The Department of Community Development

City Hall, Lynchburg, VA 24504 **434-455-3900**

To: Planning Commission
From: Planning Division
Date: February 12, 2014
Re: **Rezoning: R-1, Low Density Residential to R-4C, Medium-High Density Residential (Conditional) – 200 & 218 Timbrook Place**

I. PETITIONER

American Property Management Corporation, 101 East Commonwealth Boulevard, Martinsville, VA 24112
Representative: Mr. Doyle Allen, Hurt & Proffitt, Inc., 2524 Langhorne Road, Lynchburg, VA 24501

II. LOCATION

The subject property includes two (2) tracts totaling approximately sixteen and six tenths (16.6) acres located at 200 and 218 Timbrook Place.
Property Owners: Ms. Joyce K. Crouch, 200 Timbrook Place, Lynchburg, VA 24502.
Mr. Joe E. & Ms. Margaret D. Sowder, 218 Timbrook Place, Lynchburg, VA 24502

III. PURPOSE

The purpose of the petition is to rezone the property to allow for the construction of a one hundred ninety-two (192) unit apartment complex with associated parking.

IV. SUMMARY

- The *Future Land Use Map* (*FLUM*) recommends a Medium Density Residential use for the area. These areas are characterized by single-family homes, duplexes or townhomes with densities of up to twelve units per acre.
- A traffic impact study has indicated the Timberlake Road eastbound left turn lane at "TGI Fridays" needs to be lengthened and the TGI Fridays entrance/exit to Timberlake Road should be improved.
- The City's Transportation Engineer has requested additional analysis of crash data to determine if a right turn lane from Timberlake Road to Timbrook Place is needed. At the time this report was written, this analysis had not been performed.

The Planning Division recommends approval of the rezoning petitions.

V. FINDINGS OF FACT

1. **Comprehensive Plan.** The *Comprehensive Plan 2002-2020* recommends a Medium Density Residential use for the area: Medium Density Residential designation is characterized by small-lot single-family detached housing, duplexes, and townhouses at densities up to twelve (12) units per acre. Where neighborhoods already exist, infill development should be at a compatible density and housing type (***pg. 70***).

2. **Zoning.** The subject property was annexed into the City in 1976. The existing R-1, Low-Density Residential zoning was established in 1978 with the adoption of the current *Zoning Ordinance*.

3. **Proffers.** The petitioner has voluntarily submitted the following proffers:

- The maximum units per acre density for the 16.602 acres shall be 11.565 units per acre, which is one hundred ninety (192) units.
- The site shall be developed in substantial compliance with the submitted rezoning plan.
- The only R-4 use allowed shall be apartments. All other R-4 uses shall be prohibited.
- The developer shall provide access to the GLTC bus stop on Timberlake Road by installing a sidewalk within Timbrook Place right-of-way to connect to existing and proposed sidewalk along said road.
- The developer shall dedicate a fifty foot (50') wide right-of-way for future street connection from Timbrook Place to Beverly Hills Circle.
- The architecture of the buildings shall be in substantial compliance with the rendering presented in the rezoning application.
- The developer shall not develop the area noted on the rezoning plan as "6.6 acres of woods to remain" other than for passive recreational purposes for the residents of the apartment community only.
- The developer agrees to lengthen the east bound left turn lane at the crossover at the TGI Friday restaurant to provide an acceptable queue length.
- The developer agrees to widen the south bound private entrance located opposite the TGI Friday crossover provided the owner (Kroger/TGI Friday) agrees. The entrance would be widened enough to accommodate a separate left and right turn lane.

4. **Board of Zoning Appeals (BZA).** The Zoning Official has determined that no variances would be needed for the development of the property as proposed.

5. **Surrounding Area.** There have been several items requiring City Council approval in the immediate area:

- On April 12, 1998, Council approved the petition of Emmett and Hazel Simpson to rezone three (3) acres from R-1, Low Density, Single-Family Residential District to R-4C, Medium-High Density, Multi-Family Residential (Conditional) to allow the construction of a thirty-two (32) unit townhome complex at 203 Timbrook Place.
- On February 14, 1989, Council adopted the Commercial Corridor Overlay District and amended the zoning for properties along and adjacent to the Timberlake Road Corridor.
- On November 11, 1991, Council approved the petition of National Business College for a conditional use permit to allow the use of an existing building as a college at 104 Candlewood Court.

6. **Site Description.** The subject property is two (2) tracts totaling approximately sixteen (16) acres. Each tract contains a single-family home, both of which would be demolished. The area proposed for development contains slopes of approximately five percent (5%). Steeper slopes of approximately eight percent (8%) exist in the area that is proposed to remain undeveloped. The property is bordered to the north by single-family homes, to the east by a planned unit development, a City of Lynchburg fire station and apartments, to the south by commercial uses and to the west by a single-family home and vacant land.

7. **Proposed Use of Property.** If the rezoning petition is approved, the property would be developed as a one hundred ninety-two (192) unit apartment complex with associated parking, pool and club house.

8. **Traffic, Parking and Public Transit.** The proposed apartment complex warranted a traffic impact study which has been conducted by the petitioner. The study indicated that the Timberlake Road eastbound left turn lane at TGI Fridays should be lengthened to improve safety by providing additional queuing capacity. The petitioner has voluntarily proffered to lengthen this turn lane and widen Timbrook Place with curb and gutter along the property frontage. The study also indicated that the existing TGI Friday entrance would function at a Level of Service "F" during the "PM" peak hour. While this delay would occur on private property it has been noted. The petitioner has voluntarily proffered to improve this entrance provided permission is granted from TGI Fridays / Kroger.

   The City's Transportation Engineer has requested an analysis of crash data on Timberlake Road to determine if a right turn lane into Timbrook Place is warranted. This analysis had not been completed at the time this report was written. The representative for the petitioner did indicate that if a right turn lane was warranted and the necessary right-of-way existed a proffer would be submitted to provide for its construction. If a proffer related to this is submitted at the Planning Commission meeting, the Planning Commission would need to consider waiving the twenty-one (21) day submittal requirement for proffers.

   Parking requirements for the proposal would be one (1) space per each unit or one hundred ninety-two (192) spaces. The submitted site plan indicates a total of three hundred eighty-four (384) parking spaces, which would exceed the *Zoning Ordinance* requirement.

9. **Stormwater Management.** The proposed project is required to treat stormwater runoff for quantity and quality. The applicant has identified areas on the site plan for both detention ponds and rain gardens. Two (2) natural channels have been analyzed by the petitioner and are indicated as adequate to handle stormwater leaving the property.

10. **Emergency Services.** Neither the City Fire Marshal's office nor the City Police Department had comments of concern related to the rezoning.

11. **Impact.** The submitted rezoning petition would allow the construction of one hundred ninety-two (192) apartment units, associated parking, pool and club house. The FLUM recommends a Medium Density land use, which is characterized by single-family homes, duplexes or townhomes at densities of up to twelve (12) units per acre. While the proposed apartments are not consistent with the recommended land use, the unit densities are in line with what is recommended, and the petitioner is proposing to preserve approximately six (6) acres in a natural state. This six (6) acres had originally been proposed for construction of some of the apartment units, however, at the recommendation of the Planning Division the petitioner revised the site plan to cluster the proposed units to allow for land preservation. The most significant impact related to the development is related to traffic conditions on Timberlake Road. The petitioner has voluntarily proffered to improve Timbrook Place and improve turn lanes on Timberlake Road where they are currently allowed. The petitioner has also indicated a willingness to improve other conditions provided other private property owners are willing to allow the improvements to occur.

12. **Technical Review Committee.** The Technical Review Committee (TRC) reviewed the preliminary rezoning plan on December 17, 2013. Comments related to the proposed use have been addressed by the petitioner.

VI. PLANNING DIVISION RECOMMENDATION

Based on the preceding Findings of Fact, the Planning Commission recommends to City Council approval of the petition of American Property Management Association to:

Rezone approximately sixteen and six tenths (16.6) acres at 200 and 218 Timbrook Place from R-1, Low Density Residential District to R-4, Medium-High Density Residential District (Conditional) subject to the following voluntarily submitted proffers:

1. **The maximum units per acre density for the 16.602 acres shall be 11.565 units per acre which is 192 units.**
2. **The site shall be developed in substantial compliance with the submitted rezoning plan.**
3. **The only R-4 use allowed shall be apartments. All other R-4 uses shall be prohibited.**
4. **The developer shall provide access to the GLTC bus stop on Timberlake Road by installing a sidewalk within Timbrook Place right-of-way to connect to existing and proposed sidewalk along said road.**
5. **The developer shall dedicate a fifty foot (50') wide right-of-way for future street connection from Timbrook Place to Beverly Hills Circle.**
6. **The architecture of the buildings shall be in substantial compliance with the rendering presented in the rezoning application.**
7. **The developer shall not develop the area noted on the rezoning plan as "6.6 acres of woods to remain" other than for passive recreational purposes for the residents of the apartment community only.**
8. **The developer agrees to lengthen the east bound left turn lane at the crossover at TGI Friday restaurant to provide an acceptable queue length.**
9. **The developer agrees to widen the south bound private entrance located opposite the TGI Friday crossover provided the owner (Kroger/TGI Friday) agrees. The entrance would be widened enough to accommodate a separate left and right turn lane.**

This matter is respectfully offered for your consideration.

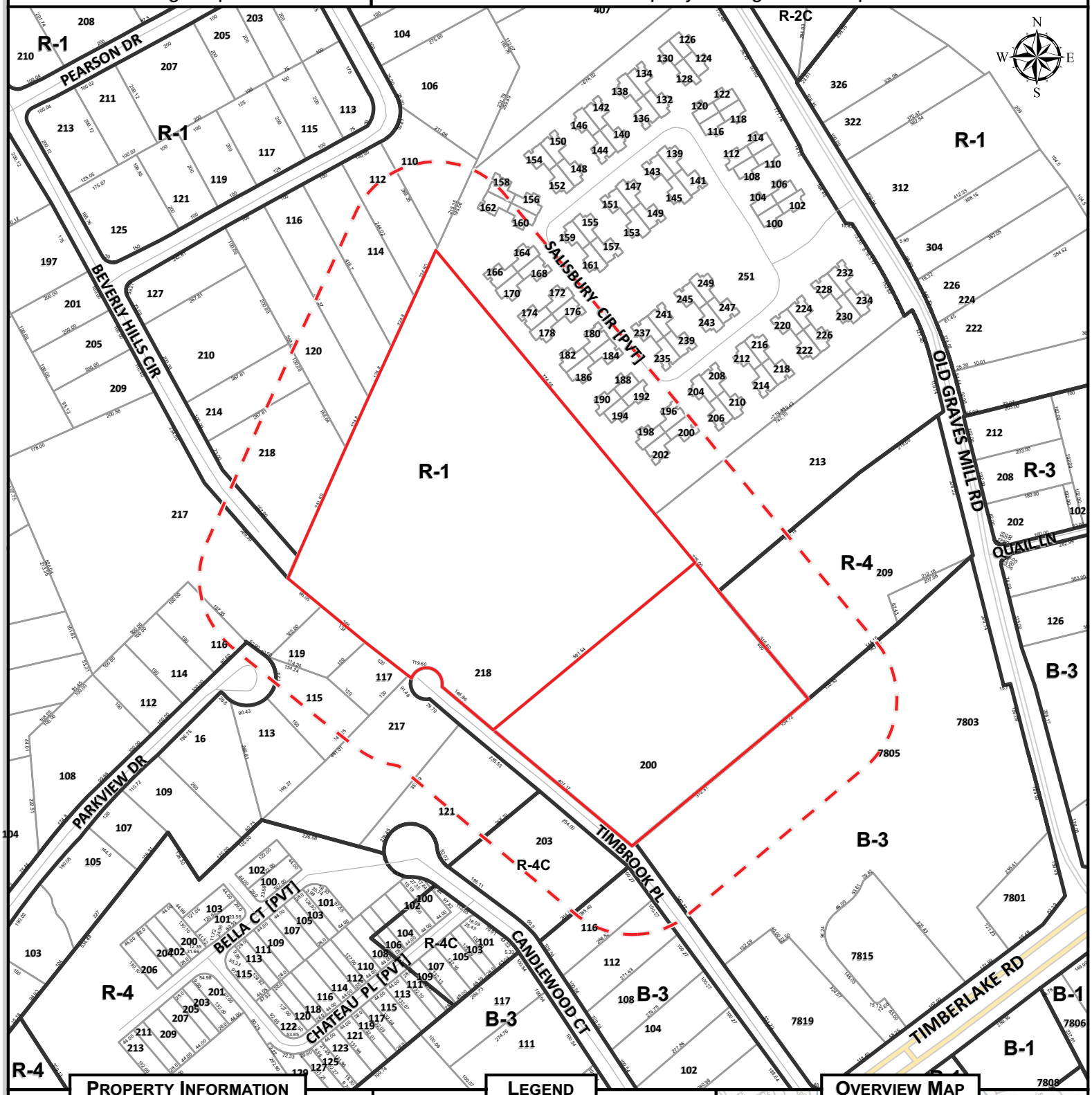
William T. Martin, AICP
City Planner

pc: Mr. L. Kimball Payne, III, City Manager
Ms. Bonnie M. Svrcek, Deputy City Manager
Mr. Walter C. Erwin, City Attorney
Mr. Kent L. White, Director of Community Development
Mr. J. Lee Newland, City Engineer
Ms. Cynthia Kozerow, Lynchburg Police Department
Battalion Chief Greg Wormser, Fire Marshal
Mr. Don DeBerry, Transportation Engineer
Mr. Doug Saunders, Building Commissioner
Mr. Robert Fowler, Zoning Administrator
Mr. Jacob Dorman, Environmental Reviewer
Mr. Doyle Allen, Hurt & Proffitt, Inc.

VII. ATTACHMENTS

1. **Vicinity Zoning Pattern Map**
2. **Vicinity Proposed Land Use Map**
3. **Watershed Location Map**
4. **Planimetric and Topographic Map**
5. **Concept Plan**
6. **Architectural Renderings**
7. **Traffic Impact Study**
8. **Narrative**
9. **Property Photograph**

Zoning Map	APARTMENT COMPLEX
Zoning Request	American Property Management Corporation



