

DATE: 23 April 2021

TO: Victor Toledo, Green Leaf Development

FROM: Scott Israelson, P.E., PTOE

RE: **Villas on Singleton  
Signal Warrant Analysis  
Dallas, TX**

This memo serves as a summary of a signal warrant analysis for the proposed development access to Singleton Boulevard.

## Introduction

The *Villas on Singleton Traffic Impact Analysis* was most recently revised in February 2021. The development will consist of 114 single-family and 207 multifamily residential units and will have a full-access connection to Singleton Boulevard. That access is expected to see LOS B in the AM peak hour and LOS C in the PM peak hour.

During review, City staff requested justification for the assertion that the access will not meet warrants for signalized control.

## Methodology

Traffic data for the area was collected in March 2017 as part of the original TIA. Counts were performed between 7 to 9 AM and 4 to 6 PM. Peak hour entering and exiting trips were estimated using the latest edition of the *ITE Trip Generation Manual*.

## Signal Warrants

Since the typical TIA acquires traffic counts for peak hours, a full examination of Warrant 1, Eight-Hour volumes, cannot be determined. However, it is valuable to see if the four hours of 7 to 9 AM and 4 to 6 PM meet those warrants to determine if additional analysis is needed.

An examination of Warrant 1, Eight-Hour Volumes, shows that the intersection would meet Condition B (Interruption of Continuous Volume) and Condition A+B for the AM peak hour only. The PM peak hour falls short of meeting warrants. It is reasonable to expect that if the peak hours do not meet warrants, then the intersection would fall short of thresholds in the highest eight hours.

Examination of Warrant 2, Four-Hour Volumes, also reveals that the intersection would meet warrants under the AM peak hour but not the PM peak hour. The results of warrants are attached. Please contact if there are any other comments or questions on the submittal at [scott@traffic-impact.com](mailto:scott@traffic-impact.com).

# GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013  
817.265.8968

Count Name:  
WESTMORELAND RD @  
SINGLETON BLVD  
Site Code:  
Start Date: 03/01/2017  
Page No: 3

## Turning Movement Peak Hour Data (7:15 AM)

Start Time	WESTMORELAND RD Southbound					SINGLETON BLVD Westbound					WESTMORELAND RD Northbound					SINGLETON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:15 AM	16	74	15	0	105	5	39	23	0	67	32	426	48	0	506	30	92	24	0	146	824
7:30 AM	30	96	9	0	135	11	56	22	0	89	26	355	42	0	423	54	123	28	1	206	853
7:45 AM	35	93	15	0	143	11	60	22	0	93	42	426	71	0	539	35	78	24	0	137	912
8:00 AM	28	98	13	0	139	18	52	25	0	95	35	353	41	0	429	27	96	39	1	163	826
Total	109	361	52	0	522	45	207	92	0	344	135	1560	202	0	1897	146	389	115	2	652	3415
Approach %	20.9	69.2	10.0	0.0	-	13.1	60.2	26.7	0.0	-	7.1	82.2	10.6	0.0	-	22.4	59.7	17.6	0.3	-	-
Total %	3.2	10.6	1.5	0.0	15.3	1.3	6.1	2.7	0.0	10.1	4.0	45.7	5.9	0.0	55.5	4.3	11.4	3.4	0.1	19.1	-
PHF	0.779	0.921	0.867	0.000	0.913	0.625	0.863	0.920	0.000	0.905	0.804	0.915	0.711	0.000	0.880	0.676	0.791	0.737	0.500	0.791	0.936
Lights	98	344	43	0	485	42	201	84	0	327	111	1512	197	0	1820	132	352	88	2	574	3206
% Lights	89.9	95.3	82.7	-	92.9	93.3	97.1	91.3	-	95.1	82.2	96.9	97.5	-	95.9	90.4	90.5	76.5	100.0	88.0	93.9
Mediums	8	12	7	0	27	2	3	6	0	11	9	32	1	0	42	6	23	6	0	35	115
% Mediums	7.3	3.3	13.5	-	5.2	4.4	1.4	6.5	-	3.2	6.7	2.1	0.5	-	2.2	4.1	5.9	5.2	0.0	5.4	3.4
Articulated Trucks	3	5	2	0	10	1	3	2	0	6	15	16	4	0	35	8	14	21	0	43	94
% Articulated Trucks	2.8	1.4	3.8	-	1.9	2.2	1.4	2.2	-	1.7	11.1	1.0	2.0	-	1.8	5.5	3.6	18.3	0.0	6.6	2.8

