



Traffic Engineering Update on Bike/Ped Topics

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Bicycle/Pedestrian Advisory Committee | August 3, 2016

Agenda

- ➔ • Share the Road / Bikes May Use full Lane Signs
 - Unsignalized Crosswalks Policy Update
 - Green Pavement
 - Q&A

Share the Road Signs | *Background*

- Ambiguous sign message - drivers think sign is telling bicyclists to share the road with drivers
- STR plaque was historically used beneath tractor, horse-and-buggy, etc. signs
- FHWA now discourages bicycle STR signs
- VDOT updated its policy on June 24



Share the Road | *New Guidance*

- VDOT will now use “On Road” plaque beneath Bicycle signs
 - Existing signs can remain until end of their useful life
 - STR plaque can still be used beneath tractor, horse-and-buggy, etc. signs
- Bike-on-Road signs shall not be used on roads with bike lanes
- Only on roads with ≥ 40 mph speed limit



BMUFL | *Existing & New Policies*

- Existing
 - Only on roads with speed limit ≤ 35 mph
 - Do not use where bike lanes or wide shoulders are present
- Additional policies as of June 2016
 - Clarifies “wide shoulders” – signs shall not be used where paved shoulder is ≥ 4 ft
 - Should not be used on very low-volume roads ($< 1,000$ ADT)
 - Should not be used on very high-volume roads ($> 30,000$ ADT)



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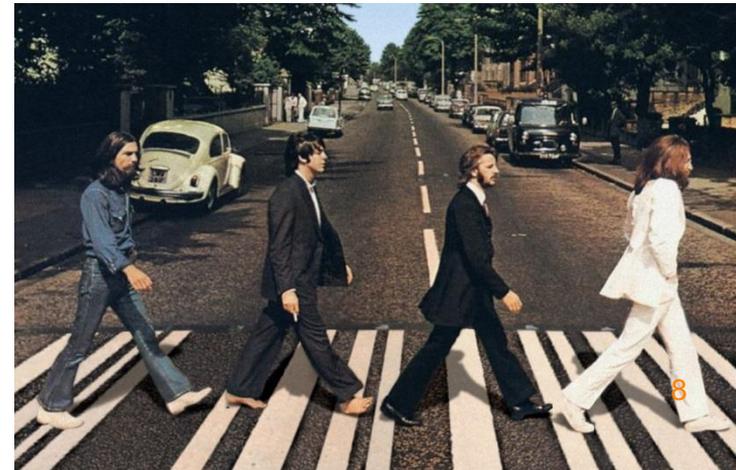
Crosswalks | Old Policy

- *Guidelines for Installation of Marked Crosswalks* document
- Research document completed in 2005
- Similar to 2002 FHWA study

	≤ 9,000 ADT			> 9,000 ADT to ≤ 12,000 ADT			> 12,000 ADT to ≤ 15,000 ADT			> 15,000 ADT		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph ^b
2 lanes												
3 lanes												
++4 lanes, raised median ^c												
++4 lanes, no median												

Crosswalks | *Issues With 2005 Policy*

- Little guidance for stop-controlled approaches
- Predates many recent federal & state policy changes (e.g. ADA, MUTCD)
- Technology changes
- Is not always clear in intent
- Lacks consistent, enforceable requirements for developers



Crosswalks | *New Policy*

- New “version 1.0” policy released July 2016
 - Pressing need for more complete guidance
 - Not perfect, but better than previous 2005 guidance
- Please provide us feedback which we can consider for next update (“version 1.1”)
- Companion to another policy document (under development) regarding peds at traffic signals

www.virginiadot.org/business/resources/IIM/TE-384_Ped_Xing_Accommodations_Unsignalized_Locs.pdf

Crosswalks | *Contents of New Policy*

- Background (CTB Ped Accommodations Policy)
- ADA Requirements
- Relationship to applicable sections of VA Code
- When to install marked crosswalks
 - Stop-or yield-controlled approaches
 - Uncontrolled approaches (at int's or mid-block)
- Crosswalk Design (width, marking pattern)
- Other ped safety enhancements
- Unique locations (roundabouts, interchanges)

