

# HAZARDOUS WALKING ROUTE ENGINEERING AND TRAFFIC STUDY

PLEASE TYPE OR PRINT ALL INFORMATION IN BLUE OR BLACK INK



**pennsylvania**

DEPARTMENT OF TRANSPORTATION

www.dot.state.pa.us

## A - LOCATION INFORMATION

|             |                 |   |                          |
|-------------|-----------------|---|--------------------------|
| COUNTY      | MUNICIPALITY    |   |                          |
| STREET NAME | TOWNSHIP ROAD # |   |                          |
| SR#         | SCHOOL DISTRICT |   |                          |
| BETWEEN:    | Segment:        | Offset:   | To Segment:      Offset: |
|             | Location:       |   | To Location:             |
|             | Side of Street: | <input type="checkbox"/> EAST <input type="checkbox"/> WEST <input type="checkbox"/> NORTH <input type="checkbox"/> SOUTH |                          |

## B - REFERENCE INFORMATION

|                     |  |
|---------------------|--|
| REFERENCE<br>MUTCD  | SECTION(S)<br>7A.01 and 7A.02                        |
| REFERENCE<br>PUB 46 | SECTION(S)<br>Chapter 7.3 and Appendix 7B-1 and 7C-1 |
| REFERENCE<br>Other  | SECTION(S)<br>67 Pa. Code, Chapter 447               |

## C - STUDY ELEMENTS

### FROM PUB 212 APPENDIX:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Crash Analysis (1)                        | <input type="checkbox"/> Pedestrian Volumes (12) | <input type="checkbox"/> Traffic Volumes (20) _____ |
| <input type="checkbox"/> Arrival & Departure Hours of Students (5) | <input type="checkbox"/> School Route Plan (15)  | <input type="checkbox"/> Other _____                |
| <input type="checkbox"/> Gap Study for School Children (7)         | <input type="checkbox"/> Sight Distance (16)     | _____   |
| <input type="checkbox"/> Geometric Review (8)                      | <input type="checkbox"/> Speed Data (17)         |   |

## 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 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 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, re-produced, 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? .....  YES  NO  N/A
2. Do drivers respond correctly to signals, signs, or other traffic control devices? .....  YES  NO  N/A
3. Is there evidence of crashes (*skid marks, property damage, tree/bush damage, broken glass/vehicle parts, etc.*)? . . . . .  YES  NO  N/A
4. Are there violations of parking or other traffic regulations? . . . . .  YES  NO  N/A
5. Do drivers appear confused about routes, street names, or other guidance information? . . . . .  YES  NO  N/A
6. Have you observed the location during peak hours for volume, crashes, and traffic operations? . . . . .  YES  NO  N/A
7. Are there traffic flow deficiencies or traffic conflict patterns associated with turning movements? . . . . .  YES  NO  N/A
8. Are there significant delays and/or congestion? . . . . .  YES  NO  N/A
9. Are there vehicle/pedestrians conflicts? . . . . .  YES  NO  N/A
10. Are there other traffic flow deficiencies or traffic conflict patterns? . . . . .  YES  NO  N/A

