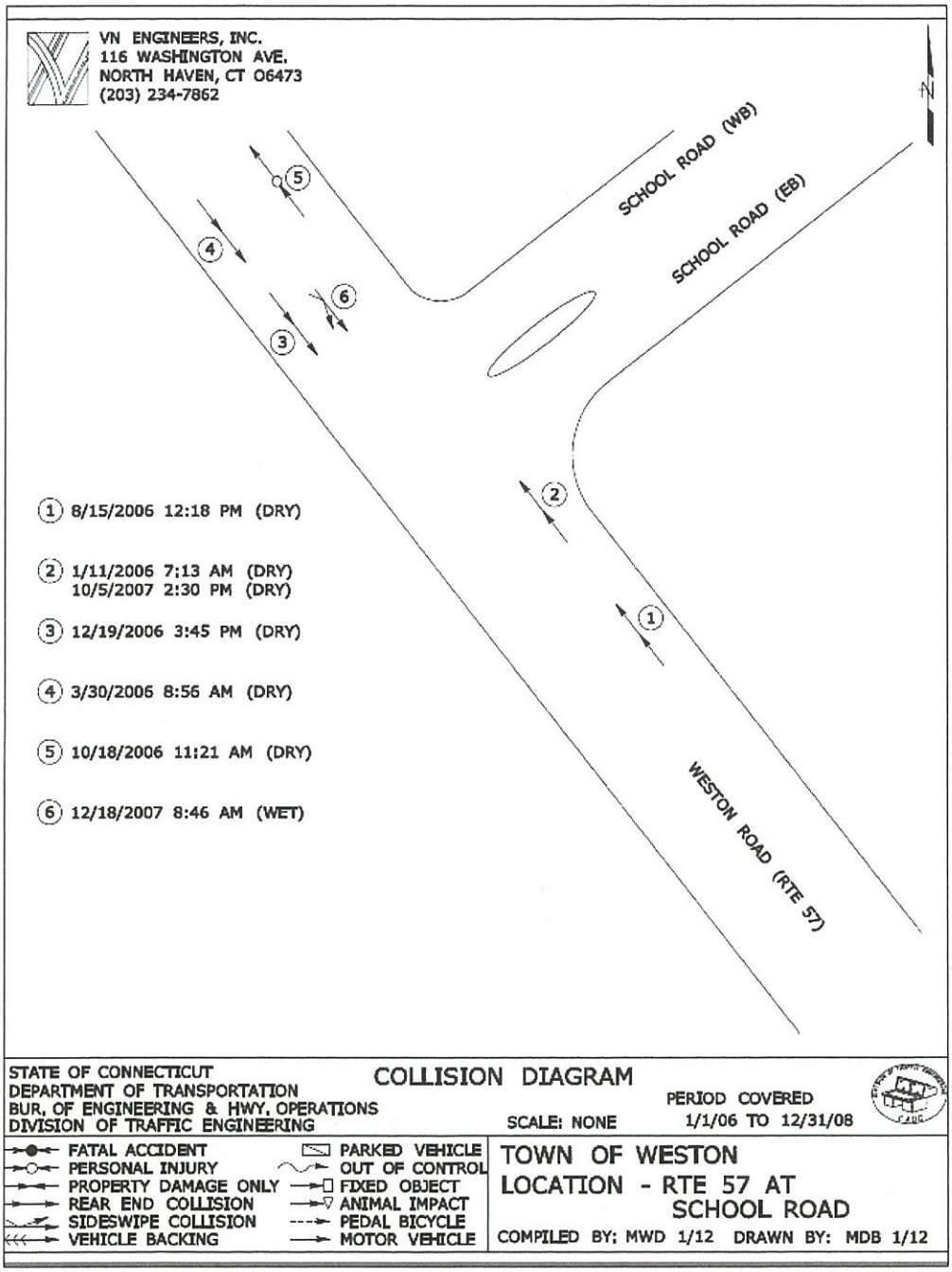


Figure 4: Collision Diagram

2.6 Sightlines

Based on the 85th percentile speed on Route 57, the minimum acceptable intersection sight distance per the CTDOT guidelines is 390 feet. The measured sight distances looking left and right from the School Road approach are approximately 650 feet and 200 feet, respectively. The sightline looking right is restricted by a stone wall and vegetation. This sightline can be improved by relocating the stone wall and some clearing of the vegetation on the northeastern corner of the intersection.

3 Future Conditions

3.1 Future Traffic Conditions

A future (2030) planning year horizon was utilized for this study. A review of traffic data at the nearest CTDOT traffic monitoring station on Route 57 in the vicinity of the study intersection indicates fluctuating traffic volumes over the past decade or so with a decline in traffic volumes from 2004 to 2007 and some marginal growth from 2007 to 2010. However, a one (1) percent per year ambient roadway traffic growth into the future was conservatively assumed for this study. The growth rate was vetted and approved by CTDOT. The existing intersection traffic volumes were, therefore, projected to year 2030 using a one percent annual growth factor.

CTDOT was also contacted to determine whether there were any approved or yet to be constructed projects in the immediate vicinity of the study intersection to include as part of the future (2030) background traffic. CTDOT determined that there were no such projects to include. **Figures 5** and **6** illustrate the future (2030) weekday morning and afternoon peak hour traffic volumes.

3.2 Capacity Analysis

The adequacy of the study intersection to handle the peak-hour traffic volumes under 2030 conditions was evaluated using the *Synchro* program. This software package adheres to the methodologies outlined in the *Highway Capacity Manual* (HCM)[2] to determine Level of Service (LOS).

A description of the various LOS designations, A through F, for signalized and unsignalized intersections is presented in the Appendix. **Table 4** summarizes the analysis results for the intersection of Route 57 and School Road and the intersection of School Road at the Hurlbutt Elementary school driveway under future (2030) peak hour conditions.

[2] *Highway Capacity Manual*, Transportation Research Board.


