



September 3, 2019

Paula W. Webb, MMC-NCCMC
Assistant Town Manager / Town Clerk
Town of Swansboro
601 W Corbett Avenue
Swansboro, NC 28584
pwebb@ci.swansboro.nc.us
910-326-4428

RE: Queens Creek Traffic Analysis

Dear Ms. Webb,

Timmons Group performed a cursory capacity analysis of the proposed 7-acre commercial development to be located off Queens Creek Road south of NC 24 (W Corbett Avenue). It was assumed, for purposes of analysis, that a 10,000 square foot (SF) general retail development will be constructed on the proposed 7-acre site*. The site generated traffic impacts were analyzed at the adjacent intersection of NC 24 (W Corbett Avenue) / Queens Creek Road / Middle School Driveway.

* Site specifics were not provided at the time of this capacity analysis. It is likely that a development larger than 10,000 SF could be constructed on the existing 7-acre site. 10,000 SF was chosen to represent a minimal build-out scenario. Building size(s) is dependent upon existing site conditions and constraints (availability of water/sewer, presence of wetlands/streams, etc).

The intersection of NC 24 (W Corbett Avenue) / Queens Creek Road / Middle School Driveway is a signalized intersection with split side street phasing. The northbound intersection approach includes exclusive left and right-turn lanes. The southbound middle school driveway approach includes an exclusive left-turn lane and a shared through / right-turn lane. The eastbound intersection approach includes two through lanes and an exclusive right-turn lane. The westbound intersection approach includes an exclusive left-turn lane and two through lanes. Eastbound left-turning, westbound right-turning, and northbound through movements are prohibited at this intersection.

Existing / Background Traffic Volumes

Figure 1 shows 2019 Existing traffic volumes and projected 2021[^] Background traffic volumes. Existing peak hour turning movement traffic volumes, collected in May 2019, were acquired from the NCDOT (and not collected by Timmons Group). 2021 Background traffic volumes were calculated using a 3% ambient growth rate grown exponentially over two years.

[^] It was assumed, for purposes of analysis, that the proposed development would be constructed by 2021.



Build Traffic Volumes

The site-generated trips shown in **Table 1** are based on trip generation information provided in the 10th Edition of the Institute of Transportation Engineer's (ITE's) *Trip Generation Manual*. Trip generation was calculated using the assumed commercial square footage (10,000 SF) as the independent variable, as well as the provided equation (per NCDOT guidelines).

Table 1 – Trip Generation Summary

ITE Land Use Code	Independent Variable	Daily	AM Peak Hour		PM Peak Hour			
		Total	In	Out	Total	In	Out	Total
Shopping Center (820)	10,000 SF	1,256	97	60	157	47	51	98
820 Pass-Bys (PM - 34%)		--	--	--	--	16	17	33
Total:		1,256	97	60	157	31	34	65

SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 10th Edition (2017)

AM peak hour trips generated totaled 97 incoming and 60 outgoing where PM peak hour trips totaled 47 incoming and 51 outgoing. For Land Use Code (LUC) 820, a pass-by percentage of 34% was assumed for PM peak hour trips (per NCDOT standards). Following these reductions, final PM peak hour trips totaled 31 incoming and 34 outgoing. Average daily traffic (ADT) volumes generated by the development totaled 1,256 vehicles per day. No reduction in trips were included due to internal capture.

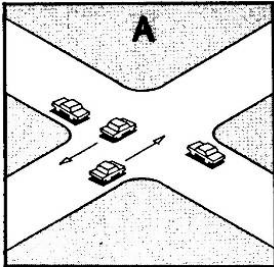
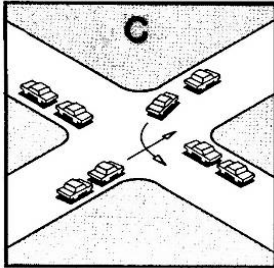
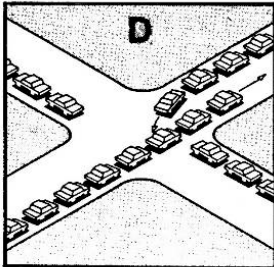
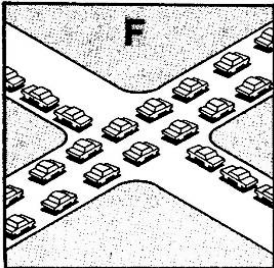
The directional traffic patterns, or trip distribution, of the site-generated traffic was assumed to be split equally between east and westbound NC 24 (W Corbett Avenue). The incoming / outgoing site trip percentages were routed, via shortest path, to and from the proposed commercial development. The distribution percentages were then applied to the generated trips to predict routes and project traffic volumes for the 2021 Build scenario. **Figure 2** shows the 2021 trip distribution percentages, trip distribution volumes, and 2021 Build traffic volumes. 2021 Build traffic volumes were then determined by applying the site trip distribution volumes to the Background traffic volumes (see **Figure 1**).

Traffic Capacity Analyses

Using field observations, aerial photography, and traffic count data, traffic operations were analyzed during 2019 (existing) and 2021 (without and with the proposed development site trips).

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM) methodologies govern how the capacity analyses are conducted and how the results are interpreted. There are six letter grades of Levels of Service (LOS) from A to F, with LOS A representing the best operating conditions and LOS F the worst operating conditions. At signalized intersections, an overall intersection LOS E is generally considered unacceptable. **Table 2** shows in detail how each of these levels of service are interpreted.

Table 2: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections	
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.	
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.	
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.	
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.	
E	Actual capacity of the roadway involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left-turning vehicles.	
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.	

SOURCE: "A Policy on Design of Design of Urban Highways and Arterial Streets" - AASHTO, 1973 based upon material published in "Highway Capacity Manual", National Academy of Sciences, 1965.

For signalized and unsignalized intersections, level of service is defined in terms of **delay**, a measure of driver discomfort, frustration, fuel consumption and lost travel time. **Table 3** summarizes the delay associated with each LOS category:

Table 3: Signalized and Unsignalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

Capacity analyses were performed to assess operational conditions. Study area intersections were analyzed using SYNCHRO Version 9.2 based on Highway Capacity Manual (HCM) methodologies with the following assumptions:

- Existing grades;
- 12-foot lane widths;
- No parking activity, bus stops, or pedestrians;
- Existing AM peak hour factor (PHFs)**;
- PM PHF of 0.90;
- Heavy vehicle percentages 2%; and
- Timing values found in the provided traffic signal plans.

** Existing PHFs were used due to the existing middle school traffic.

Table 4 – Level of Service and Delay (sec/veh) Results – Study Area Intersection

Intersection	2019 Existing Traffic Volumes		2021 Background Traffic Volumes		2021 Build Traffic Volumes	
	AM	PM	AM	PM	AM	PM
Queens Creek Road at NC 24 (W Corbett Ave)	<i>E (75.7)</i>	<i>E (56.1)</i>	<i>F (89.3)</i>	<i>E (70.7)</i>	<i>F (99.0)</i>	<i>E (74.6)</i>

Per **Table 4**, the signalized intersection of NC 24 (W Corbett Avenue) / Queens Creek Road is currently operating at a LOS E during the 2019 Existing AM and PM peak hours. The intersection is projected to operate at a LOS F during the 2021 Background AM peak hour and LOS E during the 2021 PM peak hour. Following the addition of site trip volumes, the



intersection is projected to continue to operate at a LOS F during the 2021 Build AM peak hour and LOS E during the 2021 PM peak hour. Additionally, as shown in the attached Synchro analysis outputs, significant 95th percentile northbound queuing is projected to occur along Queens Creek Road during both analyzed peak hours (greater than 275-feet for left-turn queue lengths and 575-feet for right-turning queue lengths). Existing queue storage is inadequate to handle projected queue lengths for the northbound intersection approach.

Conclusions

Based on the subject analyses, the construction of a commercial development along Queens Creek Road will require the construction of offsite improvements at the intersection of NC 24 (W Corbett Avenue) / Queens Creek Road to meet guidelines provided in the Town's Unified Development Ordinance. Existing intersection capacity is inadequate to handle existing / future traffic volumes. The addition of ambient traffic growth and proposed commercial site trips will cause intersection conditions to further degrade in future conditions.

Should you have any questions regarding this memorandum, please do not hesitate to contact me.

