

12/11/08

ALSO ATTACHED IS
EVALUATION OF
RT 37 AND BEAVER
BOG ROAD INTERSECTION

**INTERSECTION EVALUATION
GILLOTTI ROAD AT HIGH SCHOOL/
MIDDLE SCHOOL DRIVEWAY
NEW FAIRFIELD, CT**

MMI #3101-02

August 21, 2008

***Prepared for:
Housatonic Valley Council of Elected Officials***

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**INTERSECTION EVALUATION
GILLOTTI ROAD AT HIGH SCHOOL/MIDDLE SCHOOL DRIVEWAY
NEW FAIRFIELD, CONNECTICUT**

Introduction

At your request, we have completed a traffic review of the intersection of the New Fairfield High School/Middle School driveway and Gillotti Road. The purpose of the study is to evaluate current conditions and identify measures to improve safety and traffic operations at the intersection. This evaluation shall be considered an update to a previously submitted report by Barkan and Mess Associates, Inc. in June 2000¹.

Scope of Work

The scope of the study included a field investigation of the site environs, a compilation of accident data from the State of Connecticut Department of Public safety, travel speeds and hourly traffic volumes on Gillotti Road, and peak period observations at the intersection of the school driveway and Gillotti Road.

Access and Site Environs

New Fairfield High School and Middle School are located on the north side of Gillotti Road in New Fairfield, Connecticut, between East Lake Road and Indian Hill Road, approximately 1.25 miles west of the center of New Fairfield. Figure 1 depicts the location of the site.

Gillotti Road lies to the west of New Fairfield center. It is oriented east/west, connecting with Route 39 on each end. As such, Gillotti Road provides an alternative to Route 39 as a route around Ball Pond for motorists traveling from the center of New Fairfield to the New York State border. Gillotti Road is south of Ball Pond, while Route 39 is west and north of Ball Pond.

¹ Driveway Evaluation, new Fairfield high School/Middle School, New Fairfield, Connecticut; Barkan and Mess Associates, Inc.; June 22, 2000.

Regional access to the area is provided via Routes 37 and 39 which provides a connection between New Fairfield center and Danbury where they intersect with both Route 7 and Interstate Route 84.

New Fairfield High School and New Fairfield Middle School occupy the same overall parcel and use the same driveway on Gillotti Road. The site also has a secondary point of access located on Gillotti Road, approximately three-tenths of a mile to the west of the main driveway. The secondary access generally remains gated, although it is opened on school days from 6:45 to 8:15 AM and from 1:45 to 3:00 PM. It is also opened during events with unusually high attendance. Its operation is that of a one-way exit only driveway.

Gillotti Road has a pavement width of about 40 feet in the vicinity of the main entrance, and features exclusive left and right turn lanes for traffic entering the driveway. The roadway has a down grade from west to east.

The school driveway is approximately 36 feet wide at its intersection with Gillotti Road; it features two lanes for exiting traffic and one lane for entering traffic. About 100 feet to the north, the driveway tapers to about 27 feet wide with two lanes and is striped with a single yellow line. Curbs and overhead lighting are present. A general layout of the intersection is shown in Figure 2.



School Driveway approach to Gillotti Rd.

Gillotti Rd Eastbound approach to School Driveway

Gillotti Rd Westbound approach to School Driveway

The horizontal alignment of Gillotti Road at the school is generally good, although the introduction of a left turn lane both narrows and shifts the eastbound through lane as it passes the school driveway. Sight lines from the school driveway are approximately 365 feet to the west and around 395 feet to the east. The posted speed limit in the area is 25 miles per hour, although the 85th percentile speed of vehicles traveling in both directions on this roadway is about 42 miles per hour. The 85th percentile is defined as the speed at or below which 85 percent of the traffic travels. Given a prevailing travel speed of 42 miles per hour, the minimum sight line distance criteria set by the Connecticut Department of Transportation (ConnDOT) is 463 feet. Based on this value, the sight line distance adequate in both directions for the posted speed limit; however it is inadequate for the 85th percentile speeds.

Land uses in the vicinity are primarily residential, with the exception of a small business operating from a facility directly to the east of the school driveway.

Traffic Volumes

Gillotti Road is classified by ConnDOT as a major collector road. It provides access from one major part of the community to another, and it serves as a feeder for not only local roads but also for other collector roads. Both its use and its design contribute to high travel speeds. Traffic operations in the morning are particularly aggravated by the coincidence of the commuter peak hour with the school peak hour.

Traffic volumes were measured on Gillotti Road by the use of an automatic traffic recorder (ATR) placed between the school driveway and East Lake Road. As recorded by the ATR between Wednesday, January 30 and Thursday, January 31, 2008, Gillotti Road had an all-day traffic volume of 2,561 eastbound and 2,177 westbound vehicles, for a total of 4,738 vehicles. This is an decrease from the traffic volumes collected for a June 2000 traffic report prepared by Barkan and Mess, Associates in June 2000, which indicated daily traffic volumes of 5,177 vehicles; however, seasonal factors could account for the difference.

Traffic Accidents

Traffic accident data were obtained from the Connecticut Department of Public Safety for accidents occurring at 54 Gillotti Road where the roadway and school driveway intersect, covering the period from March 1, 2005, to March 1, 2008. The accident severity is summarized in Table 1. As shown, only two accidents occurred at this location. Additional accidents were reported on school property within the parking lot areas; however, these accidents have no relation to the safety at the driveway.

**Table 1
ACCIDENT SUMMARY**

LOCATION	ACCIDENT SEVERITY				TYPE OF COLLISION					
	FATALITY	INJURY	PROPERTY DAMAGE	TOTAL	TURN			ANGLE	FIXED OBJECT	TOTAL
					INTERSECTING	SAME	OPPOSITE			
At 54 Gillotti Road			2	2				1	1	2

Source: Connecticut Department of Public Safety from 02/01/2005 to 5/1/2008.

Operational Characteristics

The operational characteristics of the intersection were observed during school arrival and dismissal times. In addition, comments from New Fairfield Town Hall, local residents, and the school safety officer relative to concerns at this intersection were reviewed.

Travel speeds - For the purposes of the study, the 85th percentile speed (the speed at or below which 85 percent of vehicles travel) was calculated and used as an indication of the prevailing travel speed on the roadway. The 85th percentile speed of motorists on Gillotti Road in the vicinity of the school drive is 42 miles per hour - 17 miles per hour above the posted speed limit of 25 miles per hour. Even the mean speed is approximately 35 miles per hour, which is 10 miles per hour greater speed than the posted speed limit.

