



RAMEY KEMP & ASSOCIATES, INC.
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November 17, 2008

Mr. Steve O'Neal
Chatham Development Corp.
6208 Fayetteville Road, Suite 104
Durham, NC 27713
P : 919-806-3792

Reference: Cemetery – US 64 Business
Pittsboro, North Carolina

Subject: Traffic Assessment

Dear Mr. O'Neal:

This letter summarizes the findings of the Traffic Assessment prepared by Ramey Kemp & Associates, Inc. (RKA) for a cemetery, which is proposed to be located on the south side of US 64 Business across from Manco Dairy Road in Pittsboro. The cemetery will be situated on approximately 195 acres, with one full access driveway proposed on US 64 Business. The site driveway will align with Manco Dairy Road at an existing median opening approximately 1,600 feet west of the interchange ramp with US 64 Bypass. Currently, a church exists on the south side of US 64 at the driveway location. The analysis year for this study is 2012; although, actual build out of the cemetery will likely occur over many more years. Refer to Figure 1 in the appendix for an illustration of the land use and access plan.

The purpose of this study is to determine impacts to the surrounding transportation system created by traffic generated by the development. In order to accomplish this objective, conditions were analyzed under existing (2008) conditions and combined (2012) traffic conditions with full site build out during the weekday AM and PM peak hours.

Existing (2008) Traffic Conditions

Peak hour traffic counts conducted by RKA at the intersection of US 64 and Manco Dairy Road in August of 2006 were grown to the year 2008 by applying a compounded annual growth rate of 3.0%. Traffic counts were completed in 15-minute intervals during the AM peak period (7:00 a.m. – 9:00 a.m.) and the PM peak period (4:30 p.m. – 6:30 p.m.). A copy of the raw traffic count data can be found in the appendix. Refer to Figure 2 in the appendix for an illustration of the existing (2008) traffic volumes.

Background (2012) Traffic Conditions

Background (2012) traffic conditions reflect the traffic that is expected to be on the roadway network regardless of whether the proposed site is developed. Background (2012) peak hour traffic volumes were determined by growing existing (2008) peak hour volumes to the year 2012 using a compounded annual growth rate of 3.0%. This study assumes there are no approved adjacent developments in the vicinity of the proposed site that are expected to significantly affect the traffic patterns on the surrounding roadway network.

Trip Generation and Distribution

Trips generated by the proposed development were calculated utilizing methodology contained within the Institute of Transportation Engineers (ITE) *Trip Generation* manual, 7th Edition. At full build out, it is estimated that the proposed cemetery will generate 922 total site trips (461 entering and 461 exiting) during an average 24-hour weekday period. Of this total, it is estimated that 33 site trips (22 entering and 11 exiting) will occur during the AM peak hour and 164 site trips (55 entering and 109 exiting) will occur during the PM peak hour. Refer to Table 1 for a detailed breakdown of the trip generation results.

**Table 1
Site Trip Generation**

ITE Land Use (Code)	Density	Daily Volume (vpd)	AM Peak Hour (vph)		PM Peak Hour (vph)	
			Enter	Exit	Enter	Exit
Cemetery (566)	195 acres	922	23	10	55	109

Site trip distributions were estimated based on existing traffic patterns, surrounding land uses, and engineering judgment. It is anticipated that 70% of the site traffic will access the site to/from the east on US 64 towards the US 64 Bypass interchange, while the remaining 30% will access the site to/from the west on US 64. Refer to Figure 3 in the appendix for an illustration of the trip distribution and assignment of site traffic.

Combined (2012) Traffic Conditions

The total peak hour site trips expected to be generated by the proposed cemetery were added to the background (2012) traffic volumes to determine combined (2012) traffic conditions. Refer to Figure 4 in the appendix for the combined (2012) AM and PM peak hour traffic volumes with full build out of the site.

Capacity Analysis

Existing (2008) and combined (2012) traffic volumes at the intersection of US 64 and Manco Dairy Road/Site Access were analyzed with existing lane configurations and traffic control.

Intersection capacity analyses were completed using Synchro Version 7.0. Synchro 7.0 analyzes intersections based on the methodologies and procedures outlined in the 2000 Highway Capacity Manual. Capacity analysis results for unsignalized intersections do not provide an overall level of service, but rather a level of service for movements and/or approaches that have a conflicting movement. Capacity and level of service are the design criteria for this traffic study. Refer to Table 2 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay, as defined by the HCM, includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”.

**Table 2
Highway Capacity Manual Levels of Service and Delay**

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
Level Of Service	Average Control Delay Per Vehicle (Seconds)	Level Of Service	Average Control Delay Per Vehicle (Seconds)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

A summary of capacity analysis results for existing and combined AM and PM peak hour conditions is presented in Table 3. The detailed capacity analysis reports can be found in the appendix.

Capacity analysis indicates that the northbound and southbound minor street approaches currently operate at LOS C or better during both the AM and PM peak hours, while the eastbound left turn movement on US 64 operates at LOS A during both peak hours. Currently, auxiliary left and right turn lanes exist on US 64 at this location. The westbound left turn lane on US 64 currently provides approximately 250 feet of full width storage.

Under combined (2012) conditions, the eastbound and westbound left turn movements on US 64 are expected to operate at LOS A during both peak hours. The existing full width storage of the westbound left turn lane on US 64 should be adequate to accommodate vehicles entering the site from the east.

