MEMORANDUM

DATE: June 27, 2013

TO: Kurt Seemann, P.E.
City of Redmond

FROM: Jeff Schramm
TENW

SUBJECT: Kirkmond Residential – Redmond, WA
Signal Warrant Analysis – 132nd Ave NE/NE 100th Street
TENW Project No. 4673

This memo documents the signal warrant analysis completed at the intersection of 132nd Avenue NE/NE 100th Street in the City of Redmond. The signal warrant analysis was completed for 2013 existing conditions and future 2015 conditions with the proposed Kirkmond Residential development.

The signal warrant analysis included Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 3 (Peak Hour) as outlined in the US Department of Transportation/Federal Highway Administration, *Manual on Uniform Traffic Control Devices* (MUTCD), 2009 Edition.

The intersection of 132nd Avenue NE/NE 100th Street is currently a 4-leg intersection with the eastbound and westbound approaches (NE 100th Street) stop controlled. The volume criteria used in the signal warrant analysis was based on the assumption of a 1-lane approach on the minor street (NE 100th Street) and a 1-lane approach on the major street (NE 132nd Avenue NE). Based on existing traffic counts, the eastbound minor-street approach carries a higher volumes of traffic than the westbound approach.

The traffic volumes used in the analysis were based on existing 2013 daily traffic counts conducted on Wednesday to Thursday (6/12/13 - 6/13/13) and an AM peak hour turning movement count conducted on Tuesday 6/25/13. Future 2015 conditions with the proposed Kirkmond residential development (40 net units) assumed an annual background traffic growth rate of 2 percent + pipeline trips. Trips from the future Benjamin and Willow Hill pipeline projects (23 units) were included in the future analysis.

The results of the signal warrant analysis are summarized in Table 1 on the next page. Detailed signal warrant analysis worksheets are included in Attachment A. As shown in Table 1, none of the vehicular warrants would be satisfied under 2013 existing or future 2015 conditions with the proposed Kirkmond residential development.

It should also be noted that the City of Kirkland does not have any planning improvements along 132nd Avenue NE or NE 100th Street in their current six-year 2013-2018 Capital Improvement Program (CIP).

If you have any questions regarding the information presented in this memo, please contact me at schramm@tenw.com or (425) 250-0581.

cc: Kevin O'Brien, Taylor Development

Table 1
132nd Avenue NE / NE 100th Street
Summary of Signal Warrant Analysis Results

Warrant	Warrant Met? 2013 Existing	2015 With Project
Warrant 1 – Eight Hour Vehicular Volume		
Condition A – Minimum Vehicular Volume	No	No
Condition B – Interruption of Continuous Traffic	No	No
Combination of Conditions A and B	No	No
Warrant Met?	**No**	**No**
Warrant 2 – Four Hour Vehicular Volume		
Warrant Met?	**No**	**No**
Warrant 3 – Peak Hour		
Condition A	No	No
Condition B	No	No
Warrant Met?	**No**	**No**

ATTACHMENT A

Signal Warrant Worksheets

Warrant 1 Eight Hour Vehicular Volume

Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2013 Existing Conditions

Warrant 1 - Eight Hour Vehicular Volume
Condition A - Minimum Vehicular Volume

Hour Begins	Minor Approach (2) NE 100th St EB Approach (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1A
5:00 AM	14	59	
6:00 AM	35	273	
7:00 AM	100	792	
8:00 AM	130	943	
9:00 AM	83	603	
10:00 AM	63	510	
11:00 AM	51	515	
12:00 PM	56	637	
1:00 PM	56	629	
2:00 PM	55	609	
3:00 PM	62	832	
4:00 PM	48	1,316	
5:00 PM	55	1,722	
6:00 PM	59	1,264	
7:00 PM	42	619	
8:00 PM	31	454	
9:00 PM	32	325	
		WARRANT MET (3) =	**NO**

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Volumes based on two-day average of Wed 6/12/2013 and Thurs 6/13/2013.

