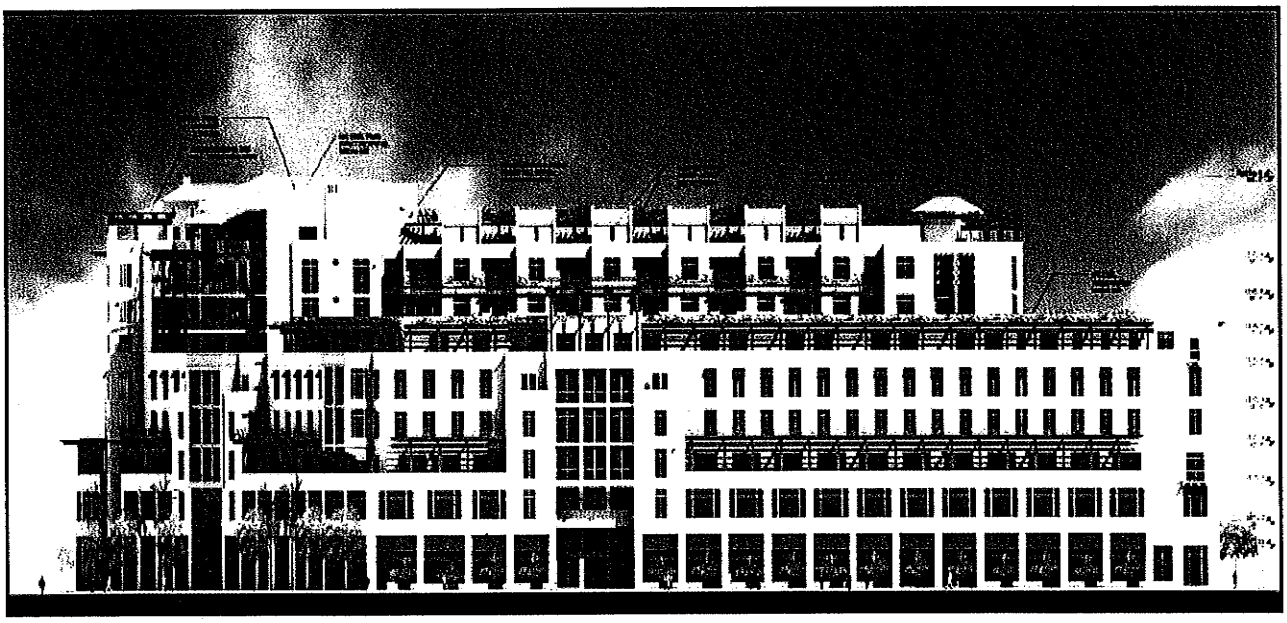
Traffic Impact Study



DYL Merrick Park Development

4601 LeJeune Road

Coral Gables, Florida

RGA

Richard Garcia & Associates, Inc.

March 27th, 2008

Engineer's Certification

I, Richard Garcia, P.E. # 54886, certify that I currently hold an active Professional Engineers License in the State of Florida and am competent through education and experience to provide engineering services in the civil and traffic engineering disciplines contained in this report. In addition, the firm Richard Garcia & Associates, Inc. holds a Certificate of Authorization # 9592 in the State of Florida. I further certify that this report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions and recommendations made herein are true and correct to the best of my knowledge and ability.

PROJECT DESCRIPTION: DYL Merrick Park Development - Traffic Impact Study

PROJECT LOCATION: 4601 LeJeune Road
Coral Gables, Florida

Florida Registration No, 54886 Date

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Executive Summary

The subject project is located on 4601 LeJeune Road (SR 953) in the City of Coral Gables, Florida. The subject redevelopment is comprised of High-Rise Residential Condominium with 42 Dwelling Units (DU), General Office space with 181,682 square feet (SF), Specialty Retail with 39,508 SF and a Quality Restaurant with 8,738 SF. The site is currently occupied with 31,970 square feet (SF) of General Office and 10,879 SF of Specialty Retail.

The Trip Generation calculations of this project revealed that there will be 229 net vehicle trips per hour (vph) during the AM peak hour and 261 net vehicle trips per hour (vph) during the PM peak hour. Additionally, these peak hour trips correspond to the adjacent street peak hour. These trips are likely to be reduced based on the rate and extent of transit usage, since a transit reduction was not utilized. Lastly, the subject project is located in TAZ 1081. Using the MUATS cardinal distribution from the Miami-Dade Transportation Plan the project traffic was assigned to the surrounding roadway and intersections.

Traffic counts were collected and adjusted for seasonal variations and used in the Level of Service analysis. This analysis was performed for the existing and proposed future conditions. A background growth 1.53 percent with a 3 year build-out horizon was utilized to approximate future traffic trends. Addittionally, the eleven (11) committed developments indentified on Table A5-A in Appendix E were considered and evaluated for estimating the proposed future condition. These committed developments have been compared and applied consistent with the Traffic Impact Study of Gables Residential performed by David Plummer & Associates, Inc dated November 2007. Lastly, these analyses were performed for the AM and PM Peak Hour. The following table summarizes the results found.

Intersections	Existing (2007)				Proposed w/ Project (2010)			
	AM		PM		AM		PM	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
LeJeune Road & Altara Avenue	5.7	A	13.1	B	5.9	A	14.5	B
LeJeune Road & Greco Avenue	0.2	A	0.6	A	0.2	A	0.8	A
LeJeune Road & Granello Avenue	4.9	A	1.5	A	4.4	A	10.2	B
LeJeune Road & Ponce De Leon Boulevard	55.0	E	51.4	D	64.5	E	56.1	E
Greco Avenue & Granello Avenue	4.8	A	4.3	A	5.8	A	5.8	A
Riviera Drive & Ponce de Leon Boulevard	28.5	C	41.2	D	35.7	D	44.2	D
Greco Avenue & Driveway 1					3.2	A	2.6	A
Granello Avenue & Driveway 2					4.5	A	3.2	A
Greco Avenue & Driveway 3 (OUT ONLY)					0.8	A	2.9	A

Arterial analyses were similarly performed for peak seasonal existing condition and the proposed condition at the arterial links connected by the above intersections. The results indicate the LOS are maintained within the City's LOS standards. The following table below provides a summary of the arterial LOS results.

