WB	Left	*			
	Thru		*				Thru	*			
	Right		*				Right	*			
	Peds						Peds				
EB	Right					NB	Right				
WB	Right					SB	Right				
Green		15.0A	20.0A			Green		53.0P			
Yellow/AR		0.0	6.0			Yellow/AR		6.0			

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	94	0.91	103	L	103	1	1.000	1.000	103	1.00	0.00
Thru	160	0.91	176	TR	188	1	1.000	1.000	188	0.00	0.06
Right	11	0.91	12								
SB											
Left	128	0.83	154	L	154	1	1.000	1.000	154	1.00	0.00
Thru	307	0.83	370	T	370	1	1.000	1.000	370	0.00	0.00
EB											
Left	64	0.98	65	L	65	1	1.000	1.000	65	1.00	0.00
Thru	702	0.98	716	T	716	1	1.000	1.000	716	0.00	0.00
Right	386	0.98	394	R	394	1	1.000	1.000	394	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	342	0.87	393	TR	452	1	1.000	1.000	452	0.00	0.13
Right	51	0.87	59								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.15	267
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1783
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.57	1026
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.19	347
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.08	142
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1826

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	100
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	23
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	103
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.86
Adjusted Opposing Flow Rate, Vo	370
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.28
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.77
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	19.92
gu=g-gq (or g-gf)	6.08
fs=(875-0.625Vo)/1000	0.64
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.08
fmin	0.15
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	SB
Cycle Length, C	100
Actual Green Time for Lane Group, G	20
Effective Green Time for Lane Group, g	23
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	154
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.28
Adjusted Opposing Flow Rate, Vo	188
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.22
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.62
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	23.00
fs=(875-0.625Vo)/1000	0.76
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.75
fmin	0.17
fm,(min=fmin;max=1.00)	0.57
flt=[fm+0.91(N-1)]/N	0.57

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	65
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.81
Adjusted Opposing Flow Rate, Vo	452
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	12.56
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	6.62
gu=g-gq (or g-gf)	49.38
fs=(875-0.625Vo)/1000	0.59
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	4.57
fmin	0.07
fm,(min=fmin;max=1.00)	0.19
flt=[fm+0.91(N-1)]/N	0.19

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	716
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	19.89
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	18.55
gu=g-gq (or g-gf)	37.45
fs=(875-0.625Vo)/1000	0.43
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	8.20
fmin	0.07
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB Lsec.	0	267	0.000	0.260	72	0.000	
Lpri.	103	1652	0.062	0.120	198	0.000	*
Ltot.	103				270	0.381	
TR	188	1783	0.105	0.380	678	0.277	
SB							
L	154	1026	0.150	0.230	236	0.653	
T	370	1863	0.199	0.230	428	0.864	*
EB							
L	65	347	0.187	0.560	194	0.334	
T	716	1863	0.384	0.560	1043	0.686	*
R	394	1583	0.249	0.560	887	0.444	
WB							
L	13	142	0.092	0.560	79	0.164	
TR	452	1826	0.247	0.560	1023	0.442	

Sum (v/s) critical = 0.645
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.709

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.381	0.380	17.2	1.000	270	16	0.5	17.7	C	16.8	C
TR	0.277	0.380	16.3	1.000	678	16	0.1	16.4	C		
SB											
L	0.653	0.230	26.5	1.000	236	16	4.3	30.8	D	37.0	D
T	0.864	0.230	28.1	1.000	428	16	11.5	39.6	D		
EB											
L	0.334	0.560	9.1	0.662	194	12	0.3	6.3	B	8.0	B
T	0.686	0.560	12.0	0.662	1043	12	1.0	8.9	B		
R	0.444	0.560	9.8	0.662	887	12	0.2	6.7	B		
WB											
L	0.164	0.560	8.1	0.662	79	12	0.1	5.4	B	6.6	B
TR	0.442	0.560	9.8	0.662	1023	12	0.2	6.6	B		

Intersection Delay = 15.0 sec/veh Intersection LOS = B

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	103
v/c ratio (x)	0.38
Primary phase effective green	12.00
gq from Supplemental LT Worksheet	19.92
gu from Supplemental LT Worksheet	6.08
Red time (r)	62.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.32
Xperm	0.39
Xprot	0.38
Case	1
Queue at begining of green arrow (Qa)	1.77
Queue at beginning of unsaturated green (Qu)	0.57
Residual queue (Qr)	0.00
Uniform Delay	17.24

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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	94	160	11		8	20	64	702	386	11	342	51
PHF or PK15	0.91	0.91	0.91		0.88	0.88	0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0			11.0		11.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*			
Thru		*				Thru	*			
Right		*				Right	*			
Peds						Peds				
SB Left	*				WB	Left	*			
Thru	*					Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	6.0A	35.0A			Green		42.0P			
Yellow/AR	5.0	6.0			Yellow/AR		6.0			

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	94	0.91	103	L	103	1	1.000	1.000	103	1.00	0.00
Thru	160	0.91	176	TR	188	1	1.000	1.000	188	0.00	0.06
Right	11	0.91	12								
SB											
Thru	8	0.88	9	TR	32	1	1.000	1.000	32	0.00	0.72
Right	20	0.88	23								
EB											
Left	64	0.98	65	L	65	1	1.000	1.000	65	1.00	0.00
Thru	702	0.98	716	T	716	1	1.000	1.000	716	0.00	0.00
Right	386	0.98	394	R	394	1	1.000	1.000	394	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	342	0.87	393	TR	452	1	1.000	1.000	452	0.00	0.13
Right	51	0.87	59								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1783
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.80	1.00	1446
EB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.16	287
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.09	155
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1826

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	65
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.81
Adjusted Opposing Flow Rate, Vo	452
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	12.56
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	12.14
gu=g-gq (or g-gf)	32.86
fs=(875-0.625Vo)/1000	0.59
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	4.57
fmin	0.09
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	716
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	19.89
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	30.91
gu=g-gq (or g-gf)	14.09
fs=(875-0.625Vo)/1000	0.43
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.09
flt=[fm+0.91(N-1)]/N	0.09

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM1.HC9
Area Type: Other 1-13-98 PM PEAK
Comment: EXISTING 1997 PM PEAK HOUR VOLUME

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	103	1652	0.062	0.380	628	0.164
TR	188	1783	0.105	0.380	678	0.277 *
SB						
TR	32	1446	0.022	0.080	116	0.277 *
EB						
L	65	287	0.226	0.450	129	0.502
T	716	1863	0.384	0.450	838	0.854 *
R	394	1583	0.249	0.450	712	0.553
WB						
L	13	155	0.084	0.450	72	0.181
TR	452	1826	0.247	0.450	822	0.550

Sum (v/s) critical = 0.512
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.563

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.164	0.380	15.6	1.000	628	16	0.0	15.6	C	16.1	C
TR	0.277	0.380	16.3	1.000	678	16	0.1	16.4	C		
SB											
TR	0.277	0.080	32.9	1.000	116	16	0.3	33.2	D	33.2	D
EB											
L	0.502	0.450	14.9	0.836	129	12	2.0	14.4	B	17.6	C
T	0.854	0.450	18.7	0.836	838	12	4.7	20.3	C		
R	0.553	0.450	15.3	0.836	712	12	0.5	13.3	B		
WB											
L	0.181	0.450	12.5	0.836	72	12	0.1	10.6	B	13.2	B
TR	0.550	0.450	15.3	0.836	822	12	0.5	13.2	B		

Intersection Delay = 16.6 sec/veh Intersection LOS = C

III. No Build Conditions

A. Pulaski Road at Park Avenue

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Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	182	668	59	150	566	91	133	309	82	56	604	324
PHF or PK15	0.91	0.91	0.91	0.89	0.89	0.89	0.80	0.80	0.80	0.96	0.96	0.96
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	10.0	11.0		10.0	11.0	13.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	4	4		4	4	4
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left		*			EB	Left	*	*		
	Thru		*				Thru	*	*		
	Right		*				Right	*	*		
	Peds						Peds				
SB	Left	*	*			WB	Left		*		
	Thru	*	*				Thru		*		
	Right	*	*				Right		*		
	Peds						Peds				
EB	Right					NB	Right				
WB	Right	*				SB	Right	*			
Green		10.0A	40.0A			Green		8.0A	20.0P		
Yellow/AR		0.0	6.0			Yellow/AR		0.0	6.0		

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	182	0.91	200	L	200	1	1.000	1.000	200	1.00	0.00
Thru	668	0.91	734	TR	799	2	1.050	1.000	839	0.00	0.08
Right	59	0.91	65								
SB											
Left	150	0.89	169	L	169	1	1.000	1.000	169	1.00	0.00
Thru	566	0.89	636	T	636	1	1.000	1.000	636	0.00	0.00
Right	91	0.89	102	R	102	1	1.000	1.000	102	0.00	1.00
EB											
Left	133	0.80	166	L	166	1	1.000	1.000	166	1.00	0.00
Thru	309	0.80	386	TR	488	2	1.050	1.000	512	0.00	0.21
Right	82	0.80	102								
WB											
Left	56	0.96	58	L	58	1	1.000	1.000	58	1.00	0.00
Thru	604	0.96	629	T	629	1	1.000	1.000	629	0.00	0.00
Right	324	0.96	338	R	338	1	1.000	1.000	338	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.10	183
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3680
										0.11	202
SB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
										0.15	267
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3488
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.33	566
T	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1801
R	1900	1	1.03	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1636

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	90
Actual Green Time for Lane Group, G	40
Effective Green Time for Lane Group, g	43
Opposing Effective Green Time, go	53
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	200
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.00
Adjusted Opposing Flow Rate, Vo	636
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	15.90
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.22
gu=g-gq (or g-gf)	35.78
fs=(875-0.625Vo)/1000	0.48
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.10
flt=[fm+0.91(N-1)]/N	0.10

APPROACH	SB
Cycle Length, C	90
Actual Green Time for Lane Group, G	50
Effective Green Time for Lane Group, g	46
Opposing Effective Green Time, go	43
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	169
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.22
Adjusted Opposing Flow Rate, Vo	839
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.49
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.52
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	14.28
gu=g-gq (or g-gf)	31.72
fs=(875-0.625Vo)/1000	0.35
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	6.35
fmin	0.09
fm,(min=fmin;max=1.00)	0.11

flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	28
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	23
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	166
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.15
Adjusted Opposing Flow Rate, Vo	629
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	15.73
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.66
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	26.00
gu=g-gq (or g-gf)	0.00
fs=(875-0.625Vo)/1000	0.48
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.15
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	20
Effective Green Time for Lane Group, g	23
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	58
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.45
Adjusted Opposing Flow Rate, Vo	512
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	6.40
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.54
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	23.00
fs=(875-0.625Vo)/1000	0.56
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.07
fmin	0.17
fm,(min=fmin;max=1.00)	0.33
flt=[fm+0.91(N-1)]/N	0.33

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	200	183	1.094	0.478	87	2.291 *
TR	839	3680	0.228	0.478	1758	0.477
SB Lsec.	31	202	0.153	0.511	103	0.301
Lpri.	138	1770	0.078	0.078	138	0.300 *
Ltot.	169				241	0.701
T	636	1863	0.341	0.589	1097	0.580
R	102	1583	0.064	0.678	1073	0.095
EB Lsec.	74	267	0.277	0.289	80	0.925
Lpri.	92	1652	0.056	0.056	92	0.925 *
Ltot.	166				172	0.965
TR	512	3488	0.147	0.344	1202	0.426
WB						
L	58	566	0.102	0.256	145	0.401
T	629	1801	0.349	0.256	460	1.367 *
R	338	1636	0.207	0.367	600	0.563

Sum (v/s) critical = 1.577
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.820

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	2.291	0.478	*	1.000	87	16	*	*	*	*	*
TR	0.477	0.478	12.1	1.000	1758	16	0.2	12.2	B		
SB											
L	0.701	0.589	8.4	1.000	241	16	5.9	14.4	B	9.7	B
T	0.580	0.589	8.8	1.000	1097	16	0.6	9.4	B		
R	0.095	0.678	3.8	1.000	1073	16	0.0	3.8	A		
EB											
L	0.965	0.344	21.5	0.949	172	12	36.6	57.0	E	26.4	D
TR	0.426	0.344	17.2	0.949	1202	12	0.1	16.5	C		
WB											
L	0.401	0.256	21.1	1.000	145	12	0.8	21.9	C	*	*
T	1.367	0.256	*	1.000	460	12	*	*	*		
R	0.563	0.367	17.3	0.928	600	12	0.7	16.7	C		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	169
v/c ratio (x)	0.70
Primary phase effective green	7.00
gq from Supplemental LT Worksheet	14.28
gu from Supplemental LT Worksheet	31.72
Red time (r)	37.00
Arrivals qa = v/(3600(max(x,1)))	0.05
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.08
Xperm	0.84
Xprot	0.60
Case	1
Queue at begining of green arrow (Qa)	1.74
Queue at beginning of unsaturated green (Qu)	0.67
Residual queue (Qr)	0.00
Uniform Delay	8.43