**Table 3
Peak Hour Capacity Analysis Results**

INTERSECTION	A P P R O A C H	LANE CONFIGURATION	LEVEL OF SERVICE			
			AM PEAK HOUR		PM PEAK HOUR	
			Appr.	Overall	Appr.	Overall
Existing (2008) Traffic Conditions						
US 64 at Manco Dairy Road/Site Driveway (median opening) (Unsignalized)	EB	1 LT, 2 TH, 1 RT	A ¹	N/A	A ¹	N/A
	WB	1 LT, 2 TH, 1 RT	--*		--*	
	NB	1 LT-TH-RT	A ²		A ²	
	SB	1 LT-TH-RT	B ²		C ²	
Combined (2012) Traffic Conditions						
US 64 at Manco Dairy Road/Site Driveway (median opening) (Unsignalized)	EB	1 LT, 2 TH, 1 RT	A ¹	N/A	A ¹	N/A
	WB	1 LT, 2 TH, 1 RT	A ¹		A ¹	
	NB	1 LT-TH-RT	B ²		B ²	
	SB	1 LT-TH-RT	B ²		C ²	

* No westbound left turns were observed, U-turns only.

1. Level of service for major street left turn movement.
2. Level of service for minor street approach.

Under combined (2012) conditions, analysis indicates that the northbound and southbound minor street approaches are expected to operate at LOS B during the AM peak hour and LOS B and LOS C, respectively, during the PM peak hour without the need for improvements. The change in LOS from Existing conditions to Future conditions is due to the increase in traffic volume on the minor approaches. At unsignalized intersections with heavily traveled roadways such as US 64 Business, it is common for even a small increase in traffic to change the LOS.

It is not uncommon for minor street approaches at unsignalized intersections with heavy through volumes on the main street to experience relatively long delays. In fact, LOS C on minor approaches at unsignalized intersections is not only acceptable, but even good. The 95th percentile queue on the northbound approach of the site driveway is 20 feet (approximately one vehicle).

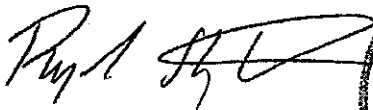
Conclusions

In conclusion, this study determines traffic impacts of a 195 acre cemetery proposed on the south side of US 64, across from Manco Dairy Road in Pittsboro. Based on the findings of this study, this development is not expected to have a significant impact on the surrounding transportation system. Access is provided on US 64 at an existing median opening with existing auxiliary left turn lanes and right turn lanes on US 64. These existing turn lanes are expected to be sufficient to handle future traffic from the development. No improvements are recommended to accommodate traffic generated by the proposed cemetery.

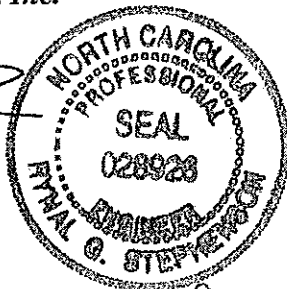
It is important to point out that full build out site traffic was analyzed in the year 2012, although actual build out of the cemetery will occur over a much longer time period. Also, in most instances for cemeteries, the peak trips for the site occurs during a funeral or memorial service. These services occur only once per gravesite and would be expected to rarely take place during the peak hour of traffic on US 64. For these events, vehicles are typically escorted by law enforcement and enter/exit the site as a group. These vehicles experience little or no delay from other traffic, which suggests the analysis results provided would be a worst case scenario if vehicles did interact with other traffic. The analyses performed for this assessment do not take these factors into consideration, and therefore represent the highest possible delay to be experienced by site trips under future conditions.

If you should have any questions relative to this correspondence, please feel free to contact me at (919) 872-5115.

Sincerely,
Ramey Kemp and Associates, Inc.



Rynal G. Stephenson, P.E.
Transportation Engineer



11-17-08

Attachments

Appendix

Ramey Kemp & Associates, Inc.

