

Road Safety Audit Review
Burpee Road @ Plank Road
Town of Bristol
July 2, 2008



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Burpee Road @ Plank Road

Road Safety Audit Review

Review Report

Definitions

A *Road Safety Audit Review* (RSAR) is a formal examination of an existing road in which an independent, multi-discipline team (the Audit Team) reports on potential safety issues. "Independent" means that the members of the team will not be directly involved with the location being audited.

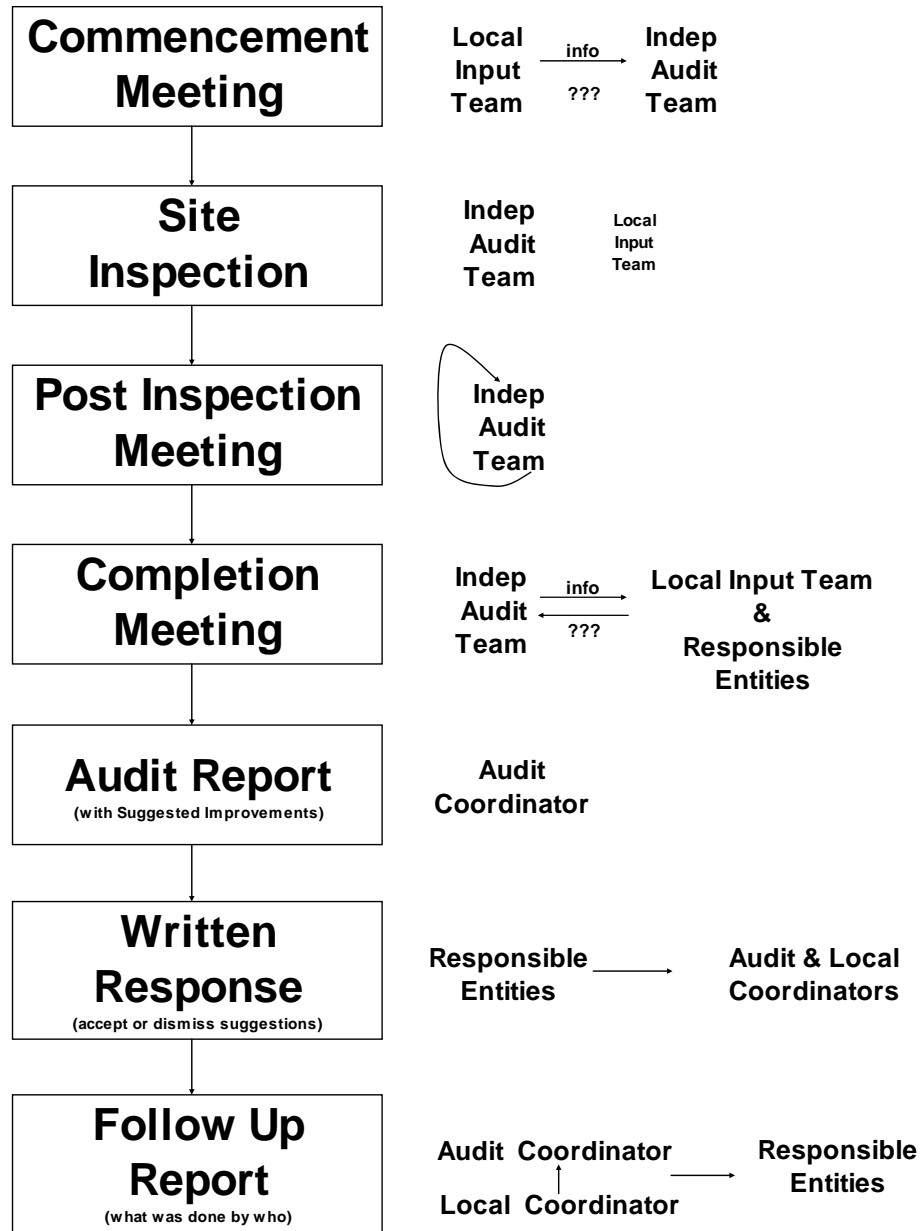
In addition to the Audit Team, a RSAR involves the following key players: Local Coordinator, Local Input Team and Responsible Entities.

