

ORDINANCE NO. 2022-01

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF EAST HANOVER, LEBANON COUNTY, PENNSYLVANIA, ESTABLISHING THE MAXIMUM SPEED LIMIT FOR HOMESTEAD ROAD FROM PLEASANT VIEW ROAD (SR 4013) TO MOUNTAIN ROAD (SR 443) AND WEBSTER SCHOOL ROAD FROM PLEASANT VIEW ROAD (SR 4013) TO BULLFROG ROAD (T 338).

WHEREAS, the Township of East Hanover, Lebanon County, Pennsylvania (hereinafter "TOWNSHIP"), is a "local authority" as that term is defined by the Pennsylvania Motor Vehicle Code, 75 Pa. C.S.A. §102; and

WHEREAS, TOWNSHIP may determine and designate maximum speed limits for roads located within its boundaries pursuant to the Pennsylvania Motor Vehicle Code, 75 Pa. C.S.A. §3363; and

WHEREAS, an engineering and traffic study was performed by the Township Manager, Erik Harmon, on February 9, 2022 for Homestead Road at the direction and authority of TOWNSHIP to determine a maximum safe speed for certain roads within the Township; and

WHEREAS, an engineering and traffic study was performed by Mark L. Henise, P.E., PTOE, ELA Group, Inc., for Webster School Road to determine a maximum safe speed for certain roads within the Township; and

WHEREAS, the aforementioned engineering and traffic studies comply with the mandates set forth pursuant to the regulations of the Commonwealth of Pennsylvania, Department of Transportation, 67 Pa. Code §201.1, *et. Seq.*; and

WHEREAS, the aforementioned engineering and traffic studies recommend and support the maintenance and/or a reduction in the maximum speed limit on certain roads within the Township; and

BE IT ORDAINED AND ENACTED by the Board of Supervisors of the Township of East Hanover, Lebanon County, Pennsylvania, and it is hereby ordained and enacted as follows:

SECTION 1. This Ordinance is issued under Chapter 15 of the Code of Ordinances of East Hanover Township, Motor Vehicles and Traffic: Speed Limits Established:

The following speed limit is hereby established:

<u>Highway</u>	<u>Between</u>	<u>Speed Limit</u>
Homestead Road	Pleasant View Road to Mountain Road	35 m.p.h.
Webster School Road	Pleasant View Road to Bullfrog Road	35 m.p.h.

Any person who shall operate any vehicle or motorized equipment at a speed in excess of that established herein, upon any highway or portion thereof, specified in

this Section, shall upon conviction thereof, be sentenced to pay a fine, for a first violation, not to exceed One Hundred Dollars (\$100.00), for a second violation, not to exceed Two Hundred Dollars (\$200.00), and for a third or more violation, a fine not to exceed Five Hundred Dollars (\$500.00), and costs of prosecution, and, in default of payment of such fines and costs, to undergo imprisonment for the punishment of a summary offense. Enforcement shall be brought before a District Justice in the same manner provided for the enforcement of summary offenses, and the municipal Solicitor may assume charge of the prosecution without consent of the District Attorney, as provided for by the Second Class Township Code.

SECTION 2. REPEALER. All Ordinances or parts of Ordinances which are inconsistent herewith are hereby repealed.

SECTION 3. EFFECTIVE DATE. This Ordinance shall become effective five (5) days after enactment by the Board of Supervisors.

DULY ORDAINED AND ENACTED this 25th day of March, 2022,
by the Board of Supervisors of the Township of East Hanover, Lebanon County,
Pennsylvania, in lawful session duly assembled.

TOWNSHIP OF EAST HANOVER

By: Edward Heagy
Edward Heagy, Chairman
Board of Supervisors

ATTEST:

Dennis Grubb
Dennis Grubb, Secretary

SPEED RESTRICTIONS ENGINEERING AND TRAFFIC STUDY



pennsylvania
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

PLEASE TYPE OR PRINT ALL INFORMATION IN BLUE OR BLACK INK

A - LOCATION INFORMATION

COUNTY LEBANON		MUNICIPALITY EAST HANOVER	
SR#	SEGMENT	STREET NAME HOMESTEAD ROAD	
SEGMENT/OFFSET	TO SEGMENT/OFFSET	<input type="checkbox"/> ASCENDING <input type="checkbox"/> DESCENDING <input type="checkbox"/> BOTH	
OTHER LOCATION INFORMATION: HOMESTEAD ROAD (T324) FROM MOUNTAIN ROAD (SR0443) TO PLEASANT VIEW ROAD (SR4013).			

B - REFERENCE INFORMATION

REFERENCE Chapter 212	SECTION(S) 212.108
REFERENCE MUTCD	SECTION(S) 2B.13 and 2B.18
REFERENCE PUB 46	SECTION(S) Chapter 11.3 and 2.4.6
REFERENCE Vehicle Code Title 75 Pa. C.S.	SECTION(S) §3362, 3363, 3364 and 6109 (a)(5)(10)

C - STUDY ELEMENTS

FROM PUB 212 APPENDIX:

- | | | |
|---|---|---------------------------------------|
| <input type="checkbox"/> Crash Analysis (1) | <input type="checkbox"/> Sight Distance (16) | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Roadside Development (13) | <input checked="" type="checkbox"/> Speed Data (17) | |
| <input type="checkbox"/> Roadside Instructions (14) | <input type="checkbox"/> Traffic Volumes (20) | |

D - ATTACHMENTS LISTING

Check those that apply and attach to this form in the order listed below:

- | | | |
|---|--|---|
| <input type="checkbox"/> 1. 10-Day Response Letter | <input type="checkbox"/> 7. Crash Extract | <input type="checkbox"/> 13. Traffic/Pedestrian Volumes |
| <input type="checkbox"/> 2. Letter or Memo Requesting Study | <input type="checkbox"/> 8. Crash Rate | <input type="checkbox"/> 14. STAMPP Identification Data |
| <input checked="" type="checkbox"/> 3. Location Map | <input type="checkbox"/> 9. Collision Diagram Plot | <input type="checkbox"/> 15. Speed Limit |
| <input type="checkbox"/> 4. Straight Line Diagram | <input checked="" type="checkbox"/> 10. Speed Study | <input type="checkbox"/> 16. Traffic Signal Permit Plan |
| <input type="checkbox"/> 5. Photographs | <input type="checkbox"/> 11. Warrant Analysis | <input type="checkbox"/> 17. Other _____ |
| <input type="checkbox"/> 6. Field View Drawing or Condition Diagram | <input type="checkbox"/> 12. Multi-Way Stop or Truck Restriction Worksheet | |

Confidential - Traffic Engineering and Safety Study

This document is the property of the Commonwealth of Pennsylvania, Department of Transportation. The data and information contained herein are part of a traffic engineering and safety study. This safety study is only provided to those official agencies or persons who have responsibility in the highway transportation system and may only be used by such agencies or persons for traffic safety related planning or research. The document and information are confidential pursuant to 75 Pa. C.S.3754 and 23 U.S.C. 409 and may not be published, reproduced, released or discussed without the written permission of the Pennsylvania Department of Transportation.

E - SITE OBSERVATION CHECKLIST

Operational Checklist:

- | | | | |
|---|------------------------------|--|---|
| 1. Do obstructions block a driver's view of pedestrians or approaching vehicles? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 2. Do drivers respond correctly to signals, signs, or other traffic control devices? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 3. Is there evidence of crashes (<i>skid marks, property damage, tree/bush damage, broken glass/vehicle parts, etc.</i>)? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 4. Are there violations of parking or other traffic regulations? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 5. Do drivers appear confused about routes, street names, or other guidance information? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 6. Have you observed the location during peak hours for volume, crashes, and traffic operations? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 7. Are there traffic flow deficiencies or traffic conflict patterns associated with turning movements? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 8. Are there significant delays and/or congestion? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 9. Are there vehicle/pedestrians conflicts? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 10. Are there other traffic flow deficiencies or traffic conflict patterns? | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO | <input type="checkbox"/> N/A |

Physical Checklist:

- | | | | |
|---|---|-----------------------------|---|
| 1. Can sight obstructions be removed or lessened? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 2. Do the street alignments or widths adequately accommodate the type of traffic using the roadway? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 3. Are curb radii adequate for turning vehicles? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 4. Are pedestrian crosswalks properly located? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 5. Are signs adequate as to usefulness, message, size, conformity, and placement? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 6. Are traffic signals adequate as to placement, visibility, glare, conformity, number of signal heads, and timing? .. | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 7. Are pavement markings adequate as to their conformance to standards and location? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| 8. Is channelization (islands or pavement markings) adequate for reducing conflict areas, separating traffic flows, and defining movements? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 9. Does the existing legal parking layout affect sight distance for through or turning vehicles? | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input checked="" type="checkbox"/> N/A |
| 10. Is the pavement condition free of potholes, washboard, slick surface, etc.? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

F - SITE DATA

DATE DATA COLLECTED 2/9/2022	PERSON CONDUCTING STUDY ERIK HARMON & LTAP	TITLE TOWNSHIP MANAGER
--	--	----------------------------------

THIS REQUEST FOR A SPEED RESTRICTION IS BASED ON: (CHECK APPROPRIATE SECTION)

- A. Section 3362 and 3363 of Pa. Vehicle Code & Section 212.108 of Title 67 (Speed Restrictions)
- B. Section 3364 of Pa. Vehicle Code & Section 212.108 of Title 67 (Minimum Speed Limits)
- C. Section 3365(a) the Pa. Vehicle Code & Section 212.109 of Title 67 (Bridge Speed Limits) - **SEPARATE STUDY REQUIRED, USE TE-115.**
- D. Section 3365(c) the Pa. Vehicle Code & Section 212.110 of Title 67 (Hazardous Grade Speed Limits) - **SEPARATE STUDY REQUIRED, USE TE-116.**

<p>1. The existing speed limit is <u>55</u> MPH.</p> <p>2. The requested speed limit is <u>35</u> MPH.</p> <p>3. The 20 <u>22</u> ADT is <u>400</u> vehicles. <input type="checkbox"/> Actual <input checked="" type="checkbox"/> Estimated</p>	<p>4. The area is a(n):</p> <table border="0" style="width: 100%;"> <tr> <td><input type="checkbox"/> Business District</td> <td><input type="checkbox"/> Residence District</td> </tr> <tr> <td><input type="checkbox"/> Urban District</td> <td><input checked="" type="checkbox"/> Rural District</td> </tr> <tr> <td><input type="checkbox"/> Interstate Highway</td> <td></td> </tr> <tr> <td colspan="2"><input type="checkbox"/> Adjacent to an Urban District _____</td> </tr> </table> <p>5. The request for a speed change is being made by:</p> <p><input checked="" type="checkbox"/> Local Authorities <u>EAST HANOVER TWP</u> (list name)</p> <p><input type="checkbox"/> PennDOT</p>	<input type="checkbox"/> Business District	<input type="checkbox"/> Residence District	<input type="checkbox"/> Urban District	<input checked="" type="checkbox"/> Rural District	<input type="checkbox"/> Interstate Highway		<input type="checkbox"/> Adjacent to an Urban District _____	
<input type="checkbox"/> Business District	<input type="checkbox"/> Residence District								
<input type="checkbox"/> Urban District	<input checked="" type="checkbox"/> Rural District								
<input type="checkbox"/> Interstate Highway									
<input type="checkbox"/> Adjacent to an Urban District _____									

This traffic engineering and safety study is confidential pursuant to 75 Pa. C.S. 3754 and 23 U.S.C. 409 and may not be disclosed or used in litigation without written permission from PennDOT.

