COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

May 13, 2021

U.S. Department of Transportation
Dockets Management Facility
1200 New Jersey Avenue, SE
West Building Ground Floor
Room W12-140
Washington D.C., 20590

To whom it may concern:

This correspondence is regarding the National Standards for Traffic Control Devices: *Manual on Uniform Traffic Control Devices* (MUTCD) Revisions (FHWA Docket Number FHWA-2020-0001).

The Pennsylvania Department of Transportation (PennDOT) is pleased to provide the attached comments on the Federal Highway Administration's (FHWA) December 14, 2020 Notice of Proposed Amendments to the Federal MUTCD for Streets and Highways.

The Department would like to thank FHWA for the opportunity to review and provide comments. Additionally, PennDOT appreciates FHWA extending the comment period an additional 60 days as this helped the Department's review process.

Should you have any questions or require additional information, please contact Daniel Farley, P.E., Chief, TSMO Operations and Performance Section, at 717.783.0333.

Sincerely,

Michael C. Keiser

Michael Keiser, P.E.
Acting Deputy Secretary for Highway Administration

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
1	1	General			Modify	Where 'bicycle' is used, suggest varying that with 'person on a bike' as referring to only the bicycle is a semantic way of dismissing the fact that vulnerable, fallible humans and not unfeeling machines are operating within the roadway. Similarly, 'person walking or in a mobility assistive device' rather than just 'pedestrian'.	Multimodal
2	1	1A.01	17 - 30	1	Modify	PennDOT generally supports the content of this docket item; however, we note that language in the opening Support statement sets a tone with regard to "uniformity" and "consistency" that is used throughout the proposed MUTCD. Of note, bullet item "B" discusses "national consistency in the use, installation, and operation of traffic control devices", which conflicts with the numerous optional applications within the Manual. PennDOT is also concerned with Support language that the "MUTCD presumes sufficient working knowledge, professional training and experience, and education in the principles of engineering". Again, this is a lofty and desirable goal, but it ignores that the authority to regulate highways, including stop/yield control, speed limits, and parking regulations, often rests with the local governing body, especially at the municipal level where engineers with practical experience may not be consulted.	HSTOD
3	1	1A.03	A		Disagree	The underlying premise that roadway users are 'reasonable and prudent' and that traffic control devices are for only those sorts of users is flawed. This premise is fundamentally at odds with reality. PennDOT and FHWA routinely admit that 15% of drivers exceed the posted speeds for a roadway, which is something one would hardly define as reasonable or prudent. The distracted, drunk, or aggressive driver is not, by definition, reasonable or prudent. Designing roadways anticipating human nature/error and preventing, as much as possible, mistakes that injure or kill humans must be a systematic approach in the MUTCD. Wording needs to change.	Multimodal
4	1	1A.03	B		Modify	The underlying premise that pedestrians are 'reasonable and prudent' and that traffic control devices are for only those sorts of users is flawed. Many pedestrians are children of young age who do not have the mental capacity to fully comprehend the speed, roadway context, signing, and pavement markings – leading to tragic consequences. Roadway design and traffic control devices need to be created with the most vulnerable users in mind and fully recognize the limitations of these users. Wording needs to change.	Multimodal
5	1	1A.03	8-11	3	Modify	Agree with the concept of the guidance statement added in lines 8-11 on page 3. Suggest adding "target" prior to "road users" in line 10 for consistency with the terminology in Section 1A.03.	HSTOD
6	1	1A.05	9-11	3	Disagree	Delete the sentence on lines 9-11 of page 6: *Newer editions of those resources are typically reflected in subsequent editions of or revisions to this Manual, which might result in one or more changes in the provisions to which the resources apply.* This section is redundant with the standard immediately following.	HSTOD
7	1	1A.05	12-15	6	Modify	Agree with the concept of referencing current editions until the MUTCD is revised, but allow situations where an edition is referenced by an FHWA Official Interpretation. Suggest adding the following at the end of the standard on lines 12-15 of page 6: *, or referenced by an FHWA Official Interpretation* .	HSTOD
8	1	1A.06			Modify	The *UVC Rules of the Road* document has not been updated in some time and the statement that the UVC provides only a "Model Traffic Ordinance" is significantly outdated. Additionally, the UVC doesn't have a clear champion although NCUTCD has a working group, but no updates have been made.	HSTOD
9	1	1B.01	32-38	7	Modify	Agree with the concept of clarifying the locations where the MUTCD does not apply on lines 32-38 of page 7. Pedestrian ways internal to buildings are specifically called out as a location where the MUTCD shall not apply. Clarification is needed for outdoor pedestrian ways which do not intersect with any roadways or bikeways. For example, are pedestrian ways within a campus or park setting regulated under the MUTCD?	HSTOD
10	1	1B.01	14-20	8	Disagree	Agree with FHWA's intent to avoid situations where states adopt Interim Approvals into legislation or regulations which are difficult to change if the Interim Approval is rescinded. However, the new standard which indicates policies, directives, specifications, standard drawings or similar documents are supplements to the MUTCD conflicts with that intent. Especially for state DOTs which receive statewide approval for local agencies to use an Interim Approval, it is essential for state DOTs to issue policies, directives, specifications, and/or standard drawings to ensure local agencies are using consistently and complying with the terms of the Interim Approval. State DOTs need the flexibility to provide these directives. PennDOT suggests revising the Guidance on lines 18-20 of page 8 as follows: *Traffic control devices that have been granted Interim Approval in accordance with Section 1B.07, but which have not yet been adopted into the National MUTCD, should not be adopted by state regulation.* *Option:* *Traffic control devices that have been granted Interim Approval in accordance with Section 1B.07, but which have not yet been adopted into the National MUTCD, may be adopted by State policies, directives, specifications, standard drawings or similar documents which do not require a lengthy rulemaking or similar process to revise if the Interim Approval is rescinded or modified by FHWA.*	HSTOD

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11	1	Table 1B-1			Modify	Compliance dates often don't factor in an agency's priorities as well as funding sources and needs to be incorporated into this table moving forward.	HSTOD
12	1	1B.03			Agree	Agree. This section is much improved, clearly explains the process and sets the requirements. Requirements are prudent and appropriate. Overall State DOTs need support for better coordination with experimental treatments under interim approval.	Multimodal
13	1	1B.04	33-34	9	Modify	Suggest modifying the Option statement to read: *The FHWA may issue an Official Ruling in response to requests for interpretation, experimentation, or change.* The first sentence of the support on line 36 can then be removed because it is redundant.	HSTOD
14	1	1B.06	J		Agree	Agree. Lines 42-51 on Page 11 appropriately and clearly require local jurisdictions to provide the state with notification and updates to the use of Traffic Control Devices with interim approval.	Multimodal
15	1	1C.02			Modify	The AASHTO "Green Book" defines Roadway as including the shoulder. The MUTCD should use the same definition. Also, on Page 31, Traveled Way is defined as the portion of the roadway exclusive of shoulders. This implies that the shoulders are part of the roadway.	BOPD/HDD
16	1	1C.02			Agree	Agreed. The proposed definitions related to bicycle and pedestrian treatments and facilities #s 21 – 25, 51,156, and 214, are appropriate.	Multimodal
17	1	1C.02				Noting for internal discussion that the MUTCD definition of Pedestrian does not align with current PA Vehicle Code "154. Pedestrian—a person on foot, in a wheelchair, on skates, or on a skateboard".	Multimodal
18	1	1C.02			Modify	Add a definition of separated bicycle lane to the Manual: "A bicycle lane that is physically separated from motor vehicle traffic. Physical separation consists of vertical elements which include, but are not limited to channelizing devices, parked vehicles, or raised islands."	Multimodal
19	1	1C.02		28	Modify	Shoulder 212: This definition does not comport with laws in many states. Paved shoulders are considered by some agencies to be a bicycle facility type; pedestrian travel may also be allowed; and transit stops or school bus stops may be located on shoulders. Revise to read: "Shoulder---a longitudinal area contiguous with the traveled way that is primarily for accommodation of stopped vehicles for emergency use, in many locations for bicyclist travel, in some locations for pedestrian use and transit or school bus stops, and for lateral support of base and surface courses, and that is graded for emergency stopping. A shoulder might be paved or unpaved. A paved shoulder might be opened to part-time travel by some or all vehicles."	Multimodal
20	1	1D.04	40	36	Modify	Change "*private roads"* to "*site roadways or private toll roads"* to consistently use the defined terms such as in the previous paragraph.	HSTOD
21	1	1D.09	33	40	Modify	The term "Acknowledgement Signs" is not defined. It is unclear to what this term refers.	HSTOD
22	2	2A.04	21-27	45	Disagree	The proposal standard for display of manufacturer name on changeable message signs will result in many existing changeable message signs in Pennsylvania being non-compliant. The Department has not encountered any issues due to the manufacturer's name/logo being included in the border of the sign, and PennDOT does not wish to incur the cost(s) to change the sign designs or police the manufacturer's placement of their name in order to comply with the proposed standard.	HSTOD
23	2	2A.12	35-38	51	Modify	The statement referring to placement of signs on the left side of the road should be an Option statement instead of Guidance. Where should a sign be placed if the road is undivided or has multiple opposing lanes? If the sign is mounted on the left, it may be further from the target users than if it were mounted on the right, especially if there is a two-way center left-turn lane.	HSTOD
24	2	2A.17	6-8	56	Modify	Agree with ensuring electrical power components such as solar panels do not cast shadows or obscure the sign. However, the proposed language requiring the equipment to be below or behind the sign may limit the effectiveness of the power, such as solar panels which need to maximize sunlight. The mounting to prevent shadows should be evaluated on a site-specific basis considering sun angle. The standard should be limited to the performance requirement and not provide a blanket restriction on the mounting location which may not be necessary to achieve that. It is unclear from the proposed standard language whether a solar panel mounted behind the sign face in the horizontal plane but above the sign would be acceptable. This would not cause a shadow especially if the sign is for northbound traffic, and the solar panel needs to face south for maximum sun exposure. Recommended wording: *Such equipment shall be mounted so as to not detract from or obscure the face of the sign, either directly or by casting shadows onto the sign, and so as not to obscure the shape of the sign.*	HSTOD
25	2	2B.03	38-44	63	Disagree	The sizes for the NO TURN ON RED (R10-11, R-10-11a, R10-11b) and RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) signs in Table 2B-1 are the same for single-lane and multi-lane approaches. Therefore, the option and standard references to sign size are irrelevant and should be removed.	HSTOD
26	2	2B.06	31	65	Agree	B. Driver yielding behavior with regard to bicyclists and pedestrians; is appropriate and the guidance is appreciated. Motor vehicle driver failure to yield may be indicative of a range of design issues including line of sight issues or a lack of crosswalks. Identifying root causes of failure to yield to non-motorized traffic has the potential to be a cost-effective safety measure. Section 2B.08 contains a great deal of effective guidance.	Multimodal

