

CITY OF COVINGTON

Pace Street Lane Revision Project Impact Assessment

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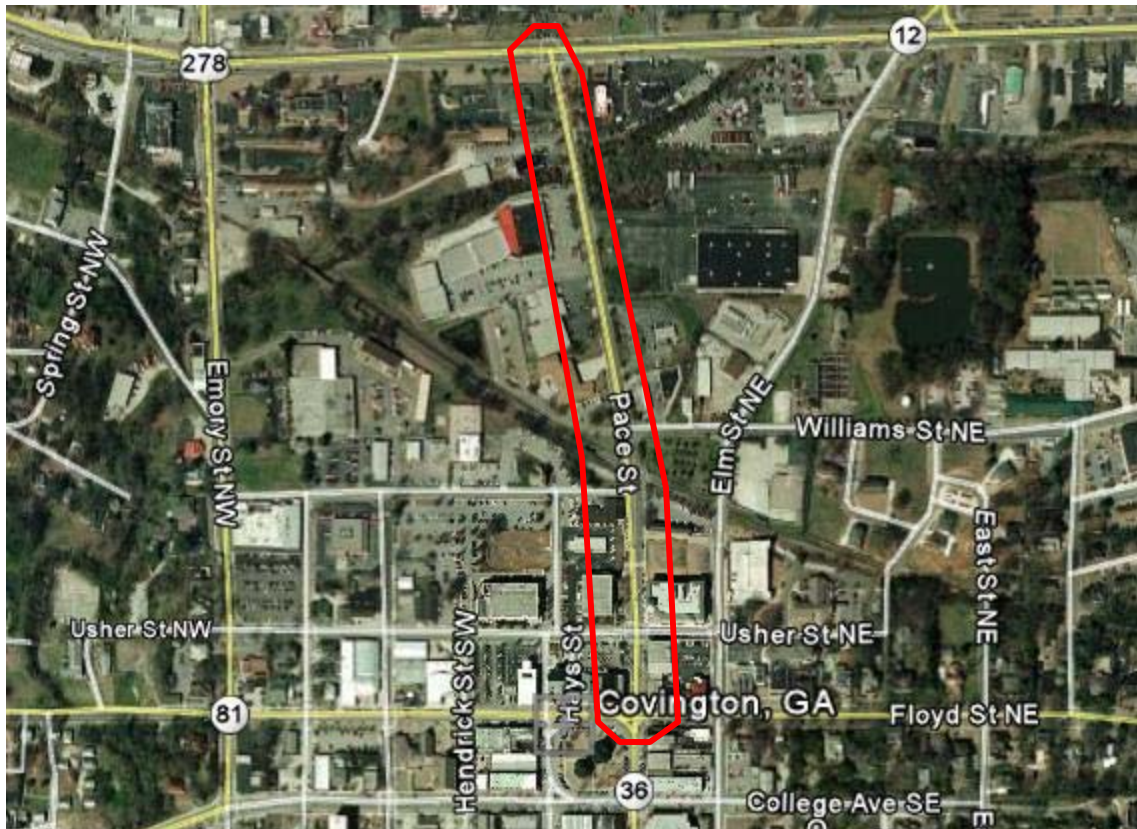
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HIGHWAY CAPACITY ANALYSIS COVINGTON LANE REVISION PROJECT

Background

The City of Covington has proposed a streetscape project for Pace Street in the central business district. The project would include the following changes to the street configuration:

- Pace Street Between US 278 & Clark Street/Floyd Street – the roadway would be reduced from four lanes to three lanes in cross section.
- The sidewalks would be widened, plantings would be installed and in some areas, bicycle lanes would be installed.