School Road
Weston Road (Route 57)
245 (10)
55 (25)
55 (5)
270 (10)
575
120 (5)
30
80 (5)
(15) 400
(5) 135
270 (5)
420 (15)
Route 57 at School Road
Weston, CT
Figure: 5
Future Traffic Volumes
Weekday Morning Peak Hour
7:30 AM - 8:30 AM
00 = All Vehicles
(00) = Buses
N
Source:
Aerial: Microsoft Bing Aerial
Milone & MacBroom

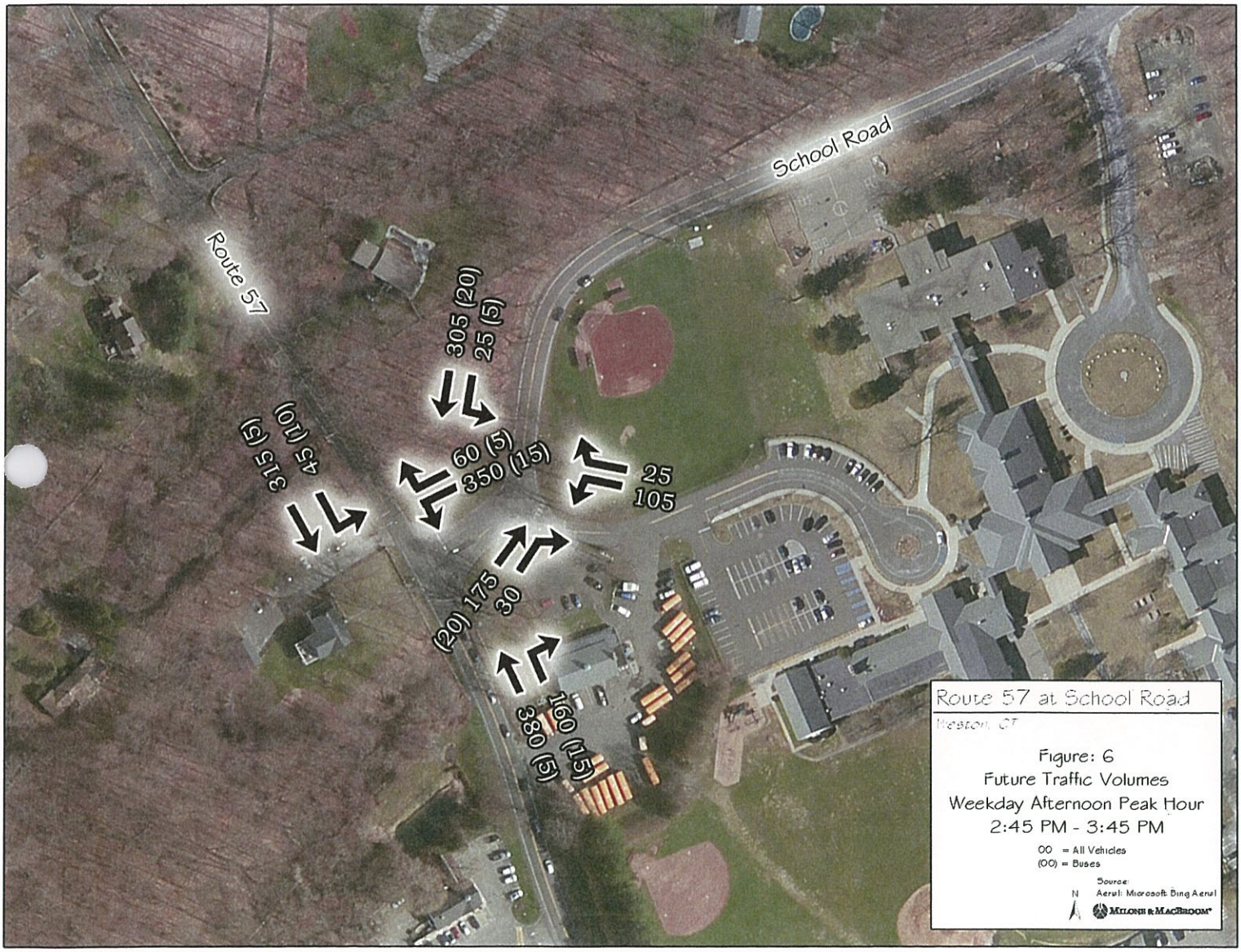

School Road
Route 57
305 (20)
25 (5)
315 (5)
45 (10)
60 (5)
350 (15)
25
105
(20) 175
30
380 (5)
160 (15)
Route 57 at School Road
Weston, CT
Figure: 6
Future Traffic Volumes
Weekday Afternoon Peak Hour
2:45 PM - 3:45 PM
00 = All Vehicles
(00) = Buses
Source:
Aerial: Microsoft Bing Aerial
N
Milone & MacBroom

TABLE 4
Capacity Analysis Summary
Future (2030) Traffic Volumes

LOCATION/MOVEMENTS	LEVEL OF SERVICE	
	A.M. PEAK	P.M. PEAK
SIGNALIZED		
Route 57 at School Road		
Route 57 Northbound Approach	F	D
Route 57 Southbound Approach	F	A
School Road Westbound Left	F	F
School Westbound Right	A	A
Overall	**F**	**E**
UNSIGNALIZED		
School Road at school driveway		
Driveway Northbound Approach	F	D
School Road Westbound Approach	C	B

Under future (2030) conditions, the intersection of Route 57 and School Road will operate overall at LOS F during the morning peak hour and LOS E during the afternoon peak hour. It is projected that approximately 420 vehicles will make a right turn from Route 57 onto School Road during future (2030) morning peak hour conditions. Accordingly, the northbound approach will operate at LOS F during the morning peak hour. During the afternoon peak hour, the School Road westbound left-turn movement will operate at LOS F.

At the intersection of the Hurlbutt school driveway at School Road, the stop sign controlled school driveway northbound approach will operate at LOS F during the future morning peak hour and LOS D during the future afternoon peak hour. The westbound approach on School Road will operate at LOS C and LOS B during future (2030) morning and afternoon peak hours, respectively.

4 Preliminary Improvement Alternatives

The traffic and safety issues at the intersection of Route 57 and School Road and its immediate environs necessitate the need for traffic/geometric improvements. For this study, two (2) near- and two (2) long-term improvement alternatives were developed for the intersection.

The near-term alternatives were identified as improvements that can be implemented within a one- to five-year time frame. These improvements would usually involve minimal to no property, utility, or environmental impacts. Costs associated with these improvements are not expected to exceed $500,000.

The long-term alternatives were identified as improvements that will most likely be implemented beyond a five-year time frame. These improvements would involve property, utility, or environmental impacts and would, therefore, involve some permitting process. Costs associated with these improvements are expected to exceed $500,000.

In a nut shell, the major difference between the near term and long term alternatives for this location relates to the cost of construction. A description of the proposed improvement alternatives is presented in sections below.

