

APPENDIX I

2017 Signalization Warrants

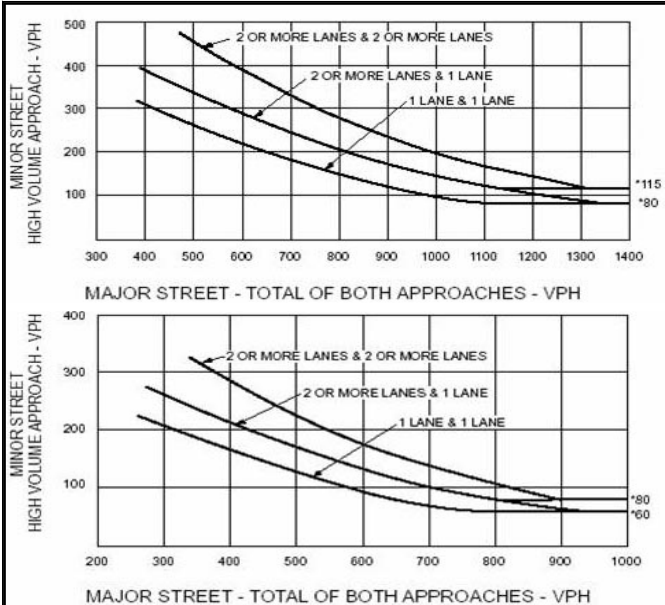
Warrants Volume

Information			
Analyst	ECP	Intersection	Kendrick St @ 4th Ave
Agency/Co	McMahon Associates	Jurisdiction	U.S. Customary
Date Performed	4/23/2010	Units	U.S. Customary
Project ID		Time Period Analyzed	
East/West Street	Kendrick Street	North/South Street	4th Avenue
File Name	Kendrick @ 4th Ave 2017.xhy	Major Street	East-West
Project Description			

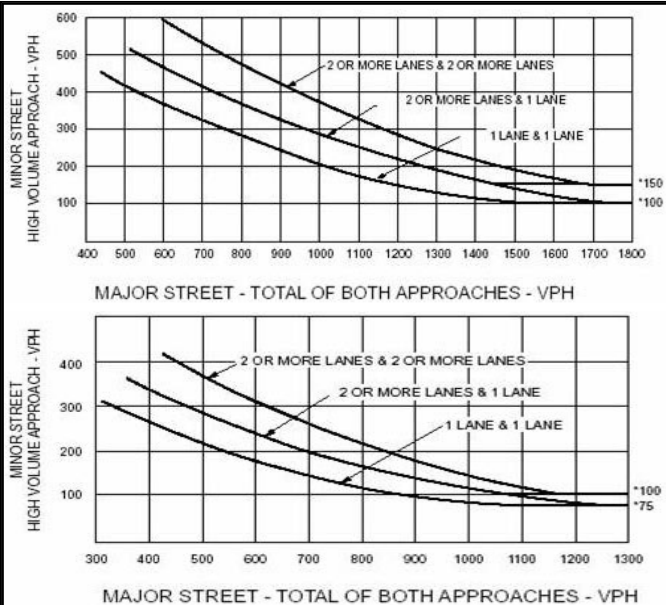
Warrant 1

Condition A - Minimum Vehicular Volume				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)		Vehicles per hour on higher-volume minor-street approach (one direction only)	
Major Street	Minor Street	100%*	80%*	70%*	100%*	80%*	70%*
1.....	1.....	500	400	350	150	120	105
2 or more ...	1.....	600	480	420	150	120	105
2 or more ...	2 or more ...	600	480	420	200	160	140
1.....	2 or more ...	500	400	350	200	160	140

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 1		Speed 35		Population 10000+				
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	536	79	618	No	No	No	No	No	No	No
08-09	1336	194	1538	Yes	Yes	Yes	Yes	Yes	No	Yes
09-10	2436	357	2808	Yes	Yes	Yes	Yes	Yes	No	Yes
10-11	1934	286	2232	Yes	Yes	Yes	Yes	Yes	No	Yes
11-12	1116	168	1291	Yes	Yes	Yes	Yes	Yes	No	No
12-13	1029	157	1193	Yes	Yes	Yes	Yes	Yes	No	No
13-14	1376	211	1596	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	1375	211	1595	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	1206	187	1401	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	1377	214	1600	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	1709	268	1988	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	2062	325	2401	Yes	Yes	Yes	Yes	Yes	No	Yes
Totals	17492	2657	20261	11	11	11	11	11	0	9