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WESTMORELAND RD @  
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Start Date: 03/01/2017  
Page No: 5

## Turning Movement Peak Hour Data (4:45 PM)

Start Time	WESTMORELAND RD Southbound					SINGLETON BLVD Westbound					WESTMORELAND RD Northbound					SINGLETON BLVD Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:45 PM	31	392	29	0	452	51	148	34	0	233	38	105	31	0	174	18	68	54	0	140	999
5:00 PM	20	329	20	0	369	49	124	26	0	199	41	108	41	0	190	18	77	47	0	142	900
5:15 PM	34	394	21	0	449	39	99	22	0	160	23	97	40	0	160	10	80	36	0	126	895
5:30 PM	26	398	13	0	437	54	133	20	0	207	36	90	37	0	163	13	87	48	0	148	955
Total	111	1513	83	0	1707	193	504	102	0	799	138	400	149	0	687	59	312	185	0	556	3749
Approach %	6.5	88.6	4.9	0.0	-	24.2	63.1	12.8	0.0	-	20.1	58.2	21.7	0.0	-	10.6	56.1	33.3	0.0	-	-
Total %	3.0	40.4	2.2	0.0	45.5	5.1	13.4	2.7	0.0	21.3	3.7	10.7	4.0	0.0	18.3	1.6	8.3	4.9	0.0	14.8	-
PHF	0.816	0.950	0.716	0.000	0.944	0.894	0.851	0.750	0.000	0.857	0.841	0.926	0.909	0.000	0.904	0.819	0.897	0.856	0.000	0.939	0.938
Lights	104	1478	54	0	1636	191	484	101	0	776	121	384	145	0	650	48	305	172	0	525	3587
% Lights	93.7	97.7	65.1	-	95.8	99.0	96.0	99.0	-	97.1	87.7	96.0	97.3	-	94.6	81.4	97.8	93.0	-	94.4	95.7
Mediums	5	28	7	0	40	1	13	1	0	15	6	9	3	0	18	5	3	6	0	14	87
% Mediums	4.5	1.9	8.4	-	2.3	0.5	2.6	1.0	-	1.9	4.3	2.3	2.0	-	2.6	8.5	1.0	3.2	-	2.5	2.3
Articulated Trucks	2	7	22	0	31	1	7	0	0	8	11	7	1	0	19	6	4	7	0	17	75
% Articulated Trucks	1.8	0.5	26.5	-	1.8	0.5	1.4	0.0	-	1.0	8.0	1.8	0.7	-	2.8	10.2	1.3	3.8	-	3.1	2.0



Full Build 2019 Volumes

Figure 6

Villas on Singleton - Dallas - Greenleaf Ventures, LLC

Date: 6 October 2020



Prepared By	Scott P. Israelson	PE no.	116715	Count	1/0/00
Major Road	Singleton Rd	Speed	35	Lanes	2
Minor Road	Access	Speed	30	Lanes	1

Warrants Satisfied	1	2	3	4	5	6	7	8	9
	no	no	N/A	no	N/A	N/A	N/A	no	no

Signal Warranted?	NO
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### Warrant 1, Eight-Hour Vehicular Volume

Requirements: Either Condition A (Minimum Vehicular Volume) or Condition B (Interruption of Continuous Traffic) is satisfied to 100% of the stated volumes for each of any 8 hours of an average day, OR Both Condition A and B are satisfied to 80% of the stated volumes for each of any 8 hours of an average day

Condition A - Minimum Vehicular Volume									
Number of lanes for traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic									
Number of lanes for traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

