pennsylvania
DEPARTMENT OF TRANSPORTATION

494-25-05

DATE: May 27, 2025

SUBJECT: Updates to Publication 46 Chapters 7 and 11

TO: District Executives

FROM: Daniel Farley, P.E., Director
Bureau of Operations

Daniel Farley

This Strike-off Letter (SOL) is time and resource neutral and provides updates to the following within Publication 46 *Traffic Engineering Manual.* These changes are effective immediately and will be incorporated into a future update of Publication 46.

- **Attachment A – Chapter 7: School Areas** – Provides clarification and updates guidance regarding school zone speed limits and hazardous walking route certifications.

- **Attachment B – Section 11.9 Unsignalized Midblock Crossing and Trail Crossing Policy** – Provides clarification and updates guidance utilizing industry standard practice to evaluate and establish unsignalized midblock crosswalks and highway trail crossings on both state and local roadways. In addition to updating the policy PennDOT Traffic Engineering Form TE-113 *Midblock Crosswalk Traffic Engineering Study* was updated with the Publication 46 changes. https://www.pa.gov/content/dam/copapwp-pagov/en/penndot/documents/public/pubsforms/forms/te-113.pdf

- **Attachment C – Section 11.1 Verification of Studies** – Provides clarification, updates, and new tools to assist the Districts regarding responses to requests for Engineering and Traffic Studies.

- **Attachment D – Engineering and Traffic Study Verification Tool** – Provides a tool to develop a standardize Department letter to verify a protected and confidential study exists to intall or modify official traffic control devices to requestors outside of the Department.

Should you have any questions or require additional information, please contact Jason Bewley, P.E., Highway Safety and Traffic Operations Division, at 717.783.3981 or jbewley@pa.gov.

Attachments

4945/SAG/acp

cc: FHWA Pennsylvania Division Office
Assistant District Executives – Maintenance
Assistant District Executives – Design
Assistant District Executives – Construction
Francis Hanney, P.E., Senior Assistant District Executive – Operations, District 6
Ashwin Patel, P.E., Assistant District Executive – Operations, District 6
District Traffic Engineers
District Traffic Signal Supervisors
District HOP Managers
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Christine Norris, P.E., Deputy Secretary for Highway Administration
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CHAPTER 7 - SCHOOL AREAS

7.1 General

Need for Standards

The best way to achieve safe and effective traffic control to protect school students is through the uniform application of realistic laws, regulations, policies, standards and engineering judgment. Consistent with the authority contained in 75 Pa.C.S. §§ 6103(c) and 6121 and explained in 67 PA Code §212 *Official Traffic Control Devices*, the Department adopts the national Manual on Uniform Traffic Control Devices (MUTCD), as published by the Federal Highway Administration. The MUTCD is adopted in its totality except where §212 clearly indicates that it is not being adopted, or that additional warrants or criteria are being provided. As such, PennDOT Publication 212 *Official Traffic Control Devices* serves as an official supplement to the MUTCD.

The MUTCD, PennDOT Publication 212 supplementing the MUTCD, and the basic principles set forth in this chapter, shall be the primary guidance for the design, application, installation and maintenance of traffic control devices in school areas. Additionally, signs and pavement markings should also conform to the policies established in Chapters 2 and 3 of this manual and PennDOT Publication 111 where each additionally supplements the MUTCD and Pub 212. All school warning signs shall use reflective sheeting fluorescent yellow-green.

This chapter specifically addresses School Zone Speed Limits and determination of Hazardous Walking Routes as tools to improve pedestrian safety near schools. MUTCD Chapter 7 provides guidance on additional traffic control devices such as Parking and Stopping Signs, Crosswalk Markings and Sign Assemblies, 'SCHOOL' Pavement Word Markings and Crossing Guards and should be incorporated in school areas where feasible. Though not specifically addressed in this chapter, additional safety countermeasures such as raised crosswalks, speed humps, curb bump-outs, and traffic control signals should be considered when identifying potential safety improvements near schools. The MUTCD includes traffic control signal Warrant 5, *School Crossing*; this warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. It is suggested school districts should develop a School Route Plan as described in the MUTCD, to assist in identifying locations for employing area-wide traffic control devices near schools.

Laws, Regulations and Other Publications

Hazardous Walking Routes (67 Pa. Code Chapter 447). Regulations issued under the authority of the Public School Code of 1949 (24 P.S. §§13-1362 and 25-2541) to help determine where student-walking routes are hazardous, which in turn affects the amount of reimbursement that school districts receive for busing school students.

Manual on Uniform Traffic Control Devices (MUTCD). Part 7 is titled, “Traffic Control for School Areas.”

Pennsylvania Drivers Manual. This manual provides guidance for drivers.

Traffic Control – Pavement Markings and Signing Standards (PennDOT Pub. 111). Standard drawings specifying the types, dimensions, locations and lighting of signs on expressways and freeways, and the

legend spacing and sign supports for signs on all highways. Available at https://www.pa.gov/agencies/penndot/forms-and-publications.html.

Vehicle Code (75 Pa.C.S.). The Pennsylvania Vehicle Code is law that typically defines actions required by drivers and the Department. Specifically, §3365(b) discusses the establishment of the 15 mph school zone speed limit. In addition, §3345(a) discusses the driver's responsibility when approaching a school bus.

School Trip Safety Program Guidelines (ITE)

Safe Routes to School Online Guide (National Center for Safe Route to Schools)

Definitions

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Divided highway – A highway divided into two or more roadways and so constructed as to impede vehicular traffic between the roadways by providing an intervening space, physical barrier or clearly indicated dividing section. Each roadway of a divided highway is a "separate roadway" as used in 75 Pa.C.S. §3345(g).

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.

School zone – A portion of a highway that at least partially abuts a school property or extends beyond the school property line that is used by students to walk to or from school or to or from a school bus pick-up or drop-off location at a school.

Secondary students – School students in grades 7 through 12.

Separate roadway – One of the roadways of a "divided highway."

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 that is reserved exclusively for pedestrian travel and is normally protected by a minimum average 4-inch high, non-mountable 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. Note: these spatial criteria shall not supersede federal or state law or regulation relative to the design or construction of pedestrian and/or related facilities.

Student-walking route – The system of streets, trails, 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.

7.2 School Zone Speed Limits

Criteria

The criteria to determine if a 15-mph school zone speed limit is applicable is in 67 Pa. Code §212.501 (see 7.4 - Chapter 7 Appendix). Please note:

1. In accordance with §212.501(a), a 15 mph school zone speed limit is only applicable when at least one student walks to school.
2. The Department must approve all school zones, including the location and hours of operation of the speed limits on both State highways and on local roads, except as noted in §212.501(a)(2).

Considerations

Unwarranted 15-mph school zone speed limits can create a false sense of security for pedestrians due to limited enforcement and motorist non-compliance. A school zone speed limit should be reassessed in collaboration with the local authorities in the following circumstances:

1. When pedestrian safety improvements are planned or completed within the school speed limit zone, such those associated with a PennDOT project or private Highway Occupancy Permit project
2. When they overlap, even partially, with a certified hazardous student walking route, as defined in 67 Pa. Code §447
3. When there is any change or presence of highway geometry, operation, road users, or environmental context that may cause the 15-mph school speed limit to be unwarranted

If a 15-mph school zone speed limit is denied, alternative traffic control measures or additional infrastructure may be recommended under 67 Pa. Code §212 to reduce vehicle speeds and/or improve pedestrian safety.

Signing Requirements

Posting requirements are included in §212.501(b) as supplement to the MUTCD.

7.3 Student-Walking Routes

Legislative Requirement

The Public School Code of 1949 (24 P.S.) requires the Department to take into account all relevant safety factors for student-walking routes when certifying whether or not walking constitutes a hazard to the students. § 25-2541(c) of the Code is included as **Exhibit 7-1**.

Department Regulations and Interpretations

The regulations for Hazardous Walking Routes (Chapter 447 of Title 67, Pennsylvania Code) establish criteria for determining if student-walking routes are or are not hazardous for the students (see 7.4 Chapter 7 Appendix**)**. In addition to the regulations, the following interpretations provide guidance in evaluating the requests:

a) When requested by the school district, the Department will evaluate a student-walking route regardless whether a student is walking from home to school or to a school bus stop, or if the student is being transported by either a private or a school district conveyance.

b) Crossing at a signalized intersection may be declared hazardous for an elementary school student if all of the following apply:

1. The signal installation does not include an exclusive pedestrian walk phase.
2. An adult crossing guard is not permanently assigned to the signalized intersection during the school year.
3. Sight distance, traffic volumes, or roadway widths make it difficult for an elementary student to cross safely.

c) Crossing at a signalized intersection may be declared hazardous for all school students if an adult crossing guard is not permanently assigned to the signalized intersection during the school year and one or more of the following is satisfied:

1. The complexity of the operation or design of the signal system is such that:
   - Signal indications do not readily provide a visible indication for the school student desiring to cross the intersection; or
   - A multi-phase signal operation exists and it may not be apparent what traffic is being given a green indication.
2. A 4.5-foot tall student, or shorter, using a crosswalk within the intersection may not be visible at a point that allows an approaching driver turning across the crosswalk to come to a safe stop.
3. The number of approach lanes and/or the complexity of the geometries of the intersection makes it difficult for a secondary school student to traverse the intersection or to reach a safe refuge.

Field Study and Evaluation

The Engineering District will determine if a student-walking route is hazardous only when a written request is received from the school district. If a request is received from anyone other than the school district, the Engineering District will return the request with a letter explaining the Department's policy for evaluating student-walking routes. The Engineering District should also copy the school district and include a copy of the original request. This will bring the potentially hazardous situation to the attention of the school district and serve as an official notification from the Department.

It is the responsibility of the school district to complete one or more Study and Data Sheets (see 7.4 Chapter 7 Appendix) for each street or highway within the student-walking route. If the Engineering District receives a request from a school district without the Study and Data Sheets, the request should be acknowledged by letter, asking the school district to provide the completed sheets. (The Engineering District will provide a copy of Chapter 447 and one or more copies of the Study and Data Sheets to the school district.)

After receipt of the completed forms, the District Traffic Unit will evaluate the information on the Study and Data Sheets to determine if the student-walking route is or is not hazardous for the students. At the District Traffic Unit's discretion, they may field verify any of the information. The District Traffic Unit shall conduct a study to determine if the student-walking route is or is not hazardous. As part of the study, the existing school zone speed limits may be re-evaluated if they overlap with sections of a student walking route determined as hazardous.

If the Engineering District cannot issue a certification within 2 weeks, the District Traffic Unit should acknowledge the School District's request and advise them when they should anticipate the certification.

Certification or Decertification

Hazardous Certification

The District Traffic Unit will prepare the certification or decertification (see 7.4 Chapter 7 Appendix for a basic format). If the student-walking route (as defined on the Study and Data Sheets) is hazardous, the certification form shall cite the section(s) of Chapter 447 or the appropriate sections of this policy which was used to declare the route hazardous. For example:

The results of the investigation indicate that sidewalks do not exist, the shoulders are less than 4 feet wide, the roadway width is less than 20 feet wide and one or more trucks with three or more axles were observed using the roadway during the time the elementary students are enroute to or from school. Therefore, in accordance with the provisions of §447.4(b)(1)(i), this route is declared hazardous for elementary students.

