

Memorandum

*Making Conservation
a California Way of Life*

To: DEPUTY DISTRICT DIRECTORS, Design

Date: June 30, 2020

From: JANICE BENTON, Chief
Division of Design



Subject: **BIKEWAY FACILITY SELECTION GUIDANCE**

This memorandum provides supplemental guidance on the evaluation and selection of bikeway facility type using the Federal Highway Administration's Bikeway Selection Guide (FHWA Guide) published in February 2019 that can be found online at https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwas18077.pdf.

The FHWA Guide and this Bikeway Facility Selection Guidance are a resource to help transportation practitioners make informed decisions about trade-offs relating to the evaluation and selection of the bikeway types based on location context, user characteristics, and project constraints. The Bikeway Facility Selection Guidance will typically be applied during the Project Initiation Development (PID) and Project Approval and Environmental Document (PA&ED) phases to further refine the preferred facility type selected during project scoping as per the attached Contextual Guidance for Bike Facilities Memo issued by the Division of Transportation Planning as well as the FHWA Guide.

This Bikeway Facility Selection Guidance is to be used as supplemental information to existing Department guidance and standards. It does not replace current design standards in the Highway Design Manual (HDM) or Design Information Bulletins (DIBs) nor supersede Department policies. The FHWA Guide introduces practitioners to commonly used bicycle planning concepts such as bicyclist user types and level of traffic stress. It supports the application of design flexibility and the need for engineering judgement in project decision-making. It also identifies a variety of bikeway facility types that are consistent with the following California Streets and Highways Code Section 890.4 defined bikeway categories: Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Class IV Separated Bikeways. California law allows for the placement of bikeways on all streets and highways, unless prohibited, at the discretion of the owner-operator of the facility. Collaboration with local government together with this guidance will help make decisions for the accommodations of the bicycle mode of travel.

The FHWA Guide includes descriptions of facilities that are not typically appropriate on the State highway system (SHS) but may be considered on parallel local streets. These include bicycle boulevards and advisory bike lanes, which should not be considered on the SHS. Because these facilities are not typically appropriate, they are not discussed in the HDM or DIBs.

Bicycle Boulevards

As stated in the FHWA Guide, bicycle boulevards are low-stress bikeways primarily located on low-volume, low-speed local roads. This application will typically not be suitable for use on the SHS due to the moderate to higher volumes and speeds often associated with highways that also serve as community main streets.

Bicycle Boulevard application on residential street in Silicon Valley, San Francisco Bay Area of California; "BLVD" marking not MUTCD compliant



However, at locations where the local agency proposes the use of a bicycle boulevard on the SHS, collaboration is encouraged to explore a parallel route on the local road system where a bicycle boulevard application may be appropriate. In this case, coordination with the local agency is required to provide the context-appropriate infrastructure on the local road. Collaboration is also needed when the local agency proposes a bicycle boulevard to cross the State highway. When a bicycle boulevard is identified as the selected facility type for riders of all ages and abilities, this does not preclude the requirement to provide for bicycle travel on the SHS even when only more-confident riders can be accommodated. Informational signing may be provided on the SHS to direct less-confident bicyclists to the lower stress bicycle boulevard.

Advisory Bike Lanes or Edge Lane Roads

Another application for accommodating bicycles on typically very low-volume, low-speed narrow roadways is the advisory bike lane also known as edge lane roads. This bikeway facility is not to be used on the SHS at this time but can be applied on the local road system. Use of this bikeway facility type requires FHWA experimental approval and typically is not appropriate for moderate to higher volumes and speeds that are associated with most State highways.



Advisory bike lanes on residential street in New Hampshire: Danny Kim, The Dartmouth (college newspaper); custom sign not MUTCD compliant

Please note the CA MUTCD does not have a sign policy for the advisory bike lane nor is the sign covered by the California MUTCD. Until further guidance is issued on this treatment, advisory bike lanes are not to be applied on the SHS.

General Application of The FHWA Guide

The FHWA Guide's Figure 9: Preferred Bikeway Type for Urban, Urban Core, Suburban and Rural Town Contexts was derived from research of various well known and established manuals and guides where the research team concluded that context for bikeway selection is relevant to the volume and speed of motor vehicles. However, bikeway selection is also a context-sensitive decision involving the location context, user characteristics, and project constraints.

For early project scoping and planning activities, the FHWA Guide's Section 3: Bikeway Selection Planning as well as the attached Contextual Guidance Memo issued by the Division of Transportation Planning provide the broader

process used in identifying the preferred bicycle facility for users of all ages and abilities. The planning process accounts for project location, context, and corridor-level bicycle needs. Early bikeway evaluation and selection is informed by a local, regional, or state bikeway plan.

During the PID to PA&ED phase of the project, bikeway evaluation and selection will involve the consideration of real-world contexts such as land-use, right-of-way, roadway safety, operations, maintenance and environmental considerations. If the preferred facility per the FHWA Guide's Figure 9 is not feasible, there may still be opportunities to explore alternative bicycle facilities.