Sincerely,

Jeffrey P. Hochanadel, PE, PTOE
Senior Project Manager, Transportation

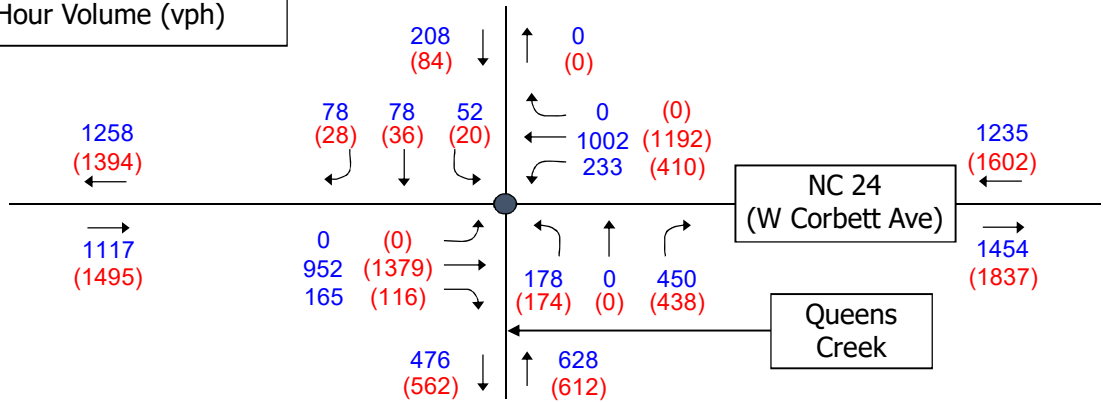
(Attachments)

LEGEND:

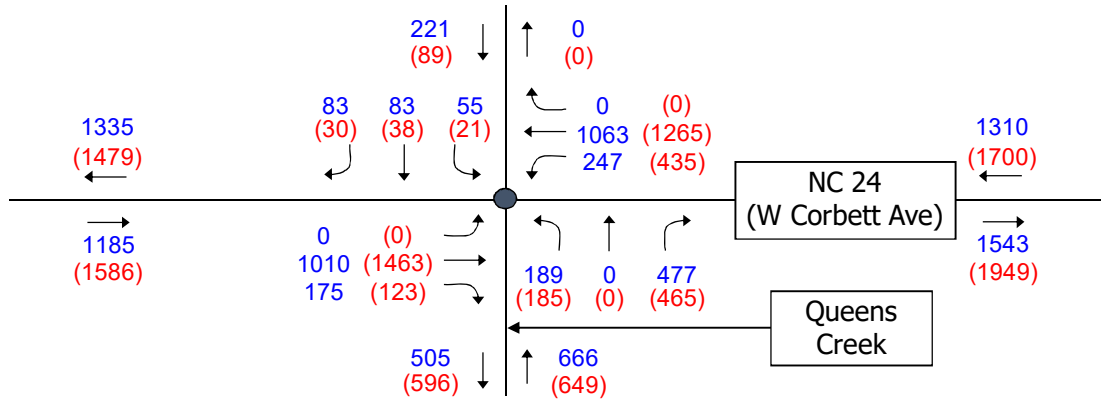
- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



2019 Existing
Traffic Volumes



2021 Background
Traffic Volumes



Queens Creek Traffic Analysis

Existing/Background Traffic Volumes

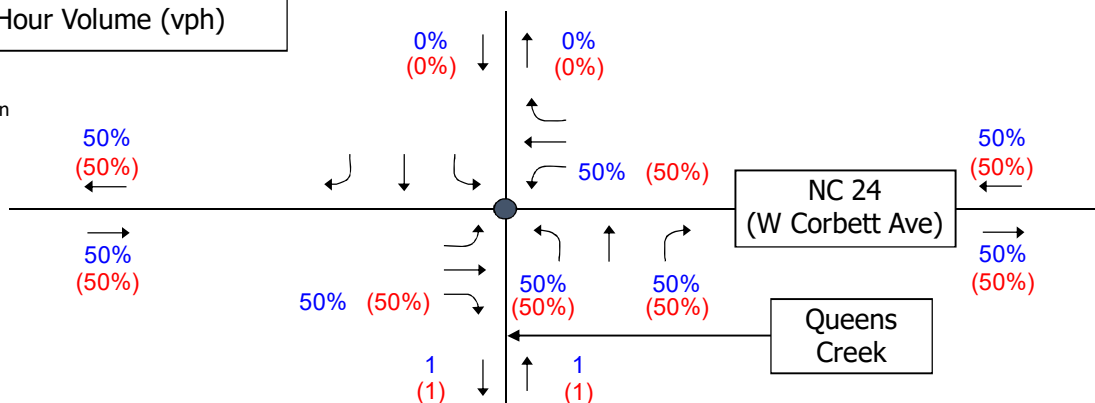
Figure 1

LEGEND:

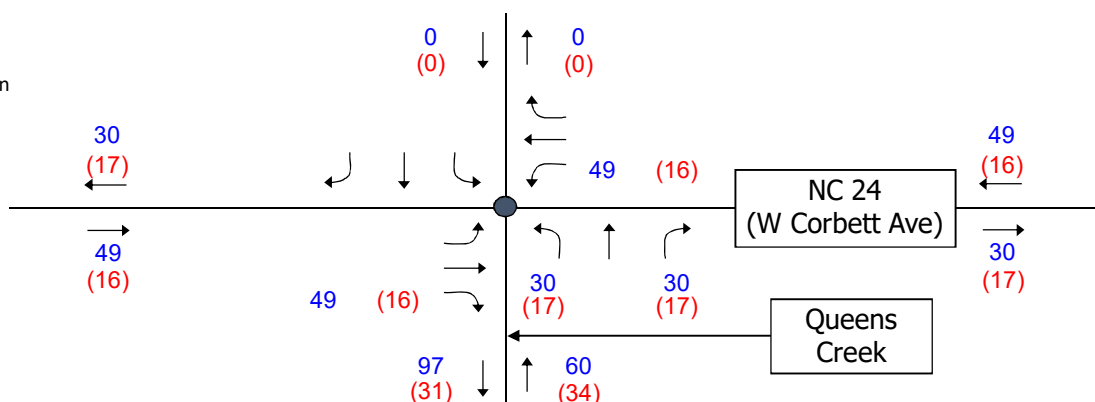
- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



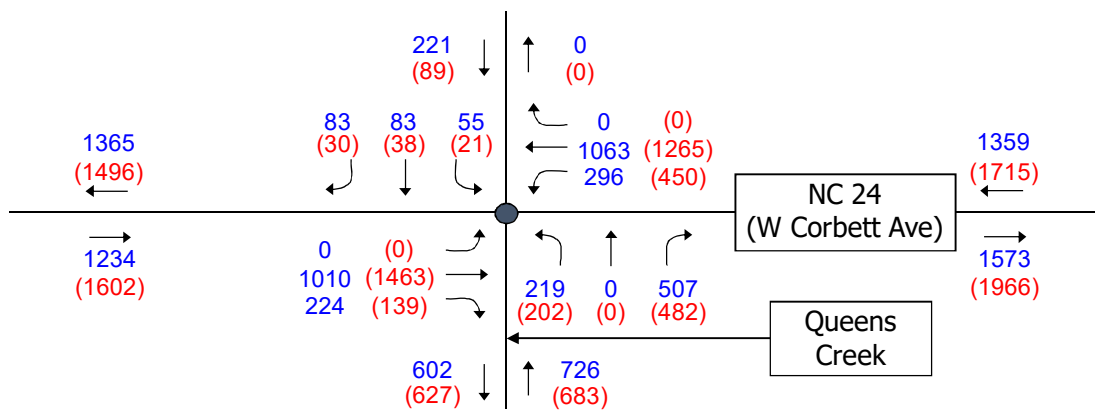
2021 Trip Distribution Percentages



2021 Trip Distribution Volumes



2021 Build Traffic Volumes



**Queens Creek
Traffic Analysis
Build Traffic Volumes**

Figure 2

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	952	165	233	1002	0	178	0	450	52	78	78
Future Volume (vph)	0	952	165	233	1002	0	178	0	450	52	78	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850						0.850		0.925	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1598	0
Flt Permitted				0.080			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	148	3505	0	1752	0	1568	1641	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			25	
Link Distance (ft)		1048			745			1037			256	
Travel Time (s)		20.4			14.5			15.7			7.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.64	0.64	0.64	0.50	0.50	0.50
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1253	217	311	1336	0	278	0	703	104	156	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1253	217	311	1336	0	278	0	703	104	312	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.0	76.1	77.0	82.0		26.0		58.1	25.0	25.0	
Actuated g/C Ratio		0.34	0.51	0.52	0.55		0.18		0.39	0.17	0.17	
v/c Ratio		1.07	0.27	0.84	0.69		0.90		1.14	0.38	1.16	
Control Delay		93.1	11.1	62.7	26.4		91.3		123.9	59.7	157.0	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		93.1	11.1	62.7	26.4		91.3		123.9	59.7	157.0	
LOS		F	B	E	C		F		F	E	F	
Approach Delay		81.0			33.3			114.7				132.7
Approach LOS		F			C			F				F
Queue Length 50th (ft)		~720	54	245	489		266		~790	92	~363	
Queue Length 95th (ft)		#615	66	279	425		250		547	81	219	
Internal Link Dist (ft)		968			665			957				176
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1172	818	369	1941		331		614	277	269	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.07	0.27	0.84	0.69		0.84		1.14	0.38	1.16	