Approach	Eastbound
Adj. LT Vol (v)	166
v/c ratio (x)	0.97
Primary phase effective green	5.00
gq from Supplemental LT Worksheet	22.00
gu from Supplemental LT Worksheet	4.00
Red time (r)	59.00
Arrivals qa = v/(3600(max(x,1)))	0.05
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.48
Xperm	0.62
Xprot	1.29
Case	2
Queue at begining of green arrow (Qa)	2.72
Queue at beginning of unsaturated green (Qu)	1.67
Residual queue (Qr)	0.66
Uniform Delay	21.52

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512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	104	645	30	283	774	156	90	508	149	53	344	147
PHF or PK15	0.88	0.88	0.88	0.88	0.88	0.88	0.91	0.91	0.91	0.90	0.90	0.90
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	10.0	11.0		10.0	11.0	13.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	4	4		4	4	4
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left		*			EB Left	*	*		
Thru		*			Thru	*	*		
Right		*			Right	*	*		
Peds					Peds				
SB Left	*	*			WB Left		*		
Thru	*	*			Thru		*		
Right	*	*			Right		*		
Peds					Peds				
EB Right					NB Right				
WB Right	*				SB Right	*			
Green	12.0A	43.0A			Green	10.0A	23.0P		
Yellow/AR	0.0	6.0			Yellow/AR	0.0	6.0		

Cycle Length: 100 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	104	0.88	118	L	118	1	1.000	1.000	118	1.00	0.00
Thru	645	0.88	733	TR	767	2	1.050	1.000	805	0.00	0.04
Right	30	0.88	34								
SB											
Left	283	0.88	322	L	322	1	1.000	1.000	322	1.00	0.00
Thru	774	0.88	880	T	880	1	1.000	1.000	880	0.00	0.00
Right	156	0.88	177	R	177	1	1.000	1.000	177	0.00	1.00
EB											
Left	90	0.91	99	L	99	1	1.000	1.000	99	1.00	0.00
Thru	508	0.91	558	TR	722	2	1.050	1.000	758	0.00	0.23
Right	149	0.91	164								
WB											
Left	53	0.90	59	L	59	1	1.000	1.000	59	1.00	0.00
Thru	344	0.90	382	T	382	1	1.000	1.000	382	0.00	0.00
Right	147	0.90	163	R	163	1	1.000	1.000	163	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.09	157
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3701
										0.11	213
SB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
										0.14	240
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3479
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.17	293
T	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1801
R	1900	1	1.03	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1636

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	100
Actual Green Time for Lane Group, G	43
Effective Green Time for Lane Group, g	46
Opposing Effective Green Time, go	58
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	118
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.28
Adjusted Opposing Flow Rate, Vo	880
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	24.44
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.42
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	25.17
gu=g-gq (or g-gf)	20.83
fs=(875-0.625Vo)/1000	0.32
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.09
flt=[fm+0.91(N-1)]/N	0.09

APPROACH	SB
Cycle Length, C	100
Actual Green Time for Lane Group, G	55
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	46
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	322
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	8.94
Adjusted Opposing Flow Rate, Vo	805
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.18
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.54
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	15.55
gu=g-gq (or g-gf)	33.45
fs=(875-0.625Vo)/1000	0.37
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.96
fmin	0.08
fm,(min=fmin;max=1.00)	0.11

flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	33
Effective Green Time for Lane Group, g	29
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	99
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.75
Adjusted Opposing Flow Rate, Vo	382
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.61
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.65
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	19.34
gu=g-gq (or g-gf)	9.66
fs=(875-0.625Vo)/1000	0.64
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.16
fmin	0.14
fm,(min=fmin;max=1.00)	0.14
flt=[fm+0.91(N-1)]/N	0.14

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	23
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	59
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.64
Adjusted Opposing Flow Rate, Vo	758
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.53
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.52
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	2.24
gu=g-gq (or g-gf)	23.76
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.42
fmin	0.15
fm,(min=fmin;max=1.00)	0.17
flt=[fm+0.91(N-1)]/N	0.17

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	118	157	0.754	0.460	72	1.638
TR	805	3701	0.218	0.460	1702	0.473
SB Lsec.	163	213	0.765	0.490	104	1.567 *
Lpri.	159	1770	0.090	0.090	159	1.562 *
Ltot.	322				264	1.220
T	880	1863	0.472	0.580	1080	0.815
R	177	1583	0.112	0.680	1077	0.164
EB Lsec.	0	240	0.000	0.290	72	0.000
Lpri.	99	1652	0.060	0.070	116	0.000 *
Ltot.	99				188	0.527
TR	758	3479	0.218	0.360	1252	0.605
WB						
L	59	293	0.201	0.260	76	0.774
T	382	1801	0.212	0.260	468	0.816 *
R	163	1636	0.100	0.380	622	0.262

Sum (v/s) critical = 1.127
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 1.239

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.638	0.460	*	1.000	72	16	*	*	*	*	*
TR	0.473	0.460	14.2	1.000	1702	16	0.2	14.3	B		
SB											
L	1.220	0.580	*	1.000	264	16	*	*	*	*	*
T	0.815	0.580	12.7	1.000	1080	16	3.5	16.2	C		
R	0.164	0.680	4.4	1.000	1077	16	0.0	4.4	A		
EB											
L	0.527	0.360	18.2	0.934	188	12	1.6	18.7	C	19.0	C
TR	0.605	0.360	19.9	0.934	1252	12	0.5	19.1	C		
WB											
L	0.774	0.260	26.0	1.000	76	12	19.6	45.7	E	28.8	D
T	0.816	0.260	26.4	1.000	468	12	5.8	32.2	D		
R	0.262	0.380	16.2	0.915	622	12	0.0	14.9	B		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: SM File Name: PRPAPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	322
v/c ratio (x)	1.22
Primary phase effective green	9.00
gq from Supplemental LT Worksheet	15.55
gu from Supplemental LT Worksheet	33.45
Red time (r)	42.00
Arrivals qa = v/(3600(max(x,1)))	0.07
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.09
Xperm	1.24
Xprot	0.85
Case	3
Queue at begining of green arrow (Qa)	3.77
Queue at beginning of unsaturated green (Qu)	1.14
Residual queue (Qr)	0.69
Uniform Delay	15.59

Approach	Eastbound
Adj. LT Vol (v)	99
v/c ratio (x)	0.53
Primary phase effective green	7.00
gq from Supplemental LT Worksheet	19.34
gu from Supplemental LT Worksheet	9.66
Red time (r)	64.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.20
Xperm	0.41
Xprot	0.61
Case	1
Queue at begining of green arrow (Qa)	1.76
Queue at beginning of unsaturated green (Qu)	0.53
Residual queue (Qr)	0.00
Uniform Delay	18.21

B. Pulaski Road at Lake Road

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 02-05-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: SM File Name: PRLRAM2.HC9
Area Type: Other 12-30-97 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	12	27	19	21	34	85	35	385	2	13	957	25
PHF or PK15	0.82	0.82	0.82	0.84	0.84	0.84	0.90	0.90	0.90	0.96	0.96	0.96
Lane W (ft)		21.0			14.0		10.0	12.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination		1	2	3	4		5	6	7	8
NB	Left	*				EB	Left *			
	Thru	*					Thru *			
	Right	*					Right *			
	Peds						Peds			
SB	Left	*				WB	Left *			
	Thru	*					Thru *			
	Right	*					Right *			
	Peds						Peds			
EB	Right					NB	Right			
WB	Right					SB	Right			
Green		22.0A				Green	57.0P			
Yellow/AR		5.5				Yellow/AR	5.5			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	517	1899	0.137	0.272	18.8	C	18.8	C
SB	LTR	427	1567	0.389	0.272	20.6	C	20.6	C
EB	L	80	117	0.488	0.661	5.1	B	2.4	A
	TR	1231	1861	0.349	0.661	2.1	A		
WB	L	389	588	0.036	0.661	1.6	A	6.2	B
	TR	1227	1856	0.834	0.661	6.3	B		

Intersection Delay = 7.1 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.704

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 02-05-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: SM File Name: PRLRPM2.HC9
Area Type: Other 12-30-97 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	16	32	21	24	26	36	42	808	8	17	481	19
PHF or PK15	0.79	0.79	0.79	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85
Lane W (ft)		21.0			14.0		10.0	12.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	25.0A				Green	64.0P			
Yellow/AR	5.5				Yellow/AR	5.5			

Cycle Length: 100 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	534	1941	0.165	0.275	20.9	C	20.9	C
SB	LTR	424	1544	0.243	0.275	21.5	C	21.5	C
EB	L	239	359	0.201	0.665	2.0	A	4.5	A
	TR	1237	1860	0.749	0.665	4.7	A		
WB	L	85	127	0.236	0.665	2.2	A	2.6	A
	TR	1232	1852	0.477	0.665	2.6	A		

Intersection Delay = 5.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.601

C. Pulaski Road at Tulane Place

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) TULANE PLACE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... SM
Date of Analysis..... 12/30/97
Other Information..... NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		392	2	10	961		2		16			
PHF		.93	.93	.86	.86		.71		.71			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	423	
Potential Capacity: (pcph)	845	
Movement Capacity: (pcph)	845	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	424	
Potential Capacity: (pcph)	1077	
Movement Capacity: (pcph)	1077	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1900	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.97	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1552	
Potential Capacity: (pcph)	134	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	130	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	3	130 >	532	7.1	0.0	B	7.1
NB R	25	845 >					
WB L	13	1077		3.4	0.0	A	0.0

Intersection Delay = 0.1 sec/veh

Center For Microcomputers In Transportation
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512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) TULANE PLACE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... SM
Date of Analysis..... 12/30/97
Other Information..... NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		902	12	12	572		3		16			
PHF		.93	.93	.82	.82		.75		.75			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	976	
Potential Capacity: (pcph)	443	
Movement Capacity: (pcph)	443	
Prob. of Queue-Free State:	0.95	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	983	
Potential Capacity: (pcph)	583	
Movement Capacity: (pcph)	583	
Prob. of Queue-Free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1900	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.95	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1690	
Potential Capacity: (pcph)	111	
Major LT, Minor TH Impedance Factor:	0.95	
Adjusted Impedance Factor:	0.95	
Capacity Adjustment Factor due to Impeding Movements	0.95	
Movement Capacity: (pcph)	106	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	4	106 >	301	13.1	0.2	C	13.1
NB R	23	443 >					
WB L	17	583		6.4	0.0	B	0.1

Intersection Delay = 0.2 sec/veh

D. Pulaski Road at Cuba Hill Road/Central Street

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: JANUARY 21, 1998
N&P JOB NO. 85125
NO BUILD AM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	33		14.1	
	THRU	340		13.0	12.7
	RIGHT	97		11.2	
WESTBOUND	LEFT	4		10.6	
	TH/RT	756	0.417	42.9	42.7
NORTHBOUND	LEFT	514	0.377	*	
	TH/RT	466		18.9	*
SOUTHBOUND	LEFT	46	0.108	32.0	
	THRU	171		25.6	27.0
SOUTHWESTBOUND	L/TH/RT	86	0.062	35.1	35.1

OVERALL INTERSECTION DELAY - * SECONDS/VEHICLE
LEVEL OF SERVICE - *

CYCLE LENGTH: 90 SEC. Xc= 1.071
LOST TIME: 9 SEC.

** LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

Center For Microcomputers In Transportation
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512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM2.HC9
Area Type: Other 1-21-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	401	360	3	42	157		29	296	84	4	584	119
PHF or PK15	0.78	0.78	0.78	0.92	0.92		0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0		11.0	12.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*	*			EB	Left	*			
	Thru	*	*				Thru	*			
	Right	*	*				Right	*			
	Peds						Peds				
SB	Left		*			WB	Left	*			
	Thru		*				Thru	*			
	Right		*				Right	*			
	Peds						Peds				
EB	Right					NB	Right				
WB	Right					SB	Right				
Green		18.0A	14.0A			Green		46.0P			
Yellow/AR		0.0	6.0			Yellow/AR		6.0			

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM2.HC9
Area Type: Other 1-21-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	401	0.78	514	L	514	1	1.000	1.000	514	1.00	0.00
Thru	360	0.78	462	TR	466	1	1.000	1.000	466	0.00	0.01
Right	3	0.78	4								
SB											
Left	42	0.92	46	L	46	1	1.000	1.000	46	1.00	0.00
Thru	157	0.92	171	T	171	1	1.000	1.000	171	0.00	0.00
EB											
Left	29	0.87	33	L	33	1	1.000	1.000	33	1.00	0.00
Thru	296	0.87	340	T	340	1	1.000	1.000	340	0.00	0.00
Right	84	0.87	97	R	97	1	1.000	1.000	97	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	584	0.93	628	TR	756	1	1.000	1.000	756	0.00	0.17
Right	119	0.93	128								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.36	634
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.24	424
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.08	142
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.33	569
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1815

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM2.HC9
Area Type: Other 1-21-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	90
Actual Green Time for Lane Group, G	32
Effective Green Time for Lane Group, g	20
Opposing Effective Green Time, go	17
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	514
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	12.85
Adjusted Opposing Flow Rate, Vo	171
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	4.28
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.81
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.66
gu=g-gq (or g-gf)	12.34
fs=(875-0.625Vo)/1000	0.77
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.69
fmin	0.20
fm,(min=fmin;max=1.00)	0.36
flt=[fm+0.91(N-1)]/N	0.36

APPROACH	SB
Cycle Length, C	90
Actual Green Time for Lane Group, G	14
Effective Green Time for Lane Group, g	17
Opposing Effective Green Time, go	35
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	46
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.15
Adjusted Opposing Flow Rate, Vo	466
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.65
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.61
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	17.00
fs=(875-0.625Vo)/1000	0.58
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	4.92
fmin	0.24
fm,(min=fmin;max=1.00)	0.24
flt=[fm+0.91(N-1)]/N	0.24

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	33
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.82
Adjusted Opposing Flow Rate, Vo	756
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.90
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	20.63
gu=g-gq (or g-gf)	28.37
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	8.20
fmin	0.08
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	340
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.50
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	3.26
gu=g-gq (or g-gf)	45.74
fs=(875-0.625Vo)/1000	0.66
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	2.85
fmin	0.08
fm,(min=fmin;max=1.00)	0.33
flt=[fm+0.91(N-1)]/N	0.33

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM2.HC9
Area Type: Other 1-21-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB Lsec.	239	634	0.377	0.222	141	1.695 *
Lpri.	275	1652	0.166	0.167	275	1.696 *
Ltot.	514				416	1.236
TR	466	1798	0.259	0.389	699	0.666
SB						
L	46	424	0.108	0.189	80	0.574
T	171	1863	0.092	0.189	352	0.486
EB						
L	33	142	0.232	0.544	80	0.412
T	340	1863	0.183	0.544	1014	0.335
R	97	1583	0.061	0.544	862	0.113
WB						
L	4	569	0.007	0.544	310	0.013
TR	756	1815	0.417	0.544	988	0.765 *

Sum (v/s) critical = 0.960
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 1.029

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.236	0.389	*	1.000	416	16	*	*	*	*	*
TR	0.666	0.389	17.2	1.000	699	16	1.7	18.9	C		
SB											
L	0.574	0.189	25.2	1.000	80	16	6.8	32.0	D	27.0	D
T	0.486	0.189	24.8	1.000	352	16	0.9	25.6	D		
EB											
L	0.412	0.544	9.2	0.692	80	12	1.5	7.8	B	6.0	B
T	0.335	0.544	8.7	0.692	1014	12	0.1	6.1	B		
R	0.113	0.544	7.6	0.692	862	12	0.0	5.2	B		
WB											
L	0.013	0.544	7.1	0.692	310	12	0.0	4.9	A	10.3	B
TR	0.765	0.544	12.2	0.692	988	12	1.9	10.3	B		

Intersection Delay = * (sec/veh) Intersection LOS = *
* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHAM2.HC9
Area Type: Other 1-21-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	514
v/c ratio (x)	1.24
Primary phase effective green	15.00
gq from Supplemental LT Worksheet	7.66
gu from Supplemental LT Worksheet	12.34
Red time (r)	55.00
Arrivals qa = v/(3600(max(x,1)))	0.12
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.29
Xperm	0.66
Xprot	1.18
Case	2
Queue at begining of green arrow (Qa)	6.36
Queue at beginning of unsaturated green (Qu)	2.09
Residual queue (Qr)	1.21
Uniform Delay	18.78

Center For Microcomputers In Transportation
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512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM2.HC9
Area Type: Other 1-22-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	401	360	3		4	70	29	296	84	4	584	119
PHF or PK15	0.78	0.78	0.78		0.86	0.86	0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0			11.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*			
Thru		*				Thru	*			
Right		*				Right	*			
Peds						Peds				
SB Left	*				WB	Left	*			
Thru	*					Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	7.0A	32.0A			Green		34.0P			
Yellow/AR	5.0	6.0			Yellow/AR		6.0			

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM2.HC9
Area Type: Other 1-22-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	401	0.78	514	L	514	1	1.000	1.000	514	1.00	0.00
Thru	360	0.78	462	TR	466	1	1.000	1.000	466	0.00	0.01
Right	3	0.78	4								
SB											
Thru	4	0.86	5	TR	86	1	1.000	1.000	86	0.00	0.94
Right	70	0.86	81								
EB											
Left	29	0.87	33	L	33	1	1.000	1.000	33	1.00	0.00
Thru	296	0.87	340	T	340	1	1.000	1.000	340	0.00	0.00
Right	84	0.87	97	R	97	1	1.000	1.000	97	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	584	0.93	628	TR	756	1	1.000	1.000	756	0.00	0.17
Right	119	0.93	128								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f_W	f_{HV}	f_G	f_p	f_{BB}	f_A	f_{RT}	f_{LT}	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.77	1.00	1392
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.11	188
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.28	490
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1815

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM2.HC9
Area Type: Other 1-22-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	33
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.82
Adjusted Opposing Flow Rate, Vo	756
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.90
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	35.81
gu=g-gq (or g-gf)	1.19
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	8.20
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	340
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.50
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.29
gu=g-gq (or g-gf)	29.71
fs=(875-0.625Vo)/1000	0.66
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
Ell	2.85
fmin	0.11
fm,(min=fmin;max=1.00)	0.28
flt=[fm+0.91(N-1)]/N	0.28

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSAM2.HC9
Area Type: Other 1-22-98 AM PEAK
Comment: NO BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	514	1652	0.311	0.389	642	0.800 *
TR	466	1798	0.259	0.389	699	0.666
SB						
TR	86	1392	0.062	0.100	139	0.618 *
EB						
L	33	188	0.176	0.411	80	0.412
T	340	1863	0.183	0.411	766	0.444
R	97	1583	0.061	0.411	651	0.149
WB						
L	4	490	0.008	0.411	201	0.020
TR	756	1815	0.417	0.411	746	1.013 *

Sum (v/s) critical = 0.789
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.877

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.800	0.389	18.5	1.000	642	16	5.0	23.5	C	21.3	C
TR	0.666	0.389	17.2	1.000	699	16	1.7	18.9	C		
SB											
TR	0.618	0.100	29.5	1.000	139	16	5.5	35.1	D	35.1	D
EB											
L	0.412	0.411	14.3	0.882	80	12	1.5	14.1	B	12.7	B
T	0.444	0.411	14.5	0.882	766	12	0.2	13.0	B		
R	0.149	0.411	12.6	0.882	651	12	0.0	11.2	B		
WB											
L	0.020	0.411	12.0	0.882	201	12	0.0	10.6	B	42.7	E
TR	1.013	0.411	20.1	0.882	746	12	25.1	42.9	E		

Intersection Delay = 27.2 sec/veh Intersection LOS = D

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: JANUARY 21, 1998
N&P JOB NO. 85125
NO BUILD PM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	74	0.404	26.3	
	THRU	753		23.2	20.2
	RIGHT	407		13.6	
WESTBOUND	LEFT	13		10.6	
	TH/RT	484		13.7	13.6
NORTHBOUND	LEFT	107	0.065	17.9	
	TH/RT	198		16.5	17.0
SOUTHBOUND	LEFT	160		32.6	
	THRU	384	0.206	43.2	40.1
SOUTHWESTBOUND	L/TH/RT	39	0.027	33.8	33.8

OVERALL INTERSECTION DELAY - 22.9 SECONDS/VEHICLE
LEVEL OF SERVICE - C

CYCLE LENGTH: 90 SEC. Xc = 0.780
LOST TIME: 9 SEC.

* *LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM2.HC9
Area Type: Other 1-21-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	97	169	11	133	319		73	738	399	11	366	55
PHF or PK15	0.91	0.91	0.91	0.83	0.83		0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0		11.0	12.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
NB	Left	*	*			EB	Left	*			
	Thru	*	*				Thru	*			
	Right	*	*				Right	*			
	Peds						Peds				
SB	Left		*			WB	Left	*			
	Thru		*				Thru	*			
	Right		*				Right	*			
	Peds						Peds				
EB	Right					NB	Right				
WB	Right					SB	Right				
Green		15.0A	20.0A			Green		53.0P			
Yellow/AR		0.0	6.0			Yellow/AR		6.0			

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM2.HC9
Area Type: Other 1-21-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	97	0.91	107	L	107	1	1.000	1.000	107	1.00	0.00
Thru	169	0.91	186	TR	198	1	1.000	1.000	198	0.00	0.06
Right	11	0.91	12								
SB											
Left	133	0.83	160	L	160	1	1.000	1.000	160	1.00	0.00
Thru	319	0.83	384	T	384	1	1.000	1.000	384	0.00	0.00
EB											
Left	73	0.98	74	L	74	1	1.000	1.000	74	1.00	0.00
Thru	738	0.98	753	T	753	1	1.000	1.000	753	0.00	0.00
Right	399	0.98	407	R	407	1	1.000	1.000	407	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	366	0.87	421	TR	484	1	1.000	1.000	484	0.00	0.13
Right	55	0.87	63								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.15	267
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1784
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.56	1005
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.16	280
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.08	132
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1826

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM2.HC9
Area Type: Other 1-21-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	100
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	23
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.97
Adjusted Opposing Flow Rate, Vo	384
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.67
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.77
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	20.88
gu=g-gq (or g-gf)	5.12
fs=(875-0.625Vo)/1000	0.63
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.18
fmin	0.15
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	SB
Cycle Length, C	100
Actual Green Time for Lane Group, G	20
Effective Green Time for Lane Group, g	23
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	160
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.44
Adjusted Opposing Flow Rate, Vo	198
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.50
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.62
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	23.00
fs=(875-0.625Vo)/1000	0.75
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.79
fmin	0.17
fm,(min=fmin;max=1.00)	0.56
flt=[fm+0.91(N-1)]/N	0.56

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	74
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.06
Adjusted Opposing Flow Rate, Vo	484
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.44
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.68
gu=g-gq (or g-gf)	48.32
fs=(875-0.625Vo)/1000	0.57
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.36
fmin	0.07
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	753
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	20.92
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	21.07
gu=g-gq (or g-gf)	34.93
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.07
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM2.HC9
Area Type: Other 1-21-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB Lsec.	0	267	0.000	0.260	72	0.000	
Lpri.	107	1652	0.065	0.120	198	0.000	*
Ltot.	107				270	0.396	
TR	198	1784	0.111	0.380	678	0.292	
SB							
L	160	1005	0.159	0.230	231	0.693	
T	384	1863	0.206	0.230	428	0.896	*
EB							
L	74	280	0.264	0.560	157	0.472	
T	753	1863	0.404	0.560	1043	0.722	*
R	407	1583	0.257	0.560	887	0.459	
WB							
L	13	132	0.098	0.560	74	0.176	
TR	484	1826	0.265	0.560	1023	0.473	

Sum (v/s) critical = 0.675
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.742

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.396	0.380	17.4	1.000	270	16	0.5	17.9	C	17.0	C
TR	0.292	0.380	16.4	1.000	678	16	0.1	16.5	C		
SB											
L	0.693	0.230	26.8	1.000	231	16	5.8	32.6	D	40.1	E
T	0.896	0.230	28.4	1.000	428	16	14.8	43.2	E		
EB											
L	0.472	0.560	10.0	0.662	157	12	1.3	7.9	B	8.5	B
T	0.722	0.560	12.3	0.662	1043	12	1.3	9.5	B		
R	0.459	0.560	9.9	0.662	887	12	0.2	6.8	B		
WB											
L	0.176	0.560	8.2	0.662	74	12	0.1	5.5	B	6.8	B
TR	0.473	0.560	10.0	0.662	1023	12	0.2	6.8	B		

Intersection Delay = 15.8 sec/veh Intersection LOS = C

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCHPM2.HC9
Area Type: Other 1-21-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	107
v/c ratio (x)	0.40
Primary phase effective green	12.00
gq from Supplemental LT Worksheet	20.88
gu from Supplemental LT Worksheet	5.12
Red time (r)	62.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.38
Xperm	0.40
Xprot	0.40
Case	1
Queue at begining of green arrow (Qa)	1.84
Queue at beginning of unsaturated green (Qu)	0.62
Residual queue (Qr)	0.00
Uniform Delay	17.42

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM2.HC9
Area Type: Other 1-22-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	97	169	11		8	26	73	738	399	11	366	55
PHF or PK15	0.91	0.91	0.91		0.88	0.88	0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0			11.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left		*						
NB Thru		*						
NB Right		*						
NB Peds								
SB Left	*							
SB Thru	*							
SB Right	*							
SB Peds								
EB Right								
WB Right								
Green	6.0A	35.0A			42.0P			
Yellow/AR	5.0	6.0			6.0			

