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August 23<sup>rd</sup>, 2021  
Via Email (Tom.Cavin@dot.state.fl.us)

Florida Department of Transportation  
2198 Edison Avenue MS2815  
Jacksonville, FL 32204

Attn: Tom Cavin, PE – Jacksonville Studies Engineer

**RE: Traffic Impact Assessment  
HSC Jacksonville West, LLC  
Proposed Tractor Supply Company  
8984 Normandy Boulevard (SR-228)  
City of Jacksonville, Duval County, FL  
DT# 2451-99-038T**

Dear Mr. Cavin:

Dynamic Traffic has prepared the following assessment to determine the traffic impact and adequacy of access associated with redevelopment of a site located along eastbound Normandy Boulevard, opposite Titania Street in Jacksonville, Duval County, Florida (see Figure 1 in Appendix A). The site is currently developed with a paintball facility. It is proposed to remove this facility and construct a 22,433 SF Tractor Supply Company Store (The Project).

Access to the site is currently provided via Three (3) driveways along Normandy Boulevard which are located along an approximately 190 foot wide full median opening that also serves Titania Street, opposite the subject property. The site access is proposed to be improved with a single driveway at the easterly edge of the property. Additionally, the median is proposed to be modified to be a directional median serving only left-turn ingress to the proposed Tractor Supply Store Company Store and to Titania Street. 100 foot left-turn lanes are also proposed within the median to serve the respective openings. The proposed Site Plan is contained in Appendix B.

### **Existing Conditions**

Normandy Boulevard (SR-228) has a general east/west orientation and generally provides two (2) lanes of travel in each direction. The roadway is designated as Access Class 5 with a 55 miles per hour speed limit. Both Titania Street and Lamplighter Lane intersect Normandy Boulevard from the north, serving separate residential communities. Titania Street is not signalized and movements are served by a full median opening. Lamplighter Lane intersects Normandy Boulevard opposite a roadway that provides access to a gas station and convenience store, ultimately connecting to Herlong

Road to the south. The intersection of Lamplighter Lane and Normandy Boulevard is controlled by a traffic signal. The Signalization Plan for the intersection is contained in Appendix B.

**Existing Traffic Volumes**

Traffic volume data was collected via manual turning movement counts conducted on Wednesday, June 2, 2021 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM at the Normandy Boulevard intersections with Titania Street and Lamplighter Lane. Based on a review of the count data, it was determined that the adjacent morning peak street hour occurs between 7:30 AM and 8:30 AM and the evening peak street hour occurs between 5:00 PM and 6:00 PM. The manual turning movement count data is contained in Appendix B.

In order to establish the baseline traffic volumes, turning movement data was balanced between the two (2) intersections and the peak seasonal factor of 1.07 was applied to the counted data to develop the Existing Traffic Volumes shown on Figure 2 in Appendix A. Peak seasonal factor data is contained in Appendix B.

Normandy Boulevard has experienced a growth rate of approximately 0.67% per year over the past four (4) years. Conservatively, a 1.0% growth rate was applied to the Existing Traffic Volumes for two (2) years to develop the Future No Build Traffic Volumes which are shown on Figure 3 in Appendix A.

**Site Generated Traffic**

Trip generation projections for The Project were made utilizing trip generation research data as published under Land Use Code 810 – Tractor Supply Store in the Institute of Transportation Engineers’ (ITE) publication, *Trip Generation, 10<sup>th</sup> Edition*. This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. ITE only publishes data for the weekday evening peak street hour for Tractor Supply Stores. The morning peak street hour is generally lower for these facilities as they typically do not open until 8:00 AM, half way through the morning peak period. Therefore, AM peak street hour trip generation was projected to be half of the PM peak street hour trip generation. Daily trip generation was developed assuming that the PM peak street hour represents 10% of the daily volume. The following table shows the anticipated trip generation for The Project.

**Table I  
Trip Generation**

Use	AM PSH			PM PSH			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
22,433 SF Tractor Supply Company Store	8	8	16	15	16	31	155	155	310

As mentioned above, the site is currently developed with a paintball facility. However, in order to perform a conservative analysis, no credit has been taken for the trip generation potential associated with the existing use.