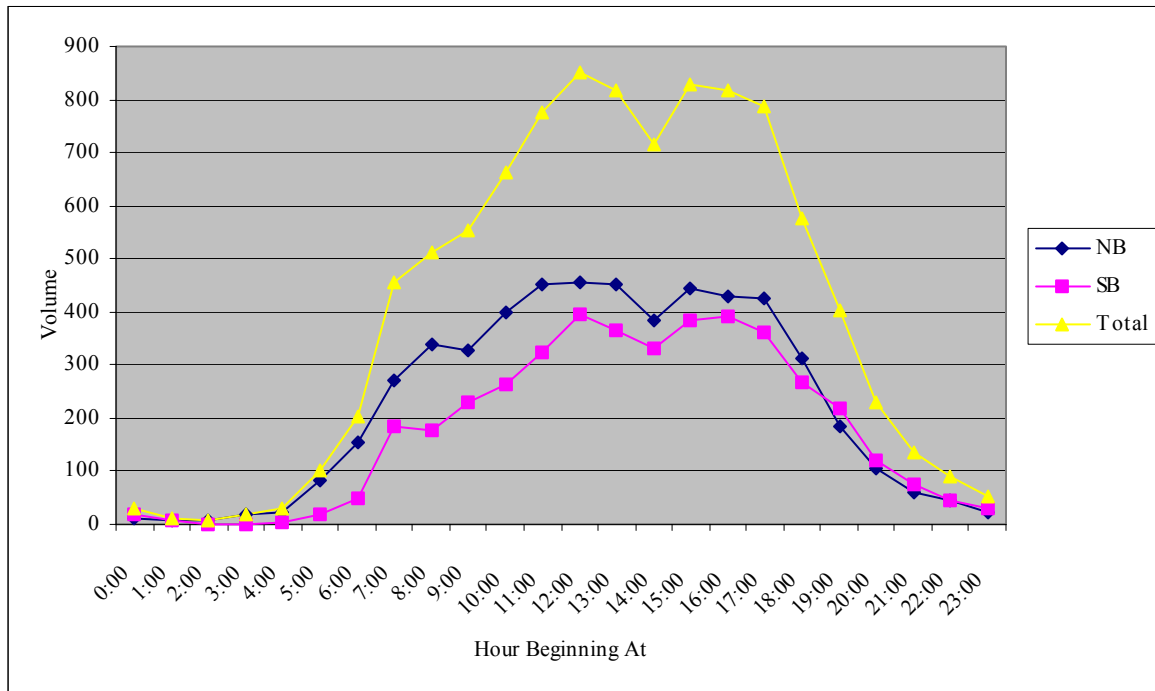
The firm of Tunnell-Spangler-Walsh & Associates was contracted to design the lane reduction and the firm of GCA, Inc. was retained to conduct a traffic impact analysis to determine the effects of the roadway changes. Tunnell-Spangler-Walsh has prepared a Scoping

Report containing proposed roadway cross sections. Those cross sections were used in this analysis.

Corridor Traffic Volumes

A 24-hour directional traffic count was conducted on Pace Street between US 278 and Williams Street on Tuesday, October 26, 2010. The results of that count are shown in the following graph. The total 24-hour volume for both directions on Pace Street was 9,671 vehicles.

Pace Street Between Williams Street & US 278



Level of Service Standards

Two modeling and simulation programs were used in the analysis process: Synchro and Sim Traffic. Synchro was used to calculate levels of service and Sim Traffic was used to observe traffic flow and backups.

Synchro uses the methodology set forth in the Highway Capacity Manual to calculate levels of service. The Highway Capacity Manual, published by the Federal Highway Administration, defines level of service in terms of the amount of control delay experienced by road users. The level of service definitions for signalized intersections are provided in the following table.

Level of Service Criteria for Signalized Intersections

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

The levels of service definitions for stop sign controlled intersections are provided in the following table.

Table 5 - Level of Service Criteria for Stop Sign Controlled Intersections

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

The Highway Capacity Manual indicates that levels of service “A” through “D” are considered to be acceptable to most drivers. Levels of service “E” and “F” indicate long delays that most drivers generally consider to be unacceptable.

Capacity Analyses

It was determined that the capacity analyses would include the intersections of Pace Street with US 278, Williams Street, Stallings Street, Usher Street and Clark Street/Floyd Street. GCA visited the site of the proposed lane revision project in Covington to determine signal configuration and phasing. The intersections of Pace Street with Williams Street and Stallings Street are unsignalized, with stop signs on the side streets. The signal at Pace Street and US 278 is a full 8-phase signal, with left turn phases on all approaches. The signals on Pace Street at Usher Street and Clark Street/Floyd Street currently operate as 2-phase signals, without left turn phases. There will be no changes to the signal operation as part of the lane revision project. Signal timing data was determined by field observations.

