

VIRGINIA DEPARTMENT OF TRANSPORTATION

*TRAFFIC OPERATIONS DIVISION*

INSTRUCTIONAL & INFORMATIONAL MEMORANDUM

<b>GENERAL SUBJECT:</b>  Traffic Signals Pedestrians	<b>NUMBER:</b> IIM-TOD-400
	<b>SUPERSEDES:</b> None
<b>SPECIFIC SUBJECT:</b>  Signalized Intersection Pedestrian Features	<b>DATE:</b> September 5, 2024
	<b>SUNSET DATE:</b> None
<b>APPROVAL:</b>  /original signed by/ Mark A. Cole, P.E. State Traffic Operations Engineer Richmond, VA Approved: September 5, 2024	

**PURPOSE AND NEED**

The purpose of this Memorandum is to consistently implement the Commonwealth Transportation Board’s (CTB’s) vision of an efficient transportation network in which pedestrians are an integral part, by establishing a clear and consistent set of standards and guidelines for where, when, and how Signalized Intersection Pedestrian Features will be installed during certain improvement activities. Signalized Intersection Pedestrian Features include:

- Pedestrian Control Features
  - Pedestrian signal heads
  - Signal timing for pedestrians
  - Pedestrian actuation
- Markings for Pedestrian Street Crossings

This Memorandum establishes requirements, recommendations, and options for the provision of Signalized Intersection Pedestrian Features based on a default assumption that the features will be provided across all approaches of the intersection when certain improvement activities occur unless an exception is met. Note that an “exception” for provision of a crosswalk as defined in this memorandum (see: Definitions) is not the same as a formal Design Exception as outlined in the latest version of [IIM-LD-227 / IIM-S&B-70](#).

The District Traffic Engineer (DTE) is designated as the person with the decision-making authority and responsibility for implementing this Memorandum.

Appendix A contains additional background information and resources supporting this memo.

## STANDARDS, GUIDANCE, OPTIONS, and SUPPORT FOR PROVIDING SIGNALIZED INTERSECTION PEDESTRIAN FEATURES

These standards use the terms “shall”, “should”, and “may”, which are defined in the MUTCD. The formal definitions from the MUTCD can also be found in the Definitions section of this document.

Signal Alteration Activities shall begin with a default presumption to provide Signalized Intersection Pedestrian Features across all signalized approaches at the intersection. The five-step process outlined in Table 1, including section and paragraph references from this IIM, provides a framework to evaluate the intersection and each of its approaches to validate the appropriateness of this presumption.

**Table 1: Five-Step Process to Determine if Signalized Intersection Pedestrian Features will be Provided**

Step	Description	Reference
<b>1 Underlying Presumptions</b>	Presume Pedestrian Control Features on all signalized approaches	Section 1 Paragraphs 01-09
<b>2 Project-Based Exceptions</b>	Project-level review of suitability for Pedestrian Control Features at the signalized intersection	Section 2 Paragraphs 10-17
<b>3 Engineering-Based Spot Exceptions</b>	Approach-by-approach review to validate the underlying presumption for Pedestrian Control Features	Section 3 Paragraphs 18-25
<b>4 Decisions &amp; Documentation</b>	Document the final Pedestrian Control Features decisions and required DTE (or designee) approval of any exceptions using the form in Appendix B	Section 4 Paragraphs 26-29
<b>5 Crosswalk Markings at Signalized Intersections</b>	Select pavement markings (crosswalk marking class and crosswalk width) for Pedestrian Street Crossings	Section 5 Paragraphs 30-41

### Section 1 Underlying Presumptions

**Standard:**

- 01 For all Signal Alteration Activities, Signalized Intersection Pedestrian Features shall be provided to facilitate pedestrian movements across all signalized approaches of the subject signalized intersection unless an exception is met, documented, and approved as described below.**
- 02 Pedestrian Accommodations shall not be required to be installed or improved during Signal Maintenance Activities. However, existing Pedestrian Accommodations at any signalized intersection shall be maintained.**

*Guidance:*

- 03 *Where there are no planned Signal Alteration Activities but a land use project involving roadside development adjacent to a signalized intersection includes changes to pedestrian origins or destinations, or will generate pedestrian traffic, pedestrian accommodations should be included in the project. Where sidewalk is installed across the frontage of an entrance, Signalized Intersection Pedestrian Features are recommended at impacted intersections unless an exception is met, documented, and approved as described below.*

Support

- 04 24VAC30-73-70 states “all entrance design and construction shall accommodate pedestrian and bicycle users of the abutting highway.”

*Guidance:*

- 05 *For land use projects, crossings of at least two approaches should provide access to the proposed development and/or provide a continuation of existing pedestrian paths where applicable.*

Support:

- 06 Signal Maintenance Activities that do not require application of this policy to assess whether Signalized Intersection Pedestrian Features are needed include, but are not limited to, the following common VDOT signal activities:
- Emergency repairs
  - Damage repairs and/or replacement of components due to damage
  - Routine maintenance or life-cycle replacement of existing pedestrian pushbutton, pedestrian signal indications and/or other signal equipment including replacement of non-countdown pedestrian signal indications with countdown pedestrian signal indications
  - Signal phasing changes, including introduction of Leading Pedestrian Intervals
  - Revision of signal timing, including pedestrian signal timing
  - Replacement of signal controllers and/or upgrades to controller software that does not alter the operation or display of pedestrian signals
  - Installation of other sign, signal, communication, cabinet, or ITS equipment
  - Pavement marking installation or maintenance, including revisions to crosswalk marking patterns
  - Detection equipment installation or replacement.
- 07 The following activities are also not considered to be Signal Alteration Activities, and therefore these activities do not require application of this policy to assess whether Signalized Intersection Pedestrian Features are needed:
- Addition of a roadside pedestrian feature that does not affect a signalized intersection (e.g., sidewalk not in the vicinity of intersections)
  - Providing new crosswalk markings at a Pedestrian Street Crossing (this is not considered a new Pedestrian Street Crossing since an existing unmarked Pedestrian Street Crossing was present previously), however adequate vehicular signal timings are required to accommodate pedestrians using the new marked Pedestrian Street Crossing
  - Installation of new pedestrian control features at an existing traffic signal
  - Upgrading existing pedestrian control features to include APS and/or APD

- Changes to lane use or widening of an existing signalized approach that does not involve relocating or installing new signal equipment.

