



A guide to understanding bike symbols, signs and pavement markings in Southwestern Pennsylvania



Table of Contents

| | |
|---|-----------|
| Introduction..... | 1 |
| Part One: Rules of the road..... | 2 |
| Pennsylvania bicycle law..... | 3 |
| Riding in the street..... | 4 |
| Common causes of bike-car collisions and techniques to prevent them..... | 5 |
| Part Two: Sharing the road..... | 7 |
| Sharrows..... | 8 |
| Advisory bike lanes..... | 9 |
| Bus-bike lanes..... | 10 |
| Bike lanes..... | 11 |
| Separated bike lanes..... | 13 |
| The color green..... | 15 |
| Two-stage turn boxes..... | 18 |
| Bike bays..... | 19 |
| Bicycle signals..... | 20 |

Introduction

This guide is intended to help improve understanding of bike symbols, signs and pavement markings whether you're driving, walking or riding a bike along one of the growing bike networks in the Southwestern Pennsylvania region.

It's important to note that while bike symbols, signs and pavement markings are intended to make the road safer for everyone, people riding bikes have the same rights to the roads as other users, and must likewise obey all applicable traffic laws.



Bicyclist/Cyclist

The terms bicyclist and cyclist include all people travelling by bicycle, using a full range of types of bicycles such as standard adult bicycles, bicycles with trailers, children's bicycles, recumbent bicycles, cargo bicycles, adult tricycles, fat tire bicycles, hand cycles, bicycles built for people with mobility challenges, and electric bikes (e-bikes), among others.



Motorist/Driver

The terms motorist and driver include all people driving a full range of types of wheeled motorized vehicles, such as cars, trucks, buses, other large/heavy vehicles, motorcycles and scooters that are used for transportation of people or cargo.



Part One: Rules of the road

Pennsylvania bicycle law

Source: Penndot.gov

Pennsylvania's Motor Vehicle Code considers "pedalcycles" (bicycles) as vehicles and provides that every person riding a pedalcycle upon a roadway shall be granted all of the rights and responsibilities applicable to a driver of a vehicle, with certain exceptions discussed below. (Title 75 § 3501)

Bikes may be ridden on the shoulder of the road (in the same direction as the flow of traffic) but are not required to do so.

Bikes may also ride on the right half of the roadway as follows:

- On a multi-lane roadway, bikes may be ridden in the right-most travel lane.
- On a two-lane roadway, a bike may be ridden in the right lane.
- On a roadway with no center line, a bike may be ridden anywhere on the right side of the roadway.

Bikes may move from the right lane:

- When overtaking another vehicle proceeding in the same direction.
- When preparing to make a left turn.
- When an obstruction exists that makes it necessary to change lanes or cross the center line with due care.

Persons riding bicycles upon a roadway shall not ride more than two abreast (side-by-side), unless on paths or parts of a roadway set aside for exclusive use of bicycles.

A bicycle or motor vehicle may, with good caution, treat an intersection with an inoperable or malfunctioning traffic signal as a stop condition when red or as a caution condition when green or yellow.

Often signals with embedded detectors will not respond to the bike awaiting a green light, and this is treated as "inoperable" under law.

Motor vehicles must allow 4 feet of distance when overtaking a bicycle and travel at a careful and prudent speed. It is the motorist's responsibility to provide this distance, not that of the cyclist. (Title 75 § 3303 (3))

To achieve this cushion, drivers may overtake a bicycle in a no-passing zone or even cross a double yellow center line when passing a bicycle on the left to avoid excessive delays, but this must be done with due care and while providing the required 4 feet of clearance. (Title 75 § 3307 (b1))

Drivers attempting to turn left or right must also yield to people on bikes traveling straight. (Title 75 § 3331)

No person shall open any door on a motor vehicle unless and until it is reasonably safe to do so and can be done without interfering with traffic flow. Cyclists may be injured or killed when a door is opened in their line of travel (dooring). Therefore, a distance of 4 feet should be kept between parked motor vehicles and the line of travel when riding along parked vehicles. (Title 75 § 3705)



Riding in the street

When you bike:

- Go with the flow of traffic. Ride on the right side, in the same direction as other vehicles.
- Make sure your bike is equipped with a front light, red rear reflector and amber side reflectors when riding at night (Title 75 § 3507).
- Obey all traffic laws. A bicycle is a vehicle and you're the driver.
- Yield to pedestrians. Pedestrians have the right-of-way in any marked crosswalk or within any unmarked crosswalk at an intersection (Title 75 § 3542).