### Physical Checklist:

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

## F - SITE DATA

| DATE DATA COLLECTED   | PERSON CONDUCTING STUDY  | TITLE               |                    |                            |                            |                            |                            |                              |                              |
|---|--|---------------------|--------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------------------|------------------------------|
| <p>1. Location of school student walking route: _____<br/>                     _____<br/>                     _____</p> <p>2. a. Typical roadway width? _____ ft.<br/>                     b. Shoulder width? _____ ft.<br/>                     c. Approximate Length? _____ ft.</p> <p>3. Are sidewalks present?      <input type="checkbox"/> YES      <input type="checkbox"/> NO<br/>                     Are shoulders present?      <input type="checkbox"/> YES      <input type="checkbox"/> NO</p> <p>4. Is this a request for a re-evaluation of a previously inspected route?<br/>                        <input type="checkbox"/> YES      <input type="checkbox"/> NO</p> <p>If yes, when was it last reviewed and what was the finding?<br/>                     _____<br/>                     _____<br/>                     _____</p> | <p>5. During what time periods are students using the subject route?</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Elementary Students</td> <td style="text-align: center;">Secondary Students</td> </tr> <tr> <td>(a) Morning _____ to _____</td> <td>(a) Morning _____ to _____</td> </tr> <tr> <td>(b) Mid-day _____ to _____</td> <td>(b) Mid-day _____ to _____</td> </tr> <tr> <td>(c) Afternoon _____ to _____</td> <td>(c) Afternoon _____ to _____</td> </tr> </table> <p>6. Which 15-minute time period has the greatest vehicular traffic volume while:</p> <p>(a) Elementary students are enroute?<br/>                     _____ to _____ 15-minute volume: _____</p> <p>(b) Secondary students are enroute?<br/>                     _____ to _____ 15-minute volume: _____</p> <p>7. How many pedestrian-related accidents occurred in the study area in the last 36 months during the hours students are normally going to or from school?<br/>                     _____</p> <p><i>(If any pedestrian accidents occurred, please attach a copy of each police accident report and indicate the location of the accident on the accompanying map The walking route between two or more accident locations is hazardous.)</i></p> | Elementary Students | Secondary Students | (a) Morning _____ to _____ | (a) Morning _____ to _____ | (b) Mid-day _____ to _____ | (b) Mid-day _____ to _____ | (c) Afternoon _____ to _____ | (c) Afternoon _____ to _____ |
| Elementary Students   | Secondary Students   |                     |                    |                            |                            |                            |                            |                              |                              |
| (a) Morning _____ to _____  | (a) Morning _____ to _____   |                     |                    |                            |                            |                            |                            |                              |                              |
| (b) Mid-day _____ to _____  | (b) Mid-day _____ to _____   |                     |                    |                            |                            |                            |                            |                              |                              |
| (c) Afternoon _____ to _____  | (c) Afternoon _____ to _____   |                     |                    |                            |                            |                            |                            |                              |                              |

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**F - SITE DATA (CONTINUED)**

8. Does the student walking route cross the roadway at any location where vehicular traffic is not controlled by either a stop sign or traffic-control signal, or an adult crossing guard?

YES  NO

If yes, what is the roadway width? \_\_\_\_\_ and, is the crossing by:

(a)  Elementary students?  Secondary students?

(b) Number of vehicles using the road during a 15-minute period while students would ordinarily be attempting to cross the road?

\_\_\_\_\_   
*(If the number of vehicles exceeds the appropriate values in Table 1 of §477.4(a)(2) of the regulations, the crossing is hazardous.)*

9. Does the student walking route cross a highway-rail grade crossing which has two or more tracks?  YES  NO   
 If yes,

(a) Do trains normally use the crossing during the time students are going to or from school?  YES  NO

(b) Is the crossing unprotected?  YES  NO   
 Question (b) is answered "yes" when both of the following are satisfied:

- No flashing light signal (i.e., two alternately flashing red light units) is installed at the crossing.
- No "flagger", who is employed by the railroad company to stop highway vehicles and pedestrians, is present whenever a train moves over the crossing.

(c) Is the speed of the trains and the available sight distance such that students walking at a speed of 3.5 feet per second cannot safely cross the tracks?

YES  NO

*(If the answers to all four questions are "yes", crossing the rail-highway grade crossing is hazardous.)*

10. Is the roadway less than 20 feet wide and without either sidewalks or minimum 4-foot wide shoulders at any location?

YES  NO

If yes, how many trucks with three or more axles (excluding garbage trucks or other types of trucks making house-to-house stops) normally use the roadway during the time elementary students are enroute? \_\_\_\_\_

*(If the first answer is "yes", and one or more trucks normally uses the roadway during this time, the section of highway or street on which the trucks travel is hazardous.)*

11. What is the safe-running speed? \_\_\_\_\_ mph.

12. Do at least 10 vehicles use the roadway during the hours students are going to or from school, and is the roadway without either sidewalks or minimum 4-foot wide shoulders at any location?