Table 1 below provides roadway context characteristics specific to each bikeway category that offer greater flexibility beyond the preferred bikeway type in Figure 9 of the FHWA Guide. These context characteristics should be used with engineering judgement when the preferred bikeway type is not feasible on a project by project basis. More confident riders can be accommodated in the higher speed and volume roadways where appropriate after the various considerations highlighted below have been assessed.

Various considerations should be explored when evaluating and selecting the bikeway type from Table 1, particularly along constrained roadways and local road networks. The FHWA Guide provides sound guidance in the section entitled "Assessing and Refining the Desired Bikeway Type" beginning on page 24. Other considerations from the FHWA Guide are highlighted such as:

- Unusual motor vehicle peak hour volumes
- Traffic vehicle mix
- Parking turnover and curbside activity
- Driveway/intersection frequency
- Direction of operation
- Vulnerable populations
- Network connectivity gaps
- Transit considerations for selecting bikeways

Consider the increased vehicular weaving that occurs at intersections, wide roadways of more than one lane in each direction, driveways, bus stops and on-street parking. Strategies to mitigate the conflicts such as consolidation of driveways, removing parking, and others should be considered. Local agency guidance and policies should be considered when selecting bikeway type on the local road system, particularly with respect to speed and volume thresholds.

Table 1: Bikeway Context Characteristics

	Class I Bike Paths	Class III Bike Routes	Class II Bike Lane or Buffered Bike Lanes	Class IV Separated Bikeways
Description	A completely separated facility for the exclusive use of bicycles and pedestrians with crossflow by motor vehicles minimized. Offer recreation or high-speed commute routes when motor vehicle and pedestrian conflicts are minimized. Typically provided along rivers, ocean fronts, canals, parks, etc.	Provides for shared use with pedestrian or motor vehicle traffic either to: (1) provide continuity to other bicycle facilities (typically Class II); or (2) designate preferred routes through high demand corridors. Established with bike route signs and shared roadway markings along the route.	Provides a striped lane for one-way bike travel on a street or highway. Buffered bike lanes are separated by a marked buffer between the bike lane and the traffic lane or parking lane.	Provides for exclusive use of bicycles (cannot be used by pedestrians or vehicular traffic) and includes a horizontal and vertical separation (e.g., flexible posts, on-street parking, grade separation) required between the separated bikeway and through vehicular traffic.
Context	Urban and Rural	Urban and Rural	Urban	Urban and Rural
Posted Speed Limit	*Any speed	*Any speed	50 mph or lower (consider buffer above 35 mph)	30 mph or higher
Motor Vehicle Traffic Volume	*Any volume	*Any volume	20,000 ADT or lower (consider buffer above 10,000 ADT)	Any volume, typically 6,000 ADT or greater
Other Considerations	See HDM Index 1003.1 for further guidance.	See HDM Index 1003.3 for further guidance.	See HDM Index 301.2 for further guidance.	See Design Information Bulletin 89 for further guidance.

Legend:

*Note that caution should be exercised with engineering judgement regarding Class I and III bikeway application on the State highway system and local road network, particularly at intersections. For Class III Bike Routes in shoulders of higher speed and volume roadways, there may be limited availability to provide the bikeway on an alternative lower speed and volume environment. See design considerations guidance included before Table 1 above.

Description – Bikeway facility type definition and typical application. See the Caltrans Highway Design Manual (HDM) Index 1002.1 for further information.

Context – Roadway context describing the physical environment and land uses surrounding the State highway where the bikeway is appropriate. Rural areas include developing corridors and city or town centers (rural main streets). Urban and urbanized areas include low density

parklands and residential neighborhoods, high density urban main streets (e.g., community centers or corridors, downtown cores). Suburban is considered to be included with both rural and urban areas. See HDM Index 81.3 for further information.

Posted Speed Limit – The maximum speed limit that the facility type (See Context for urban and rural roadway types) is compatible.

Motor Vehicle Traffic Volume – The maximum traffic volume (average Annual Daily Traffic or ADT) that the bikeway facility type (Bikeway Class I-IV) is compatible. These are general thresholds, particularly in urban areas. Factors such as outside lane width, percent heavy truck volume, speed limit, and presence of on-street parking can have significant effects on the appropriateness of a facility. For urban areas, consider the Bicycle Level of Traffic Stress (LTS) Score from the FHWA Guide.

Other Considerations – Further information regarding the appropriateness of each facility type.

FHWA Bikeway Selection Guide Training Opportunities

FHWA has recorded a webinar to provide an overview and training of the bikeway facility selection guidance found in the FHWA Guide. The webinar is located online at

http://www.pedbikeinfo.org/webinars/webinar_details.cfm?id=80

If you require further assistance with evaluating and selecting the appropriate bikeway facility for a project, please consult with the District Design Liaison, District Bicycle Coordinator, or District Complete Streets Planning Staff. Any questions regarding this guidance memo may be directed to the Headquarters Division of Design, Chief, Office of Standards and Procedures.

Attachment

Contextual Guidance for Bike Facilities Memo

DEPUTY DISTRICT DIRECTORS, Design et al.

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