LANE SUMMARY

Site: 2014 AM

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	452	63	87	602	6.0	779	0.773	100	20.0	LOS C	11.1	291.7	1600	–	0.0	0.0
Approach	452	63	87	602	6.0		0.773		20.0	LOS C	11.1	291.7				
East: New Hope Road																
Lane 1	52	103	17	173	2.0	579	0.299	100	12.2	LOS B	2.2	56.0	1600	–	0.0	0.0
Approach	52	103	17	173	2.0		0.299		12.2	LOS B	2.2	56.0				
North: Boat Rock Road																
Lane 1	74	92	183	349	4.0	602	0.580	100	15.5	LOS C	5.8	148.7	1600	–	0.0	0.0
Approach	74	92	183	349	4.0		0.580		15.5	LOS C	5.8	148.7				
West: Campbellton Road																
Lane 1	133	182	0	314	6.0	911	0.345	100	9.8	LOS A	2.5	65.9	1600	–	0.0	0.0
Lane 2	0	0	573	573	6.0	1126	0.509	100	8.5	LOS A	4.6	119.9	1600	–	0.0	0.0
Approach	133	182	573	887	6.0		0.509		8.9	LOS A	4.6	119.9				
Intersection				2011	5.3		0.776		13.7	LOS B	11.1	291.7				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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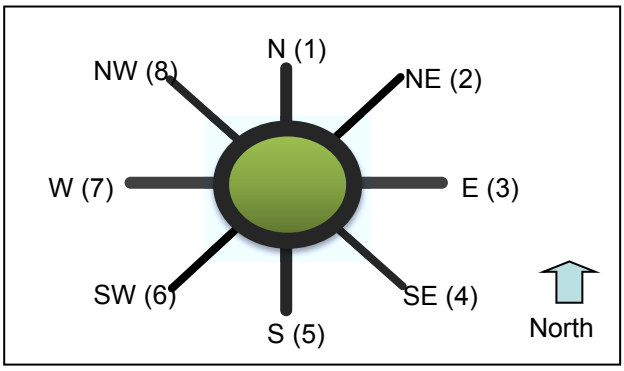
General & Site Information	
Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2014 PM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			37		163		116	
Exit	NE (2), vph								
Legs	E (3), vph	19				74		53	
(TO)	SE (4), vph								
	S (5), vph	99		91					
	SW (6), vph								
	W (7), vph	87		81		447			
	NW (8), vph								
Output	Total Vehicles	205	0	209	0	684	0	169	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% SU/ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	41	0	187	0	134	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	21	0	0	0	86	0	61	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	112	0	101	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	99	0	89	0	515	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	232	0	232	0	788	0	195	0
Conflicting flow, pcu/h	706	0	836	0	216	0	234	0

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	558	NA	490	NA	910	NA	894	NA
V/C ratio	**0.42**		**0.47**		**0.87**		**0.22**	
Control Delay, sec/pcu	**11.0**		**13.8**		**23.3**		**5.1**	
LOS	B		B		C		A	
95th % Queue (ft)	**53**		**64**		**296**		**22**	

Notes:

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**W (7)**					
Select Exit Leg for Bypass (TO)	**S (5)**					
Volumes						
Right Turn Volume removed from Entry Leg	**284**					
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	0.94					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	327					
Conflicting Flow	213					
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	913					
V/C ratio	**0.36**					
Control Delay, sec/pcu	**6.1**					
LOS	A					
95th % Queue (ft)	**43**					

LANE SUMMARY

Site: 2014 PM

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	486	177	80	743	6.0	989	0.752	100	14.4	LOS B	10.7	279.4	1600	–	0.0	0.0
Approach	486	177	80	743	6.0		0.752		14.4	LOS B	10.7	279.4				
East: New Hope Road																
Lane 1	99	88	40	227	2.0	490	0.464	100	17.3	LOS C	4.1	103.3	1600	–	0.0	0.0
Approach	99	88	40	227	2.0		0.464		17.3	LOS C	4.1	103.3				
North: Boat Rock Road																
Lane 1	21	108	95	223	4.0	573	0.389	100	12.3	LOS B	3.0	77.0	1600	–	0.0	0.0
Approach	21	108	95	223	4.0		0.389		12.3	LOS B	3.0	77.0				
West: Campbellton Road																
Lane 1	126	58	0	184	6.0	930	0.198	100	11.5	LOS B	1.2	32.3	1600	–	0.0	0.0
Lane 2	0	0	309	309	6.0	1093	0.283	100	8.2	LOS A	2.0	51.1	1600	–	0.0	0.0
Approach	126	58	309	492	6.0		0.283		9.4	LOS B	2.0	51.1				
Intersection				1686	5.2		0.752		13.1	LOS B	10.7	279.4				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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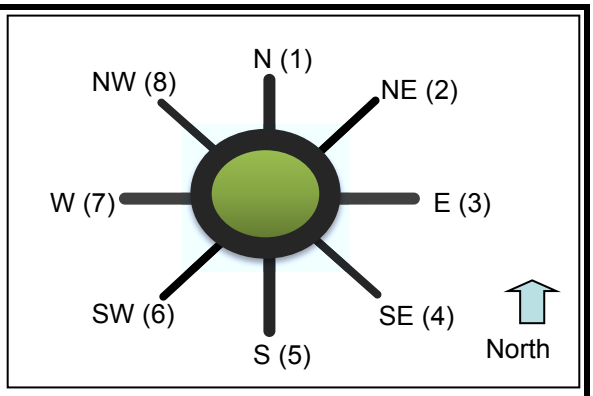
Appendix B
2034 AM & PM
(See Figure 4)