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27	2	2B.09			Modify	Add an option for using a bicycle symbol, or a pedestrian and bicycle symbol on the R1-5 sign. These signs can be commonly used ahead of crossing locations that are predominately made by bicyclists, or by bicyclists and pedestrians, such as shared use paths. This reason is similar to the R1-6 and R1-9 signs, which are proposed to have a version with the bicycle and pedestrian symbol. Safety research shows the use of gateway treatments is strong. To minimize the excessive use of signs, the ability to put a bike symbol on the R1-6 and R1-5 signs is important for all locations where shared use paths operate and separated bike lanes are adjacent to sidewalks. this is actually more "uniform" with the application of a W11-15 sign at a shared use path crossing. It makes no sense to create another series of bicycle only R1-5 signs to supplement pedestrian versions.	Multimodal
28	2	2B.09	18.D	68	Modify	There are no marked crosswalks or bicycle lanes on any approach. Clarification on the presence of UNMARKED crosswalks would be useful. Drivers and CAV are likely unaware of the existence of an unmarked crosswalk and consideration should be given by the engineer as to the necessity of signing or pavement markings to control movement at what might otherwise under this language be an uncontrolled intersection.	Multimodal
29	2	2B.10			Disagree	YIELD signs should be permitted on all approaches for all Circular intersections, not just Roundabouts.	BOPD/HDD
30	2	2B.12	15	70	Modify	The title for All-Way Stop Control Warrant D is incorrect, and should be "Eight Hour Volume" and not "Peak Hour Volume."	HSTOD
31	2	2B.13	49-50	70	Disagree	The crash criteria in A and B of Warrant A should be sufficient on their own for a crash experience warrant. The sight distance criteria is included separately in Warrant B.	HSTOD
32	2	2B.19		72	Agree	Agreed with the language changes here. Guidance is much clearer with regard to which signs are appropriate in various situations.	Multimodal
33	2	2B.20			Modify	Extensive research has been conducted on the R1-6 sign by Western Michigan University. This research indicated that yielding behavior improved most significantly when the signs were applied in a gateway configuration. The proposed changes to the Standards removes the option for locating a sign in a gateway configuration by placing it on the outside of the lane. Revise the Standard to follow the research that was completed. Additionally, remove the proposed Standard requiring the W11-2 or W11-15 signs be used with the R1-6 sign; the gateway configuration of the R1-6 increased yielding the most, and the warning signs will add unnecessary sign clutter. It is important for FHWA to follow published research on proven safety treatments, not least of all because there is a pedestrian safety crisis in this country. If FHWA believes there is research supporting the proposed changes that contradicts the research conducted by Western Michigan University on this topic, it should be shared to justify the direction proposed. Further, most states within the U.S., have laws that give bicyclists the same rights as pedestrians in crosswalks.	Multimodal

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34	2	2B.21	12	76	Modify	This section requires rewording as discussed below. Page 76 Line 12 – The 85th percentile as a guide for setting speed limits may be appropriate for freeways and access-controlled facilities where land uses are not directly accessing the roadway via driveways, alleys or uncontrolled street frontage. But it is not acceptable as the determining factor in urban, urban core, or suburban areas where land uses are mixed and pedestrian and non-motorized traffic is reasonably expected. Per the NTSB "From 2005 through 2014, crashes in which a law enforcement officer indicated a vehicle's speed was a factor resulted in 112,580 fatalities, representing 31% of all traffic fatalities". Per the NTSB – "Typically, speed limits are set by statute, but adjustments to statutory speed limits are generally based on the observed operating speeds for each road segment—specifically, the 85th percentile speed of free-flowing traffic. Raising speed limits to match the 85th percentile speed can result in unintended consequences. It may lead to higher operating speeds, and thus a higher 85th percentile speed. In general, there is not strong evidence that the 85th percentile speed within a given traffic flow equates to the speed with the lowest crash involvement rate for all road types. Alternative approaches and expert systems for setting speed limits are available, which incorporate factors such as crash history and the presence of vulnerable road users such as pedestrians. NTSB suggests that the MUTCD move in the direction of the "Safe Systems Approach". This approach calls for road designers to move from the conventional design (in which the posted speed limit is determined by the anticipated operating speed) to a proactive urban street design approach (in which the posted speed limit is determined by a target speed based on a desired safety result). The Safe Systems Approach has recommended maximum target speeds for urban roads are typically near the low end of the AASHTO minimum design speeds. For example, the target speed for urban arterial roads is 35 mph compared to a 30 to 60 mph minimum design speed; for urban collector roads, the Safe Systems Approach's target speed and the AASHTO minimum design speed are both 30 mph (NACTO 2017).	Multimodal
35	2	2B.21		76	Modify	Page 76 Under Guidance – Context issues are key for providing for safe and efficient flow of traffic – understanding that traffic is defined as including pedalcyclists and pedestrians. Access management and land use considerations will alter the appropriate speed of free flow of vehicles along and in/out of access points. Absent a priority on these considerations, setting speed at the 85th% can lead to roadway designs that can and will have negatively affected minority and disadvantaged communities in Pennsylvania with poor health and economic impacts for generations. To highlight the critical nature of land use and access management issues, I would reorder the list of factors on lines 12-18 such that Road Context is listed first.	Multimodal
36	2	2B.21	17	76	Modify	Road context: Change the text to read as follows: "Road context (such as roadside development and environment; number of driveways, land use; parking practices, schools, transit stops and other nearby pedestrian and bicycle traffic generators), should be used as a priority factor for roads in population centers on roads that are not limited access." This will clarify how to approach the design and the safety issues to be addressed in the context of the land use.	Multimodal
37	2	2B.21	33-37	76	Agree	PennDOT would be OK with using these supporting tools but for many states like PA our laws require us to base posted speeds off the 85th percentile speed so this would still be the controling principle when establishing speeds for those states.	BOMO
38	2	2B.21	21+	78	Modify	Consider a separate section for variable speed limits so the content is more easily found in the table of contents.	HSTOD
39	2	2B.21	25-28	78	Modify	A visual depiction of the variable speed lmiit sign would be helpful to include in Figure 2B-3 to go along with the standard relating to the design.	HSTOD
40	2	2B.21	27-28	78	Modify	It is unclear why a black LED legend on a white full-matrix LED background is not acceptable, since this would more closely replicate the R2-1 sign. Consider allowing either option, or provide a Support statement explaining why that is not acceptable.	HSTOD
41	2	2B.26			Disagree	Recommend retaining use of Regulatory (R6-4 series) Chevron signs as are designated in NCHRP-672.	BOPD/HDD
42	2	2B.27	19	83	Modify	Figure 2B-1 does not show arrow symbol options. These are shown in Figure 2B-4.	BOPD/HDD