Vehicular Maneuvering – During the observation period, a clear sense of right-of-way was not exhibited between motorists entering the school driveway from either the eastbound or westbound Gillotti road approaches, or for the motorists exiting the driveway onto Gillotti Road. Often times the eastbound entering motorists would yield to vehicles performing left turns onto Gillotti Road from the driveway. This creates an unsafe situation due to sight line blockage for exiting vehicles by eastbound entering vehicles in queue.

Other instances involved busses entering from the east blocking both the through and right-turn lanes while allowing exiting busses to perform left turns onto Gillotti Road. This is believed to occur due to insufficient curb radii and driveway width which limit busses from passing each other within the extents of the driveway.

The right turn lane is relatively short (approximately 90 feet in length) and motorists turning right into the school often do not utilize the turn lane, but rather turn from the through lane. This is confusing to exiting motorists when trying to identify an appropriate gap in the traffic stream. The short lane length of the turn lane for westbound vehicles entering the school driveway forces motorists to perform the majority of their deceleration prior to reaching the two-lane section. Westbound through vehicles following right-turners were also observed performing abrupt maneuvers to avoid rear-ending the turning vehicles.

Intersectional Sight Distance – Within the last decade Gillotti Road was widened to include both left and right turn lanes into the school driveway as an effort to relieve congestion. However, the two lanes of traffic in each direction have affected the driveway operations. Queues of traffic on Gillotti Road waiting to turn left into the school obstruct eastbound through traffic from view. Consequently, exiting motorists turning left from the school driveway cannot see vehicles approaching from the right. Similarly, traffic in the right turn lane on Gillotti Road obscures westbound through traffic for motorists exiting the school driveway.

Regarding sight distances, assuming no vehicle blockage, the sight line distance of approximately 395 feet to the left for motorists exiting the schools is sufficient for the prevailing speeds. To the right, the sight line when unobstructed is approximately 365 feet. This distance is inadequate for the current prevailing travel speed based on ConnDOT guidelines, but is adequate for the posted speed limit.

Stopping Sight Distance - In addition to visibility concerns for motorists exiting the site, the stopping sight distance for eastbound vehicles on Gillotti Road are insufficient. Based on a 42 mile per hour 85th percentile speed and a 6 percent down grade, ConnDOT guidelines recommend a stopping sight distance of approximately 360 feet. Coming over the hill west of the school driveway, eastbound motorists cannot see the left turn lane or the transition of the pavement markings until they are within 200 to 300 feet of the beginning of the transition. An advanced warning sign posted for eastbound motorists indicating the approaching driveway intersection does attempt to alleviate the lack of sight distance.

Queues - Observations of queue length for vehicles entering and exiting the site were also made. Queues along Gillotti Road were greatest during the morning arrival period, which extended beyond the observer's view greater than eight vehicles. These left turning vehicles obstruct visibility for exiting drivers. The vehicle queues exiting the school driveway (including busses) were greatest during the afternoon release period, which exceeded 20 vehicles. These are typical for school driveway operations, and occur over a relatively short period of time (less than 20 minutes).

Findings and Recommendations

Upon review of the data collected, evaluation of the field observations made, and review of mapping of the recent improvement to Gillotti Road at the school driveway, we developed a profile of the current conditions. In general, our findings related to current safety concerns, operational problems, and geometric deficiencies at the intersection today.

Regarding safety at the intersection, the accident data assembled does not indicate a collision type pattern that would suggest safety concerns. However, observations of field conditions indicate that due to the travel speeds on the road and blockage from right turning vehicles and left turning queued vehicles, sight lines are inadequate at this driveway, all of which contribute to a potential hazard. Two ways to address this concern would be to improve the sight lines and/or reduce the travel speeds along Gillotti Road.

Operationally, the biggest concern involves delays and queues for left turning vehicles entering the school driveway. This condition only exists for a short time during the morning school arrival peak period.

From a geometric standpoint, several findings were made. Most importantly, Gillotti Road from the west has a narrowing of the through travel lane, as well as a shifting which is required when vehicles are stored in the left turn lane. In addition, sight lines over a vertical crest cause visibility concerns, not only for motorists at the school driveway but also for queued vehicles in the left turn lane. Finally, the short right turn lane in the eastbound direction into the school driveway is not providing the benefit that could be realized if a more gradual taper and longer turn lane existed.

With these factors in mind, several recommendations have been developed. Some are easily implemented and address, partially or wholly, specific concerns. Some are significant in terms of scope but address issues on a somewhat larger scale. A description of our recommendations is as follows:

1. One of the underlying concerns associated with operations at the school driveway is the travel speed of vehicles on Gillotti Road. As indicated, the prevailing speed is significantly higher than the posted travel speed.

Current school zone warning signage is passive and, therefore, ignored many

times when it is most needed during arrival and departure of vehicles from the school. A study of vehicle speeds in school zones indicates that more active signage is more effective in reducing speeds when needed. Specifically, signage with flashing lights which are programmed to indicate speed limits when flashing have shown a better effect than passive signage in their ability to control travel speeds in school zones.² The State allows 25 miles per hour signs to be posted on such flashing signs. Although this is the existing speed limit, the flashing indicators would increase its visibility.

2. The speed limit reductions discussed above, if they could be achieved, would reduce the sight line requirement for vehicles exiting the school driveway when the flashers are activated. However, conditions similar to today in terms of travel speed would resume during the non-flashing hours and thus not provide the benefit for non-peak traffic exiting. Consequently, some enhancement to the physical sight lines should be achieved.

The most critical sight line in terms of its restriction is looking to the right or to the west when exiting the school driveway. The vertical profile of the road restricts the sight line to approximately 365 feet. With vehicles queued in the left turn lane, this distance is further restricted. There is also a concern about stopping sight distance for eastbound vehicles.

To extend the sight line, a survey of Gillotti Road would be required and more detailed engineering conducted to determine not only the feasibility but the extent to which problems associated with the vertical curve could be ameliorated. Ideally, a new profile would be such that the left turn lane queue no longer obstructs visibility to oncoming through vehicles eastbound.

² Doane, Richard, et al. "Vehicle Speeds in School Zones". The Institute of Transportation Engineers

It is important to point out that driver speed is largely influenced by roadway conditions. The design speed should be such that motorists traveling at the current 85th percentile speed can be accommodated. This affects both the geometric features of Gillotti Road and the intersecting roads and driveways. While a relatively low speed limit (25 miles per hour) is already in existence, travel speeds are significantly higher. In fact, a higher speed limit along this road could result in less speed variance, a factor which can contribute to accidents.

