

## SUMMARY OF ANALYSIS HILL STREET AND ROUTE 6N

### Existing Conditions:

The existing intersection has three approaches, with Hill St being stop sign controlled and the two Route 6N approaches being uncontrolled. The southbound approach has two lanes (left and right turn lanes), and though the approach operates acceptably at LOS D in the AM peak hour, the left turn movement is over-capacity ( $v/c=1.05$ ) and operates at LOS F in the PM peak hour. There are no pedestrian accommodations at the intersection. Sight distance looking east from Hill St is adequate at more than 700 feet and is marginal looking west at about 350 feet. Based on the 30 mph speed limit, the stopping sight distance is 200 feet and the preferred intersection sight distance is 320 feet.

### Signal Warrant Analysis:

A review of the hourly traffic volumes between 7:00 AM and 8:00 PM show that Warrant 1 (8-hour warrant) is satisfied with 9 of the 13 hours reviewed meeting criteria. Warrant 2 (4-hour warrant) is satisfied with 5 hours meeting criteria and Warrant 3 (peak hour warrant) is not satisfied with zero hours meeting criteria. Warrant 7 (crash experience) is not satisfied, as there were not 5 accidents per year susceptible to correction by signalization (left or right turn, or right angle accidents). The satisfaction of Warrants 1 & 2 combined with the existing over-capacity conditions indicates that the need for signalization, or similar treatment, such as a roundabout, is justified.

### Accident Analysis:

Accident data noted 12 accidents at this location in the 3-year period reviewed. However, only 5 of these are of a type susceptible to correction by a traffic signal and only 4 accidents resulted in injury. The accident rate calculated for this intersection is 0.72 accidents per million entering vehicles (acc/MEV). Comparing this to the state-wide average for similar intersections of 0.17 acc/MEV, it is clear that safety should be improved at this location. With the predominant accident type being right angles, the installation of a traffic signal or roundabout would result in a significant safety improvement. A summary of the accident types and severity are in the table below:

**ACCIDENT SUMMARY**

Accident Type	Number of Occurrences	Accident Severity	Number of Occurrences
Right Angle	5	Fatality	0
Rear End	3	Personal Injury	1
Backing	1	Property Damage Only	4
Overtaking	2	Non-Reportable	7
Sideswipe	1		
	12		12

### **Field Condition and Right of Way Review:**

If a roundabout was to be constructed, there are significant physical constraints that will drive up costs and cause construction issues. The Red Mill Historic Park is on the northeast corner of the intersection and the Muscoot River is channelized through the park and crosses under Route 6N directly adjacent to the intersection. The Muscoot River and the surrounding wetlands are part of the New York City water supply system. There is a significant drop off and potential wetlands to the south and a significant hill rising to a commercial plaza's parking lot on the northwest corner. Both the Red Mill Historical Park and the land to the south of the intersection are owned by the NYC DEP and therefore it is extremely unlikely that they will be able to be infringed upon. For a roundabout to work at this intersection a major cut into the northwest corner hill would need to be made and a retaining wall installed, possibly up to 10 feet high. Right of way would need to be taken from the commercial plaza and part of their parking lot would have to be removed. Utilities would need relocating and a bus shelter and community sign would also need to be relocated. The installation of a traffic signal could be accommodated without affecting any of these constraints.

### **Design Alternative Consideration:**

Two design alternatives were considered to improve traffic operations at this intersection; the installation of a traffic signal and the construction of a roundabout. For the traffic signal, LOS A with an overall intersection delay of 8.0 or less could be achieved for both the AM and PM peak hours. Roundabout operations would yield LOS A in the AM peak and LOS B in the PM peak, with average delays of 7.9 sec/veh and 10.2 sec/veh respectively. A concept sketch showing the roundabout alternative is included later under this tab.

### **Conceptual Cost Estimate:**

Based on our past experience with similar projects, knowledge of construction pricing in this region of New York State and our understanding of the issues, it is estimated that a traffic signal would cost approximately \$250,000. Because of the significant physical constraints, it may not be possible to construct a roundabout at this location, but if so, our best estimate of cost would be approximately \$1,925,000. These costs include construction of all improvements, right of way costs, and costs for design and inspection. A breakdown of the big picture cost items is included later under this tab.

### **Summary & Conclusion:**

The analyses show that there is an operational need for improved traffic control. Either a traffic signal or roundabout is warranted, and both will provide similar and acceptable levels of service. However, a roundabout would require significant earthwork, a costly retaining wall, significant right of way acquisition, and the potential impact to New York City's water supply system, all of which would drive up construction costs, increase the difficulty of permitting, and pose significant design challenges for this location. A traffic signal would avoid all these issues and could be installed at a much more reasonable price. It is recommended that a traffic signal be installed at this location to improve safety and operations. The physical constraints of the site make the construction of a roundabout infeasible.

The intersection evaluation worksheet summarizing the lane geometry and traffic operations, traffic volume data sheets, traffic signal warrant analysis sheets, accident summary sheets, capacity analysis worksheets, cost estimate breakdown and roundabout concept sketch for this intersection can be found on the following pages under this tab.

## INTERSECTION EVALUATION WORKSHEET

<b>Project:</b>	Putnam County Roundabout Evaluation
<b>Location:</b>	Putnam County (Various Locations)
<b>Intersection:</b>	Hill Street & Route 6N
<b>GPS Coord.:</b>	41°22'29.57"N, 73°45'44.10"W
<b>Traffic Control:</b>	Stop Sign (SB)
<b>Traffic Control Notes (if applicable):</b>	None
<b>Other Intersection Notes (if applicable):</b>	Sight Distance - 720' looking east/350' looking west. No Pedestrian Crossings.



### APPROACH DATA

	n/a			Hill Street			Route 6N			Route 6N		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Assignments:				1		1	<-1				1->	
Lane Widths:				11'		11'	11'				11'	
Turn Bay Lengths:				-		180'	-				-	
Speed Limits:				40 mph			30 mph			30 mph		

### TRAFFIC COUNT DATA

(traffic volumes below represent counted traffic adjusted by 1.05 to account for seasonal variation and annual growth)

AM Peak Hour	Time Period: 7:15 to 8:15						Date Counted: 5/1/2018					
Volume:	-	-	-	196	-	123	40	370	-	-	317	41
Truck %:	-	-	-	5%	-	6%	13%	8%	-	-	6%	8%
Peds (Bikes):	-			0 (0)			0 (0)			0 (0)		
PHF = 0.89												
PM Peak Hour	Time Period: 5:15 to 6:15						Date Counted: 5/1/2018					
Volume:	-	-	-	100	-	85	135	550	-	-	489	174
Truck %:	-	-	-	1%	-	1%	1%	2%	-	-	2%	1%
Peds (Bikes):	-			0 (0)			0 (0)			0 (0)		
PHF = 0.93												

### EXISTING CONDITION LEVEL OF SERVICE

AM Peak Delay (s):				45.9		11.9	8.4					
LOS:				E		B	A					
v/c:				0.75		0.21	0.04					
95% Queue:				140'		< 25'	< 25'					
<b>A (9.9) Overall</b>	-			<b>D (32.8)</b>			<b>A (0.8)</b>			<b>A (0.0)</b>		
PM Peak Delay (s):				182.5		14.0	9.8					
LOS:				F		B	A					
v/c:				1.05		0.19	0.16					
95% Queue:				170'		< 25'	< 25'					
<b>B (13.5) Overall</b>	-			<b>F (105.1)</b>			<b>A (1.9)</b>			<b>A (0.0)</b>		

Note: LOS calculated using HCM 6 methodologies. For unsignalized intersections, only side street approach delay and mainline left turn delay is shown. The HCM 6 methodology assumes zero delay for all other movements.