Partial Hazardous Certification

If part of a designated walking route is determined to be hazardous and the balance is determined to be non-hazardous, certify the student-walking route accordingly. For example, a certification form could indicate:

The results of the investigation indicate that the section of Street "X" between "_____" and "_____" does not have sidewalks, the shoulders are less than 4 feet wide, the roadway width is less than 20 feet wide and one or more trucks with three or more axles were observed using the roadway during the time the elementary students are enroute to or from school. Therefore, in accordance with the provisions of §447.4(b)(1)(i), this section of Street "X" is declared hazardous for elementary students. The remaining sections of Street "X" between "_____" and "_____" are non-hazardous.

Decertification

If a designated walking route is determined to be non-hazardous, but was previously certified as hazardous, the Hazardous Certification needs to be revoked via Decertification. For example, a decertification form could indicate:

The results of the investigation indicate that the section of Street "X" between "_____" and "_____" was previously declared a Hazardous Walking Route on January XX, 20XX. However, changes to the roadway geometry or operations were made since that date. This section no longer meets the criteria to be deemed a Hazardous Walking Route per 67 Pa. Code §447. As a result, the certification issued on January XX, 20XX is hereby revoked, resulting in Decertification of this previous Hazardous Walking Route.

Approval of the Certification or Decertification

The District Executive shall sign the certification or decertification and forward copies to the school district and to the following address:

Pennsylvania Department of Education
Bureau of Budget and Fiscal Management
Division of Subsidy Data and Administration
333 Market Street, 4th Floor
Harrisburg, PA 17126-0333

Exhibit 7-1 Payments on Account of Pupil Transportation (24 P.S. §25-2541(c))

(c) Payments for pupil transportation on account of the school year 1979-1980 and every school year thereafter shall be made only in the following cases:

(1) To all school districts for the transportation to and from school of elementary school pupils, including kindergarten pupils, residing one and one-half (1½) miles or more by the nearest public highway from the school in which the pupils are enrolled and to which transportation is authorized under section 1361 of this act or residing in areas where the road or traffic conditions are such that walking constitutes a hazard to the safety of the child ***when so certified by the Department of Transportation****. The Department of Transportation shall take into account the presence of sidewalks along the highway, but such presence or lack thereof shall not be controlling and the department shall consider all relevant safety factors in making its determination as to whether or not walking constitutes a hazard to pupils. Such elementary school pupils shall include nonresident children who are placed in the home of a resident, or who are residents of an orphanage, or home or children's home or other institution for the care and training of orphans or other children.*

(2) To all school districts for the transportation to and from school of secondary school pupils residing two (2) miles or more by the nearest public highway from the school in which the pupils are enrolled and to which transportation is authorized under section 1361 of this act or residing in areas where the road or traffic conditions are such that walking constitutes a hazard to the safety of the child ***when so certified by the Department of Transportation****. The Department of Transportation shall take into account the presence of sidewalks along the highway, but such presence or lack thereof shall not be controlling and the department shall consider all relevant safety factors in making its determination as to whether or not walking constitutes a hazard to pupils. Such secondary school pupils shall include nonresident children who are placed in the home of a resident, or who are inmates of an orphan asylum or home or children's home or other institution for the care and training of orphans or other children.*

(3) To all school districts for pupils transported to and from approved consolidated schools or approved joint consolidated schools living one and one-half (1½) miles or more from the school of attendance or residing in areas where the road or traffic conditions are such that walking constitutes a hazard to the safety of the child ***when so certified by the Department of Transportation****. The Department of Transportation shall take into account the presence of sidewalks along the highway. but such presence or lack thereof shall not be controlling and the department shall consider all relevant safety factors in making its determination as to whether or not walking constitutes a hazard to pupils.*

Consolidated schools or joint consolidated schools shall so long as they are approved as to organization, control, location, equipment, courses of study, qualifications of teachers, methods of instruction, condition of admission, expenditures of money, methods and means of transportation and the contracts providing therefore, constitute approved consolidated schools or approved joint consolidated schools.

(4) To all school districts for the transportation of exceptional children regularly enrolled in special classes approved by the Department of Education or enrolled in a regular class in which approved educational provisions are made for them.

(5) To all school districts for pupils transported to and from area technical schools.

7.4 Chapter 7 Appendix

67 Pa. Code §212.501 - School Zone Speed Limits

Sec. 212.501. School zone speed limits.

§212.501. School zone speed limits.

(a) *Establishment*. A 15 miles per hour school zone speed limit may be established in a school zone during the normal hours that walking students are arriving at or leaving school, under 75 Pa.C.S. §3365(b) (relating to special speed limitations).

(1) To establish a school zone, local authorities shall be responsible to prepare and submit a drawing showing the locations where students walk along or across roadways that are adjacent to school property, the hours that students are going to or from school and the proposed limits for the school zone to the Department for approval.

(2) The Department is responsible for approving the establishment of all school zones, including the locations and hours of operation, except local authorities shall be responsible for approving school zones at the following locations:

(i) On local highways when the municipality has received municipal traffic engineering certification under Chapter 205 (relating to municipal traffic engineering certification).

(ii) On State-designated highways when the municipality has entered into an agreement with the Department thereby transferring to the local authorities the authority to install traffic-control devices without specific Department approval.

(iii) On highways in cities of the first and second class, except not on expressways.

(3) The duration of a 15 miles per hour school zone speed limit should be only long enough to include the time that walking students routinely arrive at or leave school.

(b) *Posting*. A school zone speed limit shall be posted on official traffic-control devices as follows:

(1) At the beginning of the school zone speed limit, one of the following signs or groups of signs shall be posted either on the right side of the roadway or over the roadway:

(i) A Speed Limit Sign (R2-1) with the appropriate school zone speed limit, with a School Panel (S4-3) mounted above the Speed Limit Sign (R2-1) and a When Flashing Sign (S4-4) mounted below the Speed Limit Sign (R2-1), with two flashing speed limit sign beacons.

(ii) A Speed Limit Sign (R2-1) with the appropriate school zone speed limit, with a School Panel (S4-3) mounted above the Speed Limit Sign (R2-1) and a Restricted Hours Panel (R10-20A) mounted below the Speed Limit Sign (R2-1).

(iii) A School Speed Limit When Flashing Sign with a blank-out "15" and flashers as illustrated in the *Traffic Signal Design Handbook* (Department Publication 149).

(2) An End School Zone Sign (S5-2) shall be posted on the right side of the roadway to define the end of the school zone speed limit.

(3) The limits of a school zone may extend beyond the school property lines to improve the sight distance or to encompass a school crosswalk, except that the length of the zone may not be greater than 1,600 feet.

67 Pa. Code §447 - Hazardous Walking Routes

Sec.

Authority

The provisions of this Chapter 447 issued under sections 506 and 2001 of The Administrative Code of 1929 (71 P. S. §§186 and 511); and sections 1362 and 2541 of the Public School Code of 1949 (24 P. S. §§13-1362 and 25-2541), unless otherwise noted.

Source

The provisions of this Chapter 447 adopted August 1, 1980, effective August 2, 1980, 10 Pa.B. 3191, unless otherwise noted.

§447.1. Purpose.

This chapter establishes guidelines for determining if a designated school student walking route along a public highway is hazardous, as the defined term is used in sections 1362 and 2541 of the Public School Code of 1949 (24 P. S. §13-1362 and §25-2541).

Source

The provisions of this §447.1 adopted August 1, 1980, effective August 2, 1980, 10 Pa.B. 3191; amended August 7, 1981, effective August 8, 1981, 11 Pa.B. 2777.

§447.2. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

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 which is reasonable and prudent considering the spacing of intersections, roadside development 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 high, 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 home 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.

Source

The provisions of this §447.2 adopted August 1, 1980, effective August 2, 1980, 10 Pa.B. 3191; amended August 7, 1981, effective August 8, 1981, 11 Pa.B. 2777.

§447.3. General policy.

(a) A request for review of student walking routes should be referred to the appropriate engineering district as listed in Appendix A *[NOTE: Appendix A is not included in Publication 46].* Personnel of the engineering district will make the necessary study upon receipt of a written request from a school district and the district engineer will certify whether the route is or is not hazardous. The certification will be forwarded to the school district and to the Department of Education.

(b) The Vehicle Code sets forth certain rights and duties for pedestrians and vehicular traffic. These rights and duties have been considered in the development of these guidelines. Accordingly, if a hazard exists solely because of failure of drivers or school students to obey the provisions of the Vehicle Code, the student walking route may be declared hazardous; however, the basis for the hazardous walking route determination shall be so noted on the certification and the problem brought to the attention of the municipality.

(c) Road and traffic conditions shall be evaluated before any highway or section of highway is declared hazardous. The presence or absence of side walks [*sic*] shall be a factor in the evaluation but may not be the controlling factor. The criteria for road and traffic conditions may apply only to student walking routes, as defined in this chapter.

(d) This chapter may not be construed to require school buses to stop at every dwelling in the event that a student walking route or a portion thereof is declared hazardous, since such a policy would increase the probability of bus-related accidents. A student may be required to walk up to 500 feet on a roadway designated as a hazardous walking route when the route is designated as hazardous in accordance with §447.4(b) (relating to criteria).

(e) If changes occur in the condition of a walking route that was previously inspected, a reevaluation of the route may be requested.

Source

The provisions of this §447.3 adopted August 1, 1980, effective August 2, 1980, 10 Pa.B. 3191; amended August 7, 1981, effective August 8, 1981, 11 Pa.B. 2777.

§447.4. Criteria.

(a) A student walking route shall be considered hazardous if any one of the following three conditions exist:

(1) Two or more pedestrian-related accidents have occurred during the last 3 years while the pedestrians were walking along the student walking route during hours students are normally going to or from school.

(2) It is necessary for a student to cross a roadway; either daily or intermittently, at a location where vehicular traffic is not controlled by either traffic control signals or a stop sign, or where students are not protected by an adult crossing guard; provided vehicular traffic on roadway is in excess of the values given in the table below for any 15-minute period during which students are enroute to or from school:

TABLE I

*Roadway Width (ft)**	*For Elementary Students Number of Vehicles*	*For Secondary Students Number of Vehicles*
20 or less	155	175
24	130	150
30	100	120
36	80	100
48	40	60

* If the roadway is divided by a raised median which is at least 8 feet wide and has nonmountable curbs, the roadway should be considered as two separate roadways.

(3) It is necessary for students to cross a railroad-highway grade crossing which has two or more tracks and the following three qualifications are met:

(i) Trains normally — not necessarily with regularity — use the crossing at the time the students cross the tracks going to or from school.

(ii) The crossing is not protected by a flashing light signal or a crossing guard.

(iii) The speed of the trains and the available sight distance are such that students walking at a speed of 3.5 feet per second cannot safely cross the tracks.

(b) A student walking route shall be considered hazardous if a sidewalk does not exist and either paragraph (1) or (2) applies:

(1) The shoulders are less than 4 feet wide and for either:

(i) Elementary students, the roadway surface is less than 20 feet wide and one or more trucks with three or more axles, not including garbage trucks or other types of trucks making house-to-house stops, normally use the roadway during the time the elementary students are enroute to or from school.