General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 AM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						26		
E (3), vph		111						
.								
S (5), v		139				79		
W (7), vph		276				155		
Entry Volume, vph	0	526	0	0	0	260	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		95			200			
E (3), vph		131			274			
S (5), vph					144			
W (7), vph	368	88						
Entry Volume, vph	368	314	0	0	618	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	26	0	0	0	200	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	111	0	0	0	0	0	274	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	139	0	79	0	0	0	144	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	276	0	155	0	368	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	526	0	260	0	368	0	618	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	29	0	110	0	231	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	125	0	0	0	150	0	315	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	158	0	87	0	0	0	166	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	312	0	172	0	525	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Conflicting flow, pcu/h	785	0	866	0	672	0	370	0
	Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	652	NA	616	NA	577	NA	780	NA
Crit. Lane Entry Flow pcu/h	595	0	288	0	424	0	712	0
V/C ratio	**0.91**		**0.47**		**0.73**		**0.91**	
Control Delay, sec/pcu	**37.2**		**10.9**		**21.5**		**32.7**	
LOS	E		B		C		D	
95th % Queue (ft)	**306**		**63**		**166**		**334**	

Notes:

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)	**W (7)**					
Select Exit Leg for Bypass (TO)	**S (5)**					
Volumes						
Entry Leg: Insert Right Turn Volume	720					
Exit Leg:	245					
Volume Characteristics						
PHF (Entry Leg)	0.92					
F_{HV} (Entry Leg)	0.94					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	830					
Conflicting Exit Flow	245					
Number of Conflicting Exit Lanes	1					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	884					
V/C ratio	0.94					
Control Delay, sec/pcu	33.8					
LOS	D					
95th % Queue (ft)	**385**					

LANE SUMMARY

Site: 2034 AM

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	341	0	0	341	6.0	679	0.503	100	18.6	LOS C	4.8	125.1	1600	–	0.0	0.0
Lane 2	155	103	142	400	6.0	796	0.503	100	13.2	LOS B	5.0	131.8	1600	–	0.0	0.0
Approach	496	103	142	741	6.0		0.503		15.7	LOS C	5.0	131.8				
East: New Hope Road																
Lane 1	86	168	28	283	2.0	601	0.470	100	11.7	LOS B	3.1	77.9	1600	–	0.0	0.0
Approach	86	168	28	283	2.0		0.470		11.7	LOS B	3.1	77.9				
North: Boat Rock Road																
Lane 1	121	151	300	572	4.0	612	0.935	100	27.0	LOS D	15.3	394.2	1600	–	0.0	0.0
Approach	121	151	300	572	4.0		0.935		27.0	LOS D	15.3	394.2				
West: Campbellton Road																
Lane 1	217	298	166	681	6.0	941	0.724	100	12.9	LOS B	10.0	261.1	1600	–	0.0	0.0
Lane 2	0	0	773	773	6.0	1068	0.724	100	10.9	LOS B	10.2	267.7	1600	–	0.0	0.0
Approach	217	298	939	1454	6.0		0.724		11.8	LOS B	10.2	267.7				
Intersection				3050	5.3		0.935		15.6	LOS C	15.3	394.2				

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS D. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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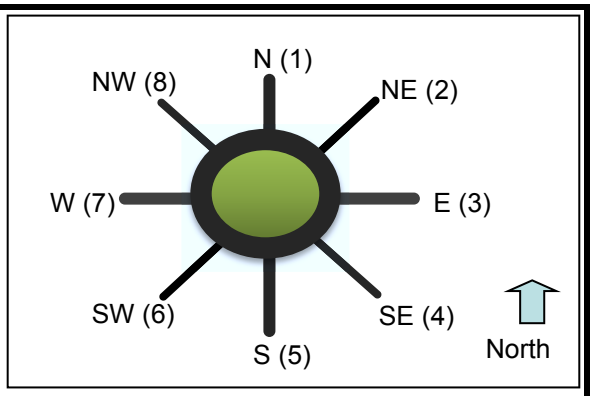
General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 PM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						61		
E (3), vph		31						
.								
S (5), v		162				149		
W (7), vph		143				132		
Entry Volume, vph	0	336	0	0	0	342	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		266			190			
E (3), vph		122			87			
S (5), vph					65			
W (7), vph	605	127						
Entry Volume, vph	605	515	0	0	342	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	61	0	0	0	190	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	31	0	0	0	0	0	87	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	162	0	149	0	0	0	65	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	143	0	132	0	605	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	336	0	342	0	605	0	342	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	68	0	306	0	218	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	35	0	0	0	141	0	101	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	183	0	165	0	0	0	75	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	162	0	146	0	843	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Conflicting flow, pcu/h	1155	0	1368	0	354	0	383	0
	Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	503	NA	434	NA	793	NA	770	NA
Crit. Lane Entry Flow pcu/h	380	0	379	0	697	0	394	0
V/C ratio	**0.75**		**0.87**		**0.88**		**0.51**	
Control Delay, sec/pcu	**25.9**		**43.8**		**27.7**		**9.5**	
LOS	D		E		D		A	
95th % Queue (ft)	**169**		**229**		**298**		**78**	