4.1 Preliminary Near-Term Alternatives

Preliminary Near-Term Alternative 1

This alternative would involve the relocation of the existing parent pickup/drop-off driveway to the Hurlbutt Elementary School further to the east on School Road along the lower western boundary of the baseball field. The relocation would create more separation from the Route 57- School Road intersection and reduce the number of conflict points at that location. A stop control would be installed on the driveway approach while School Road will be free flow. In addition, signal timing improvements and potential coordination with the newly redesigned traffic signal at the intersection of Route 57 and Norfield Road to the south would be implemented.

The proposed improvements would involve impacts to the school property. **Figure 7** presents a conceptual layout of *Preliminary Near-Term Alternative 1*.

Figure 7: Preliminary Near-Term Alternative 1

Preliminary Near-Term Alternative 2

Preliminary Near-Term Alternative 2 would involve the construction of a new parent pickup/drop-off driveway to the Hurlbutt Elementary School further to the east on School Road along the eastern boundary of the baseball field, while leaving the existing driveway open for bus access only to the school bus depot. This new configuration would create more separation from the Route 57- School Road intersection and reduce the number of conflict points within the study area. Similar to *Preliminary Near-Term Alternative 1*, signal timing improvements and potential coordination with the newly redesigned traffic signal at the intersection of Route 57 and Norfield Road to the south would be implemented. In addition, the existing stop sign on School Road westbound would be removed making School Road free flow. The proposed improvements would involve impacts to the school property. **Figure 8** presents a conceptual layout of *Preliminary Near-Term Alternative 2*.

Figure 8: Preliminary Near-Term Alternative 2

4.2 Preliminary Long-Term Alternatives

Preliminary Long-Term Alternative 1

Preliminary Long-Term Alternative 1 would involve widening the Route 57 northbound approach along its eastern edge to provide an exclusive right-turn lane and a through lane. This improvement would reduce queuing on the Route 57 northbound approach. A new sidewalk would be installed along the eastern edge of Route 57 from School Road to Norfield Road with a mid-block crosswalk and advance crosswalk signage. The proposed improvements would involve some right-of-way (ROW) impacts. **Figure 9** presents a conceptual layout of *Preliminary Long-Term Alternative 1*.

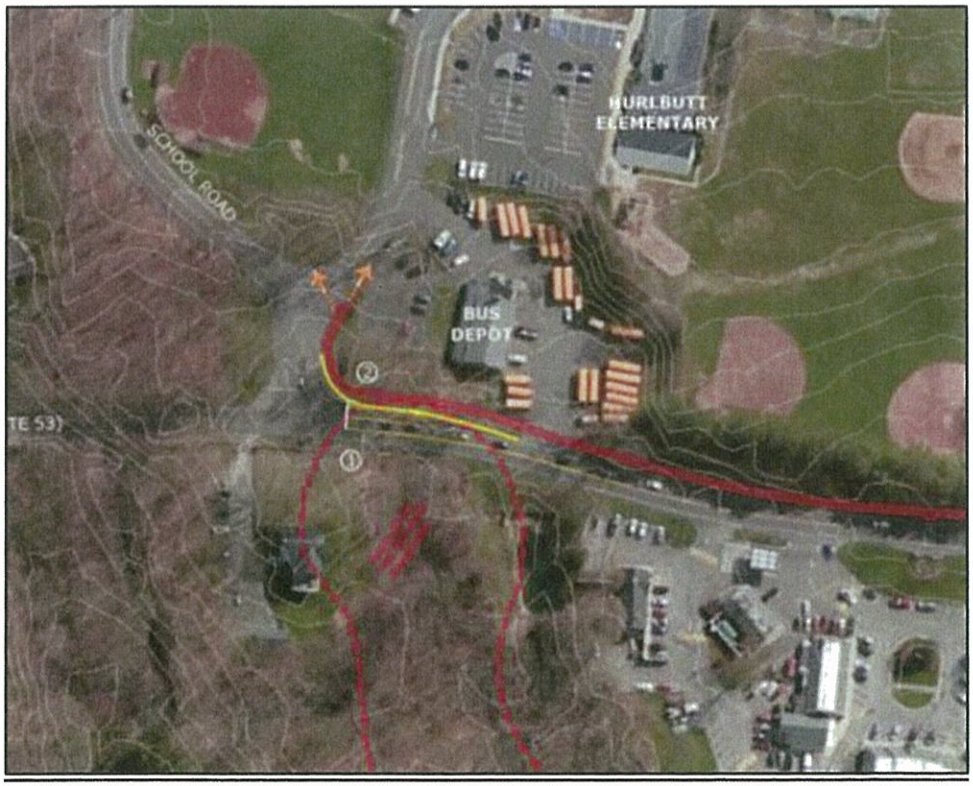


Figure 9: Preliminary Long-Term Alternative 1

Preliminary Long-Term Alternative 2

Preliminary Long-Term Alternative 2 would involve widening the Route 57 northbound approach along its eastern edge to provide an exclusive right-turn lane and a through lane. The Route 57 southbound approach would also be widened along the eastern edge to provide a 20-foot bypass to help minimize queuing on this approach. Similar to *Preliminary Long- Term Alternative 1*, a new sidewalk would be installed along the eastern edge of Route 57 from School Road to Norfield Road with a mid-block crosswalk and advance crosswalk signage. This alternative would involve some ROW impacts. **Figure 10** presents a conceptual layout of *Preliminary Long-Term Alternative 2*.

Figure 10: Preliminary Long-Term Alternative 2

4.3 Capacity Analysis of Alternatives

The proposed improvement alternatives were analyzed to determine LOS under future (2030) peak-hour conditions. The *Synchro* program was utilized in the capacity analysis of the improvement alternatives. **Table 5** summarizes the analysis results for the future conditions with and without the proposed improvements.

