



February 24, 2015

Highland Park High School  
Campus Traffic and Parking Study  
**TECHNICAL APPENDIX**

*Prepared for:*

Township  
High School  
District 113



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# Highland Park High School Appendix

- **2013 Traffic Counts**



## Green Bay Road at Vine Avenue

Highland Park High School

Highland Park, Illinois

Begin Time	Green Bay Road Southbound			Vine Avenue Westbound			Green Bay Road Northbound			Vine Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn			
	Tuesday August 27, 2013														
7:00 AM	0	66	5	9	4	14	20	28	2	2	6	3	158	1144	0.70
7:15 AM	0	110	10	8	9	22	37	33	0	0	16	1	249	1248	0.76
7:30 AM	1	111	12	15	10	28	59	54	1	1	31	4	327	1222	0.75
7:45 AM	1	121	18	27	21	66	77	47	0	0	29	2	410	1209	0.74
8:00 AM	1	119	7	6	11	22	25	59	0	0	5	7	262	1096	0.87
8:15 AM	1	98	7	5	5	18	11	64	0	0	10	3	223		
8:30 AM	4	146	6	8	9	29	21	80	2	1	5	3	314		
8:45 AM	0	121	7	9	10	31	25	75	1	1	15	2	297		
Total	8	892	72	87	79	230	275	440	6	6	117	25			
<b>7:00-8:00 AM</b>	<b>2</b>	<b>408</b>	<b>45</b>	<b>59</b>	<b>44</b>	<b>130</b>	<b>193</b>	<b>162</b>	<b>3</b>	<b>6</b>	<b>82</b>	<b>10</b>	<b>1144</b>		
<b>Thursday September 12, 2013</b>															
2:00 PM	1	82	4	2	10	13	9	89	2	2	6	6	227	1054	0.83
2:15 PM	0	108	0	4	4	9	19	89	2	2	2	7	249	1173	0.85
2:30 PM	1	90	8	3	6	21	19	94	1	1	7	9	260	1320	0.83
2:45 PM	0	88	7	1	3	6	69	126	0	0	10	7	318	1408	0.89
3:00 PM	1	102	9	12	12	42	39	109	1	1	9	9	346	1417	0.89
3:15 PM	6	108	3	15	25	53	22	138	4	1	8	13	396	1359	0.86
3:30 PM	2	122	4	4	13	32	12	130	0	3	12	14	348	1350	0.87
3:45 PM	1	100	3	4	6	24	15	156	1	0	7	10	327	1303	0.84
4:00 PM	1	100	10	9	2	16	11	114	2	1	6	16	288	1318	0.85
4:15 PM	1	148	9	2	4	24	27	153	1	1	6	11	387	1380	0.89
4:30 PM	0	87	9	3	3	15	21	136	0	1	13	13	301	1329	0.95
4:45 PM	4	133	11	6	3	14	28	112	1	3	10	17	342	1360	0.97
5:00 PM	2	112	4	1	9	19	19	158	0	5	9	12	350	1348	0.96
5:15 PM	1	106	5	6	6	21	24	143	0	2	9	13	336		
5:30 PM	1	106	9	5	2	11	20	151	2	5	5	15	332		
5:45 PM	2	88	4	14	14	42	15	133	0	1	10	7	330		
Total	24	1680	99	91	122	362	369	2031	17	34	129	179			
<b>School 3-4 PM</b>	<b>10</b>	<b>432</b>	<b>19</b>	<b>35</b>	<b>56</b>	<b>151</b>	<b>88</b>	<b>533</b>	<b>6</b>	<b>5</b>	<b>36</b>	<b>46</b>	<b>1417</b>		
<b>Street 4:30-5:30 PM</b>	<b>7</b>	<b>438</b>	<b>29</b>	<b>16</b>	<b>21</b>	<b>69</b>	<b>92</b>	<b>549</b>	<b>1</b>	<b>11</b>	<b>41</b>	<b>55</b>	<b>1329</b>		



# Green Bay Road at 1st Street

Highland Park High School

Begin Time	Green Bay Road Southbound		First Street Westbound		Green Bay Road Northbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Through	Left Turn	Right Turn	Left Turn	Through				
<b>Thursday August 27, 2013</b>									
7:00 AM	52	27	5	0	31		115	911	0.75
7:15 AM	81	59	10	0	72		222	1023	0.84
7:30 AM	132	54	22	0	97		305	1023	0.84
7:45 AM	105	58	27	1	78		269	960	0.89
8:00 AM	103	36	19	1	68		227	947	0.92
8:15 AM	90	27	29	0	76		222		
8:30 AM	117	50	18	0	57		242		
8:45 AM	106	54	22	0	74		256		
Total	786	365	152	2	553				
<b>7:00-8:00 AM</b>	<b>370</b>	<b>198</b>	<b>64</b>	<b>1</b>	<b>278</b>		<b>911</b>		
<b>Thursday August 27, 2013</b>									
2:00 PM	75	34	30	1	95		235	997	0.94
2:15 PM	79	43	26	0	95		243	1068	0.87
2:30 PM	92	36	24	2	101		255	1166	0.85
2:45 PM	66	32	42	1	123		264	1218	0.89
3:00 PM	93	41	56	0	116		306	<b>1240</b>	<b>0.91</b>
3:15 PM	106	50	44	1	140		341	1171	0.86
3:30 PM	108	42	47	1	109		307	1135	0.92
3:45 PM	101	39	28	1	117		286	1099	0.90
4:00 PM	86	31	24	0	96		237	1129	0.89
4:15 PM	93	30	37	1	144		305	1203	0.95
4:30 PM	80	39	35	1	116		271	<b>1192</b>	<b>0.94</b>
4:45 PM	98	44	32	5	137		316	1246	0.96
5:00 PM	98	39	50	1	123		311	1221	0.94
5:15 PM	81	32	52	1	128		294		
5:30 PM	95	43	73	1	113		325		
5:45 PM	108	37	38	0	108		291		
Total	1459	612	638	17	1861				
<b>School 3-4 PM</b>	<b>408</b>	<b>172</b>	<b>175</b>	<b>3</b>	<b>482</b>		<b>1240</b>		
<b>Street 4:30-5:30 PM</b>	<b>357</b>	<b>154</b>	<b>169</b>	<b>8</b>	<b>504</b>		<b>1192</b>		

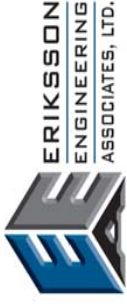


### St. Johns Avenue at Vine Avenue

Highland Park High School Highland Park, Illinois

Begin Time	St. Johns Avenue Southbound			Vine Avenue Westbound			St. Johns Avenue Northbound			Vine Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn			
<b>Tuesday August 27, 2013</b>															
7:00 AM	5	21	4	1	8	0	2	10	9	6	6	2	74	644	0.77
7:15 AM	14	29	8	12	11	5	3	27	25	10	8	6	158	637	0.76
7:30 AM	16	38	3	7	23	10	7	35	23	15	15	10	202	587	0.70
7:45 AM	16	34	4	13	18	16	10	25	25	13	13	12	210	495	0.59
8:00 AM	2	16	0	1	3	2	1	18	10	10	10	1	67	357	0.81
8:15 AM	4	35	1	1	5	5	5	20	14	8	8	1	108		
8:30 AM	6	44	1	1	4	3	4	20	11	5	5	3	110		
8:45 AM	0	27	1	1	7	2	2	10	9	4	7	2	72		
Total	63	244	22	37	79	43	34	165	126	79	72	37	644		
7:00-8:00 AM	51	122	19	33	60	31	22	97	82	55	42	30			
<b>Thursday September 12, 2013</b>															
2:00 PM	8	17	1	1	12	2	0	23	4	6	4	10	88	369	0.80
2:15 PM	5	16	2	3	4	3	4	27	7	2	7	0	80	424	0.74
2:30 PM	3	25	7	0	12	4	2	12	10	4	5	2	86	512	0.76
2:45 PM	12	32	4	0	10	1	3	15	10	9	9	10	115	548	0.82
3:00 PM	13	46	6	3	10	2	3	10	11	16	15	8	143	533	0.79
3:15 PM	17	41	9	2	17	2	8	18	20	14	11	9	168	485	0.72
3:30 PM	10	48	3	2	12	2	2	22	8	7	0	6	122	416	0.85
3:45 PM	6	42	3	4	8	3	2	10	5	1	5	11	100	415	0.86
4:00 PM	9	24	3	3	10	2	1	10	5	5	11	12	95	441	0.88
4:15 PM	7	34	4	1	10	0	1	24	3	5	5	5	99	470	0.93
4:30 PM	8	36	1	2	10	5	2	23	9	4	12	9	121	479	0.95
4:45 PM	9	47	2	2	7	3	2	20	7	10	11	6	126	474	0.94
5:00 PM	3	35	2	5	12	1	0	33	10	8	4	11	124	433	0.87
5:15 PM	6	30	2	3	5	1	4	24	7	8	8	10	108		
5:30 PM	10	20	0	1	15	1	2	25	10	10	15	7	116		
5:45 PM	5	32	2	0	8	0	1	16	2	2	5	12	85		
Total	131	525	51	32	162	32	37	312	128	111	127	128	533		
School 3-4 PM	46	177	21	11	47	9	15	60	44	38	31	34			
Street 4:30-5:30 PM	26	148	7	12	34	10	8	100	33	30	35	36	479		





**St. Johns Avenue at Woodpath Lane/Bus Entrance** Highland Park High School Highland Park, Illinois

Begin Time	Woodpath Lane Southbound			St. Johns Avenue Westbound			School Bus Entrance Northbound			St. Johns Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Left Turn	Right Cars	Left Cars	Right Cars	Left Bus	Right Cars	Left Bus	Right Cars	Left Bus	Right Cars	Left Cars			
<b>Tuesday August 27, 2013</b>															
7:00 AM	0	0	0	3	1	2	0	3	1	10	0	2	22	141	0.69
7:15 AM	0	0	2	7	1	4	0	7	1	6	0	2	30	129	0.63
7:30 AM	0	3	1	11	3	5	3	11	3	8	2	1	51	110	0.54
7:45 AM	4	1	0	5	3	1	7	5	3	4	2	3	38	72	0.47
8:00 AM	0	2	0	3	0	0	0	3	0	2	0	0	10	38	0.73
8:15 AM	1	1	2	2	0	2	0	2	0	1	0	0	11		
8:30 AM	0	2	1	1	1	3	0	1	1	3	0	0	13		
8:45 AM	0	1	0	0	0	1	1	0	0	1	0	0	4		
Total	5	10	6	32	9	18	11	32	9	35	4	8	141		
<b>7:00-8:00 AM</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>26</b>	<b>8</b>	<b>12</b>	<b>10</b>	<b>26</b>	<b>8</b>	<b>28</b>	<b>4</b>	<b>8</b>			
<b>Thursday September 12, 2013</b>															
2:00 PM	1	1	1	0	0	0	0	0	0	1	1	1	6	36	0.60
2:15 PM	0	0	0	1	1	0	1	1	0	0	0	0	4	60	0.50
2:30 PM	0	2	2	2	1	2	0	0	1	0	1	0	11	91	0.65
2:45 PM	0	5	1	2	2	2	0	1	0	1	1	0	15	99	0.71
3:00 PM	2	1	0	3	7	3	2	6	0	4	0	2	30	100	0.71
3:15 PM	3	2	2	1	3	1	7	5	2	8	1	0	35	95	0.68
3:30 PM	0	0	2	3	0	3	2	4	2	2	0	1	19	73	0.73
3:45 PM	1	0	0	5	0	4	0	2	0	1	2	1	16	69	0.69
4:00 PM	0	2	2	7	0	8	1	2	0	1	1	1	25	63	0.63
4:15 PM	2	1	0	1	0	4	2	1	0	2	0	0	13	60	0.68
4:30 PM	0	1	0	2	0	7	0	4	0	1	0	0	15	66	0.75
4:45 PM	0	1	0	2	0	3	0	3	0	1	0	0	10	54	0.61
5:00 PM	0	0	1	10	1	7	0	2	0	0	1	0	22	57	0.65
5:15 PM	0	0	0	4	0	4	1	6	1	3	0	0	19		
5:30 PM	0	0	1	0	0	0	0	1	1	0	0	0	3		
5:45 PM	0	0	2	2	2	4	0	1	0	2	0	0	13		
Total	9	16	14	45	17	52	16	39	7	27	8	6	100		
<b>School 3-4 PM</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>17</b>	<b>4</b>	<b>15</b>	<b>3</b>	<b>4</b>	<b>66</b>		
<b>Street 4:30-5:30 PM</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>18</b>	<b>1</b>	<b>21</b>	<b>1</b>	<b>15</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>0</b>			





Pedestrian and Bike Volumes

**Green Bay Road at Vine Avenue/1st Street**

Begin Time	Highland Park, Illinois											
	1st Street Southeast Crosswalk		Green Bay South (at 1st) Crosswalk		Green Bay North Crosswalk		Vine East Crosswalk		Green Bay South Crosswalk		Vine West Crosswalk	
	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike
7:00 AM	6	0	0	0	0	0	0	0	1	0	0	0
7:15 AM	10	0	0	2	0	0	1	0	0	2	0	0
7:30 AM	16	2	0	8	0	3	0	0	0	0	4	0
7:45 AM	13	1	0	8	2	2	3	1	1	1	2	2
8:00 AM	2	0	1	0	0	1	1	0	0	0	2	1
8:15 AM	5	0	1	0	6	2	0	0	0	0	3	0
8:30 AM	4	1	0	5	1	1	1	1	1	0	1	3
8:45 AM	7	0	0	9	1	1	0	1	0	0	1	1
<b>Total</b>	<b>63</b>	<b>4</b>	<b>2</b>	<b>38</b>	<b>10</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>13</b>	<b>12</b>
<b>7:00-8:00 AM</b>	<b>45</b>	<b>3</b>	<b>0</b>	<b>18</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>7</b>
2:00 PM	10	0	0	0	2	10	0	0	0	0	0	0
2:15 PM	8	0	0	0	1	0	0	0	0	0	4	1
2:30 PM	11	1	0	3	0	0	0	0	0	0	0	0
2:45 PM	12	0	0	3	2	2	4	0	0	0	2	1
3:00 PM	25	0	0	12	3	10	1	0	0	0	4	2
3:15 PM	13	0	1	9	2	4	0	0	0	0	1	3
3:30 PM	2	0	0	3	0	0	1	0	0	0	1	2
3:45 PM	3	0	0	1	3	2	2	0	0	0	1	1
4:00 PM	0	0	0	0	4	0	0	0	0	0	0	3
4:15 PM	4	1	0	3	6	0	0	0	0	0	2	0
4:30 PM	3	0	3	3	0	0	1	0	0	0	5	1
4:45 PM	3	3	0	1	0	0	0	1	0	0	2	1
5:00 PM	2	1	0	2	1	2	0	0	0	0	2	2
5:15 PM	2	1	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	3	1	0	0	0	0	0	0	1
5:45 PM	4	1	0	0	2	2	2	0	0	0	0	2
<b>Total</b>	<b>102</b>	<b>9</b>	<b>4</b>	<b>43</b>	<b>27</b>	<b>36</b>	<b>2</b>	<b>24</b>	<b>0</b>	<b>3</b>	<b>24</b>	<b>21</b>
<b>School 3-4 PM</b>	<b>43</b>	<b>0</b>	<b>1</b>	<b>25</b>	<b>8</b>	<b>17</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>8</b>
<b>Street 4:30-5:30 PM</b>	<b>10</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>5</b>