LOS obtained from:		FDOT Q/LOS HB -Generalized Tables			
ROADWAY		**AM**		**PM**	
NAME	AT	Existing LOS	Proposed LOS	Existing LOS	Proposed LOS
Ponce De Leon Blvd	East of LeJeune	C	C	C	C
LeJeune Road	North of Greco Avenue	C	C	C	C

1 Introduction

The purpose of this study is to evaluate the associated traffic impacts with the proposed High-Rise Residential Condominium, Office, Specialty Retail and Quality Restaurant redevelopment at the existing site. This project is located on the East side of LeJeune Road (SR 953) between Greco and Granello Avenue in the City of Coral Gables, Florida.

1.1 Study Objective

The traffic impacts to the adjacent roadways were evaluated as well as at the six (6) intersections most impacted and at the proposed site driveways. This analysis was performed for the existing and future proposed conditions during the adjacent street AM and PM Peak Hours.

1.2 Study Approach

This report follows the methodologies adopted by the ***Institute of Transportation Engineer's (ITE) Trip Generation,*** and ***Traffic Impact Studies Manual***. Additionally, this report follows the methodology utilized by similar project in the City of Coral Gables and as discussed with City's staff. Lastly, this report has evaluated the following:

- Trip Generation
- Traffic Counts
- Committed Developments
- Existing Level of Service
- Proposed Level of Service
- Recommendations

2 Existing Condition

The existing conditions analysis identifies conditions of the current operational and geometric characteristics of the roadways within the study area. The purpose of this section is to provide a basis of comparison to future conditions. The proposed Coral Gables Development site was visited and inventoried. At that time, information was collected regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

2.1 Intersection Data Collection

Manual Turning Movement Counts (TMC) were taken at the nearby intersections identified below. These counts were done during the AM and PM peak hour of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively. The Turning Moving Counts (TMC's) collected were adjusted for peak seasonal variations by utilizing the Florida Department of Transportation Peak Season Correction Factor (PSCF). These calculations are included in Appendix D as Tables A6 and A7, respectively. Moreover, these intersections would be the most impacted due to their close proximity to the subject location. Figures 1 and 2 are the existing AM and PM Peak Hour Turning Movement Counts represented graphically. Traffic Counts and operational characteristics were gathered at the following six (6) intersections:

- **LeJeune Road & Altara Avenue**
- **LeJeune Road & Greco Avenue**
- **LeJeune Road & Granello Avenue**
- **LeJeune Road & Ponce De Leon Blvd./Grand Avenue**
- **Greco Avenue & Granello Avenue**
- **Riviera Drive & Ponce de Leon Boulevard**