5808 Faringdon Place

Raleigh, NC 27609

Ph. (919) 872-5115 Fx. (919) 875-5416 File Name : us64@marcodairy

Site Code : 00081006

Start Date : 8/10/2006

Page No : 1

Groups Printed- Vehicles - Pedestrians - Bank 2

Start Time	Marco Dairy Road From North				US 64 From East				Dead End From South				US 64 From West				Exch. Total	Inch. Total	Int. Total
	Right	Thru	Left	Trks	Right	Thru	Left	Trks	Right	Thru	Left	Trks	Right	Thru	Left	Trks			
07:00 AM	0	0	0	0	0	57	1	7	0	0	0	0	0	109	0	12	19	167	186
07:15 AM	0	0	1	0	0	65	0	10	0	0	0	0	0	102	0	6	16	168	184
07:30 AM	0	0	0	0	0	84	0	11	0	0	0	0	0	120	0	14	25	204	229
07:45 AM	0	0	3	0	0	87	0	7	0	0	0	0	0	137	1	16	23	228	251
Total	0	0	4	0	0	293	1	35	0	0	0	0	0	468	1	48	83	767	850
08:00 AM	0	0	1	0	0	90	1	16	0	0	0	0	0	120	0	13	29	212	241
08:15 AM	1	0	4	0	1	84	1	10	0	0	0	0	1	132	0	8	18	224	242
08:30 AM	0	0	0	0	0	94	0	16	0	0	0	0	0	104	1	12	28	199	227
08:45 AM	0	0	0	0	1	79	1	10	0	0	0	0	2	110	1	14	24	194	218
Total	1	0	5	0	2	347	3	52	0	0	0	0	3	466	2	47	99	829	928
BREAK																			
04:30 PM	0	0	3	0	1	165	1	9	0	0	0	0	0	120	0	11	20	280	300
04:45 PM	1	0	0	0	0	178	0	13	0	0	0	0	0	114	0	11	24	283	317
Total	1	0	3	0	1	333	1	22	0	0	0	0	0	234	0	22	44	573	617
05:00 PM	0	0	0	0	1	189	0	11	0	0	0	0	0	130	0	6	17	320	337
05:15 PM	0	0	0	0	3	173	3	10	0	0	0	0	0	115	1	7	17	295	312
05:30 PM	0	0	2	0	3	120	1	5	0	0	0	0	0	108	0	6	11	234	245
05:45 PM	0	0	1	0	1	142	1	10	0	0	0	0	0	93	0	8	18	238	255
Total	0	0	3	0	8	624	5	38	0	0	0	0	0	446	1	27	63	1087	1150
06:00 PM	1	0	0	0	2	140	0	10	0	0	0	0	0	104	0	5	15	247	262
06:15 PM	0	0	2	0	1	122	0	5	0	0	0	0	0	103	0	3	8	228	236
Grand Total	3	0	17	0	14	1859	10	160	0	0	0	0	3	1821	4	152	312	3731	4043
Approch %	15	0	85		0.7	98.7	0.5		0	0	0		0.2	99.6	0.2				
Total %	0.1	0	0.5		0.4	49.8	0.3		0	0	0		0.1	48.8	0.1		7.7	92.3	
All-Vehicles	3	0	17		14	1859	10		0	0	0		3	1821	4		0	0	4043
% All-Vehicles	100	0	100	0	100	100	100	100	0	0	0	0	100	100	100	100	0	0	100
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0		0	0	0		0	0	0		0	0	0		0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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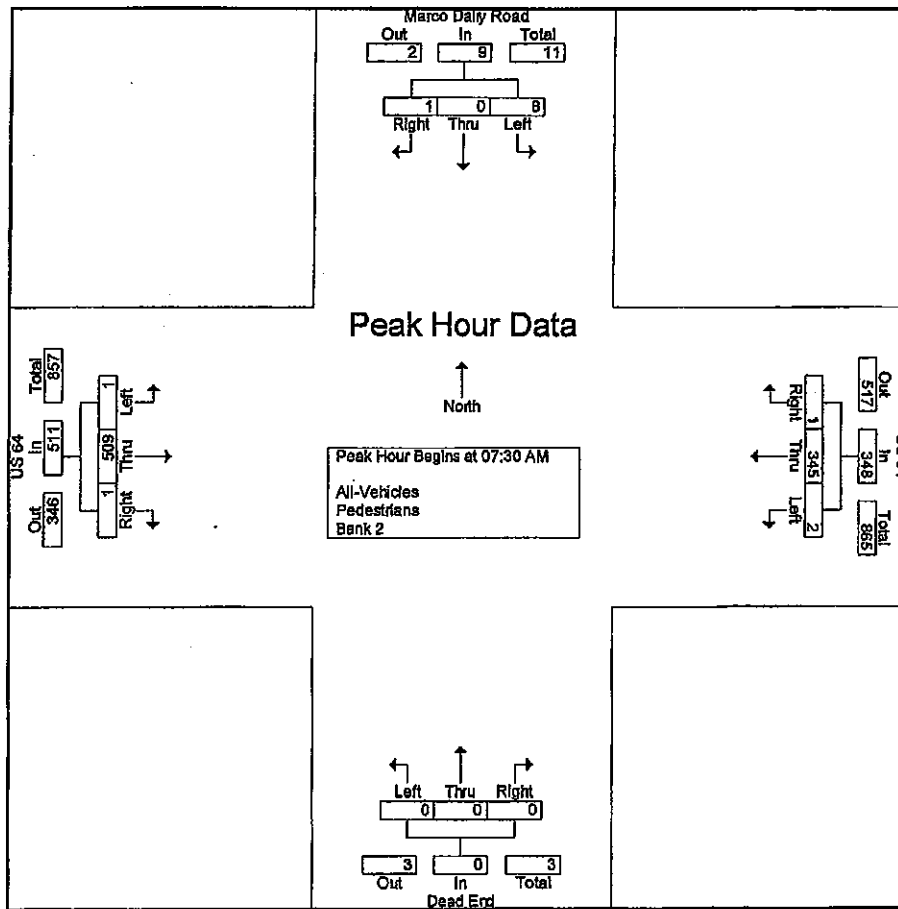
Ph. (919) 872-5115 Fx. (919) 875-5416 File Name : us64@marcodairy

Site Code : 00081006

Start Date : 8/10/2006

Page No : 2

Start Time	Marco Dairy Road From North				US 64 From East				Dead End From South				US 64 From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	84	0	84	0	0	0	0	0	120	0	120	204
07:45 AM	0	0	3	3	0	87	0	87	0	0	0	0	0	137	1	138	228
08:00 AM	0	0	1	1	0	90	1	91	0	0	0	0	0	120	0	120	212
08:15 AM	1	0	4	5	1	84	1	86	0	0	0	0	1	132	0	133	224
Total Volume	1	0	8	9	1	345	2	348	0	0	0	0	1	509	1	511	868
% App. Total	11.1	0	88.9		0.3	99.1	0.6		0	0	0		0.2	99.6	0.2		
PHF	.250	.000	.500	.450	.250	.958	.500	.966	.000	.000	.000	.000	.250	.929	.250	.926	.952