INTERSECTION EVALUATION WORKSHEET												
	n/a			Hill Street			Route 6N			Route 6N		
	Northbound			Southbound			Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
<b>BUILD ALTERNATIVE #1 - LEVEL OF SERVICE</b>												
<b>Description of Improvements:</b> Actuated Traffic Signal with No Geometric Improvements												
AM Peak Delay (s):				13.6		12.1	6.0			5.8		
LOS:				B		B	A			A		
v/c:				0.65		0.46	0.48			0.47		
95% Queue:				105'		30'	155'			120'		
<b>A (8.0) Overall</b>	-			<b>B (13.0)</b>			<b>A (6.0)</b>			<b>A (5.8)</b>		
PM Peak Delay (s):				20.1		20.0	6.5			4.7		
LOS:				C		C	A			A		
v/c:				0.56		0.53	0.75			0.61		
95% Queue:				80'		35'	465'			220'		
<b>A (7.4) Overall</b>	-			<b>C (20.0)</b>			<b>A (6.5)</b>			<b>A (4.7)</b>		
<b>BUILD ALTERNATIVE #2 - LEVEL OF SERVICE</b>												
<b>Description of Improvements:</b> Single Lane Roundabout (120 ft. Diameter)												
AM Peak Delay (s):				8.7			8.9			6.0		
LOS:				A			A			A		
v/c:				0.40			0.46			0.33		
95% Queue:				50'			50'			25'		
<b>A (7.9) Overall</b>	-			<b>A (8.7)</b>			<b>A (8.9)</b>			<b>A (6.0)</b>		
PM Peak Delay (s):				7.3			10.5			10.8		
LOS:				A			B			B		
v/c:				0.25			0.61			0.61		
95% Queue:				25'			100'			100'		
<b>B (10.2) Overall</b>	-			<b>A (7.3)</b>			<b>B (10.5)</b>			<b>B (10.8)</b>		
<b>BUILD ALTERNATIVE #3 - LEVEL OF SERVICE</b>												
<b>Description of Improvements:</b>												
AM Peak Delay (s):												
LOS:												
v/c:												
95% Queue:												
<b>Overall</b>	-			-			-			-		
PM Peak Delay (s):												
LOS:												
v/c:												
95% Queue:												
<b>Overall</b>	-			-			-			-		

**Greenman-Pedersen, Inc.**  
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File Name : Hill Street at Route 6N - 13 Hour Data  
 Site Code : 2018011\_  
 Start Date : 5/1/2018  
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Hill Street From North					Route 6N From East					From South					Route 6N From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	27	0	51	0	78	5	66	0	0	71	0	0	0	0	0	0	70	6	0	76	225
07:15 AM	27	0	67	0	94	9	62	0	0	71	0	0	0	0	0	0	107	9	0	116	281
07:30 AM	32	0	50	0	82	12	86	0	0	98	0	0	0	0	0	0	100	11	0	111	291
07:45 AM	25	0	40	0	65	10	72	0	0	82	0	0	0	0	0	0	73	7	0	80	227
<b>Total</b>	<b>111</b>	<b>0</b>	<b>208</b>	<b>0</b>	<b>319</b>	<b>36</b>	<b>286</b>	<b>0</b>	<b>0</b>	<b>322</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>350</b>	<b>33</b>	<b>0</b>	<b>383</b>	<b>1024</b>
08:00 AM	33	0	30	0	63	8	82	0	0	90	0	0	0	0	0	0	72	11	0	83	236
08:15 AM	20	0	38	0	58	11	75	0	0	86	0	0	0	0	0	0	101	13	0	114	258
08:30 AM	28	0	28	0	56	19	95	0	0	114	0	0	0	0	0	0	80	11	0	91	261
08:45 AM	30	0	41	0	71	13	70	0	0	83	0	0	0	0	0	0	74	13	0	87	241
<b>Total</b>	<b>111</b>	<b>0</b>	<b>137</b>	<b>0</b>	<b>248</b>	<b>51</b>	<b>322</b>	<b>0</b>	<b>0</b>	<b>373</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>327</b>	<b>48</b>	<b>0</b>	<b>375</b>	<b>996</b>
09:00 AM	18	0	28	0	46	15	70	0	0	85	0	0	0	0	0	0	90	9	0	99	230
09:15 AM	14	0	24	0	38	17	52	0	0	69	0	0	0	0	0	0	88	12	0	100	207
09:30 AM	18	0	39	0	57	20	73	0	0	93	0	0	0	0	0	0	102	17	0	119	269
09:45 AM	13	0	30	0	43	16	77	0	0	93	0	0	0	0	0	0	84	9	0	93	229
<b>Total</b>	<b>63</b>	<b>0</b>	<b>121</b>	<b>0</b>	<b>184</b>	<b>68</b>	<b>272</b>	<b>0</b>	<b>0</b>	<b>340</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>364</b>	<b>47</b>	<b>0</b>	<b>411</b>	<b>935</b>
10:00 AM	20	0	14	0	34	22	75	0	0	97	0	0	0	0	0	0	65	8	0	73	204
10:15 AM	9	0	16	0	25	18	66	0	0	84	0	0	0	0	0	0	66	6	0	72	181
10:30 AM	12	0	14	0	26	18	55	0	0	73	0	0	0	0	0	0	70	10	0	80	179
10:45 AM	18	0	19	0	37	19	58	0	0	77	0	0	0	0	0	0	66	6	0	72	186
<b>Total</b>	<b>59</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>122</b>	<b>77</b>	<b>254</b>	<b>0</b>	<b>0</b>	<b>331</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>30</b>	<b>0</b>	<b>297</b>	<b>750</b>
11:00 AM	12	0	18	0	30	12	65	0	0	77	0	0	0	0	0	0	65	9	0	74	181
11:15 AM	13	0	17	0	30	16	84	0	0	100	0	0	0	0	0	0	62	15	0	77	207
11:30 AM	11	0	19	0	30	25	69	0	0	94	0	0	0	0	0	0	66	14	0	80	204
11:45 AM	10	0	21	0	31	21	71	0	0	92	0	0	0	0	0	0	64	16	0	80	203
<b>Total</b>	<b>46</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>121</b>	<b>74</b>	<b>289</b>	<b>0</b>	<b>0</b>	<b>363</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>257</b>	<b>54</b>	<b>0</b>	<b>311</b>	<b>795</b>
12:00 PM	19	0	26	0	45	18	69	0	0	87	0	0	0	0	0	0	63	18	0	81	213
12:15 PM	18	0	21	0	39	20	67	0	0	87	0	0	0	0	0	0	55	16	0	71	197
12:30 PM	18	0	10	0	28	21	89	0	0	110	0	0	0	0	0	0	70	11	0	81	219
12:45 PM	10	0	21	0	31	23	64	0	0	87	0	0	0	0	0	0	70	12	0	82	200
<b>Total</b>	<b>65</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>143</b>	<b>82</b>	<b>289</b>	<b>0</b>	<b>0</b>	<b>371</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>258</b>	<b>57</b>	<b>0</b>	<b>315</b>	<b>829</b>
01:00 PM	5	0	16	0	21	24	74	0	0	98	0	0	0	0	0	0	64	16	0	80	199
01:15 PM	15	0	25	0	40	20	65	0	0	85	0	0	0	0	0	0	70	10	0	80	205
01:30 PM	10	0	30	0	40	17	78	0	0	95	0	0	0	0	0	0	93	14	0	107	242
01:45 PM	16	0	23	1	40	27	81	0	0	108	0	0	0	0	0	0	76	13	0	89	237
<b>Total</b>	<b>46</b>	<b>0</b>	<b>94</b>	<b>1</b>	<b>141</b>	<b>88</b>	<b>298</b>	<b>0</b>	<b>0</b>	<b>386</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>303</b>	<b>53</b>	<b>0</b>	<b>356</b>	<b>883</b>
02:00 PM	11	0	14	0	25	43	85	0	0	128	0	0	0	0	0	0	77	21	0	98	251
02:15 PM	11	0	30	1	42	27	95	0	1	123	0	0	0	0	0	0	79	17	3	99	264
02:30 PM	23	0	27	0	50	21	83	0	0	104	0	0	0	0	0	0	80	19	0	99	253
02:45 PM	14	0	21	0	35	34	97	0	0	131	0	0	0	0	0	0	115	24	0	139	305
<b>Total</b>	<b>59</b>	<b>0</b>	<b>92</b>	<b>1</b>	<b>152</b>	<b>125</b>	<b>360</b>	<b>0</b>	<b>1</b>	<b>486</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>351</b>	<b>81</b>	<b>3</b>	<b>435</b>	<b>1073</b>
03:00 PM	19	0	16	0	35	47	99	0	0	146	0	0	0	0	0	0	81	22	0	103	284
03:15 PM	19	0	18	0	37	31	99	0	0	130	0	0	0	0	0	0	87	23	0	110	277
03:30 PM	13	0	36	0	49	31	120	0	0	151	0	0	0	0	0	0	103	26	0	129	329
03:45 PM	12	0	39	0	51	40	99	0	0	139	0	0	0	0	0	0	110	28	0	138	328
<b>Total</b>	<b>63</b>	<b>0</b>	<b>109</b>	<b>0</b>	<b>172</b>	<b>149</b>	<b>417</b>	<b>0</b>	<b>0</b>	<b>566</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>381</b>	<b>99</b>	<b>0</b>	<b>480</b>	<b>1218</b>