Turning movement traffic volume counts were conducted on Tuesday, October 26, 2010. Traffic volumes were projected to 2020 to determine future operating conditions. Based upon growth rates for similar cities, GCA feels that an annual growth rate of 2% is appropriate.

The following tables show for each intersection, the existing levels of service (LOS), the LOS in 2010 with the lane revision, and the LOS in 2030 with a 2% annual growth rate both with and without the lane revision. The delay in seconds is also shown. It should be noted that for Stop sign controlled intersections, the Highway Capacity Manual does not define overall intersection level of service, although it does give overall delay. Likewise, it does not define main street level of service or delay for Stop sign controlled intersections, the assumption being that since the minor street has to stop and the main street does not, there is no delay on the main street.

2010 & 2020 Levels of Service & Delay in Seconds

Pace Street & US 278					
AM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	D	D	C	D	D
	37.4	40.3	30.7	40.2	46.9
2010 3-Lanes	D	D	C	D	D
	37.4	40.3	30.7	40.2	46.9
2030 4-Lanes 2% Growth	D	E	D	D	D
	47.8	57.9	38.0	43.6	49.2
2030 3-Lanes 2% Growth	D	E	D	D	D
	47.8	57.9	38.0	43.6	49.2
PM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	D	D	D	D	D
	46.4	45.8	48.2	37.7	54.2
2010 3-Lanes	D	D	D	D	D
	46.4	45.8	48.2	37.7	54.2
2030 4-Lanes 2% Growth	F	F	F	F	F
	121.1	108.8	153.6	99.4	94.4
2030 3-Lanes 2% Growth	F	F	F	F	F
	121.1	108.8	153.6	99.4	94.4

Pace Street & Williams Street					
AM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	N/A	C	B	N/A	N/A
	3.5	15.2	13.8	N/A	N/A
2010 3-Lanes	N/A	C	C	N/A	N/A
	3.7	16.4	15.3	N/A	N/A
2030 4-Lanes 2% Growth	N/A	C	D	N/A	N/A
	6.2	24.4	27.5	N/A	N/A
2030 3-Lanes 2% Growth	N/A	D	E	N/A	N/A
	7.7	29.5	37.0	N/A	N/A
PM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	N/A	C	C	N/A	N/A
	3.6	17.5	19.1	N/A	N/A
2010 3-Lanes	N/A	C	D	N/A	N/A
	4.5	20.5	25.1	N/A	N/A
2030 4-Lanes 2% Growth	N/A	E	F	N/A	N/A
	19.4	36.2	124.8	N/A	N/A
2030 3-Lanes 2% Growth	N/A	F	F	N/A	N/A
	44.6	59.5	297.7	N/A	N/A

Pace Street & Stallings Street					
AM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	N/A	B	N/A	N/A	N/A
	1.4	12.8	N/A	N/A	N/A
2010 3-Lanes	N/A	C	N/A	N/A	N/A
	1.5	15.0	N/A	N/A	N/A
2030 4-Lanes 2% Growth	N/A	C	N/A	N/A	N/A
	1.9	18.1	N/A	N/A	N/A
2030 3-Lanes 2% Growth	N/A	D	N/A	N/A	N/A
	2.5	26.2	N/A	N/A	N/A
PM Peak					
PM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	N/A	C	N/A	N/A	N/A
	2.4	16.9	N/A	N/A	N/A
2010 3-Lanes	N/A	C	N/A	N/A	N/A
	3.0	21.8	N/A	N/A	N/A
2030 4-Lanes 2% Growth	N/A	E	N/A	N/A	N/A
	6.4	48.4	N/A	N/A	N/A
2030 3-Lanes 2% Growth	N/A	F	N/A	N/A	N/A
	16.4	127.9	N/A	N/A	N/A

Pace Street & Usher Street					
AM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	B	B	B	A	B
	10.2	13.1	12.5	8.6	10.6
2010 3-Lanes	B	B	B	A	B
	10.2	13.1	12.5	8.6	10.6
2030 4-Lanes 2% Growth	B	B	B	B	B
	11.9	13.7	12.8	11.4	11.2
2030 3-Lanes 2% Growth	B	B	B	B	B
	11.9	13.7	12.8	11.4	11.2
PM Peak					
PM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	B	B	B	A	B
	10.5	15.3	14.4	6.5	10.9
2010 3-Lanes	B	B	B	A	B
	11.0	15.3	14.4	6.6	12.3
2030 4-Lanes 2% Growth	B	B	B	A	B
	12.6	17.0	15.2	9.2	12.8
2030 3-Lanes 2% Growth	B	B	B	A	B
	13.6	17.0	15.2	9.2	15.9