(ii) Streets and highways with an average traffic volume of at least ten vehicles per hour during the time students are walking, a 3.5-foot tall elementary school student or a 4.5-foot tall secondary student is not visible by approaching drivers from at least the following minimum distances:

TABLE II

Safe-running Speed	*Minimum Distance (ft.)*
30 or less	200
35	240
40	275
45	315
50	350
55	410

(2) The normal vehicular traffic volume during any 15-minute period that students are enroute to or from school exceeds the following values for the appropriate safe-running speed range:

(i) Safe-running speed is 35 mph or less:

Shoulder Width	*For Elementary Students*	*Number of Vehicles For Secondary Students Only*
less than 4 ft.	30	45
4 ft. – 6 ft.	60	100

(ii) Safe-running speed is over 35 mph:

Shoulder Width	*For Elementary Students*	*Number of Vehicles For Secondary Students Only*
less than 4 ft.	20	30
4 ft. – 6 ft.	40	65

Source

The provisions of this §447.4 adopted August 1, 1980, effective August 2, 1980, 10 Pa.B. 3191; amended August 7, 1981, effective August 8, 1981, 11 Pa.B. 2777.

Cross References

This section cited in 67 Pa. Code §447.3 (relating to general policy).

Attachment A

Student-Walking Route - Study and Data Sheet

County _____ Municipality _____

School District Name _____ IU _____

Address: _____

_____ Zip Code _____

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 which is reasonable and prudent considering the spacing of intersections, roadside development 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 that is reserved exclusively for pedestrian travel and is normally protected by a minimum average 4-inch high, non-mountable 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. Note: these spatial criteria shall not supersede federal or state law or regulation relative to the design or construction of pedestrian and related facilities.

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.

PLEASE NOTE: A map or detailed 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, and should show the location of all adult crossing guards. Also, provide any additional supporting data. Be advised, roadways currently posted for a school zone speed limit may be re-evaluated by the department if they overlap with the student-walking route determined to be hazardous.

1. Location of school student-walking route: _____

   _____

   _____

2. Local street name, Township Road No., or State Route No. _____

   _____

   _____

   Beginning location _____

   Ending location _____

   Approximate length _____

   Any general comments regarding the location: _____

3. Is any portion of the student-walking route currently posted for a school zone speed limit?

   _____ If yes, what is the roadway(s)? _____

4. Typical roadway width is _____ feet. Shoulder width is _____ feet.

5. Are sidewalks present? _____ Are shoulders present? _____

6. Is this a request for a re-evaluation of a previously inspected route? _____If yes,

   when was it last reviewed and what was the finding? _____

   _____

7. During what time periods are students using the subject route?

Elementary Students	Secondary Students
(a) Morning _____ to _____	(a) Morning _____ to _____
(b) Mid-day _____ to _____	(b) Mid-day _____ to _____
(c) Afternoon _____ to _____	(c) Afternoon _____ to _____

8. Which 15-minute time period has the greatest vehicular traffic volume while:

   (a) Elementary students are enroute?

   _____ to _____ 15-minute volume: _____

   (b) Secondary students are enroute?

   _____ to _____ 15-minute volume: _____

9. 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? _____

   (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.)

10. 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? _____ 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 in §447.4(a)(2) of the regulations, the crossing is hazardous.)

11. Does the student-walking route cross a highway-rail grade crossing that has two or more tracks? _____ If yes,

(a) Do trains normally use the crossing during the time students are going to or from school? _____

(b) Is the crossing unprotected? _____ Question (b) is answered "no" when:

- A flashing light signal (i.e., two alternately flashing red light units) is installed at the crossing, or
- A "flagger 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 a normal pace of approximately 3.5 feet per second cannot safely cross the tracks? _____

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

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

13. What is the safe running speed *(see Definitions)*? _____ mph.

14. 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? _____ If yes, are there any sections of the roadway where the visibility of the student(s) is a problem for approaching drivers? _____ If yes, how far away can drivers see the shortest student? _____ feet.

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

15. If the roadway has no sidewalks, how wide are the shoulders? _____ feet 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.)

16. Do elementary students have to cross at a signalized intersection that does not have an exclusive pedestrian walk phase or an adult crossing guard? _____ If yes, is sight distance, traffic volumes, or roadway widths such that it may be difficult for an elementary student to cross the intersection safely? _____

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

17. 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? _____ If yes, is one or more of the following is satisfied? _____

- Students cannot readily see visible signal indications when desiring to cross the intersection.
- The signal is a multi-phase operation where it may not be apparent what traffic has a green indication.
- A 4.5-foot tall student, or shorter, using a crosswalk within the intersection may not be visible at a point that will allow an approaching driver turning through the crosswalk time to come to a safe stop.
- 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.

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

18. Can the school bus stop or the student-walking route be relocated to avoid a hazardous certification? _____

_____

19. Are there any other extenuating circumstances that you believe would qualify this route as being hazardous? _____

_____

_____

_____

PERSON RESPONSIBLE FOR COMPLETING THIS FORM:

I hereby certify that I personally examined this student-walking route and, to the best of my knowledge, the information I have supplied on this Study and Data Sheet is true and correct.

Name _____

Signature _____ Date _____ Title

_____ Telephone No. _____

SCHOOL SUPERINTENDENT:

Signature _____ Date _____

Attachment A

Student Walking Route Certification or Decertfication

On _____, the Pennsylvania Department of Transportation
(Date)

investigated _____, in Intermediate Unit No. _____,
(SR, or Road or Street)

_____ School District, between _____

_____ and _____

_____, in _____ County.

The results of the investigation indicate the following:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Certified by:

District Executive
Engineering District _____

Attachment B

Chapter 11. Traffic Studies

11.9 Unsignalized Midblock Crosswalk and Trail Crossings Policy

I. Purpose

The purpose of this policy is to provide a standard practice and approach for evaluating and/or establishing midblock crosswalks and trail crossings in Pennsylvania. This policy:

1. Provides guidance on where to locate midblock crosswalks and trail crossings, minimum treatments for midblock crosswalks and trail crossings, and when it is necessary to install additional traffic control devices/safety countermeasures along with the midblock crosswalk or trail crossing.
2. Describes how to select the appropriate traffic control devices/safety countermeasures considering nearby land uses, roadway characteristics, intermodal connectivity, and types of users.
3. Provides context sensitive design guidance that adheres to national best practices to provide consistent and safer crossings for crosswalk and trail users.
4. Establishes guidance to select traffic control devices and safety countermeasures to increase the visibility of crossings and increase driver yield rates.

There are many factors that may influence the need for crossings at locations without existing traffic control devices.

1. Local land uses and economic drivers may create desired travel paths for people on foot or non-motorized vehicles that do not align with existing crossing infrastructure and traffic control devices.

2. Given the limited flexibility of where trails may cross the road due to the design and history of the trail alignment, trails may be required to cross high speed and high-volume roads.

This policy is intended to facilitate engineering analyses that review safety at existing and proposed midblock crosswalks and trail crossings. Studies have demonstrated that marked crosswalks placed alone at uncontrolled locations, and not in conjunction with geometric pedestrian safety improvements or other traffic control devices, are not always recommended[1].

This policy is in accordance with the MUTCD 11th edition (hereafter referred to as "MUTCD").

[1] Zegeer, Charles V., et. al. *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations (FHWA: 2009),* http://www.fhwa.dot.gov/publications/research/safety/04100/

Attachment B

For reference, the following definitions from Section 102 of the Vehicle Code, 75 Pa. C.S. §102 are provided for use in the policy:

Intersection: "The area embraced within the prolongation or connection of the lateral curb lines, or, if none, then the lateral boundary lines of the roadways of two highways which join one another at, or approximately at, right angles, or the area within which vehicles traveling upon different highways joining at any other angle may come in conflict."

At an intersection, unmarked pedestrian crossings exist where the extension of the sidewalk(s) lines cross the roadway (unless specifically signed with "No crossing" signs, R9-3 o R9-3a).

Crosswalk

> (1) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway, measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway; and, in the absence of a sidewalk on one side of the roadway, that part of a roadway included within the extension of the lateral lines of the existing sidewalk.
>
> (2) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Local Authority: "County, municipal and other local boards or bodies having authority to enact laws relating to traffic. The term also includes airport authorities, except where those authorities are located within counties of the first class or counties of the second class."

Based on the Vehicle Code definitions, pedestrian crossings at non-intersection locations only exist when there is a marked crosswalk. These pedestrian crossings have no Vehicle Code definition but are commonly known as midblock crossings. Midblock crossings primarily serve pedestrians and bicyclists, including people with disabilities, crossing the roadway.

Pedestrian right of way follows these rules:

1. If a pedestrian is within a marked or unmarked crosswalk, a motorist has the duty to yield the right of way to the pedestrian. 75 Pa. C.S. 3542.
2. If a pedestrian is crossing outside of a marked or unmarked crosswalk, the pedestrian has the duty to yield the right of way to vehicles using the roadway. 75 Pa. C.S. 3543.
3. In the absence of sidewalk or shoulder, pedestrians are permitted to walk along the highway as long as they remain as near as practicable to an outside edge of the roadway and yield the right of way to vehicles. 75 Pa. C.S. 3544.

Although pedestrians are permitted to cross a roadway anywhere (Section 3543(a)) except in prohibited urban locations (Section 3543(c)), the pedestrian outside of a crosswalk must yield to approaching traffic. A marked midblock crosswalk changes this dynamic, requiring road users to yield to the pedestrian.

Trails are paths that serve a variety of different non-motorized vehicular users such as pedestrians, pedalcyclists, wheelchairs users, and mobility devices. In some cases, people on horseback or motorized vehicles such as ATVs, Golf Carts, and Snowmobiles may also use trails. Trail crossings are designed for bicyclists and pedestrians. Title 75 shall be referenced for how other users' activities are restricted on trails. For the purposes of this policy, there are two main categories of trails: shared use path and footpath. Definitions of the two trail categories are provided in Section V(C).

In accordance with MUTCD Section 3C.02, an engineering study should be performed before a marked crosswalk is installed at an uncontrolled approach. Midblock crossings and trail crossings are considered uncontrolled approaches. Section 3C.02 includes study elements that help guide this policy and specific site studies.

Studies should be documented using TE-113 Midblock Crosswalk Engineering and Traffic Study.

II. Applicability and Approval

This policy establishes the design guidance for midblock crosswalks and trail crossings across all public roads in the Commonwealth. To ensure compliance with Section 6109 Vehicle Code, 75 Pa. C.S. 6109, Local Authorities shall be consistent with this policy for midblock crosswalks and trail crossings on local roads. In general, actions by Local Authorities to implement traffic restrictions require:

1. A traffic and engineering study per Section 6109(e),
2. An ordinance or action by commission or authorized public official per Section 6109(b), and
3. Signs, markings, and other appropriate devices per Section 6109(c).

PennDOT approval is required, prior to the installation of any midblock crosswalk or trail crossing on a State highway, a local road with state or federal funding, or a federal aid roadway. PennDOT approval is not required on a local road with local funding. See 67 Pa Code §212.5.

1. Local Authorities install and maintain crosswalk pavement markings and signs per 67 Pa Code §212.5(b)(1)(v).
2. For crossings of state routes, crossings of local routes created with state or federal funding, or crossings of a federal aid roadway, a Local Authority cannot make post-construction changes to the approved design unless PennDOT approves the change.