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43	2	2B.30	20-30	85	Agree	Agreed with proposed language Page 85, Lines 20-30 with the caveat that placing a cyclist between two general purpose lanes is not comfortable for the person on a bicycle and that alternative designs exist, particularly with regard to right-turn and through movements. Additional research is underway (NCRHP 15-73) so this language should be flexible to accommodate new understanding of the interactions.	Multimodal
44	2	2B.45	14-15	180	Modify	Guidance for the text size of block numbers should be provided.	HSTOD
45	2	2B.45	37	180	Disagree	PennDOT currently omits the border for some overhead sign sizes in order to efficiently use standard size sign blanks with larger letter heights. The omission of a border should not be limited to post-mounted Street Name signs.	HSTOD
46	2	2B.45	10-11	181	Modify	Depending on the mounting post and hardware, there may be cases where two signs should be mounted back-to-back instead of having the legend on both sides of the same sign. The proposed language doesn't provide this flexibility. Recommended revised text: *Where used, especially in urban areas, Street Name signs should display legends facing both directions to facilitate navigation for pedestrians.*	HSTOD
47	2	2B.46	21	94	Modify	Based on recent challenges in PA if this type of "No" sign is added then consideration should also be given to a "No ATV" sign. These type of signs are difficult to apply though because they would be applicable on the majority of our network. They would probably only used on areas of high violations of improper roadway use.	BOMO
48	2	2B.50			Disagree	Recommend retaining use of Regulatory (R6-4 series) Chevron signs as are designated in NCHRP-672.	BOPD/HDD
49	2	2B.58			Disagree	Placing R9-3a signs to prohibit pedestrians from crossing in undesirable locations does nothing to improve pedestrian safety. Ignoring desire lines, especially those around schools where children may be expected does not seem prudent and is not good planning. Research clearly shows humans will not detour extensively from a direct walking line (say 350 feet) to a signalized intersection, wait two minutes, and then retrace their steps, regardless of signing if the travel way to be crossed appears to be clear. MUTCD should recommend identifying these locations as network gaps and provide guidance on improving crossing safety Suggest language be changed to The NO PEDESTRIAN CROSSING (R9-3a) sign may be used to prohibit pedestrians from crossing a roadway at a location where a traffic study indicates no reasonable, prudent and cost effective measures will allow for a safe accommodation of an identified pedestrian network gap.	Multimodal
50	2	2B.59	39-42	106	Agree	Agreed with the proposed language in on Page 106 – Lines 39-42. Additional references and guidance within this section to the height of where push button actuators are to be located? Cyclists may be operating like a vehicle and may not easily be able to dismount to reach the mechanism. Several other interesting questions are relevant here: 1.The guidance should include signing indicating cyclists should dismount – if able – to cross the street in the crosswalk. 2.In PA the laws for a person entering a flow of traffic from a sidewalk or path differ if they are mounted on a bicycle or walking; if they are using the crosswalk, or even if a crosswalk exists. 3.We should discuss the range of guidance provided here and in our own publications.	Multimodal
51	2	2B.60	6-17	108	Modify	Agree with the addition of the LEFT TURN YIELD ON FLASHING YELLOW ARROW (R10-12a) sign. Some states have used a graphic depiction of the flashing yellow indication, which is similar to the green ball depiction on the R10-12 sign. The MUTCD allows states to create regulatory text signs, but all graphics, that are permitted for use, must be in the MUTCD. Therefore, the Department requests that FHWA consider adding a graphic version of the R10-12a sign since the proposed design contains more text than can be easily comprehended within an intersection.	HSTOD
52	2	2B.60			Modify	FHWA has proposed adding a new sign, the R10-12b, rather than provide a modification to a commonly used, well researched, and easy to understand existing sign, such as the R10-15, which alerts left turning motorists to the presence of bicyclists. When there is an option to provide modifications to existing signs to better alert road users to the right-of-way responsibilities, the modification should be favored over the creation of a new sign unless extensive supporting evidence is provided showing how the new sign would significantly improve comprehension, yielding, or other desired affect. If supporting evidence does not exist, remove this new sign and provide the modification to the R10-15, with the option to add the bicycle symbol, or add the bicycle and pedestrian symbol, as this clearly identifies the right-of-way responsibilities for roadway users and is widely used today. Additionally, when bicyclists and pedestrians are present, the use of one sign (rather than a sign for bicyclists and a sign for pedestrians) reduces sign clutter. Secondly, the use of this sign should not be restricted to signalized intersection, but should be allowed in advance of driveways, unsignalized intersections, or other higher conflict locations. Revise the corresponding text to allow the modified R10-15 sign to be used in unsignalized locations.	Multimodal

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53	2	2B.60	24-39	108	Modify	Agreed. This appropriately clarifies the where and why of the (R10-12b) sign. Note that where a bicycle signal controls a contraflow lane, the (R10-12b) sign is not the standard. However, there are other pavement markings that may provide enhanced awareness, including the application of green paint across the intersection. Text should be added to reference this design option in the relevant section(s) of the MUTCD	Multimodal
54	2	2B.72	9-14	114	Disagree	While this sign reflects what many states are passing as laws the differences that motorists will encounter across the nation make it difficult to make this a uniform sign to address all the nuances of the state specific laws. Additionally, this sign would apply everywhere in the state so based on budget contraints and concerns over clear guidance on placement locations we would prefer not to use this type of sign to remind motorists of what the laws are in our state.	BOMO
55	2	2B.73	15-19	114	Disagree	While this sign reflects what many states are passing as laws the differences that motorists will encounter across the nation make it difficult to make this a uniform sign to address all the nuances of the state specific laws. Additionally, this sign would apply everywhere in the state so based on budget contraints and concerns over clear guidance on placement locations we would prefer not to use this type of sign to remind motorists of what the laws are in our state.	BOMO
56	2	2C.08	30-31	124	Modify	As written because of the word concurrently, it would imply that dynamic sequential lighting chevrons would not be allowed which the Department would disagree with.	BOMO
57	2	2C.54	26-27	145	Agree	Agree with changes on Page 145 – Lines 26-27. This reflects research related to the minimal effects of the Share the Road signing and removed a much less relevant message option.	Multimodal
58	2	2C.66	1-13	151	Modify	Consider changing from "In" to "On Road" or "On Street" which would make it clearer that the slower forms of transportation are on the road or street.	HSTOD
59	2	2C.66	2-4, 20-21	151	Modify	Page 151- Lines 2-4 should include pedestrians. They are slower and are included in the definition of traffic provided in the MUTCD. Areas where this maybe a concern would be locations where the Plain Communities are present in PA. Note that 'pedestrians' includes people using some 'devices' such as skateboards. Lines 20-21 should add the R5-1a (Wrong Way) sign as well as an example where engineers may allow for bicycle routes that transition onto one-way neighborhood streets while excluding motor vehicles. This is a fairly standard neighborhood bicycle route design practice.	Multimodal
60	2	2D.04	17-31	158	Modify	The use of Series E(modified)-Alternate (Clearview) should be included in this section and not in Appendix A. At a minimum, Appendix A should be referenced in this section. The way it is written, the use of Series E(modified)-Alternate is hidden in Appendix A.	HSTOD
61	2	2D.04	17-31	158	Modify	The use of Series E(modified)-Alternate (Clearview) as stated in Appendix A seems to indicate it can only be used for freeway and expressway guide signs. This should be modified to be consistent with IA-5 which allowed Clearview for positive contrast legends on guide signs. This would allow the alternate font to be used for street name signs on conventional roads.	HSTOD
62	2	2D.45	17	179	Modify	Existing Section 2A.13 should be updated to new Section 2A.08 to be consistent with the new section numbers in the NPA.	HSTOD
63	2	2D.45	36-37	179	Modify	The 2009 MUTCD added the requirement that all overhead street name signs use 12-inch upper-case letters and 9-inch lower-case letters regardless of roadway speed limit. For post-mounted signs, a smaller text height is allowed on lower speed roads (40 mph or less). Some signs have been designed with a narrower series of lettering to comply with the text height requirement and either fit within available space on an overhead mast arm or comply with the structure's loading design. Consideration should be given to whether larger letter height or wider series provides better legibility when the sign width is constrained. PennDOT requests an option to use a smaller letter height for lower speed roads (40 mph and lower).	HSTOD
64	2	2E.12	44455	204	Modify	The use of Series E(modified)-Alternate (Clearview) should be included in this section and not in Appendix A. At a minimum, Appendix A should be referenced in this section. The way it is written, the use of Series E(modified)-Alternate is hidden in Appendix A.	HSTOD
65	2	2G.21			New Comment	Part-time shoulder use should recommend turnouts and provide guidance on need, the space between, length of each and how many per distance.	BOPD/HDD
66	2	2J.02	44205	305	Disagree	Disagree with statement limiting number of business identification sign panels to no more than 4 on an attraction sign. Most of the business identification sign panels for attractions in PA are legend only and do not contain logos or symbols. This would not be confusing to motorists. Suggest removing the limit of 4 for the attraction panels.	HSTOD
67	2	2L.07	13-14	323	Disagree	PennDOT has been showing both distance and travel time for two destinations on changeable message signs for several years, and we are unaware of any concerns with comprehension of these signs. Unless there is specific evidence to the contrary, PennDOT disagrees with limiting to one destination when displaying both distance and travel time.	HSTOD
68	2	2L.08	21-33	323	Agree	This type of messaging can really be broad in scope because everyone can point to safety for various reasons. In some cases this has lead to either inappropriate or messages that are difficult to understand which has the opposite effect on safety. Tying these to the national messages from the NHTSA communication calendar is probably the best option so it doesn't lessen the effectiveness of this type of messaging.	BOMO

