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City of Fort Pierce Planning Department
100 North US 1
Fort Pierce, Florida 34950

**Reference: Blue Water, LLC Rezone
Traffic Impact Statement**

To Whom It May Concern:

This letter serves to summarize the traffic impacts of the subject project for your approval. The Rezone proposes to change 4.42 acres from Residential (Parcel ID 2404-144-0000-000-9) and 1.57 acres of Conservation Open Space (Parcel ID 2403-233-0002-000-3) to 5.99 acres of General Commercial. The remainder of the land on Parcel ID 2403-233-0002-000-3 is already zoned General Commercial. The maximum buildout intensities are shown in Table 1.

Table 1: Existing & Proposed Maximum Development

Scenario	Land Use Designation	Maximum Density	Development Size	
			Acres	Maximum Development
Existing	Residential (R-3)	6 du/acre	4.42	26 units
	Conservation Open Space (O-1)	0.25 FAR	1.57	17,097 SF
Proposed	General Commercial (C-3)	1.0 FAR	5.99	260,924 SF

The maximum allowed proposed development of 260,924 SF of commercial development cannot physically be constructed on the site when the infrastructure required to support the development is considered. A commercial building footprint typically represents approximately 20% of the total site acreage. The remaining 80% of the site is comprised of stormwater management facilities, parking, landscaping, and lot setbacks/buffers.

This analysis evaluates both the maximum (260,924 SF) and realistic maximum (52,000 SF; 20% of 5.99 acres) development scenarios in support of the proposed rezone. The proposed rezone is located at 801 Avenue O in Fort Pierce at the corner of US 1. The location of the two parcels is shown in Figure 1.



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Source: St. Lucie County Property Appraiser, 2016

Figure 1: Project Location

Trip Generation

Traffic volumes generated by the existing and proposed zoning were estimated using the Institute of Transportation Engineers (ITE), *Trip Generation Manual – the 9th Edition (2012)*. Land Use 210 (Single-Family Detached Housing) and Land Use Code 495 (Recreational Community Center) were used for the existing zoning and Land Use Code 820 (Shopping Center) was used for the proposed zoning to estimate the daily, AM peak-hour, and PM peak-hour trip generation potential for each scenario. The trip generation results from the maximum development scenario are summarized in Tables 2 through 4 and the trip generation results from the realistic maximum development scenario are summarized in Tables 5 through 7.



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Table 2: Daily Trip Generation - Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	Daily Trip Rate/ Equation	Daily Enter Split	Daily Exit Split	Daily Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$\ln(T) = 0.92\ln(x) + 2.72$	50%	50%	304	152	152
	Recreational Community Center - 495	Per ksf	17,097	$T = 33.82(x)$	50%	50%	578	289	289
Proposed	Shopping Center - 820	Per ksf	260,924	$\ln(T) = 0.65\ln(x) + 5.83$	50%	50%	12,667	6,334	6,333
Net Change in Trips							11,785	5,893	5,892

Table 3: AM Peak-Hour Trip Generation - Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	AM Peak Trip Rate/ Equation	AM Enter Split	AM Exit Split	AM Peak Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$T = 0.70(x) + 9.74$	25%	75%	28	7	21
	Recreational Community Center - 495	Per ksf	17,097	$T = 2.05(x)$	66%	34%	35	23	12
Proposed	Shopping Center - 820	Per ksf	260,924	$\ln(T) = 0.61\ln(x) + 2.24$	62%	38%	280	174	106
Net Change in Trips							217	144	73

Table 4: PM Peak-Hour Trip Generation - Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	PM Peak Trip Rate/ Equation	PM Enter Split	PM Exit Split	PM Peak Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$\ln(T) = 0.90\ln(x) + 0.51$	63%	37%	31	20	11
	Recreational Community Center - 495	Per ksf	17,097	$T = 2.74(x)$	49%	51%	47	23	24
Proposed	Shopping Center - 820	Per ksf	260,924	$\ln(T) = 0.67\ln(x) + 3.31$	48%	52%	1,139	547	592
Net Change in Trips							1,061	504	557



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Table 5: Daily Trip Generation – Realistic Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	Daily Trip Rate/ Equation	Daily Enter Split	Daily Exit Split	Daily Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$\ln(T) = 0.92\ln(x) + 2.72$	50%	50%	304	152	152
	Recreational Community Center - 495	Per ksf	17,097	$T = 33.82(x)$	50%	50%	578	289	289
Proposed	Shopping Center - 820	Per ksf	52,000	$\ln(T) = 0.65\ln(x) + 5.83$	50%	50%	4,440	2,220	2,220
Net Change in Trips							3,558	1,779	1,779

Table 6: AM Peak-Hour Trip Generation - Realistic Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	AM Peak Trip Rate/ Equation	AM Enter Split	AM Exit Split	AM Peak Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$T = 0.70(x) + 9.74$	25%	75%	28	7	21
	Recreational Community Center - 495	Per ksf	17,097	$T = 2.05(x)$	66%	34%	35	23	12
Proposed	Shopping Center - 820	Per ksf	52,000	$\ln(T) = 0.61\ln(x) + 2.24$	62%	38%	105	65	40
Net Change in Trips							42	35	7