The following permits and agreements apply to midblock crosswalks and trail crossings:

1. Traffic Signal Permit – if the crossing uses an electronic traffic control device
2. Highway Occupancy Permit – if the crossing includes modification to the existing highway facilities beyond signals, pavement markings, or signs in the ROW
3. Shared Use Path Right of Way Agreement - For trail crossing maintenance agreements between Local Authorities and PennDOT

III. Roles and Responsibility

A. For Midblock Crosswalks

For local led projects:

1. The Local Authority identifies the candidate midblock crosswalk location.
2. The Local Authority conducts an engineering and traffic study to determine if candidate location meets the requirements for a midblock crosswalk or trail crossing. The Local Authority may request that PennDOT perform the needed study. Requests will be evaluated and may be granted based on the District's capacity.
3. The Local Authority coordinates with relevant agencies as part of the study process.
4. For crossings of state routes, crossings of local routes with state or federal funding, or crossings of a federal aid roadway, the Local Authority shall make recommendations to the PennDOT District Traffic Engineer (DTE) or DTE designee on the request for a midblock crosswalk(s) and associated safety countermeasures.
5. PennDOT's DTE or DTE designee will review the study and, if justified, will coordinate to approve, or suggest modifications or recommended crossing treatments, as deemed appropriate.
6. Once PennDOT approves the crossing treatments, the PennDOT District Office will coordinate with the Local Authority on the project delivery process[2].

For PennDOT led projects programmed on regional TIPs:

1. The PennDOT DTE or DTE designee conducts the engineering and traffic study for candidate midblock crosswalk locations.
2. The PennDOT DTE or DTE designee coordinates with the Local Authority before approval of the midblock crosswalk and associated safety countermeasures.
3. A maintenance agreement may be required; the PennDOT Engineering Districts should confirm with Central Office Highway Admin or the Central Office Statewide Bicycle and Pedestrian Coordinator if a maintenance agreement is needed.
4. After construction is complete and traffic control devices are installed, maintenance responsibilities are outlined in 67 Pa. Code § 212.5. Local Authorities are responsible for installing, maintaining, and operating traffic control devices in accordance with 67 Pa Code §212.5(b)(1)(v) of Publication 212.

[2] Relevant PennDOT project delivery publications area as follows: Publication 740 – Local Project Delivery Manual; Publication 9: Policies and Procedures for the Administration of the County Liquid Fuels Tax and The Liquid Fuels Tax Act 655 for Municipalities; Publication 93 - Policy and Procedures for the Administration of Consultant Agreements

B. For Trail Crossings

For trail crossings across or adjacent to PennDOT right-of-way (ROW) or local roads with state or federal funding, or federal aid roadways:

1. The Local Authority shall request a trail crossing to the PennDOT Engineering District, including the District Traffic Engineer, District Bicycle & Pedestrian Coordinator, and District Planner.
2. PennDOT District staff will review the request. Requested trail crossings are strongly encouraged to be included in local, county, or regional plans, prior to approaching PennDOT.
3. The Local Authority conducts an engineering and traffic study and make recommendations to PennDOT.
4. If the proposed trail crossing design is approved by PennDOT, a maintenance agreement with PennDOT - the Shared Use Path Right of Way Agreement - may be required between PennDOT and the Local Authority, for:
    a. Shared use paths, and
    b. Footpaths, where ADA improvements are designed in PennDOT ROW

    A maintenance agreement is not required for footpaths where ADA improvements are not included in the PennDOT ROW.
5. If there is an existing SUP ROW agreement with the county or municipality, the agreement can be amended to include the new trail crossing.
6. If a trail sponsor has been identified, a trail agreement between the trail sponsor and Local Authority must be executed prior to entering into a maintenance agreement between PennDOT and the Local Authority.

Existing maintenance agreements for trail crossings on DCNR owned or operated land (i.e. shared use paths and footpaths) will continue to apply; in most cases, no separate ROW Use Agreement will be needed.

Figure 1 outlines the procedure for implementing this policy when a candidate location is identified by the Local Authority. Subsequently, **Figure 2** outlines the procedure for when PennDOT identifies a candidate location.

Attachment B

FIGURE 1: MIDBLOCK CROSSWALK AND TRAIL CROSSING POLICY PROCESS FOR LOCATIONS IDENTIFIED BY LOCAL AUTHORITIES

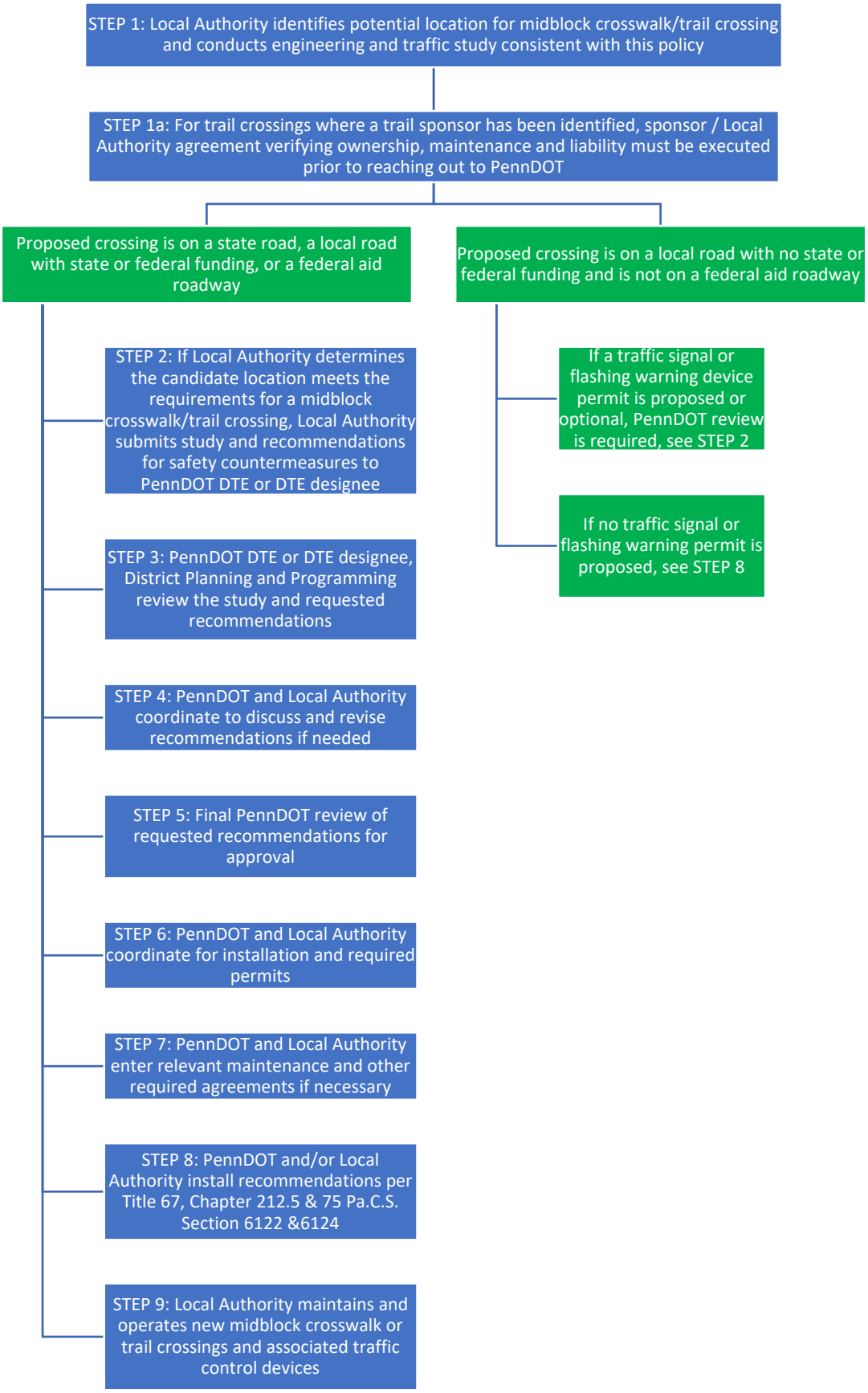
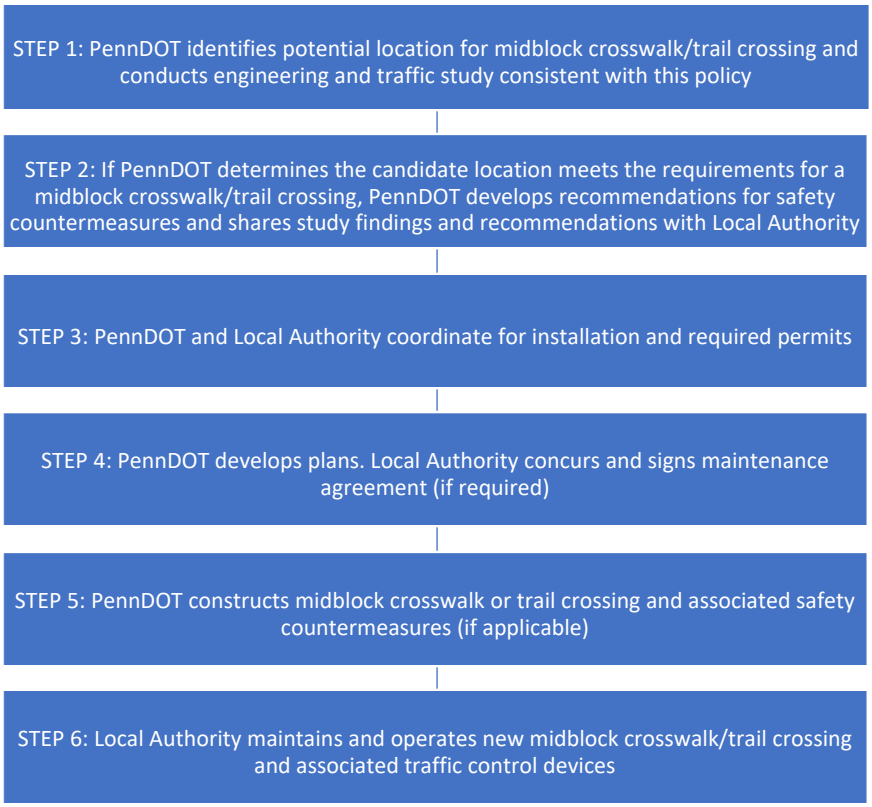