		5
EB	Left	*
	Thru	*
	Right	*
	Peds	
WB	Left	*
	Thru	*
	Right	*
	Peds	
NB	Right	
SB	Right	

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM2.HC9
Area Type: Other 1-22-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	97	0.91	107	L	107	1	1.000	1.000	107	1.00	0.00
Thru	169	0.91	186	TR	198	1	1.000	1.000	198	0.00	0.06
Right	11	0.91	12								
SB											
Thru	8	0.88	9	TR	39	1	1.000	1.000	39	0.00	0.77
Right	26	0.88	30								
EB											
Left	73	0.98	74	L	74	1	1.000	1.000	74	1.00	0.00
Thru	738	0.98	753	T	753	1	1.000	1.000	753	0.00	0.00
Right	399	0.98	407	R	407	1	1.000	1.000	407	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	366	0.87	421	TR	484	1	1.000	1.000	484	0.00	0.13
Right	55	0.87	63								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f_W	f_{HV}	f_G	f_p	f_{BB}	f_A	f_{RT}	f_{LT}	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1784
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.80	1.00	1434
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.13	225
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.09	155
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1826

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM2.HC9
Area Type: Other 1-22-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	74
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.06
Adjusted Opposing Flow Rate, Vo	484
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.44
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	13.81
gu=g-gq (or g-gf)	31.19
fs=(875-0.625Vo)/1000	0.57
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.36
fmin	0.09
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	753
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	20.92
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	34.86
gu=g-gq (or g-gf)	10.14
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.09
flt=[fm+0.91(N-1)]/N	0.09

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: JP File Name: PRCSPM2.HC9
Area Type: Other 1-22-98 PM PEAK
Comment: NO BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
L	107	1652	0.065	0.380	628	0.170	
TR	198	1784	0.111	0.380	678	0.292	*
SB							
TR	39	1434	0.027	0.080	115	0.340	*
EB							
L	74	225	0.329	0.450	101	0.731	
T	753	1863	0.404	0.450	838	0.898	*
R	407	1583	0.257	0.450	712	0.571	
WB							
L	13	155	0.084	0.450	72	0.181	
TR	484	1826	0.265	0.450	822	0.589	

Sum (v/s) critical = 0.542
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.596

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.170	0.380	15.6	1.000	628	16	0.0	15.6	C	16.2	C
TR	0.292	0.380	16.4	1.000	678	16	0.1	16.5	C		
SB											
TR	0.340	0.080	33.1	1.000	115	16	0.7	33.8	D	33.8	D
EB											
L	0.731	0.450	17.1	0.836	101	12	12.0	26.3	D	20.2	C
T	0.898	0.450	19.3	0.836	838	12	7.1	23.2	C		
R	0.571	0.450	15.5	0.836	712	12	0.6	13.6	B		
WB											
L	0.181	0.450	12.5	0.836	72	12	0.1	10.6	B	13.6	B
TR	0.589	0.450	15.6	0.836	822	12	0.6	13.7	B		

Intersection Delay = 18.3 sec/veh Intersection LOS = C

IV. Build Conditions

A. Pulaski Road at Park Avenue

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	182	668	60	151	566	91	133	312	82	58	615	326
PHF or PK15	0.91	0.91	0.91	0.89	0.89	0.89	0.80	0.80	0.80	0.96	0.96	0.96
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	10.0	11.0		10.0	11.0	13.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	4	4		4	4	4
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*	*		
Thru		*				Thru	*	*		
Right		*				Right	*	*		
Peds						Peds				
SB Left	*	*			WB	Left		*		
Thru	*	*				Thru		*		
Right	*	*				Right		*		
Peds						Peds				
EB Right					NB	Right				
WB Right	*				SB	Right	*			
Green	10.0A	40.0A			Green		8.0A	20.0P		
Yellow/AR	0.0	6.0			Yellow/AR		0.0	6.0		

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	182	0.91	200	L	200	1	1.000	1.000	200	1.00	0.00
Thru	668	0.91	734	TR	800	2	1.050	1.000	840	0.00	0.08
Right	60	0.91	66								
SB											
Left	151	0.89	170	L	170	1	1.000	1.000	170	1.00	0.00
Thru	566	0.89	636	T	636	1	1.000	1.000	636	0.00	0.00
Right	91	0.89	102	R	102	1	1.000	1.000	102	0.00	1.00
EB											
Left	133	0.80	166	L	166	1	1.000	1.000	166	1.00	0.00
Thru	312	0.80	390	TR	492	2	1.050	1.000	517	0.00	0.21
Right	82	0.80	102								
WB											
Left	58	0.96	60	L	60	1	1.000	1.000	60	1.00	0.00
Thru	615	0.96	641	T	641	1	1.000	1.000	641	0.00	0.00
Right	326	0.96	340	R	340	1	1.000	1.000	340	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.10	183
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3679
SB										0.11	202
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
EB										0.15	267
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3489
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.32	560
T	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1801
R	1900	1	1.03	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1636

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	90
Actual Green Time for Lane Group, G	40
Effective Green Time for Lane Group, g	43
Opposing Effective Green Time, go	53
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	200
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.00
Adjusted Opposing Flow Rate, Vo	636
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	15.90
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.22
gu=g-gq (or g-gf)	35.78
fs=(875-0.625Vo)/1000	0.48
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.10
flt=[fm+0.91(N-1)]/N	0.10

APPROACH	SB
Cycle Length, C	90
Actual Green Time for Lane Group, G	50
Effective Green Time for Lane Group, g	46
Opposing Effective Green Time, go	43
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	170
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.25
Adjusted Opposing Flow Rate, Vo	840
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.50
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.52
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	14.30
gu=g-gq (or g-gf)	31.70
fs=(875-0.625Vo)/1000	0.35
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	6.36
fmin	0.09
fm,(min=fmin;max=1.00)	0.11

flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	28
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	23
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	166
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.15
Adjusted Opposing Flow Rate, Vo	641
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	16.02
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.66
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	26.00
gu=g-gq (or g-gf)	0.00
fs=(875-0.625Vo)/1000	0.47
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.15
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	20
Effective Green Time for Lane Group, g	23
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	60
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.50
Adjusted Opposing Flow Rate, Vo	517
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	6.46
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.54
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	23.00
fs=(875-0.625Vo)/1000	0.55
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.10
fmin	0.17
fm,(min=fmin;max=1.00)	0.32
flt=[fm+0.91(N-1)]/N	0.32

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	200	183	1.094	0.478	87	2.291 *
TR	840	3679	0.228	0.478	1758	0.478
SB Lsec.	32	202	0.158	0.511	103	0.311
Lpri.	138	1770	0.078	0.078	138	0.310 *
Ltot.	170				241	0.705
T	636	1863	0.341	0.589	1097	0.580
R	102	1583	0.064	0.678	1073	0.095
EB Lsec.	74	267	0.277	0.289	80	0.925
Lpri.	92	1652	0.056	0.056	92	0.925 *
Ltot.	166				172	0.965
TR	517	3489	0.148	0.344	1202	0.430
WB						
L	60	560	0.107	0.256	143	0.419
T	641	1801	0.356	0.256	460	1.393 *
R	340	1636	0.208	0.367	600	0.567

Sum (v/s) critical = 1.584
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.828

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	2.291	0.478	*	1.000	87	16	*	*	*	*	*
TR	0.478	0.478	12.1	1.000	1758	16	0.2	12.2	B		
SB											
L	0.705	0.589	8.5	1.000	241	16	6.1	14.6	B	9.7	B
T	0.580	0.589	8.8	1.000	1097	16	0.6	9.4	B		
R	0.095	0.678	3.8	1.000	1073	16	0.0	3.8	A		
EB											
L	0.965	0.344	21.5	0.949	172	12	36.6	57.0	E	26.3	D
TR	0.430	0.344	17.3	0.949	1202	12	0.1	16.5	C		
WB											
L	0.419	0.256	21.2	1.000	143	12	0.9	22.1	C	*	*
T	1.393	0.256	*	1.000	460	12	*	*	*		
R	0.567	0.367	17.3	0.928	600	12	0.7	16.8	C		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	170
v/c ratio (x)	0.71
Primary phase effective green	7.00
gq from Supplemental LT Worksheet	14.30
gu from Supplemental LT Worksheet	31.70
Red time (r)	37.00
Arrivals qa = v/(3600(max(x,1)))	0.05
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.08
Xperm	0.84
Xprot	0.60
Case	1
Queue at begining of green arrow (Qa)	1.75
Queue at beginning of unsaturated green (Qu)	0.68
Residual queue (Qr)	0.00
Uniform Delay	8.45

Approach	Eastbound
Adj. LT Vol (v)	166
v/c ratio (x)	0.97
Primary phase effective green	5.00
gq from Supplemental LT Worksheet	22.00
gu from Supplemental LT Worksheet	4.00
Red time (r)	59.00
Arrivals qa = v/(3600(max(x,1)))	0.05
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.48
Xperm	0.62
Xprot	1.29
Case	2
Queue at begining of green arrow (Qa)	2.72
Queue at beginning of unsaturated green (Qu)	1.67
Residual queue (Qr)	0.66
Uniform Delay	21.52

HCS: Signalized Intersection Version 2.4e 02-10-1998 1

Center For Microcomputers In Transportation
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Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	1	1	1	2	< 0	1	1	1
Volumes	104	645	32	287	774	156	90	519	149	54	351	148
PHF or PK15	0.88	0.88	0.88	0.88	0.88	0.88	0.91	0.91	0.91	0.90	0.90	0.90
Lane W (ft)	11.0	12.0		12.0	12.0	12.0	10.0	11.0		10.0	11.0	13.0
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3	3	4	4		4	4	4
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*	*		
Thru		*				Thru	*	*		
Right		*				Right	*	*		
Peds						Peds				
SB Left	*	*			WB	Left		*		
Thru	*	*				Thru		*		
Right	*	*				Right		*		
Peds						Peds				
EB Right					NB	Right				
WB Right	*				SB	Right	*			
Green	12.0A	43.0A			Green		10.0A	23.0P		
Yellow/AR	0.0	6.0			Yellow/AR		0.0	6.0		

Cycle Length: 100 secs Phase combination order: #1 #2 #5 #6

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	104	0.88	118	L	118	1	1.000	1.000	118	1.00	0.00
Thru	645	0.88	733	TR	769	2	1.050	1.000	807	0.00	0.05
Right	32	0.88	36								
SB											
Left	287	0.88	326	L	326	1	1.000	1.000	326	1.00	0.00
Thru	774	0.88	880	T	880	1	1.000	1.000	880	0.00	0.00
Right	156	0.88	177	R	177	1	1.000	1.000	177	0.00	1.00
EB											
Left	90	0.91	99	L	99	1	1.000	1.000	99	1.00	0.00
Thru	519	0.91	570	TR	734	2	1.050	1.000	771	0.00	0.22
Right	149	0.91	164								
WB											
Left	54	0.90	60	L	60	1	1.000	1.000	60	1.00	0.00
Thru	351	0.90	390	T	390	1	1.000	1.000	390	0.00	0.00
Right	148	0.90	164	R	164	1	1.000	1.000	164	0.00	1.00

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.09	157
TR	1900	2	1.00	0.98	1.00	1.00	1.00	1.00	0.99	1.00	3699
SB										0.11	212
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1770
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
EB										0.14	240
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3481
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.16	281
T	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1801
R	1900	1	1.03	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1636

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	100
Actual Green Time for Lane Group, G	43
Effective Green Time for Lane Group, g	46
Opposing Effective Green Time, go	58
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	118
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.28
Adjusted Opposing Flow Rate, Vo	880
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	24.44
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.42
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	25.17
gu=g-gq (or g-gf)	20.83
fs=(875-0.625Vo)/1000	0.32
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.09
flt=[fm+0.91(N-1)]/N	0.09

APPROACH	SB
Cycle Length, C	100
Actual Green Time for Lane Group, G	55
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	46
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	326
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	9.06
Adjusted Opposing Flow Rate, Vo	807
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.21
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.54
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	15.60
gu=g-gq (or g-gf)	33.40
fs=(875-0.625Vo)/1000	0.37
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.98
fmin	0.08
fm,(min=fmin;max=1.00)	0.11

flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	33
Effective Green Time for Lane Group, g	29
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	99
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.75
Adjusted Opposing Flow Rate, Vo	390
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.83
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.65
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	19.91
gu=g-gq (or g-gf)	9.09
fs=(875-0.625Vo)/1000	0.63
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.22
fmin	0.14
fm,(min=fmin;max=1.00)	0.14
flt=[fm+0.91(N-1)]/N	0.14