F - SITE DATA (CONTINUED)

6. a. 85th percentile speed _____ MPH. No. of vehicles _____

b. Safe running speed is:

North Bound/East Bound

Run No. 1 36.3 MPH.
 Run No. 2 36.3 MPH.
 Run No. 3 36.7 MPH.
 Run No. 4 37.3 MPH.
 Run No. 5 35.7 MPH.
 Total 182.3
 divided by 5
 = 36.46 MPH.

South Bound/West Bound

Run No. 1 37.7 MPH.
 Run No. 2 36.7 MPH.
 Run No. 3 36.7 MPH.
 Run No. 4 39.0 MPH.
 Run No. 5 39.0 MPH.
 Total 189.1
 divided by 5
 = 37.82 MPH.

Average Safe Running Speed is 37.14 MPH.

NOTE (1): Safe Running samples should normally consist of at least 100 observations although 50 observations is acceptable on low volume highways.

NOTE (2): Use Safe Running Speed when the 85th percentile speed cannot be obtained.

7. Does a major portion of the highway have insufficient stopping sight distance if traveling at the 85th percentile speed or the safe running speed? YES NO

8. Is the available corner sight distance on side roads less than the necessary stopping sight distance values for through vehicles? YES NO

9. Are the majority of crashes related to excessive speed? YES NO

Actual Crash Rate: NONE REPORTED

Applicable crash rate from homogenous table published by BHSTE annually: _____

10. Provide sketch of area indicating:

- a. Spacing of intersections and driveways
- b. Roadside development-to include schools, commercial properties, residences, etc
- c. Location of inadequate stopping or corner sight distance

11. Describe the surface features of the roadway to include: Surface-vertical and horizontal alignment, width, shoulders, crown, etc.:

PAVED, 2-LANE, 2-WAY, W/ DBL YELLOW
WIDTH BETWEEN 18-20', NO SHOULDERS
SHARP CURVE W/IN STUDY AREA

12. The signs necessary to legalize the reduced speed zone will be purchased, erected and maintained by:

- Local Municipality EAST HANOVER TWP (list name)
- Department
- Other _____ (list name)

13. Signs to be installed (list each type separately):

- a. Sign Nomenclature Number from Pub. 236M R2-1
- b. Number of signs to be installed SIX (6)
- c. Sign Message 35 MPH

14. Has the municipality agreed to purchase, erect and maintain the signs necessary to legalize the above Speed Restriction? YES NO

G - REMARKS

THREE (3) CYCLISTS OBSERVED USING THE ROAD DURING THE STUDY, ONLY ONE (1) VEHICLE. PCIT SHOWED ZERO (0) REPORTED CRASHES FROM JANUARY 2016 THRU DECEMBER 2020. STOP CONTROLS AT PLEASANT VIEW AND MOUNTAIN ROAD. NO OTHER TRAFFIC SIGNS CURRENTLY ON HOMESTEAD ROAD.

H - ENGINEERING JUDGEMENT

THE AVERAGE SAFE RUNNING SPEED OF 37.1 MPH JUSTIFIES ESTABLISHING A REGULATORY SPEED LIMIT OF 35 MPH.

A CURVE STUDY WAS CONDUCTED WITH BALL BANK READINGS AND THE ADVISORY SPEED FOR THE CURVE SHOULD BE POSTED AS 15 MPH. CURVE STUDY DATA AND SIGNING WORKSHEETS ARE ATTACHED.

I - APPROVALS

Comments:

Reviewed and Approved by Signature	Name/Title	Date
Reviewed and Approved by Signature	Name/Title	Date

This traffic engineering and safety study is confidential pursuant to 75 Pa. C.S. 3754 and 23 U.S.C. 409 and may not be disclosed or used in litigation without written permission from PennDOT.

SPEED RESTRICTIONS STUDY AND DATA SHEET

Date: Feb 9 2022
 Road Name: Homestead Road
 Municipality: East Hanover Twp
 County: Lebanon
 Study Area: HomeStead Lane
 From: Pleasne View Road
 To: Mountain Road
 Distance: 0.9 miles
 Participants: East Hanover Twp, LTAP, Lebanon Co.

Direction of Travel: North
 Pleasant View to Mountain

		Trial Runs				
		1	2	3	4	5
Reference Points	1	37	38	38	38	37
	2	38	37	37	37	35
	3	34	34	35	37	35
	4					
	5					
	6					
	7					
	8					
	9					
	10					
Average Speed (MPH) of Each Trial Run:		36.3	36.3	36.7	37.3	35.7
Directional Average Safe Running Speed:		36.5				

Direction of Travel: South

		Trial Runs				
		1	2	3	4	5
Reference Points	1	32	33	33	35	33
	2	41	38	39	40	42
	3	40	39	38	42	42
	4					
	5					
	6					
	7					
	8					
	9					
	10					
Average Speed (MPH) of Each Trial Run:		37.7	36.7	36.7	39.0	39.0
Directional Average Safe Running Speed:		37.8				