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Groups Printed- Cars - Trucks

Start Time	Hill Street From North					Route 6N From East					From South					Route 6N From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	19	0	24	0	43	45	101	0	0	146	0	0	0	0	0	0	112	33	0	145	334
04:15 PM	16	0	31	0	47	44	102	0	0	146	0	0	0	0	0	0	119	38	0	157	350
04:30 PM	14	0	34	3	51	51	109	0	0	160	0	0	0	0	0	0	114	42	0	156	367
04:45 PM	16	0	28	0	44	33	94	0	0	127	0	0	0	0	0	0	133	31	0	164	335
<b>Total</b>	<b>65</b>	<b>0</b>	<b>117</b>	<b>3</b>	<b>185</b>	<b>173</b>	<b>406</b>	<b>0</b>	<b>0</b>	<b>579</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>478</b>	<b>144</b>	<b>0</b>	<b>622</b>	<b>1386</b>
05:00 PM	15	0	23	0	38	41	113	0	0	154	0	0	0	0	0	0	106	29	0	135	327
05:15 PM	20	0	20	0	40	41	105	0	0	146	0	0	0	0	0	0	154	33	0	187	373
05:30 PM	34	0	25	0	59	48	120	0	0	168	0	0	0	0	0	0	131	34	0	165	392
05:45 PM	16	0	25	0	41	32	117	0	0	149	0	0	0	0	0	0	137	36	0	173	363
<b>Total</b>	<b>85</b>	<b>0</b>	<b>93</b>	<b>0</b>	<b>178</b>	<b>162</b>	<b>455</b>	<b>0</b>	<b>0</b>	<b>617</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>528</b>	<b>132</b>	<b>0</b>	<b>660</b>	<b>1455</b>
06:00 PM	11	0	25	0	36	45	124	0	0	169	0	0	0	0	0	0	102	26	0	128	333
06:15 PM	17	0	29	0	46	34	101	0	0	135	0	0	0	0	0	0	136	29	0	165	346
06:30 PM	18	0	22	0	40	54	109	0	0	163	0	0	0	0	0	0	97	42	0	139	342
06:45 PM	18	0	22	0	40	51	85	0	0	136	0	0	0	0	0	0	108	24	0	132	308
<b>Total</b>	<b>64</b>	<b>0</b>	<b>98</b>	<b>0</b>	<b>162</b>	<b>184</b>	<b>419</b>	<b>0</b>	<b>0</b>	<b>603</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>443</b>	<b>121</b>	<b>0</b>	<b>564</b>	<b>1329</b>
07:00 PM	18	0	29	0	47	44	89	0	0	133	0	0	0	0	0	0	74	24	0	98	278
07:15 PM	12	0	26	0	38	35	75	0	0	110	0	0	0	0	0	0	80	15	0	95	243
07:30 PM	16	0	18	0	34	31	96	0	0	127	0	0	0	0	0	0	45	22	0	67	228
07:45 PM	20	0	20	2	42	31	91	0	0	122	0	0	0	0	0	0	70	24	0	94	258
<b>Total</b>	<b>66</b>	<b>0</b>	<b>93</b>	<b>2</b>	<b>161</b>	<b>141</b>	<b>351</b>	<b>0</b>	<b>0</b>	<b>492</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>269</b>	<b>85</b>	<b>0</b>	<b>354</b>	<b>1007</b>
<b>Grand Total</b>	<b>903</b>	<b>0</b>	<b>1378</b>	<b>7</b>	<b>2288</b>	<b>1410</b>	<b>4418</b>	<b>0</b>	<b>1</b>	<b>5829</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4576</b>	<b>984</b>	<b>3</b>	<b>5563</b>	<b>13680</b>
<b>Apprch %</b>	<b>39.5</b>	<b>0</b>	<b>60.2</b>	<b>0.3</b>		<b>24.2</b>	<b>75.8</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>82.3</b>	<b>17.7</b>	<b>0.1</b>		
<b>Total %</b>	<b>6.6</b>	<b>0</b>	<b>10.1</b>	<b>0.1</b>	<b>16.7</b>	<b>10.3</b>	<b>32.3</b>	<b>0</b>	<b>0</b>	<b>42.6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>33.5</b>	<b>7.2</b>	<b>0</b>	<b>40.7</b>	
<b>Cars</b>	<b>874</b>	<b>0</b>	<b>1326</b>			<b>1361</b>	<b>4239</b>										<b>4394</b>				<b>13162</b>
<b>% Cars</b>	<b>96.8</b>	<b>0</b>	<b>96.2</b>	<b>100</b>	<b>96.5</b>	<b>96.5</b>	<b>95.9</b>	<b>0</b>	<b>100</b>	<b>96.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>96</b>	<b>97.3</b>	<b>100</b>	<b>96.2</b>	<b>96.2</b>
<b>Trucks</b>	<b>29</b>	<b>0</b>	<b>52</b>	<b>0</b>	<b>81</b>	<b>49</b>	<b>179</b>	<b>0</b>	<b>0</b>	<b>228</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>182</b>	<b>27</b>	<b>0</b>	<b>209</b>	<b>518</b>
<b>% Trucks</b>	<b>3.2</b>	<b>0</b>	<b>3.8</b>	<b>0</b>	<b>3.5</b>	<b>3.5</b>	<b>4.1</b>	<b>0</b>	<b>0</b>	<b>3.9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>2.7</b>	<b>0</b>	<b>3.8</b>	<b>3.8</b>