The *Local Coordinator* is either a representative of the Town/City or the local regional planning commission. His/her role is to put a Local Input Team together, aggregate traffic and safety information, lead the commencement meeting and follow-up with local responsible entities. The role of the *Local Input Team* is to provide a local perspective at the commencement meeting. It is composed of representatives from the community such as Selectboard Members, Police, EMT, VAOT District, and Other Local People. The *Audit Team* is responsible for performing a site visit, identifying safety issues and coming to a consensus with respect to possible guidance. *Responsible Entities* are any groups who own a roadway feature or who are responsible for making an improvement or initiating further studies. These could include for example, the VTRANS Design Section, the Local Town, the Police or the Local RPC/MPO. The role of the Responsible Entities is to assess the viability of the suggestions provided by the Audit Team and provide a written response to the Audit Coordinator, to schedule and/or perform the improvements if deemed necessary and to follow-up with the audit or local coordinator when the project is completed. Finally, the *Audit Coordinator* is the person responsible for setting up the audit and other meeting dates, to put the audit team together, to facilitate the post inspection meeting and the completion meeting, and to prepare the audit report.

RSAR Process

The RSAR process is composed of several steps as shown in the diagram below. The process starts with a *Commencement Meeting* between the Local Input Team and the Audit Team. The purpose of the meeting is for the Local Input Team to present community concerns to the Audit Team. A *Site Inspection* is then performed by the Audit Team. Members from the Local Input Team can accompany the Audit Team to further explain concerns. The site visit involves the identification of safety deficiencies as seen in the field. The Audit Team will usually drive through the location of interest to

Figure 1. ROAD SAFETY AUDIT PROCESS



“get a feel” for the area, traveling through each approach in the case of intersections. The team is to then drive at a slower posted speed to make observations. If needed, the team will also walk the location. Following the site inspection, the Audit Team holds a *Post Inspection Meeting*. It is during this meeting that the team members discuss their observations and identify safety issues. The team is to reach a consensus on the importance of each safety issue mentioned. Only those issues for which a

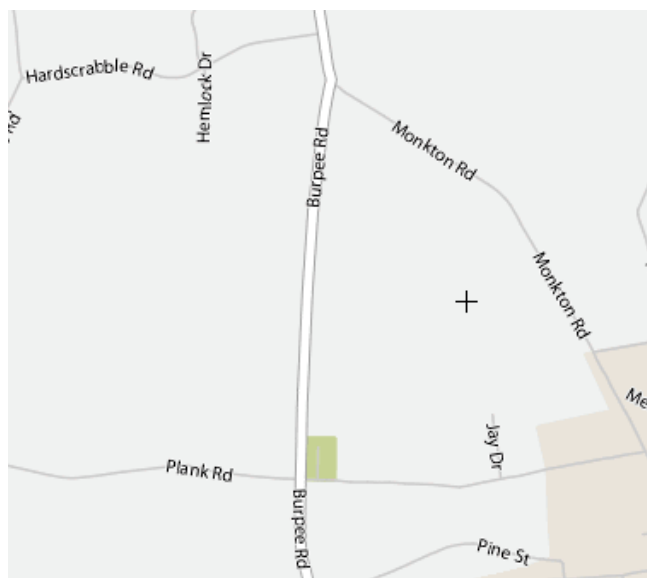
consensus is reached are included in the RSAR findings. The final RSAR report (Written Report) is finalized following the Completion Meeting during which the issues identified by the audit team are discussed with the Local Input Team and Responsible Entities. The meeting is to be constructive and foster dialogue between the parties involved. The **Written Report** identifies safety concerns and proposes guidance. These issues and solutions are presented in a tabular format associated to each Responsible Entity for ease of reporting. The Responsible Entities are to provide a Written Response on every finding of the Written Report as to its implementation. The Responsible Entity is not obliged to implement the findings in the Written Report. However, the reasons for not implementing a finding should be documented (e.g. physical constraints, excessive cost, environmental constraints, etc.).