*Guidance:*

- 08 *When a channelizing island is present or proposed, a qualitative and informal assessment should consider the safety, cost, and operational impacts of different options for providing Pedestrian Control Features for pedestrian crossing of the turning roadway. This could include connecting the channelizing island to the adjacent quadrant with an unsignalized pedestrian street crossing or signalizing the channelized right-turn movement, where practical.*
- 09 *Pedestrian Control Features should be considered in accordance with this Memorandum where one of the following is true:*
- *Pedestrians are permitted to cross a limited access roadway at a signalized intersection.*
  - *A limited access highway ramp terminates at a signalized intersection with a non-limited access roadway where pedestrians are permitted.*

## **Section 2 Project-Based Exception**

**Standard:**

- 10 **When a project-based exception is approved, Signalized Intersection Pedestrian Features shall not be required for crossing of any approach at the intersection(s).**
- 11 **A project-based exception shall be made in the context of a project’s scope, budget, funding source, and the needs of the overall pedestrian network.**

*Guidance:*

- 12 *Project-based exceptions omitting pedestrian accommodations from the scope should not be applied routinely or regularly to multiple projects except as provided in Paragraph 16 below.*

**Support:**

- 13 Use of project-based exceptions for budgetary reasons is intended for cases where the cost of providing Pedestrian Accommodations is excessively disproportionate to the overall cost of the project. This also applies where restrictions on the project’s funding source preclude the implementation of Pedestrian Accommodations as part of that project (see Paragraph 14).
- 14 If the scope of a project associated with a specific funding source does not permit implementation of Signalized Intersection Pedestrian Features due to limitations on the use of the funding, the project may proceed with Signalized Intersection Pedestrian Features omitted as a Project-Based Exception.

**Option:**

- 15 A project-based exception may be applied for a single, multiple, or all signalized intersection(s) included within a project.

**Standard:**

- 16 If a project includes a Signal Alteration Activity and is developed per Location & Design Division's Project Development Process, project-based exceptions to providing Pedestrian Accommodations shall be made as outlined in the [Bicycle and Pedestrian Accommodation Decision Process For Construction Projects](#) and approved in accordance with the Location & Design Division's project development process. In this specific case, no additional action, documentation, or approval is necessary to omit Pedestrian Accommodations at applicable signalized intersections.
- 17 If a project includes a Signal Alteration Activity and is not developed per Location & Design Division's Project Development Process, project-based exceptions to providing Signalized Intersection Pedestrian Features shall only be justified for the following criterion from Section 3.4 of the CTB Policy:
- "...purpose and scope of the specific project do not facilitate the provision of such accommodations (e.g., projects for the Rural Rustic Road Program)."

This project-based exception shall be approved by the DTE (or their designee) using the Form in Appendix B of this Memorandum.

### **Section 3 Engineering-Based Spot Exceptions**

**Support:**

- 18 Engineering-based spot exceptions to providing Pedestrian Control Features at an intersection are justified by engineering evaluations relative to the context of established pedestrian prohibitions, pedestrian needs, safety, budget, and operational efficiency.

**Standard:**

- 19 Engineering-based spot exceptions shall be applied on an approach-by-approach basis. Engineering-based spot exceptions shall not be applied to an entire intersection without meaningful consideration of Pedestrian Control Features at each signalized approach.
- 20 When an engineering-based spot exception is applied, documented, and approved, Signalized Intersection Pedestrian Features shall not be required for that signalized approach.
- 21 Engineering-based spot exceptions shall be applied for a single, specific project. When subsequent improvement activities are planned at the same location (i.e., future projects), each intersection and signalized approach shall be examined again to ensure the facts related to the previous exception(s) are still applicable.
- 22 Pedestrian Control Features shall only be omitted from a specific signalized approach of an intersection if one or more of the engineering-based spot exceptions below are met. These exceptions are based on those in the CTB policy. The requirements for each type of engineering-based spot exception are summarized in Table 2. The DTE, or their designee, will make the final determination if an engineering-based spot exception is approved.

- a) If pedestrians are prohibited by law or by CTB action on at least two intersecting approaches to the intersection (and are thus effectively prohibited from an entire quadrant) at one or both of the two endpoints of pedestrian travel across an approach.
- b) Where there are neither roadside pedestrian features nor evidence of existing or likely future pedestrian activity on either end of the crossing of the approach. <sup>i,iii</sup>
- c) Total cost of providing pedestrian control features and other roadside pedestrian features (e.g., curb ramps, crosswalks, transitional sidewalk segments, etc.) would be excessively disproportionate to the project's scope and/or budget.
- d) An existing or proposed site-specific condition deems it infeasible to allow pedestrians to cross an approach due to substantiated safety concern(s). This exception shall only be applied if improvements to address the condition(s) are not consistent with or possible within the project's scope and/or budget. <sup>iv</sup>
- e) If providing Pedestrian Control Features across a specific approach is excessively detrimental to the intersection's operations (i.e., when it is no longer possible to include pedestrian accommodations while still meeting the operational expectations of the project and roadway). This is examined in consideration of both vehicular and pedestrian operations. An example could include an approach to a high-volume, large urban intersection with split phase traffic operations. Prior to approving this exception, the DTE shall consult with the District Signal & Freeway Operations Engineer. <sup>ii,iv</sup>
- f) If additional right of way or an easement is necessary for Pedestrian Accommodations, and there is no right of way acquisition proposed for the project.
- g) If an engineering study determines that Pedestrian Accommodations will not be used for a given approach for reasons other than a) through f) above, including conditions where "environmental or social impacts outweigh the need for accommodations."<sup>1</sup> Such a study shall be signed and sealed by a Virginia Professional Engineer as per the latest version of [VDOT Memorandum IIM-TE-362](#). <sup>i,iv</sup>