**Pedestrian and Bike Volumes  
Around HPHS Campus**

Highland Park High School Highland Park, Illinois

Begin Time	St Johns at Woodpath/Bus						St Johns at Vine Street						North Student			Vine Avenue			Visitor Drive				
	North		East		South		West		East		South		West		Access Drive			Access Drive					
	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	Ped.	Bike	
7:00 AM	3					4			1	3	2			1				8					18
7:15 AM			4			25			1	1	1			8				25					11
7:30 AM	1		3						5	1	10			8		3		49					14
7:45 AM			2						5	1	13			21		3		32					29
8:00 AM						1			1	1	32			3		1		8					3
8:15 AM									5	1	2			1									1
8:30 AM									4					0				6					6
8:45 AM						1			1					5		1		1					3
<b>Total</b>	1	4	9	1	0	31	1	0	21	7	60	0	142	47	8		129	0				85	0
<b>7:00-8:00 AM</b>	1	3	9	0	0	29	1	0	5	26	0	136	3	38	6		114	0				72	0
2:00 PM	1								1					1				7					3
2:15 PM			1			1			1					4				5					3
2:30 PM			25						6					1				10					3
2:45 PM	1		26			1			1	1	1			4				7					9
3:00 PM	2		10						1	2	50			11				56					32
3:15 PM	1		12						9	2	10			14				19					7
3:30 PM	2		1						1	1	44			1				4					7
3:45 PM						1			1	1	6			1				3					42
4:00 PM	1					1			1	1	34			1				2					33
4:15 PM									2	1	5			2				0					2
4:30 PM			2						2		18			2				1					0
4:45 PM	2		1			2					15			2				1					5
5:00 PM						1				2	35			1				2					70
5:15 PM	2					1			3	2	2			1				2					2
5:30 PM	2								2	2	1			1				3					1
5:45 PM	3								2	2	2			2				1					1
<b>Total</b>	17	8	79	1	0	8	2	5	21	15	240	17	21	39	3		120	24				219	0
<b>School 3-4 PM</b>	5	5	23	0	0	1	0	1	11	6	110	5	4	27	0		82	14				88	0
<b>Street 4:30-5:30 PM</b>	4	0	3	0	0	4	0	0	2	2	68	5	8	4	2		4	2				77	0

# Highland Park High School Appendix

- **2014 Traffic Counts**



### Green Bay Road at Vine Avenue

Highland Park High School

Highland Park, Illinois

Begin Time	Green Bay Road Southbound			Vine Avenue Westbound			Green Bay Road Northbound			Vine Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor	
	Right Turn	Left to 1st Street	Left to Vine	Right Turn	Through	Left to 1st Street	Right to 1st	Through	Left Turn	Right GB	Through	Right to 1st				Through
<b>Thursday September 18, 2014</b>																
7:00 AM	0	51	34	8	2	21	2	27	35	1	4	3	9	3	204	0.79
7:15 AM	1	72	42	14	5	33	9	0	36	40	1	5	19	5	296	0.85
7:30 AM	2	81	31	16	11	37	8	1	60	52	4	3	32	2	354	0.84
7:45 AM	1	72	63	17	26	42	11	0	56	53	0	7	30	3	395	0.81
8:00 AM	0	101	60	11	15	17	5	1	15	54	0	6	4	2	296	0.95
8:15 AM	2	88	53	6	6	19	4	1	16	62	2	2	10	1	278	
8:30 AM	2	106	50	12	11	17	5	0	16	60	1	0	5	2	303	
8:45 AM	2	81	55	3	7	16	4	1	12	60	0	3	13	5	280	
Total	10	652	388	87	94	202	48	4	238	416	9	30	122	23	1249	
<b>7:00-8:00 AM</b>	<b>4</b>	<b>276</b>	<b>170</b>	<b>55</b>	<b>55</b>	<b>133</b>	<b>30</b>	<b>1</b>	<b>179</b>	<b>180</b>	<b>6</b>	<b>19</b>	<b>90</b>	<b>13</b>		
<b>Thursday September 18, 2014</b>																
2:00 PM	0	55	24	6	11	15	4	1	10	120	3	1	5	3	261	0.88
2:15 PM	1	52	18	5	3	12	1	0	13	104	1	2	8	6	233	0.86
2:30 PM	2	70	34	3	12	17	1	2	19	108	6	1	10	8	298	0.87
2:45 PM	3	76	29	6	11	10	1	0	31	123	4	0	9	3	316	0.93
3:00 PM	0	82	22	12	11	18	4	1	33	107	0	1	7	9	350	0.94
3:15 PM	2	81	35	8	25	17	4	0	17	115	2	1	6	5	388	0.94
3:30 PM	3	82	39	11	15	8	3	0	14	153	0	1	8	6	382	0.92
3:45 PM	2	77	39	5	7	9	2	0	9	152	4	1	7	15	343	0.96
4:00 PM	1	69	32	4	13	6	3	1	12	168	1	3	6	8	343	0.97
4:15 PM	1	75	31	6	15	6	0	0	15	150	1	1	10	7	342	0.98
4:30 PM	2	84	27	2	10	6	21	1	31	146	3	1	10	15	361	0.96
4:45 PM	3	74	45	3	5	9	3	0	16	168	1	2	11	13	360	0.97
5:00 PM	2	70	33	5	8	23	2	1	30	165	0	2	6	11	366	0.96
5:15 PM	0	80	23	11	9	8	31	0	34	154	1	3	17	10	382	
5:30 PM	3	76	25	9	14	7	21	0	32	166	0	3	12	17	385	
5:45 PM	0	70	30	10	8	8	22	0	14	165	2	2	9	8	348	
Total	25	1173	486	106	177	128	382	30	330	2264	29	25	141	144	1463	
<b>School 3-4 PM</b>	<b>7</b>	<b>322</b>	<b>135</b>	<b>36</b>	<b>58</b>	<b>52</b>	<b>161</b>	<b>13</b>	<b>73</b>	<b>527</b>	<b>6</b>	<b>4</b>	<b>28</b>	<b>35</b>	<b>1463</b>	
<b>Street 4:30-5:30 PM</b>	<b>7</b>	<b>308</b>	<b>128</b>	<b>21</b>	<b>32</b>	<b>27</b>	<b>84</b>	<b>7</b>	<b>111</b>	<b>633</b>	<b>5</b>	<b>8</b>	<b>44</b>	<b>49</b>	<b>1469</b>	



## Green Bay Road at 1st Street

Begin Time	First Street Westbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Left Turn			
<b>Thursday September 18, 2014</b>					
7:00 AM	12	0	12	76	0.73
7:15 AM	13	0	13	80	0.77
7:30 AM	25	0	25	87	0.84
7:45 AM	26	0	26	85	0.82
8:00 AM	15	1	16	76	0.83
8:15 AM	20	0	20		
8:30 AM	23	0	23		
8:45 AM	16	1	17		
Total	150	2			
<b>7:00-8:00 AM</b>	<b>76</b>	<b>0</b>	<b>76</b>		
<b>Thursday September 18, 2014</b>					
2:00 PM	41	0	41	144	0.88
2:15 PM	35	0	35	136	0.97
2:30 PM	32	2	34	140	0.90
2:45 PM	34	0	34	152	0.83
3:00 PM	33	0	33	<b>162</b>	<b>0.88</b>
3:15 PM	39	0	39	165	0.90
3:30 PM	45	1	46	169	0.92
3:45 PM	44	0	44	160	0.91
4:00 PM	34	2	36	158	0.92
4:15 PM	42	1	43	167	0.93
4:30 PM	37	0	37	<b>173</b>	<b>0.88</b>
4:45 PM	42	0	42	190	0.88
5:00 PM	45	0	45	189	0.88
5:15 PM	49	0	49		
5:30 PM	52	2	54		
5:45 PM	41	0	41		
Total	645	8			
<b>School 3-4 PM</b>	<b>161</b>	<b>1</b>	<b>162</b>		
<b>Street 4:30-5:30 PM</b>	<b>173</b>	<b>0</b>	<b>173</b>		



**St. Johns Avenue at Vine Avenue** Highland Park High School Highland Park, Illinois

Begin Time	St. Johns Avenue Southbound			Vine Avenue Westbound			St. Johns Avenue Northbound			Vine Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn			
	<b>Tuesday September 16, 2014</b>														
7:00 AM	19	17	1	0	4	2	0	9	10	5	6	15	88	645	0.77
7:15 AM	17	29	2	2	11	3	0	23	31	17	6	14	155	649	0.77
7:30 AM	18	33	2	2	22	5	0	23	35	23	11	18	192	494	0.59
7:45 AM	22	30	5	3	21	9	8	21	29	27	14	21	210	302	0.36
8:00 AM	9	26	2	1	11	1	0	11	6	10	3	12	92	92	0.25
Total	85	135	12	8	69	20	8	87	111	82	40	80	645	645	
<b>7:00-8:00 AM</b>	<b>76</b>	<b>109</b>	<b>10</b>	<b>7</b>	<b>58</b>	<b>19</b>	<b>8</b>	<b>76</b>	<b>105</b>	<b>72</b>	<b>37</b>	<b>68</b>			
	<b>Tuesday September 16, 2014</b>														
2:30 PM	8	14	3	1	10	0	2	36	4	6	7	8	99	598	0.71
2:45 PM	15	22	4	4	19	2	0	31	14	4	7	12	134	641	0.76
3:00 PM	15	36	5	3	15	3	5	21	12	22	7	10	154	612	0.73
3:15 PM	23	45	8	1	14	0	11	48	27	15	5	14	211	458	0.54
3:30 PM	12	39	3	0	11	3	4	31	8	7	6	18	142	247	0.43
3:45 PM	9	23	2	1	10	0	2	31	7	3	8	9	105	105	0.25
Total	82	179	25	10	79	8	24	198	72	57	40	71	612	612	
<b>School 3-4 PM</b>	<b>59</b>	<b>143</b>	<b>18</b>	<b>5</b>	<b>50</b>	<b>6</b>	<b>22</b>	<b>131</b>	<b>54</b>	<b>47</b>	<b>26</b>	<b>51</b>			



Highland Park High School Highland Park, Illinois

### Highland Park High School Driveways

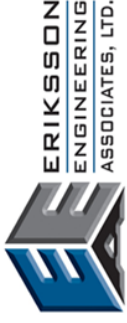
Begin Time	Visitor Lot Driveway On Vine Street						Vine Avenue Westbound Pick-Up/Drop-off						Vine Avenue West School Driveway						St. John's Avenue North School Driveway						St. John's Avenue Bus Entrance			15 Minute Totals		60 Minute Totals						
	Right		Left		Right		Left		Right		Left		Right		Left		Right		Left		Right		Left		In		Out		Total							
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total	Hourly						
7:00 AM	5	1	4	0	12	10	38	20	9	14	10	11	7	14	10	11	7	14	9	104	72	176	1393	0	0	0	0	0	0	0	0					
7:15 AM	9	2	9	0	37	11	62	30	7	27	29	17	16	17	29	17	16	17	8	194	124	318	1339	0	0	0	0	0	0	0	0					
7:30 AM	6	2	7	0	40	4	72	33	5	54	44	18	39	20	44	18	39	20	4	242	146	388	1021	0	0	0	0	0	0	0	0					
7:45 AM	35	7	43	0	47	2	68	34	16	84	49	17	44	9	49	17	44	9	301	210	511	633	0	0	0	0	0	0	0	0	0					
8:00 AM	7	2	13	0	11	0	17	12	0	15	11	7	16	0	15	7	16	0	63	59	122	122	0	0	0	0	0	0	0	0	0	0				
8:15 AM	62	14	76	0	147	27	257	129	37	194	143	70	122	60	143	70	122	30	904	611	1515	1515	0	0	0	0	0	0	0	0	0	0				
<b>7:00-8:00 AM</b>	<b>55</b>	<b>12</b>	<b>63</b>	<b>0</b>	<b>136</b>	<b>27</b>	<b>240</b>	<b>117</b>	<b>37</b>	<b>179</b>	<b>132</b>	<b>63</b>	<b>106</b>	<b>60</b>	<b>132</b>	<b>63</b>	<b>106</b>	<b>30</b>	<b>841</b>	<b>552</b>	<b>1393</b>	<b>1393</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>				
	<b>Thursday, September 18, 2014</b>																																			
2:30 PM	3	2	2	0	6	3	11	31	4	3	5	24	8	6	5	24	8	6	4	39	79	118	749	0	0	0	0	0	0	0	0	0	0			
2:45 PM	3	5	3	1	12	9	11	22	3	9	6	15	3	9	6	15	3	9	10	64	69	133	742	0	0	0	0	0	0	0	0	0	0	0		
3:00 PM	12	7	26	0	16	9	26	54	8	14	10	46	30	10	10	46	30	10	7	104	187	291	682	0	0	0	0	0	0	0	0	0	0	0		
3:15 PM	3	1	7	0	15	4	15	35	21	8	8	26	21	9	8	26	21	9	63	63	144	207	391	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	4	0	1	2	6	6	8	35	9	3	5	8	2	5	5	8	2	5	11	37	74	111	184	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	2	1	2	2	3	6	19	4	2	6	8	5	2	6	8	5	2	9	23	50	73	73	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>	<b>19</b>	<b>17</b>	<b>40</b>	<b>5</b>	<b>57</b>	<b>22</b>	<b>55</b>	<b>143</b>	<b>42</b>	<b>39</b>	<b>40</b>	<b>127</b>	<b>69</b>	<b>41</b>	<b>40</b>	<b>127</b>	<b>69</b>	<b>41</b>	<b>60</b>	<b>330</b>	<b>603</b>	<b>933</b>	<b>933</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>School 3-4 PM</b>	<b>19</b>	<b>10</b>	<b>35</b>	<b>4</b>	<b>39</b>	<b>22</b>	<b>55</b>	<b>143</b>	<b>42</b>	<b>27</b>	<b>29</b>	<b>88</b>	<b>58</b>	<b>26</b>	<b>29</b>	<b>88</b>	<b>58</b>	<b>26</b>	<b>46</b>	<b>227</b>	<b>455</b>	<b>682</b>	<b>682</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Friday, September 19, 2014</b>																																			