The RSAR herein covers physical features which may affect road user safety and it has sought to identify potential safety hazards. However, the audit team points out that no guarantee is made that every deficiency has been identified. Further, it should also be understood that the adoption of the guidance in this report should improve the level of safety of the facility but not necessarily remove all the risks.

Location

The location of this RSAR is the intersection of Burpee Road and Plank Road in Bristol. This is a four-way intersection which is controlled by stop signs on the side roads.

Figure 2.
Location Map
Source: Yahoo



Purpose of the RSAR

This RSAR was conducted as part of the Agency of Transportation's Transportation Planning Initiative in conjunction with the High Risk Rural Roads Program (HRRR). The location was selected by the Addison County Regional Planning Commission (ACRPC) pursuant to the

prioritization process established by ACRPC with the intent of identifying hazardous locations on rural local roads. It is to be noted that Burpee Road in its entirety was also selected by ACRPC for a complete programmatic corridor sign review also through the HRRR program. As a consequence, signs suggested by the road safety audit team will be incorporated into the recommendations of the corridor review.

RSAR Team

The Road Safety Audit Review Team included the following representatives from the Vermont Agency of Transportation (VAOT):

Hank Lambert, Traffic Safety (VAOT)
Martha Price, Operations, District 5 (VAOT)

RSAR Team Coordinator

The road safety audit review coordinator was:

Mario Dupigny-Giroux, Traffic Safety (VAOT)

Local Coordinator

The local coordinator was:

Rick Kehne, ACRPC

Local Input Team

The following individuals from the local community were present at the Commencement Meeting:

Peter Bouvier, Town of Bristol
Bill Bryant, Town of Bristol
Eric Cota, Town of Bristol
Brian Fox, Bristol Rescue
James Hogan, VT State Police

Commencement Meeting

The commencement meeting was held at the Town of Bristol offices on July 2, 2008. Mario Dupigny-Giroux mentioned that this RSAR was conducted as part of the HRRR Program. Mr. Dupigny-Giroux explained that the HRRR Program included two types of locations, namely, Programmatic Corridors and High Hazard Locations and that Programmatic corridors were sections of roads of several miles in length while High Hazard Locations were isolated locations or short segments of roads of no more than 1 mile in length. Mr. Dupigny-Giroux then clarified that High Hazard Locations were reviewed with a multi-discipline road safety audit team and that a larger

number of improvements were eligible for funding, while the Programmatic Corridors consisted in reviews that focused mainly on traffic control devices such as signs.

Mr. Dupigny-Giroux further explained that Burpee Road had also been selected by ACRPC for a programmatic corridor sign review and that this review would be done by Mr. Lambert in the weeks to follow the RSAR.

Rick Kehne explained the process he used to select this site. He mentioned that starting from the crash data provided by VAOT, he contacted the state police, some fire and rescue department as well as the Sheriff's Department and eliminated crashes that involved DUI, and cluster accidents that were isolated occurrences.

The audit team reviewed the following information presented at the commencement meeting by local members.

Eight crashes were identified at this intersection between 2001 and 2006. The State Police does not remember responding to a crash at this location in the last year. Crashes at this location often results in injuries. Right angle crashes are the predominant pattern. Members of the community suggested that the crashes were due to excessive speeds on Burpee Road and driver's judgment.

On the east side of Plank Road, it is hard to see north due to the cemetery. Looking south is also an issue, before it dips down.

The speed limit is 40 mph on Burpee Road, but could easily do 60 mph because it is straight.

Although not at this site, a speed count made by ACRPC on Monkton Road, approximately 0.4 mile north of Burpee Road could be indicative of what is happening on Burpee Road. The 85th percentile speed (the speed at which 85% of motorists are driving at or below) would be between 51 and 55 mph, with most vehicles driving between 41 and 45 mph.

A nearby farmer suggested (while in the field) that people on the dirt road were not stopping.

Following the commencement meeting, the audit team, with members of the community, performed the site review of the intersection and reconvened at the town offices to discuss their observations.