(i) Application of exceptions b) or g) requires that the engineer consult with one or more pedestrian resources that is knowledgeable of the functional needs of pedestrians at the subject intersection and surrounding area. Examples of such pedestrian resources include, but are not limited to: VDOT Pedestrian Subject Matter Experts (e.g. VDOT District Bike/Pedestrian Coordinator), state transportation planning documents (e.g., [VDOT Pedestrian and Bicycle Safety Action Plan](#)), locality transportation planning documents, other bicycle and pedestrian professionals, or locality transportation staff. The required consultation with pedestrian resources is intended to encourage the engineer to make an informed decision with input of knowledgeable local pedestrian stakeholders. Consistent with the CTB's policy, both existing and future pedestrian needs shall be considered.

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<sup>1</sup> Section 3.4, CTB adopted *Virginia Department of Transportation Policy for Integrating Bicycle and Pedestrian Accommodation*, page 3 of 6.

**(ii) Pedestrian Accommodations shall not be omitted because they will impose a minor detrimental impact on intersection operations (i.e., when the addition of pedestrian accommodations still allows the operational expectations of the project and roadway to be met).**

**(iii) Evidence of pedestrian activity could include, but is not limited to: pedestrian activity observed during field study, physical evidence such as desire paths or “footpaths,” pedestrian generating land uses within at least two quadrants and within a reasonable walking distance of the intersection, bus stops, records of pedestrian crashes, and (if available) pedestrian counts.**

**(iv) Application of any one of the exceptions d), e), and g) shall consider the impacts to the adjacent pedestrian network and include a statement to explain the nearest alternative pedestrian crossing location. The intent of this statement is to prompt the Signal Design Engineer to consider the functionality of the pedestrian network and if reasonable alternative routes exist for pedestrians to travel between points where no Pedestrian Accommodations are provided, minimizing risk that a patchwork of exceptions at the network level results in excessively impractical pedestrian routings.**

**Table 2: Engineering-Based Spot Exception Concurrence, Consultation, and Other Requirements**

Engineering-Based Spot Exception	DTE (or designee) Approval Required	Consultation with/of Pedestrian Resource	Other Requirements
a) Pedestrians prohibited on one or both of the two endpoints of pedestrian travel across an approach	Yes	-	-
b) No current or future roadside pedestrian features and no pedestrian activity on either end of crossing	Yes	Required	<ul style="list-style-type: none"> <li>Statement on whether signal is/is not located on a PBSAP Pedestrian Priority Corridor</li> </ul>
c) Total cost of providing pedestrian control features and other roadside pedestrian features would be excessively disproportionate to project's scope and/or budget	Yes	-	<ul style="list-style-type: none"> <li>Narrative explaining why expected costs would be disproportionately high (e.g., utility relocation required, among other potential reasons)</li> </ul>
d) Infeasible to allow pedestrian to cross due to substantiated safety concerns	Yes	-	<ul style="list-style-type: none"> <li>Narrative to explain the nearest alternative pedestrian crossing location</li> </ul>
e) Pedestrian Control Features would be excessively detrimental to intersection operations	Yes	-	<ul style="list-style-type: none"> <li>DTE consultation with District SFOE</li> <li>Narrative to explain the nearest alternative pedestrian crossing location</li> </ul>
f) Additional right-of-way required for Pedestrian Accommodations	Yes	-	<ul style="list-style-type: none"> <li>Narrative describing the additional right-of-way needed</li> </ul>
g) PE signed/sealed engineering study determines Pedestrian Accommodations will not be used	Yes	Required	<ul style="list-style-type: none"> <li>Narrative justification and explanation of constraints</li> <li>Narrative on alternative travel paths and nearest crossing if the new signalized pedestrian crossing is not installed</li> </ul>

**Guidance:**

23 *Exception b) should not be considered when the approach is located on a Priority Corridor per the [VDOT Pedestrian and Bicycle Safety Action Plan](#), version most recent at the time of draft submittal of the study or design plan (whichever comes first).*

**Option:**

24 The above engineering-based spot exceptions are intended to be evaluated on an approach-by-approach basis for all signalized approaches. However, if the same conditions justifying an exception are present on multiple approaches, one exception may be applied to those approaches.



**Standard:**

- 25 After review, if the same rationale used to apply an approach-specific engineering-based spot exception at an intersection remains valid for a subsequent project at the same intersection, reuse of the previous exception documentation shall only occur if approved by the DTE. In such cases, the previous exception documentation shall be included in the subsequent project's file (i.e., instead of developing new documentation).

## **Section 4 Documentation of Decisions**

**Standard:**

- 26 All exceptions per this policy shall be documented using a completed "Traffic Signal Pedestrian Assessment Worksheet & Evaluation Form" shown in Appendix B of this IIM and approved by the DTE. The approved form shall be maintained by the DTE and shall also be maintained in any other required filing locations in accordance with project/land development filing requirements.
- 27 No additional documentation shall be required to support the exceptions, other than the required signed and sealed engineering study if engineering-based spot exception g) is applied as noted above.

