

Q & A from SACOG Class IV Bikeway Trainings

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[Design Information Bulletin \(DIB\) 89: Class IV Bikeway Guidance](#)

Quick links

Introduction to Class IV Bikeways.....	1
Who can travel in a Class IV bikeway?	2
Separations—Delineators, Parking, and Curbs	2
Widths and Striping.....	3
Raised Class IV Bikeways.....	3
Intersections and turns	4
Transit and Paratransit.....	5
Flexibility in Designing/Implementing Class IV Bikeways	5
What is next for Class IV bikeways?.....	6

Introduction to Class IV Bikeways

Q What makes a Class IV bikeway different from a Class I multi-use trail? Which distinction is the clearest between the two facilities: adjacency to a roadway, or that pedestrians are not allowed?

A The legislation itself is the defining characteristic, Section 3, Letter D:

- o Cycle tracks or separated bikeways, also referred to as “Class IV bikeways,” which promote active transportation and provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are protected from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Class IV bikeways include adjacency and exclusivity as the dual defining characteristics.

Of note, if a Class I bike path has a sidewalk adjacent, then the class I could be for bike riders only and the sidewalk would be for the pedestrians.

Q Isn't a class IV bikeway two-way and a class I can be one- or two-way?

A Both facilities can both be one-way or two-way.

Q Why did Caltrans name it a “separated bikeway” and not “separated bike lane,” as in federal guidance?

A The state legislation named it two ways—separated bikeway and cycle track—SHC 890.4(d). Caltrans chose the former to stay consistent with state legislation wording.

Who can travel in a Class IV bikeway?

- Q Are Class IV bikeways exclusively for bikes (i.e. no pedestrian travel permitted)?
- A Yes, that is what the legislation outlined. However, it is reasonable for pedestrians to cross a Class IV, especially to access parking. Similarly, it would be reasonable for a pedestrian to cross a Class IV to get to a bus/transit stop.
- Q What about skateboarders and inline skaters using a Class IV? And if not, what about enforcement?
- A The legislation says the facility is exclusively for bicycles, so that would exclude these other modes. Local agencies would determine how to enforce that, including signage and markings. *In 2017 there will be an amendment to the CA MUTCD for Class IV signage and markings.*
- Q Can schoolchildren going to school walk in Class IV?
- A Children still could not walk in the Class IV bikeway because the Class IV bikeway is for the exclusive use of bicycles.
- Q What about motorized ADA and motorized bicycles?
- A A person using a motorized wheelchair is considered a pedestrian. However, pedestrians may cross the class iv bikeway to go to/from a parked car.
- Q See also: <http://www.peopleforbikes.org/blog/entry/new-e-bike-law-passes-in-california>

Separations—Delineators, Parking, and Curbs

- Q Do you need to have a curb for there to be parking separating the bikeway from the traffic lane? Is that a California state law?
- A No.
- Q With the one-foot island, raised six-inch curb, with flexible posts, would the separation be acceptable?
- A Yes.
- Q The DIB 89 refers to parking with a curb (Figure 3.0, first cross section): Do you need to park 18 inches from the curb?
- A Using the 18" or not is a legal interpretation and use of engineering judgment based on the specific conditions of your roadway and intended users. Page 3 shows Long Beach, CA, which used the described separation width, while San Francisco did not.
- Q Are there required design loads for inflexible barriers, or could it be anything?
- A It could be anything. We've seen and accepted all sorts of inflexible barriers, like planters.
- Q The DIB calls for concrete barriers at higher speeds (≥ 35 mph), but bridge guidelines call for concrete barriers where 45 mph is posted. Why is there a different requirement?
- A Bridge guidelines call for a barrier between the sidewalk and the roadway if the posted speed is greater than 45 mph. This is a different criteria based on crash testing data with the bridge railing. The Class IV bikeway criteria is based on when clear recovery zone criteria apply, starting

at 40 mph. See Highway Design Manual (HDM) 309.1(2).

Q When we put in flexible posts as delineators, we get complaints that they look too temporary and our public wants something that looks nicer. What is the flexibility range for post types, and are there other examples out there? Where can I shop around for post types and examples?

A There is flexibility about what you can use for post types, but we are not aware of any examples of nicer-looking posts other than the photos in the DIB 89, e.g. pictures of the City of Los Angeles's plastic posts.

Q If there is a Class IV on a 40 or greater mph facility, what would be the separating barrier? The DIB says concrete barriers should be used.

