

Appendix 4

Signal Warrant Analysis

LOCATION: Kenwood Road & Happiness Way
 Major Street # of Lanes: 2 OR MORE
 Minor Street # of Lanes: 1
 Major Street Speed Limit: 35
 Population < 10,000? No
 Scenario 2020 Build

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Volume	85	0	77	0	0	0	91	830	0	0	948	77

Direction	Major Street		Minor Street	
	Northbound/Southbound	Eastbound	Northbound/Southbound	Eastbound
Approach(es) Volume	1946		162	
Roadway	Kenwood Road	Happiness Way		
0	86	0		
1	45	0		
2	39	0		
3	33	0		
4	62	26		
5	203	58		
6	568	117		
7	1342	136		
8	1701	104		
9	1233	156		
10	1185	110		
11	1557	130		
12	1642	110		
13	1642	123		
14	1620	143		
15	1736	123		
16	1756	162		
17	1946	136		
18	1602	149		
19	1116	71		
20	850	39		
21	553	45		
22	273	32		
23	142	6		

Hourly Percent by Turn Count at Kenwood Rd (3/22/18)	Hourly Percent by Turn Count at Happiness Way (3/22/18)
0.4%	0.0%
0.2%	0.0%
0.2%	0.0%
0.1%	0.0%
0.3%	1.3%
0.9%	3.0%
2.5%	5.9%
5.9%	6.9%
7.4%	5.2%
5.4%	7.9%
5.2%	5.6%
6.8%	6.6%
7.2%	5.6%
7.2%	6.2%
7.1%	7.2%
7.6%	6.2%
7.7%	8.2%
8.5%	6.9%
7.0%	7.5%
4.9%	3.6%
3.7%	2.0%
2.4%	2.3%
1.2%	1.6%
0.6%	0.3%
100%	100%

SUMMARY

TIME	HOURLY DATA		Warrant #1	Warrant #1	Warrant #2	Warrant #3
	MAJOR	MINOR	Condition A	Condition B		
12 AM-1 AM	86	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
1 AM-2 AM	45	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
2 AM-3 AM	39	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
3 AM-4 AM	33	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
4 AM-5 AM	62	26	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
5 AM-6 AM	203	58	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
6 AM-7 AM	568	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
7 AM-8 AM	1342	136	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
8 AM-9 AM	1701	104	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
9 AM-10 AM	1233	156	SATISFIED	SATISFIED	SATISFIED	SATISFIED
10 AM-11 AM	1185	110	NOT SATISFIED	SATISFIED	SATISFIED	NOT SATISFIED
11 AM-12 PM	1557	130	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
12 PM-1 PM	1642	110	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
1 PM-2 PM	1642	123	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
2 PM-3 PM	1620	143	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
3 PM-4 PM	1736	123	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
4 PM-5 PM	1756	162	SATISFIED	SATISFIED	SATISFIED	SATISFIED
5 PM-6 PM	1946	136	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
6 PM-7 PM	1602	149	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
7 PM-8 PM	1116	71	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
8 PM-9 PM	850	39	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
9 PM-10 PM	553	45	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
10 PM-11 PM	273	32	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
11 PM-12 AM	142	6	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
TOTAL MET			2	12	12	11

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume
KENWOOD ROAD AND HAPPINESS WAY