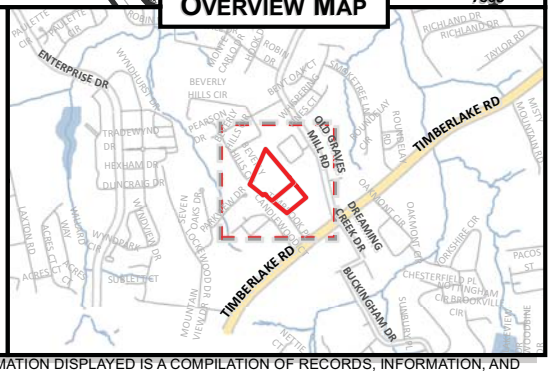
Property Information

Parcel ID	Address
25412009	200 TIMBROOK PL
25412010	218 TIMBROOK PL

Legend

- Subject Property
- 200' Buffer
- Zoning Boundary

Overview Map



Map Scale: 1 " to 300 ' **Date Printed:** 1/31/2014

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25415011	121 CANDLEWOOD CT	CANDLEWOOD LLC
25415002	203 TIMBROOK PL	CARHART, GEORGE
24915049	172 SALISBURY CIR	CHAMBERS, ROBERT L JR & CAROLE G
24909008	213 OLD GRAVES MILL RD	CITY OF LYNCHBURG
24908009	116 BEVERLY HILLS CIR	COLEMAN, ADDISON B JR & ELIZABETH A
25416007	116 CANDLEWOOD CT	COROLLA MANAGEMENT CORPORATION
24915051	176 SALISBURY CIR	CRANK, KENNETH L & JANE B
25412009	200 TIMBROOK PL	CROUCH, JOYCE K
24915062	198 SALISBURY CIR	CUMMINGS, PATRICIA C
24915052	178 SALISBURY CIR	DALTON, NANCY A
24908010	120 BEVERLY HILLS CIR	DAVIS, KEVIN M & BETHANY L
24915064	202 SALISBURY CIR	DIXON, RONALD R TRS
24915053	180 SALISBURY CIR	FARISS, GILBERT M & JOANNE L
24908011	218 BEVERLY HILLS CIR	FOSTER, W R & J W LIFE ESTATE
24908012	214 BEVERLY HILLS CIR	FOSTER, W R & J W LIFE ESTATE
24915044	162 SALISBURY CIR	FRALEY, JAMES E & KEANE, KATHY A
25415003	217 TIMBROOK PL	HAMLETT, ANTHONY G
24909002	407 OLD GRAVES MILL RD	HARRINGTON, D M & ELIZABETH I
24915058	190 SALISBURY CIR	HARTLEY, CATHERINE S
25301002	117 PARKVIEW DR	HENSLEY, GORDON E & SANDRA C
25301001	119 PARKVIEW DR	HENSLEY, GORDON E & SANDRA C
25301003	115 PARKVIEW DR	HENSLEY, GORDON E & SANDRA C
24915059	192 SALISBURY CIR	JONES, A KATHLEEN
24909009	209 OLD GRAVES MILL RD	KENDALL SQ LLC
24915042	158 SALISBURY CIR	KOCH, DALE W & EMELYN E
25412003	7805 TIMBERLAKE RD	KROGER LIMITED PARTNERSHIP I
24915041	156 SALISBURY CIR	LYON, EMMA L & PILLOW, MICHAEL L &
24915050	174 SALISBURY CIR	MARTIN, WARREN C LIFE ESTATE
24915055	184 SALISBURY CIR	MOORE, NANCY A LIFE ESTATE
25416008	112 CANDLEWOOD CT	PROFFITT & GARMAN LLC
24908008	114 BEVERLY HILLS CIR	RELF, MELISSA M
25301034	116 PARKVIEW DR	ROBERTS, REX J & VIRGINIA C
25007009	217 BEVERLY HILLS CIR	ROBERTS, REX J & VIRGINIA C
24915047	168 SALISBURY CIR	SHERMAN, RALPH R & JOYCE B
24915061	196 SALISBURY CIR	SMOOT, ROBERT P JR & DORIS N
25412010	218 TIMBROOK PL	SOWDER, JOE E & MARGARET D
24915089	251 SALISBURY CIR	STONEGATE HOA
24915046	166 SALISBURY CIR	THORNHILL, ELIZABETH T
24915056	186 SALISBURY CIR	TOMLIN, JEAN T
24915060	194 SALISBURY CIR	TURPIN, THOMAS R & FRANCES F
24915054	182 SALISBURY CIR	VANDERVEEN, BETTYE R
24915063	200 SALISBURY CIR	VAUGHAN, ELIZABETH H
24915057	188 SALISBURY CIR	WALLER, JOYCE R
24908007	112 BEVERLY HILLS CIR	WASMER, DAVID M & LAURA L
24908006	110 BEVERLY HILLS CIR	WILLIAMS, JOYCE D
24915048	170 SALISBURY CIR	WOMACK, ROSEMARY W

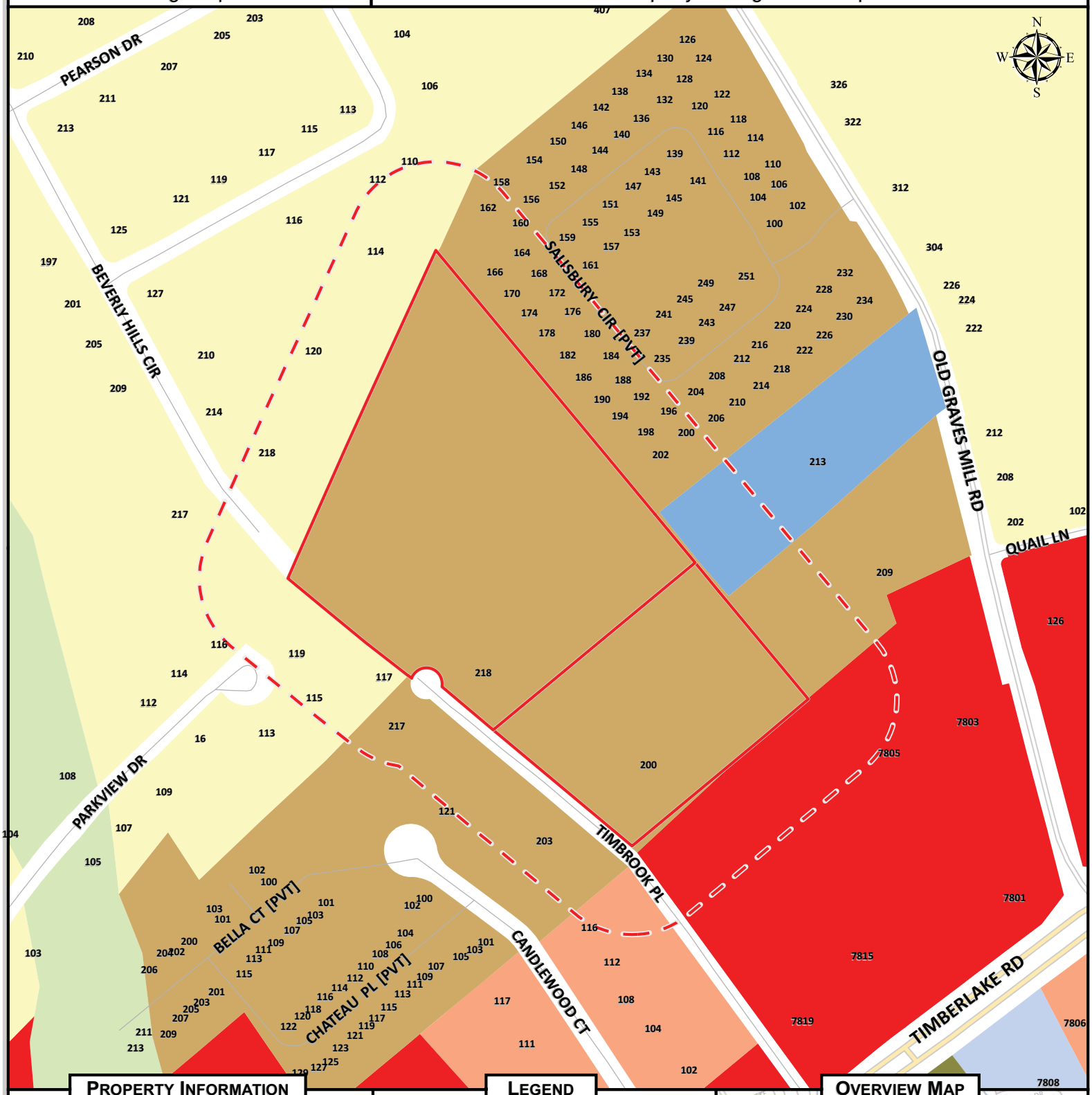
24915043	160 SALISBURY CIR	WORSHAM, RALEIGH E
24915045	164 SALISBURY CIR	ZINGARO, ANDREW P & P PATRICIA

FLUM Map

Zoning Request

APARTMENT COMPLEX

American Property Management Corporation



Property Information

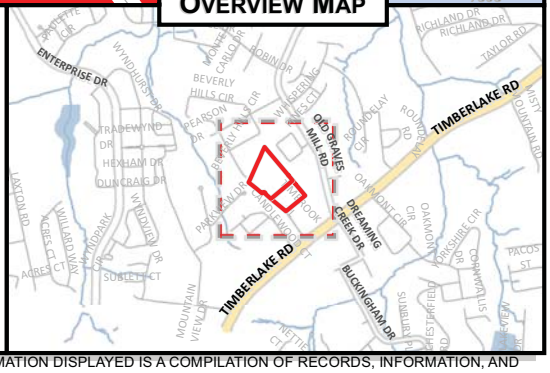
Parcel ID	Address
25412009	200 TIMBROOK PL
25412010	218 TIMBROOK PL

Legend

- Local Historic District
- Traditional Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Neighborhood Commercial
- Community Commercial
- Regional Commercial
- Employment Mixed Use
- Residential Mixed Use
- Employment 1
- Employment 2
- Office
- Institution
- Downtown
- Public Use
- Public Parks
- Resource Conservation
- General Mixed Use

Map Scale: 1 " to 300 ' **Date Printed:** 1/31/2014

Overview Map



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Watershed Map	APARTMENT COMPLEX
Zoning Request	American Property Management Corporation

Property Information

Parcel ID	Address
25412009	200 TIMBROOK PL
25412010	218 TIMBROOK PL

Legend

- Subject Property
- Base Flood Elevation
- Floodway
- Floodzone
- River / Lake / Stream

Overview Map

Blackwater Creek

Map Scale: 1 " to 300 ' **Date Printed:** 1/31/2014

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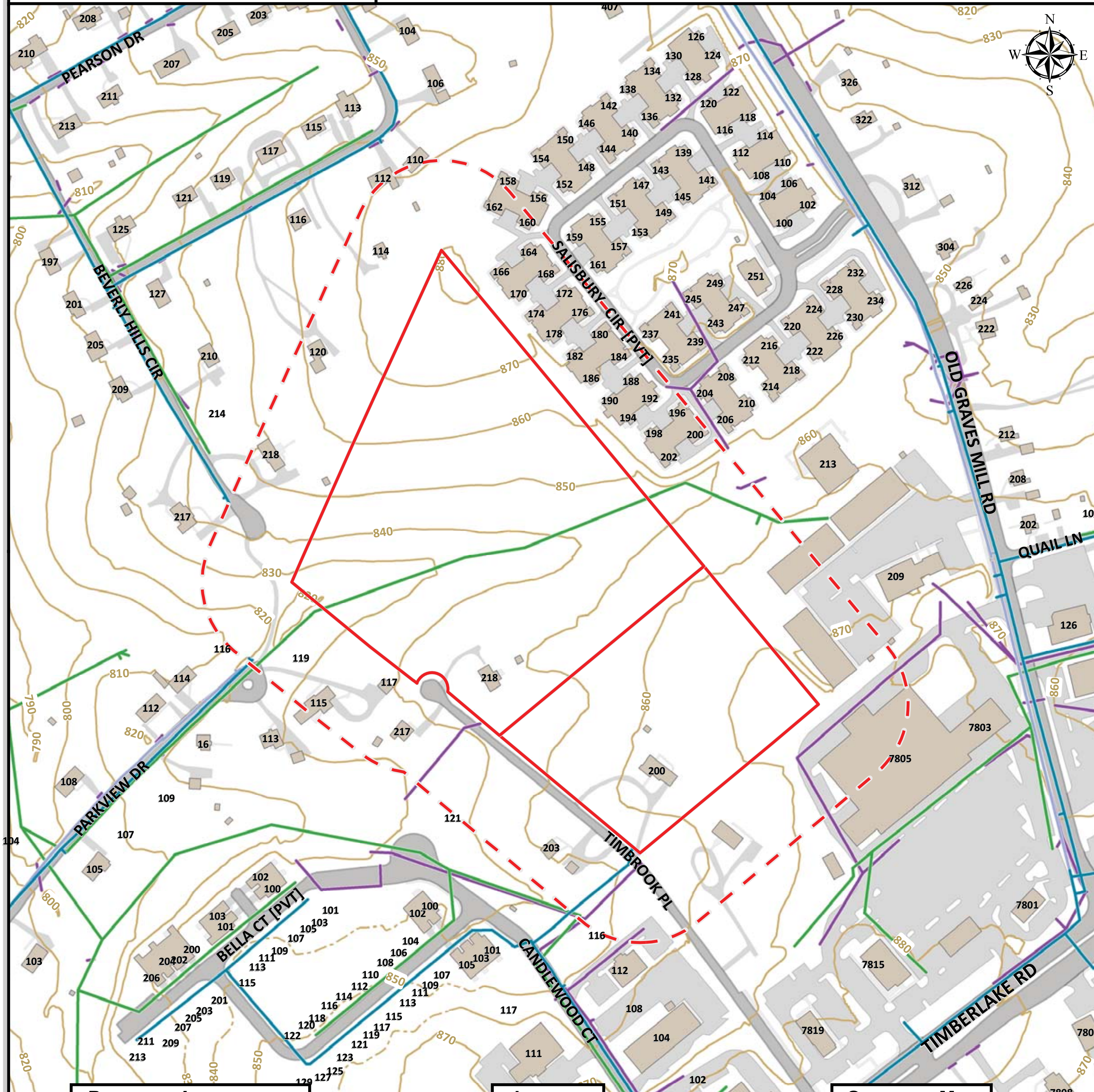
Planimetric and Topographic Map	APARTMENT COMPLEX
Zoning Request	American Property Management Corporation



Property Information

Parcel ID	Address
25412009	200 TIMBROOK PL
25412010	218 TIMBROOK PL

Legend

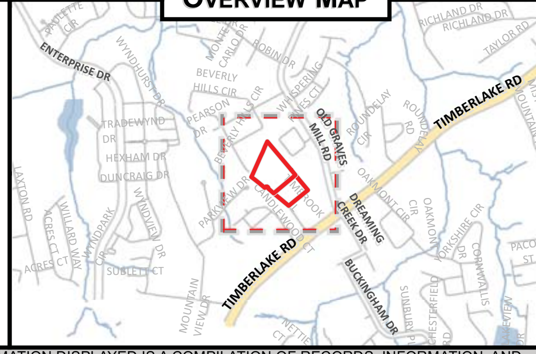
		Active	Proposed	Abandoned
Utilities	Water			
	Sanitary			
	Storm			

		Paved	Unpaved	Other
Planimetrics	Structure	-	-	
	Roadway			-
	Parking			-
	Sidewalk		-	-
	Driveway	-	-	

		10'	10' Obs
Topography	Contour		

Map Scale: 1 " to 300 ' **Date Printed:** 1/31/2014

Overview Map



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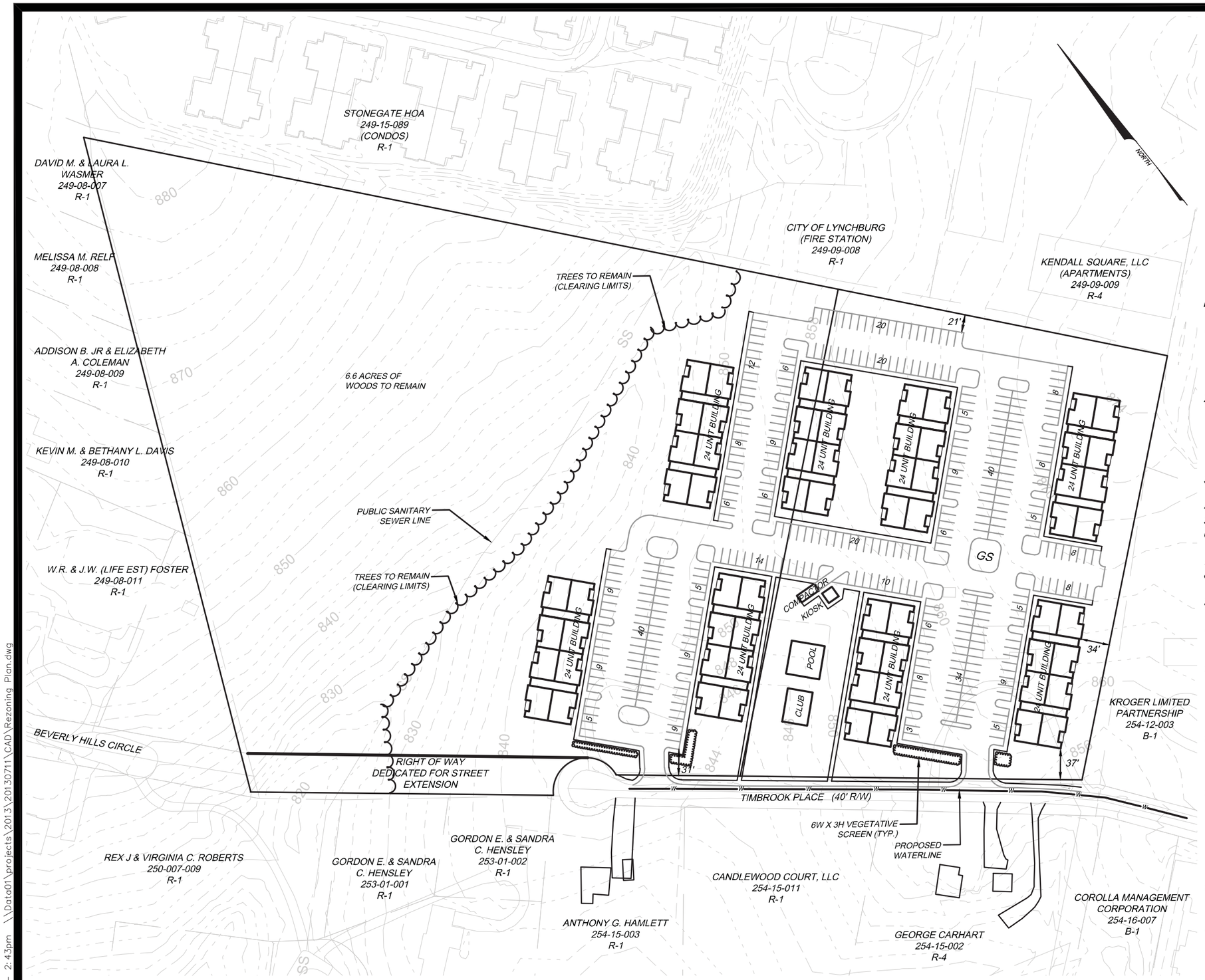
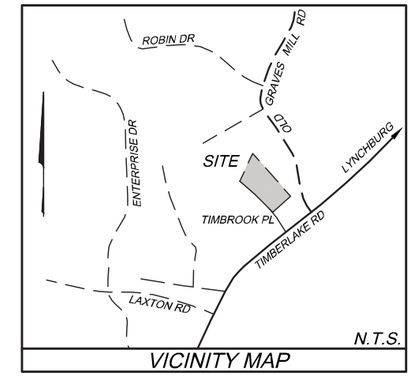