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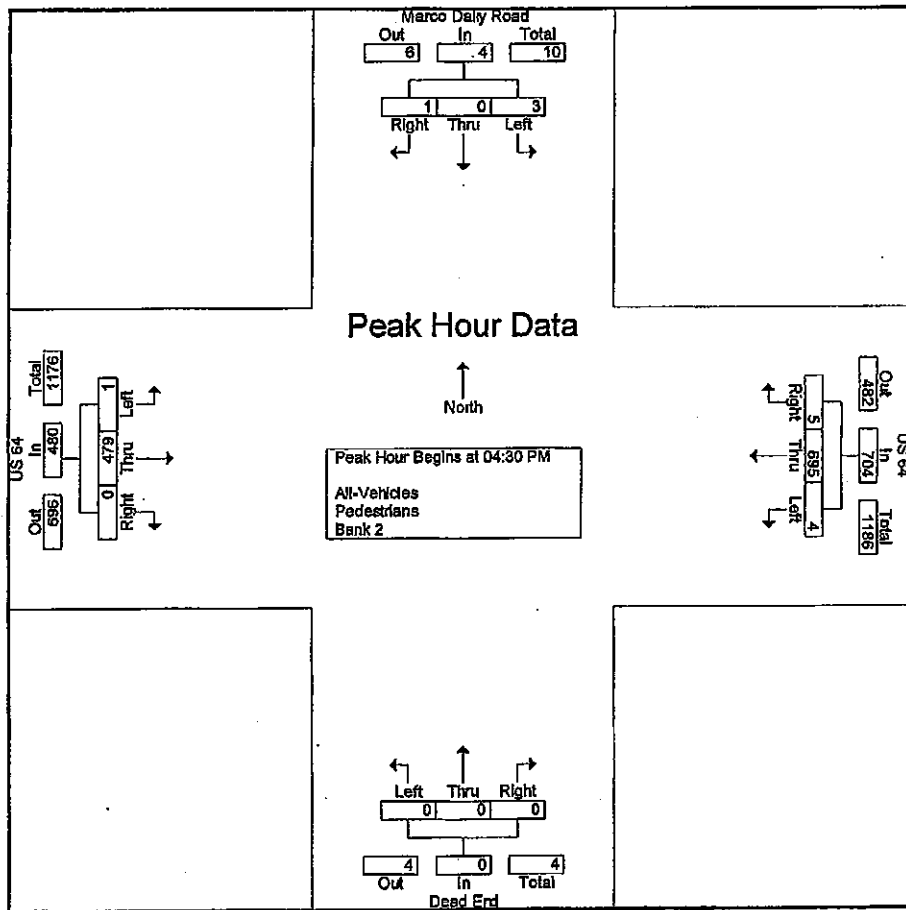
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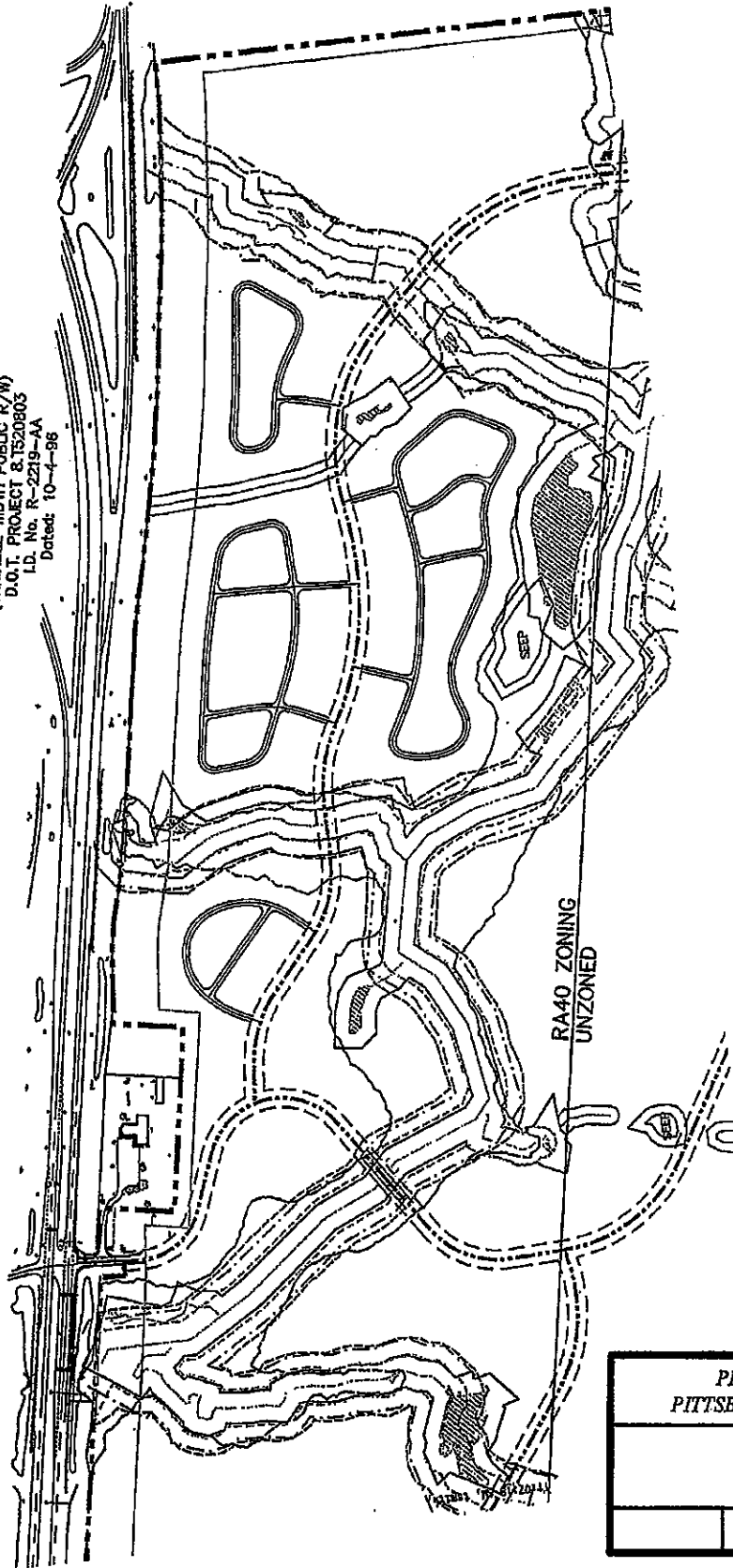
Start Date : 8/10/2006