Pace Street & Clark Street/Floyd Street					
AM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	B	N/A	C	B	A
	14.1	N/A	23.2	12.1	6.7
2010 3-Lanes	B	N/A	C	B	A
	14.1	N/A	23.2	12.1	6.7
2030 4-Lanes 2% Growth	C	N/A	C	C	A
	30.4	N/A	30.3	34.3	2.0
2030 3-Lanes 2% Growth	C	N/A	C	C	A
	30.4	N/A	30.3	34.3	2.0
PM Peak	Intersection	EB	WB	NB	SB
2010 4-Lanes	B	N/A	C	B	A
	14.1	N/A	22.6	14.5	3.2
2010 3-Lanes	B	N/A	C	B	A
	13.9	N/A	22.6	14.5	2.1
2030 4-Lanes 2% Growth	C	N/A	D	D	A
	31.3	N/A	39.7	38.0	5.5
2030 3-Lanes 2% Growth	C	N/A	D	D	A
	31.2	N/A	39.7	38.0	4.9

Several conclusions can be drawn from the level of service comparison in the previous table.

- The change from four lanes to three lanes has very little effect on the levels of service for the year 2010. The primary reason is that some intersections would retain the same traffic capacity after the lane reduction:
 - Pace Street and US 278 – Pace Street presently has a left turn lane, a through lane and a right turn lane approaching US 278. That configuration would not change with the lane reduction.
 - Pace Street and Usher Street – The northbound approach on Pace Street at Usher Street presently has a left turn lane and a through-right lane. That would not change. Southbound on Pace Street at Usher Street, there is presently a left turn lane, a through lane and a right turn lane. With the lane reduction it would have a left turn lane and a through-right lane. With the low volume of right turns, that change would have little consequence.
 - Pace Street and Clark Street/Floyd Street – Traffic capacity wise this intersection would remain the same. Northbound on Pace Street there is presently a left turn lane beside the island and a through-right lane. That would remain the same. Southbound. There is a single right turn only lane and that would remain the same.
- As traffic increases over the next 20 years, levels of service will deteriorate both with and without the reduction from 4 lanes to 3 lanes.