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	23
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	60
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.67
Adjusted Opposing Flow Rate, Vo	771
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.71
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.52
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	2.61
gu=g-gq (or g-gf)	23.39
fs=(875-0.625Vo)/1000	0.39
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.57
fmin	0.15
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	118	157	0.754	0.460	72	1.638
TR	807	3699	0.218	0.460	1702	0.474
SB Lsec.	167	212	0.788	0.490	104	1.606 *
Lpri.	159	1770	0.090	0.090	159	1.608 *
Ltot.	326				263	1.240
T	880	1863	0.472	0.580	1080	0.815
R	177	1583	0.112	0.680	1077	0.164
EB Lsec.	0	240	0.000	0.290	72	0.000
Lpri.	99	1652	0.060	0.070	116	0.000 *
Ltot.	99				188	0.527
TR	771	3481	0.222	0.360	1253	0.615
WB						
L	60	281	0.214	0.260	73	0.821
T	390	1801	0.217	0.260	468	0.833 *
R	164	1636	0.100	0.380	622	0.264

Sum (v/s) critical = 1.154
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 1.268

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.638	0.460	*	1.000	72	16	*	*	*	*	*
TR	0.474	0.460	14.2	1.000	1702	16	0.2	14.3	B		
SB											
L	1.240	0.580	*	1.000	263	16	*	*	*	*	*
T	0.815	0.580	12.7	1.000	1080	16	3.5	16.2	C		
R	0.164	0.680	4.4	1.000	1077	16	0.0	4.4	A		
EB											
L	0.527	0.360	18.3	0.934	188	12	1.6	18.7	C	19.1	C
TR	0.615	0.360	20.0	0.934	1253	12	0.5	19.2	C		
WB											
L	0.821	0.260	26.5	1.000	73	12	26.8	53.3	E	30.2	D
T	0.833	0.260	26.6	1.000	468	12	6.6	33.2	D		
R	0.264	0.380	16.2	0.915	622	12	0.0	14.9	B		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) PARK AVENUE (E-W) PULASKI ROAD
Analyst: RV File Name: PRPAPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Supplemental Uniform Delay Worksheet

Approach	Southbound
Adj. LT Vol (v)	326
v/c ratio (x)	1.24
Primary phase effective green	9.00
gq from Supplemental LT Worksheet	15.60
gu from Supplemental LT Worksheet	33.40
Red time (r)	42.00
Arrivals qa = v/(3600(max(x,1)))	0.07
Primary Ph. Departures Sp=s/3600	0.49
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.09
Xperm	1.24
Xprot	0.84
Case	3
Queue at begining of green arrow (Qa)	3.76
Queue at beginning of unsaturated green (Qu)	1.14
Residual queue (Qr)	0.69
Uniform Delay	15.61

Approach	Eastbound
Adj. LT Vol (v)	99
v/c ratio (x)	0.53
Primary phase effective green	7.00
gq from Supplemental LT Worksheet	19.91
gu from Supplemental LT Worksheet	9.09
Red time (r)	64.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.21
Xperm	0.41
Xprot	0.61
Case	1
Queue at begining of green arrow (Qa)	1.76
Queue at beginning of unsaturated green (Qu)	0.55
Residual queue (Qr)	0.00
Uniform Delay	18.29

B. Pulaski Road at Lake Road

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 02-05-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: RV File Name: PRLRAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	12	27	20	22	34	85	35	390	2	17	972	27
PHF or PK15	0.82	0.82	0.82	0.84	0.84	0.84	0.90	0.90	0.90	0.96	0.96	0.96
Lane W (ft)		21.0			14.0		10.0	12.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	22.0A				Green	57.0P			
Yellow/AR	5.5				Yellow/AR	5.5			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	517	1898	0.139	0.272	18.8	C	18.8	C
SB	LTR	426	1565	0.392	0.272	20.6	C	20.6	C
EB	L	80	117	0.488	0.661	5.1	B	2.4	A
	TR	1231	1861	0.353	0.661	2.1	A		
WB	L	382	577	0.047	0.661	1.6	A	6.7	B
	TR	1227	1855	0.849	0.661	6.8	B		

Intersection Delay = 7.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.716

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 02-05-1998
Center For Microcomputers In Transportation

Streets: (N-S) LAKE ROAD (E-W) PULASKI ROAD
Analyst: RV File Name: PRLRPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	1	< 0
Volumes	16	32	25	26	26	36	42	825	8	19	491	20
PHF or PK15	0.79	0.79	0.79	0.83	0.83	0.83	0.88	0.88	0.88	0.85	0.85	0.85
Lane W (ft)		21.0			14.0		10.0	12.0		10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type		3			3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share							0					
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	25.0A				Green	64.0P			
Yellow/AR	5.5				Yellow/AR	5.5			

Cycle Length: 100 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
NB	LTR	532	1934	0.175	0.275	21.0	C	21.0	C
SB	LTR	421	1531	0.249	0.275	21.5	C	21.5	C
EB	L	229	344	0.210	0.665	2.0	A	4.8	A
	TR	1237	1860	0.766	0.665	4.9	A		
WB	L	82	124	0.267	0.665	2.3	A	2.6	A
	TR	1231	1852	0.489	0.665	2.7	A		

Intersection Delay = 5.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.615

C. Pulaski Road at Tulane Place/Site Access

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) TULANE PLACE/SITE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... RV
Date of Analysis..... 2/4/98
Other Information..... BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVMENTS

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 0	< 0	0	> 0	< 0
Stop/Yield			N			N						
Volumes	7	392	2	10	961	6	2		16	17		21
PHF	.93	.93	.93	.86	.86	.86	.71		.71	.9		.9
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10		1.10	1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	423	1120
Potential Capacity: (pcph)	845	375
Movement Capacity: (pcph)	845	375
Prob. of Queue-Free State:	0.97	0.93

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	424	1124
Potential Capacity: (pcph)	1077	499
Movement Capacity: (pcph)	1077	499
Prob. of Queue-Free State:	0.99	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.96	0.98

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1575	1575
Potential Capacity: (pcph)	130	130
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.94	0.94
Capacity Adjustment Factor due to Impeding Movements	0.88	0.91
Movement Capacity: (pcph)	114	119

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	3	114 >	501	7.6	0.0	B	7.6
NB R	25	845 >					
SB L	21	119 >	189	25.1	1.1	D	25.1
SB R	25	375 >					
EB L	9	499		7.3	0.0	B	0.1
WB L	13	1077		3.4	0.0	A	0.0

Intersection Delay = 0.8 sec/veh

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Streets: (N-S) TULANE PLACE/SITE (E-W) PULASKI ROAD
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... RV
Date of Analysis..... 2/4/98
Other Information..... BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 0	< 0	0	> 0	< 0
Stop/Yield			N			N						
Volumes	24	902	12	12	572	19	3		16	11		13
PHF	.93	.93	.93	.82	.82	.82	.75		.75	.9		.9
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10		1.10	1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	976	710
Potential Capacity: (pcph)	443	605
Movement Capacity: (pcph)	443	605
Prob. of Queue-Free State:	0.95	0.98

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	983	721
Potential Capacity: (pcph)	583	777
Movement Capacity: (pcph)	583	777
Prob. of Queue-Free State:	0.97	0.96
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.95	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1734	1738
Potential Capacity: (pcph)	105	104
Major LT, Minor TH Impedance Factor:	0.87	0.87
Adjusted Impedance Factor:	0.87	0.87
Capacity Adjustment Factor due to Impeding Movements	0.84	0.82
Movement Capacity: (pcph)	89	85

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	4	89 >	279	14.3	0.3	C	14.3
NB	R	23	443 >					
SB	L	13	85 >	158	27.7	0.7	D	27.7
SB	R	15	605 >					
EB	L	29	777		4.8	0.0	A	0.1
WB	L	17	583		6.4	0.0	B	0.1

Intersection Delay = 0.7 sec/veh

D. Pulaski Road at Cuba Hill Road/Central Street

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: FEBRUARY 4, 1998
N&P JOB NO. 85125
BUILD AM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	36		14.9	
	THRU	352		13.1	12.8
	RIGHT	103		11.2	
WESTBOUND	LEFT	4		10.6	
	TH/RT	759	0.418	43.9	43.7
NORTHBOUND	LEFT	517	0.382	*	
	TH/RT	466		18.9	*
SOUTHBOUND	LEFT	46	0.109	32.0	
	THRU	171		25.6	27.0
SOUTHWESTBOUND					
	L/TH/RT	87	0.062	35.3	35.3

OVERALL INTERSECTION DELAY - * SECONDS/VEHICLE
LEVEL OF SERVICE - *

CYCLE LENGTH: 90 SEC. Xc = 1.079
LOST TIME: 9 SEC.

** LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	403	360	3	42	157		31	306	90	4	587	119
PHF or PK15	0.78	0.78	0.78	0.92	0.92		0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0		11.0	12.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*			
Thru	*	*			Thru	*			
Right	*	*			Right	*			
Peds					Peds				
SB Left		*			WB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	18.0A	14.0A			Green	46.0P			
Yellow/AR	0.0	6.0			Yellow/AR	6.0			

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	403	0.78	517	L	517	1	1.000	1.000	517	1.00	0.00
Thru	360	0.78	462	TR	466	1	1.000	1.000	466	0.00	0.01
Right	3	0.78	4								
SB											
Left	42	0.92	46	L	46	1	1.000	1.000	46	1.00	0.00
Thru	157	0.92	171	T	171	1	1.000	1.000	171	0.00	0.00
EB											
Left	31	0.87	36	L	36	1	1.000	1.000	36	1.00	0.00
Thru	306	0.87	352	T	352	1	1.000	1.000	352	0.00	0.00
Right	90	0.87	103	R	103	1	1.000	1.000	103	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	587	0.93	631	TR	759	1	1.000	1.000	759	0.00	0.17
Right	119	0.93	128								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.36	634
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.24	424
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.08	142
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.32	548
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1816

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	90
Actual Green Time for Lane Group, G	32
Effective Green Time for Lane Group, g	20
Opposing Effective Green Time, go	17
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	517
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	12.93
Adjusted Opposing Flow Rate, Vo	171
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	4.28
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.81
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.66
gu=g-gq (or g-gf)	12.34
fs=(875-0.625Vo)/1000	0.77
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.69
fmin	0.20
fm,(min=fmin;max=1.00)	0.36
flt=[fm+0.91(N-1)]/N	0.36

APPROACH	SB
Cycle Length, C	90
Actual Green Time for Lane Group, G	14
Effective Green Time for Lane Group, g	17
Opposing Effective Green Time, go	35
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	46
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.15
Adjusted Opposing Flow Rate, Vo	466
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.65
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.61
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	17.00
fs=(875-0.625Vo)/1000	0.58
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	4.92
fmin	0.24
fm,(min=fmin;max=1.00)	0.24
flt=[fm+0.91(N-1)]/N	0.24

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	36
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.90
Adjusted Opposing Flow Rate, Vo	759
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.98
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	20.84
gu=g-gq (or g-gf)	28.16
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.08
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	46
Effective Green Time for Lane Group, g	49
Opposing Effective Green Time, go	49
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	352
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.80
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.28
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	3.56
gu=g-gq (or g-gf)	45.44
fs=(875-0.625Vo)/1000	0.65
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.94
fmin	0.08
fm,(min=fmin;max=1.00)	0.32
flt=[fm+0.91(N-1)]/N	0.32

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB Lsec.	242	634	0.382	0.222	141	1.716 *
Lpri.	275	1652	0.166	0.167	275	1.718 *
Ltot.	517				416	1.243
TR	466	1798	0.259	0.389	699	0.666
SB						
L	46	424	0.109	0.189	80	0.575
T	171	1863	0.092	0.189	352	0.486
EB						
L	36	142	0.254	0.544	80	0.450
T	352	1863	0.189	0.544	1014	0.347
R	103	1583	0.065	0.544	862	0.119
WB						
L	4	548	0.007	0.544	299	0.013
TR	759	1816	0.418	0.544	989	0.768 *

Sum (v/s) critical = 0.966
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 1.035

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	1.243	0.389	*	1.000	416	16	*	*	*	*	*
TR	0.666	0.389	17.2	1.000	699	16	1.7	18.9	C		
SB											
L	0.575	0.189	25.2	1.000	80	16	6.8	32.0	D	27.0	D
T	0.486	0.189	24.8	1.000	352	16	0.9	25.6	D		
EB											
L	0.450	0.544	9.4	0.692	80	12	2.0	8.5	B	6.1	B
T	0.347	0.544	8.8	0.692	1014	12	0.1	6.1	B		
R	0.119	0.544	7.6	0.692	862	12	0.0	5.3	B		
WB											
L	0.013	0.544	7.1	0.692	299	12	0.0	4.9	A	10.4	B
TR	0.768	0.544	12.2	0.692	989	12	2.0	10.4	B		

Intersection Delay = * (sec/veh) Intersection LOS = *

* Delay and LOS not meaningful when any v/c is greater than 1.2 or 1/PHF

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	517
v/c ratio (x)	1.24
Primary phase effective green	15.00
gq from Supplemental LT Worksheet	7.66
gu from Supplemental LT Worksheet	12.34
Red time (r)	55.00
Arrivals qa = v/(3600(max(x,1)))	0.12
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.29
Xperm	0.66
Xprot	1.18
Case	2
Queue at begining of green arrow (Qa)	6.36
Queue at beginning of unsaturated green (Qu)	2.09
Residual queue (Qr)	1.21
Uniform Delay	18.78