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69	3	3A.04	29-31	337	Disagree	Suggest making the normal width line 6 inches for roadways with speed limits greater than 55 mph and not greater than 40 mph as stated. These 6" lines should only be required on higher speed roadways and optional for other roads.	HSTOD
70	3	3B.09	44449	348	Disagree	Disagree with edge lines being a minimum of 6" wide. I could see on higher volume / higher speed roadways requiring 6" edge lines. Should have the option to install 4" edge lines on two-lane roadways especially roads with narrower widths.	HSTOD
71	3	3B.19			Modify	The use of yield markings on separated bike lanes without signs should be an option. Separated bike lanes are frequently built in constrained, urban environments with short blocks. The requirement to place a sign at every yield marking increases sign clutter; with crowded curb space, it can be difficult to find a place for the sign. Given the slow speeds of bicyclists in these environments, the practitioner should have the option to exclude this sign based on engineering judgment. NPA #40 in Section 2A.19 adds additional information regarding avoiding sign clutter, and this comment seems in line with that change. Remove the Standard to have signs accompany yield markings on separated bike lanes, unless there is research that backs up the requirement that this results in better safety outcomes.	Multimodal
72	3	3B.29			Modify	Agreed, but does this mean you need to have sidewalks on one side or the other to have what amounts to a crosswalk – without sidewalks – not mentioned – you can't have a crosswalk.	Multimodal
73	3	3C.01	4-38	369	Agree	Agreed. Of special interest is the language on Page 369 – Lines 4-38, which offer support for changes to PennDOT Pub 46 and crosswalk placements on trail crossings over rural roads with posted speeds @40mph or lower.	Multimodal
74	3	3C.02			Disagree	FHWA has proposed changes to Section 3C.01 and 9E.13 to require marked crosswalks at non-intersection locations and at shared use path crossings. However, FHWA proposes to leave the Guidance statement in this section, rather than revise to a Standard. It is not clear why these locations should be treated differently. Marked crosswalks at signalized intersections should be the default application and practitioners should have the burden to identify the reason why they aren't appropriate, rather than the other way around. Making crossings more conspicuous, especially at arterial, collector, and school crossings has the potential to reduce serious injury and death when combined with other comments, such as requiring pedestrian signal heads at all signalized intersections. FHWA has not been consistent in the proposed changes and it is not clear that vulnerable roadway users are at the front of mind.	Multimodal
75	3	Fig. 3C-1			Modified	Consider a Double Ladder high visibility crosswalk. In PennDOT's experience, the pavement markings get slick when wet, after time, they wear smooth. The Double Ladder crosswalk (12 ft. wide) would consist of 4 ft of white crossbar, 4 ft of smooth pavement, then 4 ft of additional crossbar.	BOPD/HDD
76	3	3C.05	10-11	371	Modify	There are concerns regarding the language on Page 371 – Lines 10 and 11 concerning the establishment of a crosswalk at an uncontrolled intersection and/or where a substantial number of pedestrians cross w/o any other traffic control device. While the MUTCD suggests earlier that crosswalks alone are not enough, this section should be reworded to indicate that in the examples cited that a High Visibility Crosswalk alone may not be sufficient either. FHWA has provided guidance on how to improve uncontrolled intersections – this guidance should reflect that information. Otherwise, the rigidity of this document and the slow rate of changes will limit the ability of engineers to accommodate new research.	Multimodal
77	3	3D.02	19	375	Modified	The line should be deleted "roundabouts." as it is not a continuation of the previous line.	BOPD/HDD
78	3	3H.06	25-28	392	Modify	Agreed – this clarifies the use of green paint, including for uses where a bike lane crosses an intersection. However, it should be noted that there are significant downsides to this section – It may also make current designs on state and local roadways immediately in violation of the MUTCD. Exposing them to liability in the near term. Research will continue to explore the most effective painting / marking designs and the shall condition on Page 392 – Lines 25-28 will freeze efforts to adapt treatments for bicycle infrastructure. Recommend changing shall to should.	Multimodal
79	3	3H.07	33	392	Disagree	In general the use of alternate colored paint on the pavement will cause additional confusion to motorists without proper driver educational components.	BOMO
80	3	3H.08	28	393	Disagree	In general the use of alternate colored paint on the pavement will cause additional confusion to motorists withput proper driver educational components.	BOMO
81	3	3I.01			Agree	This clarifies that the use is allowed for separated bicycle lanes; allows varying spacing depending upon engineering judgement – to keep motor vehicles from parking in the separated bike lane / bus lane	Multimodal

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
82	4	4A.05			Disagree	Motor vehicle signal heads do not require an exclusive direction sign; for the same reason, bicycle signal heads should not require exclusive direction signs; there is no research to support the requirement that these signs be used. Further, they add to sign clutter which the MUTCD recommends against. Change the Standard to an Option so these signs can be used based on engineering judgment. Additionally, a Bike Signal sign without the exclusive direction symbols should be added.	Multimodal
83	4	4A.05	18	405	Modify	Page 405 – Line 18 states that upon a solid green bicycle signal means the riders are permitted to cautiously enter the intersection. The word 'cautiously' should be removed for the following reasons: 1. This adjective is not applied to any other vehicle entering the intersection in the Solid Green Traffic Signal (4A.03). 2. If the signal plan is properly implemented, no more than ordinary due care would be needed in making this movement – similar to any motor vehicle on advancing on a solid green. Additionally, on Page 405 – Line 36 the text reading "by such RED BICYCLE signal indication is displayed." is unneeded and confusing. Suggest removing	Multimodal
84	4	4A.05	44-54	405	Modify	Consider a separate section for flashing yellow bicycle indications for consistency with the organization of the other sections.	HSTOD
85	4	4B.02	39-40	409	Modify	Is the intent to only apply the engineering study requriements to new traffic control signals and grandfather all existing signals? This language may be problematic if an existing signal is to be modified and someone tries to claim it's not a new signal so the design doesn't need to comply with the MUTCD.	HSTOD
86	4	4B.02	41-43	409	Agree	PennDOT agrees that traffic signals should not be used for the sole purpose of speed management. Other traffic calming measures should be used for speed management. The use of traffic control devices for speed management has the potential to reduce driver compliance with the traffic control device, which may have more severe safety impacts than speeding (such as angle crashes).	HSTOD
87	4	4B.03		410		Should there be a reference to the FHWA signal removal guidelines?	4-0
88	4	4C			Disagree	While the proposed change of all signal warrant criteria from Standard to Guidance provides flexibility, PennDOT is concerned this change may result in requests for unwarranted and unjustified traffic signals, which would be more difficult for agencies to deny if warrant criteria are not Standards.	HSTOD
89	4	4C.01		413	Modify	Consider allowing the conversion of vehicular volumes to passenger car equivalents for the application of volume-based warrants. Locations with a high proportion of truck traffic but lower overall volumes may have operational and safety concerns which could be addressed with the installation of a traffic signal that wouldn't be a concern with the same volume if it was all passenger vehicles.	HSTOD
90	4	4C.08	12-23	419	Modify	Not sure how the significance of the values on Table 4C-2 were derived but this should probably have more of an HSM feel to it with an evaluation of expected crashes and whether or not you are exceeding that.	BOMO
91	4	4D	1	422	Modify	The term "design" is used here to refer to the design features of traffic control signals. The term "design" is also associated with pre-construction engineering activities and could cause confusion. Recommend changing chapter title to *Design Features of Traffic Control Signals.*	HSTOD
92	4	4D.01	14-15	422	Modify	Suggest adding *"present or expected to be present at the intersection"* at the end of this sentence.	HSTOD
93	4	4D.03			Agree	Agree with addition of this Section and accompanying language	Multimodal
94	4	4D.06	17-20	427	Modify	Suggest changing this paragraph to guidance. There are cases where traffic signals are used to control minor driveway approaches within an intersection. Engineering judgment should be allowed to determine site-specific cases where alternative placement of post-mounted primary signal faces.	HSTOD
95	4	4D.06	28-34	427	Modify	A figure would help to explain this new guidance.	HSTOD
96	4	4D.08	41-49 & 1-4	428-429	Modify	With elimination of the maximum height, there is no longer a need to separate the standards for vertically- and horizontally-mounted signals. These sections can be combined.	HSTOD
97	4	4E-01	10	431	Modify	It is unclear whether flashing confirmation lights will still be permitted. PennDOT requests clarification to ensure flashing confirmation lights are permitted.	4-0
98	4	4F.02	22-27	440	Agree		HSTOD
99	4	4F.08	19-21	445	Agree		HSTOD
100	4	4F.08	9-13	446	Agree	In addition to allowing conversion of existing three-section protected-only left- and right-turn signal faces to three section FYA faces, the option to allow three-section FYA faces will also provide flexibility for replacing existing five-section protected/permissive signal faces on existing poles or span wire without impacting the vertical clearance.	HSTOD
101	4	4F.09	43-44	447	Agree	PennDOT standard practice has been to provide a yellow change interval when there are opposing permitted left turns that need to clear the intersection prior to the protected right turn arrow being displayed. Otherwise, a yellow trap occurs.	HSTOD