VICINITY MAP

NOTES:

1. SITE & OWNERS:
   254-12-009: (5.08 AC.) JOYCE W. CROUCH
   # 200 TIMBROOK PLACE
   254-12-010: (11.522 AC.) MARGARET SOWDER
   # 218 TIMBROOK PLACE
2. DEVELOPER: AMERICAN PROPERTY MANAGEMENT COPORATION
   101 E. COMMONWEALTH BLVD.
   MARTINSVILLE, VA 24112
   TEL. 276-656-3259
   JFARRELL@LESTERGROUP.COM
3. SITE PROPOSED USE: MULTI-FAMILY APARTMENT COMMUNITY
4. SITE ZONED: R-1
5. SITE PROPOSED ZONE: R-4C
6. FUTURE LAND USE PLAN - MEDIUM DENSITY, RESIDENTIAL (R-3).
7. DENSITY: 192 UNITS OR 11.57 UNITS / ACRE.
8. REQUIRED PARKING 192 SPACES
   PROPOSED PARKING 384 SPACES
9. STREET TREES REQUIRED: 16 (ONE SIDE)
   PROPOSED TREES: 16
10. PARKING LOT LANDSCAPING
    REQUIRED: 49 TREES AND 391 SHRUBS
    PROPOSED: 49 TREES AND 391 SHRUBS
11. FOUNDATION PLANTINGS
    REQUIRED:ORNAMENTAL TREES $^{1360}/_{50}$ = 27
    PROPOSED: 28
    REQUIRED: LARGE SHRUBS $^{1360}/_{10}$ = 136
    PROPOSED: 150
12. EXTERIOR LIGHTING SHALL BE CONTROLLED SO THAT NO DIRECT ILLUMINATION WILL OCCUR BEYOND ANY PROPERTY LINE SHARED WITH A RESIDENTIAL DISTRICT.
13. THE AREA SHOWN HEREON IS LOCATED IN FLOOD ZONE 'X' AND IS NOT LOCATED WITHIN FLOOD HAZARD ZONE 'A' FOR A 100 YEAR FLOOD AS DETERMINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY AS SHOWN ON COMMUNITY-PANEL MAP #5100930101D DATED JUNE 3, 2008.
14. TIMBROOK PLACE TO BE WIDENED ON PROJECT SIDE WITH CURB AND GUTTER AND SIDEWALK ADDED.
15. TREE CANOPY:
    PROPOSED: 40% EXISTING TO REMAIN
    12% NEW TREES
    52% TOTAL CANOPY.

HURT & PROFFITT
2524 LANGHORNE ROAD
LYNCHBURG VA 24501
800.242.4906 TOLL FREE
434.847.7796 MAIN
434.847.0047 FAX
ENGINEERING • SURVEYING • LAND DEVELOPMENT • ENVIRONMENTAL
GEOTECHNICAL • CONSTRUCTION TESTING & INSPECTION • CULTURAL RESOURCES

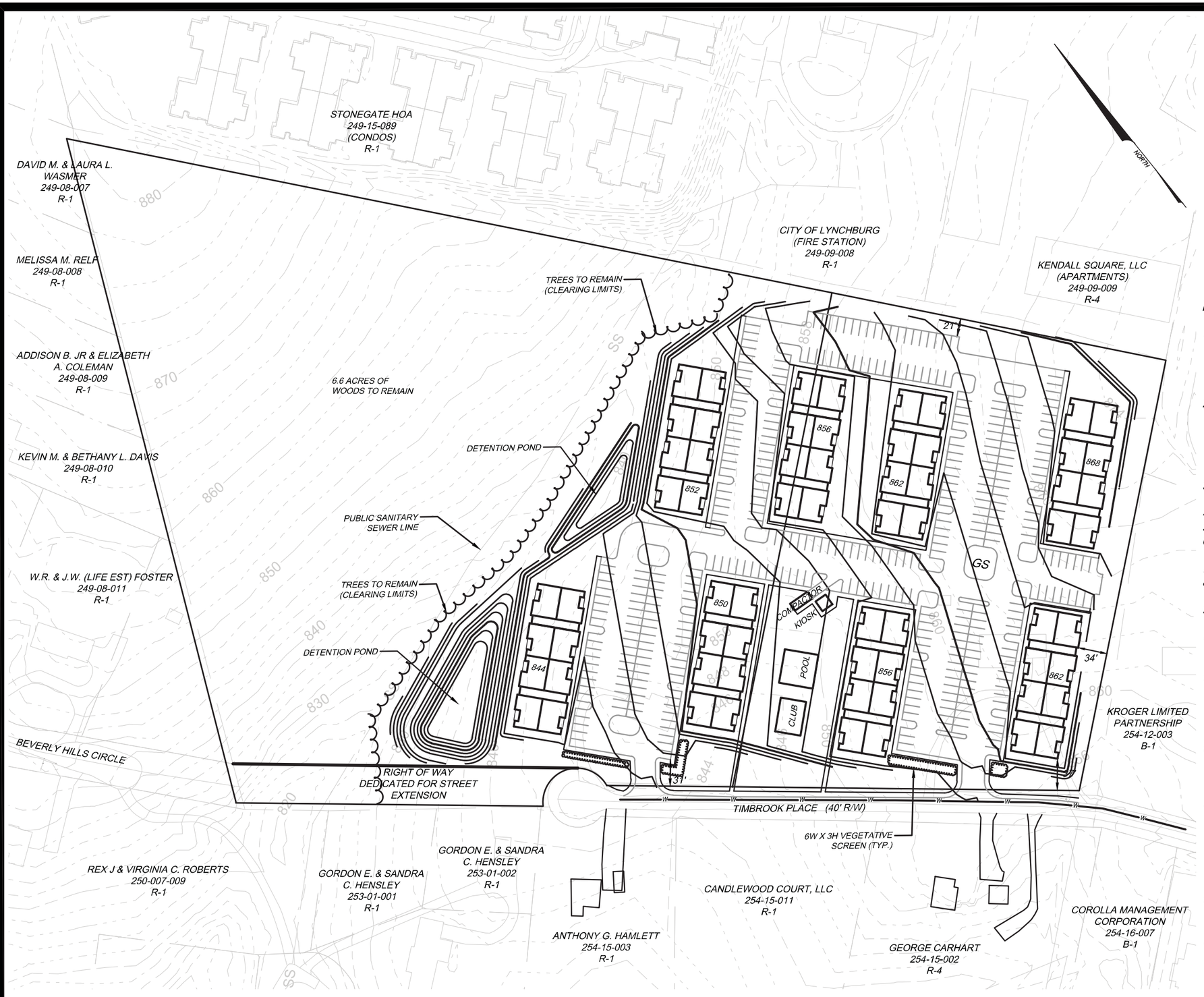
CONCEPT PLAN FOR APARTMENT COMPLEX AT 200 & 218 TIMBROOK PLACE LYNCHBURG, VIRGINIA

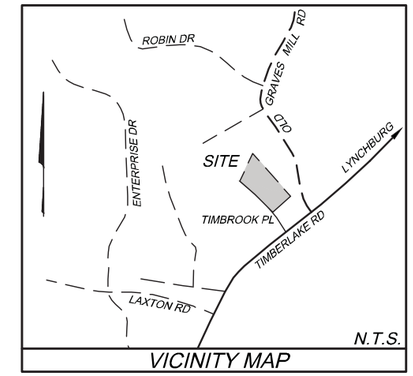
PROJECT NO.	20130711
G.L. NO.	
FILE NO.	
DATE:	1/29/14
DRAWN BY:	WCH
CHECKED BY:	DBA

1973 – 2013
40 YEARS OF EXCELLENCE

SHEET NO.
1 OF 2

Jan 29, 2014 – 2:43pm \\Data01\projects\2013\20130711\CAD\Rezoning Plan.dwg





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15. TREE CANOPY:
    PROPOSED: 40% EXISTING TO REMAIN
    12% NEW TREES
    52% TOTAL CANOPY.

EXISTING CONTOURS — — 850 — —
EXISTING STRUCTURES
EXISTING SANITARY SEWER —— SS ——

120 60 0 120 240
GRAPHIC SCALE IN FEET

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40 YEARS OF EXCELLENCE

SHEET NO.
2 OF 2

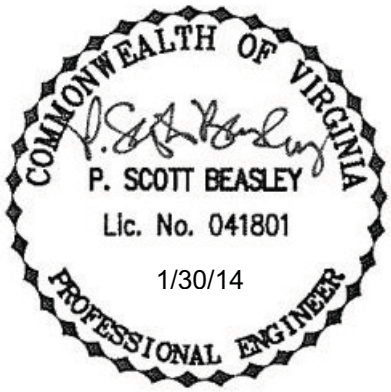
Jan 29, 2014 – 2:42pm \\Data01\projects\2013\20130711\CAD\Rezoning Plan.dwg

TRAFFIC IMPACT STUDY

Timbrook Place Apartment Community
Lynchburg, Virginia

H&P Project No. 20130711

January 30, 2014



Submitted By: P. Scott Beasley, PE, LEED AP

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Executive Summary

Hurt & Proffitt, Inc. conducted this Traffic Impact Study (TIS) for the proposed apartments that will be located at 200 and 218 Timbrook Place in Lynchburg, Virginia. The proposed development will consist of 192 apartment units in eight three-story buildings, a clubhouse and a pool, along with associated parking and circulation drives. The following table summarizes the trip generation characteristics of the proposed development:

Proposed Site Characteristics

Use	ITE Land Use Type	ITE Land Use Code	Independent Variable
Apartment Building	Mid-Rise Apartment	223	192 dwelling units

The City of Lynchburg required the developer to complete this study to address the additional traffic that would result from the construction of the proposed improvements. Hurt & Proffitt, Inc. conducted the study and the capacity analyses in accordance with the methodology and standards contained in the 2010 update 5th edition) to the 2000 "Highway Capacity Manual" published by the Transportation Research Board. The results of the analyses indicate that the proposed project should not significantly impact local streets.

1.0 Introduction

At the City's request, Hurt & Proffitt conducted field observations during weekday AM (7-9 AM) and PM (4-6 PM) peak periods. Analyses were performed to analyze current and future conditions at the following intersections:

- Timberlake Road and Candlewood Court (signalized)
- Timberlake Road and Timbrook Place (unsignalized)
- Timberlake Road and TGI Fridays Crossover

Future traffic volumes were projected for the "Build +5" scenario, which is estimated to be the year 2019, assuming the improvements are constructed in 2014. To determine a baseline for comparison, analyses were first conducted for the 2019 No-Build Condition. The ITE Trip Generation Manual (8th edition) was used to determine the number of trips generated by the development. Then, using standard distribution methods the resulting trips were added to the street network and analyses were conducted for the 2019 Build Condition to determine the impact of the proposed improvements on all three intersections. The process and methodology are described in the following sections of this report.

2.0 Existing Roadway Geometry

The proposed project is located at the end of Timbrook Place. Timbrook Place is an undivided two-lane urban street with a north to south orientation. It will be widened as part of the project. Timbrook Place, which is assumed to have a 25 mph speed limit, intersects with the westbound lanes of Timberlake Road (460 Bus). Timberlake Road is a 4-lane divided highway with a speed limit of 45 mph. The study area includes the intersection of Timbrook Place and Timberlake Road as well as the intersections to the west (Candlewood Court) and east (TGI Fridays Crossover). See **Figure 1** for a vicinity map of the local area. The subject property is bordered by residential uses on the north, east, and west and commercial on the south.

FIGURE 1 - VICINITY MAP

● **Study Intersection**

3.0 Traffic Counts and Field Observations

Hurt & Proffitt conducted field observations and manual turning movement counts to collect existing traffic volumes at the intersections of Timberlake Road and Candlewood Court, Timberlake Road and Timbrook Place, and Timberlake Road and the TGI Fridays Crossover. Turning movement counts were performed from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. on Wednesday, January 8, 2014. The traffic volumes obtained from these counts were used as the basis for the analysis presented in this report. The existing (2014) peak periods, as determined from the count volumes, occurred from 7:45 to 8:45 a.m. and from 5:00 to 6:00 p.m.. These peak hour volumes are summarized in Figure 1 at the end of the report.

The speed limit on Timberlake Road is posted at 45 miles per hour. Observed speeds appeared to be consistent with the posted speed but were not measured. There was no pedestrian activity. Traffic operations at each of the three intersections were smooth.

4.0 Existing Conditions

Synchro 7 software was used to analyze the Level of Service (LOS) at the subject intersections. SimTraffic 7 software was used to analyze the queue lengths for the existing AM and PM peak periods.

Level of service for an unsignalized two-way stop-controlled (TWSC) intersection is determined by measured or computed control delay. According to the Highway Capacity Manual, "only that portion of total delay attributed to control measures, either traffic signals or stop signs, is quantified." At TWSC intersections, the critical movement, often the minor-street left turn, usually controls the level of service for the intersection. The Highway Capacity Manual defines levels of service for this type of intersection as follows:

Level of Service	Average Control Delay (s/veh)
A	0-10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Table 1 below summarizes the delays and corresponding levels of service for the critical movements at the subject intersections. The results show that all intersections operate at acceptable levels of service during both the AM and PM peak periods. The intersection of Timberlake Road and the TGI Fridays crossover operates at LOS B in the AM peak and at D in the PM peak. However, most of the delay is associated with the southbound approach in the shopping center. The 95th percentile queue on the EB left turn lane exceeds the available storage. Analysis results are provided in the Appendix.

Table 1. Existing (2013) Intersection LOS Summary

Intersection	Control	Movement	Available Storage (ft)	95th Percentile Queue (feet)		Level of Service (Delay-sec)	
				AM	PM	AM	PM
Timberlake Rd / Candlewood Ct	Signal	EB Left	75	36	62	A (2.3)	A (3.2)
		EB Thru	--	--	--		
		WB U-turn	75	16	29	A (4.0)	A (7.8)
		WB Thru	--	--	--		
		WB Right	--	--	--		
		SB Left	--	--	--	C (23.8)	C (23.0)
		Intersection				A (3.3)	A (6.2)
Timberlake Rd / Timbrook Pl	Unsig.	SB Right	--	--	--	B (10.8)	B (15.0)
		Intersection				A (0.1)	A (0.2)
Timberlake Rd / TGI Fridays Crossover	Unsig.	EB Left	65	45	**88**	A (9.8)	B (13.7)
		SB Left/Right	--	--	--	C (24.8)	D (28.1)
		Intersection				B (0.7)	D (2.0)

5.0 No-Build (2019) Conditions

It is anticipated that the project will be constructed in 2014 and the future analysis period is the "Build +5" or 2019. Future year (2019) No-Build traffic volume forecasts are shown in Figure 2. According to VDOT's published ADT data, growth in the Timberlake Road corridor has declined (or was stagnant) since 2009. Future year No-Build traffic volumes were determined by applying a nominal growth rate of 0.5% per year (compounded) to the existing traffic volumes.

