May 28, 2015

Lisa Thompson
Village of Marvin
Administrator / Senior Planner
10004 New Town Road
Marvin, North Carolina 28173

Re: Marvin Gardens Traffic Impact Analysis Review Comments:

Ms. Thompson,

A. Morton Thomas and Associates, Inc. (AMT) has been retained by the Village of Marvin to provide review comments for the Traffic Impact Analysis (TIA) submitted in May 2015 (TIA is dated April 30, 2015) to the Village. The study is associated with a proposed master and/or development plan that requires a TIA according to the Village Code of Ordinance (Chapter 151: Zoning).

Below are AMT’s review comments for the Marvin Gardens Traffic Impact Analysis:

**General:**
- The Right Turn on Red function at signalized intersections is typically not recommended to be activated per NCDOT Congestion Management review standards.
- The “Lost Time” factor at the signalized intersections appears to be adjusted to 4.0 seconds per phase. The Lost Time is recommended to be adjusted to 5.0 seconds per phase per NCDOT Congestion Management review standards.
- According to the CRTPO Transportation Plan, Providence Road (NC 16) is considered a boulevard and New Town Road is considered a major thoroughfare. These roads were both considered major thoroughfares in the most recent CRTPO Thoroughfare Plan. The typical section for both roadways will be, at a minimum, four-lane divided roadways with wide outside lanes and sidewalks. This development should construct an additional lane along the frontage of the site on both Providence Road and New Town Road to be used as right-turn lanes at all entrances.

**Trip Generation:**
- According to the trip generation manual and NCDOT, the weighted average of the Peak Hour of Generator should be used to develop trips generated by a High-Turnover Sit-Down Restaurant (ITE 932). The study used the rates associated with the peak hour of the adjacent street traffic. Therefore, the trips expected to be generated by this land use were under counted.
- Trip generation should be revisited and adjusted to include specific uses for all of the outparcels. If the use of the outparcel is unknown, then the most intense use that can fit within that space must be used. This will ensure that the highest intensity use is studied to cover all possible uses. Typically, the most intense use for outparcels is a fast food restaurant, bank, or convenience store with fueling positions. Please supply a new trip generation table to be reviewed by the Village staff before completing any additional traffic analyses.

**Intersection of Providence Road (NC 16) & New Town Road:**
- Consider installing overlap phases to the existing signal to serve the southbound and eastbound right turning vehicles. This will lower the delay expected to be experienced on these approaches.
Intersection of Providence Road (NC 16) & Site Driveway #1:
- Consider installing overlap phases to the proposed signal to serve the northbound and westbound right turning vehicles. This will lower the delay expected to be experienced on these approaches.
- Due to the potential future widening of NC 16 as called for in Highway Program U-5769, consider designing the westbound approach of Site Driveway #1 to accommodate dual left turn lanes exiting the site when the road is widened. This would allow more green time to be given to NC 16 and reduce future queueing and delay. The driveway can be marked to allow only one exclusive left turn lane until NC 16 is widened.

Intersection of Providence Road (NC 16) & Site Driveway #2:
- According to the standards set in the Policy of Street and Driveway Access to North Carolina Highways, an exclusive right turn lane is warranted on the northbound approach of NC 16.

Intersection of New Town Road & Site Driveway #3:
- According to the standards set in the Policy of Street and Driveway Access to North Carolina Highways, an exclusive right turn lane is warranted on the eastbound approach of New Town Road.

Intersection of New Town Road & Site Driveway #4:
- According to the standards set in the Policy of Street and Driveway Access to North Carolina Highways, an exclusive right turn lane is warranted on the eastbound approach of New Town Road.

All of the other conclusions and recommendations made by the study are reasonable. It should be noted that the North Carolina STIP U-5769 which calls for Provenance Road (NC 16) to be widened to a multi-lane facility from SR 1316 (Rea Road Extension) to SR 1321 (Cuthbertson Road) is scheduled to begin Right-of-Way and Utility work in 2022 and Construction in 2024.

If you have any questions or responses pertaining to these comments, please call me at 919-987-8104 or e-mail me at jcate@amtengineering.com

Sincerely,

Jonathan Cate P.E., PTOE

A. Morton Thomas and Associates, Inc.