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
102	4	4F.16			Modify	This section should be limited to approaches where the thru movement is not permitted, such when the opposite approach is a one-way roadway in the opposing direction. The application of these provisions for all stems of a T-intersection is inconsistent with the signal faces traditionally provided for the stem of a T-intersection and would require significant effort to upgrade signals to comply with little to no benefit. The intent in the NPRM is to improve safety by minimizing the potential for road users driving straight through in the wrong direction onto a one-way roadway or exit ramp. This condition does not exist for the stem of a T-intersection. The standard beginning on line 8 of page 456 does not contain a standard indicating the required signal faces for a single-lane approach (combined left-turn/right-turn lane and no through movement) with a posted or statutory speed limit 35 mph or higher, such as the common scenario of the stem of a T-intersection. The top diagram in Figure 4F-15.C appears to indicate circular yellow and circular green indications are acceptable for these situations when there are pedestrian conflicts on both approaches. The text needs to account for the scenarios described in the figures to give them standing as a standard. Figure 4F-15.B should be revised to show the pedestrian movement that conflicts. The green arrows shown to the left would not be applicable if the pedestrian conflict is on the crosswalk crossing the left turn but there is no pedestrian conflict on the crosswalk crossing the right turn. The figure title is misleading.	HSTOD
103	4	4F.17	36-39	457	Disagree	The ITE recommended practice was not peer-reviewed prior to adoption. FHWA is leading a pooled fund study to develop appropriate standards for yellow change and red clearance intervals. All references to the ITE recommended practices should be removed from the MUTCD since this document was not developed with any field research.	HSTOD
104	4	4F.19	36-38	459	Disagree	The shortening of pedestrian change interval for railroad crossings may not provide sufficient time for a pedestrian to clear the tracks and the rail traffic may not be able to stop. The preemption entry time should consider the full pedestrian clearance time for this situation to avoid conflicts. For emergency vehicle preemption, the approaching emergency vehicle may have the ability to stop if it sees a pedestrian. In locations with pedestrian recall, the pedestrian change interval may not be needed if there were no pedestrians actively crossing. It is important to balance the safety of pedestrians with the relatively rare frequency of emergency vehicles. PennDOT normally eliminates pedestrial recall to improve EVP transition time, which could be detrimental to pedestrians the majority of the time for a relatively rare occurrence of preemption. The vehicular phase operating concurrently is normally held green during the pedestrian change interval, which would further delay emergency vehicles. An alternative would be to have vehicular signals terminate green and go through the clearance phases immediately upon preemption call, but don't release green for the pre-empted approach until the pedestrian change interval completes. This would provide an all-red, for which an emergency vehicle coud stop and then proceed if there are no pedestrians, without concern for conflicts with vehicles.	HSTOD
105	4	4H.01			Agree	Agreed, guidance, policy, and practice should be consistent statewide. In particular, the department will want to develop a standard format for signal timing tables that clearly indicates bicycle specific movements / what a clearance interval for a bicycle is and similar.	Multimodal
106	4	4H.01	25-31	464	Agree	The standard – Page 464: Lines 25-31 – it is appreciated that the standard is to provide a ‘protected’ movement for cyclists. I assume it is implied that at signalized intersections that the motor vehicle movements allowed by signing, signalization, and pavement markings will support this standard and that does not need to be specifically called out here. The language in Option is strongly supported	Multimodal
107	4	4H.02			Agree	Agreed with proposed language.	Multimodal
108	4	4H.03			Modify	While I agree with the language, I’m not sure bicycles can be counted as pedestrians for the purpose of signal warrants in PA (Section 9F.01 on page 781) They are clearly defined as vehicles in Title 75. Suggest the addition of guidance language in the MUTCD be added here or in 4C.01 as to when you might use pedestrian vs. vehicle warrants and what factors to consider.	Multimodal
109	4	4H.04			Agree	Agreed. As these signals are relatively new to many motorists and cyclists in PA, the signing serves a valuable purpose. Sign sizes are appropriate.	Multimodal
110	4	4H.05			Agree	Agree with language as presented	Multimodal
111	4	4H.06			Agree	Agree with language as presented	Multimodal
112	4	4H.07			Agree	Agreed with language as presented	Multimodal
113	4	4H.08			Agree	Agreed with language as presented	Multimodal
114	4	4H.09			Agree	Agreed with language as presented	Multimodal
115	4	4H.10			Agree	Agreed with language as presented	Multimodal
116	4	4H.11			Agree	Agreed with language as presented	Multimodal

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
117	4	4H.12			Modify	Agree with Support language and duration of yellow change interval. Would prefer to see guidance on the red clearance interval and suggest that giving an average speed of 8-12 mph is a range of 12 ft /sec to 18 ft/sec to cross an intersection of 100 feet is about 8 seconds in duration – longer than what we'd give an automobile	Multimodal
118	4	4I.05	1	472		Page 472: Line 1 – should is strongly recommended to be changed to shall. 1.An inaccessible push buttons (without level and all weather surface) or failure to meet other requirements in lines 3-21 (same page) will result in either a significant gap in a pedestrian network or unsafe crossing behaviors as pedestrians seek gaps in flowing traffic. 2.'Should' allows all of the listed criteria to be dismissed in favor of lower construction and operating costs.	Multimodal
119	4	4I.05	Figure 4I-2			Figure 4I-2 shows a 2.5 ft. minimum distance between the outside of the curb ramp flare and the push button location. This requirement is not included in the guidance statements on Page 472. Also, the 1 ft. minimum distance at the back of the curb ramp is on the figure but not in the guidance statements. Figure 4I-2 also conflicts with the guidance on page 472 because the distance from face of curb should be 1.5 to 6 ft. unless there are constraints, in which 10 ft. max applies. The darker shading is shown at the 10 ft. range in the figure.	HSTOD
120	4	4I.05	Figure 4I-3			The 1 ft. minimum distance between the landing area and push button location in Figure 4I-3 is not referenced in any guidance statements in the text. Does the maximum 10 inch maximum reach in ADA Standard Section 308 apply? These seem to conflict.	
121	4	4I.05	6	472		Agree with change to 'edge of pavement' on page 474: Line 6	Multimodal
122	4	4I.05	34-36	476	Modify	Page 474 lines 34-36 indicate 6 feet from behind edge of pavement or face of curb but on Page 471 – lines 26-29 indicate that distance may be up to 10 feet from face of curb or edge of pavement. Suggest change wording on pedestrian clearing time (page 474) to reflect the 'up to 10 feet' cited earlier.	Multimodal
123	4	4I.05	45-46	472	Modify	The option statement is inconsistent with the modification to the standard on lines 41-43. A supplemental sign doesn't make sense without indicating the primary sign is to be mounted adjacent to or integral with the pedestrian push button. Either modify the option statement or provide a new guidance statement explaining where the pedestrian push button sign should be located.	HSTOD
124	4	4I.06	27	473	Modify	Paragraph 2 should be modified to indicate it applies to crosswalks at traffic control signals (see bold addition): *Except as provided in Paragraph 3, when the pedestrian signal heads associated with a crosswalk* ***at a traffic control signal*** *are displayed…*	HSTOD
125	4	4J.01			Agree	Agreed. These are used at trail crossings and users include large groups / families. The percentage of users below 3.5 feet per second may well meet these standards regularly.	Multimodal
126	4	4J.02			Modified	Add "except for at roundabouts".	BOPD/HDD
127	4	4K.01	44-47	480	Modify	The proposed language appears to imply more than what is intended. It appears the intent is to use APS integrated with the push button rather than older audible-only indications of walk signals. The proposed language could be construed to imply APS is required at all intersections with pedestrian signal heads. Suggest editing for clarity: "Where accessible pedestrian signals are used, pedestrian push buttons should be used to activate the accessible pedestrian signals and to provide information in non-visual formats to assist pedestrians with visual disabilities."	HSTOD/ Multimodal
128	4	4L			Agree	Agree with Changes presented	Multimodal
129	4	4S.01	13-14	501	Disagree	Pennsylvania has used a standard school speed limit sign beacon for decades which includes the beacon within the border of the sign. We are not aware of any concerns with the beacon reducing visibility. From personal experience, a flashing beacon with two beacons in a sign has less irradiation than multiple LEDs placed in the border of a sign allowed in Part 2. If the beacons in the sign are not acceptable here, then LED illumination of signs should also be discontinued.	HSTOD
130	4	4I.05	Figure 4I-2			Figure 4I-2 shows a 2.5 ft. minimum distance between the outside of the curb ramp flare and the push button location. This requirement is not included in the guidance statements on Page 472. Also, the 1 ft. minimum distance at the back of the curb ramp is on the figure but not in the guidance statements. Figure 4I-2 also conflicts with the guidance on page 472 because the distance from face of curb should be 1.5 to 6 ft. unless there are constraints, in which 10 ft. max applies. The darker shading is shown at the 10 ft. range in the figure.	HSTOD
131	4	4I.05	Figure 4I-3			The 1 ft. minimum distance between the landing area and push button location in Figure 4I-3 is not referenced in any guidance statements in the text. Does the maximum 10 inch maximum reach in ADA Standard Section 308 apply? These seem to conflict.	HSTOD
132	5	5A.02	21	510	Modified	Remove "road"	OTT
133	5	5A.02	22-23	510	Modified	Suggest replacing "This technology enables every vehicle on the road to be aware of where other nearby vehicles are." with "This technology enables vehicles on the road to be able to run applications which may benefit drivers, automated vehicles, and the environment." to expand on the capabilities.	OTT
134	5	5A.02	23-24	510	Modified	Suggest replacing "Drivers would receive notifications" with "Drivers may receive notifications…" or "Drivers receive notifications…".	OTT
135	5	5A.02	31-32	510	Modified	Suggest replacing "AVs work by gathering information from a suite of sensors…" to "AVs work by gathering information from a suite of sensors, including but not limited to…"	OTT
136	5	5A.02	38-39	510	Modified	Suggest replacing "AVs may combine sensor data with other inputs including detailed map data and information from other connected vehicles or infrastructure" with "AVs may combine sensor data with other inputs including detailed map data and information from other automated vehicles, connected vehicles or infrastructure."	OTT