Page No : 3

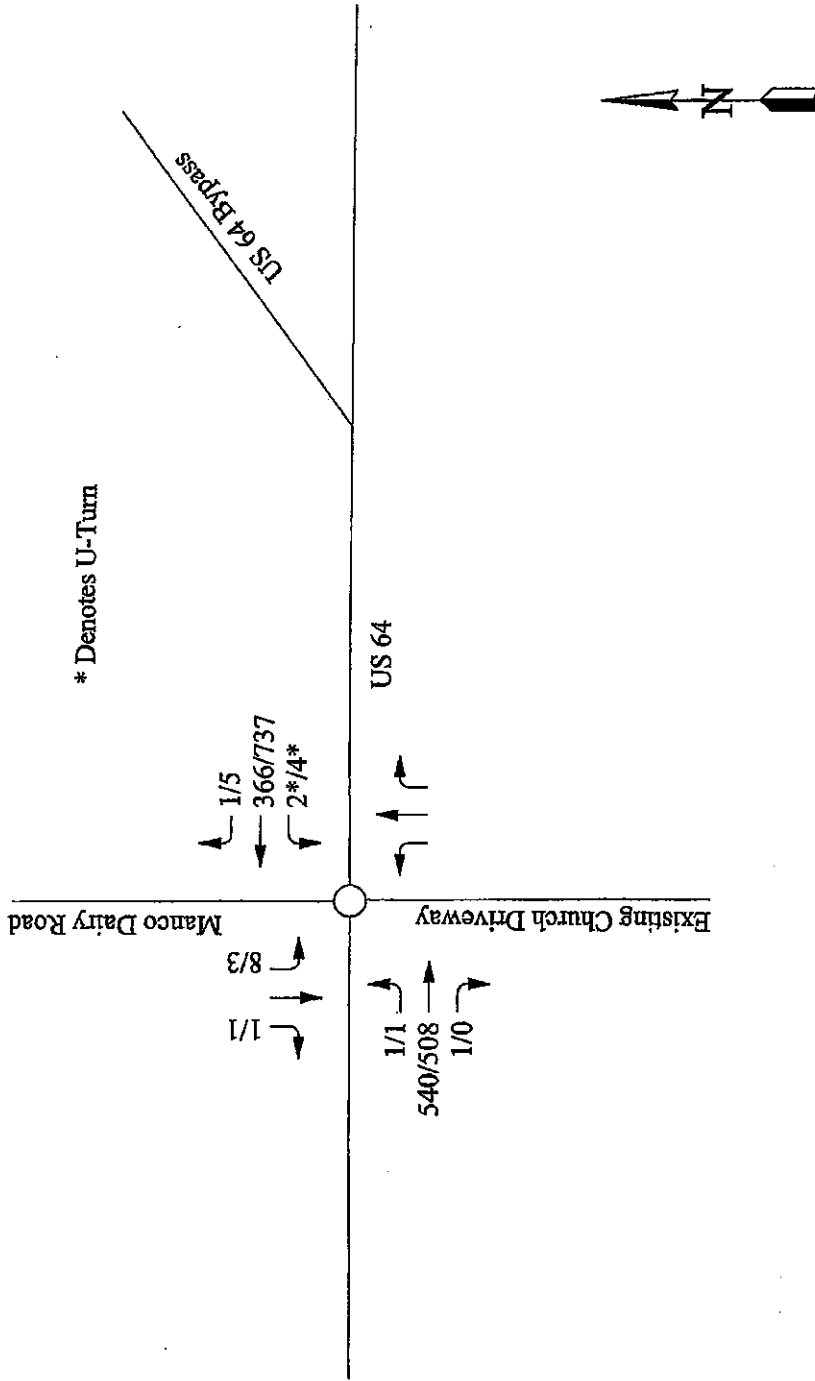
Start Time	Marco Dairy Road From North				US 64 From East				Dead End From South				US 64 From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	3	3	1	155	1	157	0	0	0	0	0	120	0	120	280
04:45 PM	1	0	0	1	0	178	0	178	0	0	0	0	0	114	0	114	293
05:00 PM	0	0	0	0	1	188	0	189	0	0	0	0	0	130	0	130	320
05:15 PM	0	0	0	0	3	173	3	179	0	0	0	0	0	115	1	116	295
Total Volume	1	0	3	4	5	695	4	704	0	0	0	0	0	479	1	480	1188
% App. Total	25	0	75		0.7	99.7	0.6		0	0	0		0	99.8	0.2		
PHF	.250	.000	.280	.333	.417	.918	.333	.926	.000	.000	.000	.000	.000	.921	.250	.923	.928