FIGURE 2: MIDBLOCK CROSSWALK AND TRAIL CROSSING POLICY PROCESS FOR LOCATIONS IDENTIFIED BY PENNDOT



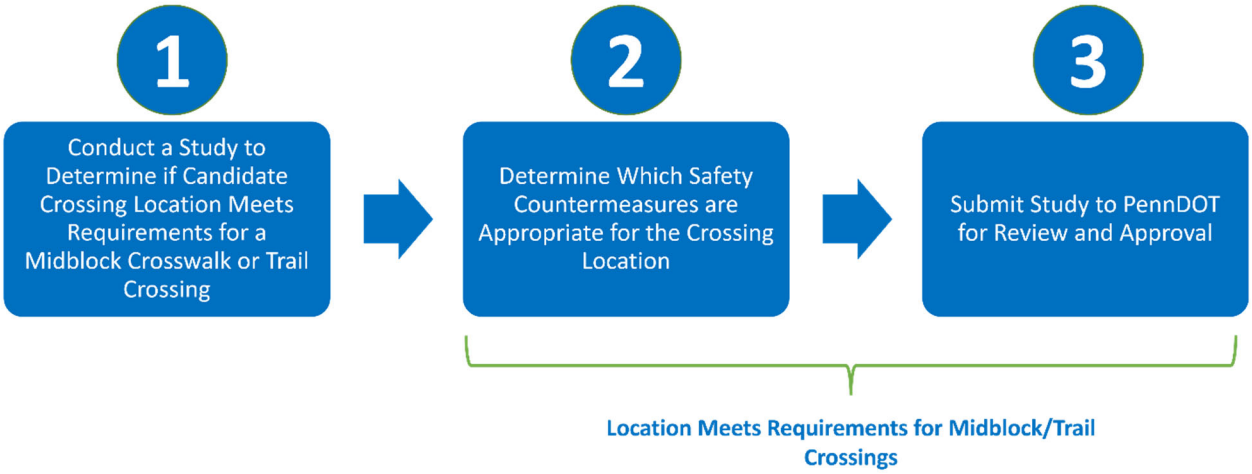
IV. Engineering and Traffic Study

A. Study Process

For changes to existing midblock or trail crossings or candidate midblock or trail crossings requested by the Local Authority, the Local Authority conducts an Engineering and Traffic Study. The Local Authority may request that PennDOT perform the study; requests will be evaluated and may be granted based on the District's capacity. For PennDOT led projects programmed on regional TIPs, the DTE or DTE designee conducts the engineering and traffic study for candidate midblock crosswalk and trail crossing locations identified by the Local Authority. Regardless of who does the study, the study will determine if the existing or candidate location meets the requirements for a midblock crosswalk or trail crossing. If the candidate crossing location meets the requirements for a midblock crosswalk or trail crossing, designers shall refer to this guidance to determine safety countermeasure(s) and appropriate traffic control devices. The Local Authority shall submit the study findings and recommendations to PennDOT using TE-113 Midblock Crosswalk Engineering and Traffic Study.

Figure 3 outlines the Engineering and Traffic Study process for midblock crosswalks and trail crossings.

FIGURE 3: ENGINEERING AND TRAFFIC STUDY PROCESS



B. Study Requirements

The Engineering and Traffic Study is required for all candidate midblock crosswalk and trail crossing locations. Studies shall be documented using TE-113 Midblock Crosswalk Engineering and Traffic Study. It is recommended that the study be completed by a licensed professional engineer; however, it may be completed by police officers, roadmasters, maintenance supervisors or traffic technicians (per Title 67, Section 212.4), subject to PennDOT's engineering review. If PennDOT engineering review is not required or available, the Local Authorities must arrange their own engineering review.

The study shall document how the following requirements are met for candidate midblock crosswalk and trail crossing locations:

- Provide sufficient stopping sight distance and intersection sight distance
- No closer than 300 feet to nearest marked crosswalk[3]
- Pedestrian volumes[4]
    - 20 pedestrian crossings per peak hour
    - 15 elderly, disabled and/or children crossings per peak hour

The study should comply with the general guidance provided in the MUTCD to consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors such as crash data.

[3] Engineering judgement may determine that closer spacing is appropriate

[4] Engineering judgement should be used as described in Section C if pedestrian counts are not available and/or if volumes do not meet the minimum threshholds.

C. Engineering and Traffic Study Areas of Study

The Engineering and Traffic Study should include documentation of the following:

1) Roadway geometry, including number of lanes, lanes widths, crossing length, shoulders, horizontal/vertical curves, approach grades
2) Presence of a median or other refuge area
3) Existing traffic control devices
4) Presence of on-street parking
5) Distance from adjacent intersections
   a) Location should be at least 300 feet from the nearest marked crosswalk on the same roadway.
   b) Engineering judgment may determine that spacing less than 300 feet can be used.
6) Pedestrian volumes (for midblock crosswalks) or trail user volumes (for trail crossings)
   a) When possible, collect 24-hour counts for seven continuous days. If not possible, a minimum of one 24-hour weekend and one 24-hour weekday should be counted. Restricting data collecting to only daylight hours is acceptable unless land use context suggests potential heavy nighttime crossings
   b) Count all pedestrian crossings within 150 feet of either side of the candidate crossing location.
   c) Pedestrian volumes should meet the following thresholds:
      i) 20 pedestrian crossings per peak hour of pedestrian use
      ii) 15 elderly, disabled and/or children crossings per peak hour of pedestrian use
      iii) If pedestrian counts are not available and/or if volumes do not meet the minimum thresholds, consider local land uses and pedestrian activity generators such as parks, shopping centers, community centers, schools, senior centers, and community services. Use engineering judgement to consider how local land uses may generate pedestrian activity. Such land uses and/or the presence of a trail may be a justification for a midblock crosswalk/trail crossing, even if pedestrian volumes do not meet the minimum thresholds.
7) Vehicle volumes
8) Vehicle speeds
   a) Posted speed
   b) If recent speed data is available, document the 85th percentile speed
9) Crash history (five years of data)
10) Sight distance roadway geometry
   a) All crossings shall provide sufficient stopping sight distance and intersection sight distance. Refer to 67 Pa Code §212 Appendix and Pub. 13, DM-2, Chapter 3, Section 3.1 for more guidance on sight distance calculations.
      i) Stopping sight distance: The length of highway over which a 2-foot-high object on the roadway is continuously visible to the driver, with the driver's eye height assumed to be 3.5 feet above the road surface.
      ii) Verify there is adequate sight distance at the proposed crossing location between all modes of transportation and potential conflicts, where the driver's eye is assumed to be 3.5 feet

above the roadway approaching the crosswalk and the pedestrian's eye is assumed to be 4 feet above the roadway at the crosswalk.

iii) Crossing sight distance: The sight distance needed for people crossing the road to walk across the roadway and avoid conflicts with motor vehicles. Crossing sight distance is dependent on human perception-reaction time, vehicle speed, and time for pedestrians to cross the roadway including road setback distances. Pedestrian crossing time is assumed to be 3.5 feet per second[5]. However, the use of 3.0 feet per second is encouraged to accommodate the most vulnerable road users (children, elderly, or people with disabilities). Bicycle crossing speed is assumed to be 5.4 feet per second[6]. If a trail is used by multiple types of users, the crossing speed for the slowest trail user, usually pedestrians, should be used.[7]

11) Trail/sidewalk geometry, including surface material, surface condition, width, trail traffic control features (chicanes, gates, signs, etc.), ADA features, and drainage issues.
12) Possibility of consolidating multiple crossing points
13) Available nighttime lighting
14) Other appropriate factors include but are not limited to:
    a) Coordination with Grade Crossing Coordinators and the Public Utility Commission (PUC), where appropriate
        i) If the proposed design is in Department ROW and located at an at-grade railroad crossing, coordination is needed with PennDOT Central Office, the District Grade Crossing Coordinator, and the PUC prior to approvals
    b) Distance to adjacent driveways and commercial entrances, adjacent land uses, and community destinations
    c) Documentation of site conditions such as adjacent land uses, trail alignments, and known utilities
    d) Existing and anticipated user types
    e) List of approved local and regional plans that include proposed location
    f) If applicable, documentation that the trail sponsor has a signed agreement or legal interest allowing the trail on the property adjacent to the state road(s)

D. Study Outcomes

The Engineering and Traffic Study and TE-113 form should clearly determine if the candidate location meets the requirements for a midblock crosswalk or trail crossing. There are two potential outcomes of the study:

[5] MUTCD 11th Edition Chapter 4I

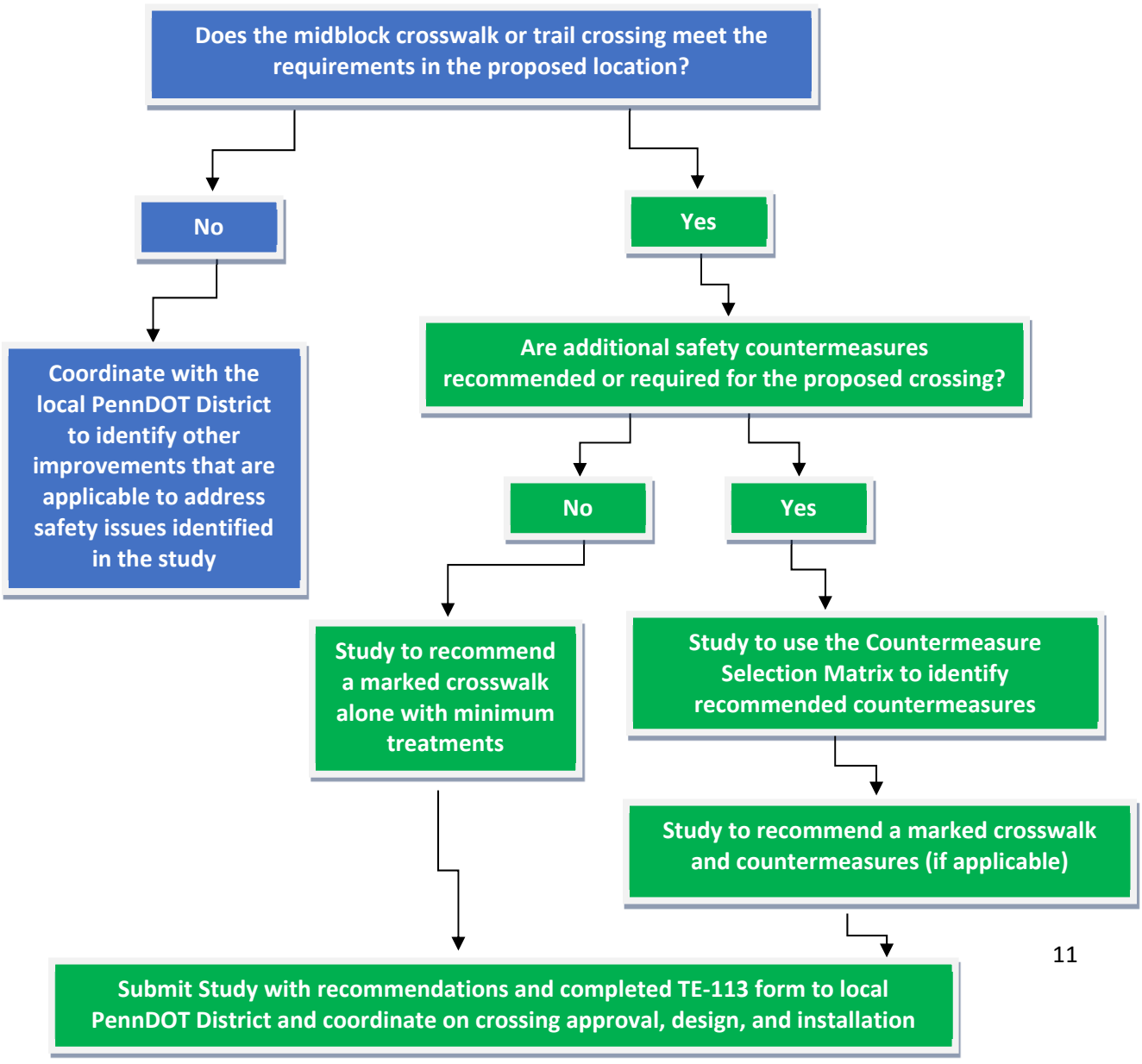
[6] MnDOT Best Practices Synthesis and Guidance in At-Grade Trail-Crossing Treatments, 2013

[7] AASHTO Guide for the Development of Bicycle Facilities, 2024

1. If the location does not meet the requirements for a midblock crosswalk or trail crossing, but safety issues are identified in the study, PennDOT has a non-delegable duty to make the highways reasonably safe for foreseeable users, including pedestrians. Additional coordination with the local PennDOT District may be needed to identify other improvements to address safety issues. The local PennDOT District shall issue a letter stating that the proposed location does not meet the requirements for a midblock crosswalk or trail crossing and maintain a record of the letter, decision, and associated safety improvements (if applicable).
2. If the location does meet the requirements for a midblock crosswalk or trail crossing, refer to
3. **Table** 1 to determine if the candidate location satisfies the conditions for a marked crosswalk alone with minimum treatments or if other supplemental safety countermeasures are recommended or required.

