



# FARMINGTON VALLEY TRAILS COUNCIL

## Proposed Multi-Use Trail Markings

December, 2010 – R. Bruce Donald, President

### Introduction

Over the last few years, bike/ped usage of the Farmington Canal Heritage Trail and the Farmington River Trail systems through the Farmington Valley has increased dramatically. Unfortunately, there has been a corresponding increase in lapses of trail etiquette, with instances of injuries resulting from poor communication and a lack of understanding of trail usage on the part of both bicyclists and pedestrians. It is the FVTC's contention that when *on-road*, bicyclists are best served when they act like responsible drivers of vehicles, and are then treated exactly the same as motorists. We must educate a mind-set regarding this fundamental rule of law on our off-road facilities as well. Recognition that pedestrians have rights that bicyclists do not is critical – just as a bicyclists' right to unencumbered passage is. When everyone understands the rules, everyone is safe. It is for these reasons that we are urging the painting of a centerline on our trails.

Qualifications and specifications for the design and construction of bicycle path facilities are found in the AASHTO "Guide for the Development of Bicycle Facilities". However it is the individual states and communities that dictate safety issues such as centerlines. If such an entity decides to move forward, the Manual on Uniform Traffic Control Devices, or "MUTCD" is specific on need for painting of centerlines on multi-use trails in Chapter 9C, *Traffic Controls for Bicycle Facilities*. "Markings indicate the separation of the lanes for road users, assist the bicyclist by indicating assigned travel paths, indicate correct position for traffic control signal actuation, and provide advance information for turning and crossing maneuvers."

The recommended width of an independent shared use bicycle facility is at least ten (10) feet wide with two (2) foot graded shoulders on each side. The majority of the paved trail in the Farmington Valley conforms to this specification. The slope of this graded shoulder should be are a maximum 1:6. If the path is adjacent to downward slopes steeper than 1:3 then a wider separation of at least five (5) feet should be considered, or a physical barrier depending upon conditions around the slope. Most newly-built projects are twelve (12) feet wide and have four (4) foot shoulders on each side.

One of the seminal works on off-road trails is *A Guide to Planning, Design and Development of Greenways*, by Flink and Stearns, 1993. It is a comprehensive examination of greenway planning and design. The authors advise painting a centerline on heavily used multi-purpose greenways. "This can help communicate that users should expect traffic in both directions and encourage users to travel on the right and pass on the left".

"Where possible, heavily used trail systems should provide completely separate paths for bicycles and waling-only trails for pedestrians. If necessary, a centerline can be used in

circumstances such as curves and heavy use areas”. (Massachusetts Department of Transportation, *Massachusetts Pedestrian Transportation Plan*, Section 8, 23.)

In Vermont DOT’s *Bike/Ped Facility Planning and Design Manual*, it states: “Shared-use paths will attract users of all ability levels including less experienced bicyclists – especially children – and their design should be mindful of this fact.” The Manual cites this and other data to conclude in Section 8.4, when marking a shared-use path: “Supplemental markings may be used (center-line, stop bar, etc.) as necessary”.

Greater Victoria, in Vancouver, Canada has a very popular 85km of trails including the soon to be completed E&N Rail Trail. Safety was a crucial component according to them, and they noted that “although this trail is 2m wide in both directions, and wide enough for bicyclists to ride tandem (side by side) in each direction and pass safely in opposite directions, it was recommended that a 100mm wide solid yellow center-line be used to provide additional safety and promote proper lane recognition.”

Finally, the U.S. Department of Transportation Federal Highway Administration, (FHWA) has produced two studies that show that the presence of a painted path centerline influences the traveling behavior of bicyclists to move in a single-file if necessary, reducing the potential of a head-on collision.

### **Proposed Trail Markings**

Most specifications that we have reviewed designate a minimum trail width of eight (8) feet for the proper width of two lanes, a solid four (4) inch wide yellow line may be used to separate the two directions of travel where passing is not permitted such as on a hill or a dangerous curve, and a broken yellow line may be used where passing is permitted. Recommended spacing may be either three (3) foot segments and nine (9) foot gaps or ten (10) foot segments and thirty (30) foot gaps.

### **MUTCD Standard**

#### **Guidance:**

Pavement marking symbols and/or word messages should be used in bikeways where appropriate. Markings used on bikeways shall be retroreflectorized. Consideration should be given to selecting pavement marking materials that will minimize loss of traction for bicycles under wet conditions.

#### **Standard:**

The colors, width of lines, patterns of lines, and symbols used for marking bicycle facilities shall be as defined in Sections [3A.04](#), [3A.05](#), and [3B.22](#).

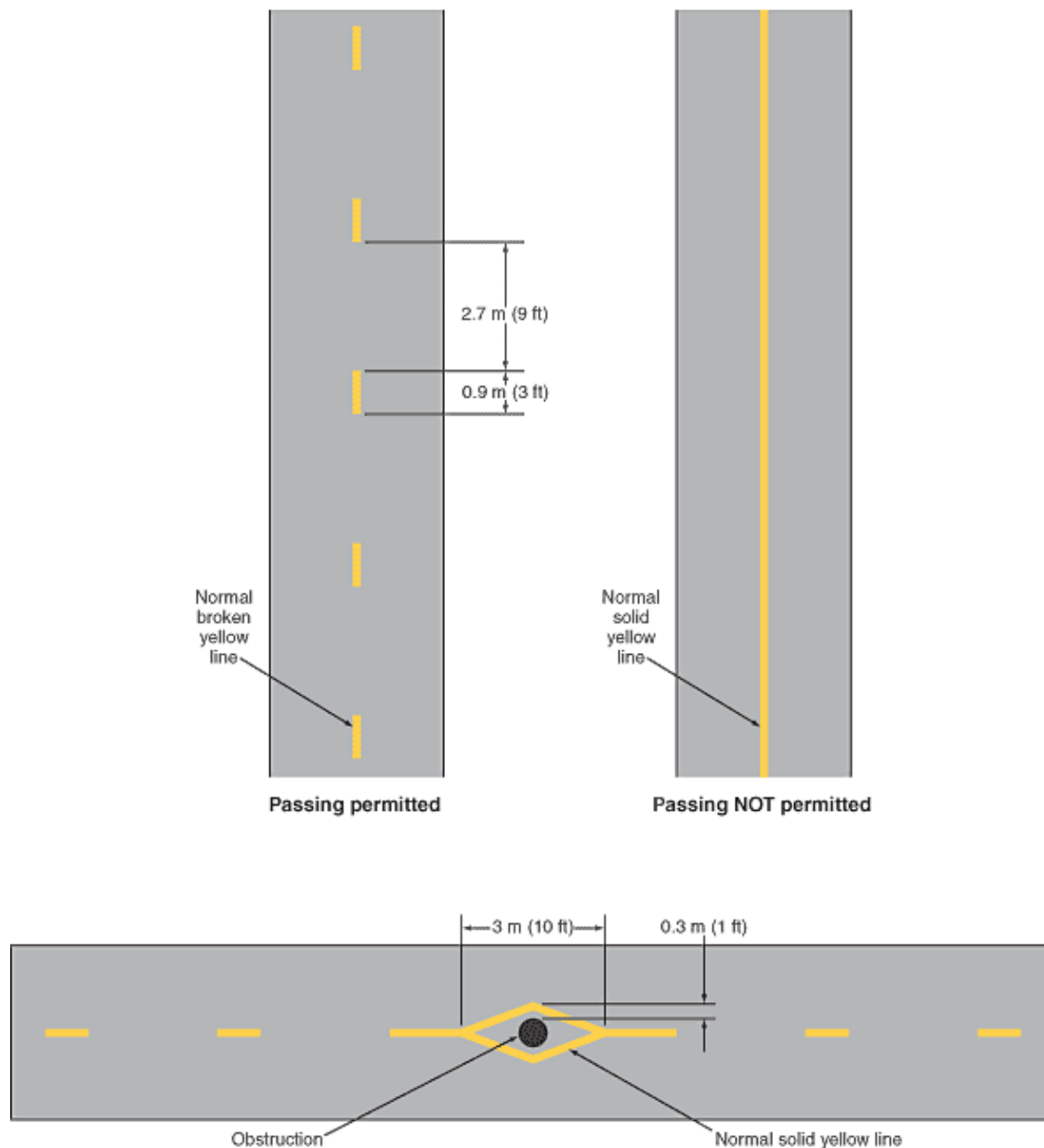
#### **Support:**

Figures 9B-7 and 9C-1 through 9C-8 show examples of the application of lines, word messages, and symbols on designated bikeways.

#### **Option:**

A dotted line may be used to define a specific path for a bicyclist crossing an intersection (see Figure 9C-1) as described in Sections [3A.05](#) and [3B.08](#).

Figure 9C-2. Examples of Centerline Markings for Shared-Use Paths



Markings as shown above should also be used at the location of obstructions in the center of the path, including vertical elements such as bollards, intended to physically prevent unauthorized motor vehicles from entering the path.

A good example is seen below on the recently completed Assabet River Rail Trail in Marlborough, MA:

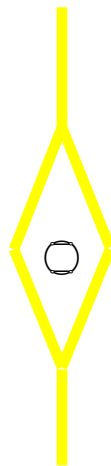


### **Road Identification Crossing Markings**

The FVTC has proposed to our area towns that stenciled markings be painted at each road crossing on the trail system identifying where the user is. This serves new users and tourists particularly, as they can use the information along with the existing mile markers in the event of an emergency to pinpoint their position as well as access to food, lodging and other facilities trailside.

Four (4) inch stenciled capital letters parallel to each side of each road intersection placed approximately eight to fifteen (6-15) feet from each curb cut depending on existing placement of bollards or paint (if any). The FVTC had proposed white paint however yellow would be used in conjunction with the centerline project.

\_\_\_\_\_ Curb Cut



**COPPER HILL ROAD**

## **Selected Sources**

U.S. Department of Transportation. *Manual on Uniform Traffic Control Devices*. Federal Highway Administration, Washington, DC., 2003.

American Association of State Highway and Transportation Officials. *Guide for the Development of Bicycle Facilities*, Washington, DC., 1991.

State of Rhode Island Department of Transportation, Planning Division. *Rhode Island State Rail Plan*. Providence, RI. August, 1990.

Massachusetts Department of Transportation. *Massachusetts Pedestrian Transportation Plan*. Boston, MA., 2007.

Vermont Agency of Transportation. *Pedestrian and Bicycle Facility Planning and Design Manual*. Montpelier, VT., 2008.

Vancouver Capital Regional District. “The E&N Rail Trail” Stantec LTD. 2009.

North Carolina State Univ. Dept. of Parks, Recreation and Tourism Mgmt. *Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of Practice*. U.S. Federal Highway Administration, Intermodal Division, (HEP-50). 1994.

C.A. Flink and R.M. Stearns. *A Guide to Planning, Design and Development of Greenways*. Island Press, Washington, DC. 1993.

**Please feel free to download a copy by clicking the “Resources” tab at [www.fvgreenway.org](http://www.fvgreenway.org)**