Figure 1: Existing AM TMC's

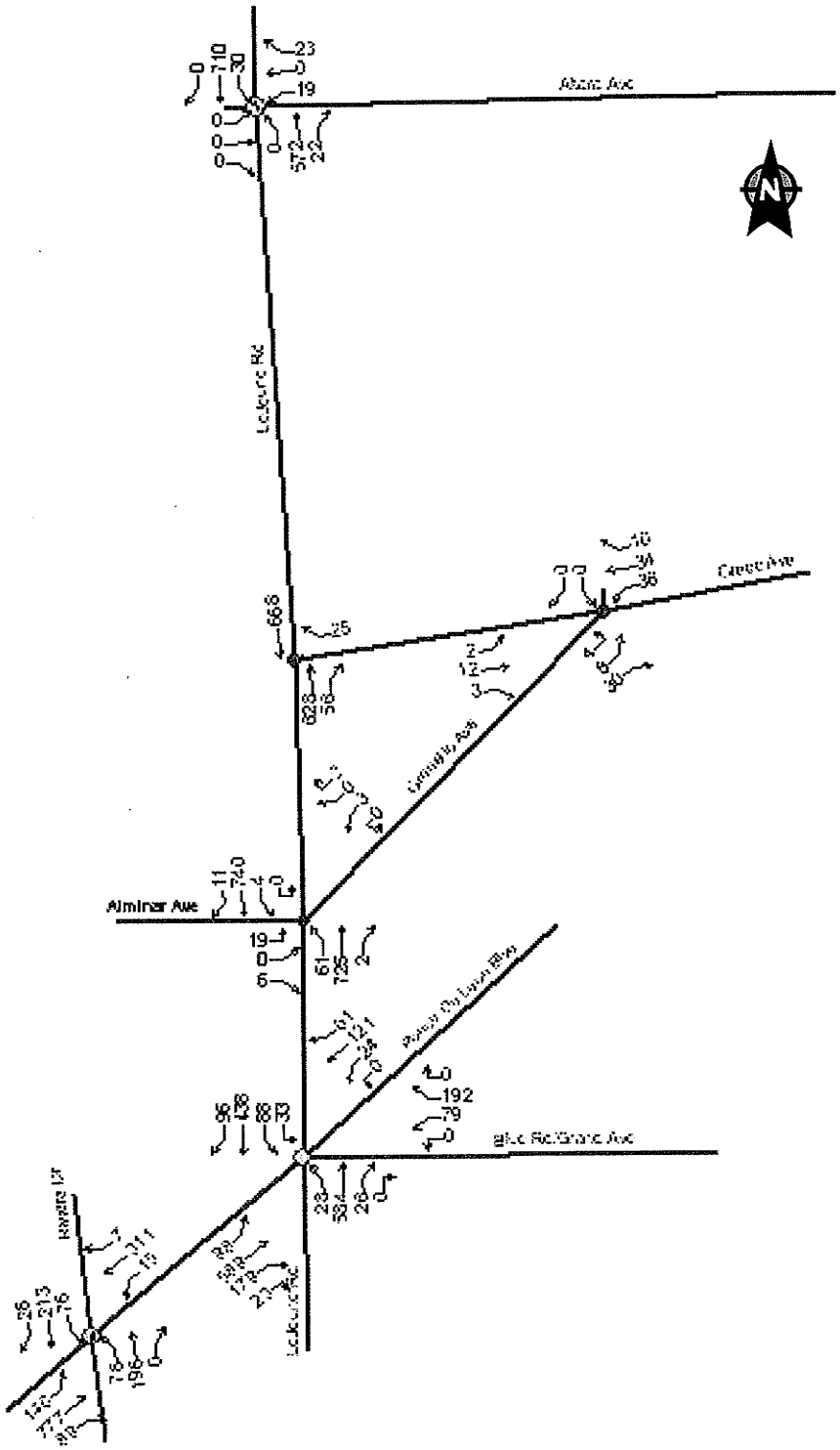
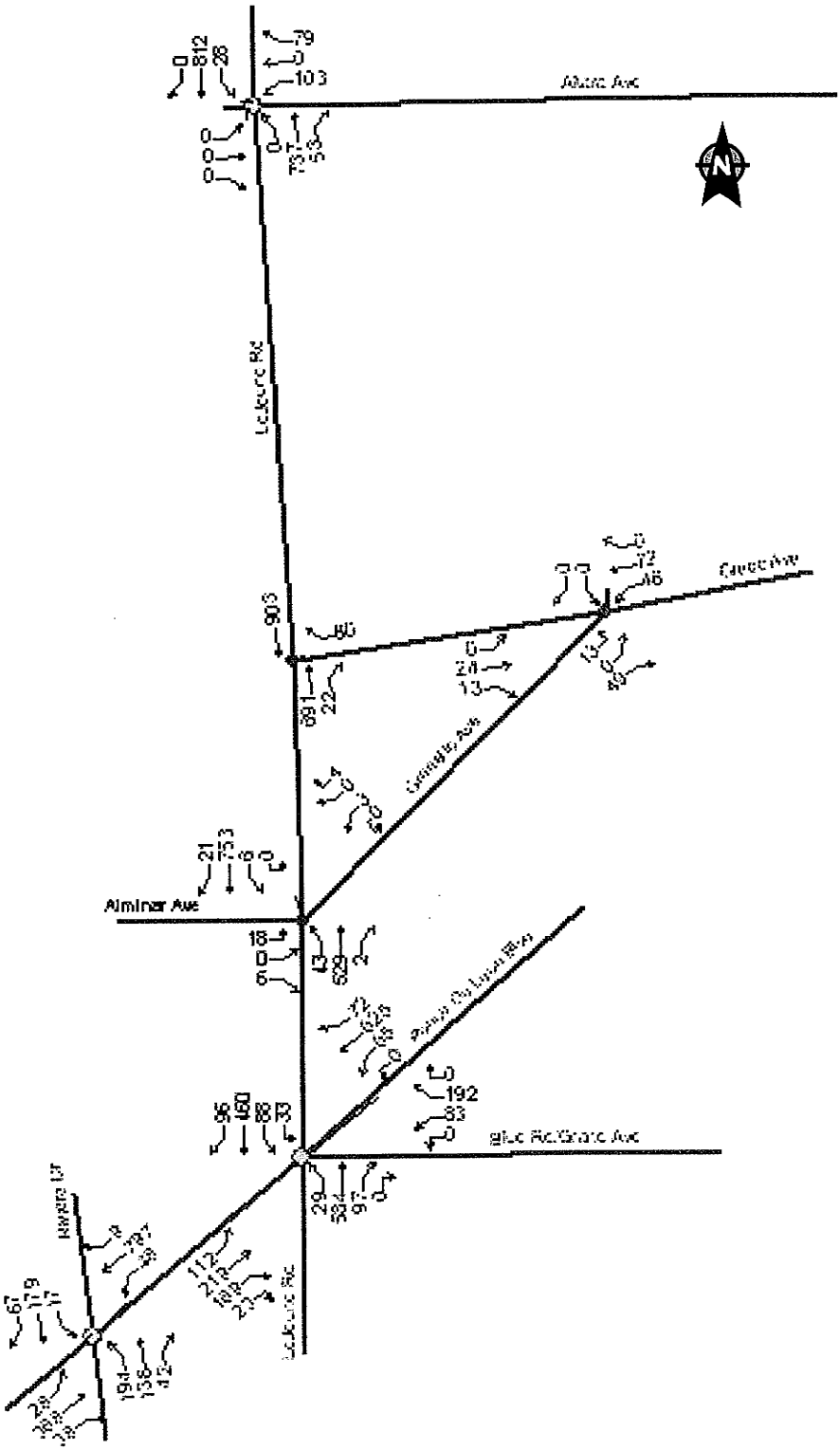


Figure 2: Existing PM TMC's



2.2 Intersection LOS

Utilizing the above traffic data an intersection Level of Service (LOS) analyses were performed for the peak seasonal existing condition and proposed condition with site traffic at the six intersections previously described using the current version of **Synchro/SimTraffic** software. The analyses were performed using the 2000 Highway Capacity Manual methodology for the AM and PM peak condition. Figure 3 provides a summary of the existing results while Appendix F provides the program output.