(3) Signal warrant satisfied when minimum traffic volumes (see below) exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition A: Minimum Vehicular Volume (100% Factor)

Minimum volume per hour on 1-lane major street = 500

Minimum volume per hour on 1-lane minor street = 150

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2013 Existing Conditions

Warrant 1 - Eight Hour Vehicular Volume
Condition B - Interruption of Continuous Traffic

Hour Begins	Minor Approach (2) NE 100th St EB Approach (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1B
5:00 AM	14	59	
6:00 AM	35	273	
7:00 AM	100	792	YES
8:00 AM	130	943	YES
9:00 AM	83	603	
10:00 AM	63	510	
11:00 AM	51	515	
12:00 PM	56	637	
1:00 PM	56	629	
2:00 PM	55	609	
3:00 PM	62	832	
4:00 PM	48	1,316	
5:00 PM	55	1,722	
6:00 PM	59	1,264	
7:00 PM	42	619	
8:00 PM	31	454	
9:00 PM	32	325	
		WARRANT MET (3) =	**NO**

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Volumes based on two-day average of Wed 6/12/2013 and Thurs 6/13/2013.

(3) Signal warrant satisfied when minimum traffic volumes (see below) exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition B: Interruption of Continuous Traffic (100% Factor)

Minimum volume per hour on 1-lane major street = 750

Minimum volume per hour on 1-lane minor street = 75

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2013 Existing Conditions

Warrant 1 - Eight Hour Vehicular Volume
Combination of Conditions A and B

Hour Begins	Minor Approach (2) NE 100th St EB Approach (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1 A/B	80% Condition A	80% Condition B
5:00 AM	14	59			
6:00 AM	35	273			
7:00 AM	100	792			YES
8:00 AM	130	943	YES	YES	YES
9:00 AM	83	603			YES
10:00 AM	63	510			
11:00 AM	51	515			
12:00 PM	56	637			
1:00 PM	56	629			
2:00 PM	55	609			
3:00 PM	62	832			YES
4:00 PM	48	1,316			
5:00 PM	55	1,722			
6:00 PM	59	1,264			
7:00 PM	42	619			
8:00 PM	31	454			
9:00 PM	32	325			
		WARRANT MET (3) =	**NO**		

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Volumes based on two-day average of Wed 6/12/2013 and Thurs 6/13/2013.

(3) Signal warrant satisfied when Condiation A and Condition B are met for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Combination of Conditions A and B (80% Factor)

Condition A

Minimum volume per hour on 1-lane major street = 400

Minimum volume per hour on 1-lane minor street = 120

Condition B

Minimum volume per hour on 1-lane major street = 600

Minimum volume per hour on 1-lane minor street = 60

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2015 With Project

Warrant 1 - Eight Hour Vehicular Volume
Condition A - Minimum Vehicular Volume

Hour Begins	Minor Approach (2) NE 100th St Eastbound (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1A
5:00 AM	15	61	
6:00 AM	38	286	
7:00 AM	109	830	
8:00 AM	140	989	
9:00 AM	90	633	
10:00 AM	70	536	
11:00 AM	57	542	
12:00 PM	64	671	
1:00 PM	64	663	
2:00 PM	63	642	
3:00 PM	73	879	
4:00 PM	66	1,392	
5:00 PM	80	1,824	
6:00 PM	77	1,338	
7:00 PM	50	652	
8:00 PM	37	479	
9:00 PM	37	343	
		WARRANT MET (3) =	**NO**

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Future 2015 volumes based on 2013 existing counts with 2 percent annual growth rate applied + project and pipeline trips.

(3) Signal warrant satisfied when minimum traffic volumes (see below) exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition A: Minimum Vehicular Volume (100% Factor)

Minimum volume per hour on 1-lane major street = 500

Minimum volume per hour on 1-lane minor street = 150

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2015 With Project

Warrant 1 - Eight Hour Vehicular Volume
Condition B - Interruption of Continuous Traffic

Hour Begins	Minor Approach (2) NE 100th St Eastbound (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1B
5:00 AM	15	61	
6:00 AM	38	286	
7:00 AM	109	830	YES
8:00 AM	140	989	YES
9:00 AM	90	633	
10:00 AM	70	536	
11:00 AM	57	542	
12:00 PM	64	671	
1:00 PM	64	663	
2:00 PM	63	642	
3:00 PM	73	879	
4:00 PM	66	1,392	
5:00 PM	80	1,824	YES
6:00 PM	77	1,338	YES
7:00 PM	50	652	
8:00 PM	37	479	
9:00 PM	37	343	
		WARRANT MET (3) =	**NO**

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Future 2015 volumes based on 2013 existing counts with 2 percent annual growth rate applied + project and pipeline trips.