**Support:**

- 28 The "Traffic Signal Pedestrian Assessment Worksheet & Evaluation Form" is intended to document and substantiate decisions and store the documentation in a location where it can be readily retrieved. It is not intended to require an onerous amount of resources from anyone involved.
- 29 Neither completing/filing the Form in Appendix B, nor DTE approval, is required in the following circumstances:
- The activity is not a Signal Alteration Activity and thus no requirement to provide Signalized Intersection Pedestrian Features (see Paragraphs 2 to 7)
  - The activity is a Signal Alteration Activity and the underlying presumption is intact, i.e. Pedestrian Control Features are provided across all approaches (see Paragraph 1)
  - The project is developed per Location and Design Division's Project Development Process and the documentation to not include accommodations from that process is utilized (see Paragraph 16)

## **Section 5 Crosswalk Markings at Signalized Intersections**

**Guidance:**

- 30 *When Pedestrian Control Features are provided at an approach, marked pedestrian street crossings (crosswalks) should be provided on that approach.*
- 31 *The selection of the appropriate crosswalk marking class (standard or high-visibility) should be based on engineering judgment (refer to Standard PM-3 in Section 1300 of VDOT's [Road and Bridge Standards](#) for additional information about crosswalk marking classes).*
- 32 *When high-visibility crosswalks are used, the bar pair type should be used.*

**Standard:**

**33 Crosswalk markings shall be at least six feet wide as per the MUTCD.**

*Guidance:*

*34 At minimum, crosswalk markings should be the same width as the pedestrian roadside facility on either side of the intersection.*

*Option:*

**35** Factors that indicate when high visibility crosswalk markings may be appropriate at the intersection include, but are not limited to:

- High pedestrian crossing volume (e.g., near transit stop, in a central business district).
- Where the crosswalk will service nearby land uses that are expected to regularly generate vulnerable user pedestrian traffic (i.e., children, elderly, and pedestrians with visual or physical disabilities).
- Where a high percentage of the pedestrian or driving population may be unfamiliar with the area (i.e., near major tourist attractions, Metro stations, or major transit hubs).
- Where turning vehicles have limited visibility or expectation of the crosswalk.

**36** Different approaches at a single signalized intersection may have a mix of high visibility crosswalk markings and standard crosswalk markings.

*Support:*

**37** Refer to the latest version of [VDOT Memorandum IIM-TE-384](#) for details on pedestrian street crossings (crosswalks) established by the Code of Virginia.

**38** Refer to the latest version of [VDOT Memorandum IIM-TE-384](#) for standards and guidance for crosswalk width and location applicable to pedestrian street crossings (crosswalks) at unsignalized intersections.

**39** Refer to the latest version of [VDOT Memorandum IIM-TE-388](#) for standards and guidance for Accessible Pedestrian Signals (APS) and Accessible Pedestrian Signal Detectors (APD).

**40** Refer to the latest version of [VDOT Memorandum IIM-LD-218](#) for policies related to use of brick pavers in marked crosswalks, and [MUTCD Official Interpretation 3\(09\)-24\(I\)](#) for FHWA policies regarding crosswalk "art".

**Standard:**

**41 Stop lines shall be placed a minimum of 4 feet in advance of the nearest crosswalk line.**

## GENERAL RESPONSIBILITIES

This section provides details on the general responsibilities of VDOT District and Central Office staff, as well as private firms and partners working on behalf of VDOT or alongside VDOT staff to implement and support the requirements described in this Memorandum. Specific staff responsibilities are outlined below.

**District Review Team(s):** These staff are responsible for reviewing exceptions (i.e., where pedestrian control features are not provided across some or all signalized intersection approaches during a Signal Alteration Activity) and providing recommendations to the DTE for exception approvals.

**District Traffic Engineer (DTE):** The DTE or their designee must provide approval for any exceptions (i.e., where pedestrian control features are not provided across some or all signalized intersection approaches during a Signal Alteration Activity). The only time this DTE approval requirement does not apply is when a project-based exception is included as part of a project developed under the Location and Design Division's Project Development Process.

**Pedestrian Subject Matter Experts:** The Signal Design Engineer is prompted by certain specific exceptions within this Memorandum to consult with a pedestrian resource that is knowledgeable of the functional needs of pedestrians at the subject intersection and surrounding areas. Many staff inside or outside VDOT can fill this role, notably (but not limited to) [VDOT's District Bicycle and Pedestrian Coordinators](#). When requested, the Pedestrian Subject Matter Expert is responsible for providing input into the exception process, or alternatively for guiding the Signal Design Engineer to another knowledgeable person or document that will allow an informed decision regarding exceptions.

**Project Managers:** For the purposes of this IIM, Project Managers are responsible for including traffic signal and pedestrian accommodations into the scope and budget of projects.

**Signal Design Engineers:** The Signal Design Engineer is responsible for identifying and designing required pedestrian accommodations, determining where engineering-based spot exceptions apply, for documenting those exceptions, and for obtaining DTE approval for exceptions.

**District Signal & Freeway Operations Engineers (SFOEs):** District SFOEs are responsible for providing input related to signal operational implications of pedestrian phasing and timing, when requested or required per this Memorandum.

**Staff Responsible for Developing On-Call Signal Contracts:** These staff are responsible for providing appropriate pay items within the contract to accommodate installation of pedestrian control features and associated geometric improvements, such as pedestrian signal heads and associated mounting brackets, APS, pedestal poles, foundations, and/or crosswalk markings as applicable.

## APPLICABILITY & EFFECTIVE DATE

**This IIM applies to all new and existing traffic signals where VDOT has routine operations and maintenance responsibility.** This IIM may be used at other traffic signals. Table 3 summarizes the effective dates for application of this Memorandum.

