



BUFFERED BICYCLE LANES

Buffered bicycle lanes are on-street bicycle facilities that feature a separation between the bicycle facility and the vehicle travelway created by pavement markings. Buffered lanes increase the distance between vehicles and bicyclists by marking a buffer between the bicycle lane and parked and/or moving traffic. The additional buffer may reduce the risk of bicyclists getting hit by the doors of parked cars and also may allow bicyclists to pass one another without entering the general traffic lane. Buffered bicycle lanes increase comfort over conventional bicycle lanes by providing greater separation from motor vehicle traffic and/or parked cars depending on the location of the marked buffers. Buffered bicycle lanes may not offer the highest level of comfort, but may be installed at a low cost, offer minimal maintenance challenges, and require a more modest cross-section compared to separated or fully protected bicycle lanes.

USE

- Buffered bicycle lanes may be used on one- or two-way streets with or without on-street parking. Buffered bicycle lanes require more space than conventional bicycle lanes. Implementing them may require reduction of other street elements such as narrowing or converting travel and/or parking lanes.
- Buffered lanes are more effective and appealing on streets with longer blocks and few interruptions, such as driveways or transit stops. Buffered facilities should ideally extend for several contiguous blocks along a corridor.

DESIGN

- The bicycle lane shall be at least five feet wide including the gutter pan. The added buffer shall be a minimum of 18 inches wide measured from the outside of the bicycle lane stripe, though three feet is preferred. The buffer may extend up to six feet wide in the event of a converted travel lane.
- The buffered area of a buffered bicycle lane is defined by two solid painted lines. Buffers up to three feet wide shall have interior diagonal cross hatching; buffers three feet or wider shall have chevron markings.
- Buffered bicycle lanes shall be placed on the right-hand side of the street, between the travel lane and the parking lane, or between the travel lane and the curb. Buffered bicycle lanes may transition to conventional bicycle lanes at intersections. Avoid placing conventional bicycle lanes to the right of a right-turn lane or the left of a left-turn lane unless a separate bicycle signal is provided.
- Treatments for buffered bicycle lanes at intersections may include conversion to a conventional curbside bicycle lane, a cross-over through lane, or shared space. Buffered bicycle lanes require careful design at intersections to minimize conflicts with turning vehicles and to improve legibility, visibility, and predictability for all travelers.
- Maintain visibility and sight triangles at driveways, alleys, or intersections.

- Bicycle facilities may offer an opportunity for porous concrete or asphalt treatments.

SPECIAL CONSIDERATIONS

- Connectivity among buffered bicycle lanes and other low stress bikeways, like bicycle boulevards, is essential to attract a wider variety of user types.
- Buffered bicycle lanes shall be routed behind transit bus bulbs to eliminate conflicts between boarding or alighting passengers and through bicyclists.
- Flexible posts may be necessary at entry points to the buffered bicycle lane to prohibit vehicles from entering.
- Make gutter seams, drainage inlets, and utility covers flush with the ground to prevent conflicts with bike tires. Ensure openings in grates are perpendicular to the bicycle direction of travel to avoid trapping bicycle tires.
- Avoid locating manholes and other utility vaults in bicycle lanes. Ensure any utility or vault covers are properly set and maintained to be flush with the road surface.

OPERATIONS AND MAINTENANCE

- Bicycle facilities should be kept free of debris, which has a tendency to collect at the edge of the lanes, creating potential hazards to bicyclists.
- Bicycle lanes should always be plowed during snow events. They shall never be used for snow storage.

- If trenching is done in a buffered bicycle lane, repair the entire width of the bicycle lane to avoid an uneven surface, which can be dangerous for bicyclists. Any pavement markings that are removed or damaged with construction shall be replaced.
- Bicycle lane striping and the associated symbols and signs are additional markings and signs that will require maintenance and replacement.
- If colored pavement or markings are used, routine maintenance plans should be in place to keep the pavement markings clear.
- Bicycle facilities may require additional enforcement to ensure they remain free parked and stopped vehicles, delivery trucks, and other obstacles.
- When utility or other construction work requires occupying part or all of a bicycle lane, establish a plan to prevent a significant disruption of the bicycle network. Consider adding temporary wayfinding signage around the detour.

REFERENCES

- NACTO: Urban Bikeway Design Guide, Second Edition, 2014
 - Bicycle lanes: Buffered Bicycle lanes <http://nacto.org/publication/urban-bikeway-design-guide/bike-lanes/buffered-bike-lanes/>
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- MMUTCD, 2011
 - Part 9 Traffic Control for Bicycle Facilities http://mdotcf.state.mi.us/public/tands/Details_Web/mmucdpart9_2011.pdf