Another potential option for reducing vehicle speeds along Gillotti Road is traffic calming. An assortment of measures including vertical and horizontal alignment adjustments could be implemented within the vicinity of the school driveway. Devices such as speed tables or speed humps force motorists to slowly approach and traverse these items with little to no horizontal alignment alterations. The nature of Gillotti Road; however, does not necessarily lend itself to traffic calming, due to the traffic volumes and roadway classification. A more detailed survey and traffic study would be required prior to installing traffic calming devices.

3. Another concern regarding sight lines from the driveway is the blockage due to the queued left turn vehicles, as well as the uncertainty of whether the vehicle approaching from the east is going to turn right into the driveway or is going to travel straight through. An improvement that would affect this situation would be inclusion of a channelized right turn lane into the school off of Gillotti Road. This channelized right turn would result in a clear distinction between right turning vehicles and through vehicles much further east than occurs today. This would be a benefit for not only those exiting the site driveway but also for those taking a left turn from Gillotti Road into the school driveway. Consequently, some improvement to operations for left turn inbound movement and corresponding queue reduction may result.

4. Another geometric change which can improve operations would be channelization of the exiting right turn from the schools. This would result in several positive changes. First, the channelized right turn lane would reduce the potential blockage of visibility for motorists turning left or right out of the driveway. This would be accomplished due to the increased spacing between vehicles associated with the channelization. Another advantage would be an improved Stop bar location. The Stop bar for exiting vehicles is currently too far back from the intersection and is largely ignored. Lastly, the placement of the channelized island would allow the left turn on Gillotti Road to be extended further east. This increases the vehicle stacking length by perhaps a vehicle or two.

5. Another recommendation related to operations along Gillotti Road in this area, as opposed to operations specifically for vehicles entering and exiting the school driveway, has to do with the narrow through lane eastbound due to the introduction of a left turn lane into the school driveway. As part of the engineering evaluation suggested in point 2 above, the feasibility of a further widening along Gillotti Road to smooth the horizontal transition and widen the lane width through this area should be investigated. It is likely that some land taking would be required on the south side of Gillotti Road to accomplish this. Similarly, good visibility to the pavement markings guiding the vehicles through the intersection is imperative to ensure adequate reaction time for motorists required to perform lane shifting maneuvers.

6. Once the geometric improvements are determined, a reevaluation of sight lines from the driveway should be conducted. It is possible that under any feasible widening and profile adjustment, the left turn eastbound queue may still block visibility. Under this scenario, an all-way Stop sign control or signalization should be considered as an alternative to mitigate the sight line problem. If so, special considerations, such as Stop sign or signal ahead warnings and stopping

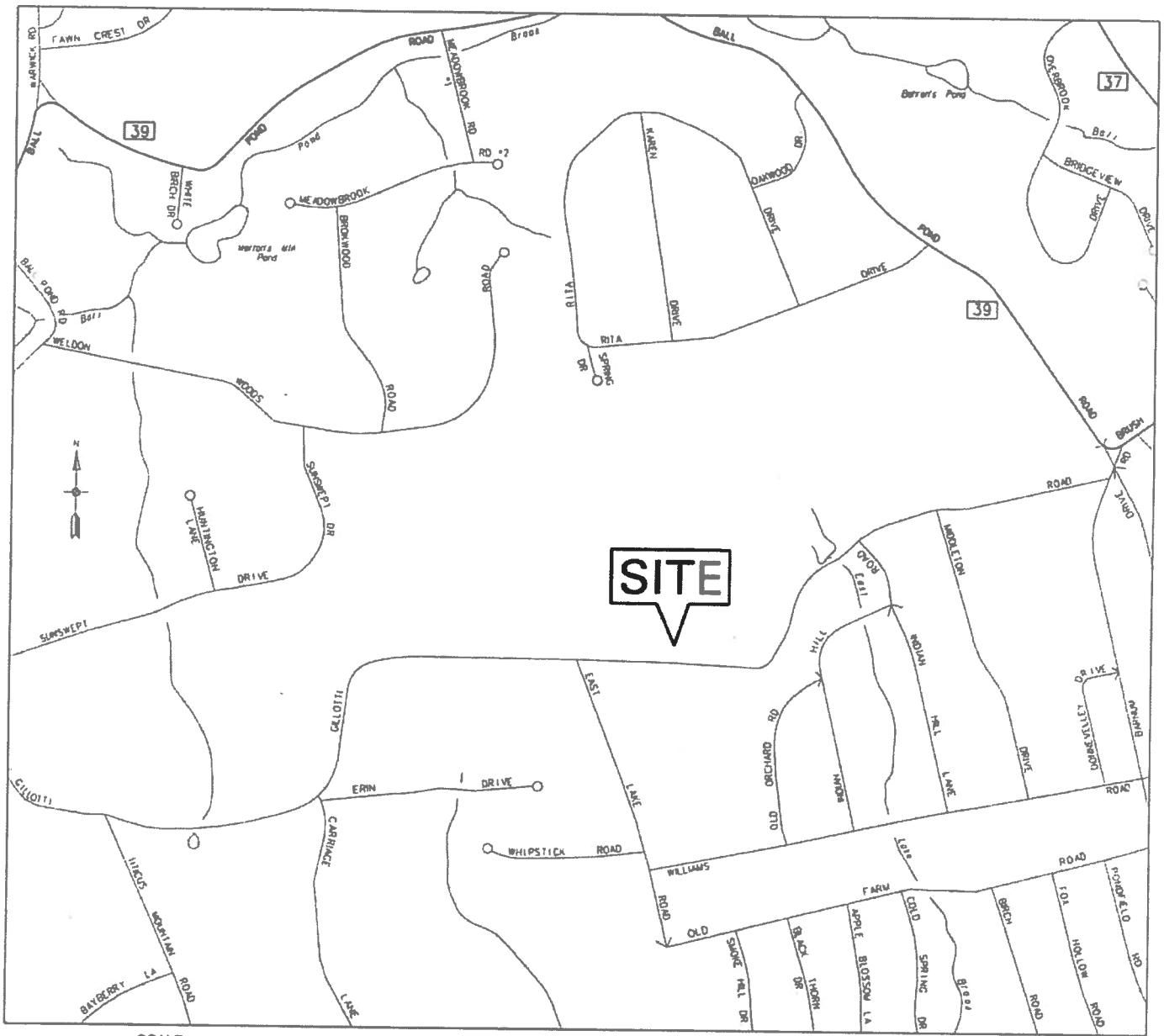
sight distance improvements should be incorporated into the design. It should be pointed out, however, that signalization on a road with high travel speeds and insufficient stopping sight distance may result in the creation of rear-end collisions. Further, the congestive condition is short-lived and would benefit the intersection for a very small percentage of time. Finally, it is unlikely that signalization would be warranted based on the traffic volumes.