**Table 3: Project Applicability & Effective Dates**

Project Type	Applicability & Effective Date
<b>Land Use Permit Projects</b>	<p>This IIM shall be in effect for all projects where the first draft of the assessment that recommends a proposed intersection configuration and traffic control has not yet been submitted to VDOT as of November 4, 2024.</p> <p>If VDOT has completed its review of a Traffic Impact Analysis (TIA) for a proposed development that included a recommendation for a new traffic signal or other intersection configuration, and did not add any qualifying conditions, this Memorandum does not apply if the proposed development is under construction within 2 years and the intersection improvements are under construction within 5 years following the completion date of the TIA. The District Administrator (DA) may allow an exemption to the stated time limits.</p>
<b>Construction Projects (VDOT and Locally Administered)</b>	<p><b>Design-Bid-Build:</b> This IIM shall be in effect for all projects for which the start of final scoping and/or Preliminary Field Inspection (PFI) meeting has not occurred as of the issuance date of this IIM.</p> <p><b>Design-Build or PPTA:</b> This IIM shall be in effect for all projects for which the Request for Qualifications (RFQ) has not yet been published as of the issuance date of this IIM.</p>
<b>Other Traffic Operations Improvement Projects</b>	<p>For projects where new or modified signal control is being designed under an on-call professional services contract for construction under an on-call traffic operations construction contract, this IIM shall be in effect for all projects where the design task order authorization (notice to proceed) was issued after November 4, 2024. This IIM may be applied to such projects in development beyond the stage noted herein, if budget and funding allows and is mutually agreed-upon.</p>
<b>All Projects</b>	<p>For any of the above-referenced projects that are in development beyond the stages noted as of this IIM issuance date, the IIM may be applied if desired by the permittee (for Land Use/Permit projects) or VDOT/Locality Project Manager (for Construction Projects). Documentation shall be provided to support any change in recommendation based on the criteria in this IIM.</p>

**DEFINITIONS (AS USED IN THIS MEMORANDUM)**

**Accessible Pedestrian Signal Detector (APD):** A device designated to assist the pedestrian who has visual or physical disabilities in activating the pedestrian phase. (Source: MUTCD)

**Accessible Pedestrian Signals (APS):** A device that communicates information about pedestrian signal timing in non-visual format such as audible tones, speech messages, and/or vibrating surfaces. (Source: MUTCD)

**Alteration:** A change to or an addition of a pedestrian facility in an existing, developed public right-of-way that affects or could affect pedestrian access, circulation, or usability. (Source: PROWAG)

**Exception:** For the purposes of this Memorandum, the term exception denotes when Signalized Intersection Pedestrian Features may be omitted from a signalized intersection approach. It is not the same as a formal Design Exception as outlined in IIM-LD-227 / IIM-S&B-70.8. There are two types of exceptions used in this document: Project-Based Exceptions (Section 2) and Engineering-Based Spot Exceptions (Section 3).

**May:** When used in this document, “may” indicates an Option statement of practice that is a permissive condition and carries no requirement or recommendation. Option statements sometimes contain allowable modifications to a Standard (i.e., “shall”) or Guidance (i.e., “should”) statement. (Source: MUTCD)

**New Traffic Signal:** Installation of a full-color highway traffic signal where one did not previously exist.

**Pedestrian:** A person on foot, in a wheelchair, on skates, or on a skateboard (Source: MUTCD). Furthermore, a bicycle rider riding on a sidewalk, shared use path, or across a roadway in the crosswalk has the same rights and duties as a pedestrian. (Source: [Code of Virginia § 46.2-904](#))

**Pedestrian Access Route:** A sidewalk or sidewalk space that provides a continuous accessible means of passage from one location to another within public right-of-way. (Source: Road Design Manual Appendix A(1))

**Pedestrian Accommodation:** Any facility, design feature, operational change, or maintenance activity that improves the environment in which pedestrians travel. (Source: CTB Policy)

The items within this IIM that are considered Pedestrian Accommodations include: Pedestrian Control Features (which include pedestrian signal heads, pedestrian timing, pedestrian actuation), Roadside Pedestrian Features, and markings for Pedestrian Street Crossings. See Figure 1.

**Pedestrian Actuation:** A pedestrian action or a command from a detection device (e.g., pressing a pushbutton or being detected by an APD equipped with passive detection) which identifies the presence of a pedestrian and ultimately causes the signal controller to display a pedestrian signal indication and trigger a vibrotactile indication. For the purposes of this Memorandum, the pedestrian recall feature (or similar function) of a controller meets the requirement for provision of Pedestrian Actuation.

**Pedestrian Control Features:** For the purposes of this Memorandum, Pedestrian Control Features are tangible traffic signal infrastructure and non-tangible traffic signal operational attributes that enable pedestrians to travel across an approach of a signalized intersection. Pedestrian Control Features include three specific aspects:

- Traffic signal indications for pedestrians (i.e., pedestrian signal heads, APS);
- Signal timing for pedestrians (i.e., allowing sufficient time to cross); and
- Pedestrian actuation (e.g., APD).

Pedestrian Control Features are a subset of Signalized Intersection Pedestrian Features that are directly related to the traffic signal. See Figure 1.

**Roadside Pedestrian Features:** A general term denoting roadside features intended to accommodate or encourage pedestrian travel between road crossings. It typically refers to Pedestrian Access Routes (e.g. sidewalk or shared use path), curb ramps, and Pedestrian Street Crossings (e.g. a marked or unmarked pedestrian crossing, but not the markings themselves which are a Signalized Intersection Pedestrian Feature for purposes of this Memorandum). It can also refer to wide paved shoulders, or unpaved traversable areas adjacent to the road with a

prepared surface that can be used by pedestrians. Sometimes informal pedestrian roadside facilities exist at a location where there is evidence of pedestrian use, e.g., worn “goat paths,” that could suggest a need for consideration of more formal pedestrian accommodations.

Pedestrian roadside facilities are a subset of pedestrian accommodations that exist away from signalized intersections and are discussed in Appendix A(1) of the Road Design Manual.

***Pedestrian Street Crossing:*** A marked or unmarked crosswalk. (Source: Road Design Manual Appendix A(1))

Pedestrian Street Crossing refers to the crossing itself as defined in the Code of Virginia and not the markings, which are a Signalized Intersection Pedestrian Feature.