Figure 3: Existing Level of Service

Intersections	Existing (2007)			
	AM		PM	
	LOS	Delay	LOS	Delay
LeJeune Road & Altara Avenue	5.7	A	13.1	B
LeJeune Road & Greco Avenue	0.2	A	0.6	A
LeJeune Road & Granello Avenue	4.9	A	1.5	A
LeJeune Road & Ponce De Leon Boulevard	55.0	E	51.4	D
Greco Avenue & Granello Avenue	4.8	A	4.3	A
* Ponce de Leon Boulevard & Riviera Drive	28.5	C	41.2	D

* Data based on 2008 traffic counts.

2.3 Arterial LOS

The existing condition arterial analysis was similarly performed for the AM and PM peak hours. The results of the analysis are included in Appendix F and reveal the existing LOS of the adjacent roadways is at LOS C.

Figure 4: Existing AM Arterial LOS

LOS obtained from:	FDOT Q/LOS HB -Generalized Tables	
ROADWAY		AM
NAME	AT	Existing LOS
Ponce De Leon Blvd	East of LeJeune	C
LeJeune Road	North of Greco Avenue	C

Figure 5: Existing PM Arterial LOS

LOS obtained from:		FDOT Q/LOS HB -Generalized Tables
ROADWAY		**PM**
NAME	AT	Existing LOS
Ponce De Leon Blvd	East of LeJeune	C
LeJeune Road	North of Greco Avenue	C

3 Project Traffic

3.1 Location

The subject project is located on the East side of LeJeune Road (SR 953) between Greco and Granello Avenue in the City of Coral Gables, Florida. The subject redevelopment is comprised of High-Rise Residential Condominium with 42 Dwelling Units (DU), General Office with 181,682 square feet (SF), Specialty Retail with 39,508 SF and Quality Restaurant with 8,738 SF. The site is currently occupied with 31,970 square feet (SF) of General Office and 10,879 SF of Specialty Retail. Figure 6 is a location map of the subject project while Figure 7 is a site plan provided for illustrative purposes.

The following land use, as identified by the Institute of Transportation Engineers (ITE), most closely resembles the proposed development. These land uses are as follows:

Existing

- Land Use: 710 General Office with 31,970 SF
- Land Use: 814 Specialty Retail with 10,879 SF

Proposed

- Land Use: 232 High-Rise Residential Condominium with 42 DU
- Land Use: 710 General Office with 181,682 SF
- Land Use: 814 Specialty Retail with 39,508 SF
- Land Use: 931 Quality Restaurant with 8,738 SF

Figure 6: Location Map

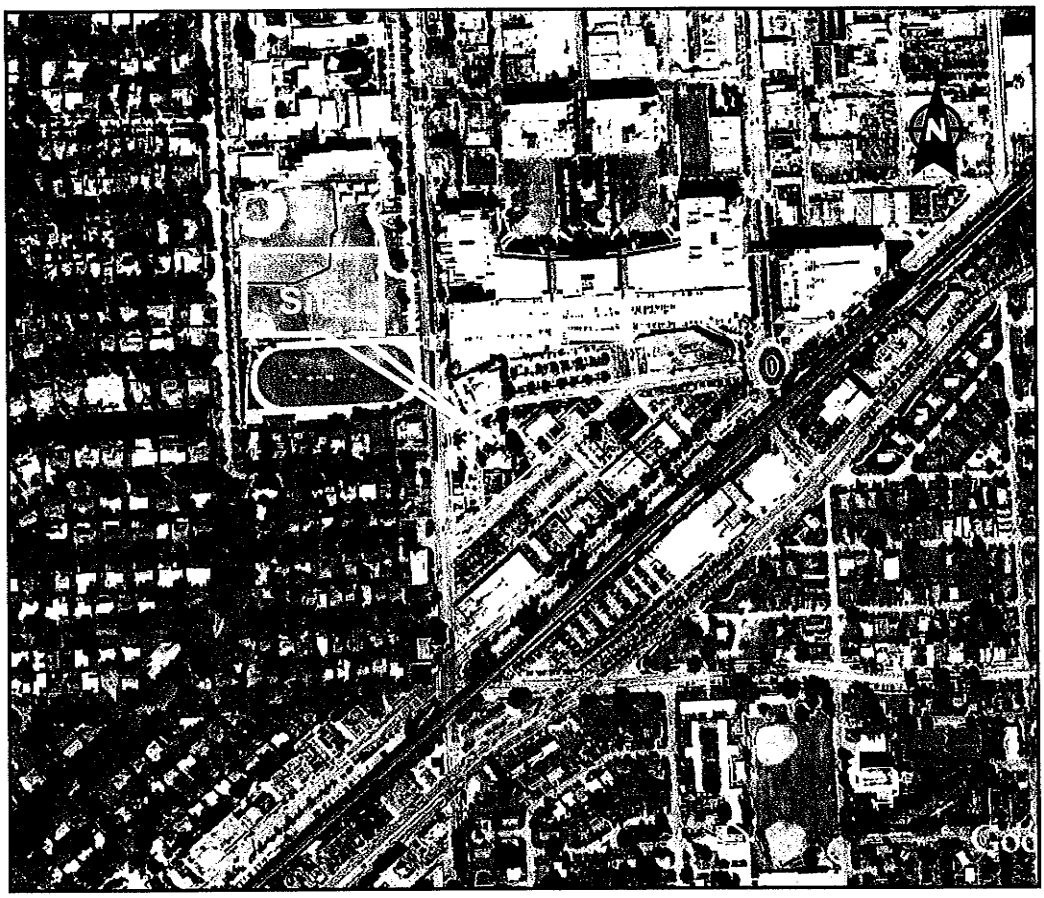
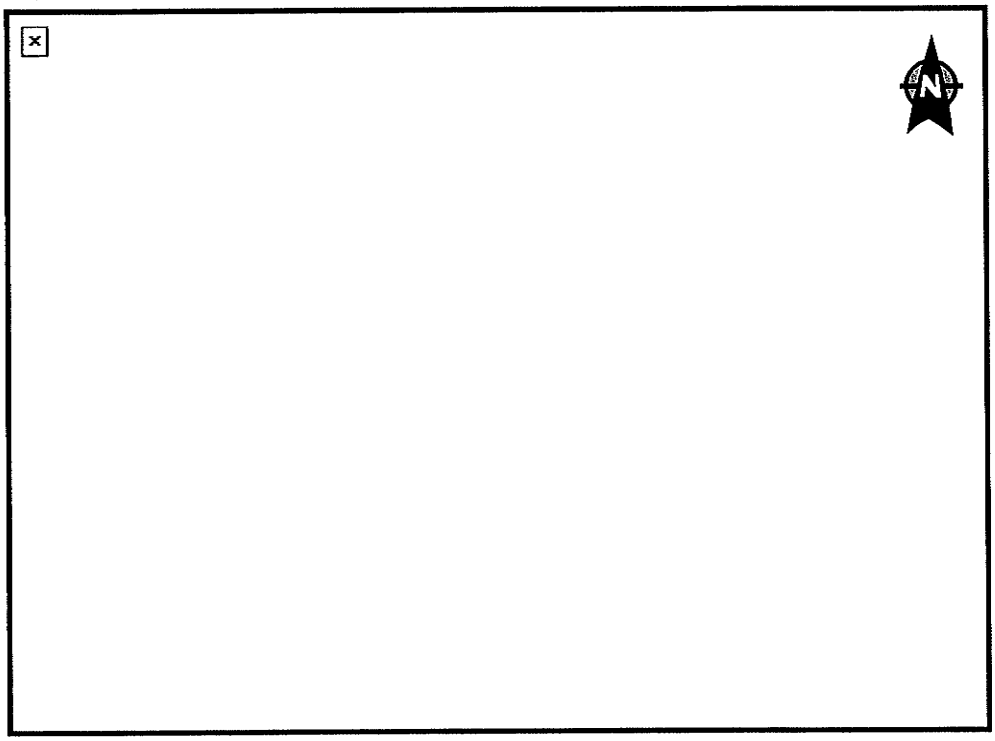