Intersection Summary






Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	148.1
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.16
Intersection Signal Delay:	75.7
Intersection LOS:	E
Intersection Capacity Utilization:	73.8%
ICU Level of Service:	D
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 01	 02	 03	 04
32 s	55 s	30 s	33 s
 06			
87 s			

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	1379	116	410	1192	0	174	0	438	20	36	28
Future Volume (vph)	0	1379	116	410	1192	0	174	0	438	20	36	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850						0.850		0.935	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1615	0
Flt Permitted				0.079			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	146	3505	0	1752	0	1568	1641	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			25	
Link Distance (ft)		1048			745			1037			256	
Travel Time (s)		20.4			14.5			15.7			7.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1532	129	456	1324	0	193	0	487	22	40	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1532	129	456	1324	0	193	0	487	22	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.5	70.4	77.8	82.9		18.7		51.0	11.1	11.1	
Actuated g/C Ratio		0.40	0.56	0.62	0.66		0.15		0.41	0.09	0.09	
v/c Ratio		1.09	0.15	1.03	0.57		0.74		0.76	0.15	0.50	
Control Delay		88.6	8.3	89.5	14.5		68.5		41.5	57.5	68.7	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		88.6	8.3	89.5	14.5		68.5		41.5	57.5	68.7	
LOS		F	A	F	B		E		D	E	E	
Approach Delay		82.3			33.7			49.2			66.1	
Approach LOS		F			C			D			E	
Queue Length 50th (ft)		~758	30	~359	300		153		342	17	57	
Queue Length 95th (ft)		#1046	50	#665	478		245		511	47	113	
Internal Link Dist (ft)		968			665			957			176	
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1406	997	442	2329		397		641	332	327	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.09	0.13	1.03	0.57		0.49		0.76	0.07	0.22	

Intersection Summary






Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	124.7
Natural Cycle:	150
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.09
Intersection Signal Delay:	56.1
Intersection LOS:	E
Intersection Capacity Utilization:	88.8%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 Ø1	 Ø2	 Ø3	 Ø4
32 s	55 s	30 s	33 s
 Ø6			
87 s			

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	1010	175	247	1063	0	189	0	477	55	83	83
Future Volume (vph)	0	1010	175	247	1063	0	189	0	477	55	83	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850						0.850		0.925	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1598	0
Flt Permitted				0.080			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	148	3505	0	1752	0	1568	1641	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45				25
Link Distance (ft)		1048			745			1037				256
Travel Time (s)		20.4			14.5			15.7				7.0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.64	0.64	0.64	0.50	0.50	0.50
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				0%
Adj. Flow (vph)	0	1329	230	329	1417	0	295	0	745	110	166	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1329	230	329	1417	0	295	0	745	110	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.0	77.0	77.0	82.0		26.9		59.0	25.0	25.0	
Actuated g/C Ratio		0.34	0.52	0.52	0.55		0.18		0.40	0.17	0.17	
v/c Ratio		1.14	0.29	0.90	0.73		0.93		1.20	0.40	1.24	
Control Delay		118.4	11.2	70.9	28.3		95.5		144.9	60.6	184.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		118.4	11.2	70.9	28.3		95.5		144.9	60.6	184.9	
LOS		F	B	E	C		F		F	E	F	
Approach Delay		102.5			36.3			130.9				154.0
Approach LOS		F			D			F				F
Queue Length 50th (ft)		-801	58	266	539		286		-875	97	-403	
Queue Length 95th (ft)		#698	70	299	462		265		595	86	233	
Internal Link Dist (ft)		968			665			957				176
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1165	813	367	1930		329		620	275	268	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.14	0.28	0.90	0.73		0.90		1.20	0.40	1.24	

Intersection Summary






Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 149
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 89.3
 Intersection LOS: F
 Intersection Capacity Utilization 77.4%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 Ø1	 Ø2	 Ø3	 Ø4
32 s	55 s	30 s	33 s
 Ø6			
87 s			

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	1463	123	435	1265	0	185	0	465	21	38	30
Future Volume (vph)	0	1463	123	435	1265	0	185	0	465	21	38	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850						0.850		0.934	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1613	0
Flt Permitted				0.079			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	146	3505	0	1752	0	1568	1641	1613	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			25	
Link Distance (ft)		1048			745			1037			256	
Travel Time (s)		20.4			14.5			15.7			7.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1626	137	483	1406	0	206	0	517	23	42	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1626	137	483	1406	0	206	0	517	23	75	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.5	71.6	77.8	82.9		19.8		52.2	11.4	11.4	
Actuated g/C Ratio		0.40	0.57	0.62	0.66		0.16		0.41	0.09	0.09	
v/c Ratio		1.17	0.16	1.11	0.61		0.75		0.80	0.16	0.51	
Control Delay		120.0	8.3	112.2	15.9		68.9		44.0	57.9	69.8	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		120.0	8.3	112.2	15.9		68.9		44.0	57.9	69.8	
LOS		F	A	F	B		E		D	E	E	
Approach Delay		111.3			40.6			51.1			67.0	
Approach LOS		F			D			D			E	
Queue Length 50th (ft)		-861	32	-416	344		166		376	18	61	
Queue Length 95th (ft)		#1156	53	#730	539		262		559	49	119	
Internal Link Dist (ft)		968			665			957			176	
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1389	984	437	2301		392		648	328	322	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.17	0.14	1.11	0.61		0.53		0.80	0.07	0.23	

Intersection Summary






Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 126.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 70.7
 Intersection LOS: E
 Intersection Capacity Utilization 93.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 01	 02	 03	 04
32 s	55 s	30 s	33 s
 06			
87 s			

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	1010	224	296	1063	0	219	0	507	55	83	83
Future Volume (vph)	0	1010	224	296	1063	0	219	0	507	55	83	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850						0.850		0.925	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1598	0
Flt Permitted				0.080			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	148	3505	0	1752	0	1568	1641	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			25	
Link Distance (ft)		1048			745			1037			256	
Travel Time (s)		20.4			14.5			15.7			7.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.64	0.64	0.64	0.50	0.50	0.50
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1329	295	395	1417	0	342	0	792	110	166	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1329	295	395	1417	0	342	0	792	110	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.0	78.0	77.0	82.0		28.0		60.0	25.0	25.0	
Actuated g/C Ratio		0.33	0.52	0.51	0.55		0.19		0.40	0.17	0.17	
v/c Ratio		1.15	0.37	1.09	0.74		1.05		1.26	0.40	1.25	
Control Delay		121.9	12.1	115.6	28.9		119.7		168.9	60.9	188.4	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		121.9	12.1	115.6	28.9		119.7		168.9	60.9	188.4	
LOS		F	B	F	C		F		F	E	F	
Approach Delay		101.9			47.8			154.1				156.6
Approach LOS		F			D			F				F
Queue Length 50th (ft)		-801	78	-381	539		-362		-970	97	-403	
Queue Length 95th (ft)		#698	90	#424	462		308		#686	86	233	
Internal Link Dist (ft)		968			665			957				176
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1157	807	364	1916		327		627	273	266	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.15	0.37	1.09	0.74		1.05		1.26	0.40	1.25	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay: 99.0
 Intersection Capacity Utilization 81.7%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service D






~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 Ø1	 Ø2	 Ø3	 Ø4
32 s	55 s	30 s	33 s
 Ø6			
87 s			

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑		↖		↗	↖	↗	
Traffic Volume (vph)	0	1463	139	450	1265	0	202	0	482	21	38	30
Future Volume (vph)	0	1463	139	450	1265	0	202	0	482	21	38	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		415	125		0	190		0	0		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.850						0.850		0.934	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	3471	1553	1752	3505	0	1752	0	1568	1641	1613	0
Flt Permitted				0.079			0.950			0.950		
Satd. Flow (perm)	0	3471	1553	146	3505	0	1752	0	1568	1641	1613	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			25	
Link Distance (ft)		1048			745			1037			256	
Travel Time (s)		20.4			14.5			15.7			7.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	10%	10%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	1626	154	500	1406	0	224	0	536	23	42	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1626	154	500	1406	0	224	0	536	23	75	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	pm+ov	D.P+P	NA		Prot		pm+ov	Split	NA	
Protected Phases		2	4	1	6		4		1	3	3	
Permitted Phases			2	2					4			
Detector Phase		2	4	1	6		4		1	3	3	
Switch Phase												
Minimum Initial (s)		10.0	7.0	7.0	10.0		7.0		7.0	7.0	7.0	
Minimum Split (s)		23.8	33.0	12.9	23.9		33.0		12.9	20.0	20.0	
Total Split (s)		55.0	33.0	32.0	87.0		33.0		32.0	30.0	30.0	
Total Split (%)		36.7%	22.0%	21.3%	58.0%		22.0%		21.3%	20.0%	20.0%	