Warrants Volume

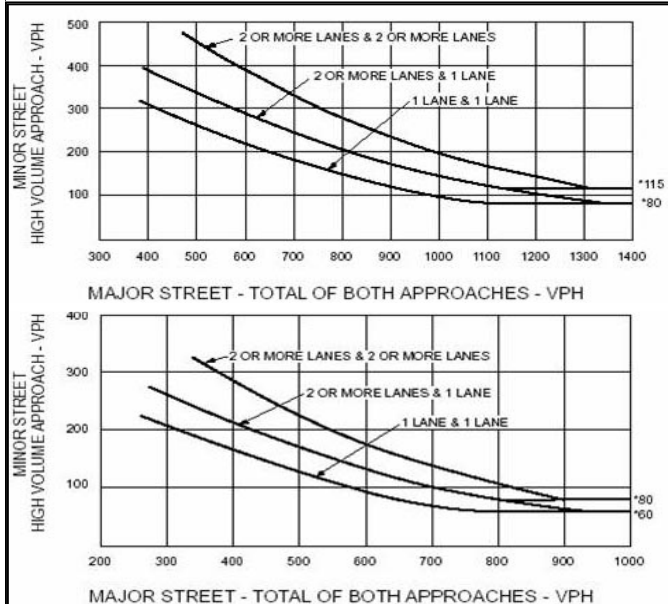
Information			
Analyst	ECP	Intersection	Route 9 @ 95/128 SB Ramps
Agency/Co	McMahon Associates	Jurisdiction	
Date Performed	4/19/2010	Units	U.S. Customary
Project ID	Route 128 Add-a-Lane Project	Time Period Analyzed	
East/West Street	Route 9	North/South Street	Route I-95/128 SB Ramps
File Name	Route 9 @ SB Ramps 2017.xhy	Major Street	East-West

Project Description *Route 128 Add-a-Lane Project*

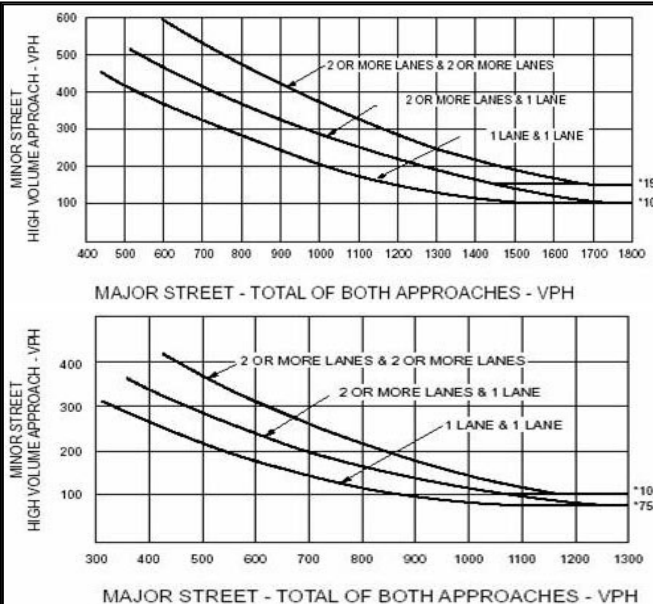
Warrant 1

Condition A - Minimum Vehicular Volume				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)			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	100% ^a	80% ^b	70% ^c	Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b	70% ^c
1.....	1.....	500	400	350	150	120	105	1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	600	480	420	150	120	105	2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	600	480	420	200	160	140	2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more....	500	400	350	200	160	140	1.....	2 or more....	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