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
137	5	5A.02	29-30	510	Modified	Suggest replacing "…or other technology based features used to control…" with "…or computer (or algorithm) controlled features used to control…" or remove "technology based", as "technology based" is a vague term.	OTT
138	5	5A.03	43	510	Modified	Suggest adding "(SAE)" after "…Society of Automotive Engineers…"	OTT
139	5	5A.03	1-36	511	Modified	Agree with the definitions presented; however, it may be beneficial to include CV definition as well, like Vehicle-to-Infrastructure (V2I).	OTT
140	5	5B.02	32	513	Modified	Suggest replacing "Edge lines of at least 6 inches in width on roadways with posted speeds greater than 40 mph…" to "Edge lines of at least 6 inches in width on roadways with posted speeds greater than 55 mph…"	OTT
141	5	5B.03	8-9	514	Modified	The refresh rate criteria should only apply to LEDs which are operating with alternative current or pulse-width modulations, and it should not apply to LEDs which are operating DC.	OTT
142	5	5B.03	15-16	514	Modified	Agree that CAV needs with respect to traffic signals are better addressed through V2I communications; however, the section mentions that V2I addresses the needs "for the reasons stated above" which isn't necessary since it's the previous sentence. If it's referring to other reasons, the section number should be listed.	OTT
143	5	5B.06	12-13	515	Modified	Agree that bicycles should have their own lanes where practicable, however, the reason for installing bicycle lanes is not primarily to accommodate machine vision. Suggest inferring that the reason for installing bicycle lanes is for the safety of the cyclists. The process to select and the design of bicycle facilities should not be solely or significantly altered to accommodate CAVs.	OTT
144	6	6B.01	09	469	Modify	Delete "for short periods of time" from second sentence because it's unnecessary. Also, distinguish between TTC devices on the roadway (channelizing devices must be removed) and TTC devices along the roadway (TTC signs must be removed, covered or turned from view of traffic while remaining in the upright position). This wording clarifies that tipping over signs face-down is unacceptable because sign stands are crash tested in the upright position.	BOMO
145	6	6B.01	Lines 5-6	469	Modify	Edit page 524: Line 5-6 to include pedestrians and pedalcyclists in the list of roadway users. Any temporary traffic control plan must accommodate all users and provide adequate access, especially for pedestrians. MUTCD language here should reference the legal requirement to maintain / provide ADA access for TTC or work zones as needed – obviously a limited access right-of-way is not the same as an SR. I note that on page 531 6C.02 we begin discussion of pedestrian and worker safety. These issues should be noted at the beginning of the TTC section and the reader directed to this portion of the guidance. Public safety (workers and pedestrian) is critical in work zones and needs to be more strongly emphasized. Finally suggest that language on pedestrian detours found on page 531 lines 38-45 should also include people on bikes for whom direct routes are critical. Requiring cyclists to dismount and walk may be acceptable although some small number of cyclists do have mobility disabilities that make walking very difficult – balance issues or significant joint pain. Page 532 notes that smooth continuous hard surfaces should be provided….	Multimodal
146	6	6B.01		469 & 470	Modify	Should there be language and guidance for School Crossing Guards as there is later for flaggers? Setting up 'crossing zones' and similar?	Multimodal
147	6	6C			Modify	Generally, more information will be needed on how to accommodate connected and autonomous vehicle of the type I, II, and III where manufacturers (Tesla in particular) are claimed as self-driving. These vehicles may need a technological tool to identify upcoming TTC zones and even provide 'mapping' for them. Should link to the CAV chapter in the MUTCD.	Multimodal
148	6	6C.02	Line 28	532	Modify	Page 532 Line 28 should be modified to read …"or turn around".	Multimodal
149	6	6C.02	Line 45-46	536	Agree	Page 533 Lines 45 and 46 are very much appreciated	Multimodal
150	6	6C.04	New		Modify	Add a paragraph to explain FHWA's stance on placing TTC signs along the left side of the roadway within the Advance Warning Area of freeways/expressways. Are they required? Or are they optional? Left-side signs are shown on TA plans and they are not labeled 'optional', however 6F.03 P01 states guidance which indicates they are not required. Stance should be made clear.	BOMO
151	6	6C.06	06		Modify	Convert the Guidance statement into a Standard statement that the Buffer Space shall be free from work activity and equipment/vehicle/materal storage. Current language shows the buffer spaces as optional, but they are there for safety of workers and road users.	BOMO
152	6	6C.06	09		Modify	Change "may" to "shall" thus requiring the longitudinal Buffer Space. Buffer Spaces are for worker and driver safety so they should be required upstream of the Work Space; right now they are shown as optional. This would require a Buffer Space length to be determined, either variable based upon speed limit or a fixed distance.PennDOT requires a longitudinal buffer space to be located upstream of the work space.	BOMO

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
153	6	Figure 6C-2			Modify	Remove "(optional)" from the Longitudinal Buffer Space dimension shown between the 1/3L shoulder taper and the Shoulder Work Space.	BOMO
154	6	Figure 6C-2			Modify	Remove "(optional)" from the Longitudinal Buffer Space dimension shown between the 1/2L shifting taper and the roadway Work Space.	BOMO
155	6	Figure 6C-3			Modify	The Upstream Buffer Space is shown and not labeled as optional, but there is nothing to indicate a minimum or recommended length (this compliments my comment #4). Add a minimum length to dimension note.	BOMO
156	6	Figure 6C-3			Modify	The Downstream Buffer Space is shown and not labeled optional, however there is nothing to indicate minimum or recommended length.	BOMO
157	6	6D.01	04		Modify	Add the following to the paragraph or make it a new paragraph; this was added to PennDOT Pub 213 TTC Guidelines "Work that closes pedestrian crosswalks at intersections shall be limited to one crosswalk at a time; this is to ensure pedestrians can fully navigate the intersection by using other crosswalks.	BOMO
158	6	6D.03	04		Modify	Can this be rephrased to indicate Class 2 or 3 garments shall be worn during daylight and Class 3 is required during nighttime? Requiring Class 3 during nighttime is a cost effective way to increase worker and driver safety.	BOMO
159	6	6E			Modify	This material may support guidance for Advisory Bike Lanes or Advisory Shoulder, which operate in a similar manner. Should there be language here to explicitly prohibit that use?	Multimodal
160	6	6E.02	01 & 02		Modify	Paragraph 1 is a Standard Statement requiring Class 2 or 3 garments for flaggers and Paragraph 2 is a Guidance statement suggesting Class 3 garments for flaggers at nighttime. Can these be combined to require flaggers wear Class 3 garments anytime while active? PennDOT requires employees to wear Class 3 garments while flagging.	BOMO
161	6	6E.03	09		Modify	Clarify that the red flag shall be only solid red with no other colors or patterns. Some suppliers provide red flags with a single white stripe stretching diagonally from corner to corner. Others have a red flag with a yellow X for the width of the flag.	BOMO
162	6	6E.03	13		Modify	Add to the Standard statement or make a new paragraph "Flashights with red glow cones are supplimental devices that may be used during non-emergency situations with a primary flagging device (stop/slow paddle or red flag), but shall not be used as the primary device to control traffic.	BOMO
163	6	6E.07	05		Modify	Add subparagraph D. The Stop/Slow paddle shall be held by hand continuously during activities. Flaggers shalll not insert the Stop/Slow paddle shaft into a traffic cone, cart or other device that will allow the device to be freestanding. PennDOT banned the practice of flaggers using devices to hold the Stop/Slow paddle shaft due to flagger inattentiveness and potentially hazardous conditions where the wrong sign face could be expose to traffic.	BOMO
164	6	6E.08	02		Modify	Flagger visibility distances are required and this guidance paragraph should be changed into a Standard Statement.	BOMO
165	6	6F.02	14		Modify	Remove "at night'. Otherwise, it could be argued that signs with no retroreflective qualities are acceptable during the daytime. MUTCD Section 2S.06 P04 A indicated that a basic requirement of signs is to have high visibility both day and night. High visibility sheeting, which is retroreflective and is standard for signs.	BOMO
166	6	6F.03	01 & 02		Modify	Explain when advance warning signs are Required on the left side of freeway roadways. See comment #2 (6C.04 new) above as these work together.	BOMO
167	6	6F.03	06		Modify	Modify to include a statement that the minimum height for signs along freeways and expressways is 7' (refer to MUTCD 2S.18 P10 second sentence). Part 6 mostly discusses signs in Rural and urban areas, but is lacking guidance where Freeways and Expressways are involved.	BOMO
168	6	Figure 6F-1			Modify	Modify figure by adding new drawing to show signs along freeways and expressways OR change for the title of D drawing to: Freeways, Expressways, Business, Commercial, Residential Area (without curb).	BOMO
169	6	Figure 6F-2			Modify	Modify figure to show additional sign mounting options such as details for signs mounted on Type II and Type III Barricades. Modify the existing figure showing Type III Barricades placed on the shoulders that do not appear to have minimum lateral offset clearance. Minimum lateral offsets are intended to keep trucks and cars that use the shoulders from striking signs or supports.	BOMO
170	6	6F.60	13		Modify	Revise to include two-phase limit on PCMS messages; something like 'Each message shall consist of no more than two phases with each phase being limited to three lines of text with eight characters per line, or should consider full matrix display'. This combines elements of 6F.60 P13 and 2L.05 P04 and covers info missing from Part 6.	BOMO
171	6	6F.63	10		Modify	Modify the paragraph.The existing paragraph is only true if the channelizing device is MASH crash tested with an auxiliary device as a Category 2 device. Channelizing devices like traffic cones are self-certified as a stand alone category 1 device and not permitted to have light.	BOMO
172	6	Figure 6F-7			Modify	Add detail drawings of warning and/or regulatory signs mounted on Type II and Type III barricades.	BOMO