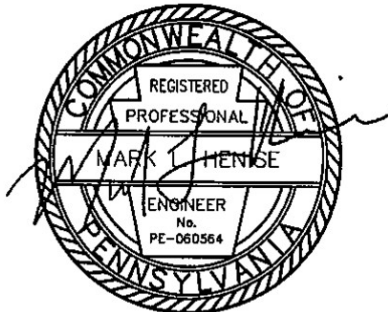
Bi-Directional Average Safe Running Speed: 37.1

**TRAFFIC SPEED STUDY
FOR
WEBSTER SCHOOL ROAD (T-607)
EAST HANOVER TOWNSHIP
LEBANON COUNTY**

FEBRUARY 2022

ELA PROJECT 1080-020

PREPARED BY: MARK L. HENISE, P.E., PTOE



02/03/2022



**ELA GROUP, INC.
LITITZ, PA**



**TRAFFIC SPEED STUDY
FOR
WEBSTER SCHOOL ROAD (T-607)
EAST HANOVER TOWNSHIP
LEBANON COUNTY**

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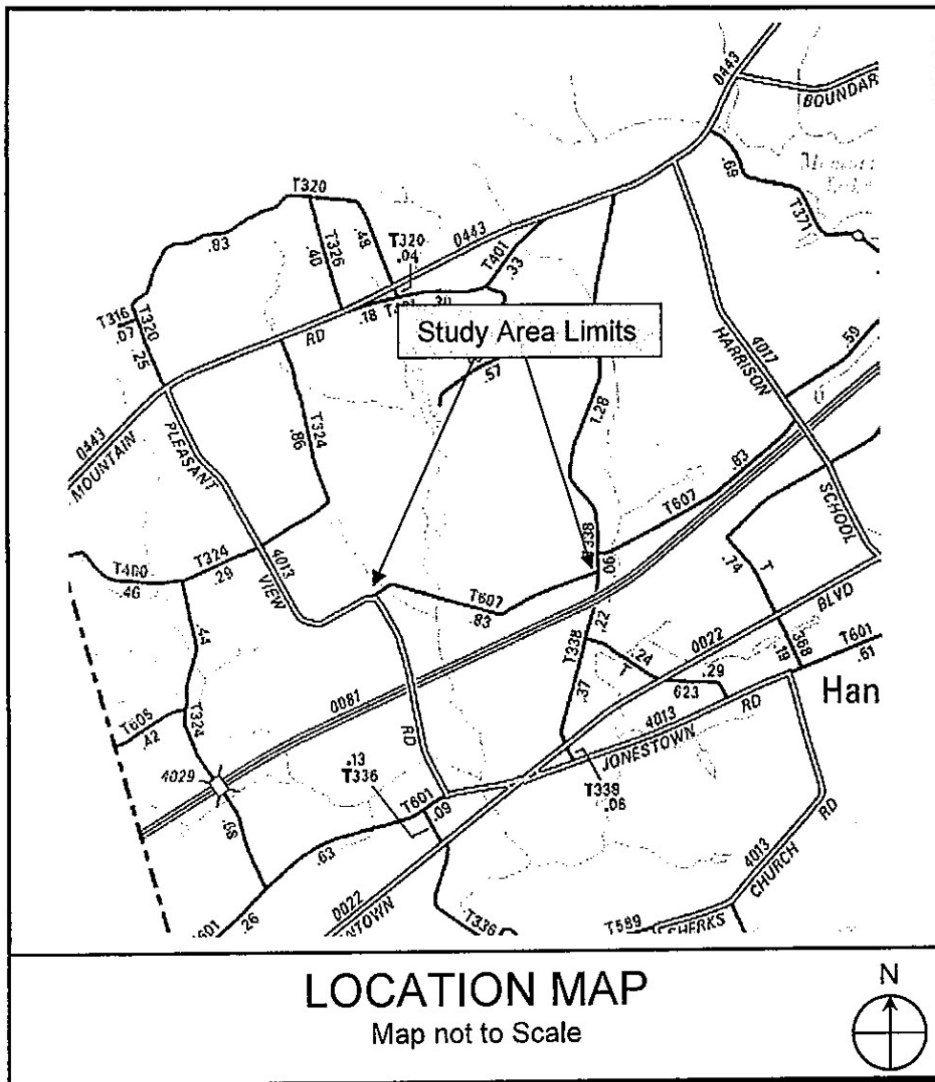


**TRAFFIC SPEED STUDY
FOR
WEBSTER SCHOOL ROAD (T-607)
EAST HANOVER TOWNSHIP
LEBANON COUNTY**

I. INTRODUCTION

This report presents the findings and results of a traffic engineering study conducted by ELA Group, Inc. for East Hanover Township. The purpose of the study was to conduct all necessary engineering and traffic studies in order to justify the installation of proper regulatory speed limit signs and curve warning signs along Webster School Road (T-607) from Pleasant View Road (SR 4013) to Bullfrog Road (T-338), a distance of 4,382 feet (0.83 miles). The study area is shown on the site location map on the following page.

In order to justify the installation of the signs along the route, specific engineering and traffic studies were conducted and documented in accordance with 67 Pa. Code § 212. The following section outlines the specific standards used in conducting this study.