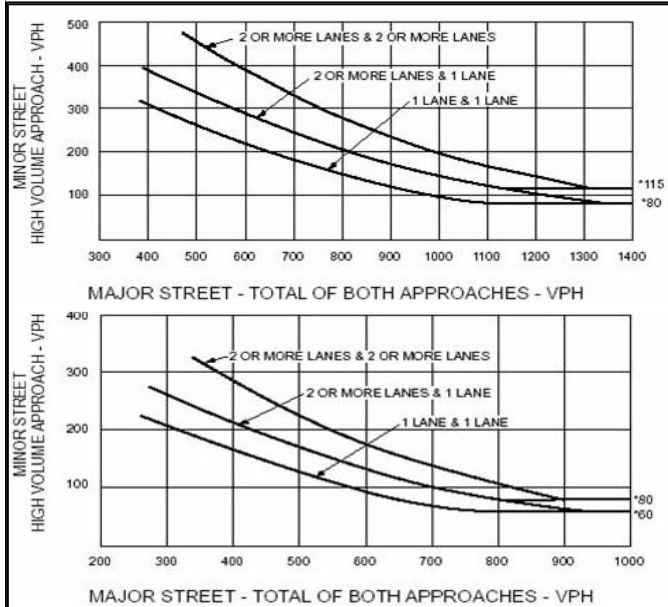
Hours	Major Street Lanes 2+			Minor Street Lanes 1		Speed		Population		
	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	2434	382	2816	Yes	Yes	Yes	Yes	Yes	No	Yes
08-09	3996	628	4624	Yes	Yes	Yes	Yes	Yes	No	Yes
09-10	4538	712	5250	Yes	Yes	Yes	Yes	Yes	No	Yes
10-11	3764	590	4354	Yes	Yes	Yes	Yes	Yes	No	Yes
11-12	3122	488	3610	Yes	Yes	Yes	Yes	Yes	No	Yes
12-13	3130	489	3619	Yes	Yes	Yes	Yes	Yes	No	Yes
13-14	3307	517	3824	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	3229	505	3734	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	3460	541	4001	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	3897	611	4508	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	4073	636	4709	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	4514	704	5218	Yes	Yes	Yes	Yes	Yes	No	Yes
Totals	43464	6803	50267	12	12	12	12	12	0	12

Warrants Volume			
Information			
Analyst	ECP	Intersection	Route 9 @ 95/128 NB Ramps
Agency/Co	McMahon Associates	Jurisdiction	U.S. Customary
Date Performed	4/19/2010	Units	U.S. Customary
Project ID	Route 128 Add-a-Lane Project	Time Period Analyzed	
East/West Street	Route 9	North/South Street	Route I-95/128 NB Ramps
File Name	Route 9 @ NB Ramps 2017.xhy	Major Street	East-West
Project Description <i>Route 128 Add-a-Lane Project</i>			