A If an inflexible physical barrier is used, it would be a concrete barrier. See DIB Section 3.2.

Widths and Striping

Q What are the minimum and preferred widths?

A 7-foot preferred, 5-foot minimum for one-way travel; 10 ft preferred, 8 ft minimum for two-way travel. The standards only apply to the class IV width itself, and do not include shoulders. See page 9, Section 3.3 Separated Bikeway Width in the DIB.

Q Does the same gutter criteria (minimum width is 3 feet plus gutter width) apply for Class IV as does for Class II?

A No, a 7-foot Class IV is measured from the curb face.

Q What is the width for cleaning a Class IV bikeway?

A Standard sweepers can fit in a 7-foot bikeway width.

Q Is there a standard or guidance for striping for a two-way Class IV?

A The guidance says to copy Class I bike path standards for striping.

Raised Class IV Bikeways

Q What is the benefit from a raised bikeway?

A That is unclear, though it could be that it makes the bike rider feel more prominent, and thus safer. Also, even with raised pavement, Caltrans would still want a "vertical element" like a flexible post in the vertical taper. See Section 3.5 of the DIB 89.

Q How did you arrive at a 4:1 vertical taper (Section 3.5 Raised Separated Bikeways)?

A NACTO includes the 4:1 criterion. Caltrans is open to comments on the use of the 4:1 vertical taper and sponsors can deviate, provided they document their decision. When constructing projects, the sponsor should seek public comments, including what sort of separation is preferred for the project area.

Q How do you design the grade difference between the Class IV bikeway and sidewalk? Figure 3.0 (page 10) makes some instances look like vertical separation. Is the tripping hazard addressed?

- A Two scenarios: a planter (continuous vertical element) for a when sidewalk and bikeway are level with each other like an extra-wide sidewalk. The second scenario is a curb, which is also a cane-detectable continuous vertical barrier. There is no parking with this option, so no potential tripping.

Intersections and turns

- Q How would a bicyclist in a Class IV make a left turn at an intersection where parking is the protection?
- A They would cross over as a legal vehicle into the left turn lane, or they would use a bike box or two-stage turn queue boxes. The bike box is the FHWA recommendation, see also page 7 of DIB.
On a two-way Class IV bikeway, they would use a two-stage left-turn with bike boxes; or leave the facility and execute the movement as a pedestrian; or leave the facility and move into traffic and make the turn as a vehicle.
The decision would be an engineering judgment based on the specific conditions of your roadway and your intended users.
- Q Neither bike boxes nor two-stage turn queue boxes are covered in CA MUTCD, how should those be addressed?
- A FHWA gave interim approval in early October 2016 on bike boxes but not yet on two-stage turn queue boxes.
- Q Won't there be a conflict with right-turning cars in the scenario where cars are parallel to class IV at an intersection?
- A Yes. There is a conflict right now even with no bikeway designation. The vehicle code doesn't address class IV facilities so the vehicle's driver needs to use due care.
Another option would be to use the bend-out intersection design or a six-foot island separation at the intersection. Or you could transition to Class II bike lanes 50 to 200 feet from the intersection with the dashed paint. CA MUTCD has a "yield to bikes" sign for turning vehicles. If signalized, a bicycle signal can also be used to ensure no conflict with right-turning vehicles.
- Q In Modesto a bicyclist can travel through a right turn lane. Is that something others can copy legally?
- A That sounds like a legal issue that would need to be addressed by the vehicle code and law enforcement.
- Q Would all these intersection configurations showing class IV bikeways and turning automobile traffic require separate signal heads?
- A Yes, it is recommended. Also, the FHWA publication Separated Bike Lane Planning and Design Guide page 127 shows a turning vehicle yield to bikes sign.
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm
- Q Do Class IV Bikeways include bike buttons [at intersections]?

- A The California requirement is that there be passive detection. A bike button can be an augmentation to the facility.
- Q How would the Dutch intersection handle a truck right turn? These diagrams don't discuss how large the intersection would need to be to work with a truck.
- A In Davis, they restrict trucks along the corridors with Class IVs and their class II lanes at intersections allow for a better turning radius. These diagrams purposefully don't show turning geometry and dimensions and the turn can be a challenge with a California truck.
- Additional resources:*
- The Massachusetts separated bikeway guide: <https://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/SeparatedBikeLanePlanningDesignGuide.aspx> includes diagrams with more dimensions and detail.
- "The Protected Intersection" video: <https://vimeo.com/86721046>
- Q Have you considered a sign for bicyclists that has them yield to pedestrians at ped-bike intersections?
- A That's a great suggestion and could be an augmentation.