**St. Johns Avenue at Woodpath Lane/Bus Entrance** Highland Park High School Highland Park, Illinois

Begin Time	Woodpath Lane Southbound		St. Johns Avenue Westbound			School Bus Entrance Northbound			St. Johns Avenue Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Left Turn	Right Cars	Left Cars	Left Bus	Right Cars	Left Cars	Left Bus	Right Cars	Right Bus	Left Cars			
<b>Friday September 12, 2014</b>														
7:00 AM	0	0	0	5	1	2	3	4	0	6	2	24	103	0.95
7:15 AM	0	0	2	10	0	6	0	0	2	6	1	27	79	0.73
7:30 AM	0	1	1	9	2	2	0	2	0	9	0	26	52	0.50
7:45 AM	1	1	2	1	2	1	4	2	2	2	4	26	26	0.25
Total	1	2	5	25	5	11	7	8	4	23	7	103		
<b>7:00-8:00 AM</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>25</b>	<b>5</b>	<b>11</b>	<b>7</b>	<b>8</b>	<b>4</b>	<b>23</b>	<b>7</b>	<b>103</b>		
<b>Monday September 15, 2014</b>														
2:30 PM	0	1	0	1	3	0	0	4	0	0	2	11	98	0.74
2:45 PM	2	2	3	4	4	5	0	5	0	1	0	26	103	0.78
3:00 PM	1	6	1	2	1	2	2	3	0	7	0	28	<b>89</b>	<b>0.67</b>
3:15 PM	1	3	1	2	1	6	6	4	3	4	2	33	61	0.46
3:30 PM	0	0	0	1	0	5	1	4	1	3	1	16	28	0.44
3:45 PM	0	0	1	1	1	2	3	4	0	0	0	12	12	0.25
Total	4	12	6	11	10	20	12	24	4	15	5	89		
<b>School 3-4 PM</b>	<b>2</b>	<b>9</b>	<b>3</b>	<b>6</b>	<b>3</b>	<b>15</b>	<b>12</b>	<b>15</b>	<b>4</b>	<b>14</b>	<b>3</b>	<b>89</b>		





Pedestrian and Bike Volumes

**Green Bay Road at Vine Avenue/1st Street**

Begin Time	1st Street Southeast		Green Bay North		Vine East		Green Bay South		Vine West	
	Crosswalk	Ped.	Crosswalk	Ped.	Crosswalk	Ped.	Crosswalk	Ped.	Crosswalk	Ped.
7:00 AM		10		6		1		0		4
7:15 AM		10		11		1		0		3
7:30 AM		15		26		0		1		4
7:45 AM		11		42		2		2		15
8:00 AM		4		5		1		0		2
8:15 AM		2		4		1		0		3
8:30 AM		3		3		0		0		4
8:45 AM		3		10		2		0		7
<b>Total</b>		<b>58</b>		<b>107</b>		<b>8</b>		<b>3</b>		<b>42</b>
<b>7:00-8:00 AM</b>		<b>46</b>		<b>85</b>		<b>4</b>		<b>3</b>		<b>26</b>
2:00 PM		4		1		0		0		0
2:15 PM		6		0		0		0		1
2:30 PM		10		6		0		0		4
2:45 PM		10		4		2		1		2
3:00 PM		21		40		11		1		10
3:15 PM		23		40		16		1		10
3:30 PM		1		10		2		0		5
3:45 PM		10		3		1		0		4
4:00 PM		3		5		0		1		5
4:15 PM		0		6		2		0		1
4:30 PM		3		2		3		1		3
4:45 PM		7		3		0		0		2
5:00 PM		0		9		0		0		3
5:15 PM		5		9		2		2		4
5:30 PM		4		4		1		0		4
5:45 PM		4		1		3		0		0
<b>Total</b>		<b>111</b>		<b>143</b>		<b>43</b>		<b>7</b>		<b>58</b>
<b>School 3-4 PM</b>		<b>55</b>		<b>93</b>		<b>30</b>		<b>2</b>		<b>29</b>
<b>Street 4:30-5:30 PM</b>		<b>15</b>		<b>23</b>		<b>5</b>		<b>3</b>		<b>12</b>



Highland Park High School Highland Park, Illinois

St. Johns Avenue at Elm Place

Begin Time	St. Johns Avenue Southbound			Elm Place Westbound			St. Johns Avenue Northbound			Elm Place Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn			
	<b>Thursday September 11, 2014</b>														
7:00 AM	12	24	0	1	9	0	0	18	16	19	14	12	125	776	0.72
7:15 AM	14	33	0	1	18	1	0	43	10	24	12	8	164	802	0.75
7:30 AM	20	32	3	2	30	8	1	45	16	14	33	14	218	835	0.78
7:45 AM	46	36	1	6	45	5	0	47	23	25	19	16	269	879	0.82
8:00 AM	27	30	0	0	15	1	2	23	13	17	9	14	151	844	0.81
8:15 AM	22	41	2	3	15	3	2	34	15	30	13	17	197		
8:30 AM	41	40	0	24	22	9	2	39	18	23	10	34	262		
8:45 AM	26	40	3	3	16	0	3	48	29	39	15	12	234		
Total	208	276	9	40	170	27	10	297	140	191	125	127	776		
<b>7:00-8:00 AM</b>	<b>92</b>	<b>125</b>	<b>4</b>	<b>10</b>	<b>102</b>	<b>14</b>	<b>1</b>	<b>153</b>	<b>65</b>	<b>82</b>	<b>78</b>	<b>50</b>			
	<b>Friday September 19, 2014</b>														
2:30 PM	22	42	4	9	24	2	5	40	47	34	18	15	262	1045	0.91
2:45 PM	10	25	0	5	19	4	7	46	29	37	14	26	222	1027	0.90
3:00 PM	30	41	3	7	24	5	4	60	38	22	14	27	275	1041	0.91
3:15 PM	37	44	2	9	28	6	7	45	35	35	19	19	286	766	0.67
3:30 PM	26	34	1	2	20	3	4	54	49	22	15	14	244	480	0.49
3:45 PM	17	37	0	4	23	2	5	40	41	38	16	13	236	236	0.25
Total	142	223	10	36	138	22	32	285	239	188	96	114	1041		
<b>School 3-4 PM</b>	<b>110</b>	<b>156</b>	<b>6</b>	<b>22</b>	<b>95</b>	<b>16</b>	<b>20</b>	<b>199</b>	<b>163</b>	<b>117</b>	<b>64</b>	<b>73</b>			



## St. Johns Avenue at Maple Avenue

Highland Park, Illinois

Begin Time	Maple Avenue Westbound		St. Johns Avenue Southbound		St. Johns Avenue Northbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Volumes	
	Right Turn	Left Turn	Left Turn	Right Turn	Right Turn	St Johns Crossing				Maple Crossing	
	Monday September 15, 2014		Monday September 15, 2014		Monday September 15, 2014					St Johns Crossing	Maple Crossing
7:00 AM	0	0	0	0	0	0	48	0.48	0	0	
7:15 AM	7	0	1	2	2	10	48	0.48	0	4	
7:30 AM	17	2	5	1	1	25	38	0.38	0	2	
7:45 PM	30	1	21	4	4	4			0	3	
8:00 AM	5	0	6	2	2	13	13	0.25	0	0	
<b>Total</b>	<b>59</b>	<b>3</b>	<b>33</b>	<b>9</b>	<b>7</b>	<b>91</b>			<b>0</b>	<b>9</b>	
<b>7:00-8:00 AM</b>	<b>54</b>	<b>3</b>	<b>27</b>	<b>7</b>	<b>7</b>	<b>91</b>			<b>0</b>	<b>9</b>	
<b>Monday September 15, 2014</b>											
2:30 PM	1	1	2	0	0	4	46	0.55	0	3	
2:45 PM	1	0	2	5	5	8	45	0.54	0	8	
3:00 PM	2	2	8	1	1	13	<b>45</b>	<b>0.54</b>	6	2	
3:15 PM	2	0	14	5	5	21	32	0.38	0	0	
3:30 PM	0	0	1	2	2	3	11	0.34	0	0	
3:45 PM	3	3	1	1	1	8	8	0.25	0	2	
<b>Total</b>	<b>9</b>	<b>6</b>	<b>28</b>	<b>14</b>	<b>9</b>	<b>45</b>			<b>6</b>	<b>4</b>	
<b>School 3-4 PM</b>	<b>7</b>	<b>5</b>	<b>24</b>	<b>9</b>	<b>9</b>	<b>45</b>			<b>6</b>	<b>4</b>	



# Highland Park High School Appendix

- **Crash Data**



# Highland Park Police Department

## Analytical Report

**Date:** June 20, 2014  
**To:** Chief Shafer  
**From:** Keri Kaup, Crime Analyst

**Subject:** Accidents Near Highland Park High School: 2008-2014 YTD

### Location and Time Period of Analysis:

The following report was prepared in response to your request for information regarding accidents near Highland Park High School (HPHS) for the time period of January 1, 2008 through June 17, 2014. The area covered in the analysis is bordered by Orchard Lane to the north, St Johns Avenue to the east, Vine Avenue to the south, and Green Bay Road to the west. Additionally, all accidents that occurred in the school parking lot are included. The below map depicts the area used for analysis.

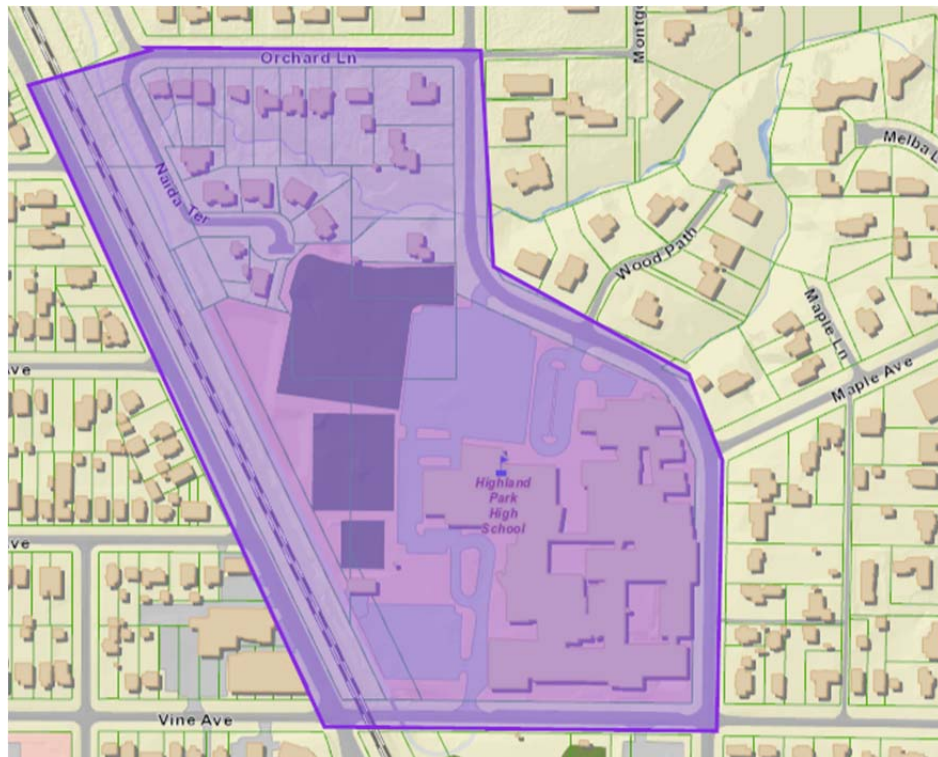
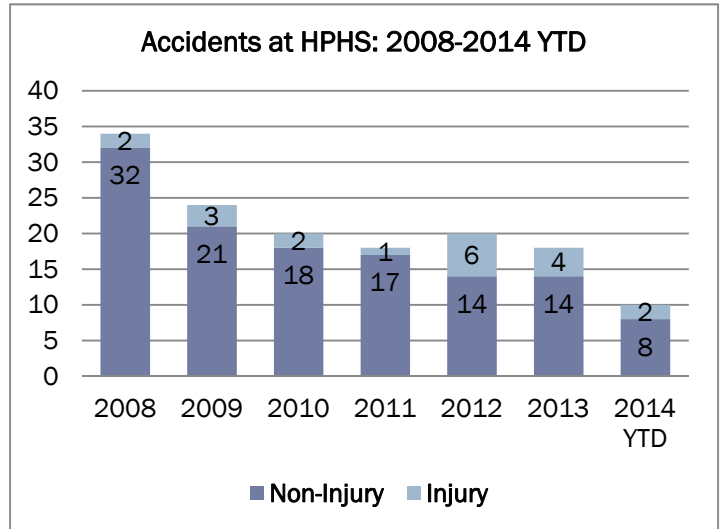
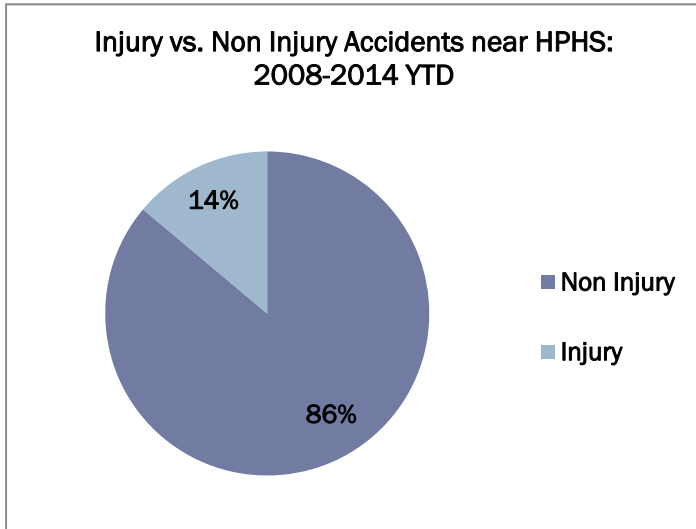


Figure 1 - Location of Analysis

### Total Accidents:

During the time period of assessment, a total of 144 accidents occurred within the specified area near HPHS. Of the 144 total accidents, 20 resulted in injury to one or more of the involved parties. This is equivalent to 14% of all accidents over the 6.5 year period. As depicted in the below charts, there has been a downward trend in accidents in the area over the last 6.5 years, and the majority of accidents have been non-injury accidents. If accidents in this location continue to occur in the future as they have in the past, it is expected that total accidents near HPHS in 2014 will be within the average of the previous six years (22 accidents).



**Accidents by Location:**

The accidents in the area of HPHS occurred in the following locations. Accidents resulting in injury are represented by a red pin while accidents that did not result in injury are represented by a blue pin. All pins are labeled with the number of corresponding accidents at that location (i.e. the intersection of Green Bay Road and Skokie Avenue had 1 injury accident and 1 non-injury accident between 2008 and 2014 YTD).