Figure 7: Site Plan



3.2 Trip Generation

The characteristics for the subject project were obtained from ITE's Trip Generation Manual, 7th Edition. ITE's Land Use 232: High-Rise Residential Condominium, Land Use 710: General Office Building, Land Use 814: Specialty Retail and Land Use 931: Quality restaurant were used to determine the trip generation rates and totals for the proposed redevelopment.

Since LU 814: Specialty Retail does not have any rates or data a 27.63 percent (%) AM to PM ratio was used to approximate the AM Peak trip generation. This ratio was obtained by comparing the AM to PM trip generation ratio for LU 820: Shopping Center.

The ITE Trip Generation revealed that there are 229 vehicle trips per hour (vph) in the AM Peak Hour and 261 vehicle trips per hour (vph) in the PM Peak Hour. Additionally, these peak hour trips correspond to the adjacent street peak hour. These trips are likely to be reduced based on the rate and extent of transit usage, since a transit reduction was not utilized.

The Trip Generation calculations results of the proposed improvements are summarized below. The ITE rates and percentages for AM and PM Peak Hour Trips are included in Appendix A. Figure 8 below summarizes the greatest traffic impact associated with the subject redevelopment, which occurs during the AM and PM peak hour of the adjacent streets.

Figure 8: AM/PM Trip Generation Summary

Land Use (LU)	Units	ITE LU CODE	AM/PM PEAK HOUR TRIPS			
			ITE TRIP GENERATION RATE	IN Trips	OUT Trips	TOTAL TRIPS
Existing						
General Office	31.970 T.G.S.F.	710	1.55 / 1.49	43 / 8	6 / 40	50 / 48
* Specialty Retail	10.879 T.G.S.F.	814	0.749 / 2.71	4 / 13	5 / 17	9 / 30
Proposed						
High-Rise Residential Condominium	42 DU	232	0.34 / 0.38	3 / 10	12 / 6	15 / 16
General Office Building	181.682 T.G.S.F.	710	1.55 / 1.49	247 / 45	35 / 225	282 / 271
* Specialty Retail	39.508 T.G.S.F.	814	0.749 / 2.71	13 / 47	17 / 60	30 / 107
Quality Restaurant	8.738 T.G.S.F.	931	0.81 / 7.49	0 / 44	7 / 22	7 / 66
Gross Vehicle Trips (Proposed Trips - Existing Trips)				**216 / 125**	**59 / 257**	**275 / 382**
Project Internalization @	10.0% Of Site Trips			22 / 13	6 / 26	28 / 39
Passer-by Trips (Restaurant)	44.0% Of Site Trips			0 / 19	3 / 10	3 / 29
** Passer-by Trips (Retail)	49.56% Of Site Trips			7 / 23	8 / 30	15 / 53
Net Vehicle Trips (Proposed Trips - Existing Trips)				**187 / 70**	**42 / 191**	**229 / 261**

NOTES:
From ITE Trip Generation, 7th Edition using the Rates.
* Using LU 820 AM to PM ratio of 27.63% and applied to LU 814 in the AM peak due to lack of data from ITE.
** See Table 1-B for summary of ITE data.