***Pushbutton:*** A button to activate a device or signal timing for pedestrians, bicyclists, or other road users. A pushbutton can be part of an APS, can serve as an APD, and is one way to provide pedestrian actuation. (Source: MUTCD)

***Shall:*** When used in this document, “shall” indicates a Standard statement of required, mandatory, or (if “shall not”) specifically prohibited practice. Standards including the word “shall” are sometimes modified by Option (i.e., “may”) statements. (Source: MUTCD)

***Signalized Intersection Pedestrian Features:*** For purposes of this Memorandum, Signalized Intersection Pedestrian Features consist of the following:

- Pedestrian Control Features
  - Pedestrian signal heads (as per this Memorandum)
  - Signal timing for pedestrians, which may include leading pedestrian interval (as per the MUTCD or local VDOT practice)
  - Pedestrian actuation, APS, and APD (as per [VDOT Memorandum IIM-TE-388](#))
- Markings for Pedestrian Street Crossings (crosswalks) if applicable as per this Memorandum

***Should:*** When used in this document, “should” indicates a Guidance statement of recommended, but not mandatory practice in typical situations. Deviations are allowed if engineering judgment or engineering study indicates the deviation to be appropriate. Guidance including the word “should” is sometimes modified by an Option (i.e., “may”) statement. (Source: MUTCD)

***Signal Alteration Activities:*** Signal improvement activities that require the application of this Memorandum. These Signal Alteration Activities include:

- New Traffic Signals
- Traffic Signal Rebuilds
- Addition of a new signalized approach to an existing signalized intersection

***Signal Maintenance Activities:*** Traffic signal activities that serve the purpose of general, preventative, and emergency upkeep, and are not Signal Alterations Activities, and do not significantly affect a pedestrian’s access to, or usability of, the traffic signal to cross the roadway. Signal Maintenance Activities typically include repair, equipment replacement, updating network

communications, among others. Application of this Memorandum is not required during Signal Maintenance Activities. For more detail, see also Section 1 Paragraph 06.

**Traffic Signal Rebuild:** A signal improvement with a planned removal or replacement of:

1) 2/3rds or greater of the existing signal poles

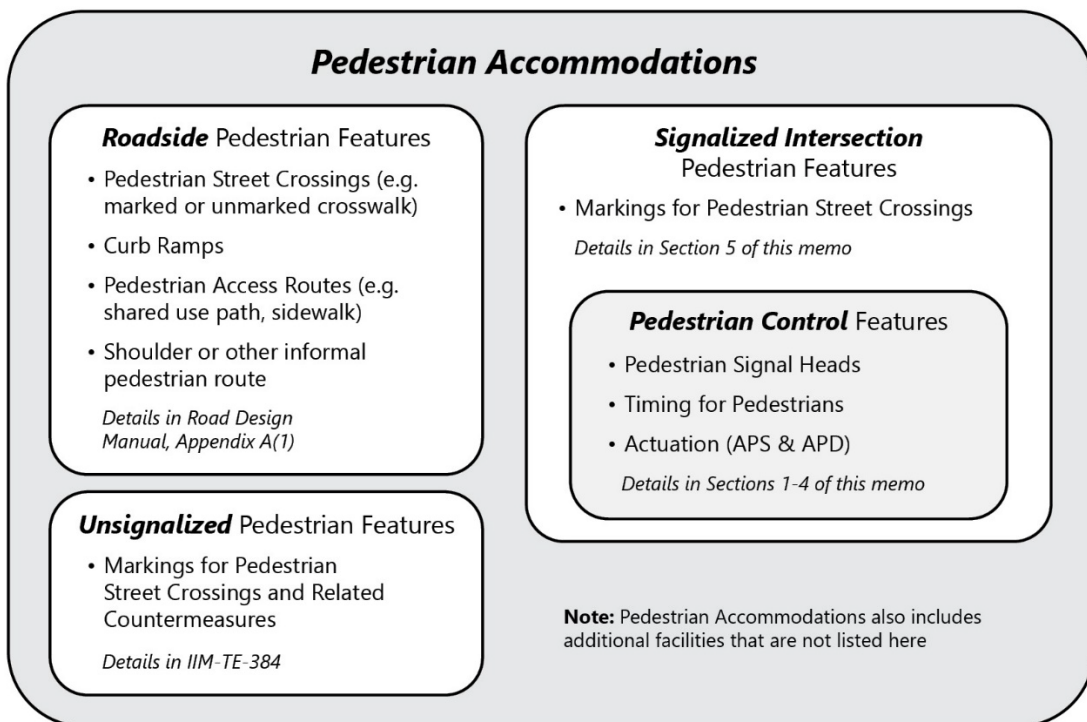
OR

2) replacement of existing span wire with mast arms (or vice versa).

Pedestal poles and small poles holding pushbuttons are excluded when assessing the 2/3rds ratio.

The relationships between key terms used within this Memorandum are illustrated in Figure 1.

**Figure 1: Relationships Between Key Terminology Used in this Memorandum**





## APPENDIX A – SUPPORTING INFORMATION

### ADDITIONAL BACKGROUND INFORMATION

The purpose of this Memorandum is to consistently implement the Commonwealth Transportation Board's (CTB's) vision of an efficient transportation network in which pedestrians are an integral part, by establishing a clear and consistent set of standards and guidelines for where, when, and how Signalized Intersection Pedestrian Features will be installed in certain improvement activities.

The CTB vision was first established with their adoption of the [Virginia Department of Transportation Policy for Integrating Bicycle and Pedestrian Accommodations](#) (CTB Policy) in March 2004. The CTB Policy states that, "Bicycling and walking are fundamental travel modes and integral components of an efficient transportation network." As such, the CTB Policy requires that all VDOT highway construction projects be initiated with a presumption that the facilities "*will include accommodations for pedestrians, including pedestrians with disabilities, along with motorized transportation modes in the planning, funding, design, construction, operation, and maintenance of Virginia's transportation network to achieve a safe, effective, and balanced multimodal transportation system.*"

**The intent of this IIM is to create a formalized policy that whenever a Signal Alteration Activity takes place at a new or existing signalized intersection, *Signalized Intersection Pedestrian Features are to be provided across all signalized approaches of the intersection unless an exception is met.*** Note that an "exception" for provision of a crosswalk as defined in this memo (see: Definitions) is not the same as a formal Design Exception as outlined in the latest version of [IIM-LD-227 / IIM-S&B-70](#).