Notes:

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)	**W (7)**					
Select Exit Leg for Bypass (TO)	**S (5)**					
Volumes						
Entry Leg: Insert Right Turn Volume	400					
Exit Leg:	423					
Volume Characteristics						
PHF (Entry Leg)	0.92					
F_{HV} (Entry Leg)	0.94					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	461					
Conflicting Exit Flow	423					
Number of Conflicting Exit Lanes	1					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	740					
V/C ratio	0.62					
Control Delay, sec/pcu	12.5					
LOS	B					
95th % Queue (ft)	**117**					

LANE SUMMARY

Site: 2034 PM

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	576	0	0	576	6.0	963	0.598	100	16.0	LOS C	6.2	162.8	1600	–	0.0	0.0
Lane 2	220	289	133	641	6.0	1072	0.598	100	10.5	LOS B	6.3	164.5	1600	–	0.0	0.0
Approach	796	289	133	1217	6.0		0.598		13.1	LOS C	6.3	164.5				
East: New Hope Road																
Lane 1	162	143	66	372	2.0	452	0.822	100	23.3	LOS C	7.7	195.3	1600	–	0.0	0.0
Approach	162	143	66	372	2.0		0.822		23.3	LOS C	7.7	195.3				
North: Boat Rock Road																
Lane 1	34	176	155	365	4.0	469	0.778	100	21.1	LOS C	7.7	199.7	1600	–	0.0	0.0
Approach	34	176	155	365	4.0		0.778		21.1	LOS C	7.7	199.7				
West: Campbellton Road																
Lane 1	207	95	82	383	6.0	935	0.410	100	11.5	LOS B	3.2	82.7	1600	–	0.0	0.0
Lane 2	0	0	423	423	6.0	1034	0.410	100	8.4	LOS A	3.2	85.1	1600	–	0.0	0.0
Approach	207	95	505	807	6.0		0.410		9.8	LOS B	3.2	85.1				
Intersection				2761	5.2		0.825		14.6	LOS B	7.7	199.7				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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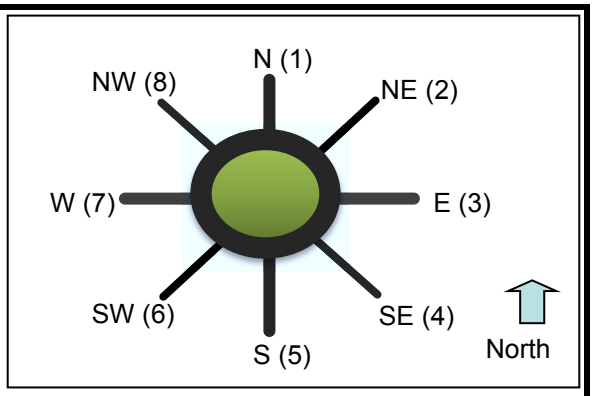
Appendix C
2034 AM & PM
with Continuous EB
Right Turn Lane
(See Figure 5)

General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 AM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						26		
E (3), vph		111						
.								
S (5), v		139				79		
W (7), vph		276				155		
Entry Volume, vph	0	526	0	0	0	260	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		95			200			
E (3), vph		131			274			
S (5), vph								
W (7), vph	368	88						
Entry Volume, vph	368	314	0	0	474	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	26	0	0	0	200	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	111	0	0	0	0	0	274	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	139	0	79	0	0	0	0	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	276	0	155	0	368	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	526	0	260	0	368	0	474	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	29	0	110	0	231	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	125	0	0	0	150	0	315	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	158	0	87	0	0	0	0	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	312	0	172	0	525	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Conflicting flow, pcu/h	785	0	866	0	672	0	370	0
	Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	652	NA	616	NA	577	NA	780	NA
Crit. Lane Entry Flow pcu/h	595	0	288	0	424	0	546	0
V/C ratio	**0.91**		**0.47**		**0.73**		**0.70**	
Control Delay, sec/pcu	**37.2**		**10.9**		**21.5**		**14.6**	
LOS	E		B		C		B	
95th % Queue (ft)	**306**		**63**		**166**		**155**	

Notes:

Unit Legend:

vph = vehicles per hour

PHF = peak hour factor

F_{HV} = heavy vehicle factor

pcu = passenger car unit

LANE SUMMARY

Site: 2034 AM EBRT Bypass

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	344	0	0	344	6.0	681	0.504	100	18.7	LOS C	4.8	124.5	1600	–	0.0	0.0
Lane 2	152	103	142	398	6.0	788	0.504	100	13.4	LOS B	5.0	130.5	1600	–	0.0	0.0
Approach	496	103	142	741	6.0		0.504		15.9	LOS C	5.0	130.5				
East: New Hope Road																
Lane 1	86	168	28	283	2.0	602	0.469	100	11.7	LOS B	3.1	77.7	1600	–	0.0	0.0
Approach	86	168	28	283	2.0		0.469		11.7	LOS B	3.1	77.7				
North: Boat Rock Road																
Lane 1	121	151	300	572	4.0	613	0.933	100	26.9	LOS D	15.2	393.0	1600	–	0.0	0.0
Approach	121	151	300	572	4.0		0.933		26.9	LOS D	15.2	393.0				
West: Campbellton Road																
Lane 1	217	298	0	515	6.0	828	0.622	100	12.3	LOS B	6.8	177.8	1600	–	0.0	0.0
Lane 2	0	0	939	939	6.0	1224	0.768	100	6.0	NA[9]	NA[9]	NA[9]	500	Turn Bay	0.0	0.0
Approach	217	298	939	1454	6.0		0.768		8.2	LOS B	6.8	177.8				
Intersection				3050	5.3		0.935		13.9	LOS B	15.2	393.0				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS D. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

