

## Email from Francis Schelfhout Wisconsin Department of Transportation

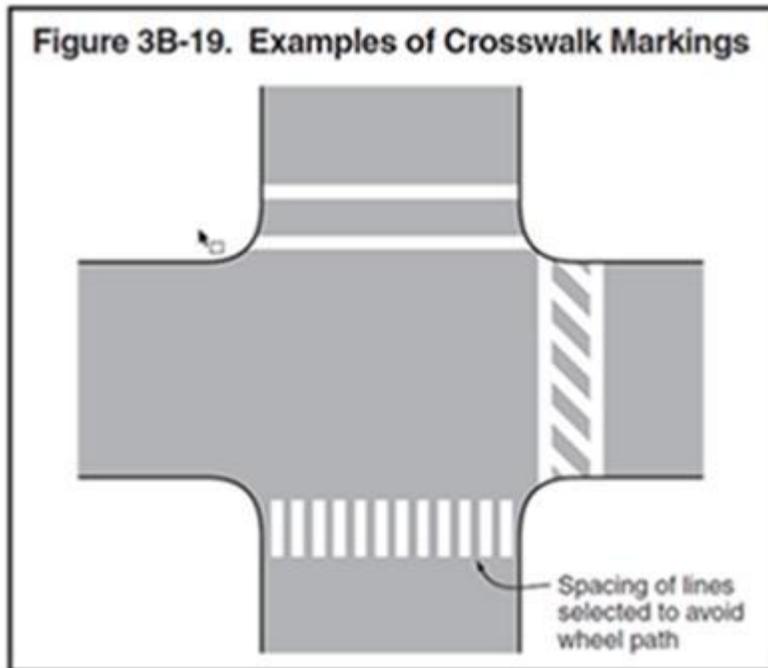
In follow-up to the Public Works Meeting from yesterday morning, here is all that I have regarding crosswalks:

- Wisconsin State Statute ([84.02](#) State trunk highway system):
  - (4) Guideboards; warnings; route marking.
  - (e) The department shall adopt a manual establishing a uniform system of traffic control devices for use upon the highways of this state. The system shall be consistent with and, so far as practicable, conform to current nationally recognized standards for traffic control devices.
- Manual on Uniform Traffic Control Devices ([MUTCD](#)) – the “adopted manual” by the department as referenced in Wisconsin State Statute 84.02
  - **NOTE: the MUTCD applies to “any roadway open to public travel”**
  - Section 3B.18 Crosswalk Markings
- Support:
  - 01 Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops.
  - 02 In conjunction with signs and other measures, crosswalk markings help to alert road users of a designated pedestrian crossing point across roadways at locations that are not controlled by traffic control signals or STOP or YIELD signs.
  - 03 At non-intersection locations, crosswalk markings legally establish the crosswalk.
- Standard:
  - 04 When crosswalk lines are used, they shall consist of solid white lines that mark the crosswalk. They shall not be less than 6 inches or greater than 24 inches in width.
- Guidance:
  - 05 If transverse lines are used to mark a crosswalk, the gap between the lines should not be less than 6 feet. If diagonal or longitudinal lines are used without transverse lines to mark a crosswalk, the crosswalk should be not less than 6 feet wide.
  - 06 Crosswalk lines, if used on both sides of the crosswalk, should extend across the full width of pavement or to the edge of the intersecting crosswalk to discourage diagonal walking between crosswalks (see Figures 3B-17 and 3B-19).

- 07 At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk lines should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).
- 08 Crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.
- 09 New marked crosswalks alone, without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and either:
  - A. The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or
  - B. The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.
- Support:
  - 10 Chapter 4F contains information on Pedestrian Hybrid Beacons. Section 4L.03 contains information regarding Warning Beacons to provide active warning of a pedestrian's presence. Section 4N.02 contains information regarding In-Roadway Warning Lights at crosswalks. Chapter 7D contains information regarding school crossing supervision.
- Guidance:
  - 11 Because non-intersection pedestrian crossings are generally unexpected by the road user, warning signs (see Section 2C.50) should be installed for all marked crosswalks at non-intersection locations and adequate visibility should be provided by parking prohibitions.
- Support:
  - 12 Section 3B.16 contains information regarding placement of stop line markings near crosswalk markings.
- Option:
  - 13 For added visibility, the area of the crosswalk may be marked with white diagonal lines at a 45-degree angle to the line of the crosswalk or with white longitudinal lines parallel to traffic flow as shown in Figure 3B-19.
  - 14 When diagonal or longitudinal lines are used to mark a crosswalk, the transverse crosswalk lines may be omitted. This type of marking may be used at locations where substantial numbers of pedestrians cross without any other traffic control device, at locations where physical conditions are such that

added visibility of the crosswalk is desired, or at places where a pedestrian crosswalk might not be expected.

- Guidance:
- 15 If used, the diagonal or longitudinal lines should be 12 to 24 inches wide and separated by gaps of 12 to 60 inches. The design of the lines and gaps should avoid the wheel paths if possible, and the gap between the lines should not exceed 2.5 times the width of the diagonal or longitudinal lines.



- CHAPTER 3G. COLORED PAVEMENTS
- Section 3G.01 General
- Support:
- 01 Colored pavements consist of differently colored road paving materials, such as colored asphalt or concrete, or paint or other marking materials applied to the surface of a road or island to simulate a colored pavement.
- 02 If non-retroreflective colored pavement, including bricks and other types of patterned surfaces, is used as a purely aesthetic treatment and is not intended to communicate a regulatory, warning, or guidance message to road users, the colored pavement is not considered to be a traffic control device, even if it is located between the lines of a crosswalk.
- Standard:

- 03 If colored pavement is used within the traveled way, on flush or raised islands, or on shoulders to regulate, warn, or guide traffic or if retroreflective colored pavement is used, the colored pavement is considered to be a traffic control device and shall be limited to the following colors and applications:
  - A. Yellow pavement color shall be used only for flush or raised median islands separating traffic flows in opposite directions or for left-hand shoulders of roadways of divided highways or one-way streets or ramps.
  - B. White pavement color shall be used for flush or raised channelizing islands where traffic passes on both sides in the same general direction or for right-hand shoulders.
- 04 Colored pavements shall not be used as a traffic control device, unless the device is applicable at all times.
- Guidance:
  - 05 Colored pavements used as traffic control devices should be used only where they contrast significantly with adjoining paved areas.
  - 06 Colored pavement located between crosswalk lines should not use colors or patterns that degrade the contrast of white crosswalk lines, or that might be mistaken by road users as a traffic control application.
- MUTCD Interpretation Letter [3\(09\)-8\(I\)](#) – Colored Pavement Treatments in Crosswalks (5/3/2011)
  - “...would degrade the contrast of the white crosswalk lines and should not be used.”
  - “...applies to any colored pavement or colored marking materials within a crosswalk except subdued-colored paving bricks, paving stones, or materials designed to simulate such paving.”
  - “...any other such treatment that features bright colors and/or distinctive patterns, would clearly degrade the contrast between the white transverse crosswalk lines and the roadway pavement, and therefore should not be used.”
  - “...is designed to be an artistic and aesthetic enhancement to the neighborhood. Even though it is non-retroreflective, its use in areas with street lighting means that it will be prominently visible to road users both day and night and it has a significant potential to distract road users and thereby reduce safety. Also, it should be noted that Section 3B.18 of the MUTCD prescribes that only the uniform use of diagonal or longitudinal white bars in the crosswalk area is allowed to perform the function of adding conspicuity to a crosswalk.”
- MUTCD Interpretation Letter [3\(09\)-24\(I\)](#) – Application of Colored Pavement (8/15/2013)
  - Colored Pavement in Crosswalks: In the late 1990s, the marketplace introduced and promoted aesthetic treatments for urban streetscape environments that included the opportunity to install a range of colors and a multitude of patterns. The most popular opportunity to implement these treatments was between the legally marked transverse lines of crosswalks. This was typically done as part of larger efforts by cities to enhance the aesthetics of an area that could include decorative luminaires, street furniture,

sidewalk art, etc. These crosswalk treatments were publicized and marketed as a method to increase conspicuity of the crosswalk that would translate into increased safety and a reduction of pedestrian deaths. In December 2001, the FHWA issued its first Official Ruling<sup>1</sup> regarding the use of these aesthetic treatments, which concluded that crosswalk enhancements of this type had no such discernible effect on safety or crash reduction.

- The marketplace looked to capitalize on advancements in pavement retroreflectivity in the mid-2000s, and further advocated for these aesthetic treatments on public streets as a way to increase crosswalk visibility. This included the benefits of the increased recognition of crosswalks both during the day and at night since the materials were designing retroreflective properties into the aesthetic treatments. In 2004 and in 2005, the FHWA issued two separate but related Official Rulings<sup>2, 3</sup> concluding that incorporating retroreflectivity into an aesthetic crosswalk treatment renders it an official traffic control device. Further, these Official Rulings continued to discourage implementation of such treatments and also concluded that these enhancements still had no increased effect on safety or contributed to a reduction in pedestrian deaths.
- The evolution of crosswalk treatments continued into the form of "crosswalk art" because it was becoming a common misconception that as long as the white transverse lines were present—thereby legally marking the crosswalk—then the agency was free to treat the interior portion of the crosswalk as it desired. In 2011, the FHWA issued an additional Official Ruling<sup>4</sup> that crosswalk art—defined as any freeform design to draw attention to the crosswalk—would degrade the contrast of the white transverse lines against the composition of the pavement beneath it. In deviating from previous Official Rulings on the matter that concluded an increased factor of safety and decreased number of pedestrian deaths were not evident after installation, this 2011 Official Ruling stated that the use of crosswalk art is actually contrary to the goal of increased safety and most likely could be a contributing factor to a false sense of security for both motorists and pedestrians.
- The FHWA's position has always been, and continues to be that subdued-colored aesthetic treatments between the legally marked transverse crosswalk lines are permissible provided that they are devoid of retroreflective properties and that they do not diminish the effectiveness of the legally required white transverse pavement markings used to establish the crosswalk. Examples of acceptable treatments include brick lattice patterns, paving bricks, paving stones, setts, cobbles, or other resources designed to simulate such paving. Acceptable colors for these materials would be red, rust, brown, burgundy, clay, tan or similar earth tone equivalents. All elements of pattern and color for these treatments are to be uniform, consistent, repetitive, and expected so as not to be a source of distraction. No element of the aesthetic interior treatment is to be random or unsystematic. No element of the aesthetic interior treatment can implement pictographs, symbols, multiple color arrangements, etc., or can otherwise attempt to communicate with any roadway user.

- Patterns or colors that degrade the contrast of the white transverse pavement markings establishing the crosswalk are to be avoided. Attempts to intensify this contrast by increasing or thickening the width of the transverse pavement markings have been observed in the field. These attempts to increase contrast are perceived to be efforts to circumvent the contrast prerequisite so that an intentional noncompliant alternative of an aesthetic interior pattern or color can be used. Further techniques to install an empty buffer space between an aesthetic treatment and the interior edge of the white transverse crosswalk markings have also been observed in the field. This strategy is also perceived to be an attempt to circumvent FHWA's prior position on contrast. However, an empty buffer space between a subdued-colored, uniform-patterned aesthetic treatment can be implemented to enhance contrast between the aesthetic treatment and the white transverse pavement markings. When used properly, buffer spaces can be an effective tool to disseminate a necessary contrast in order to visually enhance an otherwise difficult to discern white transverse crosswalk marking, provided that the aesthetic treatment conforms to the conditions in the preceding paragraph.

It is the Department's stance and by state statute are regulated that crosswalk treatments should adhere to the MUTCD and their Interpretations as presented above.

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"By failing to plan, you are planning to fail." – Anonymous