Analyses were then conducted using the No-Build traffic volumes to establish a baseline for comparing with the future year Build condition. The results shown in Table 3 below indicate that all intersections operate at acceptable levels of service during both the AM and PM peak periods. The intersection of Timberlake Road and the TGI Fridays crossover continues to operate at LOS B in the AM peak and at D in the PM peak. As discussed previously, most of the delay at this intersection is associated with the southbound approach in the shopping center. The 95th percentile queue on the EB left turn lane exceeds the available storage.

Note that, even though the volumes increased slightly over the existing (2014) conditions, there are minor improvements in the delays when compared to the existing conditions. This may be attributed to the use of a peak hour factor of 0.88 on the approaches to each intersection. In general, the existing peak hour factors that were calculated (and shown in the Appendix) were relatively high on the Timberlake Road approaches due to consistent 15 minute volume counts. However, some of the side street approaches had relatively low peak hour factors in the existing conditions so the application of a higher PHF of 0.88 may have caused the minor improvements in delay. The same peak hour factor is used in the Build condition analyses for consistency.

Analysis results are provided in the Appendix.

Table 2. No-Build (2019) Intersection LOS Summary

Intersection	Control	Movement	Available Storage (ft)	95th Percentile Queue (feet)		Level of Service (Delay-sec)	
				AM	PM	AM	PM
Timberlake Rd / Candlewood Ct	Signal	EB Left	75	37	72	A (2.2)	A (3.4)
		EB Thru	--	--	--		
		WB U-turn	75	20	34	A (3.7)	A (8.3)
		WB Thru	--	--	--		
		WB Right	--	--	--		
		SB Left	--	--	--	C (22.9)	C (23.6)
		Intersection				A (2.9)	A (6.4)
Timberlake Rd / Timbrook Pl	Unsig.	SB Right	--	--	--	B (10.8)	C (16.1)
		Intersection				A (0.1)	A (0.2)
Timberlake Rd / TGI Fridays Crossover	Unsig.	EB Left	65	47	**82**	A (9.5)	C (16.1)
		SB Left/Right	--	--	--	C (22.3)	E (42.2)
		Intersection				B (0.7)	D (2.4)

6.0 Site Access

All access to the site will be off of Timbrook Place, with two proposed entrances. With no crossover at Timbrook, eastbound traffic leaving the development will have to turn right then U-turn at Candlewood Court. Similarly, eastbound traffic entering the site must U-turn at the TGI Fridays crossover then turn right onto Timbrook Place.

7.0 Trip Generation and Projected Traffic Distribution

The methodology presented in the ITE Trip Generation Manual (8th *edition*) was used to estimate the number of trips generated by the proposed development in the AM and PM peak periods. The manual provides both trip generation rates and equations to calculate the number of trips. Table 3 summarizes the trip generation characteristics of this site, which is comprised of eight 3-story buildings with a total of 192 dwelling units. Trip generation equations were used for this project.

Table 3. Trip Generation Summary

Period	Equation	Total Trip Ends	Entering		Exiting	
			Percent	Trips	Percent	Trips
AM Peak Hour of Adjacent Street Traffic (7 – 9 AM)	0.41(x) – 13.06	66	31	20	69	46
PM Peak Hour of Adjacent Street Traffic (4 – 6 PM)	0.48(x) – 11.07	81	58	47	42	34

The generated trips were assigned to the roadway network using the existing traffic distribution percentages. In the AM peak 63% of trips are eastbound and 37% of trips are westbound. In the PM peak 46% are eastbound and 54% are westbound. See Table 4 and Figure 3 for a summary of the arrival and departure distributions.

Table 4. Trip Distribution

Period	Total Trip Ends	Entering		Exiting	
		EB	WB	EB	WB
AM Peak Hour of Adjacent Street Traffic (7 – 9 AM)	66	13	7	29	17
PM Peak Hour of Adjacent Street Traffic (4 – 6 PM)	81	22	25	16	18

8.0 Build (2019) Conditions

Figure 4 illustrates the 2019 Build condition traffic volumes, which combine the 2019 No-Build condition volumes and the trip generation volumes summarized in the table above.

Capacity analyses were conducted for the 2019 Build condition for the two peak periods at the subject intersections. The results of the analysis are summarized below in Table 5.

Table 5. Build Condition (2019) Intersection LOS Summary

Intersection	Control	Movement	Available Storage (ft)	95th Percentile Queue (feet)		Level of Service (Delay-sec)	
				AM	PM	AM	PM
Timberlake Rd / Candlewood Ct	Signal	EB Left	75	38	72	A (2.1)	A (3.4)
		EB Thru	--	--	--		
		WB U-turn	75	43	47	A (3.6)	A (8.4)
		WB Thru	--	--	--		
		WB Right	--	--	--		
		SB Left	--	--	--	C (24.0)	C (23.8)
		Intersection				A (2.8)	A (6.4)
Timberlake Rd / Timbrook Pl	Unsig.	SB Right	--	--	--	B (11.3)	C (17.6)
		Intersection				A (0.4)	A (0.4)
Timberlake Rd / TGI Fridays Crossover	Unsig.	EB Left	65	51	**90**	A (9.6)	C (17.5)
		SB Left/Right	--	--	--	C (24.2)	**F (55.4)**
		Intersection				B (0.8)	D (3.1)

The analyses show that all intersections operate at acceptable levels of service with the added development traffic. One movement, the southbound approach of the intersection of Timberlake Road and the TGI Fridays crossover, experienced poor LOS in the PM peak. The overall intersection delay did not change from the 2019 No-Build condition. Queue length on the EB left turn at the same intersection exceeded the available storage, but this condition was present in both the Existing and the No-Build conditions.

9.0 Summary

The analyses completed for this study indicate that there are no anticipated impacts associated with the construction of the proposed apartment community on Timbrook Place.

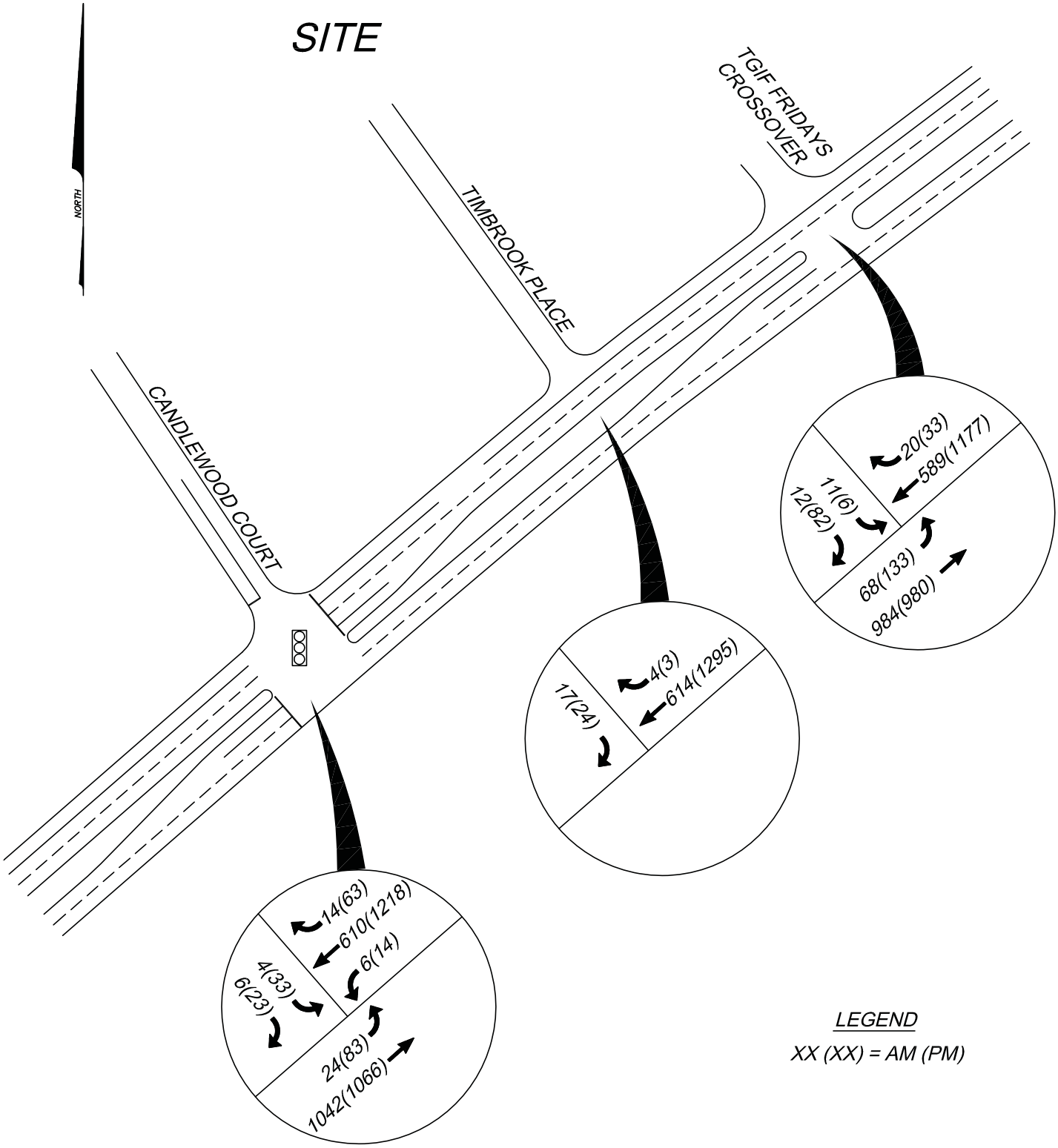

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FIGURE 1:
2014 EXISTING PEAK HOUR TRAFFIC
TIMBROOK APARTMENT COMMUNITY
LYNCHBURG, VIRGINIA

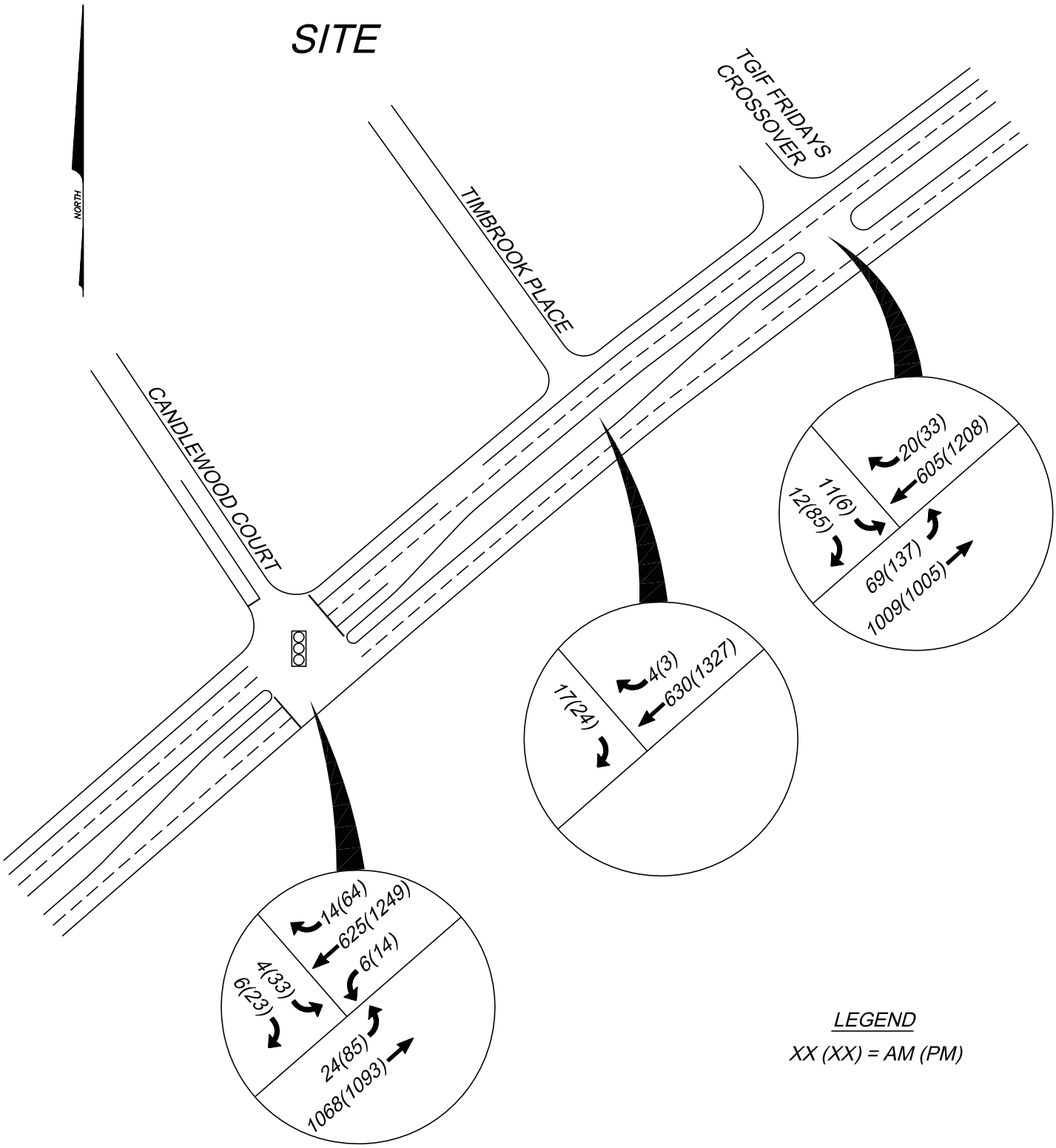

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FIGURE 2:
2019 NO-BUILD PEAK HOUR TRAFFIC
TIMBROOK APARTMENT COMMUNITY
LYNCHBURG, VIRGINIA

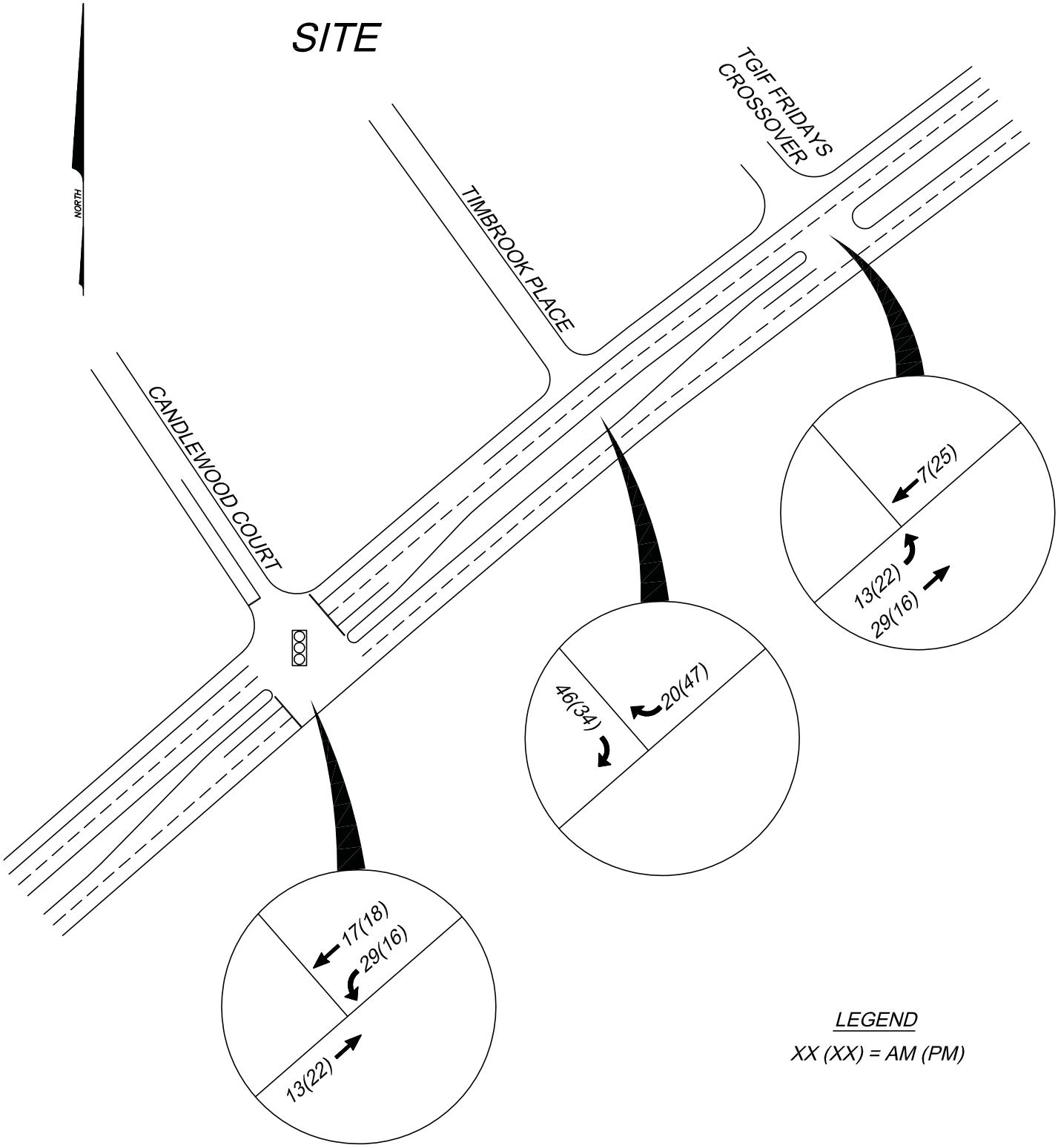

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FIGURE 3:
SITE TRAFFIC DISTRIBUTION