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
173	6	Figure 6F-7			Modify	The 18" cone should be shown with one 6" retroreflective band, attached 3" to 6" from the top similar to the 28" cone. Without retroreflective bands, the cones are only available for use during the daytime. These cones are not used to channelize traffic, rather they are used to protect fresh pavement markings, however considering the amount of nighttime operations has increased, TTC entities would have to purchase additional cones for nighttime use. A retroreflective band allows these cones to be used during the day and night.	BOMO
174	6	6F.64	01		Modify	Modify paragraph to provide the minimum height of cones used as channelizing devices is 28" as shown on Figure 6F-7. The 18" cones may be used to protect fresh pavement markings.	BOMO
175	6	6F.68	21		Modify	This statement is not correct as written. A road is not "closed" if it is open to local traffic. A road is "closed" when it is unavailable to the public. If the road is closed only to through traffic, then it's open to local traffic and Type III Barricades do not belong within the roadway (open lane). The Road Closed To Through Traffic (or similar) may be placed along the side of the road. Placing signs in open lanes is a hazardous practice and could force traffic to drive in opossing lanes to leagally pass the sign.	BOMO
176	6	6F.68	23		Modify	Provide further information and details. For example, can you really post a 60"x30" Road Closed sign on a Type I Barricade? Is it acceptable on a Type II Barricade? Need more guidance on what size signs can be placed on each type of Barricade.	BOMO
177	6	6F.70	04		Modify	It's common practice for long-term construction jobs to use temporary traffic barriers for merging tapers, particularly on freeways and expressways. TA-34 shows a buffer space created by channelizing devices placed upstream of the barrier, but the buffer space is noted as 'optional'. If channelizing devices should be installed upstream on concrete barrier to create a buffer space and taper, then it should be mentioned here as a requirement and shown as required on applicable TA plans.	BOMO
178	6	6F.71	07		Modify	Add another sentence like "Longitudinal channelizing devices shall be used seperate pedestrians from the work space where the work space is adjacent to the pedestrian path".	BOMO
179	6	6G.05	08		Modify	Add a sentence to advise "when work will disrupt all crosswalks or pedestrian access points at an intersection, work should take place on one side of the intersection at a time so pedestrians can navigate the intersection during TTC conditions." An example of work that this would apply to is when ADA ramps on sidewalks are being rehabbed. Don't close off all ramps at the same time, thereby making a hazardous condition for peds with disabilities or creating a ped detour that stretches for city blocks.	BOMO
180	6	6H TA Plans	Multiple TA Plans		Modify	General comment for all TA plans; By labeling some items 'optional', does that mean the other devices shown on the plan are required? This goes to left side signing on freeways, shadow vehicles, etc.	BOMO
181	6	6H-4	TA-4		Modify	The shadow vehicle is shown and not labeled 'optional', however the arrow board and TMA are labeled 'optional'. Is this to say the shadow vehicle is required?	BOMO
182	6	6H-4	TA-4		Modify	The distance between the shadow vehicle and work space is undefined in the MUTCD TA plans. PennDOT requires a Roll Ahead Space when shadow vehicles are used. The Roll Ahead Space is 150' where the speed limit is <50MPH and 250' where the speed limit is >45 MPH. This space must be kept free of workers, materials and equipment.	BOMO
183	6	6H-5	TA-5		Modify	Why is only one advance warning sign shown on the left side and three signs on the right? Is the one sign on the left required? Is it optional? If it's optional, why is it not labeled 'optional'? Why not three signs on the left?	BOMO
184	6	6H-5	TA-5		Modify	The longitudinal line and taper of channelizing devices shown prior to the temporary barrier looks like a good idea, but this is not common proactice. If placing these channelizing devices is a requirement, it should be stated (see comment #28).	BOMO
185	6	6H-8	TA-8		Modify	The ROAD CLOSED xx MILES AHEAD sign is shown in the roadway near the intersection. The road is open to local traffic and placing a barricade in an open lane is a hazard and forces through traffic to drive on the left side of the centerline to get around the sign (see comment #26). This sign should be shown on the roadside.	BOMO
186	6	6H-8	TA-8		Modify	The Type III Barricade is shown in the roadway (which is open) heading towards the intersection. What is the point of placing this barricade in an open lane?	BOMO
187	6	6H-10	TA-10		Modify	For sign spacing dimensions on conventional roads: if dimensions A, B and C are used and if A=B=C, just use a single variable A for each dimension.	BOMO
188	6	6H-10	TA-10		Modify	There is no defined distance between the flagger station and the first cone in the taper. Should there be? PennDOT requries the flagger to be 25' to 100' from the taper beginning.	BOMO
189	6	6H-10	TA-10		Modify	There is no defined length for the longitudinal buffer space (area between the last taper cone and beginning of work space). Buffer spaces should have a defined or at least minimum length to provide consistency between different TTC areas and to improve worker/driver safety.	BOMO
190	6	6H-11	TA-11		Modify	Longitudinal buffer space shown upstream of the work space is labeled as optional. Shouldn't the upstream buffer spaces be required?	BOMO
191	6	6H-12	TA-12		Modify	The centerline pavement markings shown 500' to 600' prior to the stop line should be changed to double yellow lines for this entire length (both approaches).	BOMO
192	6	6H-17	TA-17		Modify	Is there a recommended or minimum distance between the shadow vehicle and work vehicle?	BOMO

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
193	6	6H-28	TA-28		Modify	The diagram on the right should show the longitudinal channelizing device on both sides of the pedestrian path to help prevent visually impared pedestrians from walking into the work space. This was an FHWA comment during the 2019 Pro Tier One field reviews.	BOMO
194	6	6H-34	TA-34		Modify	Three advance warning signs are shown on the left and right side of the roadway. None of these are labeled 'optional' so is that to say they are all required? Left-side signs can be more dangerous to install by working in the median and may not be possible to install due to roadside geometry. The left side signs should be labeled 'optional' either on all TA plans that show them or within an earlier section of Part 6.	BOMO
195	6	6I.02	11-13		Modify	Section 6I TTC Thru Incident Management Areas is the only time that flares are mentioned. Is this to indicate that road flares are only to be used during incidents? Some maintenance crews routinely use incendary roadflares to supplement TTC signs. Does FHWA have an opinion on using flares for routine or non-emergency conditions?	BOMO
196	6	6K.02			Agree	This entire section is much improved.	Multimodal
197	6	6K.12			Modify	There needs to be some guidance on how to use cheaper TTCs for 48 hour demonstration projects. Local governments can not afford $100K in TTC devices to install a 48 hour bike lane demo project on a roadway. Raising the bar too high could have outcomes where the MUTCD is all together ignored.	Multimodal
198	6	6N.04		595-596	Modify	The guidance on page 595 / 596 is strongly supported; suggest adding a graphic or language noting the range of widths and lengths related to bicycles – shy distances and similar. Also suggest that Line 18 on page 596 be reworded such that lanes with widths less than 14 feet receive the R4-11 signs and lanes wider than that have a physically separated path. This is similar to guidance in the forthcoming AASHTO Bikeway Design Guide.	Multimodal
199	6	6N.12			Modified	The referenced Figures should be 6P-52,53,54, not 6P-47,48.	BOPD/HDD
200	6	6P.28		639	Agree	The guidance on Page 639 for Pedestrian Detours is strongly supported.	Multimodal
201	6	6P.47			Modify	See comments on 6N.04 for bike lane detour widths.	Multimodal
202	6	6P.51			Modify	Guidance should also include consideration of the # of cyclists as well as the width / length of bicycles. Many bicycle riders may have trailers behind them that are 30 inches in width. There may be even larger tandem bicycles using the path as well or cargo bikes. Reference AASHTO Bike Guide for path design – these dimensions should be called out on Figure 6P-51.	Multimodal
203	7	7A.02	8-33	604	Modify	Recommend 'School' be expanded to include colleges and other institutions of higher learning that are often huge pedestrian generators and located in towns with roads	Multimodal
204	7	7A.02	8-33	604	Disagree	Overall, I am not certain that this material is appropriate for the MUTCD. It is NOT a planning document, if such material guidance is included, it needs to be much more comprehensive or reference planning guidance such as: https://www.transportation.gov/mission/health/Safe-Routes-to-School-Programs#:~:text=Safe%20Routes%20to%20School%20(SRTS,hour%20are%20for%20school%20travel	Multimodal
205	7	7D.01	2-26	612	Disagree	Is an Adult Crossing Guard a 'traffic control device"? I do not think this fits with the signs, signals, and uniformity of traffic control devices that is the intent of this document. Remove this section.	Multimodal
206	7	7D.02	27-40	612	Disagree	Remove this section	Multimodal
207	8	8E.02; 8E.03; 8E.04; 8E.05; 8E.06; 8E.07; 8E.09; 8E.10			Agree	Additional material is useful and needed. Trail / sidewalk grade crossings are common in PA and this language offers clarification	Multimodal
208	9	9A.01			Agree	Good basic clarification of how a person on a bicycle exists under the law and suggests due care in selection of traffic control devices.	Multimodal
209	9	9A.03			Agree	Clarifications are appropriate	Multimodal
210	9	9A.03	29-30	741	Modify	Page 741 – Lines 29-30 Standard – where is 'adequately visible' defined? Suggest added reference to guidance	Multimodal
211	9	9B.02			Agree	Support the Except Bicycle Plaque – useful in developing bicycle networks on local streets. Designs for contraflow bike lanes on one-way residential streets especially benefit from this and our DM2 Chapter now includes some of this guidance. "Except Bicycles" is approved as of 10/2017 per Justin Smith. Fully support Standard on Page 743 – lines 43 and 44. Should persons on bicycles ever be allowed to yield, rather than stop at a stop sign we would need to revisit our standards.	Multimodal