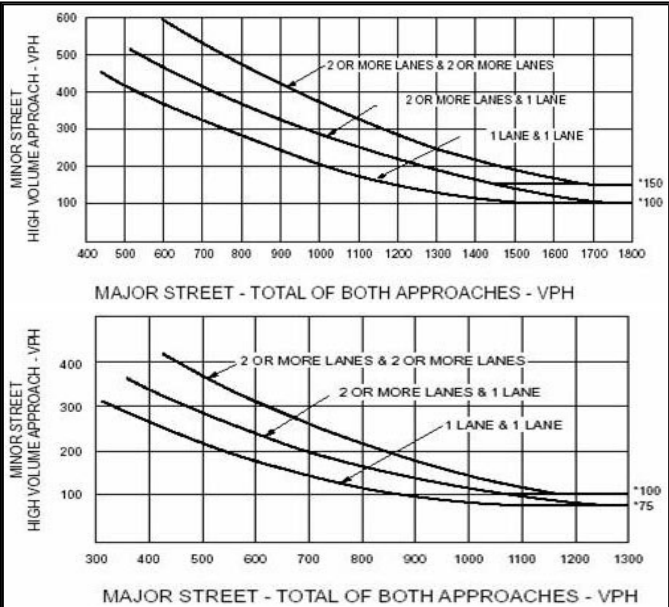
Warrant 1

Condition A - Minimum Vehicular Volume				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)		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	100% ^a	80% ^b	70% ^c	Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b	70% ^c
1.....	1.....	500	400	350	150	120	105	1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	600	480	420	150	120	105	2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	600	480	420	200	160	140	2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more....	500	400	350	200	160	140	1.....	2 or more....	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Hours	Major Street Lanes 2+			Minor Street Lanes 1		Speed		Population		
	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	550	333	883	No	Yes	No	No	Yes	No	No
08-09	1328	454	1782	Yes	Yes	Yes	Yes	Yes	No	Yes
09-10	1761	481	2242	Yes	Yes	Yes	Yes	Yes	No	Yes
10-11	1433	428	1861	Yes	Yes	Yes	Yes	Yes	No	Yes
11-12	1166	370	1536	Yes	Yes	Yes	Yes	Yes	No	Yes
12-13	1168	355	1523	Yes	Yes	Yes	Yes	Yes	No	Yes
13-14	1316	381	1697	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	1298	361	1659	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	1466	336	1802	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	1595	359	1954	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	1633	398	2031	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1761	458	2219	Yes	Yes	Yes	Yes	Yes	No	Yes
Totals	16475	4714	21189	11	12	11	11	12	0	11

Warrants Volume

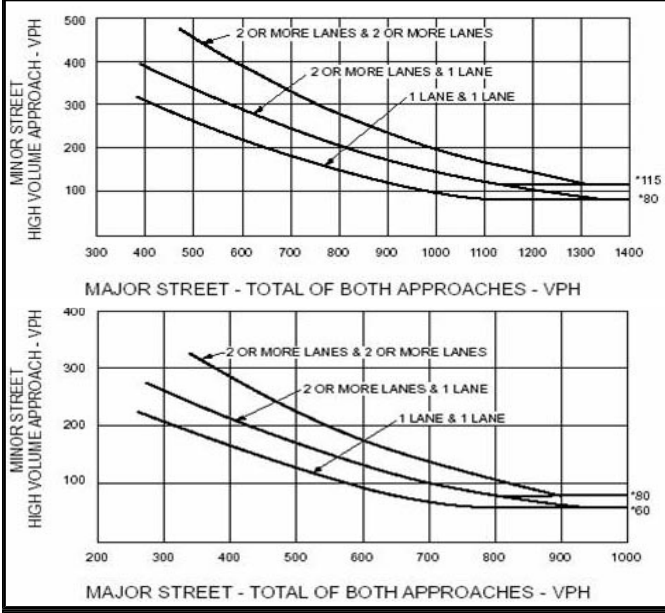
Information			
Analyst	ECP	Intersection	Kendrick @ 95/128 SB Ramps
Agency/Co	McMahon Associates	Jurisdiction	
Date Performed	4/19/2010	Units	U.S. Customary
Project ID	Route 128 Add-a-Lane Project	Time Period Analyzed	
East/West Street	Kendrick Street	North/South Street	Route I-95/128 SB Ramps
File Name	Kendrick @ SB Ramps 2017.xhy	Major Street	East-West