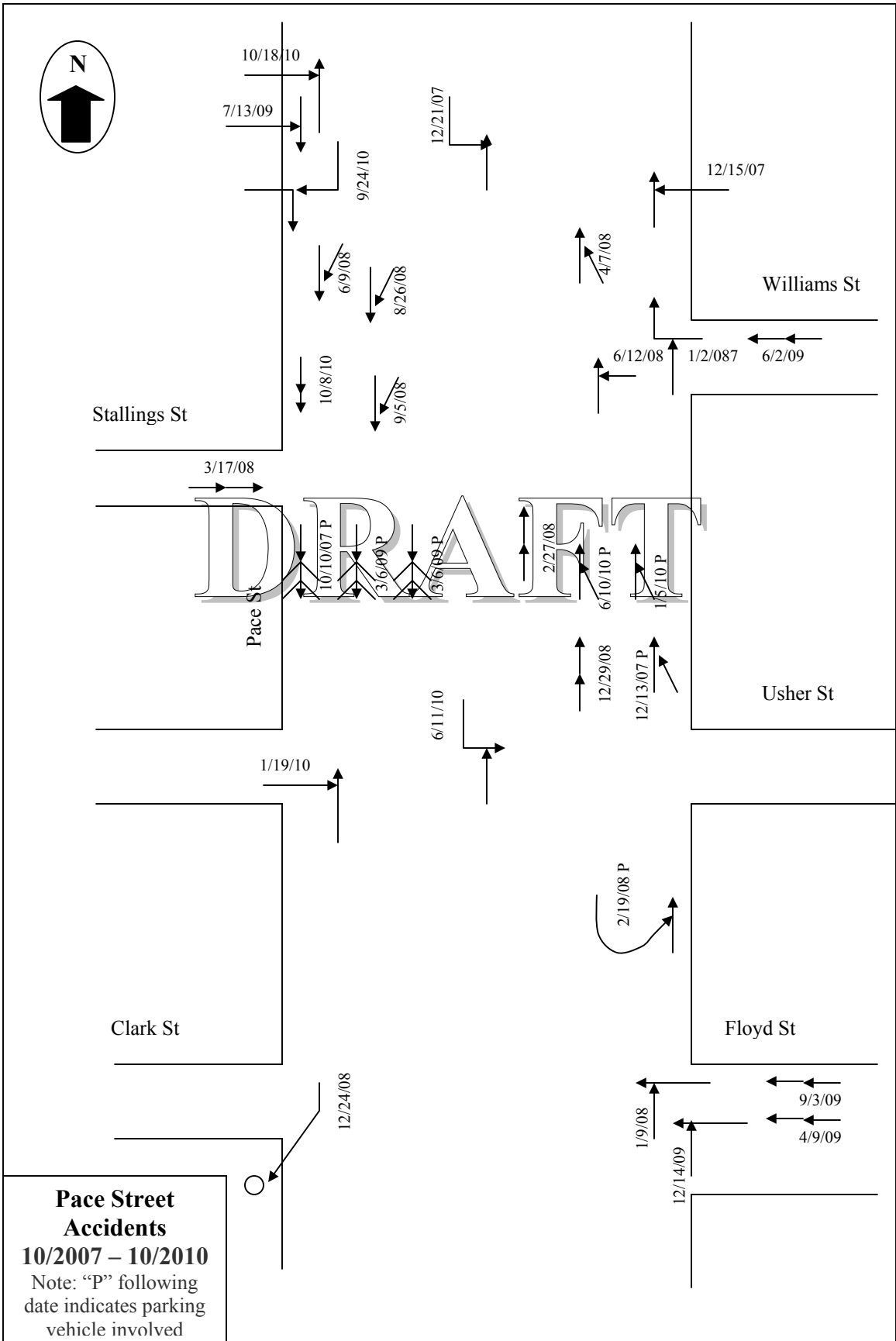
- As delays increase for traffic on Williams Street and Stallings Street as they try to enter Pace Street, the public will probably want traffic signals installed.
- The Pace Street/US 278 intersection will experience deteriorating levels of service as traffic grows over the next 20 years. GDOT may wish to implement some improvements at some point in time.

Accidents

The Covington Police Department supplied accident records for Pace Street for the three-year period of October 2007 through October 2010. During that period, 30 accidents occurred within the public right-of way of Pace Street. The intersection of Pace Street and US 278 was not included in this analysis because the lane configuration will not be changed at that intersection. The study area extends along Pace Street from just south of US 278 to Clark Street/Floyd Street.

There were few strong patterns of accidents. There were 3 accidents involving cars backing into other cars while parking on Pace Street beside the Charter Building near Stallings Street, and 3 involving cars hitting other cars while leaving parking spaces beside the County Building near Usher Street. One involved a car making a U turn hitting a car leaving a parking space. Five sideswipes occurred near Williams Street and Stallings Street. There were 7 rear end accidents. These types of accidents, accounting for 19 of the total of 30, are usually relatively minor, often resulting in minimal property damage only with no injuries. The remaining 11 accidents were primarily right angle and left turn accidents, which tend to be more serious.

GDOT calculates the accident rates per 100 million vehicle miles driven within the state. For the most recent period given, 2000-2006, the rate was 306.7 accidents per 100 million vehicle miles driven. The rate for Pace Street was 566 accidents per 100 million miles, which is significantly higher than the statewide rate. Again, many of the Pace Street accidents were minor. An accident diagram showing the locations, types and dates of the accidents is on the following page.



Conclusions

Based upon the results of the capacity analysis shown in the previous table, the proposed lane revisions will have negligible effect upon traffic operations on Pace Street in Covington. It is also concluded that reducing the number of lanes and having a dedicated lane for mid-block left turns could be expected to reduce the potential for accidents, in particular sideswipes.

Recommendations

Based upon the very small effect that the project would have on levels of service now and for the foreseeable future, it is recommended that Pace Street be reduced from 4 lanes to 3 lanes and the streetscape project be implemented.

- Future traffic increases may increase the demand for traffic signals at Williams Street and at Stallings Street.

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APPENDIX

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