100% Basic minimum hourly volume

80% Used for combination of Conditions A and B

70% Used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

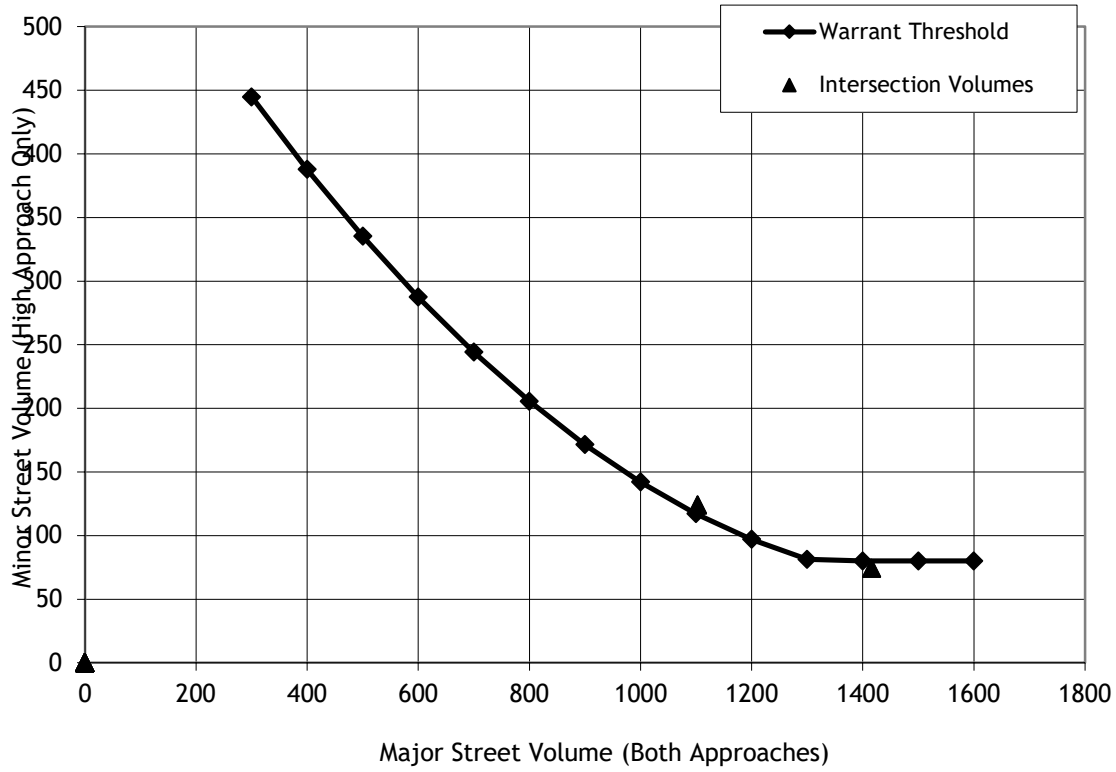
56% Used for combination of Conditions A and B and where 70% of minimum hourly volume is used

Hour	Major Street total	highest minor	Condition A	Condition B	Condition A+B
0:00	0	0			
1:00	0	0			
2:00	0	0			
3:00	0	0			
4:00	0	0			
5:00	0	0			
6:00	0	0			
7:00	1103	124		YES	YES
8:00	1103	124		YES	YES
9:00	0	0			
10:00	0	0			
11:00	0	0			
12:00	0	0			
13:00	0	0			
14:00	0	0			
15:00	0	0			
16:00	1416	74			
17:00	1416	74			
18:00	0	0			
19:00	0	0			
20:00	0	0			
21:00	0	0			
22:00	0	0			
23:00	0	0			

<b>Warrant 1 Met?</b>	<b>no</b>
Condition A	no
Condition B	no
Condition A+B	no

### Warrant 2, Four-Hour Vehicular Volume

Requirements Plot four highest hour volumes on the figures below, if four points lie above the curve then the warrant is satisfied



Warrant 2  
Met?

no