Project Description *Route 128 Add-a-Lane Project*

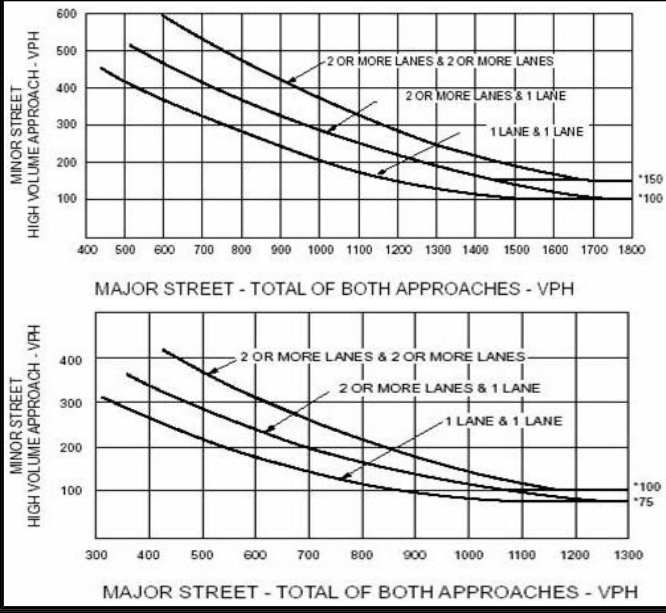
Warrant 1

Condition A - Minimum Vehicular Volume						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)			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	100% ^a	80% ^b	70% ^c	Major Street	Minor Street	100% ^a	80% ^b	70% ^c	100% ^a	80% ^b	70% ^c
1.....	1.....	500	400	350	150	120	105	1.....	1.....	750	600	525	75	60	53
2 or more...	1.....	600	480	420	150	120	105	2 or more...	1.....	900	720	630	75	60	53
2 or more...	2 or more...	600	480	420	200	160	140	2 or more...	2 or more...	900	720	630	100	80	70
1.....	2 or more....	500	400	350	200	160	140	1.....	2 or more....	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Hours	Major Street Lanes 2+			Minor Street Lanes 2+			Speed		Population		
	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	
07-08	419	227	646	No	No	No	No	No	No	No	
08-09	1090	591	1681	Yes	Yes	Yes	Yes	Yes	No	Yes	
09-10	1829	992	2821	Yes	Yes	Yes	Yes	Yes	No	Yes	
10-11	1415	767	2182	Yes	Yes	Yes	Yes	Yes	No	Yes	
11-12	830	450	1280	Yes	Yes	No	Yes	Yes	No	No	
12-13	759	412	1171	Yes	Yes	No	Yes	Yes	No	No	
13-14	1037	563	1600	Yes	Yes	Yes	Yes	Yes	No	Yes	
14-15	993	539	1532	Yes	Yes	Yes	Yes	Yes	No	Yes	
15-16	916	497	1413	Yes	Yes	Yes	Yes	Yes	No	Yes	
16-17	1112	603	1715	Yes	Yes	Yes	Yes	Yes	No	Yes	
17-18	1465	794	2259	Yes	Yes	Yes	Yes	Yes	No	Yes	
18-19	1817	985	2802	Yes	Yes	Yes	Yes	Yes	No	Yes	
Totals	13682	7420	21102	11	11	9	11	11	0	9	

Warrants Volume

Information

Analyst: ECP
 Agency/Co: McMahon Associates
 Date Performed: 4/23/2010
 Project ID:
 East/West Street: Kendrick Street
 File Name: Kendrick @ Hunting 2017.xhy

Intersection: Kendrick St @ Hunting Rd
 Jurisdiction: U.S. Customary
 Units:
 Time Period Analyzed:
 North/South Street: Hunting Road
 Major Street: East-West