(3) Signal warrant satisfied when minimum traffic volumes (see below) exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition B: Interruption of Continuous Traffic (100% Factor)

Minimum volume per hour on 1-lane major street = 750

Minimum volume per hour on 1-lane minor street = 75

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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Signal Warrant Analysis for 132nd Ave NE / NE 100th St
2015 With Project

Warrant 1 - Eight Hour Vehicular Volume
Combination of Conditions A and B

Hour Begins	Minor Approach (2) NE 100th St Eastbound (1 lane)	Major Approach (2) 132nd Ave NE Total NB & SB (1 lane)	MUTCD (1) Warrant 1 A/B	80% Condition A	80% Condition B
5:00 AM	15	61			
6:00 AM	38	286			
7:00 AM	109	830			YES
8:00 AM	140	989	YES	YES	YES
9:00 AM	90	633			YES
10:00 AM	70	536			
11:00 AM	57	542			
12:00 PM	64	671			YES
1:00 PM	64	663			YES
2:00 PM	63	642			YES
3:00 PM	73	879			YES
4:00 PM	66	1,392			YES
5:00 PM	80	1,824			YES
6:00 PM	77	1,338			YES
7:00 PM	50	652			
8:00 PM	37	479			
9:00 PM	37	343			
		WARRANT MET (3) =	**NO**		

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Future 2015 volumes based on 2013 existing counts with 2 percent annual growth rate applied + project and pipeline trips.

(3) Signal warrant satisfied when Condiation A and Condition B are met for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Combination of Conditions A and B (80% Factor)

Condition A

Minimum volume per hour on 1-lane major street = 400

Minimum volume per hour on 1-lane minor street = 120

Condition B

Minimum volume per hour on 1-lane major street = 600

Minimum volume per hour on 1-lane minor street = 60

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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 moving 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 only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
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

[a] Basic minimum hourly volume

[b] Used for combination of Conditions A and B after adequate trial of other remedial measures

[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

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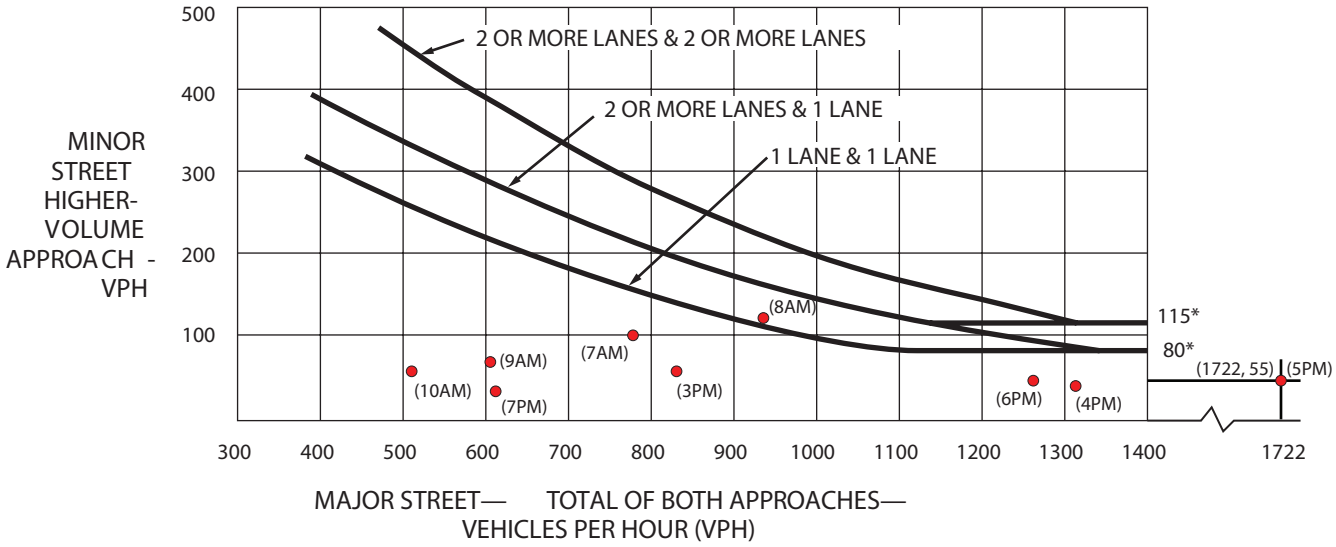
Warrant 2 Four Hour Vehicular Volume

Kirkmond
132nd Ave NE / NE 100th St
2013 Existing
2-Day Average (6/12/13 and 6/13/13)