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		49.1	27.4	26.1	81.1		27.4		26.1	24.2	24.2	
Yellow Time (s)		3.8	3.0	3.0	3.8		3.0		3.0	3.2	3.2	
All-Red Time (s)		2.1	2.6	2.9	2.1		2.6		2.9	2.6	2.6	
Lost Time Adjust (s)		-0.9	-0.6	-0.9	-0.9		-0.6		-0.9	-0.8	-0.8	
Total Lost Time (s)		5.0	5.0	5.0	5.0		5.0		5.0	5.0	5.0	
Lead/Lag		Lag	Lag	Lead			Lag		Lead	Lead	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes		Yes	Yes	Yes	
Vehicle Extension (s)		6.0	2.0	2.0	6.0		2.0		2.0	2.0	2.0	
Minimum Gap (s)		3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	
Time Before Reduce (s)		15.0	0.0	0.0	15.0		0.0		0.0	0.0	0.0	
Time To Reduce (s)		30.0	0.0	0.0	30.0		0.0		0.0	0.0	0.0	
Recall Mode		Min	Min	None	None		Min		None	None	None	
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			20.0				20.0					
Pedestrian Calls (#/hr)			0				0					
Act Effect Green (s)		50.5	72.6	77.8	82.8		20.9		53.3	11.5	11.5	
Actuated g/C Ratio		0.40	0.57	0.61	0.65		0.16		0.42	0.09	0.09	
v/c Ratio		1.18	0.17	1.15	0.62		0.78		0.82	0.16	0.52	
Control Delay		124.8	8.4	129.6	16.5		70.6		45.3	58.4	70.4	
Queue Delay		0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay		124.8	8.4	129.6	16.5		70.6		45.3	58.4	70.4	
LOS		F	A	F	B		E		D	E	E	
Approach Delay		114.7			46.2			52.8			67.6	
Approach LOS		F			D			D			E	
Queue Length 50th (ft)		-879	37	-457	358		182		398	18	61	
Queue Length 95th (ft)		#1156	59	#765	539		284		589	49	119	
Internal Link Dist (ft)		968			665			957			176	
Turn Bay Length (ft)			415	125			190					
Base Capacity (vph)		1376	975	433	2280		389		656	325	319	
Starvation Cap Reductn		0	0	0	0		0		0	0	0	
Spillback Cap Reductn		0	0	0	0		0		0	0	0	
Storage Cap Reductn		0	0	0	0		0		0	0	0	
Reduced v/c Ratio		1.18	0.16	1.15	0.62		0.58		0.82	0.07	0.24	

Intersection Summary






Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 127.3
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 74.6
 Intersection LOS: E
 Intersection Capacity Utilization 94.9%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queens Creek Analysis

257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

09/03/2019

Splits and Phases: 257: Queens Creek Road/Middle School Drive & NC-24 (W Corbett Ave)

 01	 02	 03	 04
32 s	55 s	30 s	33 s
 06			
87 s			



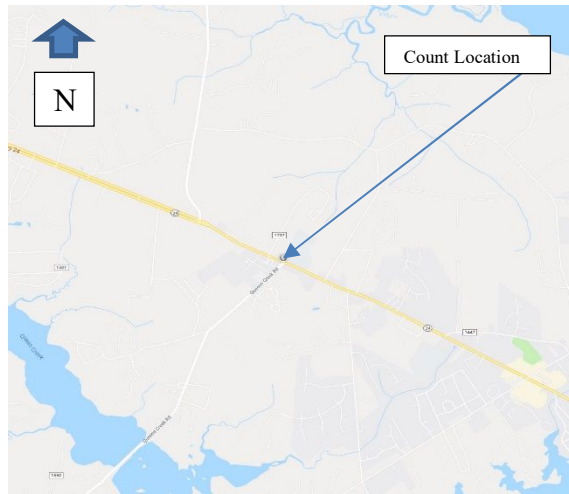
Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760

Intersection: NC 24 (Corbett Ave) and Queens Creek Rd & Middle School Exit			
Count Date	Count Time	Weather Conditions	Precipitation
5/21/2019	2:15pm to 7pm	62-86° Clear	5%
5/22/2019	6am to 2:15pm	63-89° Clear	5%

Comments:

Counted by:	Don Morton
Data Processor:	Chase Arthur
Method Used:	Jamar Countboard/Video
Equipment Operating:	Yes
School in Session:	Yes
Break Times:	N/A
Area Lighting Present:	No
Traffic Control:	Traffic Signal
Signal Cabinet Number:	03-0257
Disabled Pedestrians:	No
Construction:	No
Traffic Flow Disruption:	No

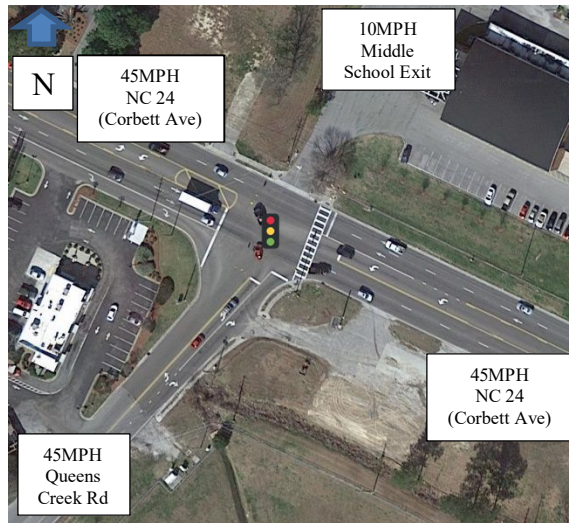


Northbound Approach: Queens Creek Rd
 Stop sign within 300 feet: No
 Signal within 300 feet: No
 Railroad within 200 feet: No If Yes: ___feet

Southbound Approach: Middle School Exit
 Stop sign within 300 feet: No
 Signal within 300 feet: No
 Railroad within 200 feet: No If Yes: ___feet

Westbound Approach: NC 24 (Corbett Ave)
 Stop sign within 300 feet: No
 Signal within 300 feet: No
 Railroad within 200 feet: No If Yes: ___feet

Eastbound Approach: NC 24 (Corbett Ave)
 Stop sign within 300 feet: No
 Signal within 300 feet: No
 Railroad within 200 feet: No If Yes: ___feet





Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760



Middle School Exit looking north away from NC 24 (Corbett Ave).



Middle School Exit looking south towards NC 24 (Corbett Ave).



Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760



NC 24 (Corbett Ave) looking east away from Queens Creek Rd & Middle School Exit.



NC 24 (Corbett Ave) looking west towards Queens Creek Rd & Middle School Exit.



Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760



Queens Creek Rd looking south away from NC 24 (Corbett Ave).



Queens Creek Rd looking north towards NC 24 (Corbett Ave).



Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760



NC 24 (Corbett Ave) looking west away from Queens Creek Rd & Middle School Exit.



NC 24 (Corbett Ave) looking east towards Queens Creek Rd & Middle School Exit.



Morton & Morton
Design Services, PLLC

Count Number: 1997
NCDOT Division Number: 3
County: Onslow
City: Swansboro
Count Type: Turning Movement (Classification)
13 Hour Count Volume: 35,760



Signal Cabinet.