Once the magnitude of the site generated traffic is known, it is necessary to assign the traffic to the adjacent street system. For purposes of this analysis and considering the site setting within the regional roadway network, a 50/50 east/west distribution was utilized. Site traffic distribution is shown on Figure 4 in Appendix A and the site generated traffic volumes are shown on Figure 5 in Appendix A.

**Future Traffic Volumes**

In order to assess future traffic conditions upon opening of the site, the site generated traffic volumes were added to the Future No Build Traffic Volumes to create the Future Build Traffic Volumes shown on Figure 6 in Appendix A.

The introduction of a directional median will create the need to divert southbound left-turn movements from Titania Street. These movements are anticipated to be replicated via a right-turn from Titania Street followed by a U-turn at Lamplighter Lane to eastbound Normandy Boulevard. Figure 7 in Appendix A shows these diversions and Figure 8 in Appendix A shows the Diverted Future Build Traffic Volumes.

**Capacity Analysis**

Capacity analyses were conducted for the intersections of Normandy Boulevard with Lamplighter Lane, Titania Street and the site driveway under the No Build and Build conditions. The analyses have been conducted utilizing methodologies set forth in the *Highway Capacity Manual* utilizing the Synchro software package, Version 11. The following table summarizes the results of the capacity analyses and the capacity analysis worksheets are contained in Appendix C.

**Table II  
Future Levels of Service**

Intersection	Direction/ Movement		AM Peak				PM Peak			
			No Build		Build		No Build		Build	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Normandy Boulevard & Lamplighter Lane	EB	L	B	11.5	B	11.2	A	5.4	A	5.4
		T	B	18.2	C	22.0	B	12.4	B	14.0
		R	A	1.6	A	1.6	A	0.1	A	0.1
	WB	L	B	11.6	B	11.3	A	5.6	A	5.9
		TR	B	13.0	B	12.0	A	9.8	A	9.3
	NB	L	B	19.9	C	22.7	C	24.0	C	25.1
		TR	A	7.3	A	7.9	B	12.5	B	12.7
	SB	LTR	C	21.2	C	25.3	C	23.8	C	25.2
	Overall	B	15.8	B	17.7	B	11.4	B	11.6	
Normandy Boulevard & Titania Street/Site Driveway	EB	L	A	8.3	A	8.4	B	11.6	B	11.6
	WB	L	N/A	N/A	B	11.0	N/A	N/A	A	9.5
	NB	R	N/A	N/A	B	12.9	N/A	N/A	B	11.3
	SB	LR	C	16.1	B	10.2	D	28.2	B	14.8

LOS – Level of Service  
Delay - seconds of delay per vehicle

As shown, the signalized intersection of Normandy Boulevard and Lamplighter Lane will operate at Level of Service “B” with all individual movements operation at Level of Service “C” or better during both peak hours analyzed under both future scenarios.

Movements from Titania Street improve from Level of Service “C” to “B” during the AM peak hour and from Level of Service “D” to “B” during the PM peak hour. Based on the above, the introduction of a directional median will reduce the delay exiting Titania Street and there is ample reserve capacity at Lamplighter Lane to service vehicles wishing to travel east on Normandy Boulevard.

## Driveway Analysis

As previously noted, access to the site will be improved by eliminating multiple driveways and consolidating access to a single driveway. Removing the large, uncontrolled median and providing a directional median represents a substantial safety improvement. In accordance with FDOT recommendations, the median left-turn lanes will be provided with 100 feet of queue storage. Additionally, a 75-foot radius is provided for the median left-turn movements which will accommodate the occasional truck access which can be expected.

Pursuant to the FDOT Access Management Guidebook, right-turn lanes into access points should be considered where the right-turning volume is 35 to 55 vehicles per hour for roadways with speed limits of 45 miles per hour or greater. As shown on Figure 5 in Appendix A, the maximum hourly right-turn volume is only 8 vehicles per hour. Therefore, a right-turn lane is not required.

## Conclusion

Based upon our Traffic Impact Assessment as detailed in the body of this report, it is the professional opinion of Dynamic Traffic that the adjacent street system will not experience any significant degradation in operating conditions with the redevelopment of the site. In fact, the reconstructed median opening will result in improved safety for the motoring public. The site access is also being improved over existing conditions by consolidating access to a single driveway.

If you have any questions on the above, please do not hesitate to contact the undersigned.

Sincerely,  
**Dynamic Traffic, LLC**

Craig W. Peregoy, PE  
FL PE License #78893

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