TABLE 5
Capacity Analysis of Alternatives
Future (2030) Peak-Hour Traffic Volumes

LOCATION/MOVEMENTS	No-Build		Near-Term Alt.1		Near-Term Alt. 2		Long-Term Alt. 1		Long-Term Alt. 2	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Route 57 at School Road										
Overall LOS	**F**	**E**	**D**	**C**	**D**	**C**	**B**	**C**	**B**	**C**
Route 57 NB Approach	F	D	B	B	B	B	A	B	A	B
Route 57 NB Through	-	-	-	-	-	-	B	B	B	B
Route 57 NB Right Turn	-	-	-	-	-	-	A	A	A	A
Route 57 SB Approach	F	A	D	A	D	A	B	A	A	A
School Road WB Left Turn	F	F	D	D	D	D	D	D	D	D
School Road WB Right Turn	A	A	A	A	A	A	A	A	A	A

Under Preliminary Near-Term Alternative 1, the intersection of Route 57 and School Road is anticipated to operate at overall LOS D and LOS C during future 2030 morning and afternoon peak hours, respectively. During the morning peak hour, the LOS on the Route 57 northbound approach is expected to improve from LOS F under the no-build condition to LOS B with the proposed improvements in place while the Route 57 southbound approach is anticipated to improve from LOS F to LOS D. The westbound left-turn movement on School Road is expected to improve from LOS F to LOS D during future 2030 morning and afternoon peak hours.

Under Preliminary Near-Term Alternative 2, the intersection of Route 57 and School Road is anticipated to also operate at overall LOS D and LOS C during future 2030 morning and afternoon peak hours, respectively. During the morning peak hour, the LOS on the Route 57 northbound approach is expected to improve from LOS F under the no-build condition to LOS B with the proposed improvements in place while the Route 57 southbound approach is anticipated to improve from LOS F to LOS D. The westbound left-turn movement on School Road is expected to improve from LOS F to LOS D during future 2030 morning and afternoon peak hours.

Under Preliminary Long-Term Alternative 1, the study intersection is anticipated to operate overall at LOS B and LOS C during future (2030) morning and afternoon peak hours, respectively. With the exception of the School Road westbound left-turn movement, which will operate at LOS D, all other movements are anticipated to operate at LOS B or better with the proposed improvements in place.

Under Preliminary Long-Term Alternative 2, the study intersection is anticipated to operate overall at LOS B and LOS C during future (2030) morning and afternoon peak hours, respectively. With the exception of the School Road westbound left-turn movement, which will operate at LOS D, all other movements are anticipated to operate at LOS B or better with the proposed improvement in place.

4.4 Refinement of Preliminary Alternatives

The preliminary alternatives were presented to officials from SWRPA and the Town of Weston for review and vetting at a stakeholder meeting. Some of the items that were considered in the review of the alternatives include ROW and utility impacts, traffic improvements, and safety improvements.

For *Preliminary Near-Term Alternative 1*, it was agreed that the proposed elementary school driveway should be realigned to avoid impacts to the existing infiltration system in that area. This alternative with the proposed revisions was acceptable to SWRPA and the Town as a near-term improvement for the intersection.

For Preliminary Near-Term Alternative 2, the town indicated that school children would have to cross the proposed driveway to get from the school playground to the ball field during recess, which was a source of concern. In addition, the town indicated that there is an existing sewage system located where the new driveway is proposed. Of the two near-term alternatives, *Preliminary Near-Term Alternative 2* was the least preferred option.

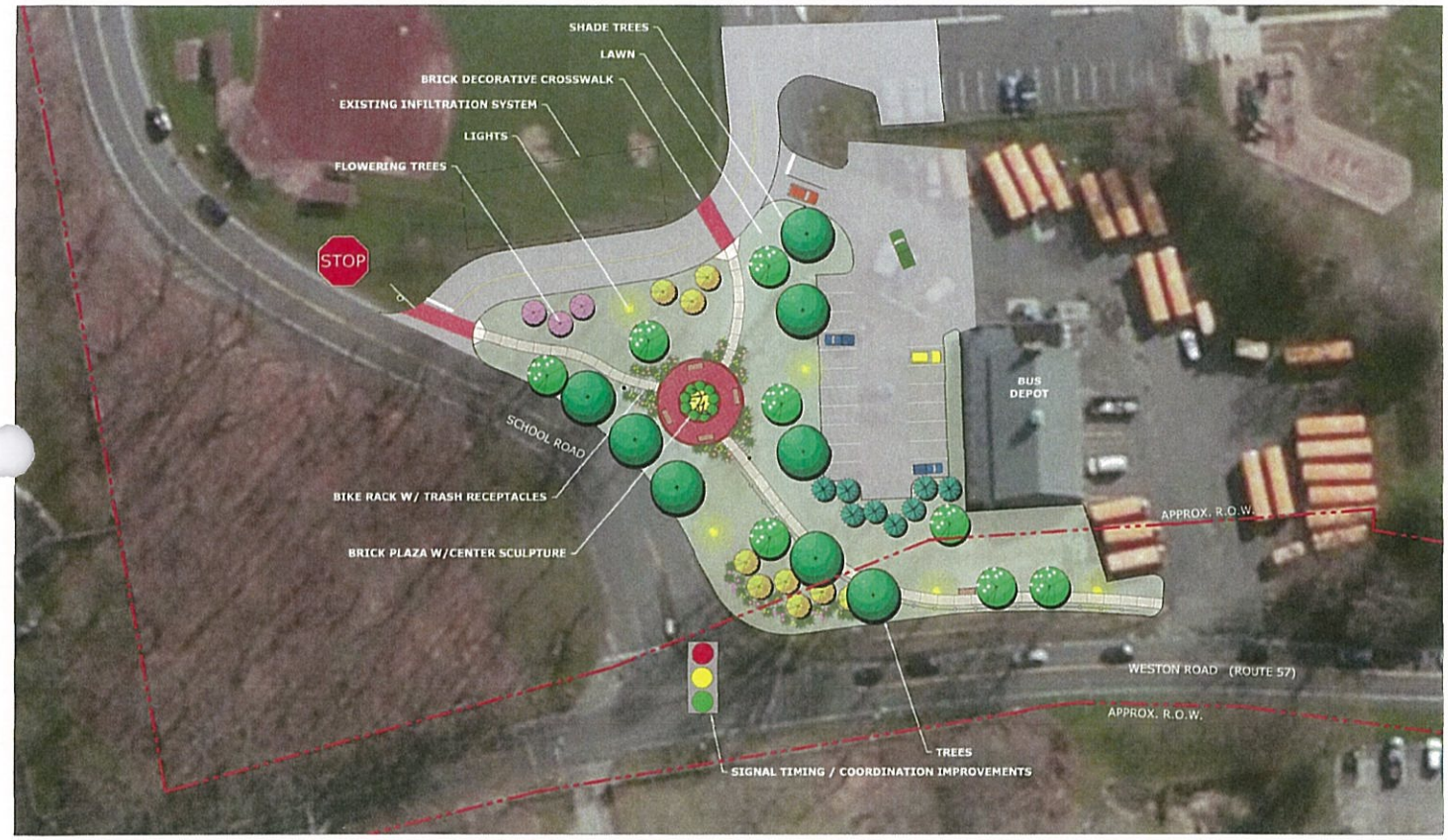
For the Long-Term Alternatives, it was decided that the Route 57 roadway widening improvements would serve as one standalone long-term alternative while the sidewalk improvements would serve as a second long-term alternative.