YES  NO

If yes, are there any sections of the roadway where the visibility of the student(s) is a problem for approaching drivers?

YES  NO

If yes, how far away can drivers see the shortest student? \_\_\_\_\_ ft.

*(If the distance is less than the appropriate value in Table II in §447.4(b)(1) of the regulations, the section of street or highway on which the sight distance deficiency exists is hazardous.)*

13. If the roadway has no sidewalks, how wide are the shoulders? \_\_\_\_\_ ft.

During any 15-minute period that students are enroute to or from school, how many vehicles normally travel on the roadway?

\_\_\_\_\_   
*(If the number of vehicles exceeds the values in §447.4(b)(2) for the appropriate speed, the route is hazardous for elementary and secondary students.)*

14. Do elementary students who use the student walking route have to cross a signalized intersection which is not routinely protected by an adult crossing guard?

YES  NO

If yes, is the signal without an exclusive pedestrian walk phase?

YES  NO

*(If both answers are "yes", the route is hazardous for elementary students.)*

15. Do secondary students who use the student walking route have to cross a signalized intersection which is not routinely protected by an adult crossing guard?

YES  NO

If yes, is the signal so complex that:

(1) the students cannot readily see visible signal indications when desiring to cross the intersection; or

(2) the signal is a multi-phase operation where it may not be apparent what traffic is being given a green indication; or

(3) a 4.5-foot tall student using a crosswalk within the intersection may not be visible at a point which will allow an approaching driver turning through the crosswalk time to come to a safe stop; or

(4) the complexity of the geometrics of the intersection makes it difficult for a secondary school student to traverse the intersection or reach a safe refuge?

YES  NO

*(If both answers are "yes", the route is hazardous for secondary students.)*

16. Could the route be revised or the school bus stop relocated to avoid a hazardous certification? \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

17. Are there any other extenuating circumstances that you believe would qualify this route as being hazardous? \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PLEASE NOTE: A map or detailed accurate sketch of the area must accompany this study and data sheet, highlighting the school student walking route. This map or detailed sketch should be large enough to include nearby streets and roadways. The location of all adult crossing guards should be shown on the map. Any additional supporting data would also be appreciated.

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## G - REMARKS

|  |
|--|
|  |
|--|

## H - ENGINEERING JUDGEMENT

|  |
|--|
|  |
|--|

## I - APPROVALS

Comments:

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

## J - GLOSSARY

**For Purposes of this review, the following definitions apply:**

**Elementary students** – School students in kindergarten or grades one through six.

**Hazardous** – An unsafe condition caused by potential incompatibility between vehicles and school students, while the students are walking between their home and their school or school bus stop.

**Safe** - running speed – The official speed limit as posted by signs or, in the absence of a posted speed limit, the average speed as determined by making a minimum of five test runs in each direction and periodically recording the operating speed at different locations while driving at a speed at which is reasonable and prudent considering the spacing of interactions, roadside developments and sight distance.

**Secondary students** – School students in grades 7 through 12.

**Shoulder** – The portion of the highway contiguous to the roadway used for accommodation of stopped or parked vehicles, for emergency use or for lateral support of base and surface courses.

**Sidewalk** – That portion of a street or highway or other public right-of-way which is reserved exclusively for pedestrian travel and is normally protected by a minimum average 4-inch, nonmountable curb, or is not immediately adjacent to the roadway. A sidewalk should have a minimum width of 2 feet; a gravel, brick, stone, or paved surface; and be available for use during normal weather conditions.

**Student walking route** – The system of streets, shoulders, sidewalks and crosswalks used by school students when walking between their homes and their school or school bus stop, officially designated by the school district or, where no official route has been designated, used by school students because of the unavailability of a reasonable alternate route.

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