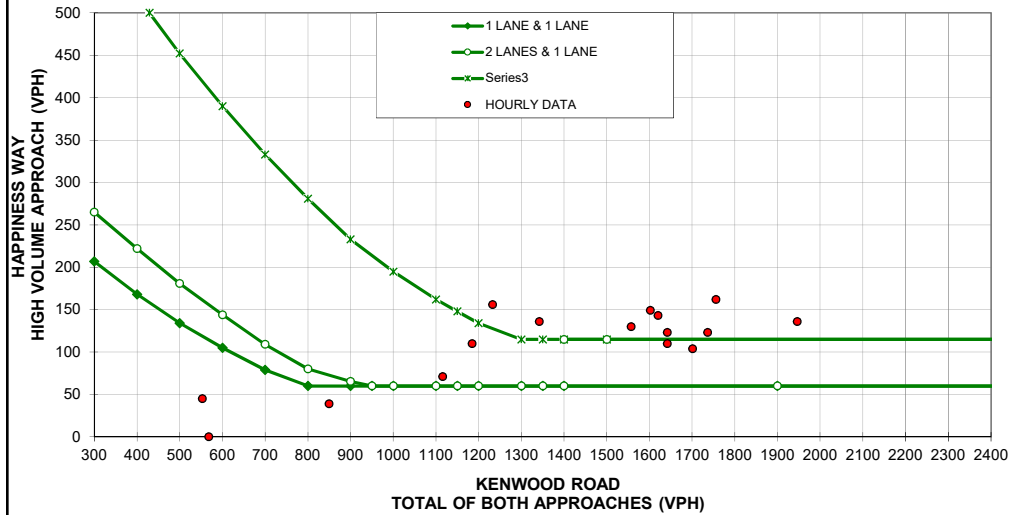
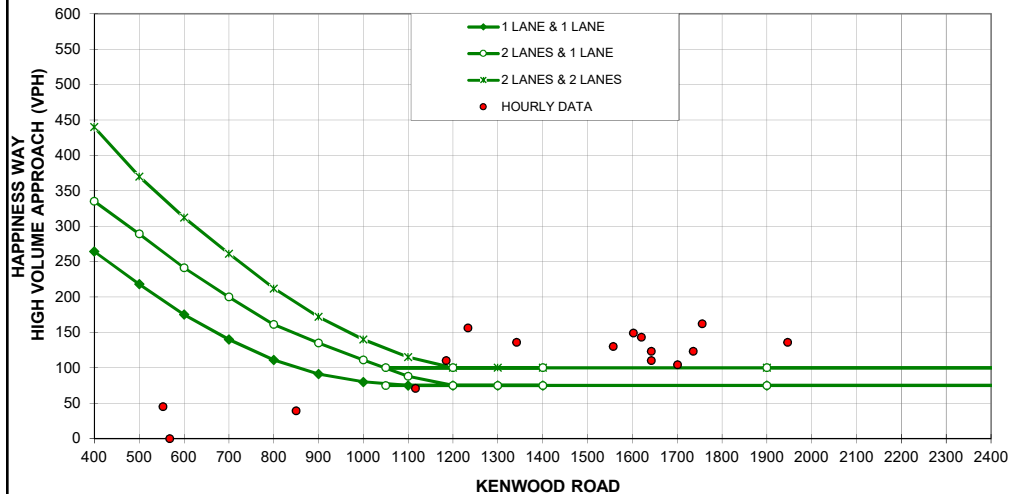


Figure 4C-4. Warrant 3, Peak Hour
HAMILTON MASON & GILMORE



LOCATION: Kenwood Road & Happiness Way
Major Street # of Lanes: 2 OR MORE
Minor Street # of Lanes: 1
Major Street Speed Limit: 35
Population < 10,000? No
Scenario 2040 Build

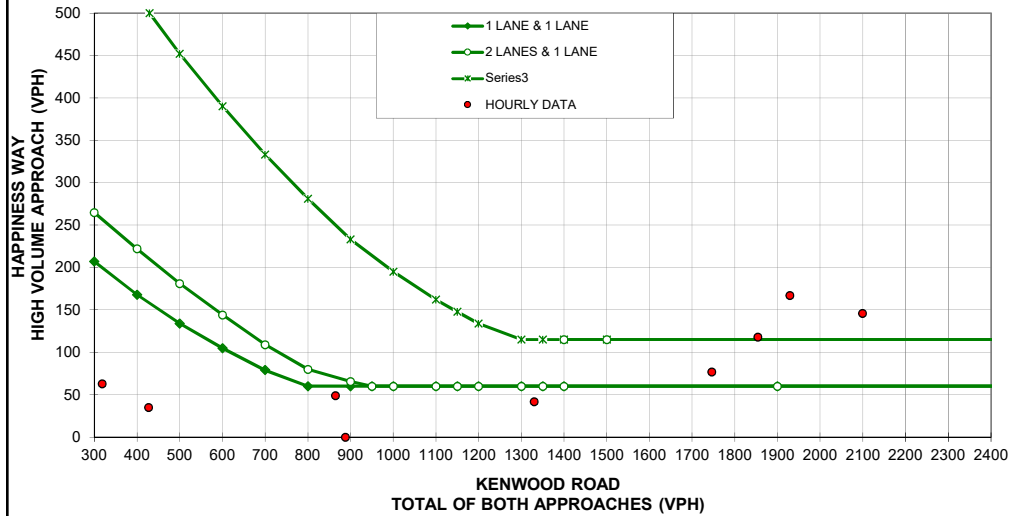
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Volume	89	0	85	0	0	0	101	1338	0	0	1514	92