Morton & Morton Design Services, PLLC

4700 Homewood Ct, Suite 200

Raleigh, North Carolina 27609

Ph. (919) 882-6066

www.mortonmorton.com

File Name : 1997

Site Code : 1997

Start Date : 5/22/2019

Page No : 1

Groups Printed- Passenger Vehicles - School Buses - Trucks 3+ Axles - Transit Buses - Bicycles

Start Time	Middle School Exit Southbound					NC 24 (Corbett Ave) Westbound					Queens Creek Rd Northbound					NC 24 (Corbett Ave) Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
06:00 AM	0	0	0	0	0	6	44	0	0	50	7	0	15	0	22	0	32	3	0	35	0	107	107
06:05 AM	0	0	0	0	0	4	44	0	0	48	7	0	17	0	24	0	52	2	0	54	0	126	126
06:10 AM	0	0	0	0	0	3	49	0	0	52	3	0	20	0	23	0	47	0	0	47	0	122	122
06:15 AM	1	0	0	0	1	9	52	0	0	61	10	0	29	0	39	0	43	9	0	52	0	153	153
06:20 AM	0	0	0	0	0	14	60	0	0	74	5	0	22	0	27	0	72	8	0	80	0	181	181
06:25 AM	0	2	2	0	4	27	55	0	0	82	9	0	33	0	42	0	44	10	0	54	0	182	182
06:30 AM	4	3	0	0	7	14	74	0	0	88	11	0	35	0	46	0	74	18	0	92	0	233	233
06:35 AM	5	10	5	0	20	30	74	0	0	104	9	0	34	0	43	0	65	19	0	84	0	251	251
06:40 AM	5	12	9	0	26	37	67	0	0	104	7	0	47	0	54	0	66	23	0	89	0	273	273
06:45 AM	3	13	15	0	31	25	55	0	0	80	21	0	40	0	61	0	83	23	0	106	0	278	278
06:50 AM	7	7	4	0	18	35	104	0	0	139	15	0	41	0	56	0	95	26	0	121	0	334	334
06:55 AM	11	10	21	0	42	8	78	0	0	86	17	0	46	0	63	0	83	13	0	96	0	287	287
Total	36	57	56	0	149	212	756	0	0	968	121	0	379	0	500	0	756	154	0	910	0	2527	2527
07:00 AM	7	4	6	0	17	11	107	0	0	118	15	0	52	0	67	0	93	6	0	99	0	301	301
07:05 AM	7	9	12	0	28	8	102	0	0	110	11	0	29	0	40	0	75	7	0	82	0	260	260
07:10 AM	1	2	4	0	7	18	97	0	0	115	9	0	30	0	39	0	81	3	0	84	0	245	245
07:15 AM	1	3	0	0	4	26	70	0	0	96	12	0	23	0	35	0	57	12	0	69	0	204	204
07:20 AM	0	4	0	0	4	12	78	0	0	90	14	0	28	0	42	0	106	8	0	114	0	250	250
07:25 AM	1	1	2	0	4	9	96	0	0	105	37	0	45	0	82	0	74	7	0	81	0	272	272
07:30 AM	1	1	0	0	2	22	67	0	0	89	5	0	31	0	36	0	74	15	0	89	0	216	216
07:35 AM	0	0	0	0	0	17	91	0	0	108	18	0	38	0	56	0	80	11	0	91	0	255	255
07:40 AM	0	0	0	0	0	21	67	0	0	88	2	0	32	0	34	0	88	11	0	99	0	221	221
07:45 AM	0	0	2	0	2	15	69	0	0	84	2	0	31	0	33	0	99	11	0	110	0	229	229
07:50 AM	0	1	0	0	1	27	51	0	0	78	14	0	31	0	45	0	98	11	0	109	0	233	233
07:55 AM	0	0	1	0	1	31	77	0	0	108	13	0	41	0	54	0	96	15	0	111	0	274	274
Total	18	25	27	0	70	217	972	0	0	1189	152	0	411	0	563	0	1021	117	0	1138	0	2960	2960
08:00 AM	0	1	2	0	3	12	63	0	0	75	13	0	26	0	39	0	77	20	0	97	0	214	214
08:05 AM	0	0	0	0	0	29	65	0	0	94	14	0	60	0	74	0	60	12	0	72	0	240	240
08:10 AM	0	1	1	0	2	10	71	0	0	81	14	0	37	0	51	0	83	10	0	93	0	227	227
08:15 AM	0	0	2	0	2	18	45	0	0	63	25	0	44	0	69	0	81	10	0	91	0	225	225
08:20 AM	0	1	0	0	1	11	66	0	0	77	11	0	21	0	32	0	89	7	0	96	0	206	206
08:25 AM	1	1	0	0	2	16	79	0	0	95	12	0	32	0	44	0	77	6	0	83	0	224	224
08:30 AM	0	0	1	0	1	23	57	0	0	80	9	0	29	0	38	0	56	4	0	60	0	179	179
08:35 AM	0	1	0	0	1	14	48	0	0	62	15	0	16	0	31	0	79	3	0	82	0	176	176
08:40 AM	0	2	2	0	4	19	61	0	0	80	7	0	25	0	32	0	70	5	0	75	0	191	191
08:45 AM	0	0	2	0	2	11	58	0	0	69	6	0	39	0	45	0	73	3	0	76	0	192	192
08:50 AM	0	0	1	0	1	15	61	0	0	76	7	0	28	0	35	0	50	4	0	54	0	166	166
08:55 AM	0	0	0	0	0	14	60	0	0	74	8	0	21	0	29	0	87	3	0	90	0	193	193
Total	1	7	11	0	19	192	734	0	0	926	141	0	378	0	519	0	882	87	0	969	0	2433	2433
09:00 AM	1	0	0	0	1	22	55	0	0	77	8	0	30	0	38	0	58	4	0	62	0	178	178
09:05 AM	0	0	0	0	0	23	63	0	0	86	8	0	22	0	30	0	74	4	0	78	0	194	194
09:10 AM	0	0	2	0	2	19	54	0	0	73	10	0	22	0	32	0	58	5	0	63	0	170	170
09:15 AM	0	0	0	0	0	14	60	0	0	74	4	0	22	0	26	0	70	3	0	73	0	173	173
09:20 AM	1	0	0	0	1	13	63	0	0	76	3	0	11	0	14	0	57	4	0	61	0	152	152
09:25 AM	0	0	0	0	0	22	56	0	0	78	9	0	29	0	38	0	61	2	0	63	0	179	179
09:30 AM	0	0	0	0	0	16	62	0	0	78	9	0	23	0	32	0	54	11	0	65	0	175	175
09:35 AM	0	0	0	0	0	19	68	0	0	87	9	0	17	0	26	0	71	2	0	73	0	186	186
09:40 AM	0	0	0	0	0	14	59	0	0	73	4	0	34	0	38	0	65	6	0	71	0	182	182
09:45 AM	0	1	0	0	1	18	53	0	0	71	10	0	22	0	32	0	59	3	0	62	0	166	166
09:50 AM	1	0	0	0	1	18	51	0	0	69	4	0	27	0	31	0	76	6	0	82	0	183	183
09:55 AM	1	1	0	0	2	14	65	0	0	79	6	0	28	0	34	0	68	4	0	72	0	187	187
Total	4	2	2	0	8	212	709	0	0	921	84	0	287	0	371	0	771	54	0	825	0	2125	2125



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Page No : 2

Groups Printed- Passenger Vehicles - School Buses - Trucks 3+ Axles - Transit Buses - Bicycles