9 Continuous lane

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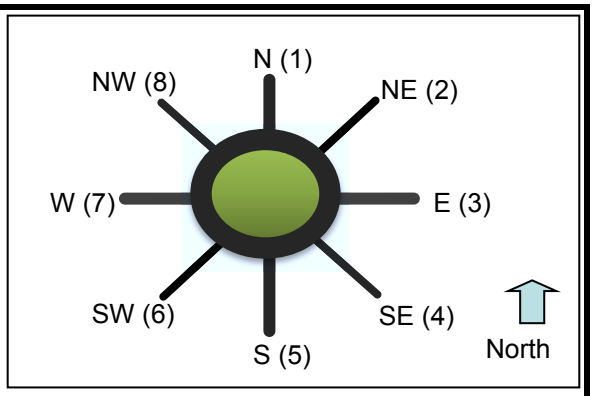
General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 PM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						61		
E (3), vph		31						
.								
S (5), v		162				149		
W (7), vph		143				132		
Entry Volume, vph	0	336	0	0	0	342	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		266			190			
E (3), vph		122			87			
S (5), vph								
W (7), vph	605	127						
Entry Volume, vph	605	515	0	0	277	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	61	0	0	0	190	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	31	0	0	0	0	0	87	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	162	0	149	0	0	0	0	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	143	0	132	0	605	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	336	0	342	0	605	0	277	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	68	0	306	0	218	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	35	0	0	0	141	0	101	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	183	0	165	0	0	0	0	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	162	0	146	0	843	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Conflicting flow, pcu/h	1155	0	1368	0	354	0	383	0
	Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	503	NA	434	NA	793	NA	770	NA
Crit. Lane Entry Flow pcu/h	380	0	379	0	697	0	319	0
V/C ratio	**0.75**		**0.87**		**0.88**		**0.41**	
Control Delay, sec/pcu	**25.9**		**43.8**		**27.7**		**7.9**	
LOS	D		E		D		A	
95th % Queue (ft)	**169**		**229**		**298**		**54**	

Notes:

Unit Legend:

vph = vehicles per hour

PHF = peak hour factor

F_{HV} = heavy vehicle factor

pcu = passenger car unit

LANE SUMMARY

Site: 2034 PM EBRT Bypass

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	576	0	0	576	6.0	964	0.598	100	16.0	LOS C	6.2	162.3	1600	–	0.0	0.0
Lane 2	220	289	133	641	6.0	1073	0.598	100	10.5	LOS B	6.3	164.0	1600	–	0.0	0.0
Approach	796	289	133	1217	6.0		0.598		13.1	LOS C	6.3	164.0				
East: New Hope Road																
Lane 1	162	143	66	372	2.0	452	0.822	100	23.3	LOS C	7.7	195.0	1600	–	0.0	0.0
Approach	162	143	66	372	2.0		0.822		23.3	LOS C	7.7	195.0				
North: Boat Rock Road																
Lane 1	34	176	155	365	4.0	470	0.778	100	21.1	LOS C	7.7	199.5	1600	–	0.0	0.0
Approach	34	176	155	365	4.0		0.778		21.1	LOS C	7.7	199.5				
West: Campbellton Road																
Lane 1	207	95	0	301	6.0	826	0.365	100	12.5	LOS B	2.6	68.7	1600	–	0.0	0.0
Lane 2	0	0	505	505	6.0	1224	0.413	100	5.7	NA[9]	NA[9]	NA[9]	500	Turn Bay	0.0	0.0
Approach	207	95	505	807	6.0		0.413		8.3	LOS B	2.6	68.7				
Intersection				2761	5.2		0.822		14.1	LOS B	7.7	199.5				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

9 Continuous lane

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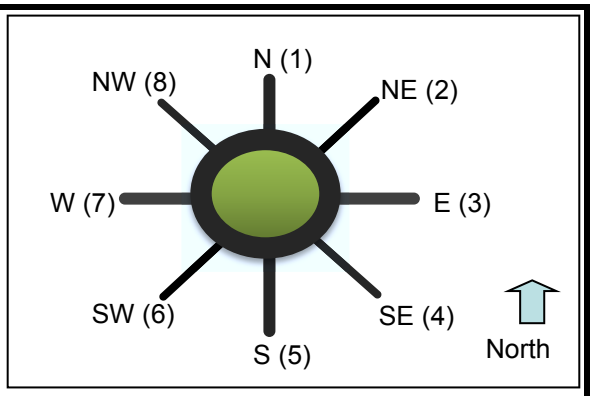
Appendix D
2034 AM & PM
with Additional SB
Right-Turn Lane
(See Figure 6)