When you drive:

- Watch for bikes.
- Expect to see people on bikes when you see "share the road" or the more recent, "bicycles may use full lane" signs posted along the road.
- Be alert for trail crossings. Signage and other trail crossing treatments are typically installed to warn drivers where people biking on trails may be crossing the roadway.



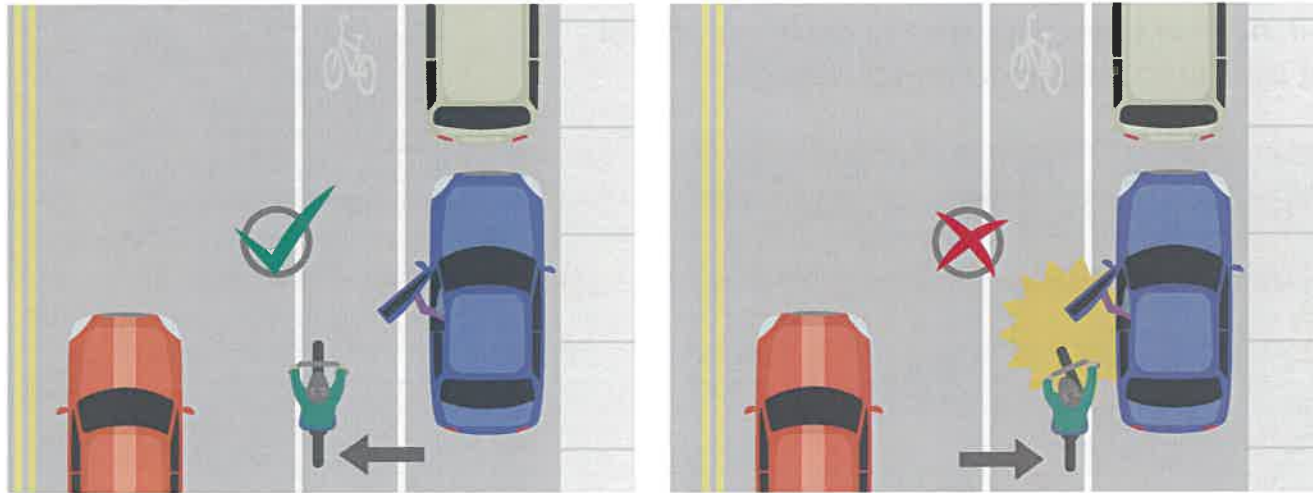
Trail crossing: Ghost Town Trail and PA 403, Indiana County

Drivers are not required to yield to people biking across a marked or unmarked crosswalk (at a trail crossing for example) as the bicycle is treated as a vehicle. A better choice is to dismount and walk your bike across.

Common causes of bike-car collisions

and techniques to prevent them

Door Zone: The common term for the space that an open car door extends into the travel lane or a bike lane. People on bikes may be killed or seriously injured by people who open doors into their line of travel (dooring).



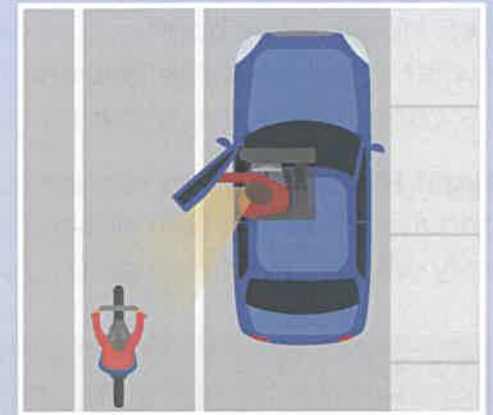
Dooring can happen when people who are driving park or stop and exit their vehicle or when passengers exiting cars, taxis and rideshares open their doors into the path of a cyclist in an adjacent bike lane or travel lane.

When you bike:

- If you're riding in a bike lane adjacent to a parking lane, ride on the side of the lane farthest from parked cars.
- If you're riding in the street, watch for opening car doors as you pass parked cars.
- Keep track of traffic behind you so you'll know if you have enough room to swerve if you must suddenly move out of the door zone.

When you drive:

- Before opening your car door look for people on bikes; use the *Dutch Reach* when you open your door.



Dutch Reach:

The practice, for drivers and passengers, of opening a car door with the hand that is farthest away from the door. This maneuver causes motorists to swivel their upper torso and look back over their shoulders naturally to check for approaching cyclists. Using the Dutch Reach can help prevent dooring collisions.