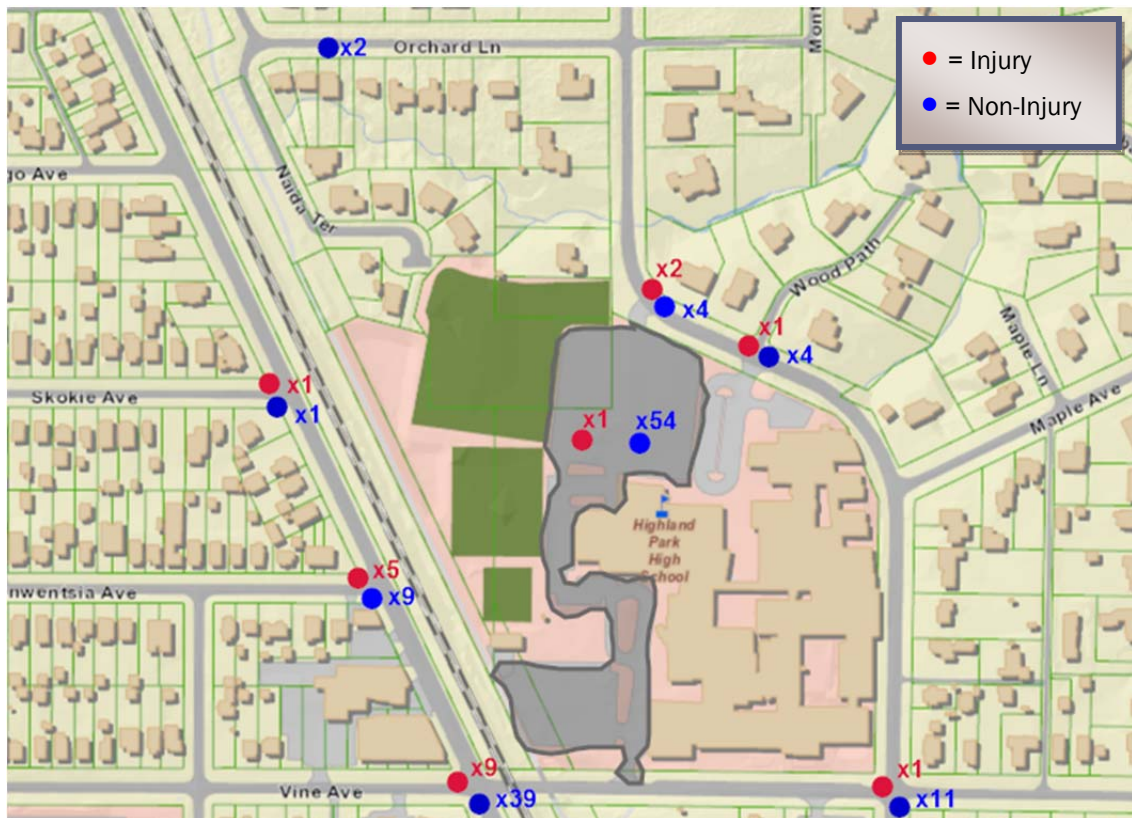


Figure 2 – Accidents by Location

As depicted in the above map, the majority of accidents near HPHS occur either in the high school parking lot or near the entrance/exit driveways of the parking lot. This particular area experienced 54 non-injury accidents and 1 non-injury accident over the 6.5 year period analyzed. A second location with a high occurrence of accidents is at the intersection of Green Bay Road and Vine Road. This intersection had a total of 39 non-injury accidents and 9 injury accidents over the 6.5 year period of analysis.

**Initial Conclusions:**

The area near Highland Park High School has had 144 total accidents over a 6.5 year period (2008-2014 YTD). Of those accidents, 14% have resulted in injury to one or more involved parties. The two locations with the highest accident volume are the parking lot of Highland Park High School and the intersection of Green Bay Road and Vine Avenue. Together, these two locations accounted for a total of 103 accidents, or 71% of all accidents in the area of the high school over the analyzed time period.

**Further Analysis:**

Due to the fact that school is not in session throughout the entire calendar year, further analysis of the accidents was conducted after eliminating accidents that occurred when school is not typically in session. For the purpose of this additional analysis, the following assumptions were made:

1. School is not in session during the summer months of June through August.
2. School is not in session during a two-week winter break period.

Based on these assumptions, the school years were determined to be as follows:

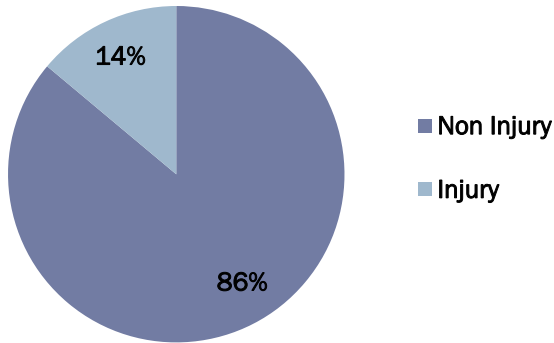
School Year	Dates In Session	Winter Break
2008 - 2009	August 20 - June 5	December 22 - January 5
2009 - 2010	August 25 - June 4	December 21 - January 4
2010 - 2011	August 24 - June 3	December 20 - January 3
2011 - 2012	August 23 - June 8	December 19 - January 2
2012 - 2013	August 22 - June 7	December 22 - January 6
2013 - 2014	August 21 - June 13	December 21 - January 5

Using the above-listed dates, accidents that fell during the stipulated summer and winter breaks were removed from the data pool. The location of analysis did not change (see Figure 1 on page 1).

After adjusting for school breaks, the total number of accidents near the high school over the 6.5 year period was 115. This means that only 29 of the original total accidents (144) did not occur during the regular school year. Of the 115 accidents that occurred when school was in session, 99 did not result in injury to the involved parties. The other 16 accidents did result in injury to one or more involved parties. The below charts show the adjusted accidents per year, as well as the adjusted percentage of injury versus non-injury accidents. As depicted in the pie chart, the percentage of injury versus non-injury accidents remained the same, even when non-school year accidents were removed.



Injury vs. Non Injury Accidents near HPHS:  
 2008-2014 YTD (School Breaks Removed)



Accidents near HPHS: 2008 - 2014 YTD  
 (School Breaks Removed)



**Accident Locations:**

The locations of the accidents that occurred during the school year have been plotted on the below map. The top collision locations remain the same despite school breaks being removed from the data.

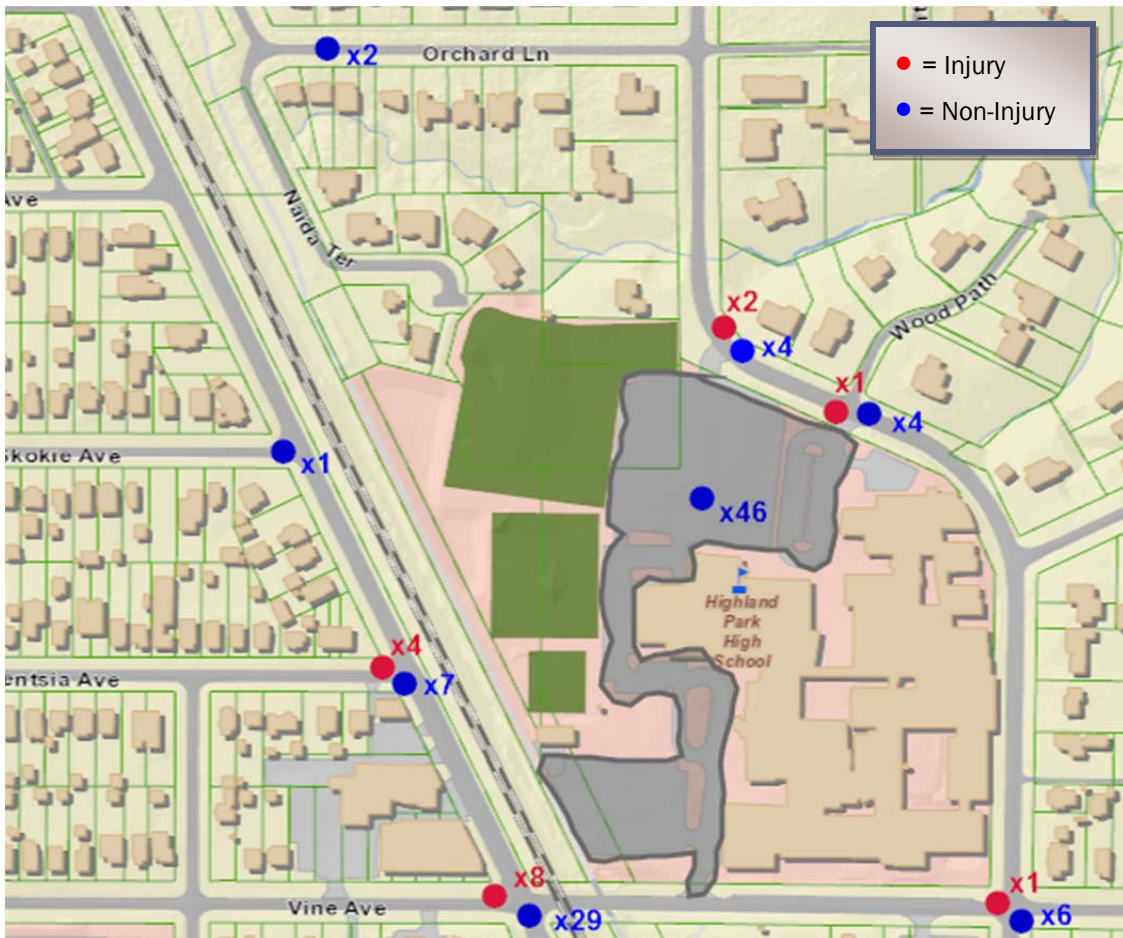


Figure 3 - Location of Accidents (School Breaks Removed)

**Accidents in High School Parking Lots and Driveways:**

In order to gain a better understanding of the types of collisions that have occurred near HPHS, the accidents were further reduced to only those in the parking lots or near the entrance/exit driveways of the high school. The following accident locations were selected:

1. 433 Vine Avenue parking lots
2. HPHS driveway to Vine Avenue
3. HPHS driveway to St Johns Avenue
4. HPHS driveway across from Wood Path

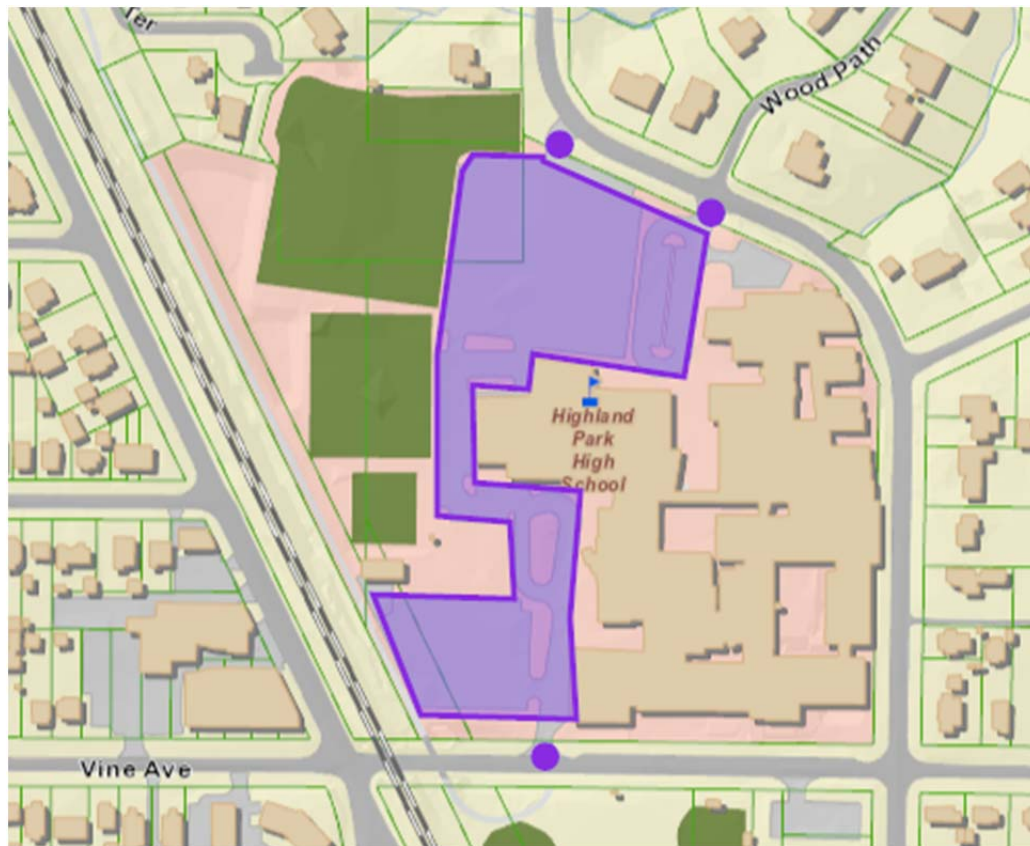


Figure 4 - HS Parking Lots and Driveways

Upon closer review of the 57 accidents at these four locations, it was determined that a total of 41 accidents occurred within the parking lot of the high school. A majority of these occurred when vehicles were pulling into or backing out of parking spaces. An additional 9 accidents occurred when vehicles were either turning into or out of the parking lot at the three driveway locations. 7 accidents were determined to be unrelated to the driveways or parking lots. The following maps show detailed diagrams of the 9 accidents that occurred at the entrance and exit driveways to the high school.

*HPHS Driveway to Vine Avenue-*

Two accidents occurred at the intersection of Vine Avenue and the high school driveway during the 6.5 year period analyzed. One accident occurred in the driveway when Unit 1 (the at-fault party) rear-ended Unit 2 who was waiting turn onto Vine Avenue (Figure 5). The second accident was also a rear-end accident. Unit 2 was stopped on Vine Avenue waiting to turn left into the high school parking lot when it was struck by Unit 1 (Figure 6). Neither of these accidents resulted in injury to any involved parties.

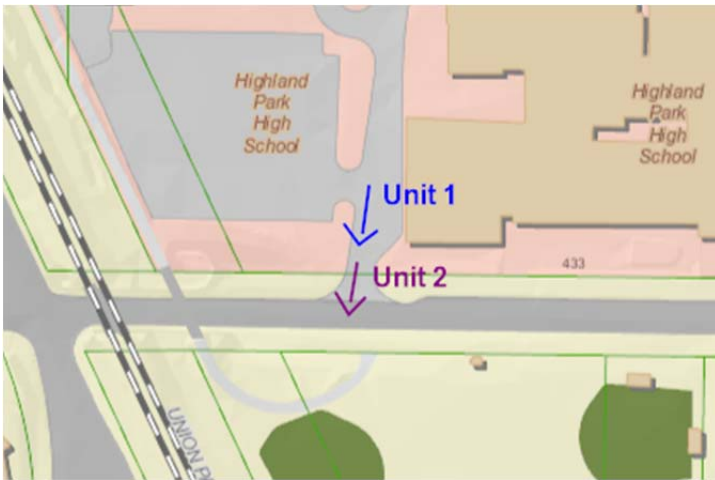


Figure 5 - HPHS Driveway to Vine Avenue

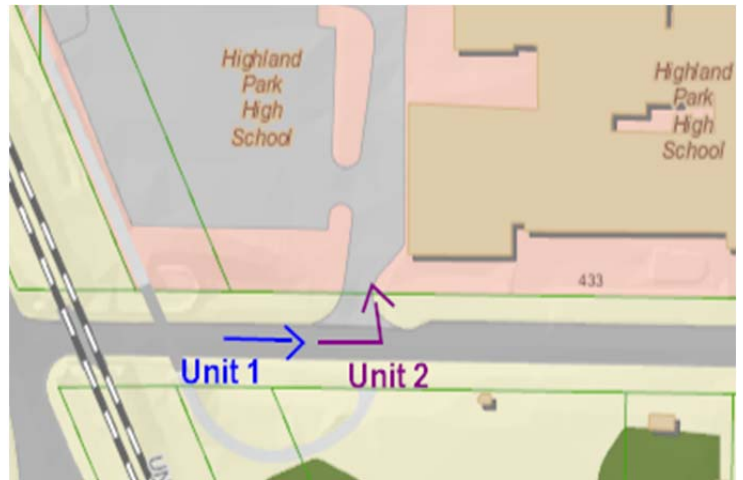


Figure 6 - HPHS Driveway to Vine Avenue

*HPHS Driveway to St Johns Ave*

Two accidents occurred at the intersection of St Johns Avenue and the high school driveway during the 6.5 year period analyzed. One accident occurred when Unit 2 stopped on St Johns Avenue while waiting to turn left into the high school parking lot. Unit 1 rear-ended Unit 2 before Unit 2 could complete its turn (Figure 7). The second accident occurred in the driveway when Unit 1 rear-ended Unit 2 while waiting to exit onto St Johns Avenue (Figure 8). None of these accidents resulted in injury to the involved parties.