7. An alternative to full signalization and all-way stop control is a pole-mounted flashing beacon. Flashing beacons indicate to drivers that the intersection should be approached with caution. Warrants are not required to install a flashing beacon; instead a full traffic study shall be performed and engineering judgment used to determine the appropriateness of such a device.

Overall, it appears that to fully mitigate the sight line concern at the intersection, a geometric improvement to modify the vertical crest on Gillotti Road should be considered. Further engineering studies would be required before implementation. This would result in an improved section of road to accommodate the travel speeds or to reduce travel speeds along Gillotti Road. These improvements would also address the visibility blockage due to queued eastbound left turns.

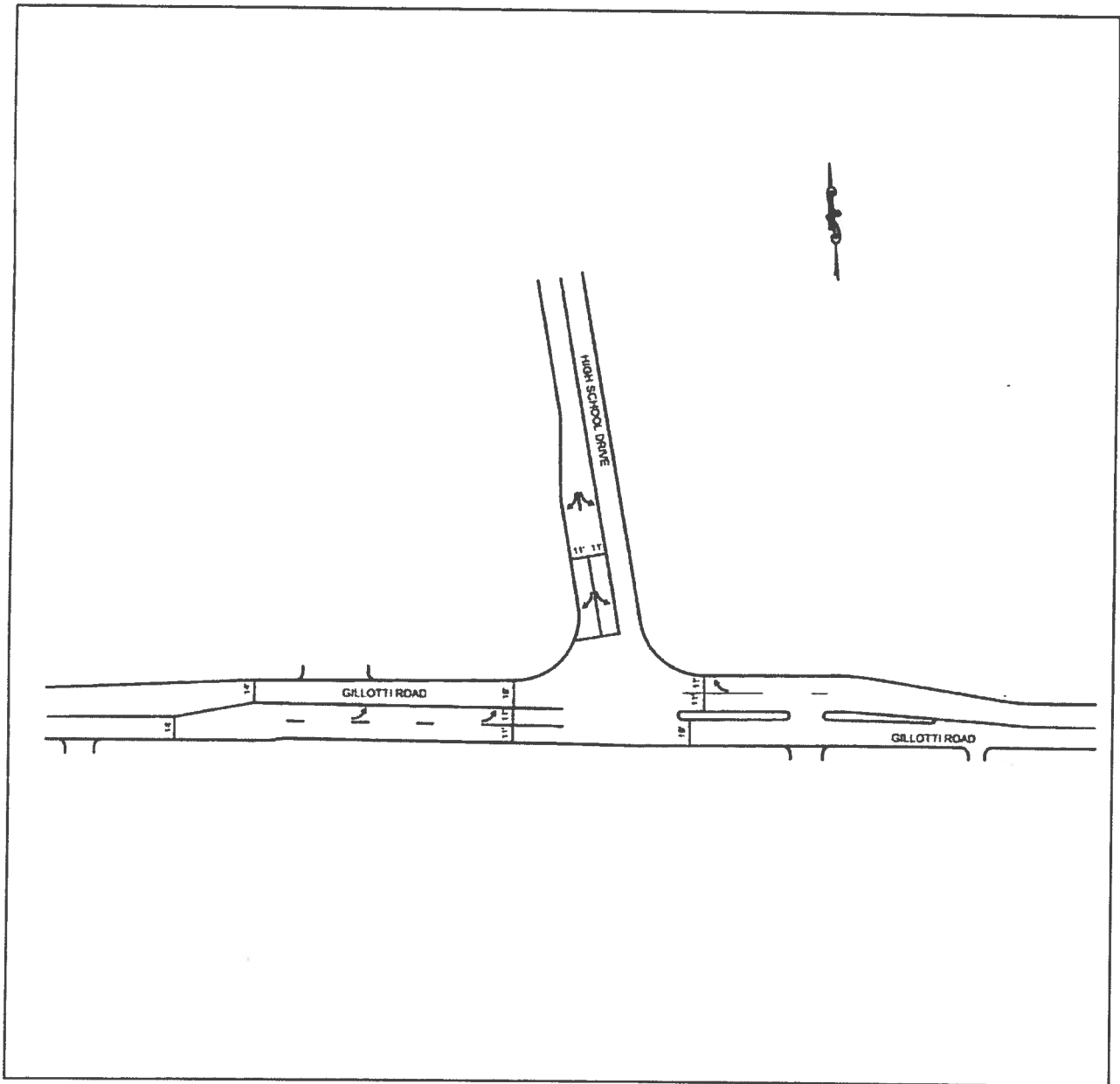
In addition to this, the concerns during peak arrival and departure times can be addressed by speed reduction measures associated with school zone warning signs. The change from passive to flashing signage should be implemented while the engineering studies are ongoing. While not generally recommended, all-way Stop signs, signalization, and a flashing beacon should also be considered to address both safety and operational concerns.

We hope this initial investigation will guide a more detailed engineering study to determine a specific course of action to mitigate concerns at the intersection of the New Fairfield High School/Middle School driveway with Gillotti Road.



SITE LOCATION

**New Fairfield High School
New Fairfield, Connecticut**



INTERSECTION LAYOUT

New Fairfield High / Middle School Driveway @ Gillotti Road
 New Fairfield, Connecticut



**HOUSATONIC VALLEY
COUNCIL OF ELECTED OFFICIALS**
OLD BROOKFIELD TOWN HALL
162 WHISCONIER ROAD, BROOKFIELD, CT 06804
203-775-6256 FAX 203-740-9167 HVCEO.ORG

TO: John Hodge, Bob Rzas

FROM: Jon Chew

DATE: 3/26/2009

RE: High School Traffic Reports

Attached are the supplemental reports on this topic as requested.