General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 AM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						26		
E (3), vph		111						
.								
S (5), v		139				79		
W (7), vph						155		
Entry Volume, vph	0	250	0	0	0	260	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		95			200			
E (3), vph		131			274			
S (5), vph					144			
W (7), vph	368	88						
Entry Volume, vph	368	314	0	0	618	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	26	0	0	0	200	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	111	0	0	0	0	0	274	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	139	0	79	0	0	0	144	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	0	0	155	0	368	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	250	0	260	0	368	0	618	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	29	0	110	0	231	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	125	0	0	0	150	0	315	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	158	0	87	0	0	0	166	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	172	0	525	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	785	0	866	0	672	0	370	0
Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	652	NA	616	NA	577	NA	780	NA
Crit. Lane Entry Flow pcu/h	283	0	288	0	424	0	712	0
V/C ratio	**0.43**		**0.47**		**0.73**		**0.91**	
Control Delay, sec/pcu	**9.7**		**10.9**		**21.5**		**32.7**	
LOS	A		B		C		D	
95th % Queue (ft)	**57**		**63**		**166**		**334**	

Notes:

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)	**W (7)**	**N (1)**				
Select Exit Leg for Bypass (TO)	**S (5)**	**W (7)**				
Volumes						
Entry Leg: Insert Right Turn Volume	720	276				
Exit Leg:	245	698				
Volume Characteristics						
PHF (Entry Leg)	0.92	0.92				
F_{HV} (Entry Leg)	0.94	0.96				
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	830	312				
Conflicting Exit Flow	245	698				
Number of Conflicting Exit Lanes	1	2				
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	884	693				
V/C ratio	0.94	0.45				
Control Delay, sec/pcu	33.8	9.4				
LOS	D	A				
95th % Queue (ft)	**385**	**61**				

LANE SUMMARY

Site: 2034 AM with 2 SB Lanes

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	341	0	0	341	6.0	684	0.498	100	18.5	LOS C	4.7	122.9	1600	–	0.0	0.0
Lane 2	155	103	142	400	6.0	803	0.498	100	13.2	LOS B	4.9	129.3	1600	–	0.0	0.0
Approach	496	103	142	741	6.0		0.498		15.6	LOS C	4.9	129.3				
East: New Hope Road																
Lane 1	86	168	28	283	2.0	602	0.469	100	11.7	LOS B	3.1	77.7	1600	–	0.0	0.0
Approach	86	168	28	283	2.0		0.469		11.7	LOS B	3.1	77.7				
North: Boat Rock Road																
Lane 1	121	151	0	272	4.0	719	0.378	100	11.3	LOS B	2.4	61.2	1600	–	0.0	0.0
Lane 2	0	0	300	300	4.0	769	0.390	100	9.2	LOS A	2.5	65.3	1600	–	0.0	0.0
Approach	121	151	300	572	4.0		0.390		10.2	LOS B	2.5	65.3				
West: Campbellton Road																
Lane 1	217	298	166	681	6.0	963	0.707	100	12.6	LOS B	9.2	242.1	1600	–	0.0	0.0
Lane 2	0	0	773	773	6.0	1093	0.707	100	10.6	LOS B	9.4	247.1	1600	–	0.0	0.0
Approach	217	298	939	1454	6.0		0.707		11.6	LOS B	9.4	247.1				
Intersection				3050	5.3		0.708		12.3	LOS B	9.4	247.1				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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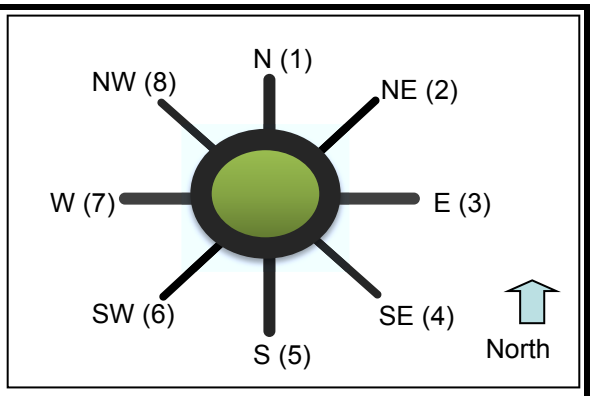
General & Site Information

Analyst:	ALP
Agency/Company:	Kittelson & Associates, Inc.
Date:	2/17/2011
Project Name or PI#:	11614
Year, Peak Hour:	2034 PM
County/District:	Fulton
Intersection:	Campellton Road (SR 154/166)/Boat Rock



Volumes

Entry Legs (FROM)

Legs (TO)	N1 (1)	N2 (1)			E1 (3)	E2 (3)		
N (1), vph						61		
E (3), vph		31						
.								
S (5), v		162				149		
W (7), vph						132		
Entry Volume, vph	0	193	0	0	0	342	0	0
	S1 (5)	S2 (5)			W1 (7)	W2 (7)		
N (1), vph		266			190			
E (3), vph		122			87			
S (5), vph					65			
W (7), vph	605	127						
Entry Volume, vph	605	515	0	0	342	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	61	0	0	0	190	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	31	0	0	0	0	0	87	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	162	0	149	0	0	0	65	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	0	0	132	0	605	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	193	0	342	0	605	0	342	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	96%	100%	98%	100%	94%	100%	94%	100%
% S.U./ Bus	0%	0%	0%	0%	0%	0%	0%	0%
% Trucks/ Combin.	4%	0%	2%	0%	6%	0%	6%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{hv}	0.962	1.000	0.980	1.000	0.943	1.000	0.943	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	68	0	306	0	218	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	35	0	0	0	141	0	101	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	183	0	165	0	0	0	75	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	146	0	843	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	1155	0	1368	0	354	0	383	0
Number of Conflicting Lanes	2		2		1		1	