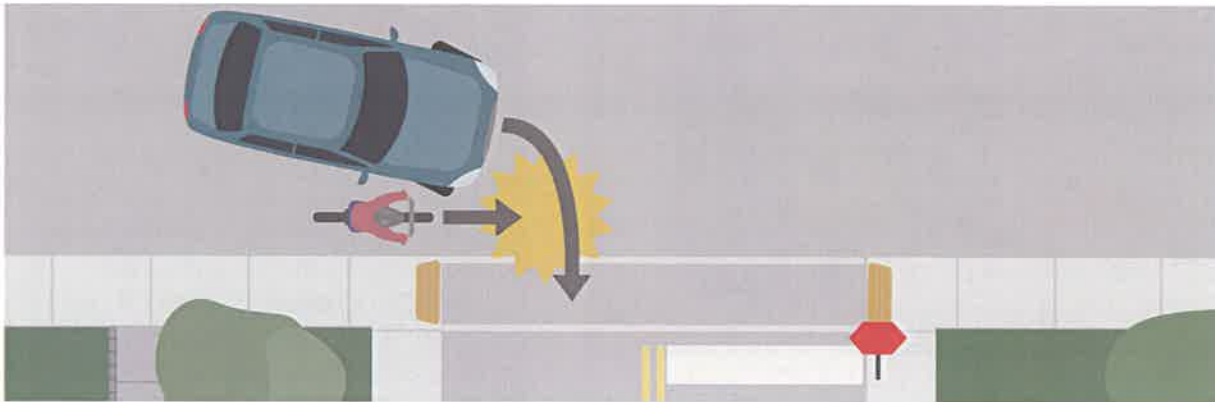
(It's called the Dutch Reach because it originated in the Netherlands.)

1. Check your rear view mirror.
2. Check your side view mirror.
3. Open the door with your far hand, the hand farthest from the door.



Left Hook: A left hook occurs when a left-turning driver fails to yield to an oncoming cyclist in the opposite lane and makes a left turn directly into or in front of them. Left hooks may also occur on one-way streets with left-side bike lanes.

Right Hook: A right hook occurs when a person driving passes a cyclist on the left and makes a right turn directly into or in front of them. This type of crash occurs not only when drivers turn onto a road, but also into parking lots and driveways.



When you bike:

- Left hooks: Never assume that an oncoming left-turning driver can see you. Slow down and let the driver complete their turn.
- Right Hooks: Watch for cars on your left-hand side that may be slowing down in preparation to make a turn. Most drivers cannot make a right hand turn without slowing down, so that's what you're watching for, not a turn signal (a driver may not use their turn signal, or may only do so at the last second).

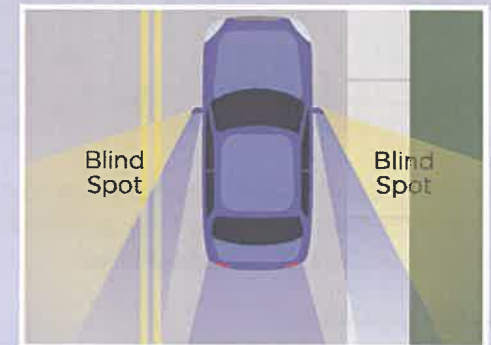
When you drive:

- *Shoulder check* and look for people on bikes in a bike lane or on the road before making a left or right turn.

It's the Law: No turn by a driver of a motor vehicle shall interfere with a pedacycle [bicycle] proceeding straight. (Title 75 § 3331 (e))

Shoulder Check: With the increasing number of people biking and walking along the streets, knowing when and where to shoulder check or check your *blind spot*, is a vital observation skill especially when turning right.

A proper shoulder check involves moving your head 90 degrees and shifting your eyes out the back right or back left window. You should never have to take your shoulders off the back of the seat in order to shoulder check properly.





Part Two: Sharing the road

Sharrows

Shared lane markings or sharrows (a combination of the words “shared” and “arrows”) are white pavement markings comprised of a bicycle symbol and a double chevron indicating the direction of travel. Sharrows indicate where people on bikes can safely ride outside of the door zone and also serve as a visual reminder that space on the road is meant to be shared by people cycling and driving.