Potential Safety Concerns

This section lists the areas of safety concern identified by the audit team during the field visit and from their analysis of available data. The concerns are not listed in order of importance. The safety concerns are also reported on the observation tables that are specific to each entity responsible for the improvements. These tables are found at the end of the report.

- ✓ Limited corner sight distance to the north when stopped on the east side of Plank Road
- ✓ Limited corner sight distance to the south when stopped on the east side of Plank Road

- ✓ Lack of definition of the Plank Road east approach
- ✓ Lack of definition of the west approach of Plank Road
- ✓ Lack of conspicuity of the intersection when traveling on Burpee Road
- ✓ Perceived high approaching speeds on Burpee Road

Many of these safety concerns are illustrated in the next few pages.

Problem:

Limited corner sight distance to the north when stopped on the east side of Plank Road

Immediate Actions:

Install a 24" stop bar four feet from the edge of Burpee Road

Short Term:

Promote a clear sight triangle as recommended by AASHTO

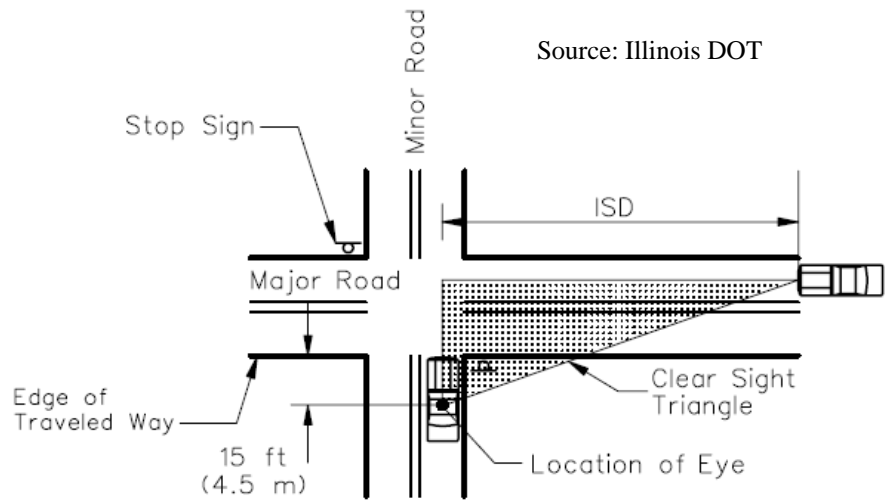
From the edge of the road, measure 15 ft back (this is the vertex of the sight triangle)

For an estimated traveling speed of 50 mph, "ISD" is 555 ft

For an estimated traveling speed of 40 mph, "ISD" is 445 ft

Anything within the triangle area such defined should be as much as possible removed

Work with the cemetery to have the stone pillar removed or relocated as it is an obstruction



Problem:

Limited corner sight distance to the south when stopped on the west side of Plank Road