Source: PennDOT Type 5 Map – East Hanover Township, Lebanon County

**WEBSTER SCHOOL ROAD (T-607)
TRAFFIC SPEED STUDY**

East Hanover Township
Lebanon County

Exhibit 1 – Location Map

II. STANDARDS AND GUIDELINES

A. Establishing Speed Limits

Based on the criteria established in 67 Pa. Code § 212, speed limits shall be established as follows:

1. *General.* This section applies to maximum speed limits established according to 75 Pa. C.S. §§ 3362 and 3363 (relating to maximum speed limits; and alteration of maximum speed limits). Engineering and traffic studies are not required for statutory speed limits, but documentation should be on file for urban districts and residence districts to show that the requirements defined in the Vehicle Code are satisfied.
2. *Engineering and traffic studies.* Speed limits established in accordance with 75 Pa. C.S. § 3363 may be established in multiples of 5 miles per hour up to the maximum lawful speed. The speed limit should be within 5 miles per hour of the average 85th percentile speed or the safe running speed on the section of highway, except the speed limit may be reduced up to 10 miles per hour below either of these values if one or more of the following conditions are satisfied:
 - a. A major portion of the highway has insufficient stopping sight distance if traveling at the 85th percentile speed or the safe running speed.
 - b. The available corner sight distance on side roads is less than the necessary stopping sight distance values for through vehicles.
 - c. The majority of crashes are related to excessive speed and the crash rate during a minimum 12-month period is greater than the applicable rate in the most recent high-crash rate or high-crash severity rate table included in the appendix of Official Traffic Control Devices (Department Publication 212). Crashes related to excessive speed include those crashes with causation factors of driving too fast for conditions, turning without clearance or failing to yield right-of-way.
3. *Variable speed limits.* To improve safety, speed limits may be changed as a function of traffic speeds or densities, weather or roadway conditions or other factors.
4. *Special speed limits.*
 - a. Within a rest area or welcome center, a 25 mile per hour speed limit may be established without the need for an engineering and traffic study if pedestrians walk across the access roadways between the parking lot and the rest facilities.
 - b. Within a toll plaza or a truck weight station, an appropriate speed limit may be established without an engineering and traffic study by the authorities in charge to enforce the safety of the operations or to protect the scales.

5. *Posting of speed limits.* A Speed Limit Sign (R2-1) or variable speed limit sign showing the maximum speed limit shall be placed on the right side of the highway at the beginning of each numerical change in speed limit, but an additional sign may also be installed on the left side of the highway. If the new speed limit begins at an intersection, the first sign should be installed within 200 feet beyond the intersection. The placement of this sign must satisfy both the requirement to post the beginning of the new speed limit and the requirement to post the end of the previous speed limit. Additional requirements for posting are as follows:

a. Speed limits of 50 miles per hour or less should be posted as follows:

i) A Reduced Speed (_____) Ahead Sign (R2-5), or a Speed Reduction Sign (W3-5), shall be placed on the right side of the highway 500 to 1,000 feet before the beginning of every speed reduction unless one of the following applies:

a) The speed reduction is 10 miles per hour or less.

b) The speed reduction begins at an intersection and all traffic entering the roadway with the speed reduction has to either stop at a Stop Sign (R1-1) or make a turn.

c) The new speed limit is posted on variable speed limit signs.

ii) Speed limit signs (R2-1) or a variable speed limit sign showing the maximum speed shall be placed on the right side of the highway at the beginning of the speed limit and at intervals not greater than ½ mile throughout the area with the speed limit.

iii) The end of a speed limit is typically identified by the placement of a sign indicating a new speed limit, but the End Plaque (R2-10) may be placed above a Speed Limit Sign (R2-1) at the end of the zone if the appropriate speed limit is not known on the following section of roadway.

b. On freeways, a Speed Limit Sign (R2-1) shall be installed after each interchange unless insufficient space exists for the signs.

B. Safe Running Speed

Safe running speed is defined in 67 Pa. Code § 212.1 as follows:

The average speed for a portion of highway determined by making a minimum of five test runs while periodically recording the speed at different locations while driving at a speed which is reasonable and prudent, giving consideration to the available corner and stopping sight distance, spacing of intersections, roadside development and other conditions.

C. Recommended Speed for Curves

Based on the criteria established in 67 Pa. Code § 212, recommended speeds for curves may be established by making several trial runs through a curve in a car equipped with a ball-bank indicator in accordance with the following guidelines:

1. The ball-bank indicator should be transversely mounted in the car and positioned so as to give a "zero reading" when the car is level.
2. The speed of the first trial run should be a multiple of 5 miles per hour and should be selected to provide a ball-bank indicator reading less than the following appropriate value from *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, current edition:

Posted Speed Limit (mph)	Ball-bank Indicator Reading (degrees)
20 or less	14
25 and 30	12
35 or more	10

3. Succeeding observations should be made at increasing 5-mile-per-hour increments until the reading on the ball-bank indicator equals or exceeds the indicated value in the table above. The recommended speed for the curve is the highest speed which did not exceed the indicated value in the table above.

III. STUDY RESULTS

ELA Group, Inc. conducted five trial runs in each direction along Webster School Road on Tuesday February 1, 2022 in accordance with the criteria set forth in 67 Pa. Code § 212. The weather was sunny, and the pavement was dry when the trial runs were conducted. The result of those trial runs was an average safe running speed of 34.6 miles per hour in the eastbound direction and 34.7 miles per hour in the westbound direction. The results are summarized in Table 1. A Safe Running Speed Study Worksheet is provided in Appendix A, showing the data collected during each individual trial run.