Start Time	Hill Street From North					Route 6N From East					From South					Route 6N From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
<b>Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1</b>																					
<b>Peak Hour for Entire Intersection Begins at 07:15 AM</b>																					
07:15 AM	27	0	67	0	94	9	62	0	0	71	0	0	0	0	0	0	107	9	0	116	281
07:30 AM	32	0	50	0	82	12	86	0	0	98	0	0	0	0	0	0	100	11	0	111	291
07:45 AM	25	0	40	0	65	10	72	0	0	82	0	0	0	0	0	0	73	7	0	80	227
08:00 AM	33	0	30	0	63	8	82	0	0	90	0	0	0	0	0	0	72	11	0	83	236
<b>Total Volume</b>	<b>117</b>	<b>0</b>	<b>187</b>	<b>0</b>	<b>304</b>	<b>39</b>	<b>302</b>	<b>0</b>	<b>0</b>	<b>341</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>352</b>	<b>38</b>	<b>0</b>	<b>390</b>	<b>1035</b>
<b>% App. Total</b>	<b>38.5</b>	<b>0</b>	<b>61.5</b>	<b>0</b>		<b>11.4</b>	<b>88.6</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>90.3</b>	<b>9.7</b>	<b>0</b>		
<b>PHF</b>	<b>.886</b>	<b>.000</b>	<b>.698</b>	<b>.000</b>	<b>.809</b>	<b>.813</b>	<b>.878</b>	<b>.000</b>	<b>.000</b>	<b>.870</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>	<b>.822</b>	<b>.864</b>	<b>.000</b>	<b>.841</b>	<b>.889</b>

**Greenman-Pedersen, Inc.**  
**80 Wolf Road, Suite 300**  
**Albany, NY 12205**  
**518.453.9431**

File Name : Hill Street at Route 6N - 13 Hour Data  
 Site Code : 2018011\_  
 Start Date : 5/1/2018  
 Page No : 3

Start Time	Hill Street From North					Route 6N From East					From South					Route 6N From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 07:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	20	0	20	0	40	41	105	0	0	146	0	0	0	0	0	0	154	33	0	187	373
05:30 PM	34	0	25	0	59	48	120	0	0	168	0	0	0	0	0	0	131	34	0	165	392
05:45 PM	16	0	25	0	41	32	117	0	0	149	0	0	0	0	0	0	137	36	0	173	363
06:00 PM	11	0	25	0	36	45	124	0	0	169	0	0	0	0	0	0	102	26	0	128	333
Total Volume	81	0	95	0	176	166	466	0	0	632	0	0	0	0	0	0	524	129	0	653	1461
% App. Total	46	0	54	0		26.3	73.7	0	0		0	0	0	0	0	0	80.2	19.8	0		
PHF	.596	.000	.950	.000	.746	.865	.940	.000	.000	.935	.000	.000	.000	.000	.000	.000	.851	.896	.000	.873	.932

# TRAFFIC SIGNAL WARRANT SUMMARY

Project: Putnam County Roundabout Evaluation Condition: 2019 Existing Condition  
 Location: Route 6N and Hill St Date: April 25, 2019  
 Major Street: Route 6N Lanes: 1 Critical Approach Speed: 30 mph  
 Minor Street: Hill Street Lanes: 1

**Volume Level Criteria**

1. Is the critical speed of major street traffic greater than 40 mph? No  
 2. Is the intersection in a built-up area of an isolated community with population less than 10,000? No  
 If either Question 1 or Question 2 is answered "Yes", then use the 70% volume level. Criteria used: 100%

**WARRANT 1 - EIGHT HOUR VEHICULAR VOLUME**

Warrant 1 Satisfied: YES

Warrant 1 is satisfied if EITHER Condition A OR Condition B is 100% satisfied.  
 Warrant 1 is also satisfied if BOTH Condition A AND Condition B are satisfied to the 80% volume level.

Minimum Volume Criteria:			Condition 1A - Minimum Vehicular Volume (X indicates that criteria is met for specified condition)				Condition 1B - Interruption of Continuous Traffic (X indicates that criteria is met for specified condition)				Total Satisfied Hours (8 required)		
			500	150	400	120	750	75	600	60	1	9	4
Start Time	Major St. Volume <sup>1</sup>	Minor St. Volume <sup>2</sup>	Major St. 100%	Minor St. 100%	Major St. 80%	Minor St. 80%	Major St. 100%	Minor St. 100%	Major St. 80%	Minor St. 80%	Condition 1A Satisfied	Condition 1B Satisfied	80% for Both Satisfied
12:00 AM			-	-	-	-	-	-	-	-	-	-	-
1:00 AM			-	-	-	-	-	-	-	-	-	-	-
2:00 AM			-	-	-	-	-	-	-	-	-	-	-
3:00 AM			-	-	-	-	-	-	-	-	-	-	-
4:00 AM			-	-	-	-	-	-	-	-	-	-	-
5:00 AM			-	-	-	-	-	-	-	-	-	-	-
6:00 AM			-	-	-	-	-	-	-	-	-	-	-
7:00 AM	740	218	X	X	X	X	-	X	X	X	1	-	1
8:00 AM	785	144	X	-	X	X	X	X	X	X	-	1	1
9:00 AM	789	127	X	-	X	X	X	X	X	X	-	1	1
10:00 AM	659	66	X	-	X	-	-	-	X	X	-	-	-
11:00 AM	708	79	X	-	X	-	-	X	X	X	-	-	-
12:00 PM	720	82	X	-	X	-	-	X	X	X	-	-	-
1:00 PM	779	99	X	-	X	-	X	X	X	X	-	1	-
2:00 PM	966	97	X	-	X	-	X	X	X	X	-	1	-
3:00 PM	1098	114	X	-	X	-	X	X	X	X	-	1	-
4:00 PM	1261	123	X	-	X	X	X	X	X	X	-	1	1
5:00 PM	1341	98	X	-	X	-	X	X	X	X	-	1	-
6:00 PM	1225	103	X	-	X	-	X	X	X	X	-	1	-
7:00 PM	888	98	X	-	X	-	X	X	X	X	-	1	-
8:00 PM			-	-	-	-	-	-	-	-	-	-	-
9:00 PM			-	-	-	-	-	-	-	-	-	-	-
10:00 PM			-	-	-	-	-	-	-	-	-	-	-
11:00 PM			-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Major Street Volume is the total combined volume of both mainline approaches.  
<sup>2</sup> Minor Street volumes is the highest single side street approach volume.

**Note: Right turn traffic was removed from side street volume and only one of the two available lanes was considered in the Warrant analysis.**

**WARRANT 2 - FOUR HOUR VEHICULAR VOLUME**

Warrant 2 Satisfied: YES

Warrant is satisfied if four (4) or more hours satisfy the volume requirements depicted on the four hour warranting graph (see page 2).