Start Time	Middle School Exit Southbound					NC 24 (Corbett Ave) Westbound					Queens Creek Rd Northbound					NC 24 (Corbett Ave) Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
10:00 AM	2	1	0	0	3	12	59	0	0	71	15	0	29	0	44	0	53	1	0	54	0	172	172
10:05 AM	0	0	2	0	2	18	85	0	0	103	10	0	25	0	35	0	64	5	0	69	0	209	209
10:10 AM	0	0	0	0	0	13	58	0	0	71	9	0	28	0	37	0	70	14	0	84	0	192	192
10:15 AM	0	0	0	0	0	20	54	0	0	74	8	0	24	0	32	0	67	4	0	71	0	177	177
10:20 AM	2	0	1	0	3	22	78	0	0	100	6	0	21	0	27	0	65	7	0	72	0	202	202
10:25 AM	0	0	0	0	0	30	48	0	0	78	10	0	20	0	30	0	79	7	0	86	0	194	194
10:30 AM	0	0	1	0	1	14	54	0	0	68	6	0	13	0	19	0	85	5	0	90	0	178	178
10:35 AM	1	1	3	0	5	22	60	0	0	82	12	0	29	0	41	0	44	9	0	53	0	181	181
10:40 AM	0	1	1	0	2	13	44	0	0	57	5	0	26	0	31	0	56	2	0	58	0	148	148
10:45 AM	0	1	0	0	1	19	62	0	0	81	6	0	30	0	36	0	75	8	0	83	0	201	201
10:50 AM	1	1	0	0	2	31	68	0	0	99	6	0	15	0	21	0	78	6	0	84	0	206	206
10:55 AM	0	1	0	0	1	25	59	0	0	84	5	0	22	0	27	0	69	7	0	76	0	188	188
Total	6	6	8	0	20	239	729	0	0	968	98	0	282	0	380	0	805	75	0	880	0	2248	2248
11:00 AM	0	0	0	0	0	21	47	0	0	68	2	0	27	0	29	0	81	3	0	84	0	181	181
11:05 AM	0	0	0	0	0	16	78	0	0	94	7	0	35	0	42	0	58	9	0	67	0	203	203
11:10 AM	1	3	1	0	5	21	59	0	0	80	2	0	21	0	23	0	72	3	0	75	0	183	183
11:15 AM	0	0	2	2	2	22	67	0	0	89	8	0	27	0	35	0	60	6	0	66	2	192	194
11:20 AM	2	0	0	0	2	20	54	0	0	74	6	0	30	0	36	0	73	5	0	78	0	190	190
11:25 AM	0	0	1	0	1	23	68	0	0	91	2	0	28	0	30	0	57	6	0	63	0	185	185
11:30 AM	0	0	0	0	0	20	64	0	0	84	7	0	24	0	31	0	90	2	0	92	0	207	207
11:35 AM	0	0	0	0	0	32	61	0	0	93	8	0	32	0	40	0	61	9	0	70	0	203	203
11:40 AM	1	1	0	0	2	24	73	0	0	97	7	0	17	0	24	0	65	8	0	73	0	196	196
11:45 AM	2	2	0	0	4	13	59	0	0	72	7	0	28	0	35	0	64	6	0	70	0	181	181
11:50 AM	0	1	0	0	1	18	60	0	0	78	8	0	27	0	35	0	70	7	0	77	0	191	191
11:55 AM	0	1	0	0	1	22	68	0	0	90	6	0	37	0	43	0	61	3	0	64	0	198	198
Total	6	8	4	2	18	252	758	0	0	1010	70	0	333	0	403	0	812	67	0	879	2	2310	2312
12:00 PM	1	0	1	0	2	36	58	0	0	94	3	0	26	0	29	0	102	7	0	109	0	234	234
12:05 PM	1	0	2	0	3	22	75	0	0	97	13	0	21	0	34	0	63	14	0	77	0	211	211
12:10 PM	0	0	0	1	0	37	48	0	0	85	7	0	28	0	35	0	55	10	0	65	1	185	186
12:15 PM	0	0	1	0	1	26	78	0	0	104	18	0	23	0	41	0	86	9	0	95	0	241	241
12:20 PM	1	0	1	0	2	22	56	0	0	78	10	0	38	0	48	0	58	12	0	70	0	198	198
12:25 PM	0	0	2	0	2	31	68	0	0	99	12	0	30	0	42	0	74	7	0	81	0	224	224
12:30 PM	0	0	0	0	0	28	74	0	0	102	2	0	29	0	31	0	75	8	0	83	0	216	216
12:35 PM	1	2	0	1	3	31	70	0	0	101	5	0	30	0	35	0	55	9	0	64	1	203	204
12:40 PM	1	1	0	0	2	22	70	0	0	92	6	0	24	0	30	0	73	12	0	85	0	209	209
12:45 PM	0	0	0	0	0	30	58	0	0	88	4	0	16	0	20	0	86	20	0	106	0	214	214
12:50 PM	0	0	1	0	1	26	63	0	0	89	20	0	30	0	50	0	65	24	0	89	0	229	229
12:55 PM	1	0	1	0	2	20	68	0	0	88	19	0	32	0	51	0	64	9	0	73	0	214	214
Total	6	3	9	2	18	331	786	0	0	1117	119	0	327	0	446	0	856	141	0	997	2	2578	2580
01:00 PM	1	0	1	0	2	35	55	0	0	90	9	0	16	0	25	0	73	13	0	86	0	203	203
01:05 PM	0	4	0	0	4	27	65	0	0	92	10	0	15	0	25	0	72	15	0	87	0	208	208
01:10 PM	1	0	0	0	1	24	63	0	0	87	6	0	19	0	25	0	88	16	0	104	0	217	217
01:15 PM	0	0	0	0	0	35	53	0	0	88	8	0	27	0	35	0	49	9	0	58	0	181	181
01:20 PM	1	0	1	0	2	27	67	0	0	94	8	0	19	0	27	0	91	9	0	100	0	223	223
01:25 PM	0	1	0	0	1	17	84	0	0	101	6	0	31	0	37	0	83	10	0	93	0	232	232
01:30 PM	0	0	2	0	2	28	76	0	0	104	10	0	19	0	29	0	65	5	0	70	0	205	205
01:35 PM	0	0	0	0	0	19	65	0	0	84	15	0	35	0	50	0	80	18	0	98	0	232	232
01:40 PM	2	0	0	0	2	24	78	0	0	102	14	0	20	0	34	0	73	10	0	83	0	221	221
01:45 PM	0	0	1	0	1	27	64	0	0	91	12	0	26	0	38	0	57	9	0	66	0	196	196
01:50 PM	3	1	2	0	6	23	64	0	0	87	9	0	38	0	47	0	61	9	0	70	0	210	210
01:55 PM	0	0	0	0	0	26	65	0	0	91	9	0	24	0	33	0	114	4	0	118	0	242	242
Total	8	6	7	0	21	312	799	0	0	1111	116	0	289	0	405	0	906	127	0	1033	0	2570	2570



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Page No : 3

Groups Printed- Passenger Vehicles - School Buses - Trucks 3+ Axles - Transit Buses - Bicycles

Start Time	Middle School Exit Southbound					NC 24 (Corbett Ave) Westbound					Queens Creek Rd Northbound					NC 24 (Corbett Ave) Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
02:00 PM	0	0	1	0	1	25	57	0	0	82	8	0	26	0	34	0	79	12	0	91	0	208	208
02:05 PM	0	0	0	0	0	32	71	0	0	103	19	0	26	0	45	0	70	16	0	86	0	234	234
02:10 PM	0	1	0	0	1	28	51	0	0	79	8	0	38	0	46	0	68	9	0	77	0	203	203
02:15 PM	1	0	1	0	2	45	78	0	0	123	12	0	30	0	42	0	42	13	0	55	0	222	222
02:20 PM	2	0	2	0	4	30	85	0	0	115	9	0	41	0	50	0	70	16	0	86	0	255	255
02:25 PM	5	10	5	1	20	33	59	0	1	92	13	0	33	0	46	0	72	18	0	90	2	248	250
02:30 PM	5	14	9	0	28	40	72	0	0	112	4	0	24	0	28	0	89	11	0	100	0	268	268
02:35 PM	1	1	3	0	5	39	78	0	0	117	26	0	53	0	79	0	101	10	0	111	0	312	312
02:40 PM	5	1	4	0	10	37	78	0	1	115	30	0	58	0	88	0	57	11	0	68	1	281	282
02:45 PM	1	4	1	0	6	29	75	0	0	104	29	0	36	0	65	0	83	10	0	93	0	268	268
02:50 PM	0	0	0	0	0	30	74	0	0	104	16	0	32	0	48	0	93	13	0	106	0	258	258
02:55 PM	1	2	0	0	3	29	63	0	0	92	9	0	25	0	34	0	87	13	0	100	0	229	229
Total	21	33	26	1	80	397	841	0	2	1238	183	0	422	0	605	0	911	152	0	1063	3	2986	2989
03:00 PM	3	2	1	0	6	27	61	0	0	88	13	0	18	0	31	0	77	8	0	85	0	210	210
03:05 PM	0	1	0	0	1	30	68	0	0	98	13	0	33	0	46	0	73	12	0	85	0	230	230
03:10 PM	1	0	0	0	1	26	62	0	2	88	15	0	33	0	48	0	61	16	0	77	2	214	216
03:15 PM	4	1	1	0	6	24	99	0	0	123	32	0	31	0	63	0	62	7	0	69	0	261	261
03:20 PM	2	0	0	1	2	36	73	0	0	109	15	0	37	0	52	0	77	5	0	82	1	245	246
03:25 PM	3	1	2	0	6	26	83	0	0	109	8	0	23	0	31	0	107	5	0	112	0	258	258
03:30 PM	1	0	2	0	3	58	95	0	0	153	10	0	50	0	60	0	70	9	0	79	0	295	295
03:35 PM	0	0	0	0	0	38	75	0	0	113	23	0	36	0	59	0	90	10	0	100	0	272	272
03:40 PM	1	0	0	0	1	43	71	0	0	114	17	0	38	0	55	0	87	6	0	93	0	263	263
03:45 PM	3	1	2	0	6	29	95	0	0	124	9	0	42	0	51	0	93	11	0	104	0	285	285
03:50 PM	1	3	1	1	5	30	115	0	0	145	16	0	35	0	51	0	78	5	0	83	1	284	285
03:55 PM	1	0	2	0	3	35	80	0	0	115	16	0	31	0	47	0	86	8	0	94	0	259	259
Total	20	9	11	2	40	402	977	0	2	1379	187	0	407	0	594	0	961	102	0	1063	4	3076	3080
04:00 PM	7	7	6	0	20	31	89	0	0	120	15	0	46	0	61	0	82	5	0	87	0	288	288
04:05 PM	11	14	12	0	37	22	94	0	0	116	15	0	26	0	41	0	125	6	0	131	0	325	325
04:10 PM	2	9	6	1	17	39	99	0	1	138	20	0	51	0	71	0	59	8	0	67	2	293	295
04:15 PM	4	5	1	0	10	20	87	0	0	107	19	0	41	0	60	0	149	4	0	153	0	330	330
04:20 PM	0	0	2	0	2	35	123	0	0	158	9	0	25	0	34	0	114	5	0	119	0	313	313
04:25 PM	0	2	2	0	4	39	126	0	0	165	20	0	51	0	71	0	98	13	0	111	0	351	351
04:30 PM	1	2	3	0	6	24	87	0	0	111	9	0	19	0	28	0	129	5	0	134	0	279	279
04:35 PM	0	0	1	0	1	35	85	0	0	120	15	0	38	0	53	0	113	15	0	128	0	302	302
04:40 PM	0	0	0	0	0	38	89	0	0	127	8	0	32	0	40	0	111	8	0	119	0	286	286
04:45 PM	0	0	1	0	1	41	91	0	0	132	20	0	46	0	66	0	129	10	0	139	0	338	338
04:50 PM	2	1	0	0	3	40	94	0	0	134	21	0	32	0	53	0	96	14	0	110	0	300	300
04:55 PM	0	3	0	0	3	38	113	0	0	151	7	0	31	0	38	0	126	16	0	142	0	334	334
Total	27	43	34	1	104	402	1177	0	1	1579	178	0	438	0	616	0	1331	109	0	1440	2	3739	3741
05:00 PM	0	0	0	0	0	39	104	0	0	143	11	0	46	0	57	0	130	12	0	142	0	342	342
05:05 PM	8	4	6	0	18	40	97	0	0	137	13	0	35	0	48	0	74	8	0	82	0	285	285
05:10 PM	0	5	4	0	9	41	90	0	0	131	24	0	49	0	73	0	105	14	0	119	0	332	332
05:15 PM	5	4	8	0	17	38	80	0	0	118	12	0	46	0	58	0	87	12	0	99	0	292	292
05:20 PM	1	2	0	1	3	33	83	0	0	116	20	0	29	0	49	0	138	7	0	145	1	313	314
05:25 PM	0	0	0	0	0	37	64	0	0	101	9	0	23	0	32	0	132	12	0	144	0	277	277
05:30 PM	1	0	0	0	1	54	100	0	1	154	16	0	27	0	43	0	117	8	0	125	1	323	324
05:35 PM	0	0	0	0	0	34	86	0	0	120	12	0	25	0	37	0	145	18	0	163	0	320	320
05:40 PM	0	1	0	0	1	60	97	0	0	157	16	0	27	0	43	0	85	22	0	107	0	308	308
05:45 PM	0	0	0	0	0	45	76	0	0	121	11	0	25	0	36	0	71	15	0	86	0	243	243
05:50 PM	0	0	0	0	0	32	99	0	0	131	13	0	29	0	42	0	85	11	0	96	0	269	269
05:55 PM	1	0	0	0	1	45	125	0	0	170	8	0	26	0	34	0	87	16	0	103	0	308	308
Total	16	16	18	1	50	498	1101	0	1	1599	165	0	387	0	552	0	1256	155	0	1411	2	3612	3614