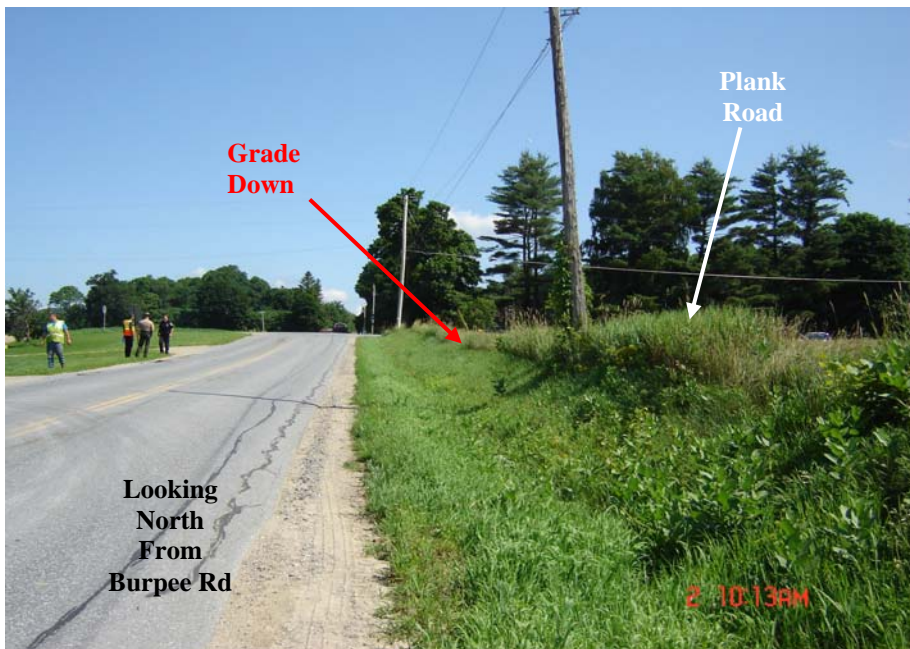
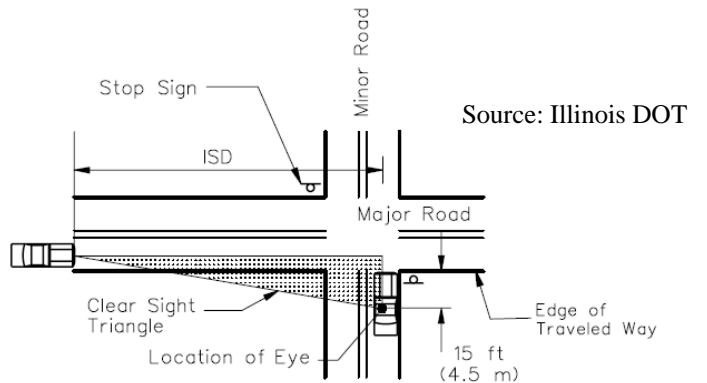
Short Term:

Define the sight triangle as previously explained

The utility pole is an obstruction. Work with the utility company to have it relocated

Grade down the berm

Work with the farmer to ensure that grass in the southeast corner is kept low



Problem:

Lack of definition of the Plank Road approach (east side)

Immediate Actions:

Install a 30" x 30" stop ahead sign (W3-1) in advance of the intersection

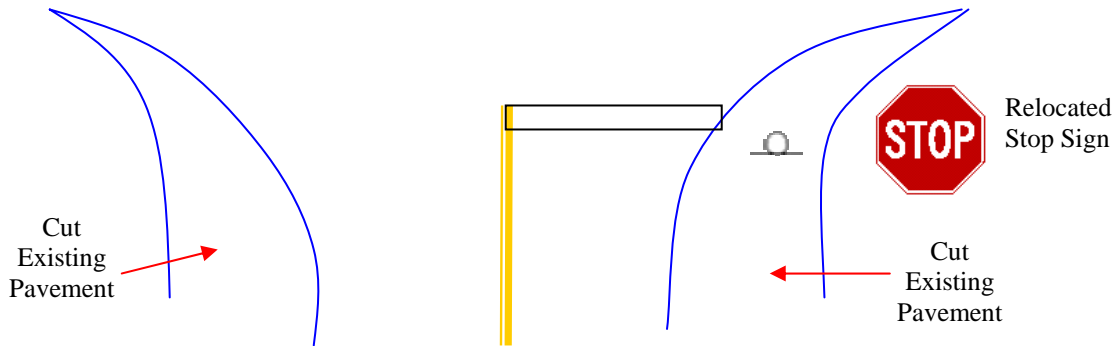
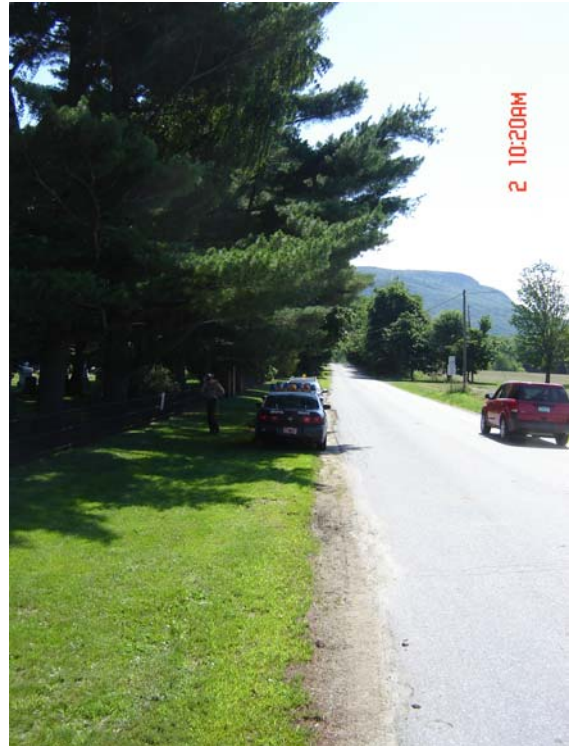
Short Term:

Narrow down the approach by removing some pavement on the corners and creating appropriate radii for trucks

Move up the stop sign (replace with new 30" x 30" R1-1) closer to the intersection in the area where pavement was removed

Installed about 30 ft of double yellow centerline

Install a stop bar four feet from



Problem:

Lack of definition of the Plank Road approach (west side)

Immediate Actions:

Install a 30" x 30" stop ahead sign (W3-1) in advance of the intersection

Short Term:

Reduce the width of the road to a 24 ft profile

Narrow down the approach by removing some pavement on the corners and creating appropriate radii for trucks

Move up the stop sign (replace with new 30" x 30" R1-1) closer to the intersection in the area where pavement was removed

Installed about 30 ft of double yellow centerline

Install a stop bar four feet from the edge of Burpee Road



Problem:

Lack of conspicuity of the intersection when traveling on Burpee Road

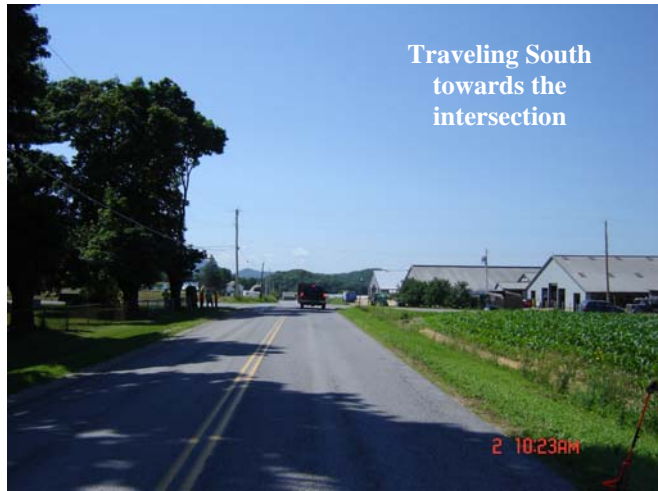
Immediate Actions:

Replace the existing street name signs with new 9-inch blade ones (6-inch letters, D3-1)

In both directions, add a 36" x 36" four-way intersection sign (W2-1) with a Plank Road street name plaque underneath (W16-8). Use type IX fluorescent yellow sheeting. Install on two posts

Short Term:

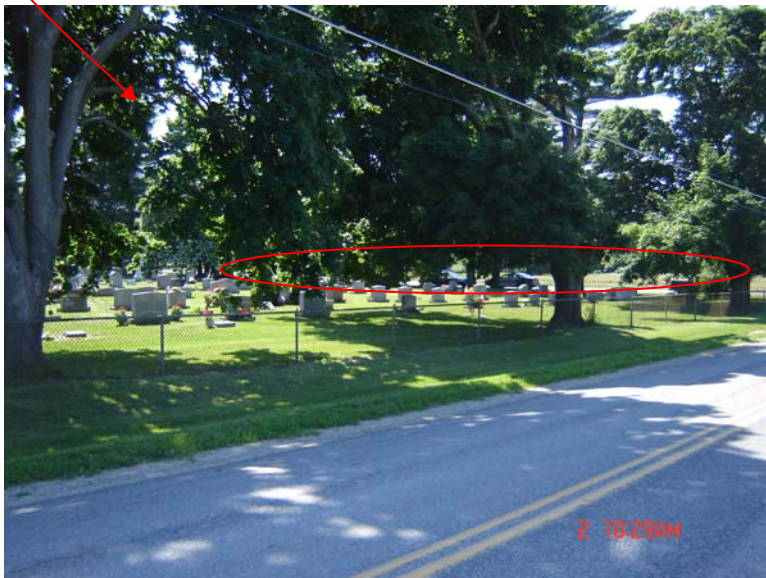
Work with the cemetery to have the lower tree limbs pruned