No. of Points Above Criteria Curve: 5

**WARRANT 3 - PEAK HOUR VEHICULAR VOLUME**

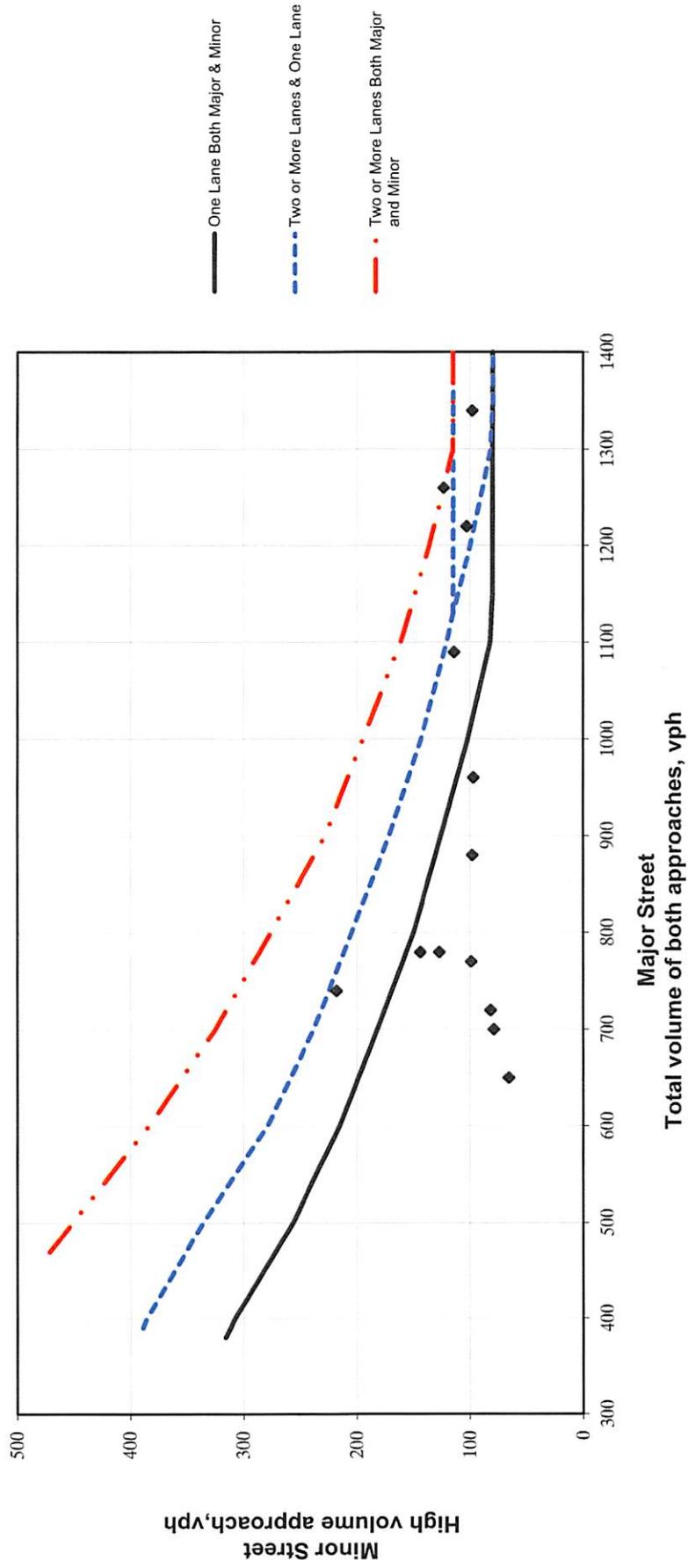
Warrant 3 Satisfied: NO

Warrant is satisfied if any hour satisfy the volume requirements depicted on the peak hour warranting graph (see page 3), and ALL three of the following requirement are met.

No. of Points Above Criteria Curve: 0

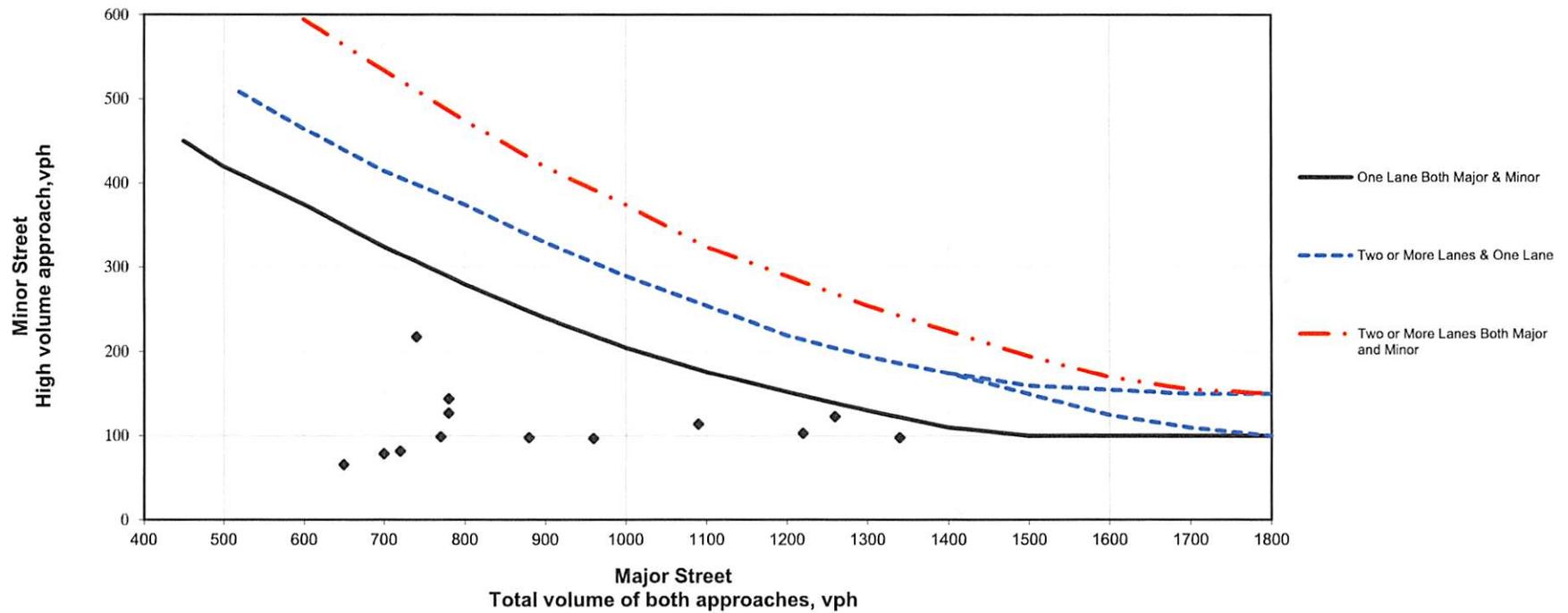
1. Total stopped time delay on Minor Street equals or exceeds 4 VHD (single lane) or 5 VHD (two lanes): 9.3 VHD Max. Yes  
 2. Volume on Minor Street equals or exceeds 100 vehicles (single lane) or 150 vehicles (two lanes): Yes  
 3. Total intersection volume serviced during the hour equals or exceeds 650 veh. (3-leg) or 800 veh. (4-leg or more): Yes

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



Note: Points on graph represent hourly volumes. Points above the respective curve satisfy warrant, points below do not satisfy warrant.

Figure 4C-3. Warrant 3, Peak Hour



Note: Points on graph represent hourly volumes. Points above the respective curve satisfy warrant, points below do not satisfy warrant.

**Intersection**

Int Delay, s/veh 9.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	40	370	317	41	196	123
Future Vol, veh/h	40	370	317	41	196	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	180
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	13	8	6	8	5	6
Mvmt Flow	45	416	356	46	220	138

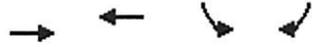
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	402	0	-	0	885 379
Stage 1	-	-	-	-	379 -
Stage 2	-	-	-	-	506 -
Critical Hdwy	4.23	-	-	-	6.45 6.26
Critical Hdwy Stg 1	-	-	-	-	5.45 -
Critical Hdwy Stg 2	-	-	-	-	5.45 -
Follow-up Hdwy	2.317	-	-	-	3.545 3.354
Pot Cap-1 Maneuver	1100	-	-	-	312 659
Stage 1	-	-	-	-	686 -
Stage 2	-	-	-	-	599 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1100	-	-	-	295 659
Mov Cap-2 Maneuver	-	-	-	-	295 -
Stage 1	-	-	-	-	650 -
Stage 2	-	-	-	-	599 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	32.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1100	-	-	-	295	659
HCM Lane V/C Ratio	0.041	-	-	-	0.747	0.21
HCM Control Delay (s)	8.4	0	-	-	45.9	11.9
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.1	-	-	-	5.5	0.8

Queues  
2: Route 6N & Hill Street

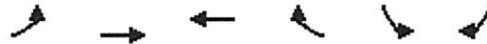
AM Peak Hour  
Build Alt. 1 - Traffic Signal