Center For Microcomputers In Transportation
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Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	403	360	3		5	70	31	306	90	4	587	119
PHF or PK15	0.78	0.78	0.78		0.86	0.86	0.87	0.87	0.87	0.93	0.93	0.93
Lane W (ft)	10.0	11.0			11.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left		*			EB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds					Peds				
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	7.0A	32.0A			Green	34.0P			
Yellow/AR	5.0	6.0			Yellow/AR	6.0			

Cycle Length: 90 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	403	0.78	517	L	517	1	1.000	1.000	517	1.00	0.00
Thru	360	0.78	462	TR	466	1	1.000	1.000	466	0.00	0.01
Right	3	0.78	4								
SB											
Thru	5	0.86	6	TR	87	1	1.000	1.000	87	0.00	0.93
Right	70	0.86	81								
EB											
Left	31	0.87	36	L	36	1	1.000	1.000	36	1.00	0.00
Thru	306	0.87	352	T	352	1	1.000	1.000	352	0.00	0.00
Right	90	0.87	103	R	103	1	1.000	1.000	103	0.00	1.00
WB											
Left	4	0.93	4	L	4	1	1.000	1.000	4	1.00	0.00
Thru	587	0.93	631	TR	759	1	1.000	1.000	759	0.00	0.17
Right	119	0.93	128								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1798
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.77	1.00	1394
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.11	188
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.27	467
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.97	1.00	1816

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	36
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.90
Adjusted Opposing Flow Rate, Vo	759
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	18.98
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	36.16
gu=g-gq (or g-gf)	0.84
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	WB
Cycle Length, C	90
Actual Green Time for Lane Group, G	34
Effective Green Time for Lane Group, g	37
Opposing Effective Green Time, go	37
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	4
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.10
Adjusted Opposing Flow Rate, Vo	352
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.80
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.45
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.78
gu=g-gq (or g-gf)	29.22
fs=(875-0.625Vo)/1000	0.65
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	2.94
fmin	0.11
fm,(min=fmin;max=1.00)	0.27
flt=[fm+0.91(N-1)]/N	0.27

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSAM3.HC9
Area Type: Other 2-4-98 AM PEAK
Comment: BUILD AM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	517	1652	0.313	0.389	642	0.805 *
TR	466	1798	0.259	0.389	699	0.666
SB						
TR	87	1394	0.062	0.100	139	0.624 *
EB						
L	36	188	0.192	0.411	80	0.450
T	352	1863	0.189	0.411	766	0.460
R	103	1583	0.065	0.411	651	0.158
WB						
L	4	467	0.009	0.411	192	0.021
TR	759	1816	0.418	0.411	746	1.017 *

Sum (v/s) critical = 0.793
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.882

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.805	0.389	18.6	1.000	642	16	5.2	23.7	C	21.5	C
TR	0.666	0.389	17.2	1.000	699	16	1.7	18.9	C		
SB											
TR	0.624	0.100	29.5	1.000	139	16	5.8	35.3	D	35.3	D
EB											
L	0.450	0.411	14.6	0.882	80	12	2.0	14.9	B	12.9	B
T	0.460	0.411	14.6	0.882	766	12	0.2	13.1	B		
R	0.158	0.411	12.7	0.882	651	12	0.0	11.2	B		
WB											
L	0.021	0.411	12.0	0.882	192	12	0.0	10.6	B	43.7	E
TR	1.017	0.411	20.1	0.882	746	12	26.1	43.9	E		

Intersection Delay = 27.5 sec/veh Intersection LOS = D

NELSON & POPE, LLP

5-WAY INTERSECTION LEVEL OF SERVICE SUMMARY SHEET

INTERSECTION: PULASKI ROAD AT CUBA HILL ROAD
DATE: FEBRUARY 4, 1998
N&P JOB NO. 85125
BUILD PM PEAK HOUR CONDITIONS

APPROACH		ADJUSTED FLOW RATE (v)	v/s CRITICAL	DELAY	APPROACH DELAY
EASTBOUND	LEFT	76		34.3	
	THRU	759	0.407	23.8	21.1
	RIGHT	411		13.6	
WESTBOUND	LEFT	13		10.6	
	TH/RT	494		13.9	13.8
NORTHBOUND	LEFT	113	0.068	18.1	
	TH/RT	198		16.5	17.1
SOUTHBOUND	LEFT	160		32.6	
	THRU	384	0.206	43.2	40.1
SOUTHWESTBOUND					
	L/TH/RT	44	0.080	34.2	34.2

OVERALL INTERSECTION DELAY - 23.3 SECONDS/VEHICLE
LEVEL OF SERVICE - C

CYCLE LENGTH: 90 SEC. Xc = 0.846
LOST TIME: 9 SEC.

* *LEVEL OF SERVICE AND DELAY ARE MEANINGLESS WHEN V/C RATIO FOR ANY LANE GROUP EXCEEDS 1.2*

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Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	0	1	1	1	1	1	< 0
Volumes	103	169	11	133	319		74	744	403	11	375	55
PHF or PK15	0.91	0.91	0.91	0.83	0.83		0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0		11.0	12.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2		2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*			
Thru	*	*			Thru	*			
Right	*	*			Right	*			
Peds					Peds				
SB Left		*			WB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds					Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	15.0A	20.0A			Green	53.0P			
Yellow/AR	0.0	6.0			Yellow/AR	6.0			

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	103	0.91	113	L	113	1	1.000	1.000	113	1.00	0.00
Thru	169	0.91	186	TR	198	1	1.000	1.000	198	0.00	0.06
Right	11	0.91	12								
SB											
Left	133	0.83	160	L	160	1	1.000	1.000	160	1.00	0.00
Thru	319	0.83	384	T	384	1	1.000	1.000	384	0.00	0.00
EB											
Left	74	0.98	76	L	76	1	1.000	1.000	76	1.00	0.00
Thru	744	0.98	759	T	759	1	1.000	1.000	759	0.00	0.00
Right	403	0.98	411	R	411	1	1.000	1.000	411	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	375	0.87	431	TR	494	1	1.000	1.000	494	0.00	0.13
Right	55	0.87	63								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.15	267
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1784
SB											
L	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	1.00	0.56	1005
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.15	266
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.08	131
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1827

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	100
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	23
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	113
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.14
Adjusted Opposing Flow Rate, Vo	384
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.67
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.77
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	20.88
gu=g-gq (or g-gf)	5.12
fs=(875-0.625Vo)/1000	0.63
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	3.18
fmin	0.15
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	SB
Cycle Length, C	100
Actual Green Time for Lane Group, G	20
Effective Green Time for Lane Group, g	23
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	160
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	4.44
Adjusted Opposing Flow Rate, Vo	198
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.50
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.62
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	23.00
fs=(875-0.625Vo)/1000	0.75
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	1.79
fmin	0.17
fm,(min=fmin;max=1.00)	0.56
flt=[fm+0.91(N-1)]/N	0.56

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1

Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	76
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.11
Adjusted Opposing Flow Rate, Vo	494
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.72
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	8.03
gu=g-gq (or g-gf)	47.97
fs=(875-0.625Vo)/1000	0.57
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.60
fmin	0.07
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	53
Effective Green Time for Lane Group, g	56
Opposing Effective Green Time, go	56
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	759
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	21.08
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.26
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	21.50
gu=g-gq (or g-gf)	34.50
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.07
fm,(min=fmin;max=1.00)	0.08
flt=[fm+0.91(N-1)]/N	0.08

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB Lsec.	0	267	0.000	0.260	72	0.000	
Lpri.	113	1652	0.068	0.120	198	0.000	*
Ltot.	113				270	0.419	
TR	198	1784	0.111	0.380	678	0.292	
SB							
L	160	1005	0.159	0.230	231	0.693	
T	384	1863	0.206	0.230	428	0.896	*
EB							
L	76	266	0.286	0.560	149	0.511	
T	759	1863	0.407	0.560	1043	0.728	*
R	411	1583	0.260	0.560	887	0.464	
WB							
L	13	131	0.100	0.560	73	0.178	
TR	494	1827	0.270	0.560	1023	0.483	

Sum (v/s) critical = 0.682
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.749

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.419	0.380	17.5	1.000	270	16	0.6	18.1	C	17.1	C
TR	0.292	0.380	16.4	1.000	678	16	0.1	16.5	C		
SB											
L	0.693	0.230	26.8	1.000	231	16	5.8	32.6	D	40.1	E
T	0.896	0.230	28.4	1.000	428	16	14.8	43.2	E		
EB											
L	0.511	0.560	10.3	0.662	149	12	1.8	8.6	B	8.6	B
T	0.728	0.560	12.4	0.662	1043	12	1.4	9.6	B		
R	0.464	0.560	9.9	0.662	887	12	0.2	6.8	B		
WB											
L	0.178	0.560	8.2	0.662	73	12	0.1	5.5	B	6.9	B
TR	0.483	0.560	10.1	0.662	1023	12	0.2	6.9	B		

Intersection Delay = 15.8 sec/veh Intersection LOS = C

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCHPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	113
v/c ratio (x)	0.42
Primary phase effective green	12.00
gq from Supplemental LT Worksheet	20.88
gu from Supplemental LT Worksheet	5.12
Red time (r)	62.00
Arrivals qa = v/(3600(max(x,1)))	0.03
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.38
Xperm	0.42
Xprot	0.42
Case	1
Queue at begining of green arrow (Qa)	1.95
Queue at beginning of unsaturated green (Qu)	0.66
Residual queue (Qr)	0.00
Uniform Delay	17.49

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	0	1	< 0	1	1	1	1	1	< 0
Volumes	103	169	11		12	26	74	744	403	11	375	55
PHF or PK15	0.91	0.91	0.91		0.88	0.88	0.98	0.98	0.98	0.87	0.87	0.87
Lane W (ft)	10.0	11.0			11.0		10.0	12.0	12.0	10.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2		2	2	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3			3		4	4	4	4	4	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
NB Left		*			EB	Left	*			
Thru		*				Thru	*			
Right		*				Right	*			
Peds						Peds				
SB Left	*				WB	Left	*			
Thru	*					Thru	*			
Right	*					Right	*			
Peds						Peds				
EB Right					NB	Right				
WB Right					SB	Right				
Green	6.0A	35.0A			Green		42.0P			
Yellow/AR	5.0	6.0			Yellow/AR		6.0			

Cycle Length: 100 secs Phase combination order: #1 #2 #5

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	103	0.91	113	L	113	1	1.000	1.000	113	1.00	0.00
Thru	169	0.91	186	TR	198	1	1.000	1.000	198	0.00	0.06
Right	11	0.91	12								
SB											
Thru	12	0.88	14	TR	44	1	1.000	1.000	44	0.00	0.68
Right	26	0.88	30								
EB											
Left	74	0.98	76	L	76	1	1.000	1.000	76	1.00	0.00
Thru	744	0.98	759	T	759	1	1.000	1.000	759	0.00	0.00
Right	403	0.98	411	R	411	1	1.000	1.000	411	0.00	1.00
WB											
Left	11	0.87	13	L	13	1	1.000	1.000	13	1.00	0.00
Thru	375	0.87	431	TR	494	1	1.000	1.000	494	0.00	0.13
Right	55	0.87	63								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.99	1.00	1784
SB											
TR	1900	1	0.97	0.98	1.00	1.00	1.00	1.00	0.81	1.00	1455
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.12	211
T	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1863
R	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.85	1.00	1583
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.09	155
TR	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	0.98	1.00	1827

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Supplemental Permitted LT Worksheet

APPROACH	EB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	76
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.11
Adjusted Opposing Flow Rate, Vo	494
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	13.72
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	14.35
gu=g-gq (or g-gf)	30.65
fs=(875-0.625Vo)/1000	0.57
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	5.60
fmin	0.09
fm,(min=fmin;max=1.00)	0.12
flt=[fm+0.91(N-1)]/N	0.12

APPROACH	WB
Cycle Length, C	100
Actual Green Time for Lane Group, G	42
Effective Green Time for Lane Group, g	45
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	13
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.36
Adjusted Opposing Flow Rate, Vo	759
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	21.08
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.40
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	35.55
gu=g-gq (or g-gf)	9.45
fs=(875-0.625Vo)/1000	0.40
Pl=Plt[1+{(N-1)g/(fs*gu+4.5)}]	1.00
El1	8.20
fmin	0.09
fm,(min=fmin;max=1.00)	0.09
flt=[fm+0.91(N-1)]/N	0.09

