MEMORANDUM

To: Dr. Jeff LaMondia, Department of Civil Engineering, Auburn University

From: Lan Liu, Bo Zhang

Date: April 14, 2017

RE: The impact of the 'school run' on pedestrian-vehicle crashes in Fulton County, GA

I. Purpose

The purpose for this section works is specifying the locations of pedestrian-vehicle crashes happened in three years (2012, 2013, and 2014) during "School Run" hours compared with normal hours. Then, matching the traffic volume with three specific areas that crashes happened within school districts. Therefore, the distribution of fatal car crashes and traffic volume comparison will be researched.

II. Process of Manipulating the Map

The main challenge for modifying the map was organizing data, and the following steps created this brief layout:

- First, considering the impact of 'school run'. The fatal crashes in Atlanta was considered as well to show a whole map for the distribution of fatal crashes within Fulton County. Three symbols with three colors were used to define specific time of crashes. The details were shown in the map that stated out the fatal crashes happened in three years.
- Second, to analyze the impact of 'school run' in pedestrian crashes, the traffic volume data was collected to match the time of crashes happened to show if there was any relationship existed between them. The figures shown in conclusion part presented the traffic volume distribution at the date when the fatal crashes happened. Only three specific parts were selected as the analyzed areas where most fatal crashes happened within school districts.
- Third, to analyze this project in a broader view, some summarized tables about Traffic Safety Performance in Georgia were collected to create some graphs to show the proportion of Pedestrian Fatalities.

III. Conclusion on Current Accomplishment

Reorganizing crashes data in three years with different symbols, and specifying whether it is school run or not with different colors, the distribution of crashes are presented in the map. Collecting background tables and data to show the proportion of pedestrian crashes in all kinds of crashes. Moreover, two specific areas are decided by selecting the high density of crashes happened within school district during 'school run' hours. Based on these areas, two tables about traffic volume are shown below which present more traffic crashes take place with the increasing of traffic volume during 'school run' hours. In addition, a program is going to be researched to analyze its effects on the crashes in these three years. Figure 1 and Figure 2 state the details about two tables. Moreover, Figure 3 shows the relationship among 'School Run', Crashes and Traffic Volume.

Volume By Hour
Direction: All Directions

Time	Mon Feb 03	Tue Feb 04	Wed Feb 05	Total	Avg	Pct	Graphic
12:00 am		82	63	145	72	0.60	
1:00 am		59	53	112	56	0.47	
2:00 am		50	40	90	45	0.37	
3:00 am		48	48	96	48	0.40	
4:00 am		69	85	154	77	0.64	
5:00 am		351	330	681	340	2.83	
6:00 am		658	647	1305	652	5.43	
7:00 am		702	654	1356	678	5.64	
8:00 am		706	661	1367	684	5.69	
9:00 am		680	724	1404	702	5.84	
10:00 am		736	725	1461	730	6.08	
11:00 am		785	753	1538	769	6.40	
12:00 pm		736	759	1495	748	6.22	
1:00 pm		734	743	1477	738	6.15	
2:00 pm		739	768	1507	754	6.27	
3:00 pm		920	892	1812	906	7.54	
4:00 pm		897	924	1821	910	7.58	
5:00 pm	862	956		1818	909	7.57	
6:00 pm	697	675		1372	686	5.71	
7:00 pm	479	488		967	484	4.03	
8:00 pm	425	359		784	392	3.26	
9:00 pm	328	393		721	360	3.00	
10:00 pm	133	185		318	159	1.32	
11:00 pm	107	114		221	110	0.92	
Total	3031	12122	8869	24022	12011		
SF	0.000	0.000	0.000				
DF	0.000	0.000	0.000				
AADT		0			0		

Figure 1: Traffic Volume in specific area A

Volume By Hour
Direction: All Directions

Time	Mon Feb 03	Tue Feb 04	Wed Feb 05	Total	Avg	Pct	Graphic
12:00 am		75	78	153	76	0.72	
1:00 am		51	50	101	50	0.48	
2:00 am		30	31	61	30	0.29	
3:00 am		49	51	100	50	0.47	
4:00 am		100	97	197	98	0.93	
5:00 am		284	298	582	291	2.76	
6:00 am		672	613	1285	642	6.08	
7:00 am		825	787	1612	806	7.63	
8:00 am		790	858	1648	824	7.80	
9:00 am		732	768	1500	750	7.10	
10:00 am		655	634	1289	644	6.10	
11:00 am		620	613	1233	616	5.84	
12:00 pm		614	662	1276	638	6.04	
1:00 pm		672	695	1367	684	6.47	
2:00 pm		721	693	1414	707	6.69	
3:00 pm		693	737	1430	715	6.77	
4:00 pm		550	618	1168	584	5.53	
5:00 pm	479	498		977	488	4.62	
6:00 pm	571	495		1066	533	5.05	
7:00 pm	488	469		957	478	4.53	
8:00 pm	273	305		578	289	2.74	
9:00 pm	237	277		514	257	2.43	
10:00 pm	195	200		395	198	1.87	
11:00 pm	108	114		222	111	1.05	
Total	2351	10491	8283	21125	10562		
SF	0.000	0.000	0.000				
DF	0.000	0.000	0.000				
AADT		0			0		

Figure 2: Traffic Volume in specific area B

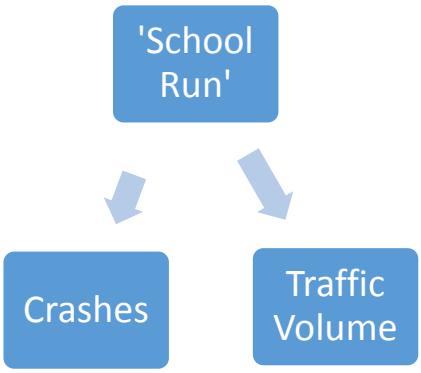

Figure 3: Relationship among ‘School Run’, Crashes and Traffic Volume

IV Appendices

Block groups, Road tracts, school district---Tiger Census

https://www.census.gov/geo/maps-data/data/tiger.html

Crash 2014---City Data.com

http://www.city-data.com/accidents/acc-Atlanta-Georgia.html

Road network---Atlanta Regional Commission

http://www.atlantaregional.com/

Traffic Volume---Traffic Counts in Georgia

http://geocounts.com/gdot/

Pedestrian crash in USA

http://www.pedbikeinfo.org/data/factsheet_crash.cfm

Injuries, crashes in GA

http://www.gahighwaysafety.org/research/ga-crashes/injuries/fatalities/