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	461	402	220	138
v/c Ratio	0.61	0.49	0.51	0.28
Control Delay	12.1	9.4	17.8	5.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.1	9.4	17.8	5.1
Queue Length 50th (ft)	63	48	36	0
Queue Length 95th (ft)	154	118	104	30
Internal Link Dist (ft)	627	658	780	
Turn Bay Length (ft)				180
Base Capacity (vph)	1539	1658	648	658
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.24	0.34	0.21
<b>Intersection Summary</b>				

HCM 6th Signalized Intersection Summary  
 2: Route 6N & Hill Street

AM Peak Hour  
 Build Alt. 1 - Traffic Signal



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Volume (veh/h)	40	370	317	41	196	123
Future Volume (veh/h)	40	370	317	41	196	123
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1781	1781	1811	1811	1826	1811
Adj Flow Rate, veh/h	45	416	356	46	220	138
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	8	8	6	6	5	6
Cap, veh/h	166	784	758	98	341	301
Arrive On Green	0.48	0.48	0.48	0.48	0.20	0.20
Sat Flow, veh/h	82	1626	1571	203	1739	1535
Grp Volume(v), veh/h	461	0	0	402	220	138
Grp Sat Flow(s),veh/h/ln	1708	0	0	1775	1739	1535
Q Serve(g_s), s	0.0	0.0	0.0	4.7	3.6	2.5
Cycle Q Clear(g_c), s	5.6	0.0	0.0	4.7	3.6	2.5
Prop In Lane	0.10			0.11	1.00	1.00
Lane Grp Cap(c), veh/h	951	0	0	856	341	301
V/C Ratio(X)	0.48	0.00	0.00	0.47	0.65	0.46
Avail Cap(c_a), veh/h	2530	0	0	2568	839	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	0.0	0.0	5.4	11.5	11.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	2.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.9	1.1	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	0.0	0.0	5.8	13.6	12.1
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h		461	402		358	
Approach Delay, s/veh		6.0	5.8		13.0	
Approach LOS		A	A		B	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		20.0		11.1		20.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		45.0		15.0		45.0
Max Q Clear Time (g_c+I1), s		7.6		5.6		6.7
Green Ext Time (p_c), s		3.4		0.8		2.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

Intersection			
Intersection Delay, s/veh	7.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	461	402	358
Demand Flow Rate, veh/h	500	427	377
Vehicles Circulating, veh/h	231	51	377
Vehicles Exiting, veh/h	523	680	101
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.9	6.0	8.7
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	500	427	377
Cap Entry Lane, veh/h	1090	1310	939
Entry HV Adj Factor	0.921	0.941	0.950
Flow Entry, veh/h	461	402	358
Cap Entry, veh/h	1005	1232	892
V/C Ratio	0.459	0.326	0.401
Control Delay, s/veh	8.9	6.0	8.7
LOS	A	A	A
95th %tile Queue, veh	2	1	2

**Intersection**

Int Delay, s/veh 13.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	135	550	489	174	100	85
Future Vol, veh/h	135	550	489	174	100	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	180
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	145	591	526	187	108	91

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	713	0	0 1501 620
Stage 1	-	-	- 620 -
Stage 2	-	-	- 881 -
Critical Hdwy	4.11	-	- 6.41 6.21
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.209	-	- 3.509 3.309
Pot Cap-1 Maneuver	892	-	- 135 490
Stage 1	-	-	- 538 -
Stage 2	-	-	- 407 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	892	-	- ~ 102 490
Mov Cap-2 Maneuver	-	-	- ~ 102 -
Stage 1	-	-	- 408 -
Stage 2	-	-	- 407 -

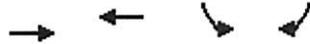
Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	105.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	892	-	-	-	102	490
HCM Lane V/C Ratio	0.163	-	-	-	1.054	0.187
HCM Control Delay (s)	9.8	0	-	-	182.5	14
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.6	-	-	-	6.7	0.7

**Notes**  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Queues  
2: Route 6N & Hill Street

PM Peak Hour  
Build Alt. 1 - Traffic Signal



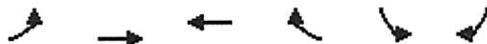
Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	736	713	108	91
v/c Ratio	0.75	0.54	0.44	0.30
Control Delay	14.1	6.5	30.6	9.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.1	6.5	30.6	9.2
Queue Length 50th (ft)	156	100	39	0
Queue Length 95th (ft)	#464	219	81	34
Internal Link Dist (ft)	627	658	780	
Turn Bay Length (ft)				180
Base Capacity (vph)	987	1323	400	428
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.54	0.27	0.21

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary  
2: Route 6N & Hill Street

PM Peak Hour  
Build Alt. 1 - Traffic Signal



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Volume (veh/h)	135	550	489	174	100	85
Future Volume (veh/h)	135	550	489	174	100	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1885	1885
Adj Flow Rate, veh/h	145	591	526	187	108	91
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	1	1
Cap, veh/h	222	765	858	305	194	173
Arrive On Green	0.65	0.65	0.65	0.65	0.11	0.11
Sat Flow, veh/h	182	1174	1318	468	1795	1598
Grp Volume(v), veh/h	736	0	0	713	108	91
Grp Sat Flow(s),veh/h/ln	1356	0	0	1786	1795	1598
Q Serve(g_s), s	8.7	0.0	0.0	9.6	2.4	2.2
Cycle Q Clear(g_c), s	18.3	0.0	0.0	9.6	2.4	2.2
Prop In Lane	0.20			0.26	1.00	1.00
Lane Grp Cap(c), veh/h	987	0	0	1163	194	173
V/C Ratio(X)	0.75	0.00	0.00	0.61	0.56	0.53
Avail Cap(c_a), veh/h	1605	0	0	1933	648	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.4	0.0	0.0	4.2	17.6	17.5
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.5	2.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	1.5	0.9	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.5	0.0	0.0	4.7	20.1	20.0
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h		736	713		199	
Approach Delay, s/veh		6.5	4.7		20.0	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		32.1		9.5		32.1
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		45.0		15.0		45.0
Max Q Clear Time (g_c+I1), s		20.3		4.4		11.6
Green Ext Time (p_c), s		6.8		0.4		6.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

**Intersection**

Intersection Delay, s/veh	10.2
Intersection LOS	B

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	736	713	199
Demand Flow Rate, veh/h	749	726	201
Vehicles Circulating, veh/h	109	146	537
Vehicles Exiting, veh/h	629	712	335
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	10.5	10.8	7.3
Approach LOS	B	B	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	749	726	201
Cap Entry Lane, veh/h	1235	1189	798
Entry HV Adj Factor	0.983	0.983	0.990
Flow Entry, veh/h	736	713	199
Cap Entry, veh/h	1214	1168	790
V/C Ratio	0.607	0.611	0.252
Control Delay, s/veh	10.5	10.8	7.3
LOS	B	B	A
95th %tile Queue, veh	4	4	1

# NYS DOT QRA ACCIDENT VERBAL DESCRIPTION

Print Date 4/24/2019 Print Time 10:52:08AM

<u>Query Number/Name</u>	<u>Query Type</u>	<u>Query SubType</u>	<u>Accident Date Range</u>
45677 Mill st at 6N	AttributeQuery	None	1/1/2016 12:00:00AM To 12/31/2018 12:00:00AM

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
36132697	05-February-2016	PUTNAM	Carmel Town	[Route] 6N	6N84021028

<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
SNOW/ICE	STRAIGHT AND LEVEL	SNOW	STOP SIGN	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	RIGHT ANGLE	0	0	

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	EAST	GOING STRAIGHT AHEAD	3532	33	F

<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>
CAR/VAN/PICKUP	NY	N	N	N

<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>
1	NOT APPLICABLE
2	NOT APPLICABLE