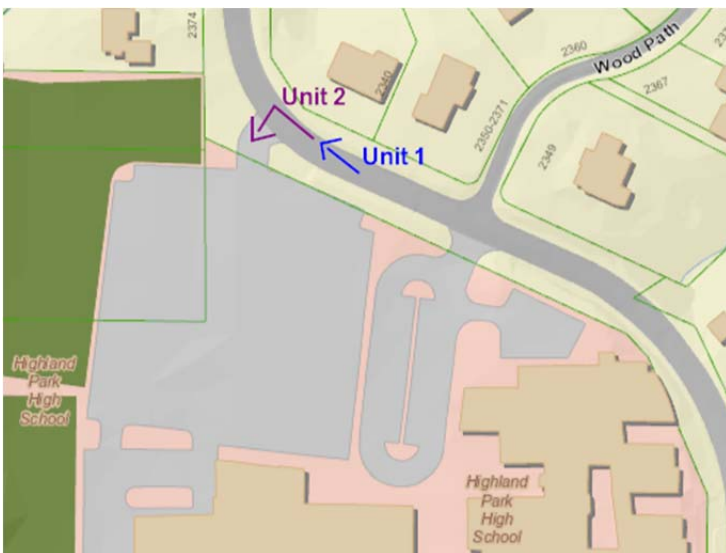


Figure 7 - HPHS Driveway to St Johns Avenue



Figure 8 - HPHS Driveway to St Johns Avenue

*HPHS Driveway across from Wood Path-*

Five accidents occurred at the intersection of St Johns Avenue and the high school driveway and Wood Path. Two accidents occurred when Unit 2 was slowing to make a left turn into the parking lot from southbound St Johns Avenue. Unit 1 was unable to slow down in time to avoid a collision with Unit 2 (Figure 9). One of these accidents resulted in injury. Three accidents occurred at this location when Unit 1 was attempting to exit the driveway and Unit 2 was traveling southbound on St Johns Avenue. Unit 1 did not yield to oncoming Unit 2, causing a collision (Figure 10). None of these accidents resulted in injury to the involved parties.

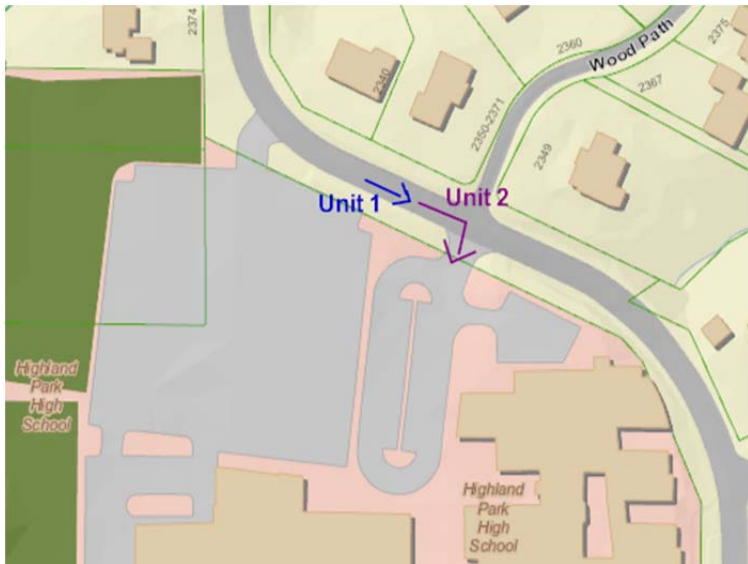


Figure 9 - HPHS Driveway / St Johns Ave / Wood Path

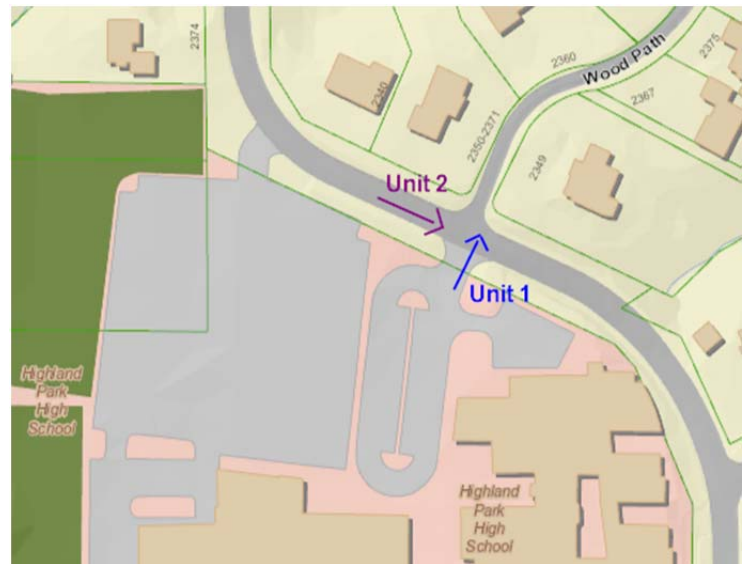


Figure 10 - HPHS Driveway / St Johns Ave / Wood Path

**Conclusions:**

After further review of the accident data, it was determined that 115 collisions occurred in the area of Highland Park High School over the 6.5 year period of analysis when school was in session. 84% of these were non-injury accidents, which is equal to the percentage of non-injury accidents before correcting for school breaks.

A closer examination of accident locations revealed four sites specifically related to the high school that required further analysis – the driveways and the parking lots. 57 collisions occurred in these four locations. Additional analysis showed that 41 of said 57 collisions (72%) occurred in the high school parking lot itself, mostly due to vehicles pulling in or backing out of lined parking spaces. Accidents also occurred in each of the three driveway intersections. The driveway with the most collisions was the northeast driveway across from Wood Path. There were five total collisions at this driveway, one of which resulted in injury to one or more involved parties. Each of the other two driveways had two collisions apiece.

# Highland Park High School Appendix

- **Intersection Capacity  
Analyses**

HighlandPark High School  
4: Green Bay Road & Vine Avenue

3/18/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	82	6	130	49	59	3	162	193	45	432	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			0.98			1.00	0.96
Frt		0.991			0.967			0.927				0.850
Flt Protected		0.995			0.973						0.995	
Satd. Flow (prot)	0	1852	0	0	1737	0	0	1696	0	0	1853	1583
Flt Permitted		0.954			0.749			0.996			0.911	
Satd. Flow (perm)	0	1772	0	0	1334	0	0	1689	0	0	1696	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			17			103				33
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			323			117			442	
Travel Time (s)		8.2			7.3			2.7			10.0	
Confl. Peds. (#/hr)	18		2	2		18	6		4	4		6
Confl. Bikes (#/hr)			1						2			
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	14	117	9	186	70	84	4	231	276	64	617	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	340	0	0	511	0	0	681	3
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	Perm
Protected Phases		4			8			2 3			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2 3		6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0			15.0	15.0	15.0
Minimum Split (s)	26.0	26.0		25.0	25.0		22.0			24.0	24.0	24.0
Total Split (s)	35.0	35.0		34.0	34.0		31.0			65.0	65.0	65.0
Total Split (%)	35.0%	35.0%		34.0%	34.0%		31.0%			65.0%	65.0%	65.0%
Maximum Green (s)	29.0	29.0		28.0	28.0		25.0			59.0	59.0	59.0
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5			4.5	4.5	4.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5			1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		6.0			6.0						6.0	6.0
Lead/Lag								Lead				
Lead-Lag Optimize?								Yes				
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None	None		None	None		Min			Min	Min	Min
Walk Time (s)	5.0	5.0		5.0	5.0		5.0			5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	10	10		10	10		10			10	10	10
Act Effct Green (s)		25.9			25.9			57.3			57.3	57.3
Actuated g/C Ratio		0.27			0.27			0.60			0.60	0.60
v/c Ratio		0.29			0.91			0.48			0.67	0.00
Control Delay		28.9			61.7			4.1			17.2	0.0
Queue Delay		0.0			0.1			19.9			0.7	0.0
Total Delay		28.9			61.8			24.0			17.9	0.0

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	22.0
Total Split (s)	34.0
Total Split (%)	34%
Maximum Green (s)	28.0
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

HighlandPark High School  
 4: Green Bay Road & Vine Avenue

3/18/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			E			C			B	A
Approach Delay		28.9			61.8			24.0			17.9	
Approach LOS		C			E			C			B	
Queue Length 50th (ft)		67			195			34			269	0
Queue Length 95th (ft)		89			215			22			261	0
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)		544			420			1040			1056	961
Starvation Cap Reductn		0			0			526			0	0
Spillback Cap Reductn		0			1			0			133	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.26			0.81			0.99			0.74	0.00

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 95.3  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 29.6      Intersection LOS: C  
 Intersection Capacity Utilization 82.8%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 4: Green Bay Road & Vine Avenue





HighlandPark High School  
7: Green Bay Road & 1st Street

3/18/2014

	↑	↖	↙	↓	↘	↗			
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Lane Configurations	↑			↖	↗				
Volume (vph)	294	0	198	370	1	64			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Frt					0.867				
Flt Protected				0.983	0.999				
Satd. Flow (prot)	1863	0	0	1831	1613	0			
Flt Permitted				0.602	0.999				
Satd. Flow (perm)	1863	0	0	1121	1613	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)					85				
Link Speed (mph)	30			30	30				
Link Distance (ft)	300			117	293				
Travel Time (s)	6.8			2.7	6.7				
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75			
Adj. Flow (vph)	392	0	264	493	1	85			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	392	0	0	757	86	0			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	2			6 4!	8!		3	4	6
Permitted Phases			6 4!						
Detector Phase	2		6 4	6 4	8				
Switch Phase									
Minimum Initial (s)	15.0				8.0		8.0	8.0	15.0
Minimum Split (s)	22.0				25.0		22.0	26.0	24.0
Total Split (s)	31.0				34.0		34.0	35.0	65.0
Total Split (%)	31.0%				34.0%		34%	35%	65%
Maximum Green (s)	25.0				28.0		28.0	29.0	59.0
Yellow Time (s)	4.5				4.5		4.5	4.5	4.5
All-Red Time (s)	1.5				1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	6.0				6.0				
Lead/Lag	Lead						Lag		
Lead-Lag Optimize?	Yes						Yes		
Vehicle Extension (s)	3.0				3.0		3.0	3.0	3.0
Recall Mode	Min				None		Max	None	Min
Walk Time (s)	5.0				5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0				11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	10				10		10	10	10
Act Effct Green (s)	23.1			95.3	25.9				
Actuated g/C Ratio	0.24			1.00	0.27				
v/c Ratio	0.87			0.68	0.17				
Control Delay	55.8			5.4	7.2				
Queue Delay	2.9			0.0	0.0				
Total Delay	58.7			5.4	7.2				
LOS	E			A	A				
Approach Delay	58.7			5.4	7.2				
Approach LOS	E			A	A				
Queue Length 50th (ft)	235			75	0				

HighlandPark High School  
 7: Green Bay Road & 1st Street

3/18/2014



Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Queue Length 95th (ft)	276			5	23				
Internal Link Dist (ft)	220			37	213				
Turn Bay Length (ft)									
Base Capacity (vph)	491			1078	552				
Starvation Cap Reductn	0			0	0				
Spillback Cap Reductn	40			0	52				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.87			0.70	0.17				

Intersection Summary


















Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 95.3  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 22.4 Intersection LOS: C  
 Intersection Capacity Utilization 71.9% ICU Level of Service C  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 7: Green Bay Road & 1st Street

#4 #7 ↑ ↑ ø2 31 s	#4 ↑ ø3 34 s	#4 #7 → ↓ ø4 35 s
#4 #7 ↓ ↓ ø6 65 s		#4 #7 ← ↘ ø8 34 s

HighlandPark High School  
4: Green Bay Road & Vine Avenue

3/18/2014

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	36	5	151	56	35	6	533	88	19	432	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.98			0.99			1.00	0.93
Frt		0.992			0.981			0.981				0.850
Flt Protected		0.974			0.970						0.998	
Satd. Flow (prot)	0	1815	0	0	1760	0	0	1808	0	0	1859	1583
Flt Permitted		0.750			0.769			0.995			0.963	
Satd. Flow (perm)	0	1363	0	0	1395	0	0	1798	0	0	1793	1479
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			8			14				33
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			323			117			442	
Travel Time (s)		8.2			7.3			2.7			10.0	
Confl. Peds. (#/hr)	32					32	15		18	18		15
Confl. Bikes (#/hr)			1						2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	40	6	170	63	39	7	599	99	21	485	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	272	0	0	705	0	0	506	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		7			7			7			7	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	Perm
Protected Phases		4			8			2 3			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2 3		6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0			15.0	15.0	15.0
Minimum Split (s)	26.0	26.0		25.0	25.0		22.0			24.0	24.0	24.0
Total Split (s)	35.0	35.0		24.0	24.0		31.0			65.0	65.0	65.0
Total Split (%)	35.0%	35.0%		24.0%	24.0%		31.0%			65.0%	65.0%	65.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5			4.5	4.5	4.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5			1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		6.0			6.0						6.0	6.0
Lead/Lag								Lead				
Lead-Lag Optimize?								Yes				
Recall Mode	None	None		None	None		Min			Min	Min	Min
Act Effct Green (s)		18.6			18.6			43.8			43.8	43.8
Actuated g/C Ratio		0.25			0.25			0.59			0.59	0.59
v/c Ratio		0.29			0.77			0.67			0.48	0.01

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	22.0
Total Split (s)	34.0
Total Split (%)	34%
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

