

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

TRAFFIC ENGINEERING REPORT

State Route 520/US 82 at State Route 35/Virginia Ave City of Tifton, Tift County

August 7, 2009

REASON FOR INVESTIGATION

A Traffic Engineering Study was conducted at the above intersection to obtain a GDOT permit to continue operating Red light Running Photo Enforcement Devices.

TOPOGRAPHY

State Route 520 (Corridor Z) is a major arterial roadway that extends from Columbus, Georgia to the East Coast of Georgia and is a major East-West Corridor. It connects the cities of Columbus, Albany, Tifton, Waycross and Brunswick.

State Route 520 , also known as US 82 at the study location, is a four-lane divided roadway, with curb and gutter, separated by a raised grass median ranging in width from sixteen feet to approximately seventy feet. State Route 520 has four through lanes with left and right turn lanes provided on each approach. The left turn bays are separated from the through movement by a raised concrete island. Horizontal curves are utilized on each approach to the intersection to accommodate the transition to the wider median through the intersection.

State Route 35/US 319 is a major arterial that extends from the Florida State line to Irwin County. It intersects the study intersection from the south and runs common with State Route 520 through the City of Tifton. It connects the cities of Thomasville, Moultrie, Tifton and Ocilla. State Route 35 is a four-lane undivided highway with curb and gutter. Lane widths are approximately twelve feet wide. The outer northbound lane terminates at the intersection where it is striped as an exclusive right turn lane, separated by a raised island. This approach has an approximate 6° horizontal curve approaching the intersection.

The North approach is a City Street known as Virginia Avenue. It is striped with two twelve foot travel lanes and an exclusive right turn lane, separated by a channelized island. The southbound lane is a shared through-left turn lane.

The southwest quadrant of the intersection is currently vacant. The remaining quadrants are occupied by commercial developments, including several motels, restaurants, and a convenience store.

EXISTING TRAFFIC CONTROL

The intersection is currently controlled by a stop and go traffic signal. Protected only left turn phases are provided on both approaches of State Route 520.

ADJACENT TRAFFIC SIGNALS

Traffic signals are located approximately 528 feet west of the intersection at the intersection of State Route 520 and I-75 Northbound entrance/exit ramps and approximately 790 feet east of the

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intersection at the intersection of SR 520 and Magnolia Drive. The nearest traffic signal on Virginia Avenue is located approximately ¼ mile north of the intersection. The nearest traffic signal on State Route 35 is in located approximately nine miles south of the intersection in the City of Omega.

VEHICLE VOLUMES

Listed below are the 2008 Annual Average Daily Traffic Volumes (AADT) reported by GDOT Office of Transportation Data:

Route	AADT
SR 520	21,950
SR 35/US 319	6,160
Virginia Avenue	8,530

Peak hour turning movement traffic counts were taken on Monday, August 3 2009, and are listed below. Local Schools were not in session when counts were taken.

PEAK HOUR VOLUMES

Time	State Route 520						SR 35/US 319			Virginia Ave		
	Westbound			Eastbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00-8:00	48	416	28	54	402	40	26	60	64	26	56	54
12:00-13:00	90	610	66	264	696	60	44	98	94	100	104	238
17:00-18:00	108	578	52	222	612	82	56	56	84	84	132	212

PEDESTRIAN MOVEMENTS

Pedestrian activity is moderate in this area due to the commercial development. Several motels and restaurants are located in the area. Pedestrian crosswalks and signals are provided on each approach. However, sidewalks are not provided on any of the approaches but the grass shoulders are utilized by pedestrians. Pedestrians were observed during the study.

VEHICULAR SPEEDS

The posted speed limit is 35 MPH on all approaches.

Vehicular speed samples were taken on the westbound approach of SR 520 to determine the actual operating speeds as it is the current approach which is monitored by Red Light Running Enforcement Devices. The results show the 85th percentile speed was 43 MPH with a 10 MPH pace speed of 34 to 43 MPH.

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EXISTING TRAFFIC SIGNAL CLEARANCE INTERVALS

PHASE	1	2	3	4	5	6	7	8
Yellow Clearance	4.0	3.4	N/A	3.5	4.0	4.8	N/A	3.5
Red Clearance	2.0	2.0	N/A	2.0	2.0	1.7	N/A	2.0

(Existing Timing information provided by GDOT)

PROPOSED YELLOW CLEARANCE TIME CALCULATIONS

PHASE	1	2	3	4	5	6	7	8
APPROACH	Westbound Left Turn	Eastbound Thru	Not used	Northbound	Eastbound Left Turn	Westbound Thru	Not used	Southbound
85 th percentile speed Ft/Sec (MPH)	36.75 (25)	51.45 (35)	-----	51.45 (35)	36.75 (25)	63.21 (43)	-----	51.45 (35)
Approach Grade %	-2.0	2.0	-----	2.0	2.0	-2.0	-----	-2.0
Calculated Yellow Clearance (secs)	2.96	3.42	-----	3.42	2.72	4.38	-----	3.75
Total Yellow Clearance						5.38		

Total Yellow Clearance includes the calculated yellow time plus an additional 1 second.

Note: Speed samples were used to calculate the 85th percentile speed for the westbound through movement. The posted speed limits were used to calculate the clearances for all other through movement phases. An assumed velocity of 25 MPH was used to calculate the left turn phases.

ACCIDENT HISTORY

Accident data was requested from the Georgia Department of Transportation, Office of Traffic Safety and Design, for the years 2006 to the present. Since the 2008 and 2009 data was incomplete at the time of the request, accident reports were also obtained from the City Police Department for calendar year 2007 to July 2009. A total of 82 accidents, with 27 injuries, were reported at the intersection during the 42 month study period.