Exceptions shall not be applied without a documented evaluation, which shall be developed using the "Traffic Signal Pedestrian Assessment Worksheet & Evaluation Form" (Form) in Appendix B of this Memorandum. The documentation is not intended to be a significant burden to the project team but is necessary to document approved exceptions consistently across the Department.

Unless specifically noted within this Memorandum, a formal engineering study is not required to support the pedestrian accommodation evaluation or to support the determination that a particular exception applies.

Those applying this Memorandum are expected to use engineering judgment to evaluate any potential exceptions and implement pedestrian improvements in the context of VDOT's Performance Based Practical Design policy (documented in [VDOT Memorandum](#) IIM-LD-255). This philosophy and approach will allow for efficient and effective pedestrian improvements that meet the needs of pedestrians, as per the CTB's vision and policy. Performance Based Practical Design should be applied to improve access for pedestrians in ways that reflect the policy, but it shall not be used as the sole rationale to omit pedestrian accommodations from a project's design when this memo otherwise calls for their installation.

The applicable District Traffic Engineer (DTE) has final authority over any exception decisions. The DTE should, but is not mandated to, consult with the District Signal & Freeway Operations Engineers and Pedestrian Subject Matter Experts where indicated in this Memorandum when approving exceptions.



The policy contained within this Memorandum establishes a consistent framework for the accommodation of pedestrians at signalized intersections on VDOT-maintained roadways in accordance with the CTB Policy and additional state and federal policies, plans, and standards that are listed in the Resources section below.

## RESOURCES

- The [VTrans2040](#) plan requires VDOT to “coordinate the adequate accommodation of pedestrian, bicycle, and other forms of non-motorized transportation in the 6-year improvement program and other state and regional transportation plans.” The vision adopted by the CTB has a goal of supporting healthy communities and sustainable transportation by providing travel options other than motor vehicles. Another goal in the vision is to provide for accessible and connected places by increasing access to jobs via transit and walking, in addition to motor vehicles.
- Section 4D.03 of the Federal Highway Administration’s (FHWA’s) 2009 *Manual on Uniform Traffic Control Devices (MUTCD)* and the [Virginia Supplement to the 2009 MUTCD](#) states that the needs of pedestrians shall be taken into consideration during design and operation of traffic control signals. Furthermore, Section 4E.03 of the MUTCD states that pedestrian signal heads shall be provided under certain conditions, and Section 4E.06 states that timing for pedestrians shall allow for sufficient time to cross the street by setting minimum requirements for pedestrian clearance intervals. Note: the Federal Highway Administration has issued the 11<sup>th</sup> Edition of the MUTCD, however that edition has not yet been formally adopted by VDOT as of the date of this Memorandum.
- VDOT’s [Pedestrian and Bicycle Safety Action Plan \(PBSAP\)](#) identified locations on Virginia’s roads with a history of, or higher potential for, pedestrian safety issues. This plan explicitly recommends the implementation of a policy for pedestrian accommodations at signalized intersections. The plan also provides guidance on recommended pedestrian infrastructure to help address safety issues.
- [2011 \(Proposed\) Public Right-of-Way Accessibility Guidelines \(PROWAG\)](#) describes “design, construction, and alteration of pedestrian facilities in the public right-of-way.” The application of PROWAG ensures that “sidewalks, pedestrian street crossings, pedestrian signals, and other facilities for pedestrian circulation and use constructed or altered in the public right-of-way by state and local governments are readily accessible to and usable by pedestrians with disabilities.” Note: a Final Rule for PROWAG has been issued by the US Access Board, however as of the issuance of this document, that Final Rule has not yet been formally adopted by the USDOT, the US Department of Justice, or VDOT as of the date of this Memorandum.
- VDOT’s [Road Design Manual](#) Appendix A(1) provides VDOT design requirements for roadside pedestrian features.
- [VDOT Memorandum](#) IIM-TE-397 details the Virginia Intersection and Interchange Control Assessment Program (iCAP).

- [VDOT Memorandum](#) IIM-TE-384 details requirements and necessary countermeasures for the installation of crosswalks at unsignalized locations on VDOT-maintained roadways.
- [VDOT Memorandum](#) IIM-TE-387 establishes requirements for warranting and justifying traffic signals on VDOT-maintained roadways.
- [VDOT Memorandum](#) IIM-TE-388 on Accessible Pedestrian Signals (APS) and Accessible Pedestrian Signal Detectors (APD) establishes minimum requirements for the installation of APS and APD at VDOT-maintained traffic signals with pedestrian signal indications.
- [VDOT Memorandum](#) IIM-TE-390 on LED Exterior Lighting provides recommendations for the installation of roadway lighting at intersections with new or reconstructed traffic signals on VDOT-maintained roadways.

**APPENDIX B – TRAFFIC SIGNAL PEDESTRIAN ASSESSMENT WORKSHEET & EVALUATION FORM**

## Appendix B - Traffic Signal Pedestrian Assessment Worksheet & Evaluation Form

This form has been developed to supplement [IIM-TOD-400](#) and guide users through the evaluation and documentation process.

**Completing this form is only required where an exception is applied as part of a Signal Alteration Activity, and no alternate form may be used. This form is not required if the activity is not a Signal Alteration Activity or if no exceptions are applied as part of a Signal Alteration Activity.** The form is limited to the pages provided – additional documentation outside this form is not required unless a formal engineering study is required.