The preliminary alternatives were revised in accordance with comments provided by SWRPA and the Town of Weston into Preferred Improvement Alternatives. It was agreed that the Preferred Alternatives would be presented to CTDOT for further review and input prior to finalizing the alternatives.

5 Preferred Improvement Alternatives

Preferred Near-Term Alternative

The *Preferred Near-Term Alternative* for the study intersection is presented in ***Figure 11***. This alternative would involve the relocation of the existing driveway to the Hurlbutt Elementary School further to the east on School Road and aligned to avoid any impacts to the existing infiltration system on the school ball field. The proposed relocation would create more separation from and reduce the number of conflict points at the Route 57-School Road intersection. Stop control at the proposed driveway or possibly All-Way stop control at the proposed school driveway - School Road intersection would be provided. In addition, signal timing improvements and potential coordination with the newly redesigned traffic signal at the intersection of Route 57 and Norfield Road to the south would be implemented. Furthermore, a landscaped parklet with street lighting could be provided in the area bounded by the new school driveway, School Road, and Route 57. The proposed improvements would involve impacts to the school property. The order of magnitude cost for this alternative is anticipated to be approximately **$537,000** inclusive of a 40% incidentals/contingency factor. Approximately half of the construction cost comprises costs associated with the parklet and traffic signal upgrade. It should also be noted that costs associated with ROW impacts, permitting, and environmental compliance were not included in the cost estimates. A breakdown of the cost estimates is presented in the Appendix.



PREFERRED NEAR TERM ALTERNATE

WESTON (ROUTE 57) &
SCHOOL ROAD INTERSECTION

WESTON, CONNECTICUT MAY 2012

MILONE & MACBROOM

FIGURE 11

Preferred Long-Term Alternative 1

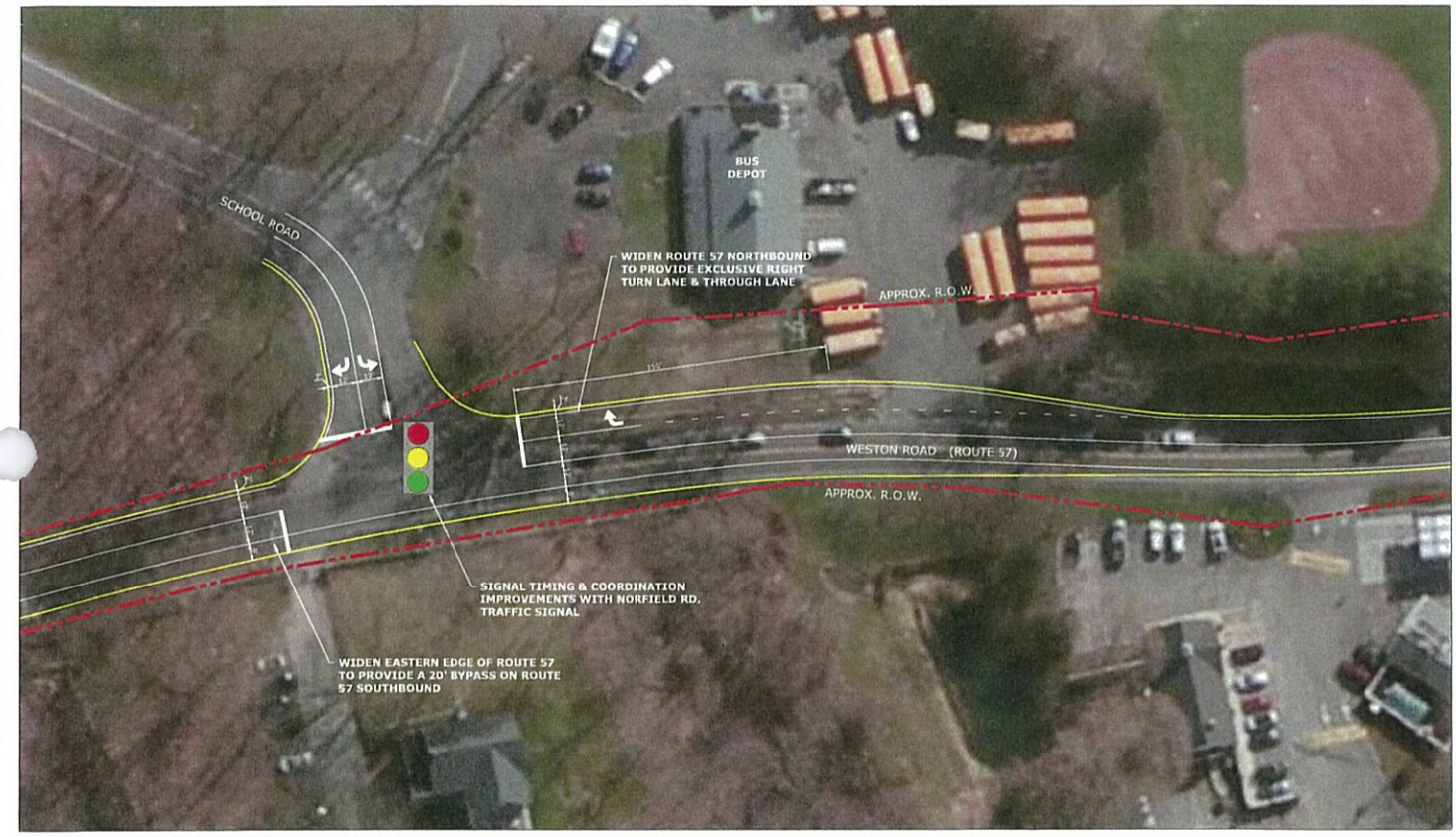
Preferred Long-Term Alternative 1 for the study intersection is presented in ***Figure 12***. This alternative would involve widening the Route 57 northbound approach along its eastern edge to provide an exclusive right-turn lane and a through lane. The Route 57 southbound approach would also be widened along the eastern edge to provide a 20-foot bypass to help minimize queuing on this approach. These improvements would involve little to no ROW impacts. The order of magnitude cost for this alternative is anticipated to be approximately **$866,000** inclusive of a 40% incidentals/contingency factor. It should be noted that costs associated with ROW impacts, permitting, and environmental compliance were not included in the cost estimates. A breakdown of the cost estimates is presented in the Appendix.