TIMBROOK APARTMENT COMMUNITY

LYNCHBURG, VIRGINIA

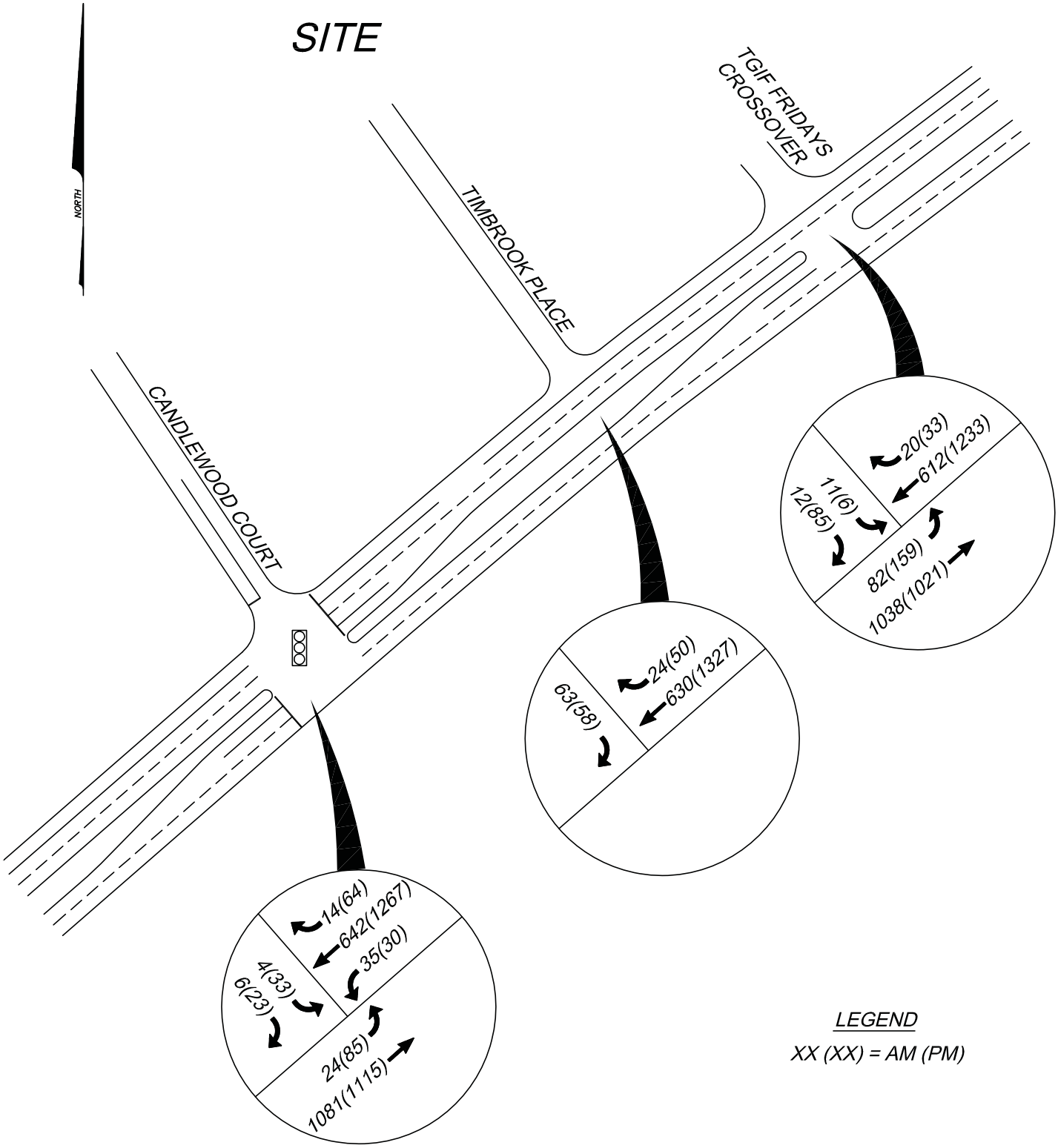

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FIGURE 4:
2019 BUILD PEAK HOUR TRAFFIC
TIMBROOK APARTMENT COMMUNITY
LYNCHBURG, VIRGINIA

APPENDIX

Traffic Count for Timberlake Road and Candlewood Court
Weekday

	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
7:00 AM	1	0	1	2	72	2	0	0	0	0	182	0	260
7:15 AM	3	0	0	1	105	2	0	0	0	2	240	0	353
7:30 AM	2	0	0	1	111	5	0	0	0	2	274	0	395
7:45 AM	0	0	0	2	146	3	0	0	0	6	301	0	458
Total	**6**	**0**	**1**	**6**	**434**	**12**	**0**	**0**	**0**	**10**	**997**	**0**	**1466**
8:00 AM	0	0	1	2	153	3	0	0	0	5	249	0	413
8:15 AM	1	0	0	0	133	3	0	0	0	6	248	0	391
8:30 AM	3	0	5	2	178	5	0	0	0	7	244	0	444
8:45 AM	2	0	4	2	179	5	0	0	0	4	237	0	433
Total	**6**	**0**	**10**	**6**	**643**	**16**	**0**	**0**	**0**	**22**	**978**	**0**	**1681**
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:00 PM	6	0	8	2	240	10	0	0	0	9	251	0	526
4:15 PM	6	0	9	5	303	12	0	0	0	8	257	0	600
4:30 PM	4	0	6	7	315	8	0	0	0	16	235	0	591
4:45 PM	15	0	1	2	284	7	0	0	0	8	257	0	574
Total	**31**	**0**	**24**	**16**	**1142**	**37**	**0**	**0**	**0**	**41**	**1000**	**0**	**2291**
5:00 PM	8	0	2	5	311	14	0	0	0	21	256	0	617
5:15 PM	6	0	13	2	314	13	0	0	0	18	288	0	654
5:30 PM	7	0	5	3	315	23	0	0	0	19	259	0	631
5:45 PM	12	0	3	4	278	13	0	0	0	25	263	0	598
Total	**33**	**0**	**23**	**14**	**1218**	**63**	**0**	**0**	**0**	**83**	**1066**	**0**	**2500**
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Traffic Count for Timberlake Road and Timbrook Place
Weekday

	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
7:00 AM	0	0	2	1	76	0	0	0	0	0	185	0	0
7:15 AM	0	0	3	0	85	1	0	0	0	0	244	0	0
7:30 AM	0	0	8	0	115	0	0	0	0	0	277	0	0
7:45 AM	0	0	5	0	143	0	0	0	0	0	303	0	0
Total	**0**	**0**	**18**	**1**	**419**	**1**	**0**	**0**	**0**	**0**	**1009**	**0**	**0**
8:00 AM	0	0	3	0	155	1	0	0	0	0	251	0	0
8:15 AM	0	0	3	0	139	0	0	0	0	0	249	0	0
8:30 AM	0	0	6	0	177	3	0	0	0	0	249	0	0
8:45 AM	0	0	12	0	173	2	0	0	0	0	241	0	0
Total	**0**	**0**	**24**	**0**	**644**	**6**	**0**	**0**	**0**	**0**	**990**	**0**	**0**
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:00 PM	0	0	7	0	277	1	0	0	0	0	259	0	0
4:15 PM	0	0	6	0	337	2	0	0	0	0	268	0	0
4:30 PM	0	0	5	0	307	1	0	0	0	0	246	0	0
4:45 PM	0	0	5	0	285	2	0	0	0	0	274	0	0
Total	**0**	**0**	**23**	**0**	**1206**	**6**	**0**	**0**	**0**	**0**	**1047**	**0**	**0**
5:00 PM	0	0	7	0	324	1	0	0	0	0	269	0	0
5:15 PM	0	0	4	0	342	0	0	0	0	0	296	0	0
5:30 PM	0	0	8	0	335	2	0	0	0	0	269	0	0
5:45 PM	0	0	5	0	294	0	0	0	0	0	279	0	0
Total	**0**	**0**	**24**	**0**	**1295**	**3**	**0**	**0**	**0**	**0**	**1113**	**0**	**0**
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Traffic Count for Timberlake Road and TGI Friday's Crossover
Weekday

	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
7:00 AM	1	0	4	0	72	3	0	0	0	11	174	0	0
7:15 AM	1	0	2	0	102	7	0	0	0	17	227	0	0
7:30 AM	2	0	2	0	111	6	0	0	0	12	265	0	0
7:45 AM	2	0	2	0	139	3	0	0	0	15	288	0	0
Total	**6**	**0**	**10**	**0**	**424**	**19**	**0**	**0**	**0**	**55**	**954**	**0**	**0**
8:00 AM	4	0	3	0	145	5	0	0	0	20	231	0	0
8:15 AM	4	0	2	0	115	4	0	0	0	15	234	0	0
8:30 AM	1	0	5	0	190	8	0	0	0	18	231	0	0
8:45 AM	1	0	4	0	170	7	0	0	0	24	217	0	0
Total	**10**	**0**	**14**	**0**	**620**	**24**	**0**	**0**	**0**	**77**	**913**	**0**	**0**
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:00 PM	1	0	9	1	219	4	0	0	0	26	233	0	0
4:15 PM	0	0	20	0	286	10	0	0	0	41	227	0	0
4:30 PM	0	0	25	0	294	10	0	0	0	21	225	0	0
4:45 PM	3	0	15	0	267	4	0	0	0	40	234	0	0
Total	**4**	**0**	**69**	**1**	**1066**	**28**	**0**	**0**	**0**	**128**	**919**	**0**	**0**
5:00 PM	0	0	20	0	298	9	0	0	0	30	239	0	0
5:15 PM	1	0	26	0	302	5	0	0	0	35	261	0	0
5:30 PM	4	0	16	0	304	8	0	0	0	42	227	0	0
5:45 PM	1	0	20	0	273	11	0	0	0	26	253	0	0
Total	**6**	**0**	**82**	**0**	**1177**	**33**	**0**	**0**	**0**	**133**	**980**	**0**	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Existing 2014 - Weekday AM

	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	1	0	1	2	72	2	0	0	0	0	182	0	260
7:15 AM	3	0	0	1	105	2	0	0	0	2	240	0	353
7:30 AM	2	0	0	1	111	5	0	0	0	2	274	0	395
7:45 AM	0	0	0	2	146	3	0	0	0	6	301	0	458
8:00 AM	0	0	1	2	153	3	0	0	0	5	249	0	413
8:15 AM	1	0	0	0	133	3	0	0	0	6	248	0	391
8:30 AM	3	0	5	2	178	5	0	0	0	7	244	0	444
8:45 AM	2	0	4	2	179	5	0	0	0	4	237	0	433

Peak Hour Summary	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
7:45 AM - 8:45 AM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Total	4	0	6	6	610	14	0	0	0	24	1042	0	1706
Approach	10			630			0			1066			1706
% HV	2%			2%			2%			2%			2%
PHF	0.31			0.85			#DIV/0!			0.87			0.93

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing 2014- Weekday PM

	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	6	0	8	2	240	10	0	0	0	9	251	0	526
4:15 PM	6	0	9	5	303	12	0	0	0	8	257	0	600
4:30 PM	4	0	6	7	315	8	0	0	0	16	235	0	591
4:45 PM	15	0	1	2	284	7	0	0	0	8	257	0	574
5:00 PM	8	0	2	5	311	14	0	0	0	21	256	0	617
5:15 PM	6	0	13	2	314	13	0	0	0	18	288	0	654
5:30 PM	7	0	5	3	315	23	0	0	0	19	259	0	631
5:45 PM	12	0	3	4	278	13	0	0	0	25	263	0	598

Peak Hour Summary	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
5:00 PM - 6:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Total	33	0	23	14	1218	63	0	0	0	83	1066	0	2500
Approach	56			1295			0			1149			2500
% HV	2%			2%			2%			2%			2%
PHF	0.74			0.95			#DIV/0!			0.94			0.96

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing 2014 - Weekday AM

	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
7:00 AM	0	0	2	1	76	0	0	0	0	0	185	0	264
7:15 AM	0	0	3	0	85	1	0	0	0	0	244	0	333
7:30 AM	0	0	8	0	115	0	0	0	0	0	277	0	400
7:45 AM	0	0	5	0	143	0	0	0	0	0	303	0	451
8:00 AM	0	0	3	0	155	1	0	0	0	0	251	0	410
8:15 AM	0	0	3	0	139	0	0	0	0	0	249	0	391
8:30 AM	0	0	6	0	177	3	0	0	0	0	249	0	435
8:45 AM	0	0	12	0	173	2	0	0	0	0	241	0	428

Peak Hour Summary	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
7:45 AM - 8:45 AM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
Total	0	0	17	0	614	4	0	0	0	0	1052	0	1687
Approach	17			618			0			1052			1687
% HV	2%			2%			2%			2%			2%
PHF	0.71			0.86			#DIV/0!			0.87			0.94

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing 2014 - Weekday PM

	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
4:00 PM	0	0	7	0	277	1	0	0	0	0	259	0	544
4:15 PM	0	0	6	0	337	2	0	0	0	0	268	0	613
4:30 PM	0	0	5	0	307	1	0	0	0	0	246	0	559
4:45 PM	0	0	5	0	285	2	0	0	0	0	274	0	566
5:00 PM	0	0	7	0	324	1	0	0	0	0	269	0	601
5:15 PM	0	0	4	0	342	0	0	0	0	0	296	0	642
5:30 PM	0	0	8	0	335	2	0	0	0	0	269	0	614
5:45 PM	0	0	5	0	294	0	0	0	0	0	279	0	578

Peak Hour Summary	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
5:00 PM - 6:00 PM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Total**
Total	0	0	24	0	1295	3	0	0	0	0	1113	0	2435
Approach	24			1298			0			1113			2435
% HV	2%			2%			2%			2%			2%
PHF	0.75			0.95			#DIV/0!			0.94			0.95

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing 2014 - Weekday AM

	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00 AM	1	0	4	0	72	3	0	0	0	11	174	0	265
7:15 AM	1	0	2	0	102	7	0	0	0	17	227	0	356
7:30 AM	2	0	2	0	111	6	0	0	0	12	265	0	398
7:45 AM	2	0	2	0	139	3	0	0	0	15	288	0	449
8:00 AM	4	0	3	0	145	5	0	0	0	20	231	0	408
8:15 AM	4	0	2	0	115	4	0	0	0	15	234	0	374
8:30 AM	1	0	5	0	190	8	0	0	0	18	231	0	453
8:45 AM	1	0	4	0	170	7	0	0	0	24	217	0	423

Peak Hour Summary	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
7:45 AM - 8:45 AM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Total	11	0	12	0	589	20	0	0	0	68	984	0	1684
Approach	23			609			0			1052			1684
% HV	2%			2%			2%			2%			2%
PHF	0.82			0.77			#DIV/0!			0.87			0.93

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing 2014 - Weekday PM

	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
4:00 PM	1	0	9	1	219	4	0	0	0	26	233	0	493
4:15 PM	0	0	20	0	286	10	0	0	0	41	227	0	584
4:30 PM	0	0	25	0	294	10	0	0	0	21	225	0	575
4:45 PM	3	0	15	0	267	4	0	0	0	40	234	0	563
5:00 PM	0	0	20	0	298	9	0	0	0	30	239	0	596
5:15 PM	1	0	26	0	302	5	0	0	0	35	261	0	630
5:30 PM	4	0	16	0	304	8	0	0	0	42	227	0	601
5:45 PM	1	0	20	0	273	11	0	0	0	26	253	0	584

