



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

SHAILEN P. BHATT
SECRETARY

MEMORANDUM

TO: Sean McEvilly, Johnson, Mirmiran & Thompson, Inc.

FROM: Troy Brestel, Project Engineer TES

DATE: July 13, 2011

SUBJECT: Nichols – McCoy Property
Results of Traffic Operational Analysis Review

As agreed at a meeting on January 14, 2011, we have completed the traffic operational analysis (TOA) for the proposed Nichols - McCoy development in New Castle County. The analysis evaluates the traffic impacts of the mixed-use development, proposed to be located along US Route 40, just west of the intersection of US Route 40 / Delaware Route 896, for the purposes of determining the lane configurations needed at the site entrances.

The developer has two development ideas for the property: The first scenario would consist of 18,000 square feet of office space and 29 single-family detached houses, while the second scenario would consist of approximately 250,000 square feet of commercial space, 18,000 square feet of office space, and 10 single-family detached houses. Common to both scenarios is General Howe Drive, a proposed collector subdivision street that would connect to Glasgow Avenue south of Friendship Baptist Church and to US Route 40 at the existing signal serving Peoples Plaza. Construction is expected to be complete by 2020.

Based on our review, the intersection of General Howe Drive and Glasgow Avenue will need the following turning lanes in either scenario: one exclusive left turn lane and one exclusive right-turn lane along eastbound General Howe Drive, one exclusive left-turn lane and one through lane along northbound Glasgow Avenue, and one exclusive right-turn lane and one through lane along southbound Glasgow Avenue.

Should the developer choose to develop the land per the uses listed in the first scenario above, we find that there would be no level of service or capacity issues at the intersection of General Howe Drive and US Route 40. To account for the additional leg of the US Route 40 signal pair that would serve as the site access, the northbound dual left in the median of US Route 40 at the signal pair should be converted to one exclusive left-turn lane and one shared left-turn / through lane. The southbound approach along General Howe Drive would need two

exclusive through lanes and one exclusive right turn. Also, a westbound right-turn lane would be needed along US Route 40.

Should the developer choose to develop the land per the uses listed in the second scenario above, we would have the following concerns about the intersection of General Howe Drive and US Route 40:

1. In the future analysis year, queue lengths during the p.m. peak hour at the eastbound and westbound US Route 40 signal pair at People's Plaza Drive and the proposed site access create two concerns. First, the 95% queue length for the US Route 40 eastbound left-turn would be 575 feet. Currently, the lane is approximately 280 feet long, and would need to be extended to the required length. However, in extending the lane, several of the access points to the currently unused S&S Gas gas station to the west would be blocked. Second, 95% queue lengths along southbound General Howe Drive would be about 1,045 feet and along northbound the Peoples Plaza driveway would be 603 feet, at which lengths they would create internal site congestion by blocking internal intersections.
2. While the 95% through traffic queues along eastbound and westbound US Route 40 during the p.m. peak hour are long now (1,268 feet eastbound and 488 feet westbound), they would be 995 feet eastbound and 1,575 feet westbound in the future, causing difficulty for any traffic intending to make left-turn or right-turn movements at the US Route 40 signal pair.

To address the above mentioned issues, we recommend, preliminarily, that the following measures should be taken if the second development scenario is pursued:

1. The northbound dual left in the median of US Route 40 at the signal pair should be converted to two exclusive left-turn lanes and one exclusive through lane.
2. The eastbound left-turn lane at the US Route 40 signal pair should be lengthened to 575 feet.
3. The developer should enter into a signal agreement for the signal pair at US Route 40 / People's Plaza Drive / General Howe Drive to adjust for physical modification of the signal pair and for signal timings that would need to be changed as a result of the additional traffic.
4. The developer will be required to make significant pedestrian improvements at the US 40 / People's Plaza Drive / General Howe Drive intersection. For more information on the detail of these improvements, please contact Peter Haag at (302) 659-4084 or Anthony Aglio at (302) 760-2509.

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With either scenario, a traffic impact study (TIS) will be needed. For the second scenario, such a study should examine additional land development and transportation improvement options, including development of a smaller shopping center and adding a third through lane each way on US Route 40. **The measures listed above, while necessary, would not be sufficient to address the queuing issues mentioned above in the second scenario.**

Please note that this analysis generally focuses on capacity and level of service issues. Level of Service tables for the existing and future cases are attached with this memorandum.

TB:km

cc: John Janowski, New Castle County Department of Land Use
Owen Robatino, New Castle County Department of Land Use
Theodore G. Bishop, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
J. Marc Cote', Subdivision Engineer, Development Coordination
Mark Tudor, Program Manager, Project Development North, DOTS
Joshua Schwartz, Subdivision Manager, Development Coordination
Peter Haag, Traffic Engineer, Traffic, DOTS

Table 1
 PEAK HOUR LEVELS OF SERVICE (LOS)
 Nichols - McCoy TOA

Unsignalized Intersection ¹	LOS per DelDOT	
	Weekday AM	Weekday PM
Glasgow Avenue / Site Access		
2020 – Future – Scenario 1		
Eastbound Site Access	B (10.6)	B (12.6)
Northbound Glasgow Avenue Left-Turn	A (8.5)	A (9.4)
2020 – Future – Scenario 2		
Eastbound Site Access	B (10.6)	B (12.7)
Northbound Glasgow Avenue Left-Turn	A (8.6)	A (9.7)

¹ The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 2
PEAK HOUR LEVELS OF SERVICE (LOS)
Nichols - McCoy TOA

Signalized Intersection¹	LOS per DelDOT	
	Weekday AM	Weekday PM
US Route 40 / People's Plaza Drive / Site Entrance ²		
2011 Existing ³	A (8.3)	C (29.9)
2020 Future – Scenario 1	B (12.9)	C (30.0)
2020 Future – Scenario 1 – with improvements ⁴	C (13.1)	C (26.9)
2020 Future – Scenario 2	B (19.7)	E (62.6)
2020 Future – Scenario 2 – with improvements ⁴	B (19.8)	D (52.6)

¹ The numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

² This is actually a signal pair – one at Westbound US Route 40 / Site Entrance, one at Eastbound US Route 40 / People's Plaza Drive

³ The current configuration at Westbound US Route 40 / Site Entrance is a T-intersection. It will become a four-way intersection once the site entrance is built.

⁴ Improvements include changing the dual left in the median at the US Route 40 signal pair to from a proposed exclusive left-turn lane and one shared left-turn / through lane to two exclusive left-turn lanes and one through lane.