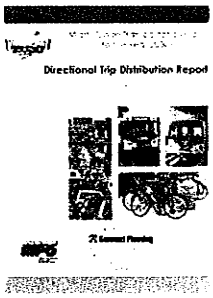


Figure 9: Directional Distribution

3.3 Trip Distribution

The Traffic Analysis Zone (TAZ) for the subject development was found to be TAZ 1081 as assigned by the Metropolitan Planning Organization (MPO). The County's TAZ map was obtained using the available GIS (Graphical Information System) database and is included in Appendix B.

The corresponding traffic distribution being assigned to the following directions are outlined in Figure 10. Appendix B includes a TAZ Map and the corresponding Directional Distribution Summary for this zone utilizing the 2005 Cost Feasible Plan.

3.4 Trip Assignment

The AM and PM peak hour trips from Figure 8 have been distributed and assigned to the surrounding roadways using the cardinal distribution stated above. Figures 11 was developed to depict the AM and PM Peak Hour cardinal assignments. Appendix B includes the ingress and egress traffic distribution with the corresponding eight cardinal directions.

Figure 10: Trip Distribution

DIRECTION	DISTRIBUTION %
NNE	21.32
ENE	13.64
ESE	3.61
SSE	1.26
SSW	11.99
WSW	19.56
WNW	10.98
NNW	17.63
TOTAL	100.00

Figure 11: AM/PM Traffic Assignments

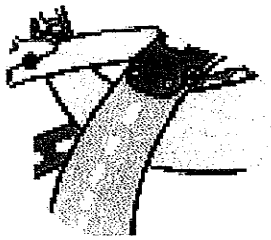
	AM/PM Peak Trips		
DIRECTION	IN	OUT	Total
NNE	40 / 15	9 / 41	49 / 56
ENE	25 / 10	6 / 26	31 / 36
ESE	7 / 2	1 / 7	8 / 9
SSE	2 / 1	1 / 2	3 / 3
SSW	22 / 8	5 / 23	27 / 31
WSW	37 / 14	8 / 37	45 / 51
WNW	21 / 8	5 / 21	26 / 29
NNW	33 / 12	7 / 34	40 / 46
TOTAL	187 / 70	42 / 191	229 / 261

3.5 Site Traffic

The AM and PM peak hour trips from Figures 11 have been further distributed into the four quadrants. Appendix B includes the ingress and egress traffic distribution with the corresponding assignments to the North, South, East and West for the AM and PM peak hour. Figures 12 and 13 contain the AM and PM peak hour site traffic graphically.

Figure 12: AM Peak Site Traffic

Figure 13: PM Peak Site Traffic



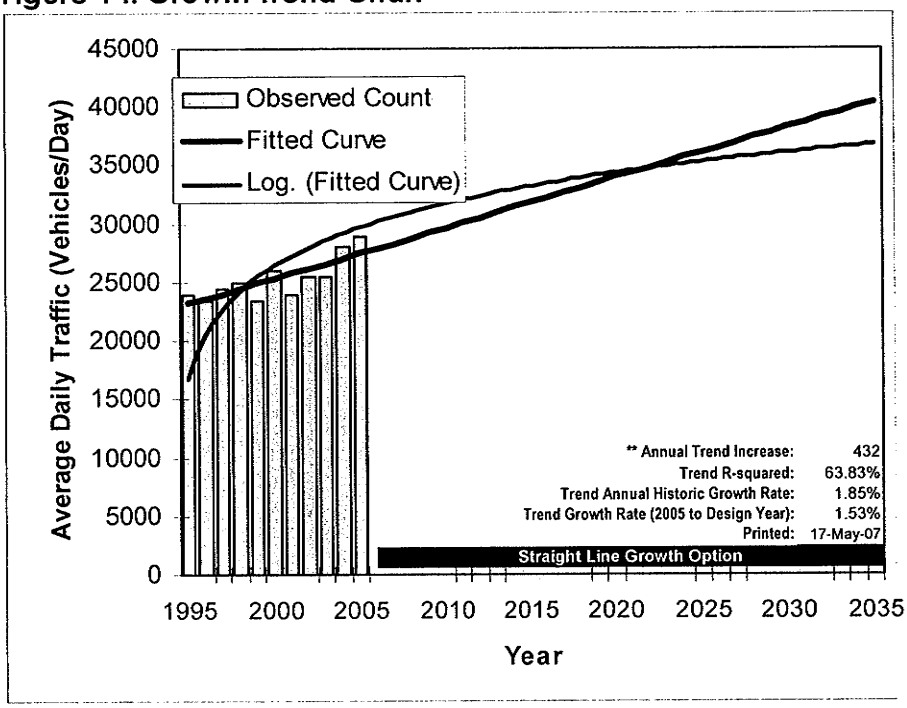
4 Proposed Conditions

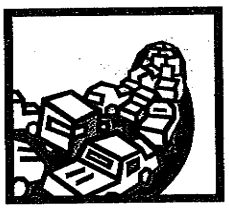
The proposed conditions were performed with the future site traffic. The existing traffic was grown with a background growth rate of 1.53 percent per year. This growth rate was obtained utilizing historical traffic counts data from the Florida Department of Transportation. Lastly, this growth rate was compounded over a three (3) year period having a build-out year of 2010.

4.1 Background Growth

Using the historical traffic counts data from the Florida Department of Transportation's Count Station 5041 a regression analysis was performed for the last ten (10) years of available data. The results indicate a growth trend rate of 1.53 percent from 2007 to the design year of 2010. As such, this growth rate was applied to the existing traffic counts to address background growth in the area. Figure 14 depicts the data graphically with its corresponding trend line. The count station data and analyses are included in Appendix C.