INTERSECTION INFORMATION			
Intersection			
District			
Locality			
Intersection Node (HMMS number – optional)			
Reference #			
Prepared by		Date	
Reviewed by		Date	
Project Classification	<input type="checkbox"/> Signal Alteration Activity: (Completing form required only if an exception is applied)	<input type="checkbox"/> Pedestrian Network Change triggered by Land Development: _____ _____	
	<input type="checkbox"/> Signal Maintenance Activity (Completing form is not required)	<input type="checkbox"/> Other: _____ _____ (Completing form is not required)	

Insert or sketch the configuration of the subject intersection. Include road names at each approach, give each approach a number, and include a north arrow.

EXISTING PEDESTRIAN (PED) ACCOMMODATIONS AT INTERSECTION										
Approach Number	Features Present									
	Ped Signal		Ped Signal Timing		APS and APD		Marked Crosswalk		Curb Ramp	
1	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Include if additional approaches above 4										

EXISTING FACILITY ATTRIBUTES				
Questions	Yes	No	Notes	
1. Are roadside pedestrian features (e.g., sidewalks, trails) near the intersection?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Do adjacent/nearby land uses have potential to generate pedestrian trips?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Is there current evidence of peds using the intersection (e.g., worn paths, observed activity, traffic counts, pedestrian counts, pedestrian crashes, transit stops)?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Are peds restricted (by law or CTB action) from using the intersection?	<input type="checkbox"/>	<input type="checkbox"/>		
5. Is this a defined walking route, safe route to school, or identified ped route included in local comp. plan at this location?	<input type="checkbox"/>	<input type="checkbox"/>		

PROPOSED FACILITY ATTRIBUTES				
Questions	Yes	No	Notes	
1. Is it likely that the proposed improvements will generate or facilitate new or additional ped traffic?	<input type="checkbox"/>	<input type="checkbox"/>		
2. Will the proposed improvements introduce additional restrictions for peds?	<input type="checkbox"/>	<input type="checkbox"/>		
3. Are roadside pedestrian features (e.g., sidewalks) proposed at the intersection in the final build condition?	<input type="checkbox"/>	<input type="checkbox"/>		
4. Will adjacent/nearby land uses in the final build condition (of a land development project) change in a way that will generate new or additional ped traffic?	<input type="checkbox"/>	<input type="checkbox"/>		

**STAKEHOLDER OUTREACH** (Check box next to each contacted/consulted stakeholder – it is not required to contact/consult all of these resources)

**Resource**

- |   |  |
|---|--|
| <input type="checkbox"/> Locality Staff                           | <input type="checkbox"/> Transit Operators                 |
| <input type="checkbox"/> Locality Comprehensive Planning Document | <input type="checkbox"/> Public Meeting/Input              |
| <input type="checkbox"/> Locality School District                 | <input type="checkbox"/> Advocacy Groups                   |
| <input type="checkbox"/> Emergency Services                       | <input type="checkbox"/> VDOT District Traffic Engineering |
| <input type="checkbox"/> VDOT District Bicycle & Ped Coordinator  | <input type="checkbox"/> Other (List in Notes)             |

**Discussion/Finding Notes**

PROJECT-BASED EXCEPTIONS WORKSHEET			
Questions	Yes	No	Notes
<i>If the project is classified as a Signal Alteration Activity and is developed per Location &amp; Design Division's Project Development Process:</i>			
<b>1. Is the exception to provide ped accommodations made as outlined in the <a href="#">Bicycle and Pedestrian Accommodation Decision Process For Construction Projects</a> (<a href="#">virginia.gov</a>)?</b>	<input type="checkbox"/>	<input type="checkbox"/>	If yes, attach a copy of the approval to this worksheet. No further documentation is necessary (including the remainder of this worksheet).
<i>If the project is not developed per the Location and Design Division's Project Development Process:</i>			
<b>2. Is the exception justified based on the following criterion from Section 3.4 of the Commonwealth Transportation Board's (CTB's) Policy?</b>  "...purpose and scope of the specific project do not facilitate the provision of such accommodations."	<input type="checkbox"/>	<input type="checkbox"/>	If yes, provide justification in the space below.  <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
<b>3. Is the project-based exception being applied to multiple intersections?</b>	<input type="checkbox"/>	<input type="checkbox"/>	If yes, provide a list of all intersections included as part of this exception.

**ENGINEERING-BASED SPOT EXCEPTIONS WORKSHEET** (This part of the form is only required for approaches where exceptions are proposed. Responses may be omitted for any approach(es) where pedestrian accommodations are already provided or will be provided.)

Approach	Please selected the box for each Spot Exception that was invoked.						
	a) Pedestrians Prohibited	b) Lack of Pedestrian Activity	c) Disparate Cost	d) Safety Concern	e) Operational Detriment	f) Unscoped ROW Required	g) Engineering Study
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes/Justification:



PEDESTRIAN ACCOMMODATION CONCLUSION		
<p><b><i>Will pedestrian accommodations be provided?</i></b>  <b><u>Instructions:</u></b> For each approach, answer the above question to determine if pedestrian accommodations will be provided or are already provided. If the answer is “No,” provide justification in the space to the right, including whether the exception used is project-based or an engineering-based spot exception.</p>		
Approach	1	<input type="checkbox"/> Existing <input type="checkbox"/> New <input type="checkbox"/> No
	2	<input type="checkbox"/> Existing <input type="checkbox"/> New <input type="checkbox"/> No
	3	<input type="checkbox"/> Existing <input type="checkbox"/> New <input type="checkbox"/> No
	4	<input type="checkbox"/> Existing <input type="checkbox"/> New <input type="checkbox"/> No
	Additional Approaches:	

ADDITIONAL INFORMATION TO SUPPORT DECISIONS (Optional)

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APPROVALS

Form Prepared by:	Date Submitted:
Form Reviewed by:	Date Submitted:
VDOT District Traffic Engineer (or their designee) Approval <i>(Required)</i>	
District Traffic Engineer:	Date of Approval:

Note: This completed form to be filed in HMMS (or other applicable record system) by the DTE (or their designee).