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212	9	9B.03	34	744	Modify	Page 744 – Line 34 relating to Counter-Flow Bicycle Lanes and signing. If the only bicycle lane is a counter-flow bicycle lane, does this guidance suggest you can't install a bicycle sign for the contra-flow lane as it approaches the intersection? Otherwise agree with provided guidance	Multimodal
213	9	9B.05			Disagree	The language is not clear. Line 26 should be edited to clarify that motorists may be moving across a shoulder used by people on bikes as well as a bike lane. Prefer 'SHOULD" to "MAY'. Line 31 is correct; however, for clarification purposes should be edited to the DOT 'SHALL" provide markings and signing to inform cyclists of the lane drop and guide them to the proper lane position.	Multimodal
214	9	9B.06			Modify	Agree with premise. Should there be language here that reads 'where wrong way bicycle riding has been documented'? Is there a set distance apart – say every block or 'engineering judgement'?	Multimodal
215	9	9B.08			Modify	Include ATVs here?	Multimodal
216	9	9B.10			Modify	This is congruent with guidance in our draft DM2 Chapter 14	Multimodal
217	9	9B.11			Agree	This is congruent with FHWA guidance on the use of the sign and allows use of counter flow bike lanes w/o the addition of expensive bicycle signals.	Multimodal
218	9	9B.12			Agree	Agree with language, especially lines 22-23 on Page 747 as this will prevent trail groups from misusing the sign.	Multimodal
219	9	9B.14	6-8	748	Modify	Edit Line 6-8 on Page 748 – to say "… in addition to' and remove "or instead of" Sharrows delineate where a cyclist is suggested to ride a bike and Bike May Use Full Lane indicates a legal status of the road user w/o suggesting where on the road. These are distinctly different ideas. Where a rider ought to take the land can be indicated by a Sharrow AND a sign notifying motorists they have the right to do so can be combined.	Multimodal
220	9	9B.15			Modify	Page 748 – Lines 20-21 – edit to say "may be used" rather than "should not be used" because riding in bike lane does not remove the legal requirement to provide the passing distance, the paint is not infrastructure, and brush passes – intentional or not – can cause crashes if they startle a person on a bike. Strongly disagree with this language.	Multimodal
221	9	9B.16 & 9B.17			Agree	Agree with language as provided.	Multimodal
222	9	9B.18		749	Modify	Page 749 – Add 'D. Where the characteristics of the riders using the facility (age, numbers) suggest separation from motor vehicle traffic would be prudent' Small children should not be merging across moving traffic to turn left. And most would not, they would essentially walk across the crosswalk and turn left across a second crosswalk as pedestrians -which is what the two-state bicycle turn box allows for.	Multimodal
223	9	Figure 9B-6			Agree	Figure 9B-6 is clear and appropriate as to signing and placement	Multimodal
224	9	9B.19			Agree	Agree with language as provided.	Multimodal
225	9	9B.20			Agree	Agreed with language as provided	Multimodal
226	9	9B.21	35-37	750	Modify	Page 750 – edit lines 35-37 to SHOULD be used where permissive left turns are allowed for motorists that would cause them to turn across…" Drivers are looking for gaps in traffic flow – motor vehicles – and not anticipating people on bikes in bike lanes generally and counter flow in particular. This sign should be used, especially on lower volume bike lanes to highlight the movements of interest.	Multimodal
227	9	9B.22			Agree	Agreed with language as presented	Multimodal
228	9	9C.05 & 9C.06			Modify	Agreed with language as presented but add that these plaques should be used on higher volume access points at or about Line 33-34.	Multimodal
229	9	9D.04-9D.08			Agree	Agree with language as presented – clarifications on locations of signs at junctions and less focus on 'reassurance signing' is appreciated.	Multimodal
230	9	9D.09	1-5	763	Disagree	Page 763 Guidance – lines 1-5. I am not sure why the regulated nature of the bike share system makes a difference in signing requirements	Multimodal
231	9	9D.11	25/26	764	Modify	Page 764 – line 25/26 – all signs should be retroreflective regardless of bikes. Pedestrians need to see them at night too.	Multimodal
232	9	9D.13			Agree	Agreed with language as presented	Multimodal
233	9	9E.01			Agree	Agreed with language as presented	Multimodal

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
234	9	9E.02	35-37	768	Modify	Page 768 under Support (line 35-37) does not provide adequate guidance on shoulders. PennDOT uses shoulders as a default bicycle facility on many rural roadways. As discussed in 'Guidance" – lines 39-44 – a shoulder should also be discontinued and a sharrow or through bicycle lane markings should be placed to guide the person on the bicycle to take the through travel lane. This should also occur where the Department chooses for cost reasons not to expand the shoulder when that shoulder is dropped to accommodate a left turn lane or right turn only lane. This section needs to be expanded with language that indicates these other situations. Figures in the document should be added to clarify similar to 9E-3; Clarification should be added regarding the use of green paint to demark that transition from shoulder to through travel lane.	Multimodal
235	9	9E.02	1-11	769	Modify	Page 769 Lines 1-11 are appropriate BUT should indicate again, that a similar situation exists with shoulders ending and treatments should be the same.	Multimodal
236	9	9E.02	17-19	769-770	Modify	The reasoning for Support and Guidance on Page 769 and 770 is correct and appropriate. However, I note that this guidance does not seem to include the options associated with the design for 'protected intersection treatments' and the language on lines 17-19 of Page 769 should mention pedestrians specifically.	Multimodal
237	9	9E.03			Agree	Agree with guidance as written.	Multimodal
238	9	9E.04			Modify	Bicycle lanes at driveways should require the same consideration of line-of-sight for roadway users as any intersection. Particularly where counter flow bike lanes or two-way bike lanes are being installed. Language should be added under support to that effect. Language should also be added to direct the reader to the proper signing at driveway access points.	Multimodal
239	9	9E.05			Agree	Generally agree with the material, excepting that winter maintenance of the 'alternative pathway' where a person on a bike would leave the roadway and use a path or sidewalk is critical. With a plow roll across the access point, that alternative is useless. On that note, the MUTCD is completely silent on the issue that many of these bicycle, transit, and pedestrian facilities are useless w/o prioritization of winter (or general) maintenance. If you can't see the pavement markings, can't access curb ramp, or walk safely on the sidewalk… your marking, signing, and signals are useless. Perhaps some general language on the need to keep facilities in a state of good repair at the beginning?	Multimodal
240	9	9E.06			Modify	The associated figure 9E-6 does not show a buffer between the parked cars and the bike lane as discussed on Page 771 – Lines 25-26. Nor does the language suggest a width of the buffer or the issues identified in FHWA guidance on bike lanes inside door zones. FHWA Bikeway Selection Guide – page 30. Additional language is needed as is correction to Figure 9E-6(b) – the 'longitudinal line' suggested on Page 771 – lines 38-40 are not a buffer but merely a demarcation of the bike lane on the parking side and does not match language on Page 772 lines 1-6 noting the width of the buffer space.	Multimodal
241	9	9E.07a and c			Modify	There are conflicting statements about chevron markings and diagonal markings and when they may be used for buffered (9E.06) and separated bike lanes (9E.07). Where buffer space is less than two feet wide, no markings are required. Where buffer space is two to four feet wide, diagonal markings are optional. Where buffer space is greater than four feet wide, diagonal or chevron markings are required. Revise figures to reflect this.	Multimodal
242	9	9E.07	39, 41-44	772	Modify	Page 772 line 39 suggest edit to …general purpose lane due to width. Page 772 line 41-44 – should include suggested buffer width (2-4 feet)	Multimodal
243	9	9E.07	28-30	773	Modify	Page 773 lines 28-30 – clarify if this means no permissive left turns or right-on-red/ free rights. Earlier language (on page 440) suggested permissive lefts were allowed if signal controls were in place for the bike lane and showed green for the through movement.	Multimodal
244	9	9E.07	31-36	773	Modify	Page 773 lines 31-36 should provide a wider buffer adjacent to parked cars to allow for doors to open. 2 feet to extract a stroller or a wheelchair is not enough.	Multimodal

Comment No.	Part	Section	Line(s)	Page	Agree/ Modify/ Disagree	Comments	PennDOT Organization
245	9	9E.08			Disagree	There are many places in the US where contra-flow bike lanes exist between a travel lane and a parking lane. This standard statement should be removed because there is no research to suggest that this practice is unsafe. Addtionally, this standard statement should be removed as it reduces an ability to improve bicyclist safety and improve bicyclist accommodations on one-way streets in urban areas which have a high amount of parking. For example, Washington, DC has had a few miles of contraflow bike lanes installed in this configuration for almost a decade with evidence of a safety problem.	Multimodal
246	9	9E.09	35-42	775	Modify	Page 775 lines 35-42 suggest maximum separation be increased to 350 feet.	Multimodal
247	9	9E.10			Agree	Agree with language as drafted	Multimodal
248	9	9E.11			Agree	Agreed with language as drafted	Multimodal
249	9	9E.11	37-46	776	Modify	Modify Bullet D to include the use of the R10-11 "No Turn on Red Sign" sign as depicted in Figure 9D-7 as a shall requirement for utilization of the two-stage bicycle box.	BOMO
250	9	9E.12	29-31, 32-34	777	Modify	Page 777 lines 29-31 should be removed. If drivers are violating the space set aside for the exclusive use of people on bikes to make right or left turns, then those turns can be – as noted on Page 778 line 4 – prohibited or addressed as described on Page 777 Lines 32-34. Removing the Bicycle Box because other roadway users are incompetent or inattentive is not an answer.	Multimodal
251	9	9E.13			Agree	Agree with language as drafted	Multimodal
252	9	9E.14			Agree	Agree with language as drafted	Multimodal
253	9	9E.15			Agree	Agree with language as drafted	Multimodal
254	9	9E.16			Modify	Agreed except that PennDOT has identified substandard drainage grates as a key liability issue and policy is to replace them. I suggest the language here be edited to simply be 'roadway obstruction'. Bollards in shared use paths are bad design practice and the inclusion here provides support for their retention or inclusion. Language should also be edited to state that deliberately including immovable vertical elements in a shared use path design is an unsafe design. See Page 780 lines 4-5 for that very concept.	Multimodal
255	9	9E.17	4-5, 24-25	780	Modify	Page 780 - Lines 4-5 should clarify 'buffer' as including paint or not. Noting that lines 24 and 25 seem to indicate paint is allowed as a 'buffer' as it creates 'space'.	Multimodal
256	9	9E.17	16	780	Modify	Page 780 – line 16. Clarify if other barrier types may be mixed with tubular markers such as lengths of rubber or plastic curbing to prevent motor vehicles from parking in the bike lanes	Multimodal
257	9	9F.01 9F.02			Agree	Agree with language as drafted.	Multimodal