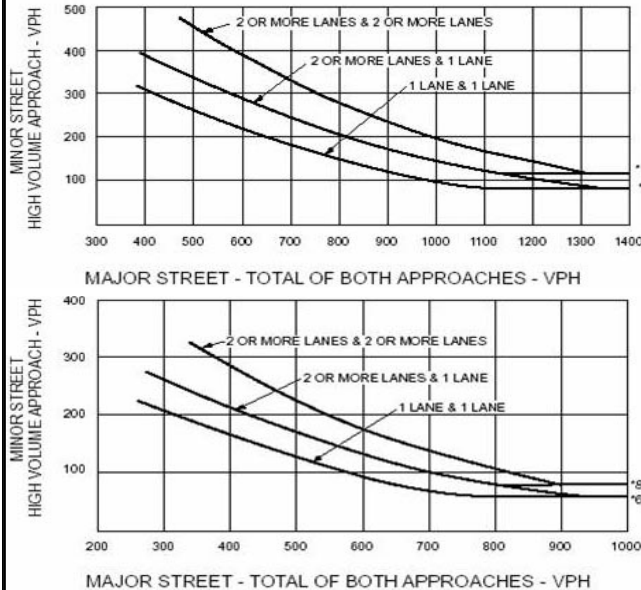
Project Description

Warrant 1

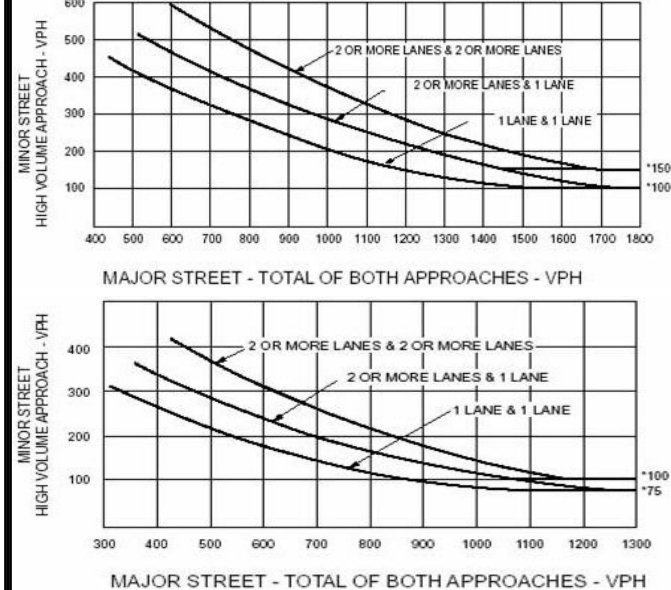
Condition A - Minimum Vehicular Volume							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%*	80%*	70%*	100%*	80%*	70%*
1.....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

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%*	80%*	70%*	100%*	80%*	70%*	
1.....	1.....	750	600	525	75	60	53	
2 or more ...	1.....	900	720	630	75	60	53	
2 or more ...	2 or more ...	900	720	630	100	80	70	
1.....	2 or more ...	750	600	525	100	80	70	

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 1		Speed 35		Population 10000+				
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	189	43	241	No	No	No	No	No	No	No
08-09	479	108	609	No	No	No	No	No	No	No
09-10	951	215	1209	Yes	Yes	Yes	Yes	Yes	No	No
10-11	713	161	906	Yes	Yes	No	Yes	No	No	No
11-12	462	104	587	No	No	No	No	No	No	No
12-13	497	112	631	No	No	No	No	No	No	No
13-14	728	165	926	Yes	Yes	No	Yes	No	No	No
14-15	671	152	853	Yes	Yes	No	Yes	No	No	No
15-16	542	123	690	No	Yes	No	No	No	No	No
16-17	668	151	849	Yes	Yes	No	Yes	No	No	No
17-18	761	172	967	Yes	Yes	Yes	Yes	Yes	No	No
18-19	834	188	1060	Yes	Yes	Yes	Yes	Yes	No	No
Totals	7495	1694	9528	7	8	3	7	3	0	0

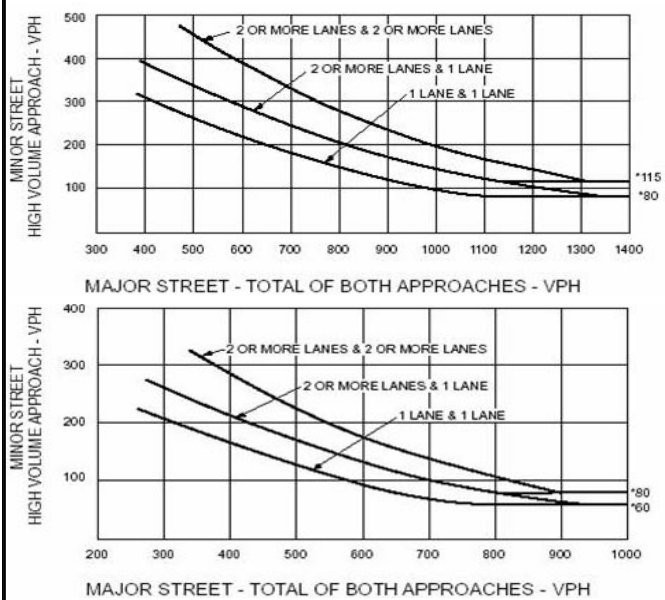
Warrants Volume

Information			
Analyst	ECP	Intersection	Kendrick St @ 3rd Ave
Agency/Co	McMahon Associates	Jurisdiction	
Date Performed	4/23/2010	Units	U.S. Customary
Project ID		Time Period Analyzed	
East/West Street	Kendrick Street	North/South Street	3rd Avenue
File Name	Kendrick @ 3rd Ave 2017.xhy	Major Street	East-West
Project Description			