These potential outcomes of the Engineering and Traffic Study and next steps in the process are illustrated in **Figure 4**.

FIGURE 4: ENGINEERING AND TRAFFIC STUDY OUTCOMES



Attachment B

Based on **Table 1**, there are four potential conditions for locations that are candidates for a midblock crosswalk or trail crossing:

A. A marked crosswalk with minimum treatments described in Section V(A) - *Minimum Treatments for Midblock Crosswalks and Trail Crossings* is appropriate.
B. A marked crosswalk with minimum treatments described in Section V(A) - *Minimum Treatments for Midblock Crosswalks and Trail Crossings* may be appropriate; however, additional pedestrian safety countermeasures beyond the minimum treatments are recommended.
C. A marked crosswalk alone with minimum treatments described in Section V(A) - *Minimum Treatments for Midblock Crosswalks and Trail Crossings* is not sufficient. A marked crosswalk may **only** be installed if additional safety countermeasures are included.
D. A marked crosswalk is not recommended unless combined with full signalization. If nearby land uses and/or pedestrian volumes demand a midblock crosswalk, then consider a grade-separated crossing or full signalization.

TABLE 1: MIDBLOCK CROSSWALK AND TRAIL CROSSING EVALUATION MATRIX FOR CANDIDATE MIDBLOCK CROSSWALK OR TRAIL CROSSING LOCATIONS

Roadway Cross-section	Roadway AADT and Speed Limit															
	Less than 9,000 AADT				9,000 to 12,000 AADT				12,000 to 15,000 AADT				More than 15,000 AADT			
	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH
Two Lanes (undivided)	A	A	B	C	A	A	B	C	A	A	B	C	B	B	C	C
Three lanes with raised median	A	B	B	C	A	B	B	C	B	B	B	C	B	B	B	C
Three lanes without raised median	A	B	B	C	A	B	B	C	B	B	B	C	B	C	C	C
Four lanes with raised median	B	B	B	C	B	B	C	C	B	B	C	C	C	C	C	C
Four lanes without raised median	B	B	C	C	B	B	C	C	C	C	C	D	C	C	C	D
Five or more lanes with or without raised median	C	C	D	D	C	C	D	D	D	D	D	D	D	D	D	D

Legend

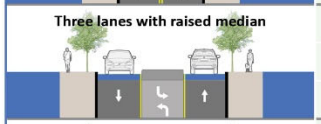
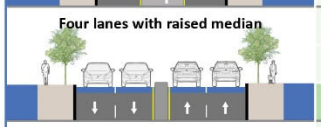
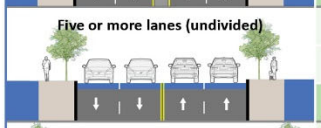
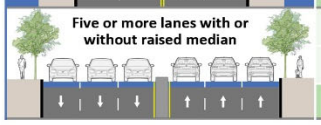
A	Marked crosswalk alone is appropriate if installed with minimum treatments described in Section V(A)
B	Additional pedestrian safety countermeasures are recommended in addition to minimum treatments described in Section V(A)
C	Additional pedestrian safety countermeasures are required in addition to minimum treatments described in Section V(A)
D	A marked crosswalk is not recommended unless combined with full signalization. Additional pedestrian safety countermeasures are recommended

If the candidate location satisfies condition A and a marked crosswalk alone with minimum treatments is appropriate, skip to *Section V – Design Considerations*. If additional safety countermeasures beyond a marked crosswalk with minimum treatments are recommended or required at the candidate location (conditions B, C, or D), move to *Section E – Countermeasure Selection*.

E. Countermeasure Selection

Use **Table 2** to consider the minimum appropriate safety countermeasures based on roadway cross-section, vehicle volumes, and vehicle speeds. For the evaluation of countermeasures, Highway Safety Manual (HSM) analyses may be considered as part of engineering judgement determinations where appropriate. For more information on design guidance for the traffic calming safety countermeasures shown in the table, please refer to PennDOT Publication 13, Design Manual Part 2, Chapter 18, Traffic Calming, FHWA Pedestrian Safety Guide and Countermeasure Selection System, FHWA STEP Guide, FHWA Proven Safety Countermeasures, and FHWA Improving Safety for Pedestrians and Bicyclists Accessing Transit.

TABLE 2: COUNTERMEASURE SELECTION MATRIX (12,000 AADT OR LESS))

Roadway Cross-section	Roadway AADT and Speed Limit																							
	Less than 9,000 AADT												9,000 to 12,000 AADT											
	≤30 mph			35 mph			40 mph			≥45 mph			≤30 mph			35 mph			40 mph			≥45 mph		
 Two Lanes (undivided)	a		c			c			c		b				c			c			c		b	
	d			d	**e**		d	**e**			e		d			d	e		d	**e**			**e**	
										g												g		
 Three lanes with raised median	a	b	c		**b**	c		**b**	c		**b**			b	c		**b**	c		**b**	c		**b**	
					e			**e**			**e**			e			**e**			**e**			**e**	
	g			**g**			**g**			**g**			g			**g**			**g**			**g**		
 Three lanes without median	a	b	c		**b**	c		**b**	c		**b**			b	c		**b**	c		**b**	c		**b**	
	d	e		d	e		d						d	e		d	**e**		d					
	g			**g**			**g**			**g**			g			**g**			**g**			**g**		
 Four lanes with raised median		**b**	c		**b**	c		**b**	c		**b**			**b**	c		**b**	c		**b**	c		**b**	
		e	f		e	f			f			f		e	f		**e**	f			f			f
	g			**g**			**g**			**g**			**g**			**g**			**g**			**g**		
 Five or more lanes (undivided)		**b**	c		**b**	c		**b**	c		**b**			**b**	c		b	c		**b**	c		**b**	
	d	e	**f**	**d**	e	f	**d**		f			**f**	**d**	e	f	**d**	**e**	f	**d**		f			f
	g			**g**			**g**			**g**		i	**g**			g			**g**			**g**		**i**
 Five or more lanes with or without raised median		**b**	c		**b**	c		**b**	c		**b**			**b**	c		b	c		**b**	c		**b**	
	d	e	**f**	**d**	e	f	**d**		f			**f**	**d**	e	f	**d**	**e**	f	**d**		f			f
	g	h	i	**g**	h	i	**g**	**h**	**i**	**g**	**h**	**i**	**g**	h	i	**g**	h	i	**g**	**h**	**i**	**g**	**h**	**i**

Key:

a – Countermeasure is a candidate treatment

a – Countermeasure should always be considered, but not mandated or required, based upon engineering judgment

a - Raised crosswalk

b - Advance Yield Here to Pedestrians sign and yield line, Advance Warning sign, and advance pavement markings

c - Curb Extension

d - Pedestrian Refuge Island

e - Rectangular Rapid Flashing Beacon or Flashing Warning Device

f - Road Diet

g - Advance Warning Beacons

h - Grade Separated

i - Traffic Signal*

* See Traffic Signal Warrant section

TABLE 2 (CONT.): COUNTERMEASURE SELECTION MATRIX (>12,000 AADT)

Roadway Cross-section	Roadway AADT and Speed Limit																							
	12,000 to 15,000 AADT												More than 15,000 AADT											
	≤30 mph			35 mph			40 mph			≥45 mph			≤30 mph			35 mph			40 mph			≥45 mph		
Two Lanes (undivided)			c			c			c		b				c			c			c		b	
	d	e		d	e		d	**e**			**e**		d	e		d	e		d					
									i	g		i									i	g		i
Three lanes with raised median		b	c		**b**	c		**b**	c		**b**			**b**	c		**b**	c		**b**	c		**b**	
		e			**e**			**e**			**e**			e			**e**							
	g			**g**			**g**		i	**g**		i	**g**			**g**			**g**		i	**g**		i
Three lanes without median		b	c		**b**	c		**b**	c		**b**			**b**	c		**b**	c		b	c		**b**	
	d	e		d	**e**		d						d	e		d			d					
	g			**g**			**g**		i	**g**		i	g			**g**			**g**		i	**g**		i
Four lanes with raised median		**b**	c		**b**	c		**b**	c		**b**			**b**	c		**b**	c		**b**	c		**b**	
		e	f		**e**	f			f			f		**e**	f			f			f			f
	g			**g**			**g**		i	**g**		i	**g**			**g**			**g**		i	**g**	h	i
Five or more lanes (undivided)		**b**	c		**b**	c		b	c		**b**			**b**	c		**b**	c		**b**	c		**b**	
	d	e	f	**d**	**e**	f	**d**		f			f	**d**	**e**	f	**d**		f	**d**		f			f
	g			**g**			**g**		i	**g**		i	**g**			**g**			**g**		i	**g**	**h**	**i**
Five or more lanes with or without raised median		**b**	c		**b**	c		b	c		**b**			**b**	c		**b**	c		**b**	c		**b**	
	d	e	f	**d**	**e**	f	**d**		f			f	**d**	**e**	f	**d**		f	**d**		f			f
	g	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**	**g**	**h**	**i**

Key:

a – Countermeasure is a candidate treatment

a – Countermeasure should always be considered, but not mandated or required, based upon engineering judgment

a - Raised crosswalk

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f - Road Diet

g - Advance Warning Beacons

h - Grade Separated

i - Traffic Signal*

* See Traffic Signal Warrant section

Traffic Signal Warrants

High vehicle volumes and high volumes of pedestrian crossings may limit the number of safe gaps in traffic for people to cross without a traffic signal. If the safety countermeasure selection matrix recommends considering a traffic signal, use the PennDOT traffic signal warrant analysis (https://www.dot.state.pa.us/public/Bureaus/BOMO/Portal/TSPortal/WB.html). Use Warrant PA-2 for midblock crossings and trail crossings to determine if a traffic signal is warranted for a current or proposed midblock crosswalk/trail crossing. MUTCD Signal Warrant 4 also provides criteria for pedestrian volumes to justify a traffic signal.

There may be situations where the pedestrian volumes do not satisfy the warrants for a traffic signal, but a traffic signal may be appropriate depending on other factors. Engineering judgment should be used to determine if any of the following conditions warrant a traffic signal regardless of pedestrian volumes.