Direction	Major Street		Minor Street		Hourly Percent by Turn Count at Kenwood Rd (3/22/18)	Hourly Percent by Turn Count at Happiness Way (3/22/18)
	Northbound/Southbound	3045	Eastbound	174		
Approach(es) Volume	Roadway		Roadway			
	Kenwood Road	Happiness Way	Kenwood Road	Happiness Way		
0	135	0	0	0	0.4%	0.0%
1	70	0	0	0	0.2%	0.0%
2	61	0	0	0	0.2%	0.0%
3	52	0	0	0	0.1%	0.0%
4	97	28	0	0	0.3%	1.3%
5	318	63	0	0	0.9%	3.0%
6	888	125	0	0	2.5%	5.9%
7	2099	146	0	0	5.9%	6.9%
8	2661	111	0	0	7.4%	5.2%
9	1929	167	0	0	5.4%	7.9%
10	1854	118	0	0	5.2%	5.6%
11	2437	139	0	0	6.8%	6.6%
12	2569	118	0	0	7.2%	5.6%
13	2569	132	0	0	7.2%	6.2%
14	2535	153	0	0	7.1%	7.2%
15	2717	132	0	0	7.6%	6.2%
16	2747	174	0	0	7.7%	8.2%
17	3045	146	0	0	8.5%	6.9%
18	2507	160	0	0	7.0%	7.5%
19	1746	77	0	0	4.9%	3.6%
20	1330	42	0	0	3.7%	2.0%
21	865	49	0	0	2.4%	2.3%
22	427	35	0	0	1.2%	1.6%
23	222	7	0	0	0.6%	0.3%
					100%	100%

SUMMARY

TIME	HOURLY DATA		Warrant #1	Warrant #1	Warrant #2	Warrant #3
	MAJOR	MINOR	Condition A	Condition B		
12 AM-1 AM	135	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
1 AM-2 AM	70	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
2 AM-3 AM	61	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
3 AM-4 AM	52	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
4 AM-5 AM	97	28	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
5 AM-6 AM	318	63	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
6 AM-7 AM	888	0	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
7 AM-8 AM	2099	146	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
8 AM-9 AM	2661	111	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
9 AM-10 AM	1929	167	SATISFIED	SATISFIED	SATISFIED	SATISFIED
10 AM-11 AM	1854	118	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
11 AM-12 PM	2437	139	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
12 PM-1 PM	2569	118	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
1 PM-2 PM	2569	132	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
2 PM-3 PM	2535	153	SATISFIED	SATISFIED	SATISFIED	SATISFIED
3 PM-4 PM	2717	132	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
4 PM-5 PM	2747	174	SATISFIED	SATISFIED	SATISFIED	SATISFIED
5 PM-6 PM	3045	146	NOT SATISFIED	SATISFIED	SATISFIED	SATISFIED
6 PM-7 PM	2507	160	SATISFIED	SATISFIED	SATISFIED	SATISFIED
7 PM-8 PM	1746	77	NOT SATISFIED	SATISFIED	NOT SATISFIED	NOT SATISFIED
8 PM-9 PM	1330	42	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
9 PM-10 PM	865	49	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
10 PM-11 PM	427	35	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
11 PM-12 AM	222	7	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED
	TOTAL MET		4	13	12	12

**Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume
KENWOOD ROAD AND HAPPINESS WAY**



**Figure 4C-4. Warrant 3, Peak Hour
KENWOOD ROAD AND HAPPINESS WAY**