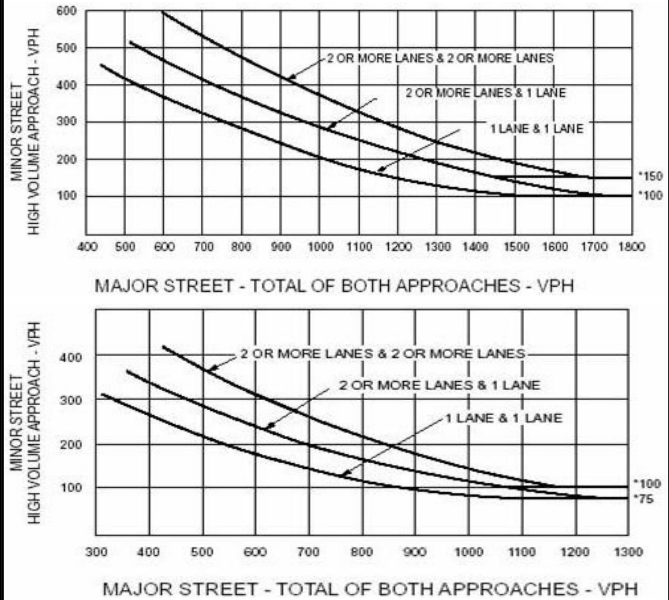
Warrant 1

Condition A - Minimum Vehicular Volume				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)			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%*	80%*	70%*	100%*	80%*	70%*	Major Street	Minor Street	100%*	80%*	70%*	100%*	80%*	70%*
1.....	1.....	500	400	350	150	120	105	1.....	1.....	750	600	525	75	60	53
2 or more ...	1.....	600	480	420	150	120	105	2 or more ...	1.....	900	720	630	75	60	53
2 or more ...	2 or more ...	600	480	420	200	160	140	2 or more ...	2 or more ...	900	720	630	100	80	70
1.....	2 or more ...	500	400	350	200	160	140	1.....	2 or more ...	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 1		Speed 35		Population 10000+				
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)
07-08	783	23	816	No	No	No	No	No	No	No
08-09	1980	57	2060	No	No	No	No	No	No	No
09-10	3578	401	4022	Yes	Yes	Yes	Yes	Yes	No	Yes
10-11	2811	83	2928	No	No	Yes	Yes	Yes	No	No
11-12	1590	49	1659	No	No	No	No	No	No	No
12-13	1448	46	1513	No	No	No	No	No	No	No
13-14	1921	62	2008	No	No	No	Yes	No	No	No
14-15	1921	61	2007	No	No	No	Yes	No	No	No
15-16	1667	54	1723	No	No	No	No	No	No	No
16-17	1899	62	1987	No	No	No	Yes	No	No	No
17-18	2324	78	2434	No	No	Yes	Yes	No	No	No
18-19	2792	95	2926	No	No	Yes	Yes	Yes	No	No
Totals	24714	1071	26083	1	1	4	7	3	0	1

Warrants Volume

Information

Analyst: ECP
 Agency/Co: McMahon Associates
 Date Performed: 4/23/2010
 Project ID:
 East/West Street: Route 9
 File Name: Route 9 @ Sun Life 2017.xhy

Intersection: Route 9 @ Sun Life
 Jurisdiction: U.S. Customary
 Units:
 Time Period Analyzed:
 North/South Street: Sun Life
 Major Street: East-West