- High concentration of vulnerable crosswalk/trail users, such as elderly people, people with disabilities, and children
- Sensitive land uses nearby generate vulnerable pedestrian traffic such as schools, hospitals, senior centers, trails, etc.
- Locations with a high crash history or a fatal crash
- High vehicular volumes that limit the number of safe gaps for people to cross
- Adjacent lanes of traffic that could block the view of the crossing pedestrian and the nearside pedestrian treatment on multi-lane roadways

V. Design Considerations

A. Minimum Treatments for Midblock Crosswalks and Trail Crossings

The following treatments shall be installed at all candidate midblock and trail crossing locations.

ADA

All crossings must meet ADA requirements, as noted in the Pedestrian chapter of Publication 13, Design Manual, Part 2.

High Visibility Crosswalks

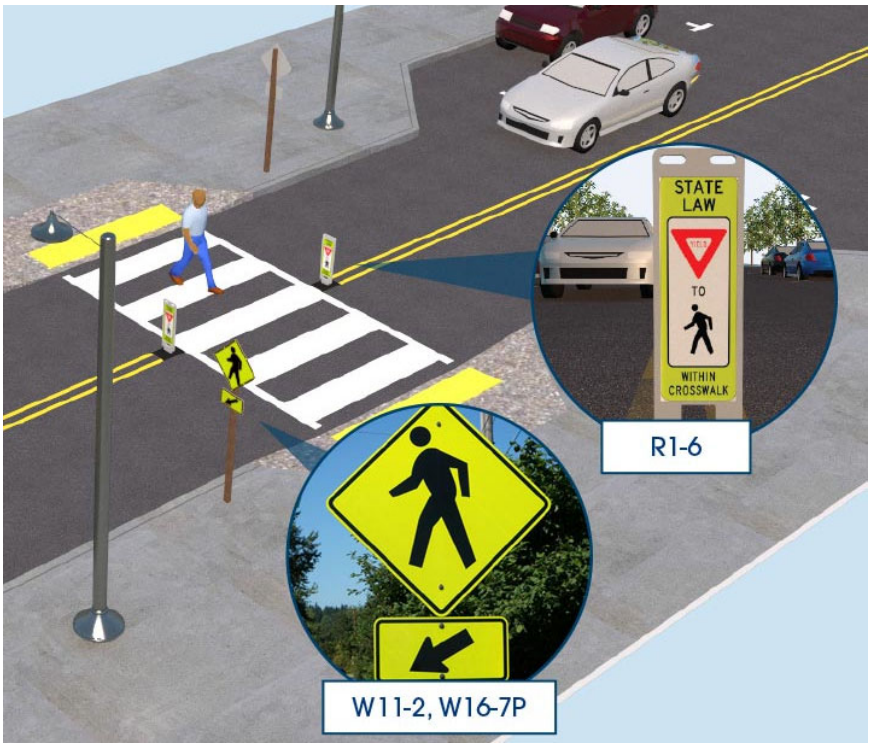
For all marked midblock crosswalks and trail crossings, the crosswalks shall be marked as high-visibility crosswalks as shown in Pavement Marking Standard (TC-8600).

High visibility crosswalks shall be established at approximately 90 degrees to the roadway to minimize crossing distance and exposure. All crosswalk markings shall conform to the Pavement Marking Standard (TC-8600) and MUTCD as applicable.

Warning Signs and Plaques

For all marked midblock crosswalks and trail crossings, install a warning sign and plaque immediately prior to the crossing in both directions on the right side of the roadway. The sign and plaque may be

fluorescent yellow-green in color. If a curb extension is used, install the warning sign in the curb extension.



LOCATION OF WARNING SIGN IN CURB EXTENSION *(SOURCE: FHWA SAFE TRANSPORTATION FOR EVERY PEDESTRIAN: CROSSWALK VISIBILITY ENHANCEMENTS)*

Warning sign types for midblock crosswalks and trail crossings shall be installed as follows:

- **Midblock Crosswalks:** Use the Pedestrian (W11-2) sign with the Diagonal Downward Pointing Arrow (W16-7P) or the combined Bike/Ped (W11-15) plaque
- **Trail Crossings:** Designers should use the warning sign that aligns with the trail type and main trail user.
    - Shared use path
        - Pedestrian (W11-2)
        - Bicycle (W11-1)
        - Bicycle/Pedestrian (W11-15)
        - Trail X-ING (W11-15P)
    - Footpath
        - Hiker Crossing (W11-2B)

Where the improvement of the visibility of the warning sign is desired, any of the following methods may be used, as appropriate, to enhance the sign's conspicuity:

- Increasing the size of a warning sign.
- Doubling-up of a standard warning sign by adding a second identical sign on the left-hand side of the roadway.
- Adding a NEW plaque above a new warning sign, for a period of time determined by engineering judgment, to call attention to the new sign.
- Adding one or more red or orange flags (cloth or retroreflective sheeting) above a warning sign, with the flags oriented so as to be at 45 degrees to the vertical.
- Adding a solid yellow, a solid fluorescent yellow, or a diagonally striped black and yellow (or black and fluorescent yellow) strip of retroreflective sheeting at least 3 inches wide around the perimeter of a standard warning sign. This may be accomplished by affixing the standard warning sign on a background that is 6 inches larger than the size of the standard warning sign.
- Adding an advanced warning beacon/flasher or an internally illuminated advanced warning sign.
- Adding light emitting diode (LED) units within the symbol or legend of a sign or border of a standard warning sign.
- Adding a strip of retroreflective material to the sign support.

Crosswalk Visibility Enhancements

In addition to the installation of High Visibility Crosswalks, FHWA's STEP Guide provides guidance for crosswalk visibility enhancements that should be evaluated for all midblock crosswalks and trail crossings, including parking restriction on crosswalk approach, improved nighttime lighting, and in-Street Pedestrian Crossing Sign (R1-6). FHWA's STEP Guide shall be consulted to determine which crosswalk visibility enhancements are appropriate for all midblock crosswalks and trail crossings. In particular, the following FHWA STEP requirements shall be met:

- 3-lane roadways with and without medians over 9,000 AADT: must include parking restriction on crosswalk approach and improved nighttime lighting
- Roadways with 40 MPH or greater posted speed: including parking restriction on crosswalk approach, improved nighttime lighting require parking restrictions on crosswalk approach and adequate nighttime lighting at a minimum

Parking restriction on the crosswalk approach shall be determined to ensure appropriate sight distances are maintained, as defined in TE-113.

Internally illuminated overhead signs may also be appropriate. Overhead signs are helpful in alerting drivers of a crossing at wide, high-speed streets or in cases where on-street parking, street trees or

there are other visual obstructions for signs posted on the side of the road. If used, the Overhead Pedestrian Crossing sign shall be placed over the roadway at the crosswalk location[8].

B. General Guidance for Midblock Crosswalks and Trail Crossings

1. All traffic control devices shall be installed per PennDOT guidelines and traffic calming safety countermeasures shall be designed and implemented in accordance with PennDOT guidelines (e.g., Publications 13, 46, 111, 236).

2. Pavement markings in advance of raised crosswalks shall conform to the "typical pavement markings for speed tables or speed humps with crosswalks" in the Pavement Marking Standard (TC-8600).

3. All traffic calming safety countermeasures should be designed and implemented in accordance with Publication 13, Design Manual Part 2, Chapter 18, Traffic Calming.

4. For trail crossings, special consideration may be needed to accommodate different trail users (see Specific Treatments for Trail Crossings section).

Flashing Warning Beacons: Rectangular Rapid Flashing Beacons (RRFBs)

RRFBs are recommended rather than traditional flashing beacons. RRFBs require actuation by users, which may be a pushbutton, passive detection, or both. If passive detection is used, it shall detect all users, including pedestrians and bicycles. RRFBs may include Accessible Pedestrian Signals (APS), which may be pushbuttons or passive detection devices. RRFBs may be designed to be potentially upgraded to full signals in the future.

A WAIT FOR VEHICLES TO YIELD BEFORE CROSSING (R10-104) sign shall be mounted with the PUSHBUTTON TO TURN ON WARNING LIGHTS (R10-25) sign.

RRFBs should utilize the side-mounted assembly at locations with a single lane approach and/or narrow or no shoulders. Overhead-mounted assemblies should be considered when a horizontal or vertical curve would limit the sight distance approaching the crosswalk to be less than deemed necessary, there is an existing or proposed wide shoulder, the crossing is at a multi-lane approach, and/or the side-mounted assemblies would have to be placed at a distance from the curbline that would minimize the effectiveness of the flashers. For overhead-mounted pedestrian flashing warning beacons, the OVERHEAD PEDESTRIAN CROSSING (R1-9) sign may be mounted overhead.

At-Grade and Separated Crossings:

For all at-grade railroad crossings, coordination with the PennDOT Grade Crossing Coordinator, PennDOT DTE (or DTE designee), and the PUC is required. Engineering judgment should be used for unique situations, including when pedestrian bridges are considered due to the amount of pedestrian traffic or other factors. Factors to consider for grade-separated crossings include:

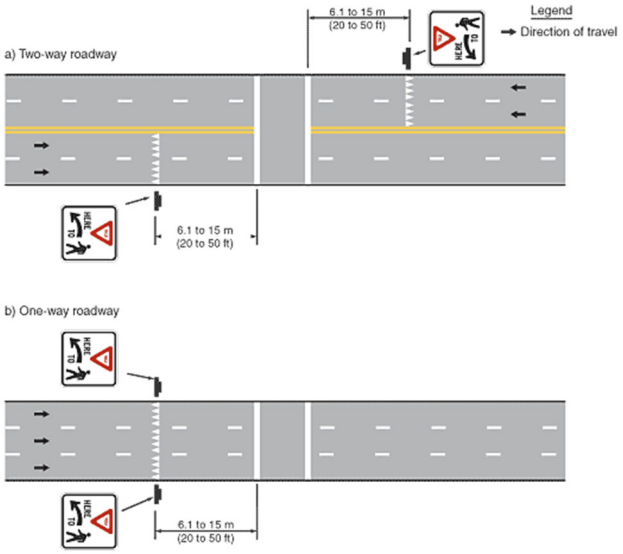
---

[8] MUTCD 11th Edition Chapter 2B

- There is no reasonable alternative route available
- A large number of people must regularly cross a high-speed, high-volume roadway
- There is no other crossing location available within 600 feet of the proposed location
- ADA accessible grades are achievable

Yield Here to Pedestrian Signs and Yield Lines

Yield Here To Pedestrians signs may be used in advance of a midblock crosswalk that crosses an uncontrolled multi-lane approach. If used, place Yield Lines 20 to 50 feet in advance of the crosswalk and install a YIELD HERE TO PEDESTRIANS (R1-5) sign immediately adjacent to the Yield Line. Yield Lines shall conform to the Pavement Marking Standard (TC-8600).



MUTCD FIGURE SHOWING YIELD LINES AT MIDBLOCK CROSSWALKS

Advanced Warning Signs and Pavement Markings

Advanced warning signs may be used to alert road users to unexpected entries into the roadway at trail crossings. They should be used only at locations where the road user's sight distance is restricted, or the condition, activity, or entering traffic would be unexpected. Sign placement should not inhibit sight distance.