Peak Hour Summary	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval
5:00 PM - 6:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Total	6	0	82	0	1177	33	0	0	0	133	980	0	2411
Approach	88			1210			0			1113			2411
% HV	2%			2%			2%			2%			2%
PHF	0.81			0.97			#DIV/0!			0.94			0.96

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

No-Build 2019 - Weekday AM

	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
7:00 AM	1	0	1	2	74	2	0	0	0	0	187	0	267
7:15 AM	3	0	0	1	108	2	0	0	0	2	246	0	362
7:30 AM	2	0	0	1	114	5	0	0	0	2	281	0	405
7:45 AM	0	0	0	2	150	3	0	0	0	6	309	0	470
8:00 AM	0	0	1	2	157	3	0	0	0	5	255	0	423
8:15 AM	1	0	0	0	136	3	0	0	0	6	254	0	400
8:30 AM	3	0	5	2	182	5	0	0	0	7	250	0	454
8:45 AM	2	0	4	2	184	5	0	0	0	4	243	0	444

Peak Hour Summary	**SB - Candlewood Ct**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
7:45 AM - 8:45 AM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	4	0	6	6	625	14	0	0	0	24	1068	0	1747
Approach	10			645			0			1092			1747
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

No-Build 2019 - Weekday PM

	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
4:00 PM	6	0	8	2	246	10	0	0	0	9	257	0	538
4:15 PM	6	0	9	5	311	12	0	0	0	8	263	0	614
4:30 PM	4	0	6	7	323	8	0	0	0	16	241	0	605
4:45 PM	15	0	1	2	291	7	0	0	0	8	263	0	587
5:00 PM	8	0	2	5	319	14	0	0	0	22	262	0	632
5:15 PM	6	0	13	2	322	13	0	0	0	18	295	0	669
5:30 PM	7	0	5	3	323	24	0	0	0	19	266	0	647
5:45 PM	12	0	3	4	285	13	0	0	0	26	270	0	613

Peak Hour Summary	**SB - Candlewood Ct**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
5:00 PM - 6:00 PM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	33	0	23	14	1249	64	0	0	0	85	1093	0	2561
Approach	56			1327			0			1178			2561
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing Year =	2014
Future Design Year =	2019
n =	5
Growth Rate =	0.005

Timbrook Place Apartment Community
TMC Summary - Timberlake_Candlewood.xlsx, No-Build - PHF
1/29/2014

No-Build 2019 - Weekday AM

	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
7:00 AM	0	0	2	1	78	0	0	0	0	0	190	0	271
7:15 AM	0	0	3	0	87	1	0	0	0	0	250	0	341
7:30 AM	0	0	8	0	118	0	0	0	0	0	284	0	410
7:45 AM	0	0	5	0	147	0	0	0	0	0	311	0	463
8:00 AM	0	0	3	0	159	1	0	0	0	0	257	0	420
8:15 AM	0	0	3	0	143	0	0	0	0	0	255	0	401
8:30 AM	0	0	6	0	181	3	0	0	0	0	255	0	445
8:45 AM	0	0	12	0	177	2	0	0	0	0	247	0	438

Peak Hour Summary	**SB - Timbrook Rd**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
7:45 AM - 8:45 AM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	0	0	17	0	630	4	0	0	0	0	1078	0	1729
Approach	17			634			0			1078			1729
% HV				2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.93

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

No-Build 2019 - Weekday PM

	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
4:00 PM	0	0	7	0	284	1	0	0	0	0	266	0	558
4:15 PM	0	0	6	0	346	2	0	0	0	0	275	0	629
4:30 PM	0	0	5	0	315	1	0	0	0	0	252	0	573
4:45 PM	0	0	5	0	292	2	0	0	0	0	281	0	580
5:00 PM	0	0	7	0	332	1	0	0	0	0	276	0	616
5:15 PM	0	0	4	0	351	0	0	0	0	0	303	0	658
5:30 PM	0	0	8	0	343	2	0	0	0	0	276	0	629
5:45 PM	0	0	5	0	301	0	0	0	0	0	286	0	592

Peak Hour Summary	**SB - Timbrook Rd**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
5:00 PM - 6:00 PM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	0	0	24	0	1327	3	0	0	0	0	1141	0	2495
Approach	24			1330			0			1141			2495
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.95

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing Year =	2014
Future Design Year =	2019
n =	5
Growth Rate =	0.005

Timbrook Place Apartment Community
TMC Summary - Timberlake_Timbrook.xlsx, No-Build - PHF
1/29/2014

No-Build 2019 - Weekday AM

	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
7:00 AM	1	0	4	0	74	3	0	0	0	11	178	0	271
7:15 AM	1	0	2	0	105	7	0	0	0	17	233	0	365
7:30 AM	2	0	2	0	114	6	0	0	0	12	272	0	408
7:45 AM	2	0	2	0	143	3	0	0	0	15	295	0	460
8:00 AM	4	0	3	0	149	5	0	0	0	21	237	0	419
8:15 AM	4	0	2	0	118	4	0	0	0	15	240	0	383
8:30 AM	1	0	5	0	195	8	0	0	0	18	237	0	464
8:45 AM	1	0	4	0	174	7	0	0	0	25	222	0	433

Peak Hour Summary	**SB - TGI Friday's Crossover**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
7:45 AM - 8:45 AM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	11	0	12	0	605	20	0	0	0	69	1009	0	1726
Approach	23			625			0			1078			1726
% HV				2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

No-Build 2019 - Weekday PM

	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			
Start Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
4:00 PM	1	0	9	1	225	4	0	0	0	27	239	0	506
4:15 PM	0	0	21	0	293	10	0	0	0	42	233	0	599
4:30 PM	0	0	26	0	301	10	0	0	0	22	231	0	590
4:45 PM	3	0	15	0	274	4	0	0	0	41	240	0	577
5:00 PM	0	0	21	0	306	9	0	0	0	31	245	0	612
5:15 PM	1	0	27	0	310	5	0	0	0	36	268	0	647
5:30 PM	4	0	16	0	312	8	0	0	0	43	233	0	616
5:45 PM	1	0	21	0	280	11	0	0	0	27	259	0	599

Peak Hour Summary	**SB - TGI Friday's Crossover**			**WB - Timberlake Rd**			**NB**			**EB - Timberlake Rd**			
5:00 PM - 6:00 PM	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Interval Total**
Total	6	0	85	0	1208	33	0	0	0	137	1005	0	2474
Approach	91			1241			0			1142			2474
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Existing Year =	2014
Future Design Year =	2019
n =	5
Growth Rate =	0.005

Timbrook Place Apartment Community
TMC Summary - Timberlake_TGIFXovr.xlsx, No-Build - PHF
1/29/2014

Build - 2019

Peak Hour Summary	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
7:45 AM - 8:45 AM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	4	0	6	35	642	14	0	0	0	24	1081	0	1806
Approach	10			691			0			1105			1806
% HV	2%			2%			na			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Build - 2019

Peak Hour Summary	SB - Candlewood Ct			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
5:00 PM - 6:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	33	0	23	30	1267	64	0	0	0	85	1115	0	2617
Approach	56			1361			0			1200			2617
% HV	2%			2%			na			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Build - 2019

Peak Hour Summary	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
7:45 AM - 8:45 AM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	0	0	63	0	630	24	0	0	0	0	1120	0	1837
Approach	63			654			0			1120			1837
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Build - 2019

Peak Hour Summary	SB - Timbrook Rd			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
5:00 PM - 6:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	0	0	58	0	1327	50	0	0	0	0	1179	0	2614
Approach	58			1377			0			1179			2614
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Build - 2019

Peak Hour Summary	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
7:45 AM - 8:45 AM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	11	0	12	0	612	20	0	0	0	82	1038	0	1775
Approach	23			632			0			1120			1775
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Build - 2019

Peak Hour Summary	SB - TGI Friday's Crossover			WB - Timberlake Rd			NB			EB - Timberlake Rd			Interval Total
	Eastbound			Westbound			Northbound			Southbound			
5:00 PM - 6:00 PM	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Total	6	0	85	0	1233	33	0	0	0	159	1021	0	2537
Approach	91			1266			0			1180			2537
% HV	2%			2%			2%			2%			2%
PHF	0.88			0.88			0.88			0.88			0.88

Legend: Peds = Pedestrians
PHF = Peak Hour Factor = peak hour volume/(4*highest 15 min volume)

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1042	6	610	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.92	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.98	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1735	
Flt Permitted	0.32	1.00	0.24	1.00	1.00	0.98	
Satd. Flow (perm)	564	3539	409	3539	1583	1735	
Peak-hour factor, PHF	0.87	0.87	0.85	0.85	0.85	0.31	0.31
Adj. Flow (vph)	28	1198	7	718	16	13	19
RTOR Reduction (vph)	0	0	0	0	6	18	0
Lane Group Flow (vph)	28	1198	7	718	10	14	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	32.1	32.1	26.9	26.9	26.9	1.2	
Effective Green, g (s)	32.1	32.1	26.9	26.9	26.9	1.2	
Actuated g/C Ratio	0.74	0.74	0.62	0.62	0.62	0.03	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	436	2624	254	2199	983	48	
v/s Ratio Prot	0.00	c0.34		0.20		c0.01	
v/s Ratio Perm	0.05		0.02		0.01		
v/c Ratio	0.06	0.46	0.03	0.33	0.01	0.28	
Uniform Delay, d1	1.7	2.2	3.2	3.9	3.1	20.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.1	0.0	3.2	
Delay (s)	1.8	2.3	3.2	4.0	3.1	23.8	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		2.3		4.0		23.8	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

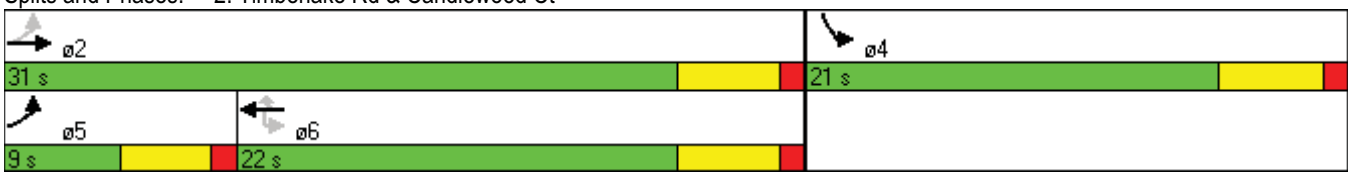
c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1042	6	610	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.920	
Flt Protected	0.950		0.950			0.980	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1735	0
Flt Permitted	0.324		0.235			0.980	
Satd. Flow (perm)	563	3539	409	3539	1583	1735	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					16	19	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.87	0.87	0.85	0.85	0.85	0.31	0.31
Adj. Flow (vph)	28	1198	7	718	16	13	19
Shared Lane Traffic (%)							
Lane Group Flow (vph)	28	1198	7	718	16	32	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	9.0	31.0	22.0	22.0	22.0	21.0	0.0
Total Split (%)	17.3%	59.6%	42.3%	42.3%	42.3%	40.4%	0.0%
Maximum Green (s)	4.5	26.0	17.0	17.0	17.0	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	28.8	32.6	31.1	31.1	31.1	6.1	
Actuated g/C Ratio	0.81	0.92	0.88	0.88	0.88	0.17	
v/c Ratio	0.05	0.37	0.02	0.23	0.01	0.10	
Control Delay	2.0	2.0	5.2	3.4	3.4	10.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	2.0	2.0	5.2	3.4	3.4	10.6	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	A	A	B	
Approach Delay		2.0		3.4		10.6	
Approach LOS		A		A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 52	
Actuated Cycle Length: 35.4	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 2.7	Intersection LOS: A
Intersection Capacity Utilization 40.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (vph)	0	1052	614	4	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.87	0.87	0.86	0.86	0.71	0.71
Adj. Flow (vph)	0	1209	714	5	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1209	714	5	0	24
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.4%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1052	614	4	0	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.86	0.86	0.71	0.71
Hourly flow rate (vph)	0	1209	714	5	0	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.86	
vC, conflicting volume	719				1319	357
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719				1051	357
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	878				192	639

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	605	605	357	357	5	24
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	5	24
cSH	1700	1700	1700	1700	1700	639
Volume to Capacity	0.36	0.36	0.21	0.21	0.00	0.04
Queue Length 95th (ft)	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			10.8
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	68	984	589	20	11	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.928	
Flt Protected	0.950				0.977	
Satd. Flow (prot)	1770	3539	3539	1583	1858	0
Flt Permitted	0.950				0.977	
Satd. Flow (perm)	1770	3539	3539	1583	1858	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.87	0.87	0.77	0.77	0.82	0.82
Adj. Flow (vph)	78	1131	765	26	13	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	1131	765	26	28	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	68	984	589	20	11	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.77	0.77	0.82	0.82
Hourly flow rate (vph)	78	1131	765	26	13	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.90	
vC, conflicting volume	791				1487	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	791				1310	382
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				89	98
cM capacity (veh/h)	825				122	616

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	78	566	566	382	382	26	28
Volume Left	78	0	0	0	0	0	13
Volume Right	0	0	0	0	0	26	15
cSH	825	1700	1700	1700	1700	1700	210
Volume to Capacity	0.09	0.33	0.33	0.22	0.22	0.02	0.13
Queue Length 95th (ft)	8	0	0	0	0	0	11
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	0.0	24.8
Lane LOS	A						C
Approach Delay (s)	0.6			0.0			24.8
Approach LOS							C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	7:30	7:30	7:30	7:30	7:30	7:30	7:30
End Time	8:45	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	1764	1804	1740	1775	1761	1664	1752
Vehs Exited	1768	1797	1745	1782	1762	1675	1755
Starting Vehs	13	9	12	14	14	16	12
Ending Vehs	9	16	7	7	13	5	8
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	4	1	0
Travel Distance (mi)	375	382	371	379	376	354	373
Travel Time (hr)	10.2	10.2	9.9	10.1	10.1	9.4	10.0
Total Delay (hr)	0.9	0.8	0.7	0.7	0.8	0.6	0.7
Total Stops	145	108	105	102	103	99	110
Fuel Used (gal)	16.6	16.8	16.3	16.3	16.4	15.6	16.3

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	1764	1804	1740	1775	1761	1664	1752
Vehs Exited	1768	1797	1745	1782	1762	1675	1755
Starting Vehs	13	9	12	14	14	16	12
Ending Vehs	9	16	7	7	13	5	8
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	4	1	0
Travel Distance (mi)	375	382	371	379	376	354	373
Travel Time (hr)	10.2	10.2	9.9	10.1	10.1	9.4	10.0
Total Delay (hr)	0.9	0.8	0.7	0.7	0.8	0.6	0.7
Total Stops	145	108	105	102	103	99	110
Fuel Used (gal)	16.6	16.8	16.3	16.3	16.4	15.6	16.3

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	38	54	61	27	26	44	8	28
Average Queue (ft)	11	5	8	3	2	3	0	8
95th Queue (ft)	36	30	40	16	14	22	5	29
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	WB	SB
Directions Served	T	R
Maximum Queue (ft)	4	34
Average Queue (ft)	0	12
95th Queue (ft)	3	36
Link Distance (ft)	179	253
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Timberlake Rd & TGI Friday Crossover

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	42	38
Average Queue (ft)	19	14
95th Queue (ft)	45	39
Link Distance (ft)		223
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	65	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Network Summary