Table 7: PM Peak-Hour Trip Generation - Realistic Maximum

Zoning Scenario	ITE Land Use Category	Variable	Size	PM Peak Trip Rate/ Equation	PM Enter Split	PM Exit Split	PM Peak Trips		
							Total	Enter	Exit
Existing	Single-Family Detached Housing - 210	Per Unit	26	$\ln(T) = 0.90\ln(x) + 0.51$	63%	37%	31	20	11
	Recreational Community Center - 495	Per ksf	17,097	$T = 2.74(x)$	49%	51%	47	23	24
Proposed	Shopping Center - 820	Per ksf	52,000	$\ln(T) = 0.67\ln(x) + 3.31$	48%	52%	387	186	201
Net Change in Trips							309	143	166



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Trip Distribution/Assignment

All traffic from the rezone was distributed to Avenue O, where the properties have frontage. In addition, project traffic was distributed to the segments of US 1 north and south of Avenue O. Based on existing traffic volumes, 60% of project traffic was assigned to the segment to the south and 40% was assigned to the segment to the north.

Existing Zoning Conditions

The AM and PM peak-hour traffic conditions on Avenue O and US 1 north and south of Avenue O were evaluated for the existing traffic plus traffic generated by the maximum development allowed under the existing zoning. Table 8 and Table 9 summarize the existing zoning conditions generalized level-of-service analysis and indicate that all roadways are anticipated to operate within the adopted level-of-service standard of D.

Table 8: AM Peak-Hour Existing Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	AM Pk Hr Pk Dir Volume ¹	Existing Zoning Traffic	Total AM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	91	33	124	C	0.230
US 1						
Old Dixie Hwy to Avenue O	2,000	1,581	20	1,601	C	0.801
Avenue O to SR A1A North	2,100	1,581	13	1,594	C	0.759

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015

Table 9: PM Peak-Hour Existing Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	PM Pk Hr Pk Dir Volume ¹	Existing Zoning Traffic	Total PM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	92	43	135	C	0.250
US 1						
Old Dixie Hwy to Avenue O	2,000	1,236	26	1,262	C	0.631
Avenue O to SR A1A North	2,100	1,236	17	1,253	C	0.597

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015



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Proposed Zoning Conditions

The AM and PM peak-hour traffic conditions on Avenue O and US 1 north and south of Avenue O were evaluated for the existing traffic plus traffic generated by the maximum development allowed under the proposed zoning. This was conducted for both the maximum and realistic maximum scenarios. Table 10 and Table 11 summarize the maximum proposed zoning conditions generalized level-of-service analysis and indicate that during the PM peak-hour Avenue O will exceed the adopted level-of-service standard of D.

Table 10: AM Peak-Hour Maximum Proposed Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	AM Pk Hr Pk Dir Volume ¹	Proposed Zoning Traffic	Total AM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	91	174	265	C	0.491
US 1						
Old Dixie Hwy to Avenue O	2,000	1,581	104	1,685	C	0.843
Avenue O to SR A1A North	2,100	1,581	70	1,651	C	0.786

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015

Table 11: PM Peak-Hour Maximum Proposed Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	PM Pk Hr Pk Dir Volume ¹	Proposed Zoning Traffic	Total PM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	92	592	684	F	1.267
US 1						
Old Dixie Hwy to Avenue O	2,000	1,236	355	1,591	C	0.796
Avenue O to SR A1A North	2,100	1,236	237	1,473	C	0.701

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015

Table 12 and Table 13 summarize the realistic maximum proposed zoning conditions generalized level-of-service analysis and indicate that all roadways are anticipated to operate within the adopted level-of-service standard of D.



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Table 12: AM Peak-Hour Realistic Maximum Proposed Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	AM Pk Hr Pk Dir Volume ¹	Proposed Zoning Traffic	Total AM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	91	65	156	C	0.289
US 1						
Old Dixie Hwy to Avenue O	2,000	1,581	39	1,620	C	0.810
Avenue O to SR A1A North	2,100	1,581	26	1,607	C	0.765

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015

Table 13: PM Peak-Hour Realistic Maximum Proposed Zoning Roadway Conditions

Road Name and Segment	Pk Hr Service Capacity ¹	PM Pk Hr Pk Dir Volume ¹	Proposed Zoning Traffic	Total PM Pk Hr Pk Dir Volume	LOS	v/c Ratio
Avenue O						
13th St to US 1	540	92	201	293	C	0.543
US 1						
Old Dixie Hwy to Avenue O	2,000	1,236	121	1,357	C	0.679
Avenue O to SR A1A North	2,100	1,236	80	1,316	C	0.627

1. Obtained from the St. Lucie TPO Traffic Counts and Level of Service, Fall 2015



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Conclusion

Assuming the maximum intensity/density development under the proposed zoning, the rezone will create any adverse impact to Avenue O during the PM peak-hour. Avenue O during the AM peak-hour as well as US 1 during both the AM and PM peak hours will operate at level-of-service C, just like the existing zoning conditions.

Assuming the realistic maximum intensity/density development under the proposed zoning, the rezone will not create any adverse impacts to Avenue O or US 1 during the AM and PM peak hours. The roadways will operate at level-of-service C, just like the existing zoning conditions.

Appropriate transportation mitigation and proportionate fair-share payments, if required, shall be addressed at the development order stage when a detailed development plan is created.

Sincerely,

Stantec Consulting Services Inc.

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