The Pedestrian (W11-2) sign may be used where pedestrians might be crossing the roadway. The combined Bicycle/Pedestrian (W11-15) sign may be used where both bicyclists and pedestrians might be crossing the roadway, such as at a shared use path crossing. A TRAIL X-ING (W11-15P) supplemental plaque may be mounted below the W11-15 sign. The TRAIL CROSSING (W11-15a) sign may be used to warn of shared use path crossings where pedestrians, bicyclists, and other user groups might be crossing the roadway.

Warning signs may be supplemented with warning plaques such as AHEAD or XX FEET to inform road users that they are approaching a point where crossing activity might occur. Warning signs and their related supplemental plaques may have a fluorescent yellow-green background with a black legend and border.

Warning signs may be accompanied by advanced pavement markings such as PED XING, or TRAIL XING to inform road users that they are approaching a point where crossing activity might occur.

C. Specific Treatments for Trail Crossings

Trail Types

Trails exist in different forms; each trail type serves different users. The difference in trail users requires different design considerations for trail crossings.

There are two main types of trails: shared use path and footpath:

1. Shared use path:
    a. Any paved or unpaved trail that is physically separated from vehicular traffic by an open space or barrier
    b. Designed, built, clear, marked, and maintained for use by pedestrians, pedalcyclists, wheelchairs users, mobility devices, and other non-motorized users.
    c. In some cases, may also allow the use of golf carts, ATVs, snowmobiles, and horses.
    d. Designed pursuant to the American Association of State Highway and Transportation Officials' (AASHTO) criteria applicable to bicycle facilities.
    e. Designed to provide a transportation function and must meet ADA requirements at roadway crossings
    f. Requires municipal approval – a maintenance agreement is required in Department ROW
    g. If crossing includes an at-grade railroad crossing location, coordination with the PUC is required
2. Footpath:
    a. Sometimes designated by DCNR and/or sponsor(s)
    b. Include natural surface trails for public walking, hiking, and running
    c. A natural path shaped by topography
    d. Require ADA to the maximum extent feasible, and does not require a maintenance agreement if ADA improvements are not included in the PennDOT ROW

General Design Guidance for Trail Crossings

1. Provide clear signage and guidance for all trail users.
2. Prioritize minimizing the crossing distance by orienting the crossing perpendicular to the roadway when possible.
3. Verify that there is adequate stopping sight distance for vehicles at the proposed crossing location between an approaching driver and a person anywhere within the proposed crosswalk area where

the driver's eye is assumed to be 3.5 feet above the roadway (approaching crosswalk) and the trail user is assumed to be 2 feet above the roadway (at the crosswalk).

4. Crossing treatments that require actuation by trail users, such as RRFBs, must include a pushbutton and should be designed for passive detection to detect all trail users, including pedestrians and bicycles. RRFBs should be designed to be potentially upgraded to full signals in the future.
5. Design and implement all traffic calming safety countermeasures in accordance with PennDOT Publication 13, Design Manual Part 2, Chapter 18, Traffic Calming.
6. Pavement markings in advance of raised crosswalks shall conform to the "typical pavement markings for speed tables or speed humps with crosswalks" in the Pavement Marking Standard (TC-8600).
7. Additional design guidance for trail crossings is provided in the AASHTO Guide for the Development of Bicycle Facilities.
8. Special consideration may be needed to accommodate different trail users.

Treatments Along Trail by Trail Type

In addition to safety countermeasures in the roadway to make the trail crossing safer, other treatments may be included along the trail itself to enhance the safety and comfort of trail users at crossings. These trail treatments are summarized in **Table 3.**

TABLE 3: TRAIL TREATMENTS

Potential Treatments Along Trail	Examples

• **STOP sign and STOP line to slow bicyclists prior to crossing**
• **Physical barrier to prevent vehicles from roadway turning onto the trail. Barriers must be installed outside the roadway clear zone. Potential barriers may include:**
  ○ **Removable bollards**
  ○ **Landscaping**
  ○ **Gates**
• **ADA compliant pedestrian ramps with detectable warning surfaces for visually impaired trail users**
	
	Removable bollard and STOP sign (*Kittelson*)
	 
	Landscaping (*Empire State Trail*)
	 
	ADA Ramps (*Google*)

TE-113 (4-25)

Attachment B

Pennsylvania
Department of Transportation
www.pa.gov/penndot

MIDBLOCK CROSSWALK AND TRAIL CROSSING ENGINEERING AND TRAFFIC STUDY

PLEASE TYPE OR PRINT ALL INFORMATION IN BLUE OR BLACK INK

A - LOCATION INFORMATION

COUNTY	MUNICIPALITY
STREET NAME	TOWNSHIP ROAD #
SR#	SEGMENT

B - REFERENCE INFORMATION

REFERENCE	SECTION(S)
Chapter 212	212.5(b)(1)(v)(T)
MUTCD	3B.17
PUB 46	Chapter 11.9
Vehicle Code Title 75 P.a. C.S.	§ 3542
TC-8600	Sheet 4 of 8

C - STUDY ELEMENTS

FROM PUB 212 APPENDIX:

- ☐ Crash Analysis (1)
- ☐ Geometric Review (8)
- ☐ Pedestrian Volumes (12)
- ☐ Sight Distance (16)
- ☐ Speed Data (17)
- ☐ Traffic Volumes (20)
- ☐ Other: _____

D - ATTACHMENTS LISTING

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

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

Attachment B

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

1. What is the posted speed limit or statutory speed limit? _____ MPH
2. What is the total width of the roadway? _____ feet
3. What is the number of travel lanes at the proposed crosswalk? _____
4. Is there a median present? ☐ YES ☐ NO
   If yes, is the median raised? ☐ YES ☐ NO
5. Are sidewalks present? ☐ YES ☐ NO
6. Is parking permitted in the area of the proposed crosswalk? ☐ YES ☐ NO
   What distance is the parking area from the proposed crosswalk? _____ feet
7. Is angle parking present? ☐ YES ☐ NO
8. Is curbing present? ☐ YES ☐ NO
   If yes, does curbing include a curb extension? ☐ YES ☐ NO
9. Is the distance to the nearest marked crosswalk 300 feet or more? ☐ YES ☐ NO
10. What is the exact location of the proposed crosswalk (be as specific as possible)? _____
    _____
11. What is the average daily traffic (ADT) of the roadway? _____ ADT

Attachment B

F - SITE DATA (CONTINUED)

12. What is the total number of pedestrians crossing the street within 150 feet of the proposed crosswalk? _____

13. In the table below, indicate the four highest one hour periods that pedestrians will use the crosswalk and how many pedestrians will cross.

	TIME	NO. OF PEDESTRIANS CROSSING
Example	7:00 – 8:00 AM	40
1.)	_____	_____
2.)	_____	_____
3.)	_____	_____
4.)	_____	_____

14. What is the total number of children, elderly, and/or disabled pedestrians crossing the street within 150 feet of the proposed crosswalk? _____

15. In the table below, indicate the four highest one hour periods that children, elderly, and/or disabled pedestrians will use the crosswalk and how many children, elderly, and/or disabled pedestrians will cross?

	TIME	NO. OF PEDESTRIANS CROSSING
Example	7:00 – 8:00 AM	40
1.)	_____	_____
2.)	_____	_____
3.)	_____	_____
4.)	_____	_____

16. Does the available sight distance between an approaching driver and a person anywhere within the proposed crosswalk satisfy the following minimum values where the driver's eye is assumed to be 3.5 feet above the roadway approaching the crosswalk and the pedestrian's eye is assumed to be 4 feet above the roadway at the crosswalk? ..... ☐ YES ☐ NO

Speed Limit (mph)	Minimum Sight Distance for a Corresponding Grade (feet)		
	-6%	level	+6%
25	165	155	143
30	215	200	184
35	271	250	229
40	333	305	278
45	400	360	331
50	474	425	388
55	553	495	450

17. What are the daily trail user volumes?_____ N/A

18. Has a trail sponsor been identified for the crossing? ..... ☐ YES ☐ NO N/A
If yes, has a trail agreement between the trail sponsor and Local Authority been executed? ..... ☐ YES ☐ NO

19. Does the site meet the requirements for a midblock crosswalk or trail crossing? ..... ☐ YES ☐ NO
If yes, what is the designated condition of the proposed crosswalk or trail crossing as determined by Table 1: Midblock Crosswalk and Trail Crossing Evaluation Matrix for Candidate Midblock Crosswalk or Trail Crossing Locations? ..... A B C D

Attachment B

F - SITE DATA (CONTINUED)

20. If the site meets the requirements for a midblock crosswalk or trail crossing, list the minimum treatments proposed from Section V Minimum Treatments for Midblock Crosswalks and Trail Crossings..... N/A

21. If the proposed crosswalk or trail crossing meets conditions B, C or D in the previous question, note the countermeasures that are candidate treatments or should always be considered from Table 2: Countermeasure Selection Matrix. Also note whether those treatments are included in the proposed crossing design. If the countermeasures are not included, provide justification in Section H.

Countermeasure Type	Countermeasure Name	Included in Proposed Design? (Y/N)
Candidate treatment		
Should always be considered		

22. If the proposed crosswalk or trail crossing meets condition D for full signalization, does the location satisfy Warrant PA-2 for a traffic signal? ..... YES NO
If no, provide justification for full signalization in Section H.

G - REMARKS

H - ENGINEERING JUDGEMENT

I - APPROVALS

Comments:

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

Attachment C

11. TRAFFIC STUDIES

11.1 General

Verification of Studies

While the previous section "Release of Studies to the General Public" generally prohibits release, requestors often need only a study verification, rather than the full study. The following policy helps provide a requestor with an adequate level of documentation and manage the Department's tort liability risk.

Typically, the District Executive is considered the legal custodian of record for Engineering and Traffic studies performed in each district, and the District Traffic Engineer is their deputy and authorized physical custodian. However, this may apply to other personnel who are responsible for verifying the details of an Engineering and Traffic study.

The Department may receive requests from stakeholders such as the public, law enforcement, district magistrates, municipal officials, and other agencies to provide an existing Engineering and Traffic Study and/or proof that a study was completed and still relevant. Engineering and Traffic Studies are considered 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. It would be mutually beneficial to the requestor and the Department to provide verification that a study exists on file within a District office without releasing the entire study. The Department developed an electronic TE Verification Tool to standardize each District's response to these study requests. The tool auto-generates a Department letter verifying that an Engineering and Traffic Study was conducted for a specific roadway or sections of roadways. The tool may be found on the Department's intranet via the Bureau of Operations – Highway Safety and Traffic Operations Portal.

The following steps should be followed if a District Office receives an outside request to provide information regarding an Engineering and Traffic Study:

1. Review the request and determine if the Department has a study on file.
2. Determine whether to deny the request outright or use the TE Verification Tool.

Attachment C

3. Open the TE Verification Tool and choose the relevant study. Select “Other” if the requested study is not shown. Follow the instructions listed on the landing page of the TE Verification Tool to generate the response letter.
4. Forward the letter to the District Executive or their designee for review and signature.
5. If the District chooses to retain and attach official documents, complete the OS-102 Form - Certification of Copies to accompany the verification letter; for example, some districts keep a summary compilation of regulatory speed limits on a standalone permit sheet per State Route. That permit sheet is not considered part of the Engineering and Traffic Study and may accompany the verification letter. For the OS-12 fields: Typically, the District Executive is considered the legal custodian of record for Engineering and Traffic studies performed in each district, and the District Traffic Engineer is their deputy and authorized physical custodian.