



BIKE BOXES

A bike box is a dedicated area for bicyclists at the front of a traffic lane at a signalized intersection. Bike boxes make bicyclists more visible to motorists by positioning them at the head of a queue during a stop cycle. They provide a space for bicyclists to queue outside of crosswalk areas. Bike boxes enable bicyclists to safely position for a left turn during a stop cycle at an intersection. On corridors of high bicycle activity, bike boxes cluster multiple bicyclists and enable them to progress forward at the onset of the green signal cycle, reducing conflicts with right turning vehicles.

USE

- Bike boxes are used only at signalized intersections.
- Bike boxes are most beneficial on streets with high bicycle traffic volumes, locations with significant left turn bicycle activity, and/or intersections where conflicts between bicycle and right turning vehicles are common.
- Bike boxes may also be desirable in high pedestrian use areas to protect crosswalks from encroachment by bicycles or vehicles.

DESIGN

- The bike box is formed by two parallel pavement marking lines at least six inches thick forming a box at least 10 feet or more in depth and extending from the outside of the bicycle lane across all travel lanes in the direction of travel.
- Bike boxes are located between the crosswalk and the vehicle stop bar.
- The vehicle stop bar shall be moved behind the bike box at least 2 feet but not more than seven feet to prevent motor vehicle encroachment into the bike box.
- Bike boxes shall be separate and distinct from the crosswalk and may be moved further back from the crosswalk to create more separation and prevent bicyclists from blocking the crosswalk.

- Bicycle symbol pavement markings are located within the bike box in all lanes over which it extends.
- Right turns on red must be reviewed where bike boxes are used. Right turn on red restrictions or prohibition of turns shall be considered to avoid conflicts with queued and waiting bicyclists. If employed, appropriate signage shall be installed.

OPERATIONS AND MAINTENANCE

- Education and enforcement may be needed to ensure all users are aware of and comfortable using bike boxes.
- Bike boxes are additional pavement markings that will require maintenance.

SPECIAL CONSIDERATIONS

- Pavement marking or signs may be used to indicate to vehicles where to stop to avoid encroachment on the bike box.
- Green pavement or pavement markings are commonly used in bike boxes to enhance visibility and compliance but are not required.
- Bike boxes are commonly used in conjunction with dedicated bicycle facilities. Where bicycle lanes are not present, a bicycle ingress lane may be used to provide bicycles access to the bike box as they approach the intersection. Green pavement or pavement markings may be used in the bicycle approach area.
- Bicycle egress lanes may continue into the intersection to indicate the area of potential conflict between motorists and bicyclists. Green pavement or pavement markings may be used.
- While bike boxes facilitate the positioning of bicyclists to make left-hand turns, lateral movement by a bicyclist after the initiation of the green phase could introduce conflicts with motorists. Two-stage turn queues are an alternative to accommodate left turning bicyclists.
- Education and outreach to motorists, bicyclists and pedestrians may be necessary to ensure their safe and appropriate use.

REFERENCES

- NACTO: Urban Bikeway Design Guide, Second Edition, 2014
 - Intersection Treatments: Bike Boxes <http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/bike-boxes/>
- FHWA: Bicycle and Pedestrian Program Guidance
 - Bicycle Facilities and the Manual on Uniform Traffic Control Devices http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/mutcd/bicycle_box.cfm
- MMUTCD, 2011
 - Part 9 Traffic Control for Bicycle Facilities http://mdotcf.state.mi.us/public/tands/Details_Web/mmutedpart9_2011.pdf