**ACTIVE SIGNAGE EVALUATION
GILLOTTI ROAD AT HIGH SCHOOL/MIDDLE SCHOOL DRIVEWAY
NEW FAIRFIELD, CONNECTICUT**

Introduction

At your request, we have completed this follow-up assessment of active, or flashing, school zone signage in response to questions raised during the Board of Selectmen hearing on December 23, 2008 and the previous report: *Intersection Evaluation, Gillotti Road at High School/Middle School Driveway*¹. The intent of this study is to determine the effectiveness, installation parameters, costs, and operations of a school zone sign with flashing lights. Photo 1 shows a typical flashing zone school speed limit sign.

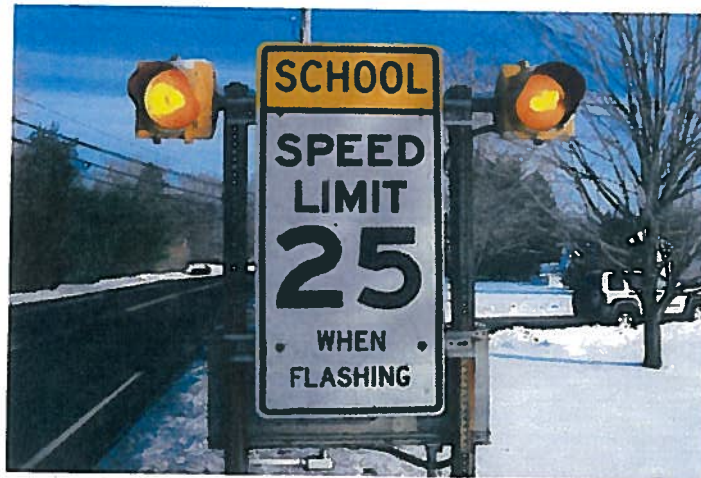


Photo 1 – Typical Flashing School Speed Limit Sign

Flashing Sign Effectiveness

We reviewed a study published in the Institute of Transportation Engineers (ITE) Journal in 1999 titled *Vehicles Speeds in School Zones*². In this study, several school zones were reviewed that identify the use of various signage types. These signage types include the following:

- Signs that indicated reduced speeds during specific times of the day

¹ Intersection Evaluation, Gillotti Road at New Fairfield High School/Middle School Driveway, New Fairfield, Connecticut; Milone and MacBroom, Inc.; August 21, 2008.

² Doane, Richard, et al. "Vehicle Speeds in School Zones". The Institute of Transportation Engineers

- Signs that indicated reduced speeds while yellow lights are flashing
- Signs that indicate reduced speeds while children are present
- Signs that indicated reduced speeds while orange flags are posted on the sign(s)

The posted speed limit entering the school zone in the studies was 35 miles per hour (mph) where the school zone signs with flashing yellow lights were used. The signs reduced the speed limit to 25 mph. The average speed within the school zone decreased to 22.5 mph when the flashing signs were activated. Other signs were effective to reduce average speeds to 28 to 30 mph. This 5-7 mph difference is significant when considering collisions between vehicles and pedestrians. A 5 mph decrease in vehicle-impact speed can mean the difference between a minor/moderate injury versus a major/fatal injury to a pedestrian. The signs with flashing yellow lights were the most effective measure to reduce vehicle speeds in school zones.

Department of Transportation Consideration

The Connecticut Department of Transportation (ConnDOT) was contacted to solicit their input regarding school zone speed limit signs with flashing yellow lights. Firstly, the establishment of a school zone would be required to differentiate the area surrounding the school for purposes of altering speed limits or enforcement issues. The posted speed limit along Gillotti Road is 25 mph, while the 85th percentile speed is approximately 40 mph. Travel speed reduction is obviously the primary concern in this area. With lower travel speeds, the minimum sight lines from the school driveway could be shorter than for greater travel speeds. The STC provided four recommendations. These are:

1. Install a school zone speed limit sign with flashing yellow lights. Since the posted speed limit is 25 mph, a reduced speed of 20 mph would be the likely option for such a sign. However, the DOT has advised against a 20 mph school zone speed limit, and rarely affords this option outside cases with extreme restrictions. A 20 mph school zone speed limit would require permission from the State Traffic Commission, and would require a formal request from the local traffic authority, as would any change in posted speed limit.
2. Post a "School Zone Ahead Fines Doubled" sign. Since Gillotti Road is Town-owned, this would not require any approval from the State. The installation of such a sign would

best be paired with an appropriate level of enforcement and would likely be the best candidate since the posted speed limit is already 25 mph. An example of this sign is shown in Photo 2.

3. Combine the aforementioned options and install a school zone sign with flashing yellow lights along with a “School Zone Ahead Fines Doubled” sign. This option is typical in many applications around the state.
4. Install advisory plates that indicate 20 mph travel. Since the advisory posting would not be a formal change in speed limit, it would not require STC approval; however, the advisory speed would not be enforceable. Only the official posted speed limit is enforceable.



Photo 2 – Typical School Zone Ahead Fines Doubled

The application of options 1 and 2 and the signage required to establish a school zone are shown in the attached specifications sheet provided by the ConnDOT.

Cost and Use

The ConnDOT Bid Item List dated January 12, 2009 was reviewed to determine costs associated with the installation of a speed limit sign with flashing yellow lights. The item listed as “Flashing Signals for Warning Signs” provided an installation value of approximately \$2,000 to \$3,000. Typically two flashing signs are installed on opposite ends of the school zone; therefore, the costs would be double. This would be in addition to mounting a School Zone Speed Limit sign.

Recommendations

Based on the findings above with regard to effectiveness and cost, we suggest the following:

1. Establish a school zone along Gillotti Road approximately one quarter mile beyond the school property limits.
 - a. Post the School Zone Ahead Fines Doubled signs at a quarter mile distance from the school and post the regulatory School Zone 25 MPH signs in closer proximity to the school, or
 - b. Post the School Zone Ahead Fines Doubled signs at a quarter mile distance from the school along with the warning plaque 20 MPH signs.
2. Post the School Zone Ahead Fines Doubled signs at a quarter mile distance from the school. Also erect the flashing school zone speed limit signs in closer proximity to the school.

Illustrations of these examples are provided in Figure 1. If desired, following the implementation of recommendations 1a or 1b, prepare a follow-up assessment study to determine its effectiveness. Pending the results of such a study, additional measures might be required. If the effectiveness is minimal, proceed with recommendation 2.