Traveling South towards the intersection



Traveling South past the intersection



Problem:

Perceived high approaching speeds on Burpee Road

Note:

The intersection warning signs suggested above will help with this issue

Short Term:

Install white edgelines on both sides of Burpee Road in both directions

Road Safety Audit Review Observations

Instruction

The next section of the RSAR Written Report contains tables that display observations and guidance. The safety issues in the first column have been identified through this road safety audit review. For each observation, the Audit Team suggests the guidance listed in the second column as a possible remedial solution. Each Responsible Entity will receive their respective tables. Please indicate in the appropriate column if you agree to implement this measure and if not, support your decision by writing a reason in the last column. Responsible Entities are not obliged to follow the findings of this Written Report. However, the reasons for not implementing a finding should be documented (e.g. physical constraints, excessive cost, environmental constraints, etc.). A written response should be submitted to the Audit Coordinator within three weeks of receipt of the Written Report.

**Written Response
Town of Bristol (1 of 3)**

Issue	Possible Solution	<u>Decision</u> Agree/Reject	Planned Completion Date	Comments
Limited corner sight distance to the north when stopped on the east side of Plank Road	Immediate: Install a stop bar four feet from the edge of Burpee Road			
	Short Term: Promote a clear sight triangle as recommended by AASHTO			
	Work with the cemetery to have the stone pillar removed or relocated as it is an obstruction			
	Work with the cemetery to have the small bush removed or relocated			
Limited corner sight distance to the south when stopped on the east side of Plank Road	Short Term: Define the sight triangle as previously explained			
	The utility pole is an obstruction. Work with the utility company to have it relocated			
	Grade down the berm			
	Work with the farmer to ensure that grass in the southeast corner is kept low			
Lack of definition of the Plank Road approach (east side)	Immediate: Install a 30" x 30" stop ahead sign (W3-1) in advance of the intersection			

**Written Response
Town of Bristol (2 of 3)**

Issue	Possible Solution	<u>Decision</u> Agree/Reject	Planned Completion Date	Comments
	Short Term: Narrow down the approach by removing some pavement on the corners and creating appropriate radii for trucks			
	Move up the stop sign (replace with new) closer to the intersection in the area where pavement was removed			
	Installed about 30 ft of double yellow centerline			
	Install a stop bar four feet from the edge of Burpee Road			
Lack of definition of the Plank Road approach (west side)	Immediate: Install a 30" x 30" stop ahead sign (W3-1) in advance of the intersection			
	Short Term: Reduce the width of the road to a 24 ft profile			
	Narrow down the approach by removing some pavement on the corners and creating appropriate radii for trucks			
	Move the stop sign (replace with new 30" x 30" R1-1) closer to the intersection in the area where pavement was removed			