Figure 14: Growth Trend Chart





4.2 Committed Developments

The committed developments around the subject project have been identified. The resulting eleven (11) committed developments were considered and evaluated for estimating the proposed future condition. These committed developments have been compared and applied consistent with the Traffic Impact Study of Gables Residential performed by David Plummer & Associates, Inc on November 2007. Figure 15 below is the list of the eleven (11) committed developments mentioned above. Additionally, these committed developments are included on Table A5-A in Appendix E.

Figure 15: Committed Developments

Committed Developments
1 4311 Ponce de Leon Blvd
2 Aurora Inn
3 Bermuda Village
4 Coral Gables Development (Park View)
5 Gables Design Center
6 Gables Gateway
7 Gables Montessori
8 Gables Station
9 Merrick View
10 Merrick Village
11 US 1 and Riviera Office

4.3 Proposed Intersection LOS

The above intersections were augmented with the site traffic from figures 12 and 13. This forms the basis for the proposed future condition. The calculations for the specific movements for each intersection are contained in Appendix D as Table A4 and A5 for the AM and PM peak hours, respectively. Figure 16 contains the AM and PM peak hour proposed condition LOS with project traffic, committed development and background traffic.

Figure 16: Proposed Intersection LOS

Intersections	Proposed w/ Project (2010)			
	AM		PM	
	LOS	Delay	LOS	Delay
LeJeune Road & Altara Avenue	5.9	A	14.5	B
LeJeune Road & Greco Avenue	0.2	A	0.8	A
LeJeune Road & Granello Avenue	4.4	A	10.2	B
LeJeune Road & Ponce De Leon Boulevard	64.5	E	56.1	E
Greco Avenue & Granello Avenue	5.8	A	5.8	A
Riviera Drive & Ponce de Leon Boulevard	35.7	D	44.2	D

4.4 Proposed Arterial LOS

Additionally, the proposed condition arterial analysis was similarly performed for the AM and PM peak hours. The results of the analysis are included in Appendix F and revealed that the LOS of the adjacent roadways will remain at LOS C. Figure 17 shows the proposed AM arterial LOS while Figure 18 is the proposed PM arterial LOS.

Figure 17: Proposed AM Arterial LOS

LOS obtained from: FDOT Q/LOS HB -Generalized Tables		
ROADWAY		AM
NAME	AT	Proposed LOS
Ponce De Leon Blvd	East of LeJeune	C
LeJeune Road	North of Greco Avenue	C

Figure 18: Proposed PM Arterial LOS

LOS obtained from: FDOT Q/LOS HB -Generalized Tables		
ROADWAY		PM
NAME	AT	Proposed LOS
Ponce De Leon Blvd	East of LeJeune	C
LeJeune Road	North of Greco Avenue	C

4.5 Site Driveways

Lastly, the site driveways were evaluated for the proposed conditions using the site traffic identified for the AM and PM peak hour. The results indicate the driveways will operate at LOS A. Figure 19 below shows the driveways LOS results while Appendix F contains the LOS program outputs.

Figure 19: Proposed Driveways LOS

Intersections	Proposed w/ Project (2010)			
	AM		PM	
	LOS	Delay	LOS	Delay
Greco Avenue & Driveway 1	3.2	A	2.6	A
Granello Avenue & Driveway 2	4.5	A	3.2	A
Greco Avenue & Driveway 3 (OUT ONLY)	0.8	A	2.9	A

5 Conclusion

The subject project was evaluated for the existing and future levels of service. The level of service conditions are within the City's and Miami-Dade County's acceptable limits. As such, this project meets concurrency and does not create a negative impact on traffic.

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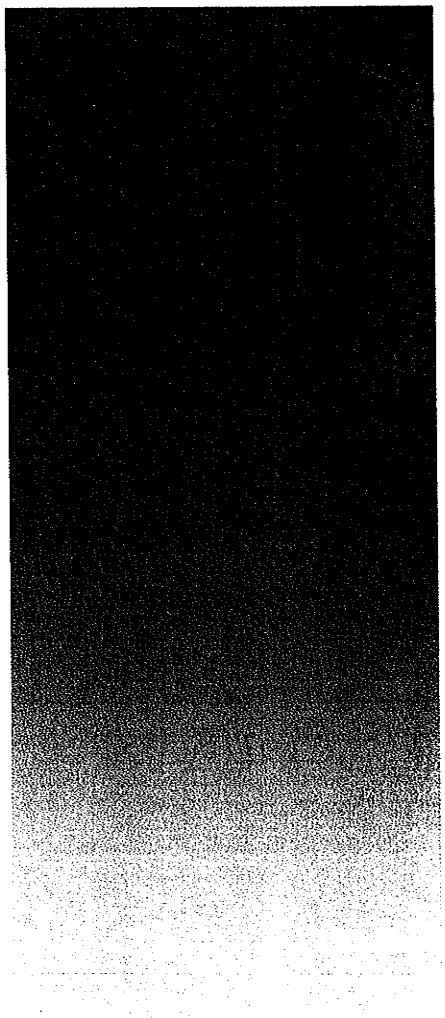
Appendix A: Trip Generation



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Appendix B: Trip Distribution and Assignment