Results: Approach Measures of Effectiveness								
NCHRP-572 Model	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**
Crit. Entry Capacity pcu/h	503	NA	434	NA	793	NA	770	NA
Crit. Lane Entry Flow pcu/h	218	0	379	0	697	0	394	0
V/C ratio	**0.43**		**0.87**		**0.88**		**0.51**	
Control Delay, sec/pcu	**12.5**		**43.8**		**27.7**		**9.5**	
LOS	B		E		D		A	
95th % Queue (ft)	**56**		**229**		**298**		**78**	

Notes:

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	**Bypass #1**	**Bypass #2**	**Bypass #3**	**Bypass #4**	**Bypass #5**	**Bypass #6**
Select Entry Leg from Bypass (FROM)	**W (7)**	**N (1)**				
Select Exit Leg for Bypass (TO)	**S (5)**	**W (7)**				
Volumes						
Entry Leg: Insert Right Turn Volume	400	143				
Exit Leg:	423	990				
Volume Characteristics						
PHF (Entry Leg)	0.92	0.92				
F_{HV} (Entry Leg)	0.94	0.96				
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	461	162				
Conflicting Exit Flow	423	990				
Number of Conflicting Exit Lanes	1	2				
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	740	565				
V/C ratio	0.62	0.29				
Control Delay, sec/pcu	12.5	8.9				
LOS	B	A				
95th % Queue (ft)	**117**	**31**				

LANE SUMMARY

Site: 2034 PM with 2 SB Lanes

Campellton Road (SR 154/166)/Boat Rock Road/New Hope Road
Roundabout

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
South: Campbellton Road																
Lane 1	576	0	0	576	6.0	964	0.598	100	16.0	LOS C	6.2	162.3	1600	–	0.0	0.0
Lane 2	220	289	133	641	6.0	1073	0.598	100	10.5	LOS B	6.3	164.0	1600	–	0.0	0.0
Approach	796	289	133	1217	6.0		0.598		13.1	LOS C	6.3	164.0				
East: New Hope Road																
Lane 1	162	143	66	372	2.0	452	0.822	100	23.3	LOS C	7.7	195.0	1600	–	0.0	0.0
Approach	162	143	66	372	2.0		0.822		23.3	LOS C	7.7	195.0				
North: Boat Rock Road																
Lane 1	34	176	0	210	4.0	603	0.348	100	10.7	LOS B	2.3	59.3	1600	–	0.0	0.0
Lane 2	0	0	155	155	4.0	519	0.300	100	11.3	LOS B	1.8	46.1	1600	–	0.0	0.0
Approach	34	176	155	365	4.0		0.348		11.0	LOS B	2.3	59.3				
West: Campbellton Road																
Lane 1	207	95	82	383	6.0	942	0.407	100	11.5	LOS B	3.1	80.8	1600	–	0.0	0.0
Lane 2	0	0	423	423	6.0	1041	0.407	100	8.4	LOS A	3.2	83.0	1600	–	0.0	0.0
Approach	207	95	505	807	6.0		0.407		9.8	LOS B	3.2	83.0				
Intersection				2761	5.2		0.822		13.2	LOS B	7.7	195.0				

Level of Service (Aver. Int. Delay): LOS B. Based on average delay for all lanes. LOS Method: Delay (HCM).
Level of Service (Worst Lane): LOS C. LOS Method for individual lanes: Delay (HCM).
Approach LOS values are based on the worst delay for any lane.
Roundabout LOS Method: Same as Sign Control.
Roundabout Capacity Model: SIDRA Standard.