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	SOUTH	SLOWED OR STOPPING	5317	27	M
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP	NY	N	N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					
1	PAVEMENT SLIPPERY					
2	OTHER (HUMAN)					

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
36156879	31-March-2016	PUTNAM	Carmel Town	HILL ST	

<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
DRY	STRAIGHT AND LEVEL	CLEAR	NONE	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	REAR END	0	0	

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	WEST	BACKING	3861	43	M
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP	NY	N	N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					
1	BACKING UNSAFELY					
2	NOT APPLICABLE					

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	2	EAST	PARKED	4144	0	
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP			N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	NOT APPLICABLE				
	2	NOT APPLICABLE				

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>	
36194743	04-April-2016	PUTNAM	Carmel Town	[Route] 6N	6N84021027	
<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>	
DRY	STRAIGHT AND LEVEL	CLOUDY	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	
<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	UNKNOWN	0	0	
<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	0	SOUTH-EAST	BACKING	0	0	
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	OTHER			N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	BACKING UNSAFELY				

2 NOT APPLICABLE

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	SOUTH	PARKED	3239	0	
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP			N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	NOT APPLICABLE				
	2	NOT APPLICABLE				

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
36299011	02-June-2016	PUTNAM	Carmel Town	[Route] 6N	6N84021028

<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
DRY	CURVE AND LEVEL	CLEAR	NO PASSING ZONE	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	INJURY	COLLISION WITH MOTOR VEHICLE	REAR END	0	1	POSSIBL

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	NORTH-EAST	GOING STRAIGHT AHEAD	4556	18	F
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				

1 DRIVER INATTENTION  
 2 NOT ENTERED

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	NORTH-EAST	MAKING LEFT TURN	3546	38	F
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	NOT ENTERED				
	2	NOT ENTERED				

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>	
36426359	13-September-2016	PUTNAM	Carmel Town	HILL ST	6N84021027	
<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>	
DRY	STRAIGHT AND LEVEL	CLEAR	STOP SIGN	NOT APPLICABLE	NOT APPLICABLE	
<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	OVERTAKING	0	0	

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	SOUTH	MAKING RIGHT TURN	5016	47	M
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	OTHER (VEHICLE)				
	2	NOT APPLICABLE				

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	2	SOUTH	OVERTAKING	0	31	M
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	PASSING OR LANE USAGE IMPROPERLY				
	2	NOT APPLICABLE				

<b><u>Case Number</u></b>	<b><u>Accident Date</u></b>	<b><u>Region/County</u></b>	<b><u>Municipality/Type</u></b>	<b><u>Street</u></b>	<b><u>Reference Marker</u></b>
36594035	18-January-2017	PUTNAM	Carmel Town	[Route] 6N	6N84021028

<b><u>Road Surface</u></b>	<b><u>Road Cond</u></b>	<b><u>Weather</u></b>	<b><u>TrafficControls</u></b>	<b><u>Location Ped/Bike</u></b>	<b><u>Action of Ped/Bike</u></b>
WET	STRAIGHT AND LEVEL	RAIN	STOP SIGN	NOT APPLICABLE	NOT APPLICABLE

<b><u>Number of Vehicles</u></b>	<b><u>Accident Class</u></b>	<b><u>Type of Accident</u></b>	<b><u>Manner of Collision</u></b>	<b><u>Fatality</u></b>	<b><u>Injury</u></b>	<b><u>Ext of Injuries</u></b>
2	PROPERTY DAMAGE AND INJURY	COLLISION WITH MOTOR VEHICLE	RIGHT ANGLE	0	2	

<b><u>Vehicle Number</u></b>	<b><u>Number of Occupants</u></b>	<b><u>Dir of Travel</u></b>	<b><u>Pre-Accd Action</u></b>	<b><u>Registered Weight</u></b>	<b><u>Drivers Age</u></b>	<b><u>Sex</u></b>
1	1	SOUTH	MAKING LEFT TURN	0	49	F

<b><u>Vehicle Type</u></b>	<b><u>State of Registration</u></b>	<b><u>Citation Issued</u></b>	<b><u>School Bus Involved</u></b>	<b><u>Property Damage</u></b>
CAR/VAN/PICKUP	CT	N	N	N

<b><u>Apparent Factor Sequence Number</u></b>	<b><u>Apparent Factor</u></b>
1	FAILURE TO YIELD RIGHT OF WAY
2	NOT ENTERED

<b><u>Vehicle Number</u></b>	<b><u>Number of Occupants</u></b>	<b><u>Dir of Travel</u></b>	<b><u>Pre-Accd Action</u></b>	<b><u>Registered Weight</u></b>	<b><u>Drivers Age</u></b>	<b><u>Sex</u></b>
2	1	WEST	GOING STRAIGHT AHEAD	3264	53	M

<b><u>Vehicle Type</u></b>	<b><u>State of Registration</u></b>	<b><u>Citation Issued</u></b>	<b><u>School Bus Involved</u></b>	<b><u>Property Damage</u></b>
CAR/VAN/PICKUP	NY	N	N	N

<b><u>Apparent Factor Sequence Number</u></b>	<b><u>Apparent Factor</u></b>
1	UNKNOWN
2	NOT ENTERED

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
36753458	02-June-2017	PUTNAM	Carmel Town	[Route] 6N	6N84021028

<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
DRY	STRAIGHT/ GRADE	CLEAR	STOP SIGN	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE AND INJURY	COLLISION WITH MOTOR VEHICLE	RIGHT ANGLE	0	1	POSSIBL

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	2	SOUTH	GOING STRAIGHT AHEAD	3600	17	F

<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>
CAR/VAN/PICKUP	NY	N	N	N

<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>
1	NOT APPLICABLE
2	NOT APPLICABLE

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	EAST	MAKING LEFT TURN	4561	51	F

<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>
CAR/VAN/PICKUP	NY	N	N	N

<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>
1	FAILURE TO YIELD RIGHT OF WAY
2	NOT APPLICABLE

<b><u>Case Number</u></b>	<b><u>Accident Date</u></b>	<b><u>Region/County</u></b>	<b><u>Municipality/Type</u></b>	<b><u>Street</u></b>	<b><u>Reference Marker</u></b>
36772092	16-June-2017	PUTNAM	Carmel Town	[Route] 6N	6N84021027

<b><u>Road Surface</u></b>	<b><u>Road Cond</u></b>	<b><u>Weather</u></b>	<b><u>TrafficControls</u></b>	<b><u>Location Ped/Bike</u></b>	<b><u>Action of Ped/Bike</u></b>
DRY	CURVE AND LEVEL	CLEAR	NO PASSING ZONE	NOT APPLICABLE	NOT APPLICABLE

<b><u>Number of Vehicles</u></b>	<b><u>Accident Class</u></b>	<b><u>Type of Accident</u></b>	<b><u>Manner of Collision</u></b>	<b><u>Fatality</u></b>	<b><u>Injury</u></b>	<b><u>Ext of Injuries</u></b>
2	NON-REPORTABLE	COLLISION WITH MOTOR VEHICLE	SIDESWIPE	0	0	

<b><u>Vehicle Number</u></b>	<b><u>Number of Occupants</u></b>	<b><u>Dir of Travel</u></b>	<b><u>Pre-Accd Action</u></b>	<b><u>Registered Weight</u></b>	<b><u>Drivers Age</u></b>	<b><u>Sex</u></b>
1	1	EAST	GOING STRAIGHT AHEAD	0	34	M

<b><u>Vehicle Type</u></b>	<b><u>State of Registration</u></b>	<b><u>Citation Issued</u></b>	<b><u>School Bus Involved</u></b>	<b><u>Property Damage</u></b>
CAR/VAN/PICKUP	NY	N	N	N