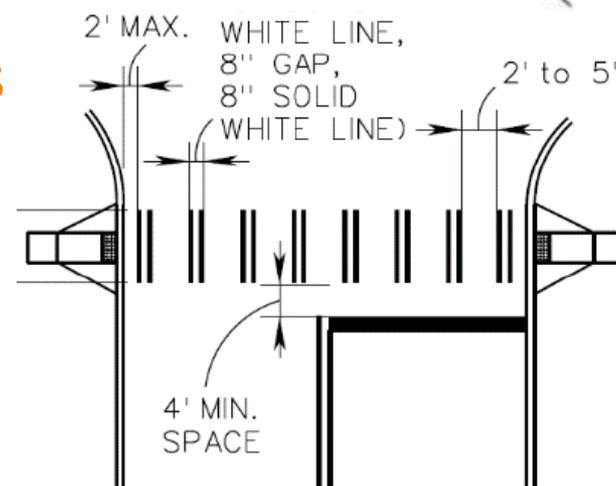
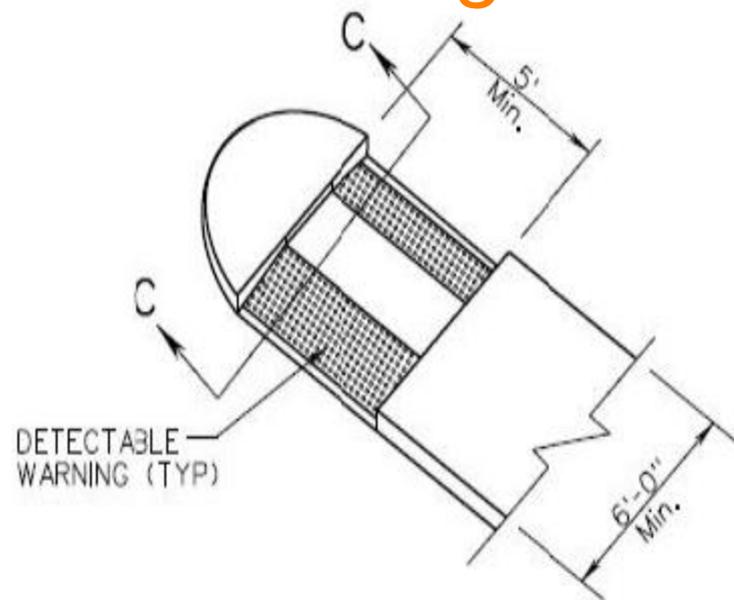
Crosswalks | *Midblock crosswalks*

Roadway Configuration	Roadway ADT and Speed Limit															
	1,500 to 9,000 VPD				9,000 to 12,000 VPD				12,000 to 15,000 VPD				More than 15,000 VPD			
	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH	≤ 30 MPH	35 MPH	40 MPH	≥ 45 MPH
2 Lanes (undivided two-way street or two-lane one-way street)	A	A	B	B	A	A	B	B	A	A	B	B	B	B	B	C
3 Lanes with refuge island OR 2 Lanes with raised median*	A	A	B	B	A	B	B	B	A	A	B	B	B	B	B	C
3 Lanes (center turn lane)	A	A	B	B	A	B	B	B	A	B	B	C	B	C	C	C
4 Lanes (two-way street with no median)	A	B	C	C	B	B	C	C	B	C	C	D	C	C	C	D
5 Lanes with refuge island OR 4 lanes with raised median*	A	A	B	B	A	B	B	C	B	B	C	C	B	B	C	D
5 Lanes (center turn lane)	A	B	C	C	B	B	C	C	C	C	C	D	C	C	C	D
6 Lanes (two-way street with* or without median)	A	B	D	D	B	B	D	D	D	D	D	D	D	D	D	D

Condition A	Candidate site for marked crosswalk alone (standard if speed limit is 30 MPH or less, high-visibility if speed limit is 35 MPH or greater). Evaluate need for advance signing
Condition B	Potential candidate site for marked crosswalk. Location should be monitored & consideration given to providing a high-visibility crosswalk and/or warning signs (see Section 7.2)
Condition C	Marked crosswalks alone are insufficient. The crosswalk shall use a high-visibility pattern and other improvements (warning signs and/or geometric/ traffic calming improvements) (see Section 7.2) <u>will likely be necessary.</u>
Condition D	Marked crosswalks shall not be installed

Crosswalks | *Crosswalk Design*

- Crosswalk Width
 - 6' min width (7' min preferred)
 - 10' maximum, generally
- Crosswalk marking patterns
 - Standard (two parallel lines)
 - High-visibility (Longitudinal lines or “bar pairs”)
- Crosswalks shall connect to curb cuts, when present, and shall avoid “kinks”



Crosswalks | *Other Safety Enhancements*

- New Rectangular Rapid Flashing Beacons (RRFBs) guidance
 - Minimum vehicular and pedestrian volume thresholds
 - RRFB sign placement
 - RRFBs shall not be used on roads > 45 mph speed limit
- Brief discussion of Pedestrian Hybrid Beacons (PHBs)
- Brief discussion of other treatments (corner bulbouts, reducing corner radii, etc.)



1. Dark until activated	2. Flashing yellow light for 3–6 s	3. Steady yellow light for 3–6 s
4. Steady red light during pedestrian interval	5. Alternating flashing red lights during pedestrian clearance interval	

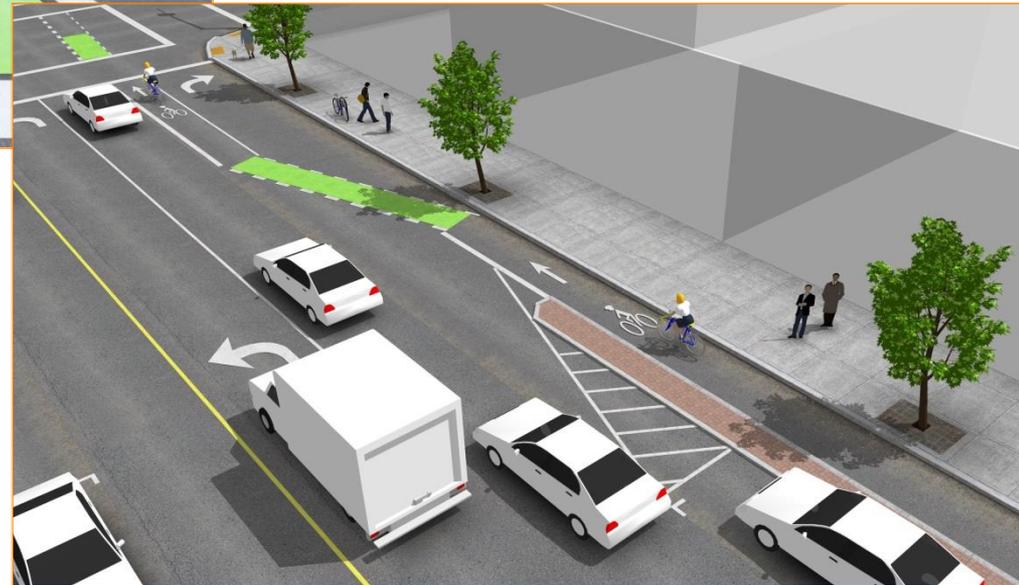
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Green Pav't | *Introduction*

- In 2011 FHWA gave “Interim Approval” for use of green pavement
- Supplements (does not replace) bike lane markings. White long lines still required.
- Interim Approval does NOT cover experimental treatments (examples on subsequent slides)

Green Pav't | Allowable Uses



Green Pav't | *Experimental Treatments*



Experimental
Treatments Only

Green Pav't | *Status In Virginia*

- VDOT received approval from FHWA on 7/15/16
 - “IA-14.94 – Green Colored Pavement for Bicycle Lanes – Virginia DOT”
- Approval includes localities that maintain their own roads (e.g. Cities, Arlington, & Henrico)
- Is NOT approval for experimental treatments
- Currently no installations on VDOT roads
 - Fairfax County/NOVA District are considering locations
- Recommendation: use sparingly

Green Pav't | *Conditions of I.A.*

- Only install in accordance with the conditions of FHWA's Interim Approval
http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/ia14grnpmbiketlanes.pdf
- Regions to maintain list of locations where green pavement is used
- Installed with the right chromacity and with material that minimizes loss of traction to cyclists
- FHWA reserves the right to terminate the Interim Approval at any time



Questions? Comments?