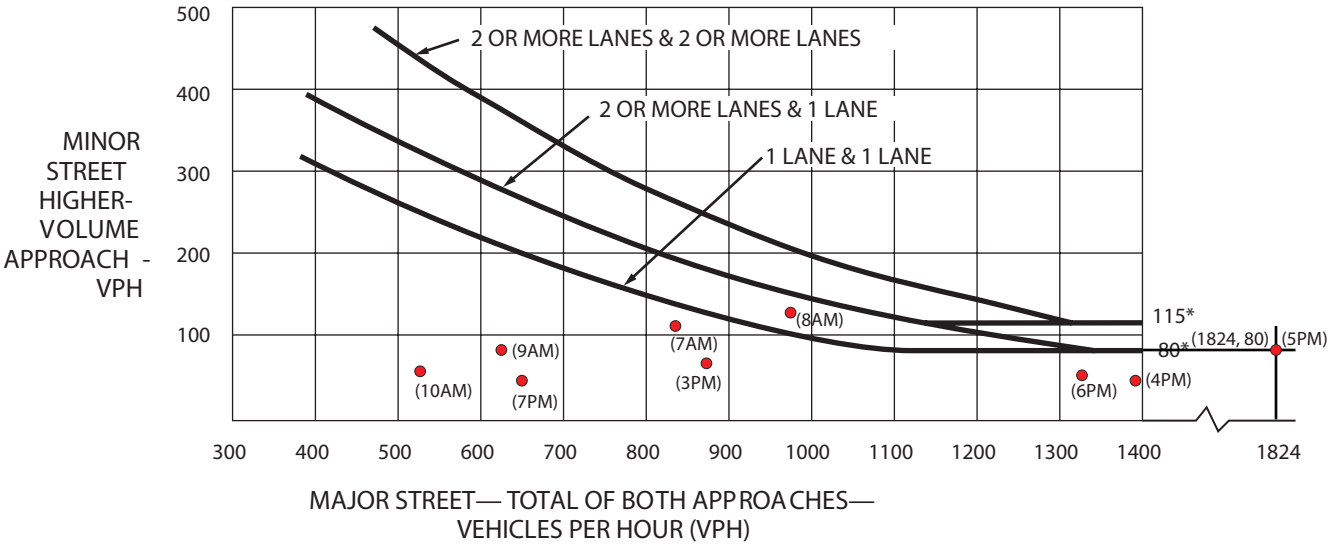
Figure 4C-1. Warrant 2, Four -Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane .

Kirkmond
132nd Ave NE / NE 100th St
2015 with Project

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 3 Peak Hour Vehicular Volume

Kirkmond Residential
TENW Project No. 4673

Signal Warrant Analysis for 132nd Ave NE/NE 100th St
2013 Existing (AM Peak Hour)

Warrant 3 - Peak Hour

Condition A

This warrant is met if all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach

NE 100th Street, EB approach

	EB Approach		
Control Delay (sec/veh) =	14.8	sec/veh	**Based on results from HCM 2010 analysis
Stopped Delay (sec/veh) =	11.4	sec/veh	
Total Volume (veh/hr) =	116	veh/hour	
Vehicle-Hours =	0.37	veh-hours	
CONDITION 1 MET =	**NO**		

2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.

NE 100th Street, EB approach =	116
CONDITION 2 MET =	**YES**

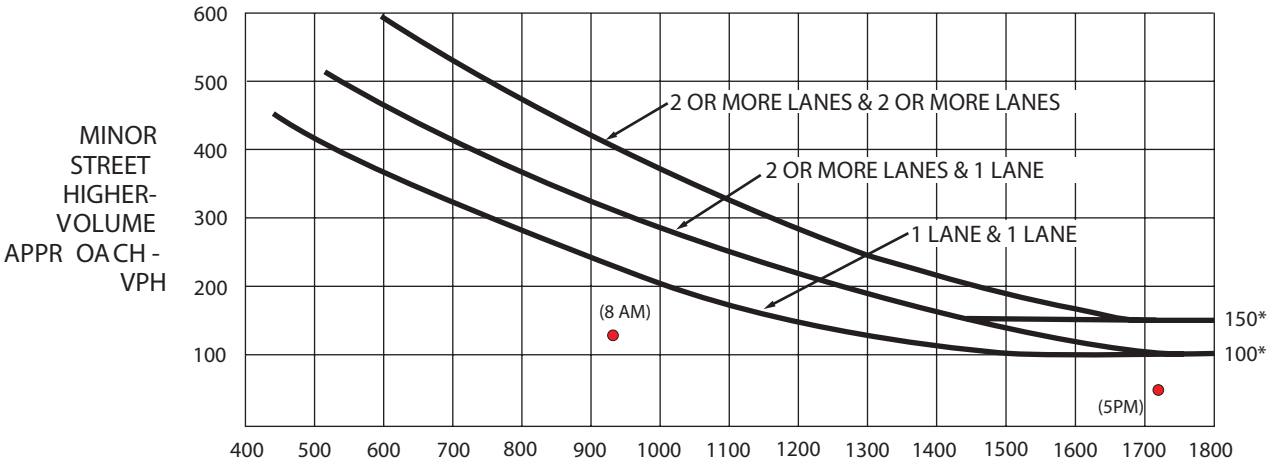
3. The total entering volume serviced during the hour equals or exceeds 650 vehicle per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