Transit and Paratransit

- Q If I'm in a paratransit vehicle, how do I get to the sidewalk without a ramp if I'm getting dropped off midblock at a separated bikeway?
- A There are ramps at accessible parking spaces. At the corners/intersections there are accessible ramps. Or you could have a loading zone designated midblock with a curb ramp, but you would have to cross the separated bikeway. It's an issue/conflict for consideration and would require an engineering judgment based on the specific conditions of your roadway and intended users.
- Q Is there a preference or best practice about whether transit operators prefer to steer the bus out and back into traffic (and crossing a Class IV) versus stopping in traffic?
- A It depends on various factors, such as the drivers' preference, the traffic engineers' preference, volumes, speeds, etc.
- Q It seems that transitioning from a class IV to a class II for a bus stop is changing a low risk/high comfort facility into a high risk/low comfort facility precisely at a dangerous point (buses pulling in and out and bikes being pushed out toward traffic in an unprotected facility). Why would we do this?
- A Every facility will have its own sponsor and public comment process. They would need to make local decisions weighing pros and cons for various users and taking into account the context of each location. E.g. in LA they are using the right-turn lane as longer bus stop.

Flexibility in Designing/Implementing Class IV Bikeways

- Q Does the DIB apply in a regulatory way to local agencies looking to build a Class IV bikeways?
- A Yes, but local agencies may deviate so long as they document their decision-making process and results. Also, see Streets and Highway Code 891 to adopt a different design criterion. This is the official guide for the state regarding Class IVs. Documentation is key when you deviate, and it will give you "design immunity".

Q Does something temporary or different from Caltrans standards need to be vetted by Caltrans?
A You can deviate from this guide as long as you document it. That is partially for your own agency's protection. There's enough leeway in this guide for much deviation.

Q Regarding the Dutch intersection diagram in the DIB, why build a class IV on a six-lane road?
A The local agency engineers and planners should/would take all factors into account when proposing and designing an intersection, including VMT, collisions, etc.

Q The legislation allows for these designs as shown in the DIB, but does the local need to follow them?

A There's no mandate that the local agency build any bikeway classification. The legislation is that Caltrans come up with guidance, but not that the local agency uses it.

Q What is the benefit of two-way Class IV versus a pair of one-way Class IVs on opposite sides of the street?

A You might be able to avoid some pedestrian/bicyclist conflicts if you have bus stops. Also, consider how Sacramento might have light rail tracks are on one side of the street but not the other.

Possible disadvantages are that vehicles aren't expecting people biking both ways on one side of the street. One-way Class IVs on either side of the street provide better for access to both sides of the street.

A The DIB and Caltrans are trying to encourage engineers to exercise design immunity by allowing flexibility, but how can engineers feel confident that their deviation will hold up in court? Do you have any stats about how many engineers get in trouble for deviating from the design guidance, even if they document it?

Q See Section 3.0 of DIB 89. Engineers who deviate from the design criteria must rely on their documentation. Engineers must be transparent about their decision-making process and ask themselves and the public questions like, "Do we really want to narrow the shoulder, narrow the sidewalk, etc.?"

Q What do you notice in terms of variation and creativity in implementing Class IV bikeways?

A It comes down to experience of the engineer, and learning from (and applying) that experience.

What is next for Class IV bikeways?

Q When do DIBs get incorporated into the HDM? How would a HDM reader know to look for a DIB for information about Class IV bikeways?

A We made this DIB, which is referenced in the HDM, separate to allow us to make changes as we learn.

Q Is Caltrans required to stick to the language of the legislation as they/we discover best practices?

- A Caltrans needs to be careful, because it does not want to be in violation of the legal code. For example, the legislation says “for the exclusive use of bicycles,” and our legal determined it was not a violation to allow people to walk through the way on their way to and from parked cars. Some changes and interpretations would require an amendment, and some would not.
- Q Will Caltrans be in favor for changing the legislation to allow for a better Class IV as we move forward?
- A Caltrans is open to improvements and comments on the DIB but was not the lead on the original legislation that led to the DIB and does not anticipate pursuing legislation on the issue; usually an agency or group would find a legislative sponsor, and then pursue legislative change.

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