

FOURNIER, ROBSON & ASSOCIATES, LLC.

100 E. Hanover Ave, Suite 305, Cedar Knolls, NJ 07927 | Tel:973.683.0777 | Fax:973.683.0883 | www.fournierrobson.com

Review of South Avenue Retail Development FEIS from a Traffic Perspective

Rev. October 10, 2017

Prepared by: Gordon Meth, PE, PTOE, PTP

Summary of Traffic Issues:

- **Trip Generation Under-estimated** (pg. 2-3) – inappropriate sources of data and lack of consideration of gasoline component mean trips could be 15% or higher than presented in the FEIS
- **Existing safety deficiencies not appropriately reviewed** (pg. 4) – several locations, including one 150 feet away from the site, have vehicle-pedestrian related crash problems, as well as high crash rates in some instances
- **Traffic Mitigations Inadequate** (pg. 5) – Forest Avenue and South Avenue, 150 feet from site, was not evaluated. Other mitigations are not real changes but tweaks of factors in analysis such as 1-2 seconds of green time or widening left turn lanes by 1-2 feet at the expense of medians and through lanes.

Conclusion

Before the proposed South Avenue Retail Development is approved, the traffic analysis contained within the FEIS for the project should be revisited, taking into account better studies of the potential traffic generated by the wholesale club use, including gasoline component, and restaurant use. Traffic safety, particularly for pedestrians, should be revisited. Lastly, appropriate, tangible mitigation strategies should be developed.

Trip Generation Under-estimated

FEIS Estimate

Table 7-3 of the South Avenue Retail Development FEIS summaries travel demand assumptions. The proposed project is split into four components. Below are those components and the source for the travel demand estimates:

1. 92,000 square foot Wholesale Club – trip estimate based on *Brooklyn Bay Center FEIS (2011)* and *Gateway Estates II FEIS (2009)*.
2. 51,000 square foot Destination Retail – trip estimate based on *2014 CEQR Technical Manual*
3. 67,000 square foot Supermarket – trip estimate based on *2014 CEQR Technical Manual*
4. 15,000 square foot “Quality Restaurant” - trip estimate based on *St George Waterfront Redevelopment FEIS (2013)*.

Wholesale Club

Wholesale club trip generation estimate was based on the “Destination Retail” trip generation estimates contained within the *Brooklyn Bay Center FEIS (2011)*. Those trip generation rates were in turn obtained from the *Gateway II Center FEIS (2009)*. The Gateway II Center FEIS estimated “Destination Retail” trip generation rates based on a count of the driveways for the Gateway Center complex in Brooklyn (which was a key part of the background growth for that study). This center contains a **wholesale club**, but that component comprises less than 10% of the total 640,000 square feet of the center. As well, that particular wholesale club does not have a gasoline component.

The gasoline component of the wholesale club is an entirely separate element. It is physically separated from the rest of the facility. Based on the size of the canopy, it will have 12 fueling positions. Based on the Institute of Transportation Engineers Trip Generation Manual, 10th Edition, as 12 fueling position gas station can be expected to generate 2,064-2,186 trips per day, and up to 173 trips per hour. Whereas ordinary gas stations draw heavily from pass-by traffic, the proposed gas station is a member-only facility. Consequently, this gasoline fueling facility will generate destination trips primarily rather than pass-by traffic.

Studies of gas-station/convenience stores indicate that only 20-25% of gasoline customers will also use the convenience store. This factor for wholesale clubs would be intuitively less, due to the longer shopping times involved than convenience stores.

Given the unique nature of member-based gas-stations, it would be appropriate to conduct new surveys of similar facilities before acting favorably on this project

“Quality Restaurant”

The restaurant component of the project was described as a “Quality Restaurant”. From a traffic engineering perspective, “Quality Restaurant” implies that the restaurant is not usually part of a chain, typically requires reservations, and has an average stay generally greater than one hour. Most chain restaurants that are found in retail plazas are “High Turnover Sit-Down Restaurants”, and these have higher trip generations than “Quality Restaurants”.

The restaurant trip generation rates were taken from the *St. George Waterfront Redevelopment FEIS (2013)*. The trip generation rates in said FEIS were taken from the publication *Urban Space for Pedestrians (Pushkarev & Zupan, 1975)*. This data in turn was obtained from a single 12,000 square foot restaurant in Times Square, counted in the early 1970’s. Surely, New York City Planning could look to collect restaurant trip generation data that is more current and relevant, rather than accept such dated information.

Conclusion

Given the above information, we expect trip generation for the site could be **at least** 15% higher, and maybe even more. That could translate into far greater impacts at already impacted locations, and could trigger the need to study additional locations. Most notably, the intersection of South Avenue and Forest Avenue was not studied in the FEIS, despite the fact that it has known problems and is most proximate to the site. It was not required to be analyzed due to the intersection being found to have less total traffic than a no action scenario. The higher trip generation could change this factor.