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Groups Printed- Passenger Vehicles - School Buses - Trucks 3+ Axles - Transit Buses - Bicycles

Start Time	Middle School Exit Southbound					NC 24 (Corbett Ave) Westbound					Queens Creek Rd Northbound					NC 24 (Corbett Ave) Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
06:00 PM	0	1	0	0	1	50	124	0	0	174	9	0	29	0	38	0	82	7	0	89	0	302	302
06:05 PM	0	0	0	0	0	41	83	0	0	124	8	0	21	0	29	0	70	12	0	82	0	235	235
06:10 PM	0	0	0	0	0	39	77	0	0	116	9	0	36	0	45	0	49	9	0	58	0	219	219
06:15 PM	0	0	0	0	0	28	90	0	0	118	17	0	28	0	45	0	70	9	0	79	0	242	242
06:20 PM	0	0	0	0	0	29	78	0	0	107	3	0	31	0	34	0	62	14	0	76	0	217	217
06:25 PM	0	1	0	0	1	29	57	0	0	86	5	0	23	0	28	0	58	14	0	72	0	187	187
06:30 PM	0	0	0	0	0	35	65	0	0	100	11	0	51	0	62	0	62	11	0	73	0	235	235
06:35 PM	0	0	1	0	1	38	55	0	0	93	23	0	54	0	77	0	64	12	0	76	0	247	247
06:40 PM	0	0	0	0	0	42	74	0	0	116	10	0	28	0	38	0	43	10	0	53	0	207	207
06:45 PM	0	0	0	0	0	25	61	0	0	86	5	0	25	0	30	0	67	9	0	76	0	192	192
06:50 PM	0	0	0	0	0	46	44	0	0	90	3	0	13	0	16	0	43	9	0	52	0	158	158
06:55 PM	0	0	0	0	0	41	36	0	0	77	5	0	24	0	29	0	43	6	0	49	0	155	155
Total	0	2	1	0	3	443	844	0	0	1287	108	0	363	0	471	0	713	122	0	835	0	2596	2596
Grand Total	169	217	214	9	600	4109	11183	0	6	15292	1722	0	4703	0	6425	0	11981	1462	0	13443	15	35760	35775
Apprch %	28.2	36.2	35.7			26.9	73.1	0			26.8	0	73.2			0	89.1	10.9					
Total %	0.5	0.6	0.6		1.7	11.5	31.3	0		42.8	4.8	0	13.2		18	0	33.5	4.1		37.6	0	100	
Passenger Vehicles	163	198	195		565	4050	10854	0		14910	1670	0	4622		6292	0	11634	1404		13038	0	0	34805
% Passenger Vehicles	96.4	91.2	91.1	100	92.8	98.6	97.1	0	100	97.5	97	0	98.3	0	97.9	0	97.1	96	0	97	0	0	97.3
School Buses	6	19	18		43	37	12	0		49	28	0	57		85	0	35	34		69	0	0	246
% School Buses	3.6	8.8	8.4	0	7.1	0.9	0.1	0	0	0.3	1.6	0	1.2	0	1.3	0	0.3	2.3	0	0.5	0	0	0.7
Trucks 3+ Axles	0	0	1		1	21	316	0		337	24	0	23		47	0	306	24		330	0	0	715
% Trucks 3+ Axles	0	0	0.5	0	0.2	0.5	2.8	0	0	2.2	1.4	0	0.5	0	0.7	0	2.6	1.6	0	2.5	0	0	2
Transit Buses	0	0	0		0	0	0	0		0	0	0	0		0	0	4	0		4	0	0	4
% Transit Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0		0	1	1	0		2	0	0	1		1	0	2	0		2	0	0	5
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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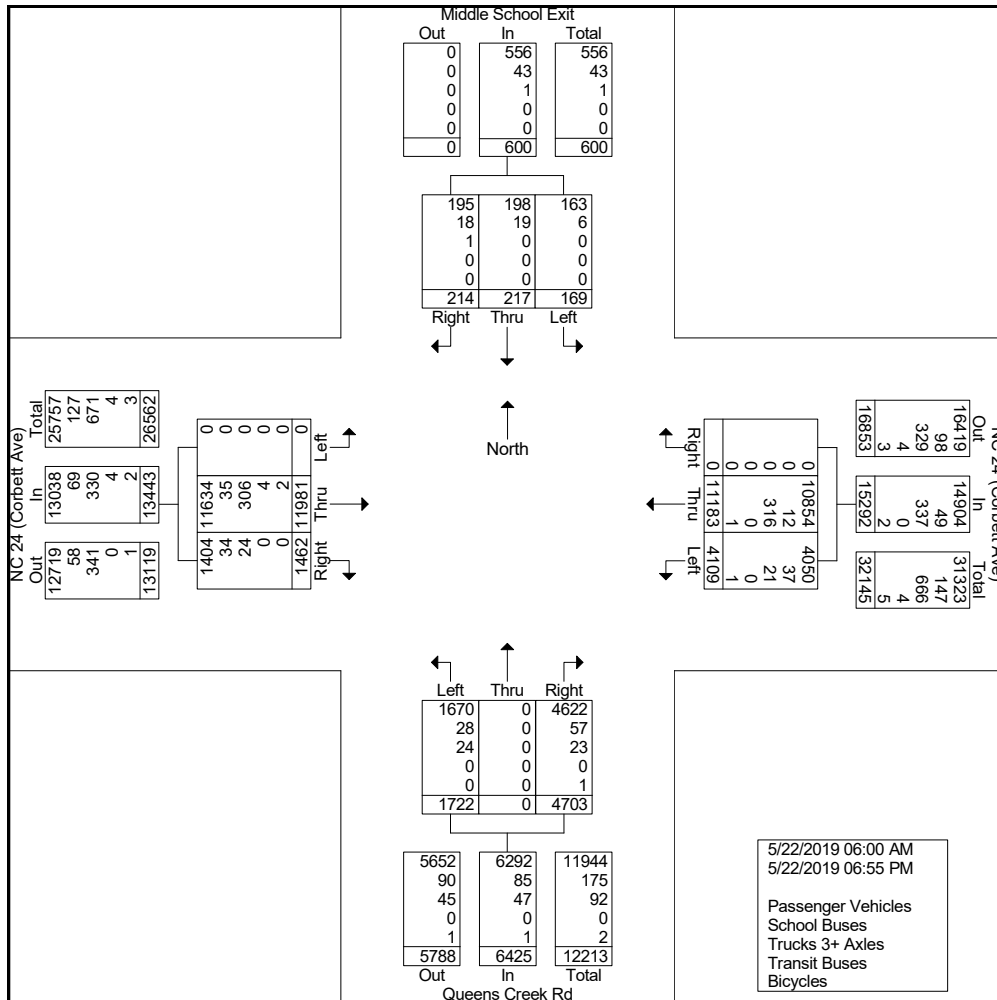
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File Name : 1997