Conclusion

Based on the cost of a flashing school speed limit sign, the existing 25 mile per hour posted speed limit along Gillotti Road, and the alternatives presented by the ConnDOT, we recommend developing a school zone along Gillotti Road and install signs that indicate the fines are doubled in the school zone. The enforcement that has been consistently occurred along Gillotti Road should be continued in the hope that heavier penalties will encourage drivers to slow their speeds. A follow-up study can be performed to determine the effectiveness of these efforts regarding travel speeds along Gillotti Road.

We hope this follow-up investigation will provide substantial information to determine which avenue to take regarding school zone safety at the intersection of the New Fairfield High School/Middle School driveway with Gillotti Road.

SCHOOL ZONE
AHEAD
FINES DOUBLED

31-2101

SCHOOL ZONE
25 M.P.H.

41-2103

OPTION - 1A

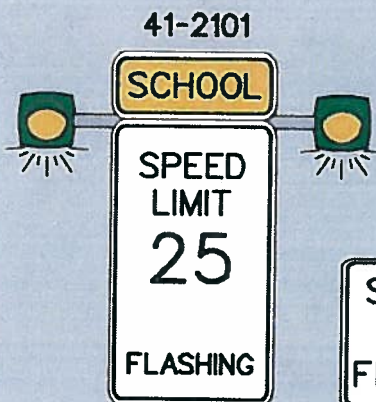
SCHOOL ZONE
AHEAD
FINES DOUBLED

31-2101

20
M.P.H.

41-5569

OPTION - 1B



OPTION - 2

SIGN OPTIONS

**NEW FAIRFIELD HIGH / MIDDLE SCHOOL DRIVEWAY
AT GILLOTTI ROAD**

New Fairfield, Connecticut

**OPENING OF SECOND SCHOOL DRIVEWAY
GILLOTTI ROAD AT HIGH SCHOOL/MIDDLE SCHOOL,
NEW FAIRFIELD, CONNECTICUT**

Introduction

At your request, we have completed this follow-up assessment of opening the western school driveway for full time use in response to questions raised during the Board of Selectmen hearing on December 23, 2008 and the previous report: *Intersection Evaluation, Gillotti Road at High School/Middle School Driveway*¹. The intent of this study is to determine the feasibility of using the western school driveway along Gillotti Road for full time use, either as an entrance or exit only driveway.

Site Environs

A field reconnaissance was performed on Friday, January 23, 2009 to review roadways geometry, sight lines, pavement markings and signage. Gillotti Road in the vicinity of the western school driveway is approximately 23.5 feet wide with an eastbound travel lane of 11.5 feet wide and a westbound travel lane of 12 feet wide. A double yellow centerline separates travel lanes. The school driveway approaches Gillotti Road from the north and is 14 feet wide at its narrowest point. This narrow point also features a metal gate that was open during the time of the site visit; however it can be locked when not used. The driveway approach is flanked with "No Left Turn" signs on both sides and a Stop sign to the right. No signs are posted within the school parking lot area for vehicles entering the exit driveway that would indicate turn prohibitions once motorists reach Gillotti Road.

The land use in the immediate area, aside from the school facilities, is residential. The nearest residential driveway is located to the east of the site along the north side for Gillotti Road for house number 78.

¹ *Intersection Evaluation, Gillotti Road at New Fairfield High School/Middle School Driveway, New*

approach.

A review of the property line data in the area of the western school driveway indicates that the school property surrounding the driveway is approximately 68 feet wide. The Gillotti Road right-of-way is approximately 40 to 44 feet wide adjacent to the intersection with the school driveway. The 68-foot wide property boundary would provide ample room for a two-lane section. The data remains unclear as to the ownership of the aforementioned earth mound that inhibits sight distance east of the driveway.

History of Public Input

Two documents were reviewed regarding previous input by the public and State officials. The first includes the ConnDOT Project Concept Unit (PCU) Report of Meeting notes dated, September 20, 2000. This meeting was held in response to the Driveway Evaluation report by Barkan & Mess, Associates dated June 22, 2000. The PCU suggested considering using the western school driveway as an exit only driveway to alleviate some of the traffic volumes currently using the eastern driveway. The PCU recommended lowering the exiting earth mound east of the secondary driveway to improve sight lines; however, noted that in the event a utility pole relocation is required it should be located such that it will not inhibit sight distance. The ISD measured to the right was adequate for prevailing speeds.

The second document reviewed is the meeting minutes from the Town of New Fairfield Design Public Hearing, dated May 19, 1994, which was intended to address proposed design improvements at various locations on Gillotti Road. The primary improvement issue at the time of the meeting was the opening of the western school driveway for right turn egress only. Representatives from the Town, Board of Education, high school, bus drivers, and local residents voiced their opinions. The persons representing the school and school services (principal, superintendent, bus drivers) were all in favor of opening the secondary school driveway for right turn egress to alleviate congestion at the primary school driveway and reduce bottleneaking during emergency situations when fire engines are entering the school via the primary driveway. Local residents generally agreed that this driveway should be utilized for emergency service and occasional egress during events, but should otherwise be closed and gated. Neighbors

complained about travel speeds along Gillotti Road, poor turning conditions and headlights shining into residential windows from vehicles exiting via this driveway. During the design process attention would be given to addressing local concerns.

Next Steps

To open the western driveway, further analysis and data should be gathered. Manual turning movement traffic counts should be performed at both school driveways during typical morning and afternoon peak periods. This will determine the demand to be experienced by the western driveway should it operate under full time use. Localized survey would resolve the questions regarding ownership of the sight lines impediments and available right-of-way for potential driveway widening and intersection reconstruction. Once these items have been secured, intersection design could be completed to develop a concept to best serve the needs of the school.

Conclusion

With an existing driveway width of 14 feet, two-way orientation or a one-way two-lane approach for the western school driveway is not feasible. The driveway would have to be a minimum of 22 feet wide to consider having two travel lanes, whether they were oriented for one- or two-way traffic flow. The school property is approximately 68 feet wide at this driveway, which will accommodate a two-lane section.

Further traffic data collection and survey would be required to complete the design process. With traffic counts at both school driveways and topographic survey of the driveway and immediate surrounding area, property lines can be determined and design can begin.

We hope this follow-up investigation will provide substantial information to determine the feasibility of opening the western driveway for the New Fairfield High School/Middle School at Gillotti Road.