Existing safety deficiencies not adequately reviewed

The FEIS for this project summarized 3 years of crash data at all locations in the area in Table 7-19. The data covers the period of August 1, 2013 to July 31st, 2016. The table itself is misleading, as the columns for 2013 and 2016, which are partial year data, are presented next to 2014 and 2015 data. If someone did not read the text closely, they could mistakenly assume that the data is full year data for all four years, and form the mistaken opinion that crashes are going down in 2016. Table 7-19 identified 210 crashes, with 35 pedestrian/bicyclist-related crashes and a total of 224 injuries. The FEIS concluded that no location was a high crash location, based on a rolling average (given the organization of the data, I don't see how that conclusion can be reached – the data should have been organized into three complete years to perform this analysis). We disagree. Generally, any intersection with 3 or more pedestrian crashes in 3 years warrants specific attention. Also, any club with one crash per million entering vehicles or higher deserves attention. Below are locations that should be of concern:

- Forest Avenue and South Avenue had 20 crashes in 3 years, which is about 0.85 crashes per million entering vehicles. Three of them were pedestrian-related crashes. This intersection is close to the proposed site, and it can be anticipated that many of the pedestrians generated by the site will traverse this intersection. Incidentally, this intersection was excluded from analysis contained in the FEIS study.
- Forest Avenue and Richmond Avenue-Morningstar Road had 41 crashes in 3 years, which is about 1.15 crashes per million entering vehicles. **Ten** of them were pedestrian-related crashes. This intersection is the key location identified in the FEIS for mitigation measures, including physical intersection changes.
- Forest Avenue and Grandview Avenue had three pedestrian-related crashes in 3 years. This intersection is close to the proposed site, and it can be anticipated that many of the pedestrians generated by the site will traverse this intersection.
- Forest Avenue and Maple Avenue had four pedestrian-related crashes in 3 years.
- South Avenue and Brabant Street had three pedestrian-related crashes in 3 years.

Traffic Mitigations Inadequate

The FEIS studied 10 intersections, and found that 7 of them needed mitigations under the process outlined in the *2014 CEQR Technical Manual*. With higher trip generation, more locations could warrant analysis.

Six of the seven proposed mitigations consisted of adjusting traffic signal timing by 1-3 seconds. The final one consisted of increasing left turn lane widths by 1-2 feet (by narrowing through lanes and medians) and adjusting traffic signal timing by 1 second. **These are not real solutions.** Each through vehicle at an intersection uses 2-2.5 seconds, so a 1 second change effectively means nothing to traffic operations. Changing left turn lane widths changes one factor of analysis. In reality, the operations of these lanes depend more on finding gaps in opposing traffic. These solutions may work on paper, as they are based on tweaking factors in an analysis program, but they are not likely to make any changes in actual operation.

Given our previous point regarding traffic volumes, the impacts can be greater.

Traffic volumes on South Avenue in particular will change substantially. Even with the traffic volumes in the FEIS, PM and Saturday peak hour volumes on South Avenue will increase by 50-70% over existing traffic volumes.

The intersection of South Avenue and Forest Avenue wasn't studied in the FEIS. This intersection has operational problems, based on my observations. This intersection is very proximate to the site (the frontage starts within 150 feet of said intersection), and problems at it may spill back and impact traffic operations at driveways and other locations. The driveways are proposed to be approximately 200 and 500 feet from this intersection. Accordingly, this location could impact traffic safety at driveways through traffic stacking. There is a newly proposed traffic signal located 200 feet from the intersection of Forest Avenue and South Avenue, and this is within the area of influence of it. Consequently, having no analysis of the intersection of Forest Avenue and South Avenue is a significant fatal flaw of the FEIS. As noted earlier, this location has both a crash problem and a pedestrian safety problem. For this reason, it needs to be studied.

The intersection of Forest Avenue and Richmond Avenue-Morningstar Road was found to have significant traffic problems that could be exacerbated by the aforementioned trip generation shortcomings. Backups at this location could impact the entire Forest Avenue corridor. As noted earlier, this location has both a crash problem and a pedestrian safety problem. A higher order solution for this location needs to be investigated, since simply restriping a few lanes to make them one foot wider is unlikely to improve traffic operations.

The intersection of South Avenue and Goethals Road North was found to have traffic problems that could be exacerbated by the aforementioned trip generation shortcomings. A higher order solution for this location needs to be investigated.

Gordon Meth - Biography

Gordon Meth, P.E., PTOE, PTP is a professional engineer with an expertise in traffic engineering and transportation planning. He has both a Bachelors and Master's Degree in Civil Engineering, with a specialization in traffic engineering and transportation planning. He has been practicing for over 25 years. He has been a licensed professional engineer since 1993, and licensed in New York state since 2001. He has certifications from the Transportation Professional Certification Board as a Professional Traffic Operations Engineer (PTOE) and a Professional Transportation Planner (PTP). He is a past president of the Institute of Transportation Engineers (ITE) Metropolitan New York/New Jersey Section (2009), and a past chair of the Northeastern District of ITE (2015). He has testified as an expert witness in traffic engineering on nearly 400 applications before land use approval boards.