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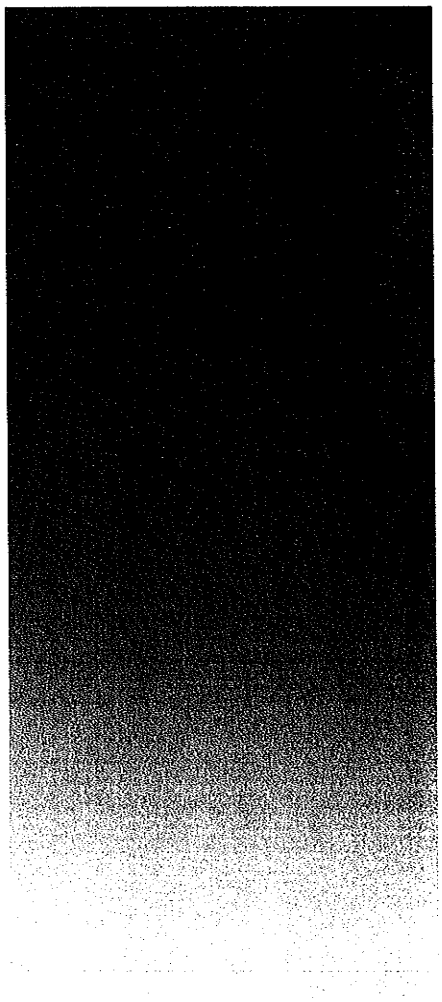
Appendix C: Signal Timing, Adjustment Factors and Growth Trends



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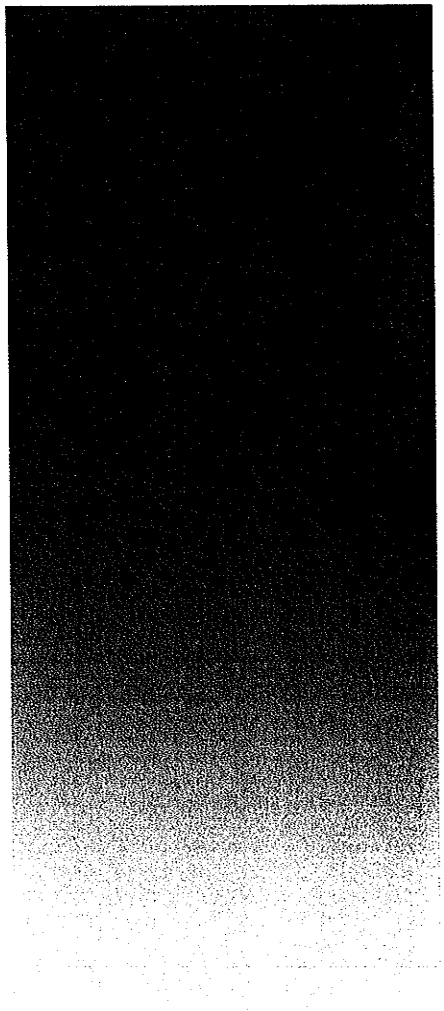
Appendix D: Traffic Counts



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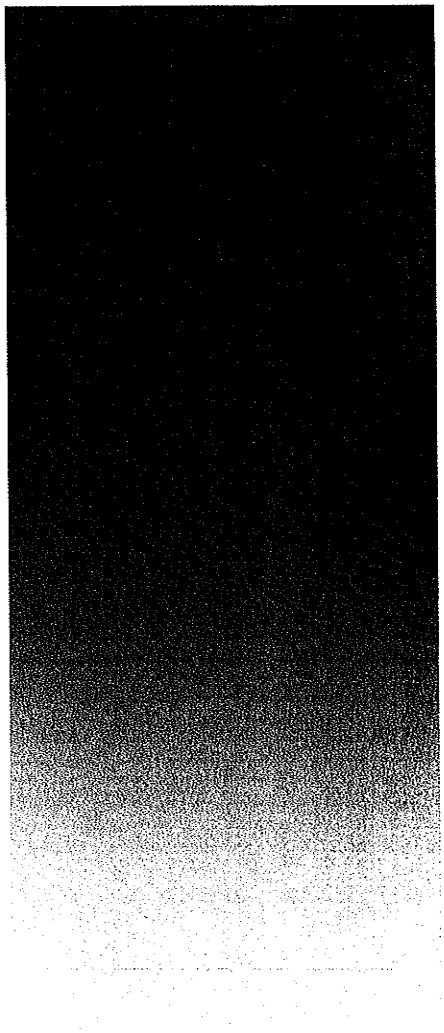
Appendix E: Committed Developments



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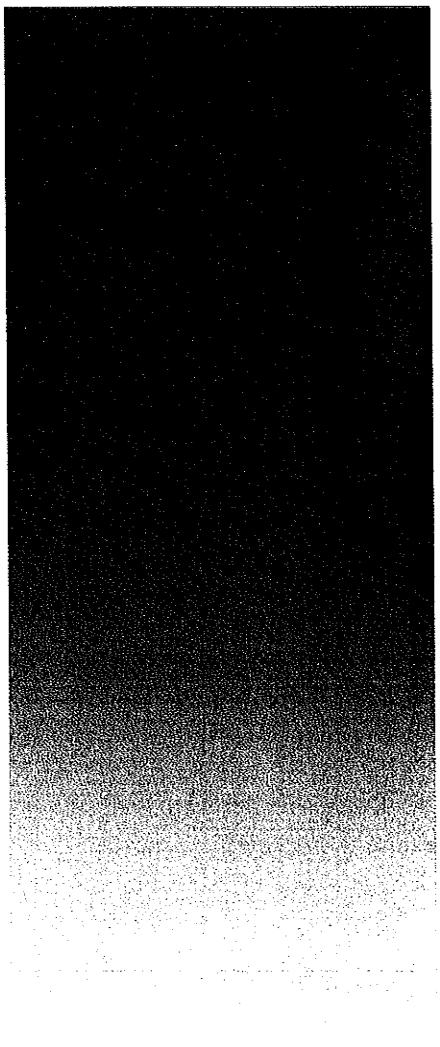
Appendix F: Level of Service



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