**INTERSECTION EVALUATION
SHERMAN NEW FAIRFIELD ROAD (CT ROUTE 37) AT BEAVER BOG ROAD
NEW FAIRFIELD, CONNECTICUT**

**PREPARED FOR THE HOUSATONIC VALLEY COUNCIL OF
ELECTED OFFICIALS**

Introduction

As requested by the Housatonic Valley Council of Elected Officials, we have completed a traffic review of the intersection of Route 37 and Beaver Bog Road and the nearby intersection of Route 37 and Bigelow Road. The purpose of the study is to evaluate current conditions and identify measures to improve safety and traffic operations at the intersection.

Scope of Work

The scope of the study included a field investigation of the site environs, a compilation of accident data from the Connecticut Department of Transportation (ConnDOT), and travel speeds and hourly traffic volumes on Route 37.

Site Environs

Route 37 generally runs in a north/south direction; however, at the intersection with Beaver Bog Road, Route 37 is oriented east/west. For the purposes of this report, Route 37 will be described with an east/west orientation in the vicinity of the site. It connects with Interstate 84 to the south in Danbury and with the town of Sherman and Route 7 to the north. As such, Route 37 serves as the primary north/south travel route through New Fairfield. Route 37 has been classified as a minor arterial roadway by the ConnDOT.

Route 37 has a pavement width of approximately 24 feet in the vicinity of Beaver Bog Road, and includes single lane approaches from the east and west. The roadway has an upgrade from both approaches and curves northwest of Beaver Bog Road, so that Beaver Bog Road is located to the inside of the curve. Route 37 is marked with a double yellow centerline and solid white edge lines. The posted speed limit in the area is 45 miles per hour for westbound travel and 35 miles per hour for eastbound travel.

Beaver Bog Road is located on the north side of Route 37 in New Fairfield, approximately 1.8 miles north of Route 39 and the New Fairfield town center area and approximately 280 feet east of the Route 37/Bigelow Road intersection. Land uses in the vicinity are primarily residential, with the exception of the New Life Community Church located at the northwest corner of the Route 37/Beaver Bog Road intersection. Figure 1 depicts the location of the site.

Beaver Bog Road is approximately 21 feet wide at its intersection with Route 37; it features single lanes for approach and departure traffic. Approximately 65 feet from Route 37 along the west side of Beaver Bog Road exists a driveway for the aforementioned church. Beaver Bog Road is marked with a single yellow centerline. The Stop sign and Stop line are located approximately 30 feet back from the edge of Route 37, which is to allow adequate spacing for trucks turning left into Beaver Bog Road. Overhead lighting is present; however, curbs are not.



Beaver Bog Road approach to Route 37

Bigelow Road intersects Route 37 from the south and is located at the external apex of the curve along Route 37. The roadway width is approximately 23 feet and traffic control is provided using a Stop sign and Stop line. The Bigelow Road approach is relatively wide open to the east and has some vegetation to the west.

Sight Distance

Sight distance guidelines are dependant on travel speeds. Both the existing travel speeds and available sight distances were measured at the intersection of Route 37/Beaver Bog Road. The two types of sight distances measured for this assessment include intersection sight distance and stopping sight distance. Intersection sight distance is measured from the perspective of a motorist approaching the major roadway (Route 37) from the minor roadway (Beaver Bog Road), so they can view oncoming vehicles and safely enter the flow of traffic. Stopping sight distance is measured along the major roadway from the perspective of a motorist traveling along the major roadway to recognize, react, and stop prior to reaching a potential hazard in the roadway.

Travel Speeds

For the purposes of the study, the 85th percentile speed (the speed at or below which 85 percent of vehicles travel) was calculated and used as an indication of the prevailing travel speed on the roadway. The 85th percentile speed of motorists on Route 37 in the vicinity of Beaver Bog Road is approximately 40 miles per hour in both directions, which exceeds the posted speed limit for eastbound travel by five miles per hour. The average speed along Route 37 is 35 miles per hour.

Intersection Sight Distance

The horizontal and vertical alignment of Route 37 limits the sight distance to the west from Beaver Bog Road. To compound the issue, the New Life Community Church parking lot is supported by a berm of earth that falls directly within the sight line. The existing sight line is approximately 225 feet. The sight line looking to the east from Beaver Bog Road is greater than 600 feet. It should be noted that the sight lines to the east were recorded during winter months, and could be shorter during summer months with potential vegetation growth. Given a prevailing travel speed of 40 miles per hour, the minimum sight line distance criteria set by the Connecticut Department of Transportation (ConnDOT) is 445 feet. Based on this value, the sight line distance to the west is inadequate for the posted speed limit and the 85th percentile speed.



Looking west from Beaver Bog Road



Looking east from Beaver Bog Road

Stopping Sight Distance

In addition to visibility concerns for motorists exiting the site, the stopping sight distance for eastbound vehicles on Route 37 is insufficient. Based on a 40 mile per hour 85th percentile speed, ConnDOT guidelines recommend a stopping sight distance of approximately 330 feet. The eastbound stopping sight distance is approximately 230 feet, approximately 100 feet shorter than stated in the guidelines. An oversized, advanced warning sign posted for eastbound motorists indicating the approaching roadway curvature and the Beaver Bog Road intersection.



Route 37 westbound approach to Beaver Bog Road



Route 37 eastbound approach to Beaver Bog Road

Traffic Volumes

Traffic volumes were measured on Route 37 by the use of an automatic traffic recorder (ATR) placed between Beaver Bog Road and Bigelow Road. As recorded by the ATR between Wednesday, January 30 and Thursday, January 31, 2008, Route 37 had an all-day traffic volume of 2,097 westbound and 2,077 eastbound vehicles, for a total of 4,174 vehicles.

Traffic Accidents

Traffic accident data were obtained from the Connecticut Department of Public Safety for accidents occurring on Route 37 in the vicinity of Beaver Bog Road, covering the period from January 1, 2004, to December 31, 2006. The accident severity is summarized in Table 1. As shown, only four accidents occurred in the area during this time period, all of which resulted in property damage only. Comments regarding safety and accident history were solicited, which indicated that severe accidents have occurred at this location prior to March of 2005 resulting from motorists entering Route 37 from Beaver Bog Road.

**Table 1
ACCIDENT SUMMARY**

LOCATION ON: Route 37 (Sherman New Fairfield Road)	ACCIDENT SEVERITY			TYPE OF COLLISION				
	INJURY	PROPERTY DAMAGE	TOTAL	TURN		FIXED OBJECT	OVERTURN	TOTAL
				INTERSECTING	OPPOSITE			
At Beaver Bog Road		2	2		1	1		2
Between Beaver Bog Road and Bigelow Road		1	1				1	1
At Bigelow Road		1	1	1				1
Total	0	4	4	1	1	1	1	4

Source: ConnDOT from 1/1/2004 to 12/31/2006

Findings and Recommendations

Upon review of the data collected, and an evaluation of the field observations made, we developed a profile of the current conditions. In general, our findings related to current safety concerns, operational problems, and geometric deficiencies at the intersection today.