Table 1 – Safe Running Speed Study Results

Roadway	Township Route	Length (feet)	Safe Running Speed	
			Direction/(mph)	Direction/(mph)
Webster School Road	T-607	4,382	EB / 34.6	WB / 34.7

ELA Group, Inc. conducted trial runs in each direction through two horizontal curves on Webster School Road on Tuesday February 1, 2022 in accordance with the criteria set

forth in 67 Pa. Code § 212. One of the curves is approximately 400 feet east of Pleasant Valley Road and the other is approximately 2,500 feet east of Pleasant View Road. The weather was sunny, and the pavement was dry when the trial runs were conducted. The result of those trial runs was a recommended curve speed of 20 mph through both curves in both directions. The results are summarized in Table 2. A Curve Speed Study Worksheet is provided in Appendix B, showing the data collected during each individual trial run.

Table 2 –Curve Speed Study Results

Curve Location	Trial Run Direction	Curve Direction	Ball-Bank Indicator Reading (degrees)		
			15 mph	20 mph	25 mph
400' east of Pleasant Valley Rd	E-bound	R	2	4	12
2500' east of Pleasant Valley Rd	E-bound	L	4	9	13
2500' east of Pleasant Valley Rd	W-bound	R	5	11	14
400' east of Pleasant Valley Rd	W-bound	L	4	8	14

IV. CONCLUSIONS AND RECOMMENDATIONS

- A. Webster School Road in East Hanover Township from Pleasant View Road (SR 4013) to Bullfrog Road (T-338), a distance of 4,382 feet (0.83 miles), should be posted at a speed limit of 35 mph in both directions.
- B. Speed limit signs, R2-1 (24" x 30"), shall be placed on the right side of the roadway at intervals no greater than ½ mile and within 200 feet of the intersection with Pleasant View Road in the eastbound direction and within 200 feet of the intersection with Bullfrog Road in the westbound direction.
- C. The appropriate Turn signs, W1-1R or W1-1L (30" x 30"), shall be placed on the right side of the roadway within 100 feet of the beginning of curve in both directions. Specific placement of each sign can vary based site conditions.
- D. Chevron Alignment signs, W1-8 (18" x 24"), shall be placed on the outside of the curve 2,500 feet east of Pleasant Valley Road and shall be placed in accordance with the placement specifications in PennDOT Publication 236.
- E. Two Large Single Arrow signs, W1-6 (48" x 24"), one for each approach, shall be placed on the outside the curve 400 feet east of Pleasant Valley Road and shall be placed in accordance with the placement specifications in PennDOT Publication 236. These signs were selected in lieu of Chevron Alignment signs due to the driveway located on the outside of the curve. The placement of the signs shall not block sight lines for drivers exiting the driveway.



**APPENDIX A - SAFE RUNNING SPEED STUDY
WORKSHEET**

SAFE RUNNING SPEED STUDY WORKSHEET
for
Webster School Road (T-607)

Date: 2/1/2022
 Weather: Sunny, 20's
 By: MLH/DHS

Municipality: East Hanover Township
 County: Lebanon
 Length: 4,382 feet

Miles	Direction: Westbound				
	Run #1	Run #2	Run #3	Run #4	Run #5
0.10	32	35	33	32	34
0.20	41	39	34	36	38
0.30	40	42	41	40	41
0.40	25	28	30	28	30
0.50	38	40	41	39	39
0.60	41	44	46	43	44
0.70	43	41	40	40	40
0.80	28	29	30	27	29
TIME (SECS) SAFE RUNNING SPEED	87	85	85	88	85
	34.3	35.1	35.1	33.9	35.1
AVERAGE SAFE RUNNING SPEED					34.7 MPH

Miles	Direction: Eastbound				
	Run #1	Run #2	Run #3	Run #4	Run #5
0.10	30	31	30	30	32
0.20	42	43	41	42	41
0.30	40	40	43	45	44
0.40	35	41	43	43	42
0.50	34	29	28	30	26
0.60	36	29	38	41	40
0.70	40	40	39	42	42
0.80	22	25	31	34	35
TIME (SECS) SAFE RUNNING SPEED	90	88	86	82	85
	33.1	33.9	34.7	36.4	35.1
AVERAGE SAFE RUNNING SPEED					34.6 MPH



APPENDIX B - CURVE SPEED STUDY WORKSHEET



APPENDIX C - DETAILS FOR RECOMMENDED SIGNS

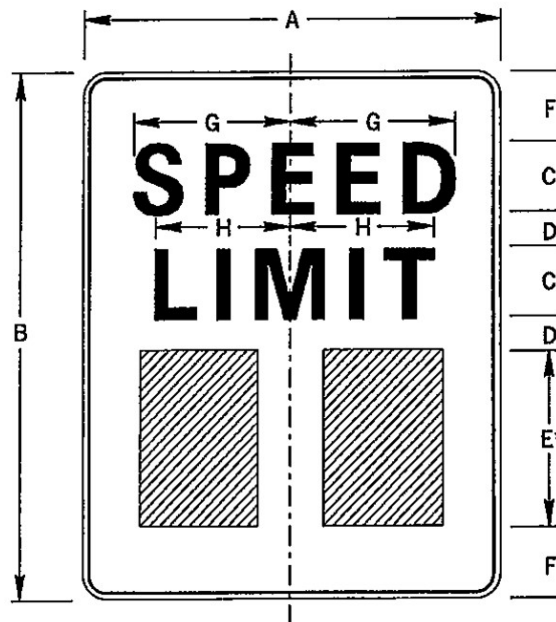
R2-1

SPEED LIMIT SIGN

The Speed Limit Sign (R2-1) shall be authorized for use to display the maximum legal speed limit on a highway. When used as a variable speed limit sign, speed display module(s) may be attached to the sign or inserted through cut-outs in the sign substrate.