Streets: (N-S) CUBA HILL/CENTRAL ST (E-W) PULASKI ROAD
Analyst: RV File Name: PRCSPM3.HC9
Area Type: Other 2-4-98 PM PEAK
Comment: BUILD PM PEAK HOUR VOLUMES WITH COUNTY ROADWAY IMPROVEMENTS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	113	1652	0.068	0.380	628	0.180
TR	198	1784	0.111	0.380	678	0.292 *
SB						
TR	44	1455	0.030	0.080	116	0.378 *
EB						
L	76	211	0.360	0.450	95	0.799
T	759	1863	0.407	0.450	838	0.905 *
R	411	1583	0.260	0.450	712	0.577
WB						
L	13	155	0.084	0.450	72	0.181
TR	494	1827	0.270	0.450	822	0.601

Sum (v/s) critical = 0.549
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.603

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.180	0.380	15.7	1.000	628	16	0.0	15.7	C	16.2	C
TR	0.292	0.380	16.4	1.000	678	16	0.1	16.5	C		
SB											
TR	0.378	0.080	33.2	1.000	116	16	1.0	34.2	D	34.2	D
EB											
L	0.799	0.450	18.0	0.836	95	12	19.3	34.3	D	21.1	C
T	0.905	0.450	19.4	0.836	838	12	7.6	23.8	C		
R	0.577	0.450	15.5	0.836	712	12	0.7	13.6	B		
WB											
L	0.181	0.450	12.5	0.836	72	12	0.1	10.6	B	13.8	B
TR	0.601	0.450	15.8	0.836	822	12	0.7	13.9	B		

Intersection Delay = 18.9 sec/veh Intersection LOS = C

APPENDIX F: ACCIDENT DATA

ACCIDENT INFORMATION REQUEST

Suffolk County Department of Public Works
Traffic Division

FOI Request #:

Requested By: Joe Perri
Representing: Nelson & Pope
Date: February 4, 1998

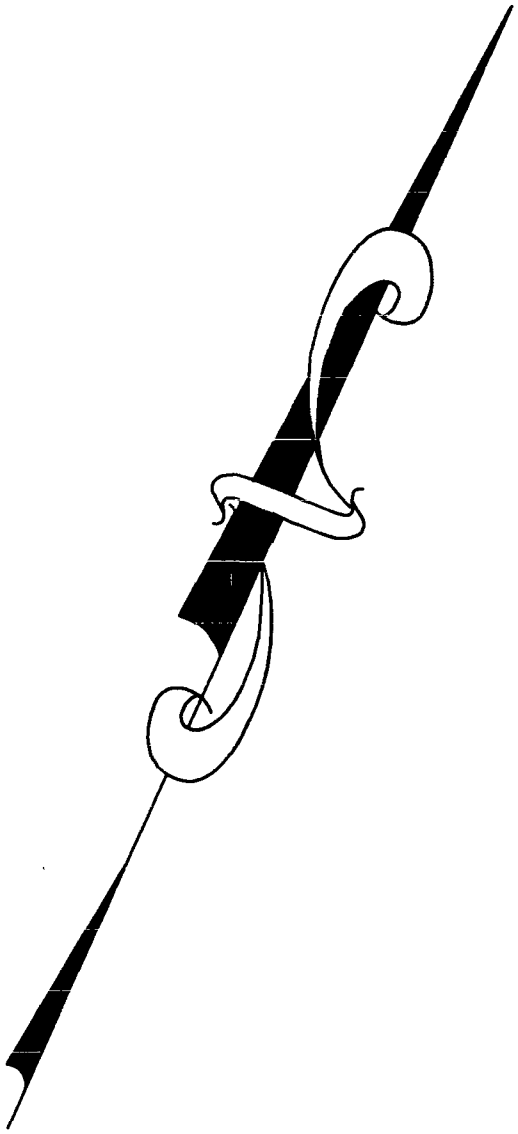
CR 11, PULASKI ROAD

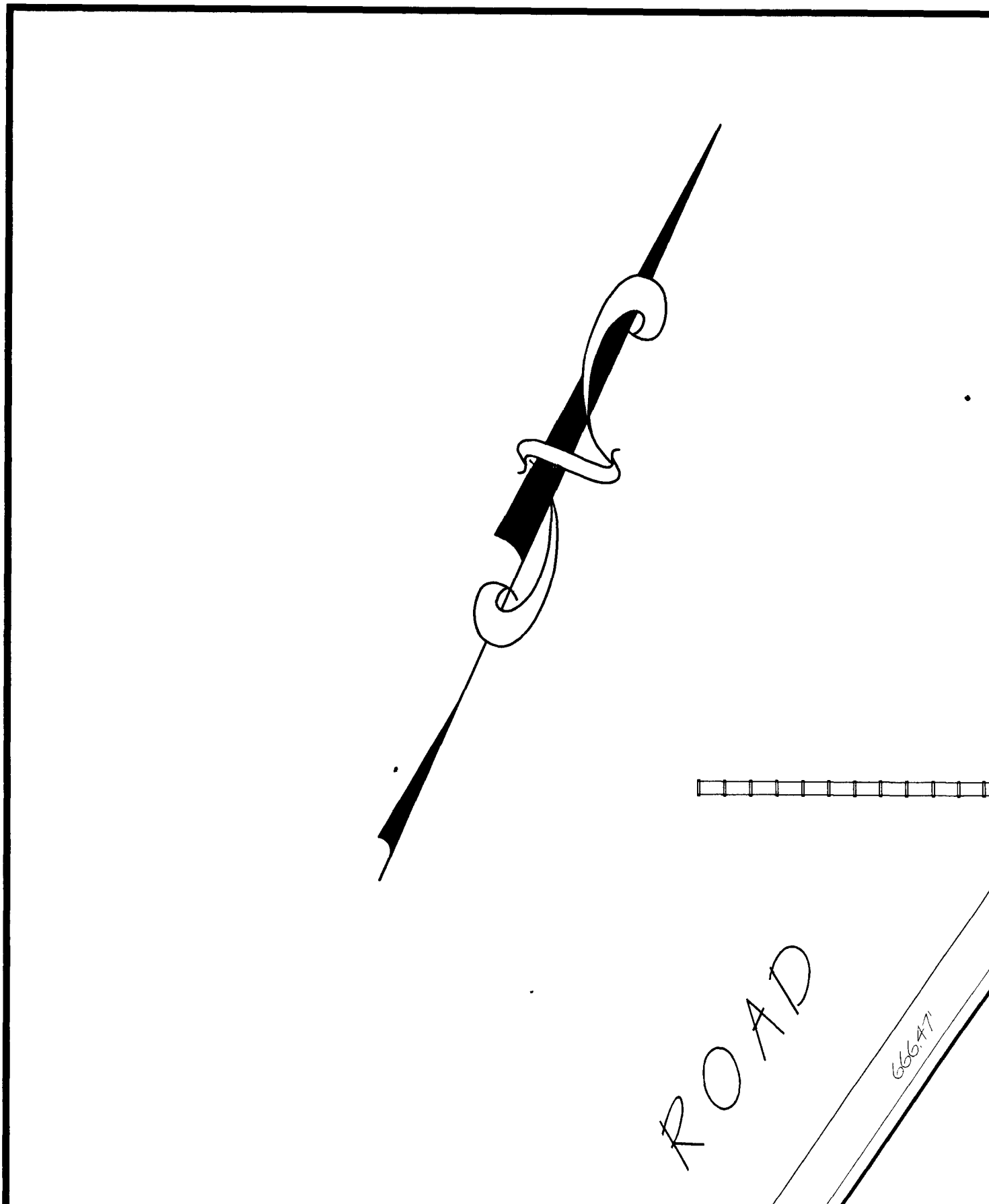
CR 35, Park Avenue to Cuba Hill Road

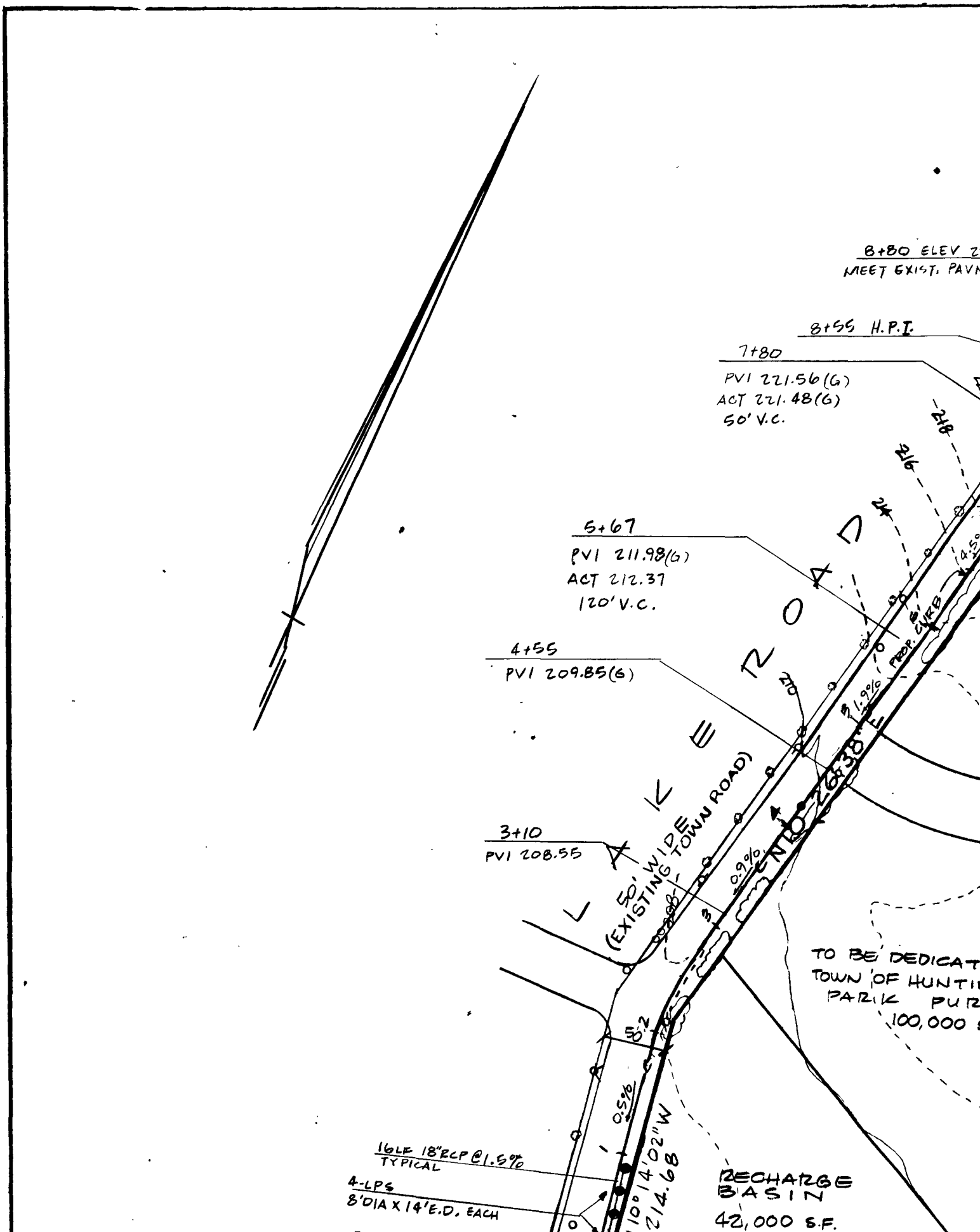
	1993	1994 Not Available	1995	1996 Not Available	1997 thru 12/5/97
CR35	23		35		21
	3		3		4
Adelphia Dr	0		0		0
	1		1		1
Lake Rd	4		5		3
	0		0		0
Auburn Rd	0		0		0
	0		1		1
Tulane Pl	1		1		1
	0		0		0
Frazer Dr	1		0		1
	0		1		0
Butterfield Dr	4		2		0
	0		0		0
Cuba Hill Rd	8		11		16