Regarding safety at the intersection, the accident data assembled does not indicate a collision type pattern presently exists. However, observations of field conditions indicate that due to the travel speeds and the alignment of the roadway, sight lines are inadequate at Beaver Bog Road, which contributes to a potential hazard. Two ways to address this concern would be to increase the sight line distances and/or reduce the travel speeds along Route 37.

From a geometric standpoint, it is unlikely that the Route 37 alignment will be altered to create a straighter, flatter section of roadway. Therefore, the berm along the eastern side of the roadway should be considered for alteration to move the earth away from the road edge and improve the sight line. This might require the installation of a retaining wall to support the church parking lot above. A more detailed survey and engineering feasibility analysis would be required prior to undertaking such measures. Also, clearing and maintaining vegetation that could potentially limit sight distance to the east should be considered.

An all-way Stop sign control or signalization was considered as an alternative to mitigate the sight line problem. If so, special considerations, such as Stop sign or signal ahead warnings and stopping sight distance improvements should be incorporated into the design. It should be pointed out, however, that signalization on a road with travel speeds of 40 miles per hour and insufficient stopping sight distance may result in the creation of rear-end collisions. Further, the need for improved access from Beaver Bog Road is short-lived and would benefit the intersection for a very small percentage of time. Finally, it is unlikely that signalization would be warranted based on the traffic volumes.

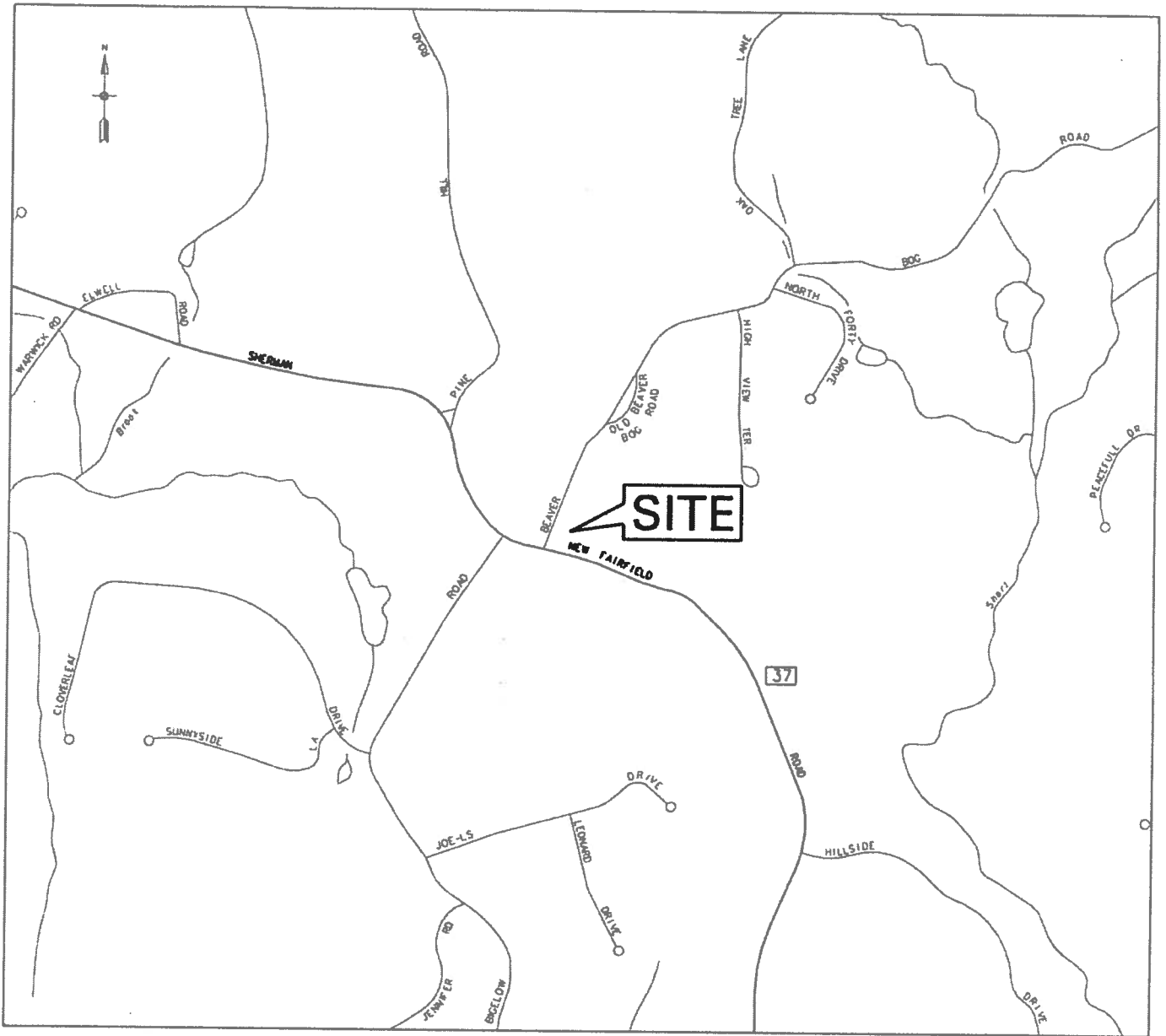
An alternative to full signalization and all-way stop control is a flashing beacon. Flashing beacons indicate to drivers that the intersection should be approached with caution. A full traffic study should be performed and engineering judgment used to determine the appropriateness of such a device.

Concern from the town requested an investigation of the location of the Stop line at Beaver Bog Road. As stated earlier in this letter, the current location of the Stop line provides a setback to accommodate turning movements from Route 37 by trucks and large vehicles to avoid encroachment into the Beaver Bog Road approach lane. We recommend the Stop line remains in its current location. Motorists will naturally advance past the Stop line to position themselves in the optimal place for viewing traffic along Route 37.

We hope this initial investigation will guide a more detailed engineering study to determine a specific course of action to mitigate concerns at the intersection of Route 37/Beaver Bog Road.

NMF/jap

3101-02-02-m608-rpt



SCALE



SITE LOCATION

**Beaver Bog Road @ Route 37
New Fairfield, Connecticut**