Preferred Long-Term Alternative 2

Preferred Long-Term Alternative 1 for the study intersection is presented in ***Figure 13***. This alternative would involve installing a new sidewalk along the eastern edge of Route 57 from School Road to Norfield Road with a mid-block crosswalk and advance crosswalk signage. This alternative would involve some ROW impacts. In addition, landscaping and street lighting would be provided along the sidewalk. The order of magnitude cost for this alternative is anticipated to be approximately **$709,000** inclusive of a 40% incidentals/contingency factor. It should be noted that costs associated with ROW impacts, permitting, and environmental compliance were not included in the cost estimates. A breakdown of the cost estimates is presented in the Appendix.

5.1 Right-of-Way Impacts

As indicated in previous sections of this report, the *Preferred Long-Term Alternatives* will be constructed within the existing ROW; therefore, no impacts are anticipated. The *Preferred Near-Term Alternative* on the other hand will be undertaken on town/school property. The estimated area of impact for this alternative is approximately 37,000 square feet



PREFERRED LONG TERM ALTERNATIVE 1

WESTON (ROUTE 57) & SCHOOL ROAD INTERSECTION

WESTON, CONNECTICUT MAY 2012

FIGURE 12

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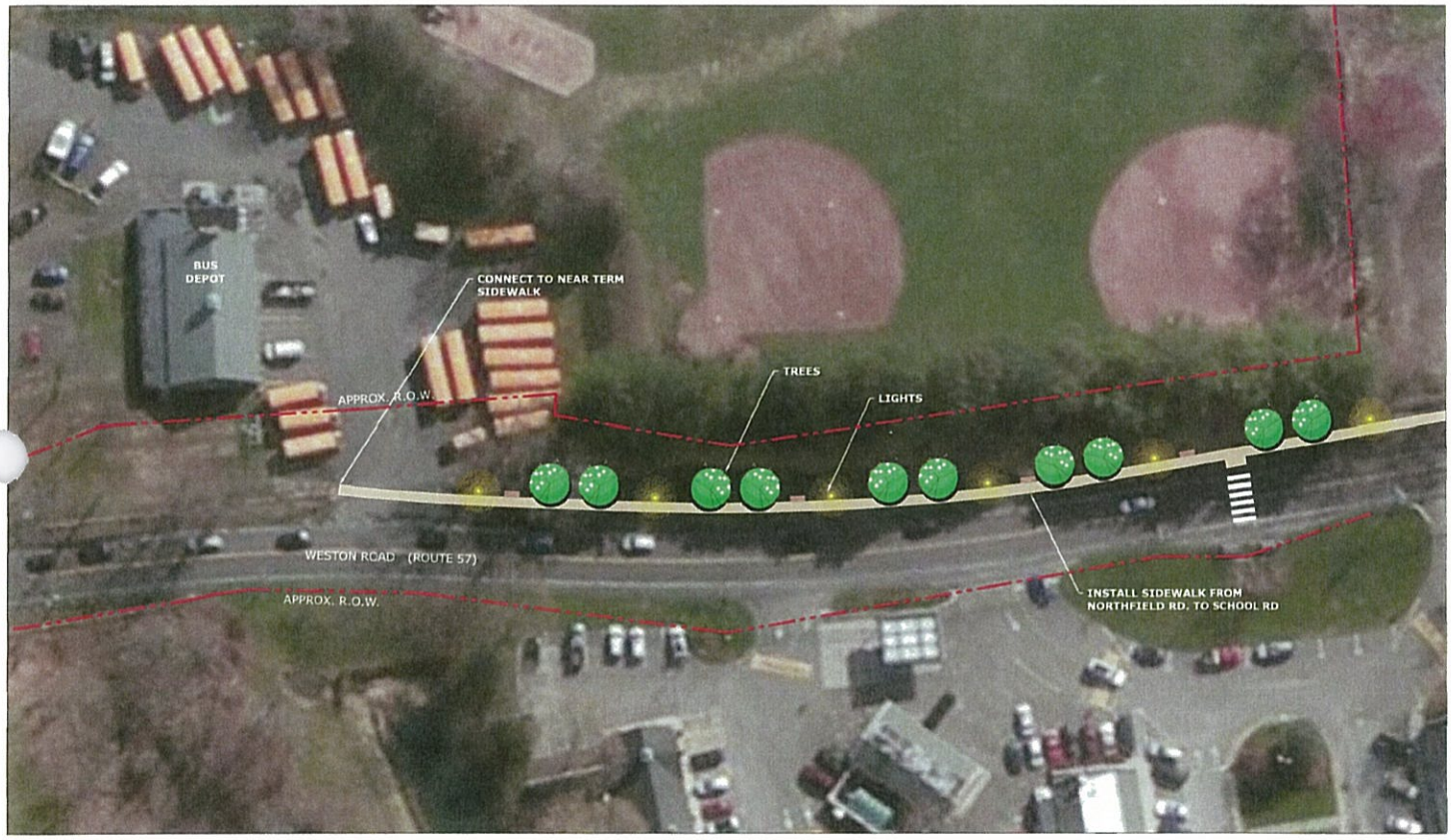
0 20' 40' 60' 80'

NORTH



PREFERRED LONG TERM ALTERNATIVE 2

WESTON (ROUTE 57) &
SCHOOL ROAD INTERSECTION

WESTON, CONNECTICUT MAY 2012

MILONE & MACBROOM

FIGURE 13

0 20 40 60 80

NORTH

5.2 Summary of Preferred Improvement Alternatives

TABLE 6
Summary of Preferred Alternatives

Weston Route 57-School Road Intersection Study				
Improvement	**Description**	**Cost***	**R.O.W Impacts**	**Oversight Agency**
Preferred Near-Term Alternative	◦ Relocate existing driveway to the Hurlbutt Elementary School further to the east of School Road. ◦ Provide Stop Control at proposed driveway or All-Way Stop Control at proposed school driveway. ◦ Provide signal timing improvements and potential coordination with newly redesigned traffic signal at the intersection of Route 57 and Norfield Road to the south. ◦ Landscaped parklet with street lighting in the area bounded by the new driveway, School Road, and Route 57.	$537,000	37,000 S.F	Town of Weston CT DOT
Preferred Long-Term Alternative 1	◦ Widen the Route 57 northbound approach along its eastern edge to provide an exclusive right-turn lane and through lane. ◦ Widen Route 57 Southbound approach along the eastern edge to provide a 20 foot bypass.	$866,000	Little or no ROW impacts	Town of Weston CT DOT
Preferred Long-Term Alternative 2	◦ Install new sidewalk along eastern edge of Route 57 from School Road to Norfield Road with a mid-block crosswalk and advance crosswalk signage. ◦ Provide landscaping and street lighting along new sidewalk.	$709,000	Little or no ROW impacts	Town of Weston CT DOT

*Includes a 40% incidentals/contingency factor.