Network wide Queuing Penalty: 0

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	83	1066	14	1218	63	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.97	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1767	
Flt Permitted	0.13	1.00	0.25	1.00	1.00	0.97	
Satd. Flow (perm)	234	3539	436	3539	1583	1767	
Peak-hour factor, PHF	0.94	0.94	0.95	0.95	0.95	0.74	0.74
Adj. Flow (vph)	88	1134	15	1282	66	45	31
RTOR Reduction (vph)	0	0	0	0	28	28	0
Lane Group Flow (vph)	88	1134	15	1282	38	48	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	36.3	36.3	28.8	28.8	28.8	4.3	
Effective Green, g (s)	36.3	36.3	28.8	28.8	28.8	4.3	
Actuated g/C Ratio	0.72	0.72	0.57	0.57	0.57	0.08	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	252	2539	248	2014	901	150	
v/s Ratio Prot	0.02	c0.32		c0.36		c0.03	
v/s Ratio Perm	0.23		0.03		0.02		
v/c Ratio	0.35	0.45	0.06	0.64	0.04	0.32	
Uniform Delay, d1	4.2	3.0	4.9	7.4	4.8	21.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.1	0.1	0.7	0.0	1.2	
Delay (s)	5.0	3.1	5.0	8.0	4.8	23.0	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		3.2		7.8		23.0	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	83	1066	14	1218	63	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.945	
Flt Protected	0.950		0.950			0.971	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1766	0
Flt Permitted	0.135		0.251			0.971	
Satd. Flow (perm)	235	3539	436	3539	1583	1766	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					66	31	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.95	0.74	0.74
Adj. Flow (vph)	88	1134	15	1282	66	45	31
Shared Lane Traffic (%)							
Lane Group Flow (vph)	88	1134	15	1282	66	76	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	8.5	39.0	30.5	30.5	30.5	21.0	0.0
Total Split (%)	14.2%	65.0%	50.8%	50.8%	50.8%	35.0%	0.0%
Maximum Green (s)	4.0	34.0	25.5	25.5	25.5	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	35.7	37.6	30.3	30.3	30.3	7.0	
Actuated g/C Ratio	0.75	0.79	0.64	0.64	0.64	0.15	
v/c Ratio	0.29	0.40	0.05	0.57	0.06	0.26	
Control Delay	5.4	3.9	8.0	9.5	2.7	15.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.4	3.9	8.0	9.5	2.7	15.8	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	A	A	B	
Approach Delay		4.0		9.2		15.8	
Approach LOS		A		A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 47.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 53.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (vph)	0	1113	1295	3	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.75	0.75
Adj. Flow (vph)	0	1184	1363	3	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1184	1363	3	0	32
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1113	1295	3	0	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.75	0.75
Hourly flow rate (vph)	0	1184	1363	3	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.86	
vC, conflicting volume	1366				1955	682
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1366				1789	682
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	499				62	393

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	592	592	682	682	3	32
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	3	32
cSH	1700	1700	1700	1700	1700	393
Volume to Capacity	0.35	0.35	0.40	0.40	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.0
Lane LOS						B
Approach Delay (s)	0.0		0.0			15.0
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	133	980	1177	33	6	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1770	3539	3539	1583	1785	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1770	3539	3539	1583	1785	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.81	0.81
Adj. Flow (vph)	141	1043	1213	34	7	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	1043	1213	34	108	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	133	980	1177	33	6	82
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.97	0.97	0.81	0.81
Hourly flow rate (vph)	141	1043	1213	34	7	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.90	
vC, conflicting volume	1247				2018	607
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1247				1910	607
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				82	77
cM capacity (veh/h)	554				40	440

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	141	521	521	607	607	34	109
Volume Left	141	0	0	0	0	0	7
Volume Right	0	0	0	0	0	34	101
cSH	554	1700	1700	1700	1700	1700	262
Volume to Capacity	0.26	0.31	0.31	0.36	0.36	0.02	0.41
Queue Length 95th (ft)	25	0	0	0	0	0	48
Control Delay (s)	13.7	0.0	0.0	0.0	0.0	0.0	28.1
Lane LOS	B						D
Approach Delay (s)	1.6			0.0			28.1
Approach LOS							D

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	2565	2584	2484	2584	2546	2508	2546
Vehs Exited	2573	2583	2478	2571	2526	2506	2539
Starting Vehs	22	21	15	10	10	24	15
Ending Vehs	14	22	21	23	30	26	21
Denied Entry Before	0	0	1	2	1	0	0
Denied Entry After	1	1	0	0	0	0	0
Travel Distance (mi)	539	545	519	538	531	524	533
Travel Time (hr)	18.3	19.0	17.6	18.9	18.7	18.3	18.5
Total Delay (hr)	4.1	4.5	3.9	4.6	4.4	4.3	4.3
Total Stops	546	619	551	621	631	594	593
Fuel Used (gal)	26.6	27.4	25.6	27.2	26.7	26.1	26.6

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	2565	2584	2484	2584	2546	2508	2546
Vehs Exited	2573	2583	2478	2571	2526	2506	2539
Starting Vehs	22	21	15	10	10	24	15
Ending Vehs	14	22	21	23	30	26	21
Denied Entry Before	0	0	1	2	1	0	0
Denied Entry After	1	1	0	0	0	0	0
Travel Distance (mi)	539	545	519	538	531	524	533
Travel Time (hr)	18.3	19.0	17.6	18.9	18.7	18.3	18.5
Total Delay (hr)	4.1	4.5	3.9	4.6	4.4	4.3	4.3
Total Stops	546	619	551	621	631	594	593
Fuel Used (gal)	26.6	27.4	25.6	27.2	26.7	26.1	26.6

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	74	94	117	38	138	154	36	77
Average Queue (ft)	33	29	36	8	38	52	8	32
95th Queue (ft)	62	76	90	29	101	126	29	63
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)	0	0			2			
Queuing Penalty (veh)	2	0			0			

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	9	45
Average Queue (ft)	0	17
95th Queue (ft)	8	42
Link Distance (ft)	262	253
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Timberlake Rd & TGI Friday Crossover

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	UT	T	R	LR
Maximum Queue (ft)	89	132	52	10	20	22	134
Average Queue (ft)	50	8	2	0	1	1	41
95th Queue (ft)	88	63	33	6	12	7	86
Link Distance (ft)		179	179	230	230	230	223
Upstream Blk Time (%)		0	0				
Queuing Penalty (veh)		0	0				
Storage Bay Dist (ft)	65						
Storage Blk Time (%)	5	0					
Queuing Penalty (veh)	24	0					

Network Summary

Network wide Queuing Penalty: 28

HCM Signalized Intersection Capacity Analysis
2: Timberlake Rd & Candlewood Ct

1/28/2014

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1068	6	625	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.92	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.98	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1737	
Flt Permitted	0.33	1.00	0.23	1.00	1.00	0.98	
Satd. Flow (perm)	573	3539	402	3539	1583	1737	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	27	1214	7	710	16	5	7
RTOR Reduction (vph)	0	0	0	0	6	7	0
Lane Group Flow (vph)	27	1214	7	710	10	5	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	33.6	33.6	28.4	28.4	28.4	1.0	
Effective Green, g (s)	33.6	33.6	28.4	28.4	28.4	1.0	
Actuated g/C Ratio	0.75	0.75	0.64	0.64	0.64	0.02	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	449	2666	256	2254	1008	39	
v/s Ratio Prot	0.00	c0.34		0.20		c0.00	
v/s Ratio Perm	0.04		0.02		0.01		
v/c Ratio	0.06	0.46	0.03	0.31	0.01	0.13	
Uniform Delay, d1	1.6	2.1	3.0	3.7	3.0	21.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.1	0.0	1.5	
Delay (s)	1.7	2.2	3.0	3.8	3.0	22.9	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		2.2		3.7		22.9	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	2.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

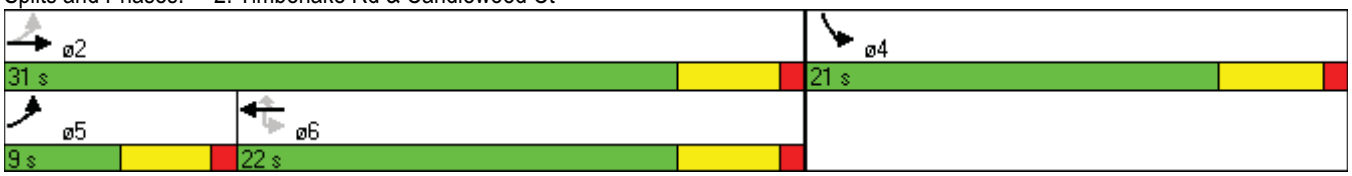
c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1068	6	625	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.921	
Flt Protected	0.950		0.950			0.980	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1737	0
Flt Permitted	0.329		0.231			0.980	
Satd. Flow (perm)	572	3539	402	3539	1583	1737	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					16	7	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	27	1214	7	710	16	5	7
Shared Lane Traffic (%)							
Lane Group Flow (vph)	27	1214	7	710	16	12	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	9.0	31.0	22.0	22.0	22.0	21.0	0.0
Total Split (%)	17.3%	59.6%	42.3%	42.3%	42.3%	40.4%	0.0%
Maximum Green (s)	4.5	26.0	17.0	17.0	17.0	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	30.2	34.1	32.8	32.8	32.8	5.9	
Actuated g/C Ratio	0.83	0.93	0.90	0.90	0.90	0.16	
v/c Ratio	0.04	0.37	0.02	0.22	0.01	0.04	
Control Delay	1.7	1.7	4.3	2.8	2.7	13.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	1.7	1.7	4.3	2.8	2.7	13.0	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	A	A	B	
Approach Delay		1.7		2.8		13.0	
Approach LOS		A		A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 52	
Actuated Cycle Length: 36.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 2.2	Intersection LOS: A
Intersection Capacity Utilization 41.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (vph)	0	1078	630	4	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1225	716	5	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1225	716	5	0	19
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1078	630	4	0	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1225	716	5	0	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.86	
vC, conflicting volume	720				1328	358
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	720				1066	358
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	877				188	639

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	612	612	358	358	5	19
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	5	19
cSH	1700	1700	1700	1700	1700	639
Volume to Capacity	0.36	0.36	0.21	0.21	0.00	0.03
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.8
Lane LOS						B
Approach Delay (s)	0.0		0.0			10.8
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	69	1009	605	20	11	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.927	
Flt Protected	0.950				0.977	
Satd. Flow (prot)	1770	3539	3539	1583	1856	0
Flt Permitted	0.950				0.977	
Satd. Flow (perm)	1770	3539	3539	1583	1856	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	78	1147	688	23	13	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	1147	688	23	26	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	69	1009	605	20	11	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	78	1147	688	23	12	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.90	
vC, conflicting volume	710				1418	344
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	710				1233	344
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				91	98
cM capacity (veh/h)	885				138	652

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	78	573	573	344	344	23	26
Volume Left	78	0	0	0	0	0	12
Volume Right	0	0	0	0	0	23	14
cSH	885	1700	1700	1700	1700	1700	235
Volume to Capacity	0.09	0.34	0.34	0.20	0.20	0.01	0.11
Queue Length 95th (ft)	7	0	0	0	0	0	9
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	22.3
Lane LOS	A						C
Approach Delay (s)	0.6			0.0			22.3
Approach LOS							C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5		Avg
Start Time	7:30	7:30	7:30	7:30	7:30	7:30	7:30
End Time	8:45	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	1805	1809	1826	1802	1741	1793	1795
Vehs Exited	1807	1811	1827	1796	1740	1801	1797
Starting Vehs	8	13	11	8	6	17	10
Ending Vehs	6	11	10	14	7	9	8
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	1	1	0	0	0	0
Travel Distance (mi)	384	384	387	382	370	380	381
Travel Time (hr)	10.3	10.5	10.5	10.2	9.9	10.5	10.3
Total Delay (hr)	0.7	0.9	0.9	0.7	0.7	1.0	0.8
Total Stops	102	110	124	128	98	151	119
Fuel Used (gal)	16.6	17.0	17.2	16.8	16.1	17.1	16.8

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5		Avg
Vehs Entered	1805	1809	1826	1802	1741	1793	1795
Vehs Exited	1807	1811	1827	1796	1740	1801	1797
Starting Vehs	8	13	11	8	6	17	10
Ending Vehs	6	11	10	14	7	9	8
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	1	1	0	0	0	0
Travel Distance (mi)	384	384	387	382	370	380	381
Travel Time (hr)	10.3	10.5	10.5	10.2	9.9	10.5	10.3
Total Delay (hr)	0.7	0.9	0.9	0.7	0.7	1.0	0.8
Total Stops	102	110	124	128	98	151	119
Fuel Used (gal)	16.6	17.0	17.2	16.8	16.1	17.1	16.8

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	42	44	65	27	24	52	17	28
Average Queue (ft)	12	4	5	4	2	4	1	7
95th Queue (ft)	37	24	32	20	14	25	7	26
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)	0				0			
Queuing Penalty (veh)	0				0			

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	34
Average Queue (ft)	13
95th Queue (ft)	37
Link Distance (ft)	253
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Timberlake Rd & TGI Friday's Crossover

Movement	EB	WB	SB
Directions Served	L	R	LR
Maximum Queue (ft)	48	13	58
Average Queue (ft)	20	0	17
95th Queue (ft)	47	8	46
Link Distance (ft)		230	223
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	65		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Network Summary

Network wide Queuing Penalty: 0

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	85	1093	14	1249	64	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.97	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1767	
Flt Permitted	0.11	1.00	0.23	1.00	1.00	0.97	
Satd. Flow (perm)	198	3539	391	3539	1583	1767	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	1242	16	1419	73	38	26
RTOR Reduction (vph)	0	0	0	0	30	24	0
Lane Group Flow (vph)	97	1242	16	1419	43	40	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	38.1	38.1	30.6	30.6	30.6	4.3	
Effective Green, g (s)	38.1	38.1	30.6	30.6	30.6	4.3	
Actuated g/C Ratio	0.73	0.73	0.58	0.58	0.58	0.08	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	227	2573	228	2067	924	145	
v/s Ratio Prot	0.02	c0.35		c0.40		c0.02	
v/s Ratio Perm	0.29		0.04		0.03		
v/c Ratio	0.43	0.48	0.07	0.69	0.05	0.28	
Uniform Delay, d1	5.0	3.0	4.7	7.6	4.7	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.1	0.1	1.0	0.0	1.0	
Delay (s)	6.3	3.1	4.9	8.5	4.7	23.6	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		3.4		8.3		23.6	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	85	1093	14	1249	64	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.945	
Flt Protected	0.950		0.950			0.971	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1766	0
Flt Permitted	0.114		0.225			0.971	
Satd. Flow (perm)	198	3539	391	3539	1583	1766	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					73	26	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	1242	16	1419	73	38	26
Shared Lane Traffic (%)							
Lane Group Flow (vph)	97	1242	16	1419	73	64	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	8.5	39.0	30.5	30.5	30.5	21.0	0.0
Total Split (%)	14.2%	65.0%	50.8%	50.8%	50.8%	35.0%	0.0%
Maximum Green (s)	4.0	34.0	25.5	25.5	25.5	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	37.4	39.2	31.9	31.9	31.9	6.8	
Actuated g/C Ratio	0.76	0.80	0.65	0.65	0.65	0.14	
v/c Ratio	0.36	0.44	0.06	0.62	0.07	0.24	
Control Delay	6.6	4.0	8.1	10.6	2.5	15.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.6	4.0	8.1	10.6	2.5	15.9	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	B	A	B	
Approach Delay		4.2		10.2		15.9	
Approach LOS		A		B		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 49.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (vph)	0	1141	1327	3	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1297	1508	3	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1297	1508	3	0	27
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.7%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1141	1327	3	0	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1297	1508	3	0	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.84	
vC, conflicting volume	1511				2156	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1511				1999	754
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	438				44	352

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	648	648	754	754	3	27
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	3	27
cSH	1700	1700	1700	1700	1700	352
Volume to Capacity	0.38	0.38	0.44	0.44	0.00	0.08
Queue Length 95th (ft)	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.1
Lane LOS						C
Approach Delay (s)	0.0		0.0			16.1
Approach LOS						C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	137	1005	1208	33	6	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1770	3539	3539	1583	1785	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1770	3539	3539	1583	1785	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	156	1142	1373	38	7	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	1142	1373	38	104	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	137	1005	1208	33	6	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	156	1142	1373	38	7	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.88	
vC, conflicting volume	1410				2255	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1410				2151	686
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	68				72	75
cM capacity (veh/h)	480				24	390

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	156	571	571	686	686	38	103
Volume Left	156	0	0	0	0	0	7
Volume Right	0	0	0	0	0	38	97
cSH	480	1700	1700	1700	1700	1700	196
Volume to Capacity	0.32	0.34	0.34	0.40	0.40	0.02	0.53
Queue Length 95th (ft)	35	0	0	0	0	0	68
Control Delay (s)	16.1	0.0	0.0	0.0	0.0	0.0	42.2
Lane LOS	C						E
Approach Delay (s)	1.9			0.0			42.2
Approach LOS							E