HighlandPark High School  
 4: Green Bay Road & Vine Avenue

3/18/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		25.2			41.3			9.1			11.6	0.5
Queue Delay		0.0			0.0			0.6			0.1	0.0
Total Delay		25.2			41.3			9.8			11.7	0.5
LOS		C			D			A			B	A
Approach Delay		25.2			41.3			9.8			11.4	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)		33			105			34			118	0
Queue Length 95th (ft)		88			236			574			247	2
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)		544			560			1459			1452	1204
Starvation Cap Reductn		0			0			388			0	0
Spillback Cap Reductn		0			0			0			136	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.18			0.49			0.66			0.38	0.01

Intersection Summary


















Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	74.8
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	16.7
Intersection Capacity Utilization:	82.4%
Analysis Period (min):	15
Intersection LOS:	B
ICU Level of Service:	E

Splits and Phases: 4: Green Bay Road & Vine Avenue

#4 #7 #2	#4 #3	#4 #7 #4
31 s	34 s	35 s
#4 #7 #6		#4 #7 #8
65 s		24 s

HighlandPark High School  
4: Green Bay Road & Vine Avenue

3/18/2014

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	41	11	69	54	53	1	549	92	29	438	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.96			0.99			1.00	0.93
Frt		0.986			0.959			0.981				0.850
Flt Protected		0.975			0.981						0.997	
Satd. Flow (prot)	0	1804	0	0	1707	0	0	1807	0	0	1857	1583
Flt Permitted		0.745			0.849						0.941	
Satd. Flow (perm)	0	1334	0	0	1477	0	0	1807	0	0	1751	1479
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			22			15				33
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			323			117			442	
Travel Time (s)		8.2			7.3			2.7			10.0	
Confl. Peds. (#/hr)	32					32	15		18	18		15
Confl. Bikes (#/hr)			1						2			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	58	43	12	73	57	56	1	578	97	31	461	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	186	0	0	676	0	0	492	7
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		7			7			7			7	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	Perm
Protected Phases		4			8			2 3			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2 3		6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0			15.0	15.0	15.0
Minimum Split (s)	26.0	26.0		22.0	22.0		22.0			24.0	24.0	24.0
Total Split (s)	35.0	35.0		34.0	34.0		31.0			65.0	65.0	65.0
Total Split (%)	35.0%	35.0%		34.0%	34.0%		31.0%			65.0%	65.0%	65.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5			4.5	4.5	4.5
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5			1.5	1.5	1.5
Lost Time Adjust (s)		0.0			0.0						0.0	0.0
Total Lost Time (s)		6.0			6.0						6.0	6.0
Lead/Lag							Lead					
Lead-Lag Optimize?							Yes					
Recall Mode	None	None		None	None		Min			None	None	None
Act Effect Green (s)		13.5			13.5			42.4			42.4	42.4
Actuated g/C Ratio		0.20			0.20			0.62			0.62	0.62
v/c Ratio		0.42			0.60			0.60			0.45	0.01

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	22.0
Total Split (s)	34.0
Total Split (%)	34%
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

HighlandPark High School  
 4: Green Bay Road & Vine Avenue

3/18/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		28.1			30.9			6.5			9.1	0.0
Queue Delay		0.0			0.0			0.3			0.0	0.0
Total Delay		28.2			30.9			6.9			9.1	0.0
LOS		C			C			A			A	A
Approach Delay		28.2			30.9			6.9			9.0	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		37			59			25			88	0
Queue Length 95th (ft)		94			139			493			205	0
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)		581			652			1595			1544	1308
Starvation Cap Reductn		0			0			390			0	0
Spillback Cap Reductn		15			17			0			90	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.20			0.29			0.56			0.34	0.01

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	68.1
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	12.2
Intersection Capacity Utilization	82.0%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	D

Splits and Phases: 4: Green Bay Road & Vine Avenue





HighlandPark High School  
7: Green Bay Road & 1st Street

3/18/2014

	↑	↗	↘	↓	↖	↗			
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Lane Configurations	↑			↖	↗				
Volume (vph)	473	0	154	367	8	169			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Frt					0.871				
Flt Protected				0.985	0.998				
Satd. Flow (prot)	1863	0	0	1835	1619	0			
Flt Permitted				0.675	0.998				
Satd. Flow (perm)	1863	0	0	1257	1619	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)					178				
Link Speed (mph)	30			30	30				
Link Distance (ft)	300			117	293				
Travel Time (s)	6.8			2.7	6.7				
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95			
Adj. Flow (vph)	498	0	162	386	8	178			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	498	0	0	548	186	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	0			0	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	2			6 4!	8!		3	4	6
Permitted Phases			6 4!						
Detector Phase	2		6 4	6 4	8				
Switch Phase									
Minimum Initial (s)	15.0				8.0		8.0	8.0	15.0
Minimum Split (s)	22.0				22.0		22.0	26.0	24.0
Total Split (s)	31.0				34.0		34.0	35.0	65.0
Total Split (%)	31.0%				34.0%		34%	35%	65%
Yellow Time (s)	4.5				4.5		4.5	4.5	4.5
All-Red Time (s)	1.5				1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	6.0				6.0				
Lead/Lag	Lead						Lag		
Lead-Lag Optimize?	Yes						Yes		
Recall Mode	Min				None		None	None	None
Act Effect Green (s)	25.5			68.1	13.5				
Actuated g/C Ratio	0.37			1.00	0.20				
v/c Ratio	0.72			0.44	0.40				
Control Delay	28.3			2.2	7.7				
Queue Delay	0.4			0.0	0.3				
Total Delay	28.7			2.2	8.0				
LOS	C			A	A				

HighlandPark High School  
 7: Green Bay Road & 1st Street

3/18/2014



Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Approach Delay	28.7			2.2	8.0				
Approach LOS	C			A	A				
Queue Length 50th (ft)	158			15	3				
Queue Length 95th (ft)	#449			46	52				
Internal Link Dist (ft)	220			37	213				
Turn Bay Length (ft)									
Base Capacity (vph)	696			1257	802				
Starvation Cap Reductn	0			0	0				
Spillback Cap Reductn	30			0	247				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.75			0.44	0.34				

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 68.1  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 13.8  
 Intersection Capacity Utilization 81.6%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 ! Phase conflict between lane groups.

Splits and Phases: 7: Green Bay Road & 1st Street



Highland Park High School  
 1: Bus Access/Woodpath Lane & St. John's Drive

3/5/2014

**Intersection**

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	8	166	32	34	123	3	34	0	22
Conflicting Peds, #/hr	0	0	1	1	0	0	1	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	50	50	0	0	50	50	50
Mvmt Flow	10	216	42	44	160	4	44	0	29

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	173	0	0	266	0	0	528	527	246
Stage 1	-	-	-	-	-	-	266	266	-
Stage 2	-	-	-	-	-	-	262	261	-
Critical Hdwy	4.1	-	-	4.6	-	-	7.6	7	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	6	-
Follow-up Hdwy	2.2	-	-	2.65	-	-	3.95	4.45	3.75
Pot Cap-1 Maneuver	1416	-	-	1065	-	-	394	395	688
Stage 1	-	-	-	-	-	-	645	609	-
Stage 2	-	-	-	-	-	-	649	613	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1415	-	-	1064	-	-	372	368	682
Mov Cap-2 Maneuver	-	-	-	-	-	-	372	368	-
Stage 1	-	-	-	-	-	-	635	600	-
Stage 2	-	-	-	-	-	-	615	580	-

Approach	EB	WB	NB
HCM Control Delay, s	0.3	1.8	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	372	682	1415	-	-	1064	-	-	571
HCM Lane V/C Ratio	0.119	0.042	0.007	-	-	0.041	-	-	0.018
HCM Control Delay (s)	16	10.5	7.6	0	-	8.5	0	-	11.4
HCM Lane LOS	C	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	0	-	-	0.1	-	-	0.1

**Intersection**

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	4	0	4
Conflicting Peds, #/hr	9	0	1
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	77	77	77
Heavy Vehicles, %	0	0	0
Mvmt Flow	5	0	5

**Major/Minor**                      **Minor2**

Conflicting Flow All	525	546	172
Stage 1	259	259	-
Stage 2	266	287	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	466	448	877
Stage 1	750	697	-
Stage 2	744	678	-
Platoon blocked, %			
Mov Cap-1 Maneuver	425	418	870
Mov Cap-2 Maneuver	425	418	-
Stage 1	738	660	-
Stage 2	707	668	-

**Approach**                      **SB**

HCM Control Delay, s	11.4
HCM LOS	B

**Minor Lane/Major Mvmt**

**Intersection**

Int Delay, s/veh 2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	216	18	22	79	4	21	0	22	3	0	6
Conflicting Peds, #/hr	0	0	5	5	0	0	0	0	23	23	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	50	50	50	0	0	0
Mvmt Flow	5	273	23	28	100	5	27	0	28	4	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	128	0	0	319	0	0	503	502	313	499	510	131
Stage 1	-	-	-	-	-	-	318	318	-	181	181	-
Stage 2	-	-	-	-	-	-	185	184	-	318	329	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.6	7	6.7	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	6	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	6	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.95	4.45	3.75	3.5	4	3.3
Pot Cap-1 Maneuver	1458	-	-	1241	-	-	410	409	628	485	469	924
Stage 1	-	-	-	-	-	-	603	576	-	825	754	-
Stage 2	-	-	-	-	-	-	717	666	-	698	650	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1452	-	-	1236	-	-	389	382	613	443	439	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	389	382	-	443	439	-
Stage 1	-	-	-	-	-	-	589	563	-	806	722	-
Stage 2	-	-	-	-	-	-	691	638	-	661	635	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.7	13	10.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	389	613	1452	-	-	1236	-	-	671
HCM Lane V/C Ratio	0.068	0.045	0.003	-	-	0.023	-	-	0.017
HCM Control Delay (s)	14.9	11.2	7.5	0	-	8	0	-	10.5
HCM Lane LOS	B	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0.1	-	-	0.1

HCM 2010 TWSC  
 1: Bus Drive/Woodpath Lane & St Johns Avenue

3/5/2014

**Intersection**

Int Delay, s/veh 1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	157	6	19	128	1	16	0	22
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	50	50	50
Mvmt Flow	0	165	6	20	135	1	17	0	23

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	139	0	0	175	0	0	349	350	175
Stage 1	-	-	-	-	-	-	171	171	-
Stage 2	-	-	-	-	-	-	178	179	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.6	7	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	6	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.95	4.45	3.75
Pot Cap-1 Maneuver	1445	-	-	1401	-	-	525	505	758
Stage 1	-	-	-	-	-	-	731	675	-
Stage 2	-	-	-	-	-	-	724	669	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1440	-	-	1396	-	-	516	495	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	516	495	-
Stage 1	-	-	-	-	-	-	729	673	-
Stage 2	-	-	-	-	-	-	711	657	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	516	754	1440	-	-	1396	-	-	580
HCM Lane V/C Ratio	0.033	0.031	-	-	-	0.014	-	-	0.004
HCM Control Delay (s)	12.2	9.9	0	-	-	7.6	0	-	11.2
HCM Lane LOS	B	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	0

**Intersection**

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	2	0	0
Conflicting Peds, #/hr	3	0	0
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	95	95	95
Heavy Vehicles, %	0	0	0
Mvmt Flow	2	0	0

**Major/Minor**                      **Minor2**

Conflicting Flow All	349	353	142
Stage 1	178	178	-
Stage 2	171	175	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	609	575	911
Stage 1	828	756	-
Stage 2	836	758	-
Platoon blocked, %			
Mov Cap-1 Maneuver	580	564	906
Mov Cap-2 Maneuver	580	564	-
Stage 1	826	743	-
Stage 2	808	756	-

**Approach**                      **SB**

HCM Control Delay, s	11.2
HCM LOS	B

**Minor Lane/Major Mvmt**

**Intersection**

Int Delay, s/veh 10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	254	66	152	36	42	86
Conflicting Peds, #/hr	114	0	0	114	114	114
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	363	94	217	51	60	123

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	383	0	471
Stage 1	-	-	357
Stage 2	-	-	820
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1175	-	593
Stage 1	-	-	708
Stage 2	-	-	433
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1063	-	486
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	641
Stage 2	-	-	251

Approach	EB	WB	SB
HCM Control Delay, s	8	0	33.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1063	-	-	-	111	486
HCM Lane V/C Ratio	0.341	-	-	-	0.541	0.253
HCM Control Delay (s)	10.1	0	-	-	70.3	14.9
HCM Lane LOS	B	A	-	-	F	B
HCM 95th %tile Q(veh)	1.5	-	-	-	2.5	1



**Intersection**

Int Delay, s/veh 5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	68	75	133	30	42	109
Conflicting Peds, #/hr	82	0	0	82	82	82
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	84	149	34	47	122

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	265	0	330
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1299	-	712
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1210	-	618
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1210	-	-	-	439	618
HCM Lane V/C Ratio	0.063	-	-	-	0.107	0.198
HCM Control Delay (s)	8.2	0	-	-	14.2	12.3
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.7

**Intersection**

Int Delay, s/veh 4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	64	98	77	21	20	99
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	103	81	22	21	104

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	109	0	336
Stage 1	-	-	98
Stage 2	-	-	238
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1481	-	659
Stage 1	-	-	926
Stage 2	-	-	802
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1474	-	621
Mov Cap-2 Maneuver	-	-	621
Stage 1	-	-	921
Stage 2	-	-	760

Approach	EB	WB	SB
HCM Control Delay, s	3	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1474	-	-	-	621	942
HCM Lane V/C Ratio	0.046	-	-	-	0.034	0.111
HCM Control Delay (s)	7.6	0	-	-	11	9.3
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.4

**Intersection**

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	135	203	86	75	71	71
Conflicting Peds, #/hr	0	0	38	0	0	38
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	58	77	58	58	58
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	175	350	112	129	122	122

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	741
Stage 1	-	-	388
Stage 2	-	-	353
Critical Hdwy	-	4.11	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	-	2.209	3.509
Pot Cap-1 Maneuver	-	1013	385
Stage 1	-	-	688
Stage 2	-	-	713
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	981	327
Mov Cap-2 Maneuver	-	-	327
Stage 1	-	-	666
Stage 2	-	-	625

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	327	592	-	-	981	-
HCM Lane V/C Ratio	0.374	0.207	-	-	0.114	-
HCM Control Delay (s)	22.4	12.7	-	-	9.1	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	0.8	-	-	0.4	-

**Intersection**

Int Delay, s/veh 8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	126	53	24	82	119	112
Conflicting Peds, #/hr	0	0	38	0	0	38
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	48	48	79	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	110	50	104	248	233

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	308
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1253
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1213
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	701	-	-	1213	-
HCM Lane V/C Ratio	0.477	0.333	-	-	0.041	-
HCM Control Delay (s)	18.1	12.7	-	-	8.1	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	2.5	1.5	-	-	0.1	-

**Intersection**

Int Delay, s/veh 2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	137	23	16	128	24	26
Conflicting Peds, #/hr	0	0	38	0	0	38
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	65	65	95	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	35	25	135	37	40