U.S. HWY. 64
(VARIABLE WIDTH PUBLIC R/W)
D.O.T. PROJECT #TS20803
L.D. No. R-2219-AA
Dated: 10-4-86



PROPOSED CEMETERY PITTSBORO, NORTH CAROLINA	
Site Plan	
Scale: Not to Scale	Figure 1

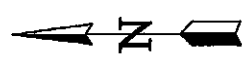
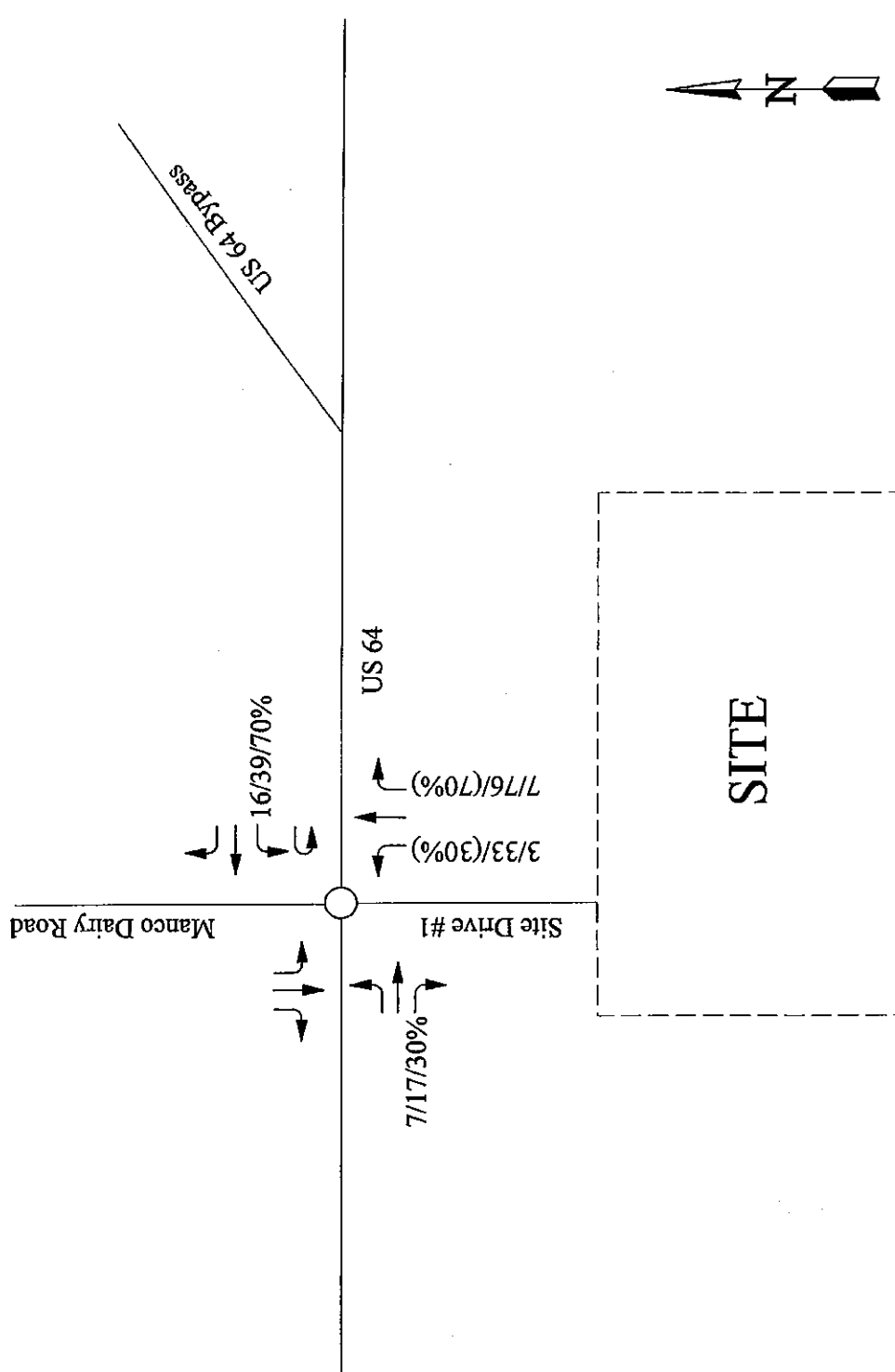