132nd Ave NE/NE 100th St, Total approach Volume =	802
CONDITION 3 MET =	**YES**

WARRANT MET = NO

Kirkmond
132nd Ave NE / NE 100th St
2013 Existing

Figure 4C-3. Warrant 3, P eak Hour



MAJOR STREET— TOT AL OF BO TH APP ROA CHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lo wer threshold v olume for a minor-street approach with two or more lanes and 100 vph applies as the lo wer threshold v olume for a minor-street approach with one lane .

Kirkmond Residential
TENW Project No. 4673

Signal Warrant Analysis for 132nd Ave NE/NE 100th St
2015 With Project (AM Peak Hour)

Warrant 3 - Peak Hour

Condition A

This warrant is met if all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach

NE 100th Street, EB approach

	EB Approach		
Control Delay (sec/veh) =	16.0	sec/veh	**Based on results from HCM 2010 analysis
Stopped Delay (sec/veh) =	12.3	sec/veh	
Total Volume (veh/hr) =	125	veh/hour	
Vehicle-Hours =	0.43	veh-hours	
CONDITION 1 MET =	**NO**		

2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.

NE 100th Street, EB approach =	125
CONDITION 2 MET =	**YES**

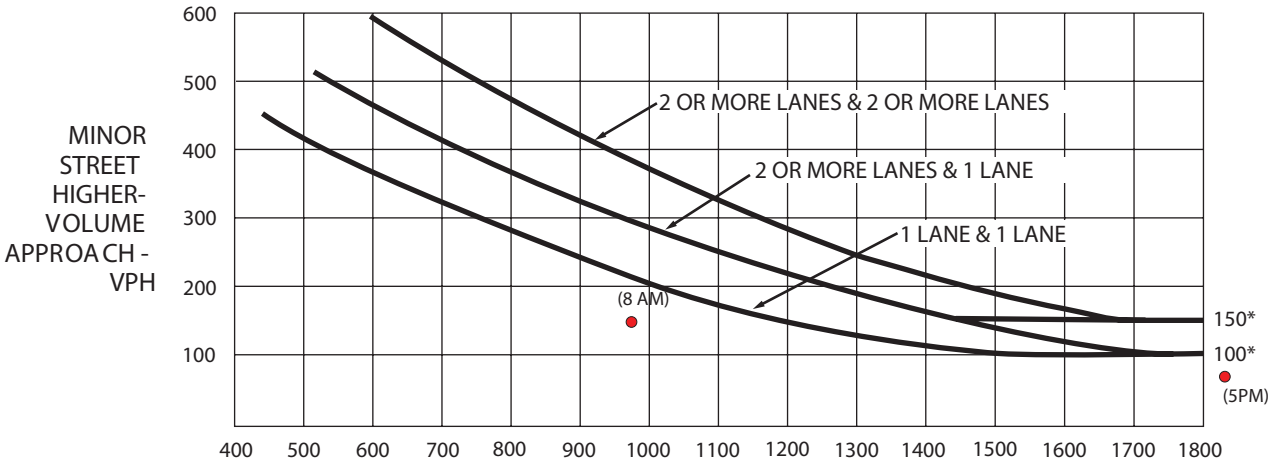
3. The total entering volume serviced during the hour equals or exceeds 650 vehicle per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

132nd Ave NE/NE 100th St, Total approach Volume =	847
CONDITION 3 MET =	**YES**

WARRANT MET = NO

Kirkmond
132nd Ave NE / NE 100th St
2015 With Project

Figure 4C-3. Warrant 3, Peak Hour



MAJOR STREET— TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane .