



Protected Intersection



DESCRIPTION

- Protected intersections, also known as offset or setback intersections, refer to a collection of intersection treatments that are designed to maintain the separation provided by bicycle lanes through the intersection. In this way, they can improve bicyclists' visibility to turning motorists and minimize the potential for conflict between modes.
- The main features of protected intersections include setbacks, corner islands, queuing areas, pedestrian islands and waiting zones.
- Elements of protected intersections may be installed individually, but they are most effective when installed together.

CONTEXT

- Protected intersections are commonly installed on streets where enhanced bicycle infrastructure is desirable or there are high volumes of bicyclists.
- Typically, candidate locations already have buffered or separated bicycle lanes on at least one street.

BENEFITS

- ✓ Improved safety
- ✓ Improved comfort
- ✓ Traffic compliance
- ✓ Increased efficiency



POLICY AND DESIGN GUIDANCE

- The main features of a protected intersection include:
 1. No Stopping/No Standing zone
 2. Pedestrian islands, where pedestrians can request the pedestrian signal and wait safely between the bicycle lane and the vehicle travel lane
 3. Bike queue area, where bicyclists can wait for the green signal ahead of the crosswalk
 4. Bikeway setback, which increases visibility and reaction time for bicyclists
 5. Corner islands, which protect the bike queue areas, slow turning traffic, and provide physical separation between bicyclists and turning vehicles
 6. Motorist waiting zone, where drivers can safely wait and yield to through-moving bicyclists before turning
 7. Intersection crossing markings
 8. Bike yield line (optional)
- The cost of a protected intersection depends on the intersection context and which design elements already exist.

RESOURCES

- Treatment applications and general design guidance:
- [NACTO](#)
 - [PEDSAFE](#)
 - [Protected Intersections for Bicyclists](#)
 - [FHWA](#)
- Geometric design guidance for Virginia:
- [VDOT Road Design Manual](#)
- Pavement markings, signage, and spacing:
- [MUTCD](#)
 - [VDOT 2016 Road and Bridge Standards](#)
 - [Virginia Supplement to the MUTCD](#)

Guidelines are provided for informational purposes only. For detailed design guidance, please refer directly to design manuals and standards.

For more information on **Protected Intersections** and other bicycle and pedestrian treatments, visit virginiadot.org/programs/bikeped/bicycle_and_pedestrian_treatments.asp