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	218
Stage 1	-	-	200
Stage 2	-	-	184
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1352
Stage 1	-	-	834
Stage 2	-	-	848
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1309
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	808
Stage 2	-	-	830

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	587	751	-	-	1309	-
HCM Lane V/C Ratio	0.063	0.053	-	-	0.019	-
HCM Control Delay (s)	11.5	10.1	-	-	7.8	0
HCM Lane LOS	B	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.1	-

Intersection												
Intersection Delay, s/veh	11.4											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	30	42	36	0	31	60	33	0	82	97	22
Peak Hour Factor	0.92	0.70	0.70	0.70	0.92	0.70	0.70	0.70	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	1	1	1	2	1	1	1	2	1	1	1
Mvmt Flow	0	43	60	51	0	44	86	47	0	117	139	31
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.4	10.7	12.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	28%	25%	10%
Vol Thru, %	48%	39%	48%	64%
Vol Right, %	11%	33%	27%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	108	124	192
LT Vol	97	42	60	122
Through Vol	22	36	33	51
RT Vol	82	30	31	19
Lane Flow Rate	287	154	177	274
Geometry Grp	1	1	1	1
Degree of Util (X)	0.422	0.239	0.274	0.394
Departure Headway (Hd)	5.292	5.572	5.562	5.165
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	681	642	645	697
Service Time	3.335	3.624	3.613	3.208
HCM Lane V/C Ratio	0.421	0.24	0.274	0.393
HCM Control Delay	12.2	10.4	10.7	11.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.1	0.9	1.1	1.9

**Intersection**

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	19	122	51
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	1	1	1
Mvmt Flow	0	27	174	73
Number of Lanes	0	0	1	0

**Approach** SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.6
HCM LOS	B

**Lane**

Intersection												
Intersection Delay, s/veh	9.7											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	34	31	35	0	9	57	11	0	49	60	15
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	43	39	44	0	11	72	14	0	62	76	19
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.1	9	9.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	34%	12%	9%
Vol Thru, %	48%	31%	74%	73%
Vol Right, %	12%	35%	14%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	100	77	244
LT Vol	60	31	57	177
Through Vol	15	35	11	46
RT Vol	49	34	9	21
Lane Flow Rate	157	127	97	309
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.175	0.138	0.391
Departure Headway (Hd)	4.826	4.968	5.089	4.553
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	738	716	699	785
Service Time	2.891	3.04	3.164	2.609
HCM Lane V/C Ratio	0.213	0.177	0.139	0.394
HCM Control Delay	9.2	9.1	9	10.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.6	0.5	1.9



**Intersection**

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	21	177	46
Peak Hour Factor	0.92	0.79	0.79	0.79
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	27	224	58
Number of Lanes	0	0	1	0

**Approach** SB

Opposing Approach NB

Opposing Lanes 1

Conflicting Approach Left WB

Conflicting Lanes Left 1

Conflicting Approach Right EB

Conflicting Lanes Right 1

HCM Control Delay 10.5

HCM LOS B

**Lane**

Intersection												
Intersection Delay, s/veh	8.6											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	36	42	40	0	10	34	12	0	33	100	8
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	38	44	42	0	11	36	13	0	35	105	8
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	8.2	8.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	31%	18%	4%
Vol Thru, %	71%	36%	61%	82%
Vol Right, %	6%	34%	21%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	141	118	56	181
LT Vol	100	42	34	148
Through Vol	8	40	12	26
RT Vol	33	36	10	7
Lane Flow Rate	148	124	59	191
Geometry Grp	1	1	1	1
Degree of Util (X)	0.188	0.159	0.077	0.234
Departure Headway (Hd)	4.558	4.602	4.732	4.425
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	787	779	756	812
Service Time	2.589	2.635	2.771	2.453
HCM Lane V/C Ratio	0.188	0.159	0.078	0.235
HCM Control Delay	8.6	8.5	8.2	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.6	0.2	0.9

**Intersection**

Intersection Delay, s/veh  
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	148	26
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	7	156	27
Number of Lanes	0	0	1	0

**Approach** SB

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.8
HCM LOS	A

**Lane**

Highland Park High School  
4: Visitor Lot

3/5/2014

**Intersection**

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	65	43	18	175	13	43
Conflicting Peds, #/hr	0	0	0	0	72	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	84	56	23	227	17	56

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	458
Stage 1	-	-	184
Stage 2	-	-	274
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1370	565
Stage 1	-	-	852
Stage 2	-	-	777
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1370	521
Mov Cap-2 Maneuver	-	-	521
Stage 1	-	-	801
Stage 2	-	-	762

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	719	-	-	1370	-
HCM Lane V/C Ratio	0.101	-	-	0.017	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

**Intersection**

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	74	24	14	138	17	26
Conflicting Peds, #/hr	0	0	0	0	80	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	94	30	18	175	22	33

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	204
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1380
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1380
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	686	-	-	1380	-
HCM Lane V/C Ratio	0.079	-	-	0.013	-
HCM Control Delay (s)	10.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Highland Park High School  
4: Visitor Lot

3/5/2014

**Intersection**

Int Delay, s/veh 1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	106	12	3	90	16	12
Conflicting Peds, #/hr	0	0	0	0	72	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	112	13	3	95	17	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	196
Stage 1	-	-	190
Stage 2	-	-	101
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1389	704
Stage 1	-	-	847
Stage 2	-	-	928
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1389	660
Mov Cap-2 Maneuver	-	-	660
Stage 1	-	-	796
Stage 2	-	-	926

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	716	-	-	1389	-
HCM Lane V/C Ratio	0.041	-	-	0.002	-
HCM Control Delay (s)	10.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

# Highland Park High School Appendix

- **Vine One-Way Capacity  
Analyses**





# Lanes, Volumes, Timings

## 4: Green Bay Road & Vine Street

2/9/2015

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Minimum Split (s)	22.0
Total Split (s)	34.0
Total Split (%)	34%
Maximum Green (s)	28.0
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	

Lanes, Volumes, Timings  
 4: Green Bay Road & Vine Street

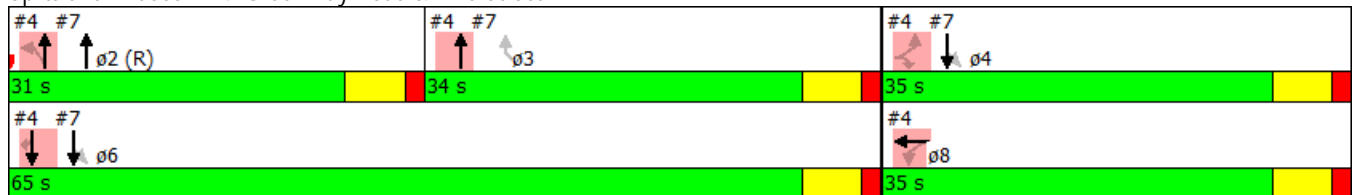
2/9/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)	319		520	515	521			1090			1099	912
Starvation Cap Reductn	0		0	0	0			646			0	0
Spillback Cap Reductn	0		3	0	0			0			76	0
Storage Cap Reductn	0		0	0	0			0			0	0
Reduced v/c Ratio	0.04		0.02	0.45	0.34			0.53			0.60	0.00

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 17.2  
 Intersection Capacity Utilization 66.0%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 4: Green Bay Road & Vine Street



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Lane Group	ø3
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

---

Intersection												
Intersection Delay, s/veh	17.2											
Intersection LOS	C											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	0	0	0	0	3	60	33	0	337	98	22
Peak Hour Factor	0.92	0.77	0.77	0.77	0.92	0.77	0.77	0.77	0.92	0.77	0.77	0.77
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	0	0	0	0	4	78	43	0	438	127	29
Number of Lanes	0	0	0	0	0	0	1	0	0	0	1	0

Approach	WB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	NB	
Conflicting Lanes Left	1	0
Conflicting Approach Right	SB	WB
Conflicting Lanes Right	1	1
HCM Control Delay	10.1	21.7
HCM LOS	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	74%	3%	17%
Vol Thru, %	21%	62%	59%
Vol Right, %	5%	34%	25%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	457	96	208
LT Vol	337	3	35
Through Vol	98	60	122
RT Vol	22	33	51
Lane Flow Rate	594	125	270
Geometry Grp	1	1	1
Degree of Util (X)	0.77	0.194	0.36
Departure Headway (Hd)	4.673	5.615	4.8
Convergence, Y/N	Yes	Yes	Yes
Cap	772	632	743
Service Time	2.732	3.714	2.873
HCM Lane V/C Ratio	0.769	0.198	0.363
HCM Control Delay	21.7	10.1	10.6
HCM Lane LOS	C	B	B
HCM 95th-tile Q	7.5	0.7	1.6

**Intersection**

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	35	122	51
Peak Hour Factor	0.92	0.77	0.77	0.77
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	45	158	66
Number of Lanes	0	0	1	0

**Approach** SB

Opposing Approach NB

Opposing Lanes 1

Conflicting Approach Left WB

Conflicting Lanes Left 1

Conflicting Approach Right

Conflicting Lanes Right 0

HCM Control Delay 10.6

HCM LOS B

**Lane**

Intersection												
Intersection Delay, s/veh	37.2											
Intersection LOS	E											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	306	78	82	0	14	102	10	0	65	153	1
Peak Hour Factor	0.92	0.72	0.72	0.72	0.92	0.72	0.72	0.72	0.92	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	425	108	114	0	19	142	14	0	90	213	1
Number of Lanes	0	0	1	1	0	0	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	59.1	16.7	16.3
HCM LOS	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	100%	0%	80%	0%	11%	2%
Vol Thru, %	0%	99%	20%	0%	81%	57%
Vol Right, %	0%	1%	0%	100%	8%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	154	384	82	126	221
LT Vol	65	0	306	0	14	4
Through Vol	0	153	78	0	102	125
RT Vol	0	1	0	82	10	92
Lane Flow Rate	90	214	533	114	175	307
Geometry Grp	7	7	7	7	6	6
Degree of Util (X)	0.21	0.468	1	0.208	0.401	0.646
Departure Headway (Hd)	8.378	7.874	7.713	6.586	8.252	7.677
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	426	456	475	548	439	473
Service Time	6.177	5.673	5.422	4.295	6.252	5.677
HCM Lane V/C Ratio	0.211	0.469	1.122	0.208	0.399	0.649
HCM Control Delay	13.4	17.5	69.4	11	16.7	23.6
HCM Lane LOS	B	C	F	B	C	C
HCM 95th-tile Q	0.8	2.4	13.2	0.8	1.9	4.5

**Intersection**

Intersection Delay, s/veh  
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	125	92
Peak Hour Factor	0.92	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	6	174	128
Number of Lanes	0	0	1	0

**Approach** SB

Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	23.6
HCM LOS	C

**Lane**

# Highland Park High School Appendix

- **Future Capacity Analyses**



**1: Bus/Woodpath & St Johns Drive Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	2.2	0.7	0.4	3.0	0.5	0.0	5.6	3.4	3.6	2.7	1.3

**2: Student & St Johns Drive Performance by movement**

Movement	WBL	WBT	WBR	SEL	SER	NEL	NER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.5	0.1	0.1	0.3
Total Del/Veh (s)	2.0	1.7	0.8	1.8	1.2	6.7	3.8	2.2

**Total Network Performance**

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	3.2

# Queuing and Blocking Report

## Future AM Peak Hour

2/24/2015

### Intersection: 1: Bus/Woodpath & St Johns Drive

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	R	LTR
Maximum Queue (ft)	53	28	67	53	30
Average Queue (ft)	2	7	36	23	7
95th Queue (ft)	19	27	66	57	27
Link Distance (ft)	205	303	158	158	111
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 2: Student & St Johns Drive

Movement	WB	SE	NE	NE
Directions Served	LR	LR	L	R
Maximum Queue (ft)	73	76	70	71
Average Queue (ft)	18	16	31	41
95th Queue (ft)	51	55	55	63
Link Distance (ft)	205	238	188	188
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

### Network Summary

Network wide Queuing Penalty: 0
---------------------------------

1: Bus/Woodpath & St Johns Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	2.3	0.4	0.2	2.4	0.4	0.0	5.2	3.2	3.9	2.4	1.1

2: Student & St Johns Drive Performance by movement

Movement	WBL	WBT	WBR	SEL	SER	NEL	NER	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1
Total Del/Veh (s)	1.1	1.8	0.4	0.8	0.4	5.4	4.1	2.5

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	3.3

Intersection: 1: Bus/Woodpath & St Johns Drive

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	R	LTR
Maximum Queue (ft)	30	28	78	91	54
Average Queue (ft)	1	3	21	28	9
95th Queue (ft)	10	16	65	70	33
Link Distance (ft)	205	303	158	158	111
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Student & St Johns Drive

Movement	WB	SE	NE	NE
Directions Served	LR	LR	L	R
Maximum Queue (ft)	28	74	94	77
Average Queue (ft)	2	4	42	43
95th Queue (ft)	12	31	69	65
Link Distance (ft)	205	238	188	188
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0
---------------------------------

Intersection												
Intersection Delay, s/veh	10.6											
Intersection LOS	B											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	30	22	15	0	31	60	33	0	72	97	22
Peak Hour Factor	0.92	0.70	0.70	0.70	0.92	0.70	0.70	0.70	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	1	1	1	2	1	1	1	2	1	1	1
Mvmt Flow	0	43	31	21	0	44	86	47	0	103	139	31
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.5	10.3	11.1
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	45%	25%	10%
Vol Thru, %	51%	33%	48%	64%
Vol Right, %	12%	22%	27%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	67	124	192
LT Vol	72	30	31	19
Through Vol	97	22	60	122
RT Vol	22	15	33	51
Lane Flow Rate	273	96	177	274
Geometry Grp	1	1	1	1
Degree of Util (X)	0.377	0.148	0.264	0.368
Departure Headway (Hd)	5.09	5.569	5.358	4.952
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	647	675	732
Service Time	3.09	3.577	3.361	2.952
HCM Lane V/C Ratio	0.383	0.148	0.262	0.374
HCM Control Delay	11.1	9.5	10.3	10.8
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.8	0.5	1.1	1.7

**Intersection**

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	19	122	51
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	1	1	1
Mvmt Flow	0	27	174	73
Number of Lanes	0	0	1	0

**Approach SB**

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.8
HCM LOS	B

**Lane**

Intersection												
Intersection Delay, s/veh	9.5											
Intersection LOS	A											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	29	18	22	0	9	57	11	0	49	60	15
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	37	23	28	0	11	72	14	0	62	76	19
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.7	8.9	9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	42%	12%	9%
Vol Thru, %	48%	26%	74%	73%
Vol Right, %	12%	32%	14%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	69	77	244
LT Vol	49	29	9	21
Through Vol	60	18	57	177
RT Vol	15	22	11	46
Lane Flow Rate	157	87	97	309
Geometry Grp	1	1	1	1
Degree of Util (X)	0.206	0.121	0.136	0.382
Departure Headway (Hd)	4.714	4.985	5.015	4.449
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	758	714	711	806
Service Time	2.766	3.048	3.076	2.494
HCM Lane V/C Ratio	0.207	0.122	0.136	0.383
HCM Control Delay	9	8.7	8.9	10.2
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.4	0.5	1.8