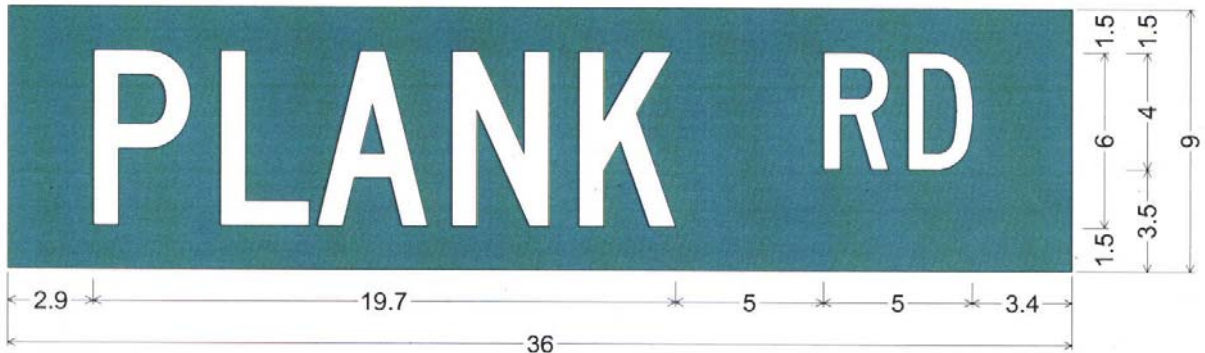
**Written Response
Town of Bristol (3 of 3)**

Issue	Possible Solution	<u>Decision</u> Agree/Reject	Planned Completion Date	Comments
	Installed about 30 ft of double yellow centerline			
	Install a stop bar four feet from the edge of Burpee Road			
Lack of conspicuity of the intersection when traveling on Burpee Road	Immediate: Replace the existing street name signs with new 9-inch blade ones (6-inch letters, D3-1)			
	In both directions, add a 36" x 36" four-way (W2-1) intersection sign with a Plank Road street name plaque underneath (W16-8). <u>Use type IX fluorescent yellow sheeting.</u> Install on two posts			
	Short Term: Work with the cemetery to have the lower tree limbs pruned			
Perceived high approaching speeds on Burpee Road	Short Term: Install white edgelines on both sides of Burpee Road in both directions			

Appendix A –Proposed Signage

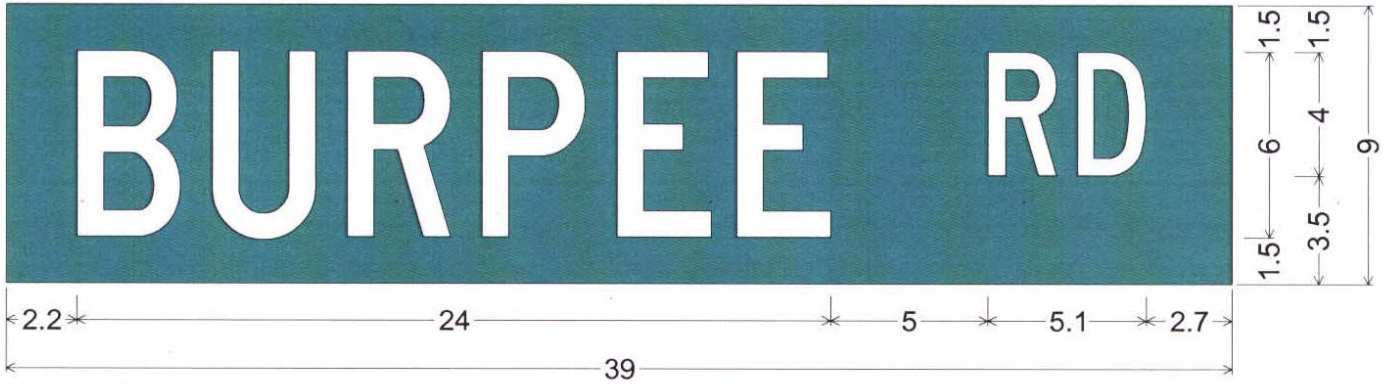
Appendix B – Sign Details

D3-1, 9-inch Plank Road Street Name Sign



D-3; No border, White on Green;
"PLANK" C 80% spacing; "RD" C 80% spacing;

D3-1, 9-inch Burpee Road Street Name Sign



D-3; No border, White on Green;
"BURPEE" C 80% spacing; "RD" C 80% spacing;

W16-1, Plank Road Supplemental Name Plaque



1.5" Radius, 0.5" Border, 0.5" Indent, Black on Yellow;
"PLANK RD" C 80% spacing;

Note: Use Type IX Fluorescent Yellow Sheeting