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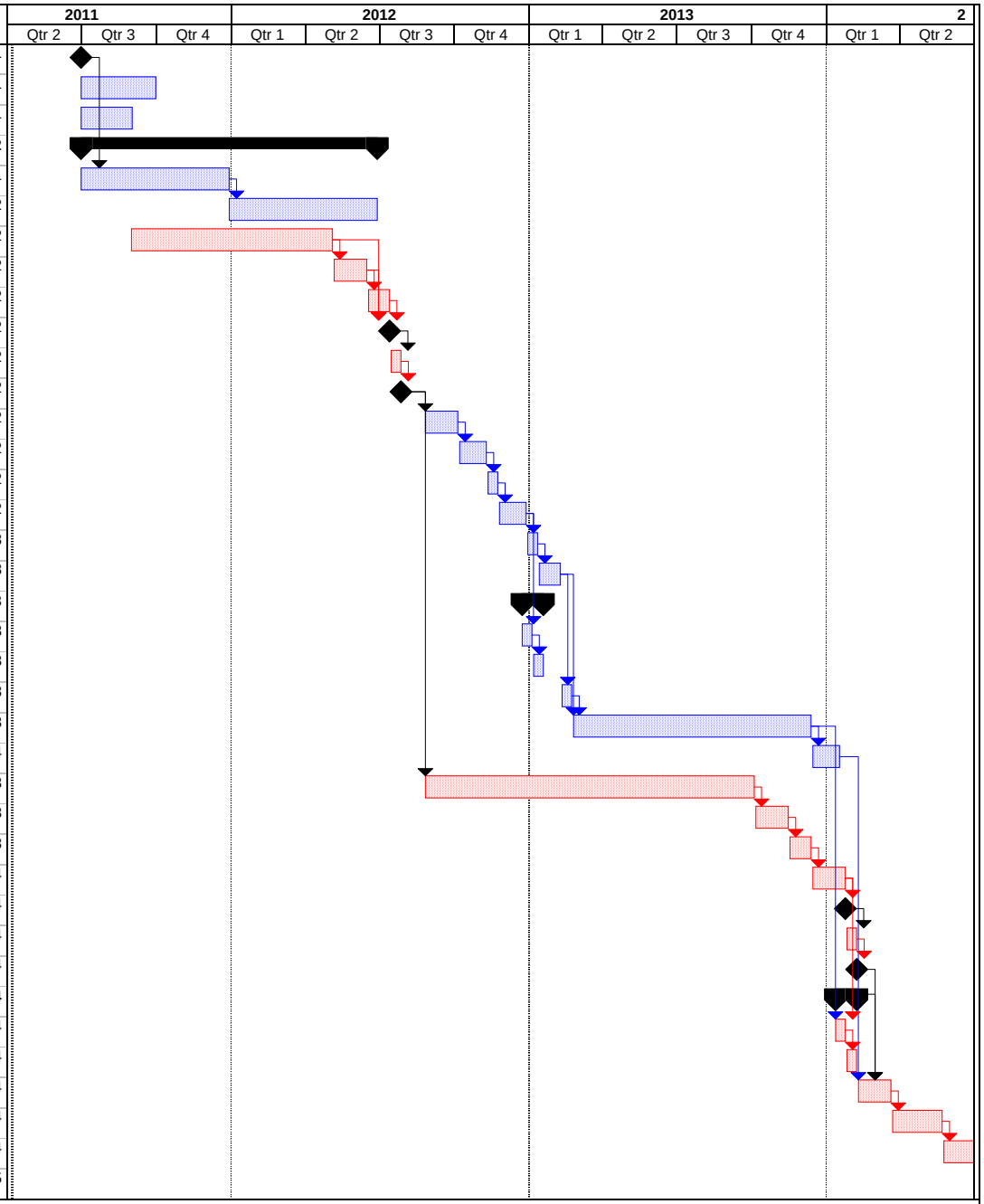
ID	Task Name	Duration	Start	Finish
1	Notice To Proceed	0 days	7/1/11	7/1/11
2	Database Preparation	66 days?	7/1/11	9/30/11
3	Concept Validation	45 days?	7/1/11	9/1/11
4	**Environmental Document Preparation**	**260 days**	**7/1/11**	**6/28/12**
5	Prepare Environmental Studies & Report	26 wks	7/1/11	12/29/11
6	Categorical Exclusion Review & Approval	26 wks	12/30/11	6/28/12
7	Preliminary Plan Preparation	35.4 wks	9/1/11	5/4/12
8	GDOT Prelim. Plan Review	6 wks	5/7/12	6/15/12
9	Revise Prelim. Plans	4 wks	6/18/12	7/13/12
10	Submit Plans to Utility Cos.	0 days	7/13/12	7/13/12
11	Review Prelim Plans & Schedule PFPR	2 wks	7/16/12	7/27/12
12	Preliminary Field Plan Review	0 days	7/27/12	7/27/12
13	Prepare R/W Plans	6 wks	8/27/12	10/5/12
14	GDOT Review R/W Plans	5 wks	10/8/12	11/9/12
15	Revise R/W Plans	2 wks	11/12/12	11/23/12
16	R/W Office R/W Plan Review	5 wks	11/26/12	12/28/12
17	Revise R/W Plans	2 wks	12/31/12	1/11/13
18	Review/Approve R/W Plans	4 wks	1/14/13	2/8/13
19	**Environmental Re-evaluation**	**20 days**	**12/24/12**	**1/18/13**
20	Prepare Environmental Re-evaluation	2 wks	12/24/12	1/4/13
21	GDOT review & approve	2 wks	1/7/13	1/18/13
22	GDOT & County R/W Agreement	2 wks	2/11/13	2/22/13
23	R/W Acquisition	42 wks	2/25/13	12/13/13
24	GDOT Certifies R/W	5 wks	12/16/13	1/17/14
25	Final Plan Preparation	58 wks	8/27/12	10/4/13
26	GDOT Review	6 wks	10/7/13	11/15/13
27	Revise Final Plans	4 wks	11/18/13	12/13/13
28	Schedule Field Plan Review	6 wks	12/16/13	1/24/14
29	Final Field Plan Review	0 days	1/24/14	1/24/14
30	Revise Final Plans	2 wks	1/27/14	2/7/14
31	Submit Final Package	0 days	2/7/14	2/7/14
32	**Environmental Re-evaluation**	**20 days**	**1/13/14**	**2/7/14**
33	Prepare Environmental Re-evaluation	2 wks	1/13/14	1/24/14
34	GDOT Review & Approve	2 wks	1/27/14	2/7/14
35	GDOT Authorizes County to Bid Project	6 wks	2/10/14	3/21/14
36	Bidding Process	9 wks	3/24/14	5/23/14
37	GDOT & County Execute Construction Agreement	10 wks	5/26/14	8/1/14
38	Construction	26 wks	8/4/14	1/30/15