* Denotes U-Turn

LEGEND

- Unsignalized Intersection
- X/Y AM/PM Peak Hour Traffic

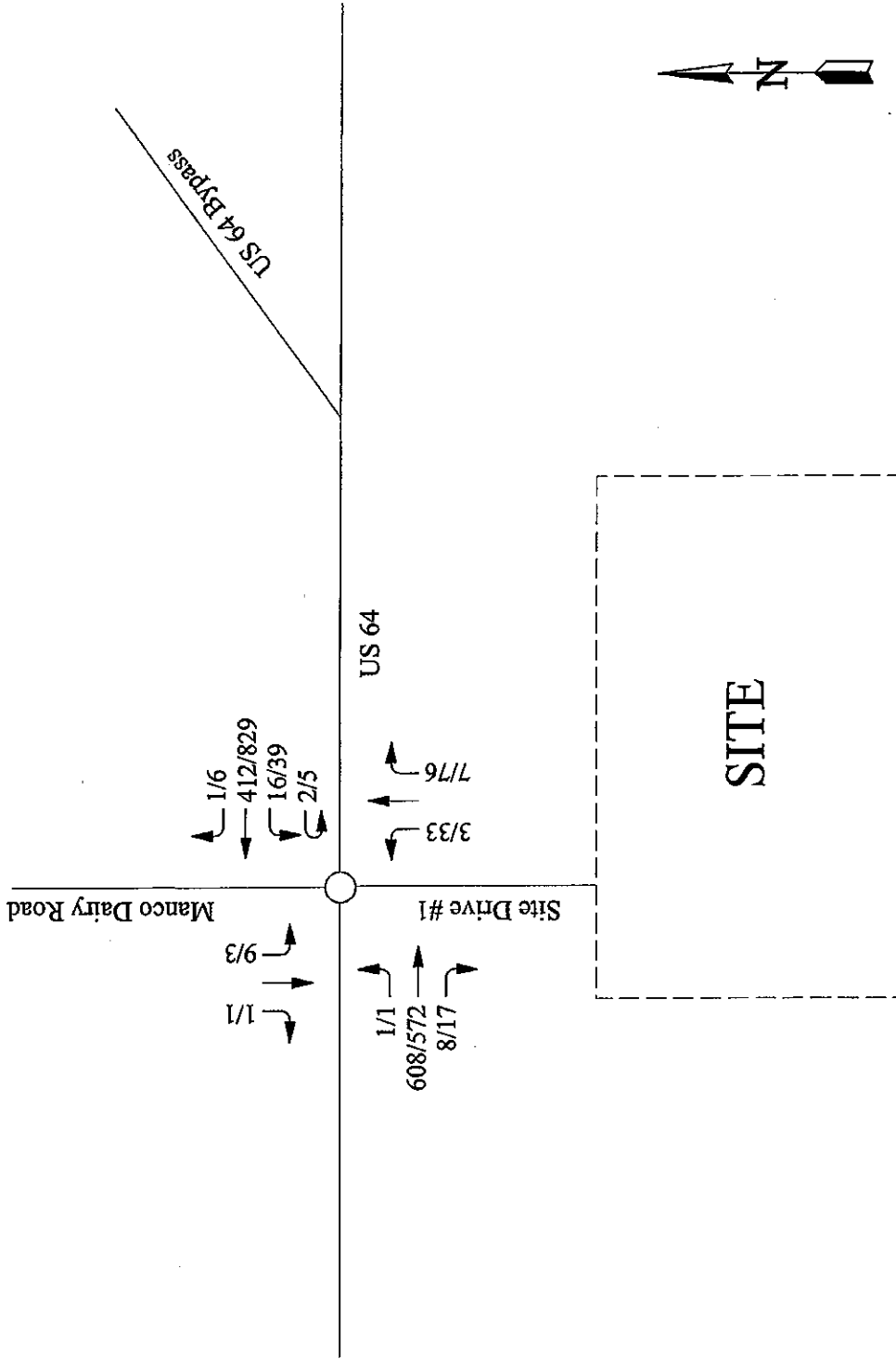
PROPOSED CEMETERY PITTSBORO, NORTH CAROLINA	
Existing (2008) Peak Hour Traffic	
Scale: Not to Scale	Figure 2



LEGEND

- Unsignalized Intersection
- X/Y AM/PM Peak Hour Site Trips
- X% Percent of Entering Site Traffic
- (Y%) Percent of Entering Site Traffic

PROPOSED CEMETERY PITTSBORO, NORTH CAROLINA	
Peak Hour Site Trips and Distribution Percentages	
Scale: Not to Scale	Figure 3



LEGEND

- Unsignalized Intersection
- X/Y AM/PM Peak Hour Traffic

PROPOSED CEMETERY PITTSBORO, NORTH CAROLINA	
Combined (2012) Peak Hour Traffic	
Scale: Not to Scale	Figure 4

HCM Unsignalized Intersection Capacity Analysis
 3: US 64 & Manco Dairy Road

Cemetery - Chatham County
 Existing (2008)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	1	2	1	2	0	2	1	0	0	0	8	0
Volume (veh/h)	1	540	1	2	0	366	1	0	0	0	8	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	600	1	0	0	407	1	0	0	0	9	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised				Raised						
Median storage (veh)		2				2						
Upstream signal (ft)												
pX, platoon unblocked				0.00								
vC, conflicting volume	408			0	601			807	1010	300	709	1010
vC1, stage 1 conf vol								602	602		407	407
vC2, stage 2 conf vol								204	408		302	603
vCu, unblocked vol	408			0	601			807	1010	300	709	1010
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	100			100	100	100	98	100
cM capacity (veh/h)	1147			0	972			427	421	696	513	421
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	1	300	300	1	0	203	203	1	0	10		
Volume Left	1	0	0	0	0	0	0	0	0	9		
Volume Right	0	0	0	1	0	0	0	1	0	1		
cSH	1147	1700	1700	1700	1700	1700	1700	1700	1700	535		
Volume to Capacity	0.00	0.18	0.18	0.00	0.00	0.12	0.12	0.00	0.00	0.02		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	1		
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9		
Lane LOS	A								A	B		
Approach Delay (s)	0.0				0.0				0.0	11.9		
Approach LOS									A	B		
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			24.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	SBR
Land Configurations	
Volume (veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	203
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	203
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	804
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis
 3: US 64 & Manco Dairy Road