The R2-1 Sign shall be placed at intervals as specified in Department regulations. The standard size signs shall be as follows:

- (1) 24" x 30". All single lane conventional highways having any speed limit.
- (2) 30" x 36". Multi-lane conventional highways regardless of speed limit.
- (3) 48" x 60". Expressways and freeways.



DIMENSIONS - IN									
SIGN SIZE A x B	C	D	E	F	G	H	MAR- GIN	BOR- DER	BLANK STD.
24" x 30"	4E	2	10E	4	9.6	7.3	0.4	0.6	B5-3024
30" x 36"	5E	2	12E	5	12	9.1	0.6	0.8	B5-3630
48" x 60"	8E	6	20E	6	19.1	14.6	0.8	1.2	B5-6048

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL \mathcal{C}

COLOR:

LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
WHITE (REFLECTORIZED)

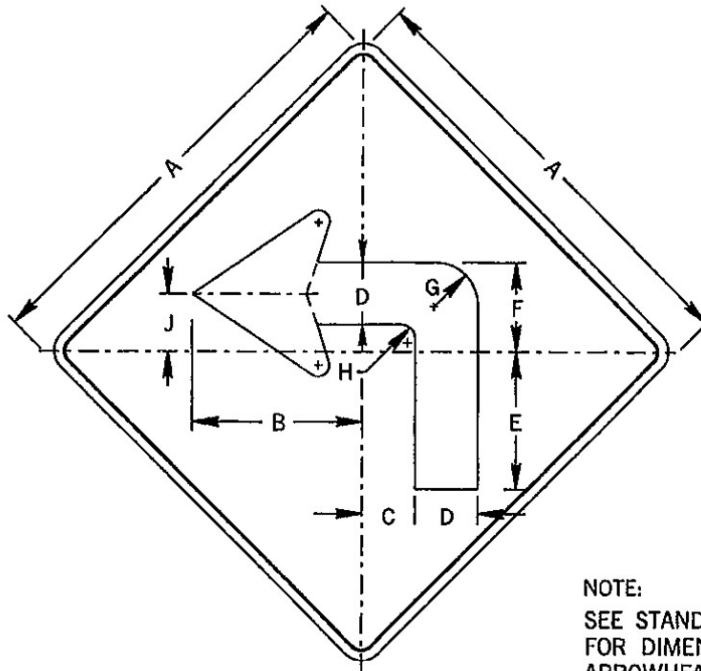
APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : Alan C. Rowe Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations

W1-1L

LEFT TURN SIGN

The Left Turn Sign (W1-1L) may be used in advance of a turn to the left where the recommended speed on the turn is 30 MPH or less, and this recommended speed is equal to or less than the legal speed limit. The W1-1L sign shall be used in accordance with MUTCD Chapter 2C Warning Signs. Where a W1-1L sign is warranted, other delineation may be used on the outside of the turn.



NOTE:
SEE STANDARD ARROW
FOR DIMENSIONS OF
ARROWHEAD

DIMENSIONS - IN											
SIGN SIZE A x A	B	C	D	E	F	G	H	J	MAR- GIN	BOR- DER	BLANK STD.
18" x 18"	7.3	2.3	2.6	5.9	3.8	1.9	0.6	2.5	0.4	0.6	B3-18
30" x 30"	12	3.8	4.4	9.1	6.2	3	1	4.0	0.5	0.8	B3-30
36" x 36"	14.4	4.5	5.3	11.6	7.5	3.6	1.3	4.9	0.6	0.8	B3-36
48" x 48"	19.2	6	7	15.5	10	4.9	1.6	6.5	0.8	1.2	B3-48

COLOR:

ARROW AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
YELLOW (REFLECTORIZED)

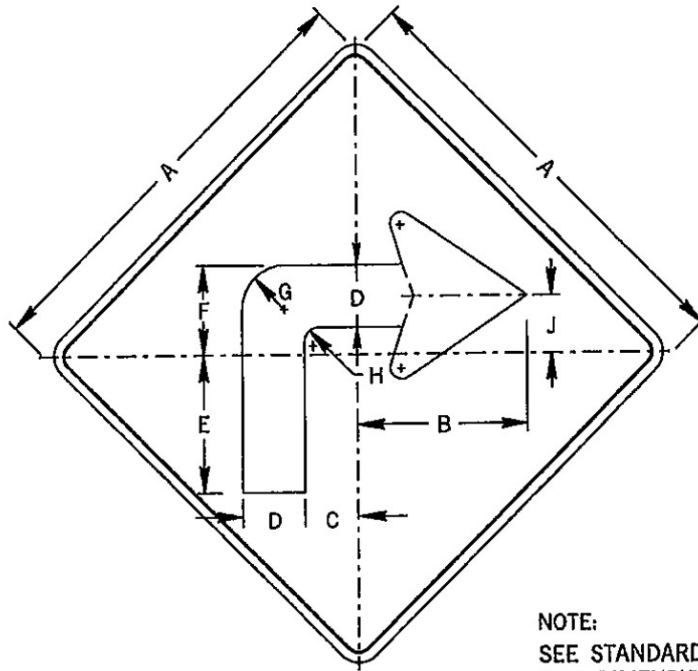
APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : Sh C Rome Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations

W1-1R

RIGHT TURN SIGN

The Right Turn Sign (W1-1R) may be used in advance of a turn to the right where the recommended speed on the turn is 30 MPH or less, and this recommended speed is equal to or less than the legal speed limit. The W1-1R sign shall be used in accordance with MUTCD Chapter 2C Warning Signs. When a W1-1R sign is warranted, other delineation may be used on the outside of the turn.