The number of red light running violations could not be determined for the accidents reported during calendar year 2006 as electronic accident data was used in the analysis. However, of the twenty-one right angle crashes reported between 2007 and 2009, seven involved a vehicle that ran the red light.

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A summary of the crash history for the intersection is shown in the charts below:

ANNUAL COLLISION SUMMARY

YEAR	Angle crashes	reported ran red light	Rear-end crashes	Other crashes	Reported Injuries	TOTAL CRASHES
2006	8	unk	13	2	13	23
2007	11	3	12	8	4	31
2008	8	4	9	4	5	21
2009*	2	0	5	0	5	7
TOTAL	29	7	39	14	27	82

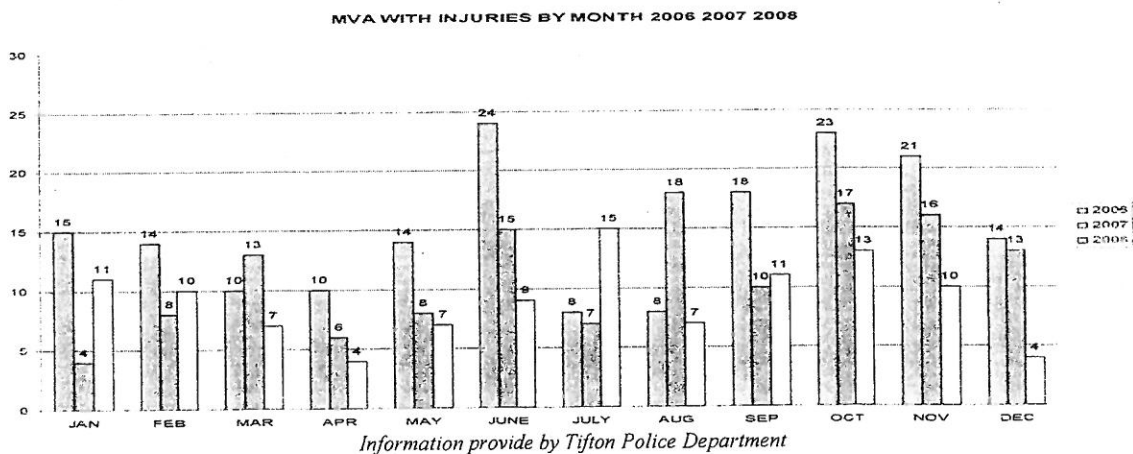
* Thru July 28, 2009

Angle-Intersecting Crashes

YEAR	Left Angle Crashes	Right Angle Crashes	Total Angle Crashes	Reported ran red light	MONITORED APPROACH INVOLVEMENT
2006	5	3	8	Unk	3
2007 (Jan-April)	2	2	4	1	1
2007 (May-Aug)	3	0	3	0	2
2007 (Sept-Dec)	2	2	4	2	2
2008	1	7	8	4	6
2009*	2	0	2	0	2

* Thru July 28, 2009

The Police Department conducted a three year study of all motor vehicle accidents with reported injures. The study consisted of accident data for calendar years 2006, 2007 and 2008. The results indicate an overall reduction in motor vehicle accidents with injuries reported during this period, with the exception of the months of July and August, which had an increase in 2008. The City began using red light running photo enforcement at two intersections in April of 2007 and signs, advising of the use of Red Light Running Photo Enforcement, were installed at all entrances to the City at that time. The results of the study are shown below:



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OTHER INFORMATION

Red Light Running Photo Enforcement Devices were installed at the intersection in February 2007 to monitor the westbound approach of State Route 520. After a two month warning period, the City began issuing citations to violators in April, 2007. The westbound left turn movement is not currently monitored.

PREVIOUS RED LIGHT RUNNING COUNTERMEASURES

Listed below are some of the red light running countermeasures that have been implemented in an attempt to improve driver compliance and safety:

- All traffic signal lenses are 12 inch in circumference.
- All signal heads are double indicated, mounted overhead and are unobstructed.
- LED signals are provided for all traffic signal displays.
- Cone of vision of sight distance to each traffic signal has been reviewed and found to be in compliance with MUTCD requirements.
- Stopping sight distance, on all approaches, exceeds AASHTO sight distance requirements for the operating speeds.
- Signal heads have backplates for improved visibility.
- Signal is currently timed and maintained by GDOT. Traffic Signal Operational Reviews are periodically conducted by GDOT to ensure optimal signal timing and operation.
- The existing yellow and red clearance intervals are within or exceed GDOT guidelines and are sufficient for the operating speeds of the approaching vehicles.
- Stop bars and pedestrian crosswalks are installed on all approaches.
- All pavement markings are proper and in good condition

CONCLUSIONS

A total of 82 accidents, with 27 injuries, were reported at the intersection from January 2006 to July 28, 2009 (42 months). Of the 82 accidents, Twenty-nine were angle collisions and resulted in 17 injuries.

Accident reports were obtained from the City Police Department for calendar year 2007 to July 2009 in an effort to determine the number of crashes related to red light running violations. Twenty-one angle crashes, with 12 injuries, were reported during this period. Of the 21 crashes, seven involved a vehicle that ran the red light. The number of red light running violations could not be determined for the accidents reported during calendar year 2006 as electronic accident data was used in the analysis.

The crash data indicates a significant decrease in the total number of crashes reported at the intersection during the past two years. The data also indicates a reduction in the number of angle crashes reported at the intersection. No Right-Angle crashes were reported during the first six months of 2009.