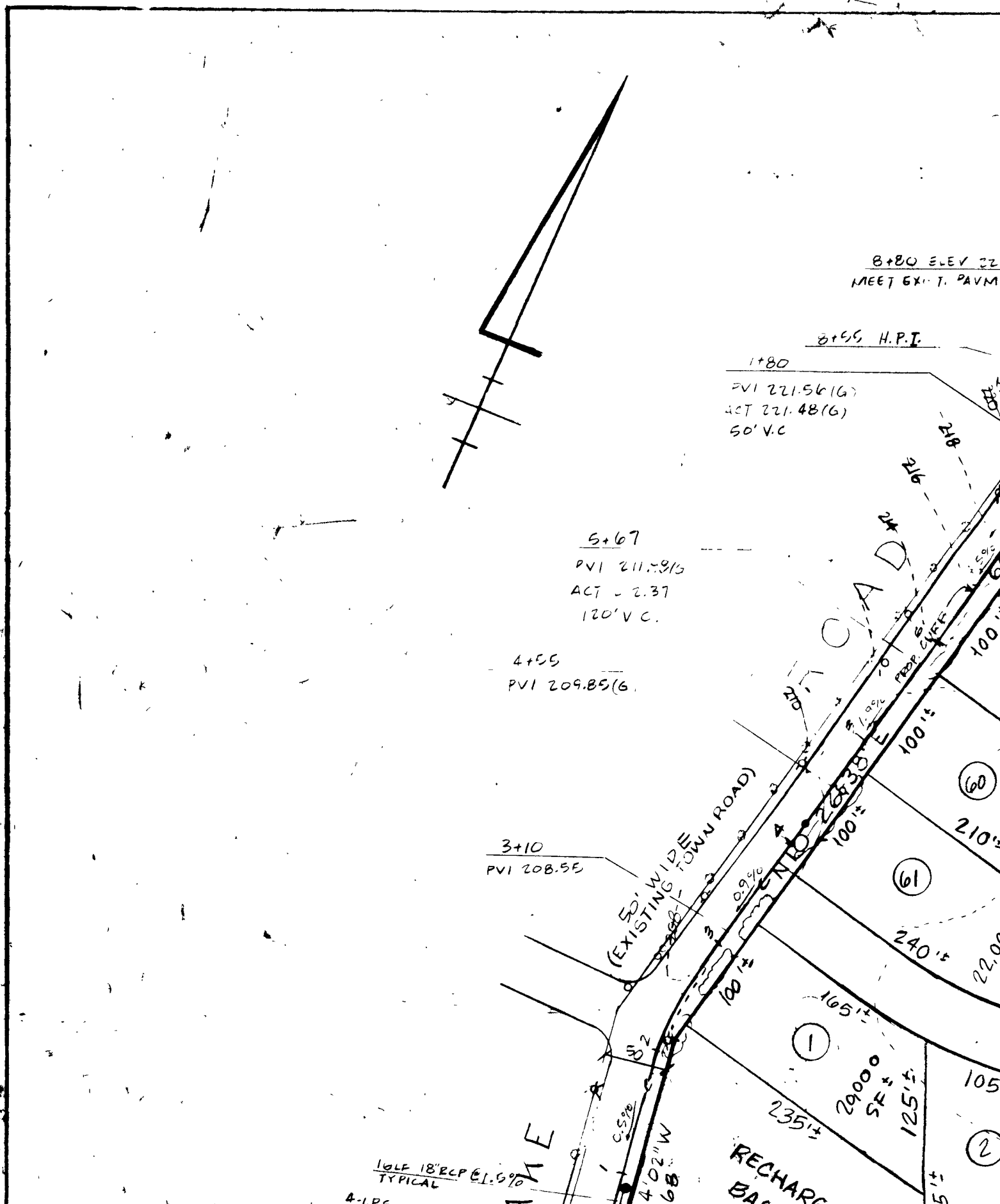
RECEIVED
JUL 12 2000
TOWN OF HUNTINGTON
DEPARTMENT OF PLANNING
AND ENVIRONMENT

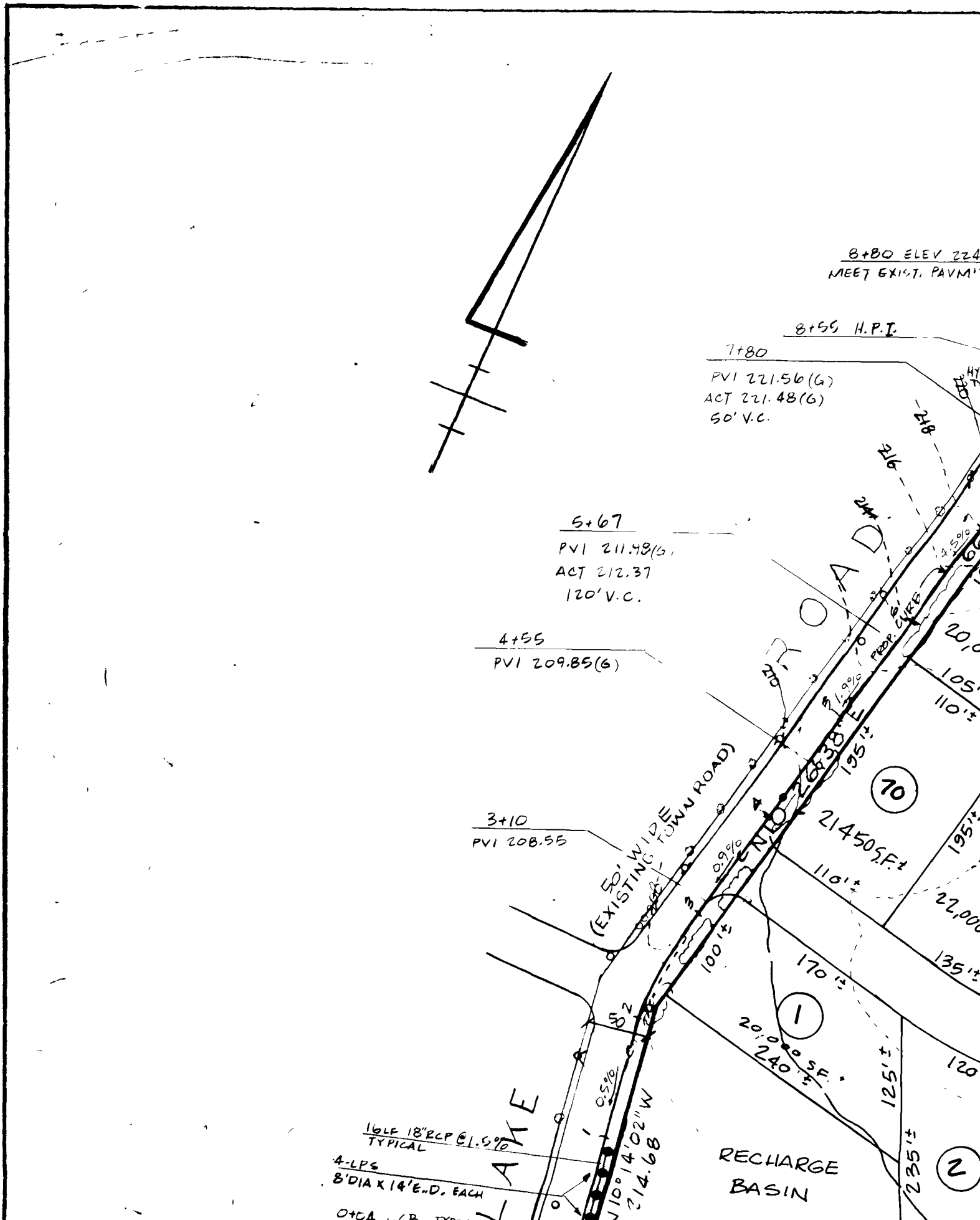
ROAD
666+71

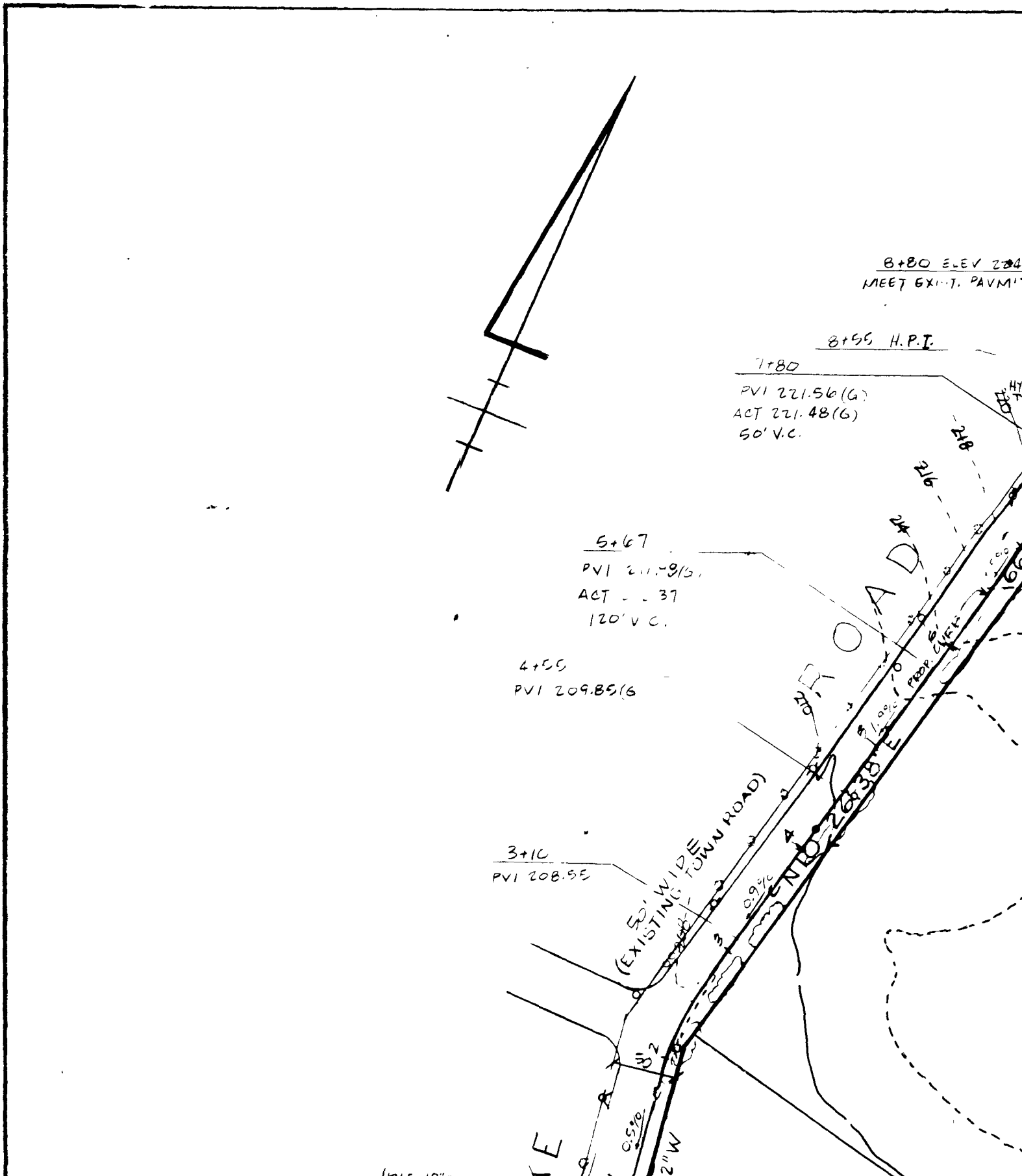



ROAD
666.47'


8+80 ELEV 2
MEET EXIST. PAVM
8+55 H.P.I.
7+80
PVI 221.56(G)
ACT 221.48(G)
50' V.C.
5+67
PVI 211.98(G)
ACT 212.37
120' V.C.
4+55
PVI 209.85(G)
3+10
PVI 208.55
LAKE ROAD
50' WIDE
(EXISTING TOWN ROAD)
PROP. CURB
1.9%
0.9%
0.5%
TO BE DEDICAT
TOWN OF HUNTI
PARK PUR
100,000
16LF 18"RCP @1.5%
TYPICAL
4-LPS
8'DIA X 14'E.D. EACH
N10°14'02"W
214.68
RECHARGE
BASIN
42,000 S.F.


8+80 ELEV 22
MEET EXIST. PAVM
8+55 H.P.I.
1+80
PVI 221.56(G)
ACT 221.48(G)
50' V.C
5+67
PVI 211.-9(G
ACT - 2.37
120' V.C.
4+55
PVI 209.85(G.
3+10
PVI 208.55
50' WIDE (EXISTING TOWN ROAD)
PROP. CHEF
0.9%
0.5%
100'±
210'±
240'±
165'±
235'±
125'±
29000 SF±
(60)
(61)
(1)
(2)
RECHARG
BA
10LF 18" RCP @ 1.5%
TYPICAL
4-1 RC
4°02'11" W
68
248
246
244
242
240


8+80 ELEV 224
MEET EXIST. PAVM'
8+55 H.P.I.
7+80
PVI 221.56(G)
ACT 221.48(G)
50' V.C.
5+67
PVI 211.48(G)
ACT 212.37
120' V.C.
4+55
PVI 209.85(G)
3+10
PVI 208.55
50' WIDE
(EXISTING TOWN ROAD)
PROP. CURB
N10°26'38"E
195'±
110'±
100'±
170'±
240'±
125'±
235'±
120
195'±
135'±
21450 S.F.±
20,000 S.F.±
22,000
20,0
70
1
2
0.9%
0.5%
4.5%
1.9%
16LF 18" RCP @ 1.5%
TYPICAL
4-LPS
8' DIA X 14' E.D. EACH
N10°14'02"W
214.68
RECHARGE
BASIN
LAKE


8+80 ELEV 224
MEET EXIST. PAVMT
8+55 H.P.I.
7+80
PVI 221.56(G)
ACT 221.48(G)
50' V.C.
5+67
PVI 211.98(G)
ACT 211.37
120' V.C.
4+55
PVI 209.85(G
3+10
PVI 208.55
50' WIDE
(EXISTING TOWN ROAD)
PROP. CURB
0.9%
0.5%
ROAD
NO. 2638
248
216
220
224
160