Cemetery - Chatham County
 Existing (2008)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	1	2	1	4	1	2	1	0	2	0	3	2
Volume (veh/h)	1	508	0	4	0	737	5	0	0	0	3	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	564	0	0	0	819	6	0	0	0	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised				Raised						
Median storage (veh)		2				2						
Upstream signal (ft)												
pX, platoon unblocked				0.00								
vC, conflicting volume	824			0	564			977	1391	282	1103	1386
vC1, stage 1 conf vol								567	567		819	819
vC2, stage 2 conf vol								411	824		284	567
vCu, unblocked vol	824			0	564			977	1391	282	1103	1386
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	100			100	100	100	99	100
cM capacity (veh/h)	802			0	1003			404	325	715	316	327
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	1	282	282	0	0	409	409	6	0	4		
Volume Left	1	0	0	0	0	0	0	0	0	3		
Volume Right	0	0	0	0	0	0	0	6	0	1		
cSH	802	1700	1700	1700	1700	1700	1700	1700	1700	357		
Volume to Capacity	0.00	0.17	0.17	0.00	0.00	0.24	0.24	0.00	0.00	0.01		
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	1		
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2		
Lane LOS	A								A	C		
Approach Delay (s)	0.0				0.0				0.0	15.2		
Approach LOS									A	C		
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			30.4%			ICU Level of Service			A			
Analysis Period (min)			15									





















HCM Unsignalized Intersection Capacity Analysis
 3: US 64 & Manco Dairy Road

Cemetery - Chatham County
 Existing (2008)

Movement	SBR
Land Configurations	
Volume (veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	409
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	409
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	591
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis
 3: US 64 & Manco Dairy Road























Cemetery - Chatham County
 Combined (2012)

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations				2				3		7	9	
Volume (veh/h)	1	608	8	2	16	412	1	3	0	7	9	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	676	9	0	18	458	1	3	0	8	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised				Raised						
Median storage (veh)		2				2						
Upstream signal (ft)												
pX, platoon unblocked				0.00								
vC, conflicting volume	459			0	684			943	1172	338	841	1180
vC1, stage 1 conf vol								678	678		493	493
vC2, stage 2 conf vol								266	494		348	687
vCu, unblocked vol	459			0	684			943	1172	338	841	1180
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	98			99	100	99	98	100
cM capacity (veh/h)	1098			0	905			379	376	658	443	365
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1		
Volume Total	1	338	338	9	18	229	229	1	11	11		
Volume Left	1	0	0	0	18	0	0	0	3	10		
Volume Right	0	0	0	9	0	0	0	1	8	1		
cSH	1098	1700	1700	1700	905	1700	1700	1700	539	463		
Volume to Capacity	0.00	0.20	0.20	0.01	0.02	0.13	0.13	0.00	0.02	0.02		
Queue Length 95th (ft)	0	0	0	0	1	0	0	0	1	2		
Control Delay (s)	8.3	0.0	0.0	0.0	9.1	0.0	0.0	0.0	11.8	13.0		
Lane LOS	A				A				B	B		
Approach Delay (s)	0.0				0.3				11.8	13.0		
Approach LOS									B	B		
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			26.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Movement	SBR
Lane Configurations	
Volume (veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	229
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	229
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	774
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis
 3: US 64 & Manco Dairy Road

Cemetery - Chatham County
 Combined (2012)

													
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations				5				33			3		
Volume (veh/h)	1	572	17	5	39	829	6	33	0	76	3	0	
Sign Control		Free				Free			Stop			Stop	
Grade		0%				0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	1	636	19	0	43	921	7	37	0	84	3	0	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type		Raised				Raised							
Median storage (veh)		2				2							
Upstream signal (ft)													
pX, platoon unblocked				0.00									
vC, conflicting volume	928			0	654			1186	1652	318	1412	1664	
vC1, stage 1 conf vol								638	638		1008	1008	
vC2, stage 2 conf vol								548	1014		404	657	
vCu, unblocked vol	928			0	654			1186	1652	318	1412	1664	
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5	
tC, 2 stage (s)								6.5	5.5		6.5	5.5	
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0	
p0 queue free %	100			0	95			89	100	88	99	100	
cM capacity (veh/h)	733			0	929			335	259	678	223	253	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	1	318	318	19	43	461	461	7	121	4			
Volume Left	1	0	0	0	43	0	0	0	37	3			
Volume Right	0	0	0	19	0	0	0	7	84	1			
cSH	733	1700	1700	1700	929	1700	1700	1700	518	261			
Volume to Capacity	0.00	0.19	0.19	0.01	0.05	0.27	0.27	0.00	0.23	0.02			
Queue Length 95th (ft)	0	0	0	0	3	0	0	0	20	1			
Control Delay (s)	9.9	0.0	0.0	0.0	9.1	0.0	0.0	0.0	14.1	19.0			
Lane LOS	A				A				B	C			
Approach Delay (s)	0.0				0.4				14.1	19.0			
Approach LOS									B	C			
Intersection Summary													
Average Delay			1.3										
Intersection Capacity Utilization			42.6%		ICU Level of Service				A				
Analysis Period (min)			15										

Movement	SBR
Lane Configurations	
Volume (veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	461
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	461
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	548
Direction, Lane #	