6 Project Funding

The process of advancing a project from its conceptual phase through implementation is not guaranteed. The reality is that many projects do not get implemented due to the lack of funds.

The fiscal constraints brought about by the downturn of the U.S. economy means that funding for projects has become increasingly difficult to come by, and towns and agencies constantly have to compete for the limited funds available. The proposed near-term and long-term improvement projects at the intersection of Route 57 and School Road are no exception. It will, therefore, be prudent to identify sources of funding early on in the process to improve the chances of implementing these improvement projects. The following are potential sources of funding for the proposed improvements at the intersection of Route 57 and School Road.

- ***Small Town Economic Assistance Program (STEAP)*** – This program, which is administered by the Connecticut Office of Policy and Management, provides funding for projects that promote economic development, community conservation, and quality of life. Examples of such projects include roadway construction, roadway repair, environmental protection, and public safety improvements.

- ***Surface Transportation Program (STP) - Urban Program*** – This program is one of the Surface Transportation programs with funding for projects on minor arterials and collector roads in urban areas. Candidate projects include roadway widening, capacity enhancements, and transit enhancements.

- ***STP – Transportation Alternatives*** – This newly enacted federally funded program replaces the previous STP-Enhancement program. This new program consolidates the twelve previously eligible activities under the Enhancement program into six main eligible categories. Eligible projects include planning, design and construction of on and off road trail facilities for pedestrians, bicyclists and non-motorized forms of transportation, safe routes for non-drivers, conversion of railroad corridors for bicycle and pedestrian use, construction of turnouts, overlooks and viewing areas, community improvement and preservation, and environmental mitigation activities.

APPENDIX

Level of Service Criteria

LEVEL OF SERVICE
SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions (the absence of traffic control, geometric delay, any incidents, and any other vehicles). Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables including the quality of progression, the cycle length, the green ratio, and the volume to capacity (v/c) ratio for the lane group. The criteria are given below.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
LEVEL OF SERVICE	**CONTROL DELAY (seconds/vehicle)**
A	<10
B	>10 and <20
C	>20 and <35
D	>35 and <55
E	>55 and <80
F	>80

Specific descriptions of each LOS for signalized intersections are provided below:

Level of Service A describes operations with very low control delay, up to 10 seconds per vehicle (s/veh.). This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with delay greater than 10 and up to 20 s/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 s/veh. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 s/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with control delay greater than 55 and up to 80 s/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 s/veh. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE
UNSIGNALIZED INTERSECTIONS

The LOS for a TWSC (two-way stop controlled) intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria are given in the table below.

LEVEL OF SERVICE CRITERIA FOR TWSC INTERSECTIONS	
LEVEL OF SERVICE	**AVERAGE CONTROL DELAY (seconds/vehicle)**
A	**0-10**
B	**>10 and <15**
C	**>15 and <25**
D	**>25 and <35**
E	**>35 and <50**
F	**>50**

Reference: Highway Capacity Manual 2010, Transportation Research Board, 2010.

Capacity Analysis Worksheets

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	225	44	224	346	96	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1538	1700	0	0	1845
Flt Permitted	0.950					0.304
Satd. Flow (perm)	1770	1538	1700	0	0	565
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		80	129			
Link Speed (mph)	25		30			30
Link Distance (ft)	106		324			282
Travel Time (s)	2.9		7.4			6.4
Peak Hour Factor	0.71	0.55	0.68	0.68	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	3%	3%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	317	80	838	0	0	628
Turn Type		Prot			D.P+P	
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Detector Phase	4	4	2			2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		7.0	
Minimum Split (s)	12.0	12.0	21.0		10.1	
Total Split (s)	19.0	19.0	31.0	0.0	18.1	49.1
Total Split (%)	27.9%	27.9%	45.5%	0.0%	26.6%	72.1%
Maximum Green (s)	14.0	14.0	25.0		15.0	
Yellow Time (s)	3.0	3.0	3.5		3.0	
All-Red Time (s)	2.0	2.0	2.5		0.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	4.0	3.1	3.1
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.5		3.0	
Recall Mode	None	None	Min		Max	
Walk Time (s)	9.0	9.0				
Flash Dont Walk (s)	1.0	1.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	13.6	13.6	25.0			42.9
Actuated g/C Ratio	0.20	0.20	0.37			0.63
v/c Ratio	0.89	0.22	1.18			0.98
Control Delay	56.4	7.9	116.7			44.5
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	56.4	7.9	116.7			44.5
LOS	E	A	F			D
Approach Delay	46.7		116.7			44.5
Approach LOS	D		F			D
Queue Length 50th (ft)	129	0	~397			145
Queue Length 95th (ft)	#173	8	#367			#356
Internal Link Dist (ft)	26		244			202
Turn Bay Length (ft)						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Base Capacity (vph)	366	382	710			642
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	0.87	0.21	1.18			0.98

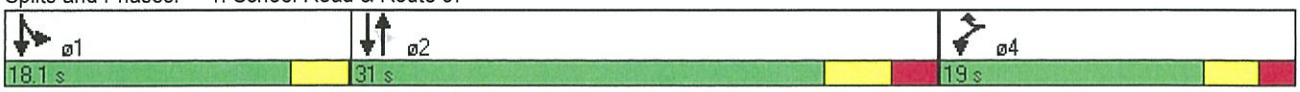
Intersection Summary

Area Type: Other
Cycle Length: 68.1
Actuated Cycle Length: 67.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 77.4 Intersection LOS: E
Intersection Capacity Utilization 88.3% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: School Road & Route 57