NOTE:
SEE STANDARD ARROW
FOR DIMENSIONS OF
ARROWHEAD

DIMENSIONS - IN											
SIGN SIZE A x A	B	C	D	E	F	G	H	J	MAR- GIN	BOR- DER	BLANK STD.
18" x 18"	7.3	2.3	2.6	5.9	3.8	1.9	0.6	2.5	0.4	0.6	B3-18
30" x 30"	12	3.8	4.4	9.1	6.2	3	1	4.0	0.5	0.8	B3-30
36" x 36"	14.4	4.5	5.3	11.6	7.5	3.6	1.3	4.9	0.6	0.8	B3-36
48" x 48"	19.2	6	7	15.5	10	4.9	1.6	6.5	0.8	1.2	B3-48

COLOR:

ARROW AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
YELLOW (REFLECTORIZED)

APPROVED FOR THE SECRETARY OF TRANSPORTATION

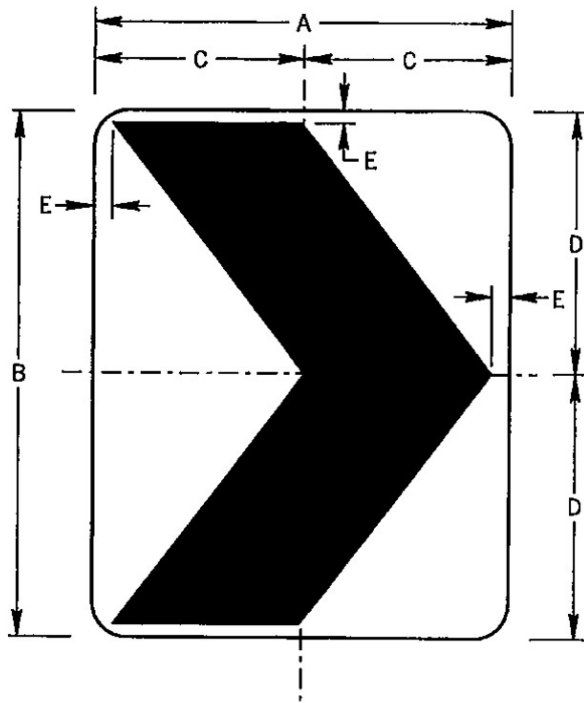
By : *Alan C. Rowe* Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations

W1-8

CHEVRON ALIGNMENT SIGN

(a) Justification. The Chevron Alignment Sign (W1-8) will be authorized to emphasize changes in the horizontal alignment of the roadway at locations where standard delineation practices have proven to be inadequate. The W1-8 sign may be used as an alternate or as a supplement to the Large Single Arrow Sign (W1-6). The W1-8 sign shall be used in accordance with MUTCD Chapter 2C Warning Signs.

(b) Placement. When used, the W1-8 sign shall be erected on the outside of a curve or sharp turn, in line with and at right angles to approaching traffic. W1-8 signs shall be installed at a minimum height of 4 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way. The sign should be rotated so as to indicate the direction of the change of alignment. Spacing of the W1-8 sign should be such that the driver always has two signs in view until the change in alignment eliminates the need for additional signs. To be effective, the W1-8 signs should be visible for at least 500'.



DIMENSIONS - IN				
SIGN SIZE A x B	C	D	E	BLANK STD.
18" x 24"	9	12	0.8	B5-2418
24" x 30"	12	15	0.9	B5-3024
30" x 36"	15	18	1	B5-3630
36" x 48"	18	24	1.1	B5-4836

COLOR:

CHEVRON:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
YELLOW (REFLECTORIZED)

APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : Sh. C. Rome Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations

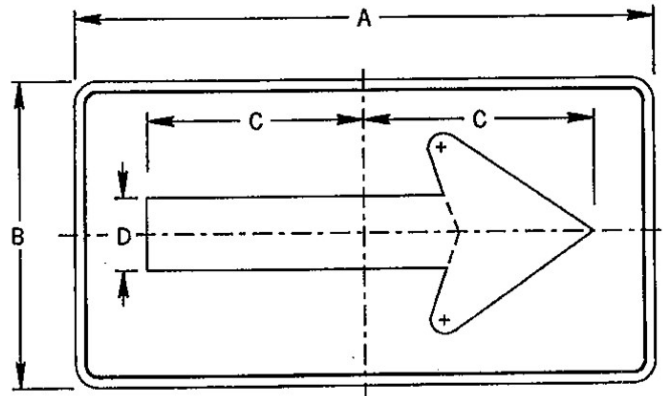
W1-6

LARGE SINGLE ARROW SIGN

(a) Justification. The Large Single Arrow Sign (W1-6) shall be authorized for use on the outside of a curve or on a turn, in line with, and at right angles to, approaching traffic. The W1-6 sign shall be used in accordance with MUTCD Chapter 2C Warning Signs.

This sign shall not be used to mark the ends of median strips, center piers, etc., where there is no change in the direction of traffic. The W1-6 sign directing traffic to the right shall not be used in the central island of a roundabout.

(b) Size. The standard size of the W1-6 shall be 48" x 24".



NOTE:
SEE STANDARD ARROW
FOR DIMENSIONS OF
ARROWHEAD

DIMENSIONS - IN					
SIGN SIZE A x B	C	D	MAR- GIN	BOR- DER	BLANK STD.
24" x 12"	9.6	3.3	0.4	0.6	B5-2412
48" x 24"	19.5	6.6	0.5	0.8	B5-4824
96" x 48"	39	13	0.8	1.2	—
120" x 60"	48.8	16	1	1.2	—

COLOR:

ARROW AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
YELLOW (REFLECTORIZED)

APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : Alan C. Rowe Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations