



**Town of Atherton
Memorandum**



To: Andrew Poster
Town of Atherton



Date: June 15, 2015

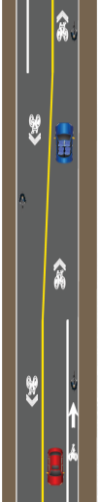
File: Guidelines for Implementation of Class III Improvements

From: Admas Zewdie, P.E.
Mark Thomas and Company

Treatment	Proposed use	Guidelines on use
<p>Bike route confirmation signs</p>  <p>D11-1 (Modified) 24"x12"</p>  <p>M6 12"x9"</p>	<p>D11-1: Where a bike route begins, place sign 20 feet after the start of the bike facility.</p> <p>Where two bike routes intersect, place on the far side of intersection in order to confirm route direction.</p> <p>Where a bike route changes direction (for example, at a Y intersection), place on far side of the intersection. Include route guide sign (M6 series) to indicate direction of route.</p> <p>Cost: \$250-\$400</p>	<p>CA MUTCD 2014: Bike Route Guide (D11-1) signs may be provided along designated bicycle routes to inform bicyclists of bicycle route direction changes and to confirm route direction, distance, and destination. If used, Bike Route Guide signs may be repeated at regular intervals so that bicyclists entering from side streets will have an opportunity to know that they are on a bicycle route. Similar guide signing may be used for shared roadways with intermediate signs placed for bicyclist guidance.</p> <p>NACTO: Bike Route Guide (D11-1) signs may be provided every ¼ to ½ mile on off-street facilities and every 2 to 3 blocks along bicycle facilities, unless another type of sign is used (e.g., within 150 ft. of a turn or decision sign). Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.</p> <p>AASHTO: The D series (green bike route sign and various destination plaques) includes the green "BIKE ROUTE" sign (D11-1)," as well as an alternative sign that replaces the words "BIKE ROUTE" with a destination or route name (D11-1c). Use of this alternative is preferred whenever practical, as it provides the rider with more useful information than the D11-1.</p>

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<p>Regulatory Signs</p>  <p>R4-11</p>  <p>R117 (CA)</p>	<p>R4-11 Place one sign at each approach to the S-Curve on Atherton Avenue, where bicyclists are encouraged to ride at the center of the lane to improve visibility. Sign to be used in conjunction with sharrows that will be placed at the center of lanes.</p> <p>Cost: \$300 - \$450</p> <p>R117(CA) Sign: Not proposed to be used for this project.</p>	<p>MUTCD: The Bicycles May Use Full Lane (R4-11) sign may be used on roadways where no bicycle lanes or adjacent shoulders usable by bicyclists are present and where travel lanes are too narrow for bicyclists and motor vehicles to operate side by side. The Bicycles May Use Full Lane sign may be used in locations where it is important to inform road users that bicyclists might occupy the travel lane. Section 9C.07 describes a Shared Lane Marking that may be used in addition to or instead of the Bicycles May Use Full Lane sign to inform road users that bicyclists might occupy the travel lane.</p> <p>AASHTO: A sign that may be used in shared lane conditions is the “BICYCLES MAY USE FULL LANE” sign (R4-11) This sign may be used on roadways without bike lanes or usable shoulders where travel lanes are too narrow for bicyclists and motorists to operate side by side within a lane.</p> <p>Section 9B.102 (CA) PASS Bicycle 3 FT MIN Sign (R117 (CA)) Option: In situations where there is a need to remind motorists to pass bicyclists with sufficient lateral clearance in compliance with CVC 21760 (Three Feet for Safety Act) the PASS Bicycle 3 FT MIN sign (R117 (CA)) may be used. CVC 21202(a)(3) defines a “substandard width lane” as a lane that is too narrow for a bicycle and vehicle to travel safely side by side within the same lane.</p>

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<p>Sharrow</p>  <p>Sharrow Flower</p> 	<p>Sharrow On all streets in the project other than Atherton Avenue, place marking 20' after intersections and at 250 feet intervals; place marking away from driveways if possible. On Class III segments of Atherton Avenue, place markings every 100 feet in between Intermittent bike lanes. Place marking 4' from Edge of Pavement</p> <p>Sharrow Flower When a Bike Route changes direction or intersects another designated bicycle facility, place sharrow flower with appropriate directional arrows approximately 100 feet before the intersection.</p> <p>Cost: \$80 - \$150 Thermoplastic</p>	<p>MUTCD: Shared Lane Markings shall not be used on shoulders or in designated bicycle lanes. Guidance: If used in a shared lane with on-street parallel parking, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb. If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb. If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.</p> <p>NACTO: Frequent, visible placement of markings is essential. The number of markings along a street should correspond to the difficulty bicyclists experience taking the proper travel path or position. Shared Lane Markings used to bridge discontinuous bicycle facilities or along busier streets should be placed more frequently (50 to 100 feet) than along low traffic bicycle routes (up to 250 feet or more). Shared Lane Markings used along low volume routes can be staggered by direction to provide markings closer together.</p> <p>AASHTO: In situations where it is desirable to provide a higher level of guidance to bicyclists and motorists, shared lanes may be marked with a pavement marking symbol (see Figure 4-4). The symbol, known as the shared-lane marking, is useful in locations where there is insufficient width to provide bike lanes. The marking also alerts road users to the lateral position bicyclists are likely to occupy within the traveled way, therefore encouraging safer passing practices (including changing lanes, where needed). Shared-lane markings may also be used to reduce the incidence of wrong-way bicycling.</p>

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<p>Class III route with passing zones</p> 	<p>To be used on Atherton Avenue. Place intermittent 4-foot wide refuges for bicyclists so that cars can safely overtake them.</p> <p>Spacing and length of class III striping will be determined such that: the number of vehicles stacked behind a bicyclist at any given time is limited to 5 to 7; and, the passing zones will be long enough to provide sufficient time for the these stacked vehicles to overtake the bicyclists.</p> <p>Cost: \$2 per LF for bike lane Cost: \$80 - \$150 for Thermoplastic Marking</p>	<p>The Guidelines for the Class II and Class III bike facilities are applicable.</p> <p>CVC 21656. On a two-lane highway where passing is unsafe because of traffic in the opposite direction or other conditions, a slow-moving vehicle, including a passenger vehicle, behind which five or more vehicles are formed in line, shall turn off the roadway at the nearest place designated as a turnout by signs erected by the authority having jurisdiction over the highway, or wherever sufficient area for a safe turnout exists, in order to permit the vehicles following it to proceed. As used in this section a slow-moving vehicle is one which is proceeding at a rate of speed less than the normal flow of traffic at the particular time and place.</p> <p>CVC Requires bicyclists to seek refuge if 5 or more cars are following them. Providing Intermittent Class II facilities will provide this refuge for bicyclists.</p>