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	270	55	270	420	120	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1538	1700	0	0	1843
Flt Permitted	0.950					0.223
Satd. Flow (perm)	1770	1538	1700	0	0	415
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		100	130			
Link Speed (mph)	25		30			30
Link Distance (ft)	106		324			282
Travel Time (s)	2.9		7.4			6.4
Peak Hour Factor	0.71	0.55	0.68	0.68	0.91	0.91
Heavy Vehicles (%)	2%	5%	2%	3%	3%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	100	1015	0	0	764
Turn Type		Prot			D.P+P	
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Detector Phase	4	4	2			2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		7.0	
Minimum Split (s)	12.0	12.0	21.0		10.1	
Total Split (s)	19.0	19.0	31.0	0.0	18.1	49.1
Total Split (%)	27.9%	27.9%	45.5%	0.0%	26.6%	72.1%
Yellow Time (s)	3.0	3.0	3.5		3.0	
All-Red Time (s)	2.0	2.0	2.5		0.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	4.0	3.1	3.1
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Min		Max	
Act Effct Green (s)	14.0	14.0	25.0			42.9
Actuated g/C Ratio	0.21	0.21	0.37			0.63
v/c Ratio	1.04	0.25	1.44			1.33
Control Delay	89.6	7.5	226.2			177.9
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	89.6	7.5	226.2			177.9
LOS	F	A	F			F
Approach Delay	72.5		226.2			177.9
Approach LOS	E		F			F
Queue Length 50th (ft)	~176	0	~559			~349
Queue Length 95th (ft)	#226	7	#499			#553
Internal Link Dist (ft)	26		244			202
Turn Bay Length (ft)						
Base Capacity (vph)	364	396	706			576
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	1.04	0.25	1.44			1.33

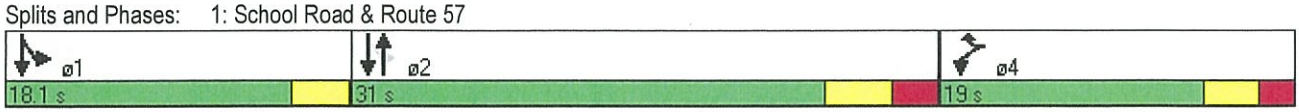
Intersection Summary

Area Type: Other
Cycle Length: 68.1
Actuated Cycle Length: 68.1
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 177.2 Intersection LOS: F
Intersection Capacity Utilization 104.3% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: School Road & Route 57



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	290	49	316	133	36	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1736	1553	1744	0	0	1825
Flt Permitted	0.950					0.927
Satd. Flow (perm)	1709	1553	1744	0	0	1702
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		75	43			
Link Speed (mph)	25		30			30
Link Distance (ft)	106		324			282
Travel Time (s)	2.9		7.4			6.4
Confl. Peds. (#/hr)	5	3		5	3	
Peak Hour Factor	0.71	0.65	0.79	0.79	0.80	0.80
Heavy Vehicles (%)	4%	4%	2%	8%	14%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	408	75	568	0	0	370
Turn Type		Prot			D.P+P	
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Detector Phase	4	4	2			2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		7.0	
Minimum Split (s)	12.0	12.0	21.0		10.1	
Total Split (s)	19.0	19.0	31.0	0.0	10.1	41.1
Total Split (%)	31.6%	31.6%	51.6%	0.0%	16.8%	68.4%
Yellow Time (s)	3.0	3.0	3.5		3.0	
All-Red Time (s)	2.0	2.0	2.5		0.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	4.0	3.1	3.1
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Min		Max	
Act Effct Green (s)	14.1	14.1	21.7			31.7
Actuated g/C Ratio	0.25	0.25	0.38			0.56
v/c Ratio	0.95	0.17	0.82			0.39
Control Delay	60.0	6.7	26.1			6.9
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	60.0	6.7	26.1			6.9
LOS	E	A	C			A
Approach Delay	51.7		26.1			6.9
Approach LOS	D		C			A
Queue Length 50th (ft)	~151	0	155			52
Queue Length 95th (ft)	#210	13	212			75
Internal Link Dist (ft)	26		244			202
Turn Bay Length (ft)						
Base Capacity (vph)	428	440	793			1063
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Reduced v/c Ratio	0.95	0.17	0.72			0.35

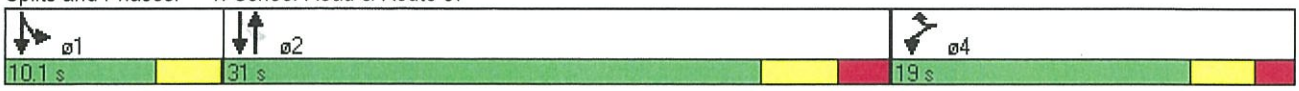
Intersection Summary

Area Type: Other
Cycle Length: 60.1
Actuated Cycle Length: 57
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: School Road & Route 57



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	350	60	380	160	45	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1736	1553	1744	0	0	1825
Flt Permitted	0.950					0.731
Satd. Flow (perm)	1709	1553	1744	0	0	1342
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		92	43			
Link Speed (mph)	25		30			30
Link Distance (ft)	106		324			282
Travel Time (s)	2.9		7.4			6.4
Confl. Peds. (#/hr)	5	3		5	3	
Peak Hour Factor	0.71	0.65	0.79	0.79	0.80	0.80
Heavy Vehicles (%)	4%	4%	2%	8%	14%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	493	92	684	0	0	450
Turn Type		Prot			D.P+P	
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Detector Phase	4	4	2			2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		7.0	
Minimum Split (s)	12.0	12.0	21.0		10.1	
Total Split (s)	19.0	19.0	31.0	0.0	10.1	41.1
Total Split (%)	31.6%	31.6%	51.6%	0.0%	16.8%	68.4%
Yellow Time (s)	3.0	3.0	3.5		3.0	
All-Red Time (s)	2.0	2.0	2.5		0.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	4.0	3.1	3.1
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	Min		Max	
Act Effct Green (s)	14.0	14.0	23.9			33.9
Actuated g/C Ratio	0.24	0.24	0.40			0.57
v/c Ratio	1.20	0.21	0.93			0.54
Control Delay	136.4	6.5	38.9			8.9
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	136.4	6.5	38.9			8.9
LOS	F	A	D			A
Approach Delay	116.0		38.9			8.9
Approach LOS	F		D			A
Queue Length 50th (ft)	~227	0	211			67
Queue Length 95th (ft)	#272	14	#325			94
Internal Link Dist (ft)	26		244			202
Turn Bay Length (ft)						
Base Capacity (vph)	412	438	764			851
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0