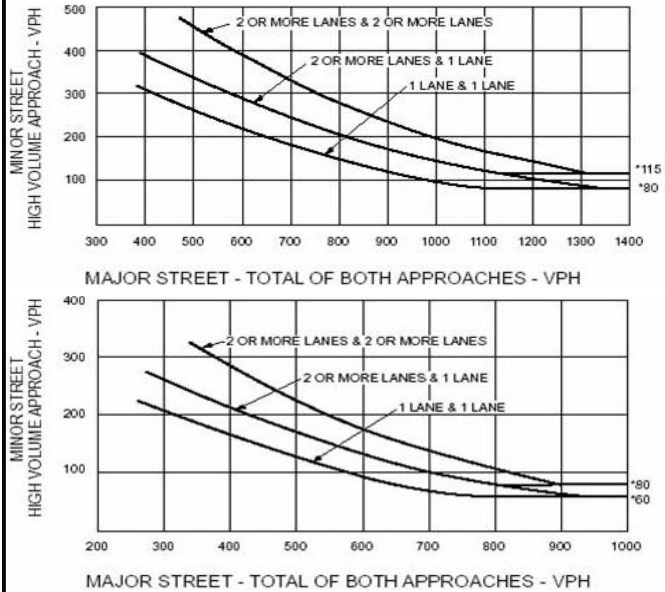
Project Description

Warrant 1

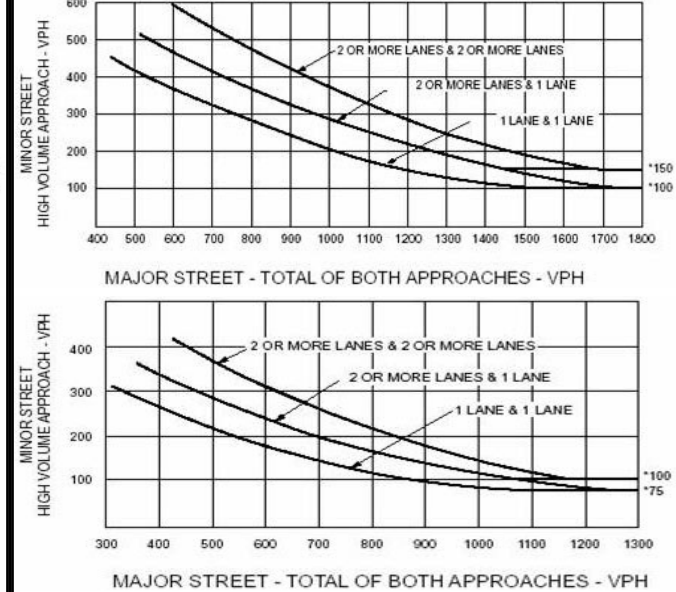
Condition A - Minimum Vehicular Volume							
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%*	80%*	70%*	100%*	80%*	70%*
1.....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

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%*	80%*	70%*	100%*	80%*	70%*	
1.....	1.....	750	600	525	75	60	53	
2 or more ...	1.....	900	720	630	75	60	53	
2 or more ...	2 or more ...	900	720	630	100	80	70	
1.....	2 or more ...	750	600	525	100	80	70	

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 1		Minor Street Lanes 1		Speed		35		Population		10000+	
Hours	Major Volume	Minor Volume	Total Volume	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (100%)	
07-08	2825	110	2938	No	No	Yes	Yes	Yes	No	Yes	
08-09	4666	182	4853	Yes	Yes	Yes	Yes	Yes	No	Yes	
09-10	5275	206	5487	Yes	Yes	Yes	Yes	Yes	No	Yes	
10-11	4375	171	4551	Yes	Yes	Yes	Yes	Yes	No	Yes	
11-12	3602	141	3747	No	Yes	Yes	Yes	Yes	No	Yes	
12-13	3603	142	3749	No	Yes	Yes	Yes	Yes	No	Yes	
13-14	3807	149	3960	No	Yes	Yes	Yes	Yes	No	Yes	
14-15	3731	146	3881	No	Yes	Yes	Yes	Yes	No	Yes	
15-16	3996	157	4158	Yes	Yes	Yes	Yes	Yes	No	Yes	
16-17	4527	177	4709	Yes	Yes	Yes	Yes	Yes	No	Yes	
17-18	4679	184	4868	Yes	Yes	Yes	Yes	Yes	No	Yes	
18-19	5166	204	5376	Yes	Yes	Yes	Yes	Yes	No	Yes	
Totals	50252	1969	52277	7	11	12	12	12	0	12	