<b><u>Apparent Factor Sequence Number</u></b>	<b><u>Apparent Factor</u></b>
1	FAILURE TO KEEP RIGHT
2	NOT APPLICABLE

<b><u>Vehicle Number</u></b>	<b><u>Number of Occupants</u></b>	<b><u>Dir of Travel</u></b>	<b><u>Pre-Accd Action</u></b>	<b><u>Registered Weight</u></b>	<b><u>Drivers Age</u></b>	<b><u>Sex</u></b>
2	1	WEST	GOING STRAIGHT AHEAD	0	44	M

<b><u>Vehicle Type</u></b>	<b><u>State of Registration</u></b>	<b><u>Citation Issued</u></b>	<b><u>School Bus Involved</u></b>	<b><u>Property Damage</u></b>
TRUCK	NY	N	N	N

<b><u>Apparent Factor Sequence Number</u></b>	<b><u>Apparent Factor</u></b>
1	NOT APPLICABLE

2 NOT APPLICABLE

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>	
37202489	06-January-2018	PUTNAM	Carmel Town	ROUTE 6N	6N84021027	
<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>	
DRY	STRAIGHT/ GRADE	CLEAR	STOP SIGN	NOT APPLICABLE	NOT APPLICABLE	
<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE AND INJURY	COLLISION WITH MOTOR VEHICLE	RIGHT ANGLE	0	2	
<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	2	WEST	GOING STRAIGHT AHEAD	3305	52	F
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP	NY	N	N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					
1	NOT APPLICABLE					
2	NOT APPLICABLE					
<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	SOUTH	MAKING LEFT TURN	3395	22	F
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP	NY	N	N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					

- 1 FAILURE TO YIELD RIGHT OF WAY
- 2 NOT APPLICABLE

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>	
37331823	13-June-2018	PUTNAM	Carmel Town	S LAKE BLVD	6N84021028	
<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>	
DRY	STRAIGHT AND LEVEL	CLOUDY	NONE	NOT APPLICABLE	NOT APPLICABLE	
<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	OVERTAKING	0	0	
<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	NORTH	ENTERING PARKED POSITION	4101	49	F
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	DRIVER INATTENTION				
	2	NOT APPLICABLE				

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	2	NORTH	PARKED	4468	0	
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP			N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					
1	NOT APPLICABLE					
2	NOT APPLICABLE					

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
37379331	02-July-2018	PUTNAM	Carmel Town	ROUTE 6N	6N84021027

<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
DRY	CURVE AND LEVEL	CLEAR	NO PASSING ZONE	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	RIGHT ANGLE	0	0	

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	1	EAST	STARTING IN TRAFFIC	2793	35	M
<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>		
CAR/VAN/PICKUP	NY		N	N		
<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>					
1	NOT APPLICABLE					
2	NOT APPLICABLE					

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	0	WEST	GOING STRAIGHT AHEAD	0	0	
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	OTHER			N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	UNSAFE SPEED				
	2	UNKNOWN				

<u>Case Number</u>	<u>Accident Date</u>	<u>Region/County</u>	<u>Municipality/Type</u>	<u>Street</u>	<u>Reference Marker</u>
37594376	16-November-2018	PUTNAM	Carmel Town	HILL ST	
<u>Road Surface</u>	<u>Road Cond</u>	<u>Weather</u>	<u>TrafficControls</u>	<u>Location Ped/Bike</u>	<u>Action of Ped/Bike</u>
SNOW/ICE	STRAIGHT AND LEVEL	SNOW	NO PASSING ZONE	NOT APPLICABLE	NOT APPLICABLE

<u>Number of Vehicles</u>	<u>Accident Class</u>	<u>Type of Accident</u>	<u>Manner of Collision</u>	<u>Fatality</u>	<u>Injury</u>	<u>Ext of Injuries</u>
2	PROPERTY DAMAGE	COLLISION WITH MOTOR VEHICLE	REAR END	0	0	

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
1	2	SOUTH	GOING STRAIGHT AHEAD	9000	26	M
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NJ	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	UNSAFE SPEED				

2 PAVEMENT SLIPPERY

<u>Vehicle Number</u>	<u>Number of Occupants</u>	<u>Dir of Travel</u>	<u>Pre-Accd Action</u>	<u>Registered Weight</u>	<u>Drivers Age</u>	<u>Sex</u>
2	1	SOUTH	STARTING IN TRAFFIC	4237	73	M
	<u>Vehicle Type</u>	<u>State of Registration</u>	<u>Citation Issued</u>	<u>School Bus Involved</u>	<u>Property Damage</u>	
	CAR/VAN/PICKUP	NY	N	N	N	
	<u>Apparent Factor Sequence Number</u>	<u>Apparent Factor</u>				
	1	NOT APPLICABLE				
	2	NOT APPLICABLE				

**ACTUATED TRAFFIC SIGNAL WITH NO GEOMETRIC IMPROVEMENTS**

DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
ACTUATED TRAFFIC SIGNAL <sup>1</sup>	1	EA	\$150,000	\$150,000
WORK ZONE TRAFFIC CONTROL	1	LS	\$20,000	\$20,000
<b>ESTIMATED CONSTRUCTION COST (CONCEPTUAL)</b>				<b>\$170,000</b>
CONTIGENCY (20%)	1	LS	\$34,000	\$35,000
DESIGN AND INSPECTION (25%)	1	LS	\$42,500	\$45,000
<b>FINAL TOTAL</b>				<b>\$250,000</b>

<sup>1</sup> INCLUDES TYPICAL COST FOR CONTROLLER, SIGNAL POLES, LOOPS, WIRING, SIGNAL HEADS, ETC., FOR AN ACTUATED TRAFFIC SIGNAL.

**SINGLE LANE ROUNDABOUT (120 FT DIAMETER)**

DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
SINGLE LANE ROUNDABOUT <sup>2</sup>	1	EA	\$750,000	\$750,000
ADDITIONAL EARTHWORK (ABOVE AND BEYOND TYPICAL)	1,650	CY	\$20	\$35,000
RETAINING WALLS	1,350	SF	\$100	\$135,000
UTILITY RELOCATION <sup>3</sup>	0	EA	\$75,000	\$0
BUS SHELTER RELOCATION	1	EA	\$10,000	\$10,000
STORMWATER AND TREATMENT <sup>4</sup>	1	LS	\$100,000	\$100,000
WETLAND MITIGATION	1	LS	\$100,000	\$100,000
WORK ZONE TRAFFIC CONTROL	1	LS	\$150,000	\$150,000
<b>ESTIMATED CONSTRUCTION COST (CONCEPTUAL)</b>				<b>\$1,280,000</b>
RIGHT OF WAY	0.182	ACRE	\$340,000	\$65,000
CONTIGENCY (20%)	1	LS	\$256,000	\$260,000
DESIGN AND INSPECTION (25%)	1	LS	\$320,000	\$320,000
<b>FINAL TOTAL</b>				<b>\$1,925,000</b>

<sup>2</sup> INCLUDES TYPICAL COST FOR PAVEMENT, CURB, EARTHWORK, DRAINAGE, LANDSCAPING, ETC., FOR A SINGLE LANE ROUNDABOUT.

<sup>3</sup> ELECTRIC AND GAS RELOCATIONS ARE ASSUMED NO COST FOR MUNICIPAL PROJECTS. WATER AND SEWER RELOCATIONS ARE ASSUMED AT \$75,000 EACH.

<sup>4</sup> IMPACTS OVER 5,000 SF WITHIN DEP WATERSHEDS REQUIRE POST STORMWATER TREATMENT. \$100,000 ALLOWANCE FOR EXTRA ROW OR WORK REQUIRED.