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4		Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1
Vehs Entered	2617	2595	2633	2582	2668	2619
Vehs Exited	2631	2612	2630	2579	2677	2626
Starting Vehs	23	31	18	17	21	23
Ending Vehs	9	14	21	20	12	15
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	1	0
Travel Distance (mi)	551	547	551	542	559	550
Travel Time (hr)	19.0	18.1	18.3	19.7	19.8	19.0
Total Delay (hr)	4.5	3.7	3.7	5.3	4.9	4.4
Total Stops	596	497	556	704	678	606
Fuel Used (gal)	27.3	26.6	27.2	27.0	28.0	27.2

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4		Avg
Vehs Entered	2617	2595	2633	2582	2668	2619
Vehs Exited	2631	2612	2630	2579	2677	2626
Starting Vehs	23	31	18	17	21	23
Ending Vehs	9	14	21	20	12	15
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	1	0
Travel Distance (mi)	551	547	551	542	559	550
Travel Time (hr)	19.0	18.1	18.3	19.7	19.8	19.0
Total Delay (hr)	4.5	3.7	3.7	5.3	4.9	4.4
Total Stops	596	497	556	704	678	606
Fuel Used (gal)	27.3	26.6	27.2	27.0	28.0	27.2

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	89	108	126	48	157	180	29	85
Average Queue (ft)	38	30	38	9	46	58	6	32
95th Queue (ft)	72	81	105	34	121	140	24	67
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)	1	1		0	2			
Queuing Penalty (veh)	4	1		0	0			

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	EB	WB	WB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	15	16	6	44
Average Queue (ft)	0	1	0	17
95th Queue (ft)	10	8	4	42
Link Distance (ft)	262	179	179	253
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Timberlake Rd & TGI Friday Crossover

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	R	LR
Maximum Queue (ft)	86	96	36	10	9	95
Average Queue (ft)	49	5	2	0	0	41
95th Queue (ft)	82	52	33	5	4	75
Link Distance (ft)		179	179	230	230	223
Upstream Blk Time (%)		0	0			
Queuing Penalty (veh)		1	0			
Storage Bay Dist (ft)	65					
Storage Blk Time (%)	4					
Queuing Penalty (veh)	21					

Network Summary

Network wide Queuing Penalty: 27

HCM Signalized Intersection Capacity Analysis
2: Timberlake Rd & Candlewood Ct

1/28/2014

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1081	35	642	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.92	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.98	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1737	
Flt Permitted	0.32	1.00	0.23	1.00	1.00	0.98	
Satd. Flow (perm)	565	3539	397	3539	1583	1737	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	27	1228	40	730	16	5	7
RTOR Reduction (vph)	0	0	0	0	6	7	0
Lane Group Flow (vph)	27	1228	40	730	10	5	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	34.6	34.6	29.5	29.5	29.5	0.9	
Effective Green, g (s)	34.6	34.6	29.5	29.5	29.5	0.9	
Actuated g/C Ratio	0.76	0.76	0.65	0.65	0.65	0.02	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	444	2691	257	2295	1026	34	
v/s Ratio Prot	0.00	c0.35		0.21		c0.00	
v/s Ratio Perm	0.05		0.10		0.01		
v/c Ratio	0.06	0.46	0.16	0.32	0.01	0.15	
Uniform Delay, d1	1.6	2.0	3.1	3.5	2.8	21.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.3	0.1	0.0	2.1	
Delay (s)	1.6	2.1	3.4	3.6	2.8	24.0	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		2.1		3.6		24.0	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	2.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	24	1081	35	642	14	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.921	
Flt Protected	0.950		0.950			0.980	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1737	0
Flt Permitted	0.325		0.228			0.980	
Satd. Flow (perm)	565	3539	396	3539	1583	1737	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					16	7	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	27	1228	40	730	16	5	7
Shared Lane Traffic (%)							
Lane Group Flow (vph)	27	1228	40	730	16	12	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	8.5	34.0	25.5	25.5	25.5	21.0	0.0
Total Split (%)	15.5%	61.8%	46.4%	46.4%	46.4%	38.2%	0.0%
Maximum Green (s)	4.0	29.0	20.5	20.5	20.5	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	31.3	35.2	34.0	34.0	34.0	6.0	
Actuated g/C Ratio	0.83	0.94	0.90	0.90	0.90	0.16	
v/c Ratio	0.05	0.37	0.11	0.23	0.01	0.04	
Control Delay	1.6	1.6	4.5	2.5	2.4	13.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	1.6	1.6	4.5	2.5	2.4	13.7	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	A	A	B	
Approach Delay		1.6		2.6		13.7	
Approach LOS		A		A		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 55	
Actuated Cycle Length: 37.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 2.0	Intersection LOS: A
Intersection Capacity Utilization 41.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1120	630	24	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1273	716	27	0	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1273	716	27	0	72
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.3%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1120	630	24	0	63
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1273	716	27	0	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.87	
vC, conflicting volume	743				1352	358
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	743				1096	358
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	860				180	639

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	636	636	358	358	27	72
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	27	72
cSH	1700	1700	1700	1700	1700	639
Volume to Capacity	0.37	0.37	0.21	0.21	0.02	0.11
Queue Length 95th (ft)	0	0	0	0	0	9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.3
Lane LOS						B
Approach Delay (s)	0.0		0.0			11.3
Approach LOS						B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	82	1038	612	20	11	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.927	
Flt Protected	0.950				0.977	
Satd. Flow (prot)	1770	3539	3539	1583	1856	0
Flt Permitted	0.950				0.977	
Satd. Flow (perm)	1770	3539	3539	1583	1856	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	93	1180	695	23	13	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	1180	695	23	26	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	82	1038	612	20	11	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	93	1180	695	23	12	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.90	
vC, conflicting volume	718				1472	348
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	718				1298	348
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				90	98
cM capacity (veh/h)	879				123	648

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	93	590	590	348	348	23	26
Volume Left	93	0	0	0	0	0	12
Volume Right	0	0	0	0	0	23	14
cSH	879	1700	1700	1700	1700	1700	213
Volume to Capacity	0.11	0.35	0.35	0.20	0.20	0.01	0.12
Queue Length 95th (ft)	9	0	0	0	0	0	10
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	24.2
Lane LOS	A						C
Approach Delay (s)	0.7			0.0			24.2
Approach LOS							C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Build	Avg
Start Time	7:30	7:30	7:30	7:30	7:30	7:30	7:30
End Time	8:45	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	1904	1869	1867	1886	1860	1906	1880
Vehs Exited	1905	1863	1868	1882	1860	1901	1880
Starting Vehs	10	7	10	12	12	10	9
Ending Vehs	9	13	9	16	12	15	12
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	1	0	0	0	0	0
Travel Distance (mi)	403	396	395	397	394	401	398
Travel Time (hr)	11.6	11.2	11.3	11.2	11.3	11.3	11.3
Total Delay (hr)	1.2	1.0	1.1	1.0	1.1	1.0	1.1
Total Stops	208	206	210	190	209	200	203
Fuel Used (gal)	18.5	18.1	18.1	18.0	18.0	18.5	18.2

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Build	Avg
Vehs Entered	1904	1869	1867	1886	1860	1906	1880
Vehs Exited	1905	1863	1868	1882	1860	1901	1880
Starting Vehs	10	7	10	12	12	10	9
Ending Vehs	9	13	9	16	12	15	12
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	1	0	0	0	0	0
Travel Distance (mi)	403	396	395	397	394	401	398
Travel Time (hr)	11.6	11.2	11.3	11.2	11.3	11.3	11.3
Total Delay (hr)	1.2	1.0	1.1	1.0	1.1	1.0	1.1
Total Stops	208	206	210	190	209	200	203
Fuel Used (gal)	18.5	18.1	18.1	18.0	18.0	18.5	18.2

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	38	55	70	48	46	55	4	28
Average Queue (ft)	13	6	8	19	2	6	0	8
95th Queue (ft)	38	30	38	43	20	29	3	29
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)		0			0			
Queuing Penalty (veh)		0			0			

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	SB
Directions Served	R
Maximum Queue (ft)	67
Average Queue (ft)	29
95th Queue (ft)	52
Link Distance (ft)	253
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Timberlake Rd & TGI Friday's Crossover

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	64	42
Average Queue (ft)	23	17
95th Queue (ft)	51	42
Link Distance (ft)		223
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	65	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	1	

Network Summary

Network wide Queuing Penalty: 1

HCM Signalized Intersection Capacity Analysis
2: Timberlake Rd & Candlewood Ct

1/28/2014

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	85	1115	30	1267	64	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	13	13
Total Lost time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	1.00	0.85	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.97	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1767	
Flt Permitted	0.11	1.00	0.22	1.00	1.00	0.97	
Satd. Flow (perm)	196	3539	381	3539	1583	1767	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	1267	34	1440	73	38	26
RTOR Reduction (vph)	0	0	0	0	30	24	0
Lane Group Flow (vph)	97	1267	34	1440	43	40	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Actuated Green, G (s)	38.4	38.4	30.9	30.9	30.9	4.3	
Effective Green, g (s)	38.4	38.4	30.9	30.9	30.9	4.3	
Actuated g/C Ratio	0.73	0.73	0.59	0.59	0.59	0.08	
Clearance Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	226	2579	223	2075	928	144	
v/s Ratio Prot	0.02	c0.36		c0.41		c0.02	
v/s Ratio Perm	0.29		0.09		0.03		
v/c Ratio	0.43	0.49	0.15	0.69	0.05	0.28	
Uniform Delay, d1	5.2	3.0	5.0	7.6	4.6	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.1	0.3	1.0	0.0	1.1	
Delay (s)	6.5	3.2	5.3	8.6	4.7	23.8	
Level of Service	A	A	A	A	A	C	
Approach Delay (s)		3.4		8.4		23.8	
Approach LOS		A		A		C	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	85	1115	30	1267	64	33	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	10	12	12	13	13
Storage Length (ft)	75		75		0	0	0
Storage Lanes	1		1		1	1	0
Taper Length (ft)	25		25		25	25	25
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850	0.945	
Flt Protected	0.950		0.950			0.971	
Satd. Flow (prot)	1652	3539	1652	3539	1583	1766	0
Flt Permitted	0.113		0.219			0.971	
Satd. Flow (perm)	196	3539	381	3539	1583	1766	0
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					73	26	
Link Speed (mph)		45		45		30	
Link Distance (ft)		320		327		330	
Travel Time (s)		4.8		5.0		7.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	97	1267	34	1440	73	38	26
Shared Lane Traffic (%)							
Lane Group Flow (vph)	97	1267	34	1440	73	64	0
Turn Type	pm+pt		Perm		Perm		
Protected Phases	5	2		6		4	
Permitted Phases	2		6		6		
Detector Phase	5	2	6	6	6	4	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.5	21.0	21.0	21.0	21.0	21.0	
Total Split (s)	8.5	39.0	30.5	30.5	30.5	21.0	0.0
Total Split (%)	14.2%	65.0%	50.8%	50.8%	50.8%	35.0%	0.0%
Maximum Green (s)	4.0	34.0	25.5	25.5	25.5	16.0	
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	5.0	5.0	5.0	4.0
Lead/Lag	Lead		Lag	Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	Min	Min	None	
Walk Time (s)		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	
Act Effct Green (s)	37.8	39.6	32.3	32.3	32.3	6.8	
Actuated g/C Ratio	0.76	0.80	0.65	0.65	0.65	0.14	
v/c Ratio	0.36	0.45	0.14	0.62	0.07	0.24	
Control Delay	6.8	4.1	9.2	10.8	2.5	16.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.8	4.1	9.2	10.8	2.5	16.0	

Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS	A	A	A	B	A	B	
Approach Delay		4.3		10.4		16.0	
Approach LOS		A		B		B	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 49.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Timberlake Rd & Candlewood Ct

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Volume (vph)	0	1179	1327	50	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3539	1583	0	1611
Link Speed (mph)		45	45		30	
Link Distance (ft)		327	240		317	
Travel Time (s)		5.0	3.6		7.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	1340	1508	57	0	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1340	1508	57	0	66
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

HCM Unsignalized Intersection Capacity Analysis
3: Timberlake Rd & Timbrook Rd

1/28/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1179	1327	50	0	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1340	1508	57	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		327				
pX, platoon unblocked					0.84	
vC, conflicting volume	1565				2178	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1565				2019	754
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	81
cM capacity (veh/h)	418				42	352

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	670	670	754	754	57	66
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	57	66
cSH	1700	1700	1700	1700	1700	352
Volume to Capacity	0.39	0.39	0.44	0.44	0.03	0.19
Queue Length 95th (ft)	0	0	0	0	0	17
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	17.6
Lane LOS						C
Approach Delay (s)	0.0		0.0			17.6
Approach LOS						C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	159	1021	1233	33	6	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Storage Length (ft)	65			0	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850	0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1770	3539	3539	1583	1785	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1770	3539	3539	1583	1785	0
Link Speed (mph)		45	45		30	
Link Distance (ft)		240	258		290	
Travel Time (s)		3.6	3.9		6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	181	1160	1401	38	7	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	1160	1401	38	104	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	159	1021	1233	33	6	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	181	1160	1401	38	7	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		567				
pX, platoon unblocked					0.88	
vC, conflicting volume	1439				2343	701
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1439				2250	701
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	61				64	75
cM capacity (veh/h)	468				19	381

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	181	580	580	701	701	38	103
Volume Left	181	0	0	0	0	0	7
Volume Right	0	0	0	0	0	38	97
cSH	468	1700	1700	1700	1700	1700	169
Volume to Capacity	0.39	0.34	0.34	0.41	0.41	0.02	0.61
Queue Length 95th (ft)	45	0	0	0	0	0	84
Control Delay (s)	17.5	0.0	0.0	0.0	0.0	0.0	55.4
Lane LOS	C						F
Approach Delay (s)	2.4			0.0			55.4
Approach LOS							F

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Build	Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1
Vehs Entered	2744	2813	2678	2719	2743	2747	2740
Vehs Exited	2741	2808	2688	2714	2724	2734	2735
Starting Vehs	18	19	29	30	4	17	18
Ending Vehs	21	24	19	35	23	30	23
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	1	0	2	0	0	0	0
Travel Distance (mi)	570	585	557	563	568	569	569
Travel Time (hr)	20.3	22.4	19.8	20.8	20.3	20.7	20.7
Total Delay (hr)	5.0	6.4	4.7	5.4	5.0	5.3	5.3
Total Stops	664	790	661	742	672	709	706
Fuel Used (gal)	28.8	30.2	28.2	28.6	28.5	28.9	28.9

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Build	Avg
Vehs Entered	2744	2813	2678	2719	2743	2747	2740
Vehs Exited	2741	2808	2688	2714	2724	2734	2735
Starting Vehs	18	19	29	30	4	17	18
Ending Vehs	21	24	19	35	23	30	23
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	1	0	2	0	0	0	0
Travel Distance (mi)	570	585	557	563	568	569	569
Travel Time (hr)	20.3	22.4	19.8	20.8	20.3	20.7	20.7
Total Delay (hr)	5.0	6.4	4.7	5.4	5.0	5.3	5.3
Total Stops	664	790	661	742	672	709	706
Fuel Used (gal)	28.8	30.2	28.2	28.6	28.5	28.9	28.9

Intersection: 2: Timberlake Rd & Candlewood Ct

Movement	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	U	T	T	R	LR
Maximum Queue (ft)	92	140	133	60	159	204	50	85
Average Queue (ft)	40	35	41	18	47	64	10	32
95th Queue (ft)	72	101	108	47	120	149	34	68
Link Distance (ft)		300	300		262	262	262	269
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	75			75				
Storage Blk Time (%)	1	1		0	2			
Queuing Penalty (veh)	6	1		0	1			

Intersection: 3: Timberlake Rd & Timbrook Rd

Movement	WB	WB	SB
Directions Served	T	R	R
Maximum Queue (ft)	17	5	59
Average Queue (ft)	1	0	29
95th Queue (ft)	8	4	53
Link Distance (ft)	179	179	253
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Timberlake Rd & TGI Friday Crossover

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	R	LR
Maximum Queue (ft)	89	119	43	12	18	115
Average Queue (ft)	54	6	1	0	1	42
95th Queue (ft)	90	51	24	6	9	82
Link Distance (ft)		179	179	230	230	223
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	65					
Storage Blk Time (%)	7	0				
Queuing Penalty (veh)	37	0				

Network Summary

Network wide Queuing Penalty: 45

218 Timbrook Place

200 Timbrook Place