**Intersection**

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	21	177	46
Peak Hour Factor	0.92	0.79	0.79	0.79
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	27	224	58
Number of Lanes	0	0	1	0

**Approach SB**

Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.2
HCM LOS	B

**Lane**



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4: Green Bay Road & Vine Avenue Performance by movement

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1
Total Del/Veh (s)	17.2	21.9	15.8	26.9	23.4	21.5	3.1	4.7	2.1	15.5	14.9	4.5

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4: Green Bay Road & Vine Avenue Performance by movement

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Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	13.8

Queuing and Blocking Report  
Future AM Peak Hour (7-8 AM)

2/24/2015

Intersection: 4: Green Bay Road & Vine Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	105	192	61	175	131
Average Queue (ft)	39	97	18	99	43
95th Queue (ft)	86	170	44	168	112
Link Distance (ft)	309	261	61	400	400
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

HighlandPark High School  
4: Green Bay Road & Vine Avenue

2/24/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	82	6	130	49	59	3	162	193	45	432	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			0.98			0.98			1.00	
Frt		0.991			0.967			0.927			0.999	
Flt Protected		0.995			0.973						0.995	
Satd. Flow (prot)	0	1852	0	0	1737	0	0	1695	0	0	3517	0
Flt Permitted		0.950			0.770			0.996			0.855	
Satd. Flow (perm)	0	1764	0	0	1371	0	0	1688	0	0	3021	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			19			83			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			323			117			442	
Travel Time (s)		8.2			7.3			2.7			10.0	
Confl. Peds. (#/hr)	18		2	2		18	6		4	4		6
Confl. Bikes (#/hr)			1						2			
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	14	117	9	186	70	84	4	231	276	64	617	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	340	0	0	511	0	0	684	0
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		4			8			2 3			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2 3		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		15.0			15.0	15.0	
Minimum Split (s)	26.0	26.0		25.0	25.0		22.0			24.0	24.0	
Total Split (s)	45.0	45.0		34.0	34.0		31.0			55.0	55.0	
Total Split (%)	45.0%	45.0%		34.0%	34.0%		31.0%			55.0%	55.0%	
Maximum Green (s)	39.0	39.0		28.0	28.0		25.0			49.0	49.0	
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5			4.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5			1.5	1.5	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		6.0			6.0						6.0	
Lead/Lag								Lead				
Lead-Lag Optimize?								Yes				
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0			3.0	3.0	
Recall Mode	None	None		None	None		Min			Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0			5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0			11.0	11.0	
Pedestrian Calls (#/hr)	10	10		10	10		10			10	10	
Act Effct Green (s)		24.8			24.8			46.6			46.6	
Actuated g/C Ratio		0.30			0.30			0.56			0.56	
v/c Ratio		0.27			0.81			0.52			0.41	
Control Delay		22.9			41.5			5.1			12.7	
Queue Delay		0.0			0.1			6.5			0.1	
Total Delay		22.9			41.6			11.6			12.8	

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	22.0
Total Split (s)	24.0
Total Split (%)	24%
Maximum Green (s)	18.0
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	10
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

HighlandPark High School  
 4: Green Bay Road & Vine Avenue

2/24/2015

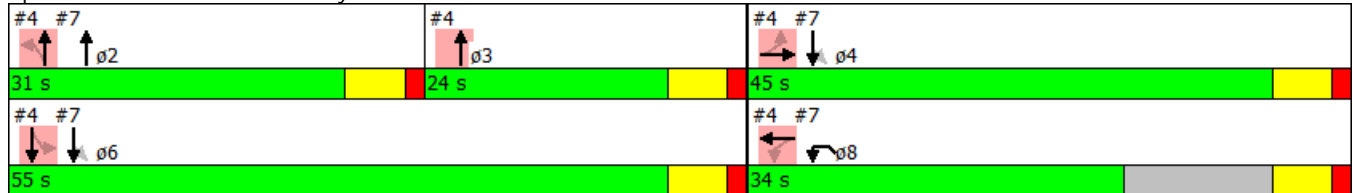
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			D			B			B	
Approach Delay		22.9			41.6			11.6			12.8	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)		56			162			27			101	
Queue Length 95th (ft)		75			179			26			138	
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)		840			661			967			1804	
Starvation Cap Reductn		0			0			397			0	
Spillback Cap Reductn		38			30			0			317	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.17			0.54			0.90			0.46	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 83.7  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 19.1  
 Intersection Capacity Utilization 69.2%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 4: Green Bay Road & Vine Avenue



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Lane Group	ø3
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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7: Green Bay Road & 1st Street Performance by movement

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Movement	NBT	SBL	SBT	NWR	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.1	0.1
Total Del/Veh (s)	25.8	4.6	2.8	7.1	10.9

Queuing and Blocking Report  
Future AM Peak Hour (7-8 AM)

2/24/2015

Intersection: 7: Green Bay Road & 1st Street

Movement	NB	SB	NW
Directions Served	T	LT	LR
Maximum Queue (ft)	250	105	53
Average Queue (ft)	142	60	26
95th Queue (ft)	225	107	56
Link Distance (ft)	236	61	239
Upstream Blk Time (%)	1	8	
Queuing Penalty (veh)	0	44	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



**Intersection**

Int Delay, s/veh 6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	224	113	147	36	22	66
Conflicting Peds, #/hr	114	0	0	114	114	114
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	320	161	210	51	31	94

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	375	0	464
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1183	-	598
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1071	-	490
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	21.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1071	-	-	-	121	490
HCM Lane V/C Ratio	0.299	-	-	-	0.26	0.192
HCM Control Delay (s)	9.8	0	-	-	44.9	14.1
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	1.3	-	-	-	1	0.7



Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	22.0
Total Split (s)	24.0
Total Split (%)	24%
Yellow Time (s)	4.5
All-Red Time (s)	1.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

HighlandPark High School  
 4: Green Bay Road & Vine Avenue

2/24/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		22.8			36.6			9.7			9.7	
Queue Delay		0.0			0.1			2.1			0.0	
Total Delay		22.8			36.7			11.9			9.7	
LOS		C			D			B			A	
Approach Delay		22.8			36.7			11.9			9.7	
Approach LOS		C			D			B			A	
Queue Length 50th (ft)		33			106			35			53	
Queue Length 95th (ft)		75			202			m566			126	
Internal Link Dist (ft)		279			243			37			362	
Turn Bay Length (ft)												
Base Capacity (vph)		727			741			1204			2158	
Starvation Cap Reductn		0			0			345			0	
Spillback Cap Reductn		0			70			0			273	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.13			0.41			0.82			0.27	

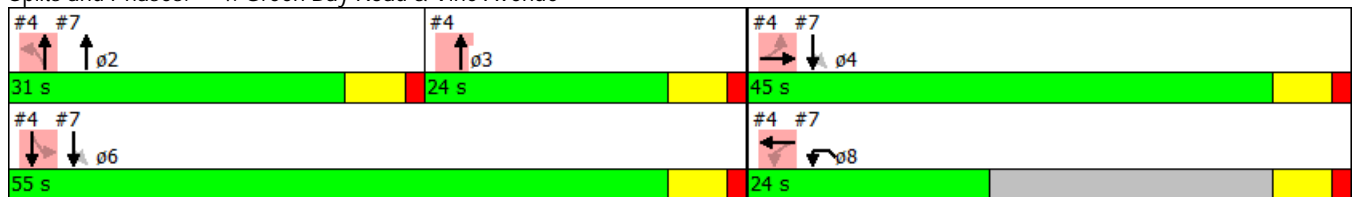
Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 75  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 16.1  
 Intersection Capacity Utilization 67.7%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Green Bay Road & Vine Avenue



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Lane Group	ø3
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HighlandPark High School  
7: Green Bay Road & 1st Street

2/24/2015

	↑	↗	↘	↓	↖	↙			
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Lane Configurations	↑			↖	↗				
Volume (vph)	452	0	172	416	1	175			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Frt					0.866				
Flt Protected				0.986					
Satd. Flow (prot)	1863	0	0	1837	1613	0			
Flt Permitted				0.616					
Satd. Flow (perm)	1863	0	0	1147	1613	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)					197				
Link Speed (mph)	30			30	30				
Link Distance (ft)	300			117	293				
Travel Time (s)	6.8			2.7	6.7				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89			
Adj. Flow (vph)	508	0	193	467	1	197			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	508	0	0	660	198	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Right	Left	Left	Left	Right			
Median Width(ft)	0			0	12				
Link Offset(ft)	0			0	0				
Crosswalk Width(ft)	16			16	16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Turning Speed (mph)		9	15		15	9			
Turn Type	NA		Perm	NA	Prot				
Protected Phases	2			6 4!	8!		3	4	6
Permitted Phases			6 4!						
Detector Phase	2		6 4	6 4	8				
Switch Phase									
Minimum Initial (s)	15.0				8.0		8.0	8.0	15.0
Minimum Split (s)	22.0				25.0		22.0	26.0	24.0
Total Split (s)	31.0				24.0		24.0	45.0	55.0
Total Split (%)	31.0%				24.0%		24%	45%	55%
Yellow Time (s)	4.5				4.5		4.5	4.5	4.5
All-Red Time (s)	1.5				1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0				0.0				
Total Lost Time (s)	6.0				6.0				
Lead/Lag	Lead						Lag		
Lead-Lag Optimize?	Yes						Yes		
Recall Mode	Min				None		None	None	Min
Act Effect Green (s)	25.6			75.0	19.7				
Actuated g/C Ratio	0.34			1.00	0.26				
v/c Ratio	0.80			0.58	0.35				
Control Delay	36.8			6.0	5.2				
Queue Delay	0.0			0.0	0.4				
Total Delay	36.8			6.0	5.6				
LOS	D			A	A				

HighlandPark High School  
 7: Green Bay Road & 1st Street

2/24/2015

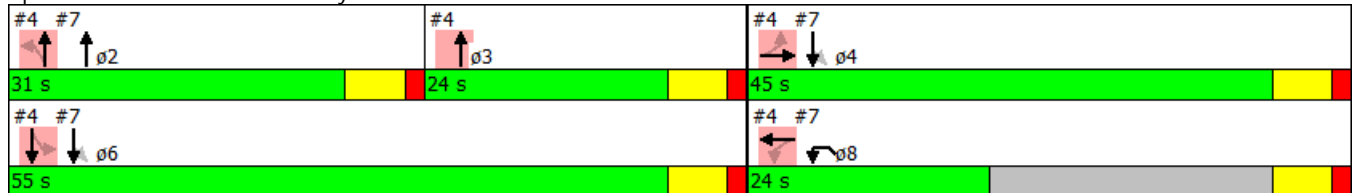


Lane Group	NBT	NBR	SBL	SBT	NWL	NWR	ø3	ø4	ø6
Approach Delay	36.8			6.0	5.6				
Approach LOS	D			A	A				
Queue Length 50th (ft)	193			95	0				
Queue Length 95th (ft)	#530			264	43				
Internal Link Dist (ft)	220			37	213				
Turn Bay Length (ft)									
Base Capacity (vph)	634			1137	949				
Starvation Cap Reductn	0			0	0				
Spillback Cap Reductn	0			0	380				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.80			0.58	0.35				

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 75  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 17.4  
 Intersection Capacity Utilization 84.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 ! Phase conflict between lane groups.

Splits and Phases: 7: Green Bay Road & 1st Street



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4: Green Bay Road & Vine Avenue Performance by movement

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.1	0.4
Total Del/Veh (s)	22.6	14.1	13.1	20.4	18.9	12.6	9.6	6.5	3.3	33.0	25.7	4.8

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4: Green Bay Road & Vine Avenue Performance by movement

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Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.6



Queuing and Blocking Report  
Future School Peak Hour (3-4 PM)

2/24/2015

Intersection: 4: Green Bay Road & Vine Avenue

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	81	152	91	282	221
Average Queue (ft)	33	82	68	122	71
95th Queue (ft)	64	137	86	232	168
Link Distance (ft)	309	261	61	400	400
Upstream Blk Time (%)			16		
Queuing Penalty (veh)			103		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

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7: Green Bay Road & 1st Street Performance by movement

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Movement	NBT	SBL	SBT	NWR	All
Denied Del/Veh (s)	0.6	0.0	0.0	1.0	0.4
Total Del/Veh (s)	12.1	7.2	4.0	49.1	13.7

Queuing and Blocking Report  
Future School Peak Hour (3-4 PM)

2/24/2015

Intersection: 7: Green Bay Road & 1st Street

Movement	NB	SB	NW
Directions Served	T	LT	LR
Maximum Queue (ft)	251	81	245
Average Queue (ft)	132	65	105
95th Queue (ft)	212	102	225
Link Distance (ft)	236	61	230
Upstream Blk Time (%)	1	14	5
Queuing Penalty (veh)	0	84	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection**

Int Delay, s/veh 4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	68	91	122	30	22	99
Conflicting Peds, #/hr	82	0	0	82	82	82
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	102	137	34	25	111

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	253	0	318
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1312	-	723
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1222	-	628
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1222	-	-	-	435	628
HCM Lane V/C Ratio	0.063	-	-	-	0.057	0.177
HCM Control Delay (s)	8.1	0	-	-	13.8	12
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.6

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	SBC			Intersection	Vine Lot and St Johns		
Agency/Co.	EEA			Jurisdiction	HP		
Date Performed	2/24/2015			Analysis Year	Future		
Analysis Time Period	Future AM Peak						
Project Description							
East/West Street: Vine Lot Right-Out				North/South Street: St Johns			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					168		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	218	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	0	0	0	1	0	
Configuration					T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			83				
Peak-Hour Factor, PHF	1.00	1.00	0.60	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	138	0	0	0	
Percent Heavy Vehicles	0	0	1	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	1	0	0	0	
Configuration			R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							138
C (m) (veh/h)							824
v/c							0.17
95% queue length							0.60
Control Delay (s/veh)							10.2
LOS							B
Approach Delay (s/veh)	--	--				10.2	
Approach LOS	--	--				B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	SBC			Intersection	Vine Lot and St Johns		
Agency/Co.	EEA			Jurisdiction	HP		
Date Performed	2/24/2015			Analysis Year	Future		
Analysis Time Period	Future PM Peak						
Project Description							
East/West Street: Vine Lot Right-Out				North/South Street: St Johns			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)					208		
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	0.77	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	270	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	0	0	0	1	0	
Configuration					T		
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			44				
Peak-Hour Factor, PHF	1.00	1.00	0.60	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	0	0	73	0	0	0	
Percent Heavy Vehicles	0	0	1	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	1	0	0	0	
Configuration			R				
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration							R
v (veh/h)							73
C (m) (veh/h)							771
v/c							0.09
95% queue length							0.31
Control Delay (s/veh)							10.2
LOS							B
Approach Delay (s/veh)	--	--				10.2	
Approach LOS	--	--				B	