PI # 731830 STP00-0186-01(038)01
Critical Path Schedule
Qk4

Task		Summary		Rolled Up Progress		Rolled Up Split	
Critical Task		Rolled Up Task		External Tasks		External Milestone	
Progress		Rolled Up Critical Task		Project Summary		Deadline	
Milestone		Rolled Up Milestone		Split			

Benefit Cost Analysis Work Sheet
CONGESTION Projects

STP00-0186-01(038)

731830

Fulton

Campbellton Road @ Boat RockRoad / New Hope Road Intersection Improvement

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)

*Db (hrs)	0.04
ADT	18,500
Tb ($s)	$25,437,500.00

Commercial or Truck Time Savings Benefit (CMb)

Db (hrs)	0.04
% Truck Traffic	0.04
ADT	18,500
CMb	$5,376,100.00

Fuel Savings Benefit (Fb)

ADT	18,500
Fb ($s)	$8,864,583.33

Total Congestion Benefit	**$39,678,183.33**
Total Project Cost	**$3,961,238.57**
B/C Ratio	**10.02**

Date 4/27/2011

P.I. Number **731830** County **Fulton**

Project Number **STP-186-1(38)**

Special Provision, Section 109-Measurement and Payment

FUEL PRICE ADJUSTMENT *(ENGLISH 125% MAX)*

ENTER FPL DIESEL	4.25
ENTER FPM DIESEL	9.563

ENTER FPL UNLEADED	4
ENTER FPM UNLEADED	9

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

INCREASE ADJUSTMENT
125.00%

INCREASE ADJUSTMENT
125.00%

ROADWAY ITEMS	QUANTITY	DIESEL FACTOR	GALLONS DIESEL	UNLEADED FACTOR	GALLONS UNLEADED	REMARKS
Excavations paid as specified by Sections 205 **(CUBIC YARD)**		0.29		0.15		
Excavations paid as specified by Sections 206 **(CUBIC YARD)**		0.29		0.15		
GAB paid as specified by the ton under Section 310 **(TON)**	2198.000	0.29	637.42	0.24	527.52	
Hot Mix Asphalt paid as specified by the ton under Sections 400 **(TON)**		2.90		0.71		
Hot Mix Asphalt paid as specified by the ton under Sections 402 **(TON)**	2127.000	2.90	6168.30	0.71	1510.17	
PCC Pavement paid as specified by the square yard under Section 430 **(SY)**		0.25		0.20		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS
Bridge Excavation (CY) Section 211				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Concrete Handrail (LF) Section 500				8.00		1.50		
Concrete Barrier (LF) Section 500				8.00		1.50		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS

Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Bar Reinf Steel (LB) Section 511				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		

SUM QF DIESEL=	**6805.72**	**SUM QF UNLEADED=**	**2037.69**

DIESEL PRICE ADJUSTMENT($)	**$33,262.96**
UNLEADED PRICE ADJUSTMENT($)	**$9,373.37**

ASPHALT CEMENT PRICE ADJUSTMENT
(BITUMINOUS TACK COAT 125% MAX)

APPLICABLE TO CONTRACTS/PROJECTS CONTAINING THE 413 SPECIFICATION, SECTION 413.5.01 ADJUSTMENTS
ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

ENTER APL 389 **ENTER APM** 875.25

125.00%	INCREASE ADJUSTMENT

L.I.N.	TYPE	TACK (GALLONS)	TACK (TONS)	REMARKS
413-1000	PG 58-22	200	0.8590	

TMT = 0.8590

PRICE ADJUSTMENT($)	$400.99

400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX

ENTER APL 389 **ENTER APM** 875.25

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

125.00%	INCREASE ADJUSTMENT

L.I.N. / Spec Number	MIX TYPE	HMA	JMF AC%	AC	REMARKS
402-1811	4.75 mm	70	5.00	3.50	
402-3141	12.5 mm SP	1235	5.00	61.75	
402-3190	19 mm SP	1100	5.00	55.00	
402-3121	9.5 mm SP TP2	2198	5.00	109.90	
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			TMT =	230.15	

PRICE ADJUSTMENT($)	$107,434.02

ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)

APPLICABLE TO CONTRACTS CONTAINING THE 413 SPEC. SECTION 413.5.01 ADJUSTMENTS ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

ENTER APL 389 ENTER APM 875.25

125.00%	INCREASE ADJUSTMENT

Use this side for Asphalt Emulsion Only

L.I.N.	TYPE	ASPHALT EMULSION (GALLONS)
TMT =		
REMARKS:		

Use this side for Asphalt Cement Only

L.I.N.	TYPE	TACK (GALLONS)
TMT =		
REMARKS:		

MONTHLY PRICE ADJUSTMENT($)	

ADJUSTMENT SUMMARY

FUEL PRICE ADJUSTMENT *(ENGLISH 125% MAX)*

DIESEL PRICE ADJUSTMENT($)	$33,262.96
UNLEADED PRICE ADJUSTMENT($)	$9,373.37
ASPHALT CEMENT PRICE ADJUSTMENT (BITUMINOUS TACK COAT 125% MAX)	$400.99
400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX	$107,434.02
ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)	

REMARKS:	

TOTAL ADJUSTMENTS	$150,471.34

DWM 10/08