Site Code : 1997

Start Date : 5/22/2019

Page No : 5





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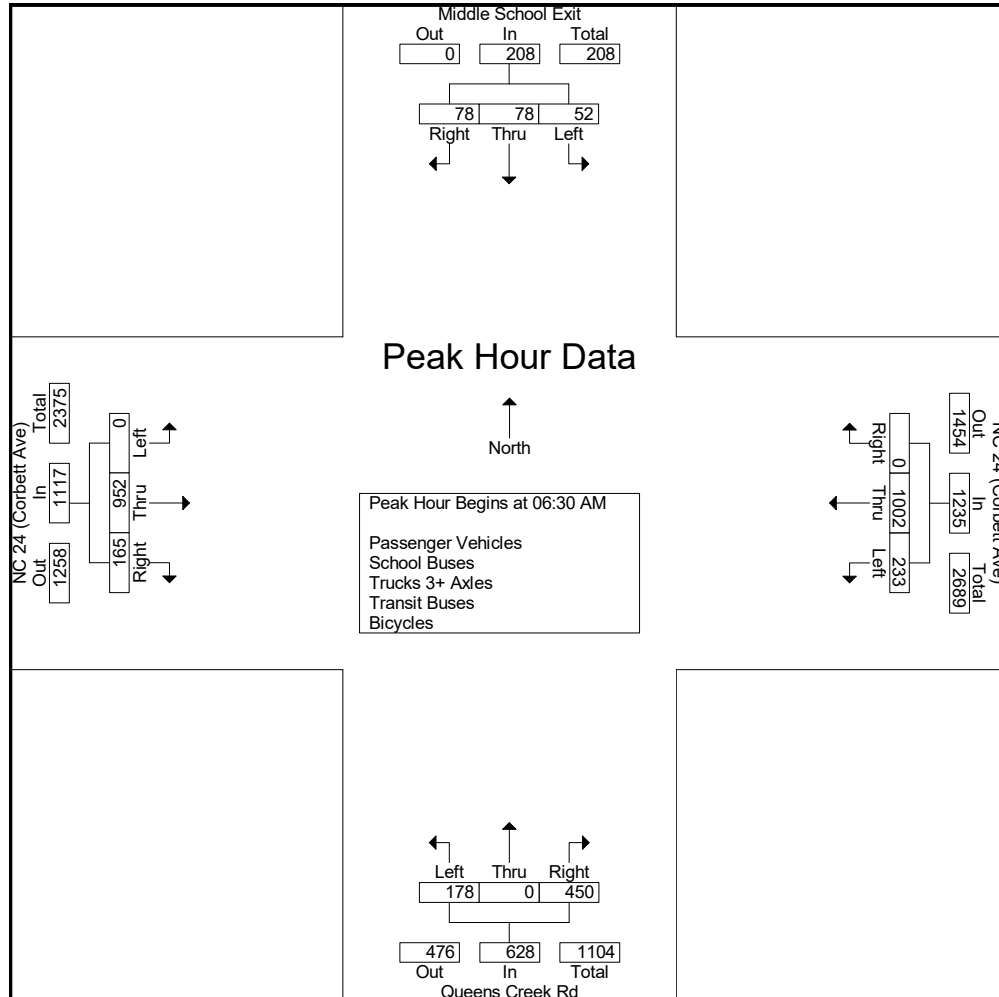
File Name : 1997

Site Code : 1997

Start Date : 5/22/2019

Page No : 6

Start Time	Middle School Exit Southbound				NC 24 (Corbett Ave) Westbound				Queens Creek Rd Northbound				NC 24 (Corbett Ave) Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 11:55 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:30 AM																	
06:30 AM	4	3	0	7	14	74	0	88	11	0	35	46	0	74	18	92	233
06:35 AM	5	10	5	20	30	74	0	104	9	0	34	43	0	65	19	84	251
06:40 AM	5	12	9	26	37	67	0	104	7	0	47	54	0	66	23	89	273
06:45 AM	3	13	15	31	25	55	0	80	21	0	40	61	0	83	23	106	278
06:50 AM	7	7	4	18	35	104	0	139	15	0	41	56	0	95	26	121	334
06:55 AM	11	10	21	42	8	78	0	86	17	0	46	63	0	83	13	96	287
07:00 AM	7	4	6	17	11	107	0	118	15	0	52	67	0	93	6	99	301
07:05 AM	7	9	12	28	8	102	0	110	11	0	29	40	0	75	7	82	260
07:10 AM	1	2	4	7	18	97	0	115	9	0	30	39	0	81	3	84	245
07:15 AM	1	3	0	4	26	70	0	96	12	0	23	35	0	57	12	69	204
07:20 AM	0	4	0	4	12	78	0	90	14	0	28	42	0	106	8	114	250
07:25 AM	1	1	2	4	9	96	0	105	37	0	45	82	0	74	7	81	272
Total Volume	52	78	78	208	233	1002	0	1235	178	0	450	628	0	952	165	1117	3188
% App. Total	25	37.5	37.5		18.9	81.1	0		28.3	0	71.7		0	85.2	14.8		
PHF	.394	.500	.310	.413	.525	.780	.000	.740	.401	.000	.721	.638	.000	.748	.529	.769	.795





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Site Code : 1997

Start Date : 5/22/2019

Page No : 7

Start Time	Middle School Exit Southbound				NC 24 (Corbett Ave) Westbound				Queens Creek Rd Northbound				NC 24 (Corbett Ave) Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 PM to 06:55 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:05 PM																	
04:05 PM	11	14	12	37	22	94	0	116	15	0	26	41	0	125	6	131	325
04:10 PM	2	9	6	17	39	99	0	138	20	0	51	71	0	59	8	67	293
04:15 PM	4	5	1	10	20	87	0	107	19	0	41	60	0	149	4	153	330
04:20 PM	0	0	2	2	35	123	0	158	9	0	25	34	0	114	5	119	313
04:25 PM	0	2	2	4	39	126	0	165	20	0	51	71	0	98	13	111	351
04:30 PM	1	2	3	6	24	87	0	111	9	0	19	28	0	129	5	134	279
04:35 PM	0	0	1	1	35	85	0	120	15	0	38	53	0	113	15	128	302
04:40 PM	0	0	0	0	38	89	0	127	8	0	32	40	0	111	8	119	286
04:45 PM	0	0	1	1	41	91	0	132	20	0	46	66	0	129	10	139	338
04:50 PM	2	1	0	3	40	94	0	134	21	0	32	53	0	96	14	110	300
04:55 PM	0	3	0	3	38	113	0	151	7	0	31	38	0	126	16	142	334
05:00 PM	0	0	0	0	39	104	0	143	11	0	46	57	0	130	12	142	342
Total Volume	20	36	28	84	410	1192	0	1602	174	0	438	612	0	1379	116	1495	3793
% App. Total	23.8	42.9	33.3		25.6	74.4	0		28.4	0	71.6		0	92.2	7.8		
PHF	.152	.214	.194	.189	.833	.788	.000	.809	.690	.000	.716	.718	.000	.771	.604	.814	.901