Shared lane: 5th Avenue Corapolis, Allegheny County

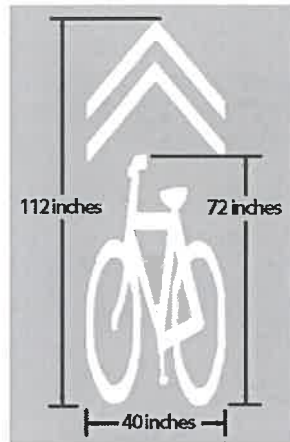


photo credit: Manual on Uniform Traffic Control Devices (MUTCD)
Shared Lane Marking



photo credit: BikePGH
Sharrows installation: Friendship Avenue, City of Pittsburgh

Variations on Sharrows



Shared lane marking: Simms Street, Ellwood City, Lawrence County



photo credit: Millvale Community Development Corporation

A locally designed sharrow, or “sharryl”, that illustrates gender diversity in the bike movement: Grant Avenue, Millvale, Allegheny County



Shared lane markings in green boxes, also known as green sharrows: 8th Street, Indiana, Indiana County



When you bike:

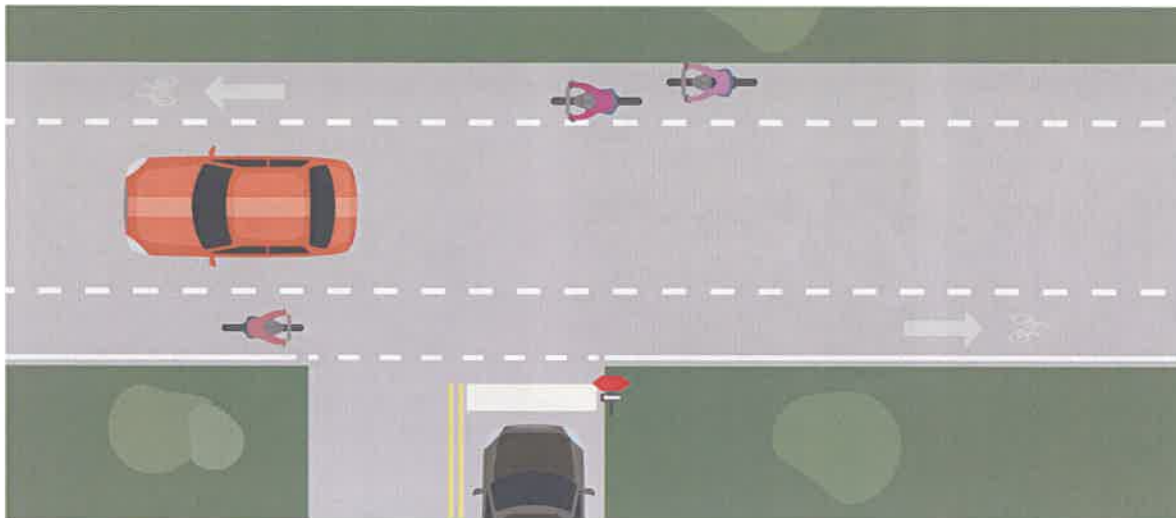
- You may, but are not required to ride on or over the sharrows. While the markings are placed in a location to keep you out of the door zone, you should always ride where you feel most comfortable and safe.
- Always travel in the same direction as traffic, as indicated by the chevron.

When you drive:

- You can drive on or over the markings and are not restricted to driving to the left of the symbols.
- People on bikes may be traveling in the same lane. Travel behind them until it is safe to pass with a passing distance of at least four feet.
- Before opening your door look for people on bikes; use the Dutch Reach when you open your door.

Advisory bike lanes

Advisory bike lanes (also known as advisory shoulders) create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. An advisory bike lane is a roadway striping configuration which provides a single lane for two-way traffic, with advisory and edge lines on either side. The bike lane is delineated by dashed white lines and optional pavement color. These markings give people on bikes a place to ride, but are also available to people driving if space is needed to pass oncoming traffic.



When you bike:

- Be prepared for a motorist to enter the advisory bike lane.
- Always use caution and assume turning or merging motorists do not see you.
- Watch for people walking in the advisory bike lane.

When you drive:

- You may enter the shoulder to pass oncoming traffic. However, you must first yield to bicyclists in the advisory bike lane.
- When passing people on bikes, allow a safe passing distance of at least four feet.

An approved Request to Experiment is required to implement advisory bike lanes or shoulders, which are called “dashed bicycle lanes” in the Federal Highway Administration (FHWA) experimentation process.

All requests for experimentation should originate with the state/ local highway agency or toll operator responsible for managing the roadway or controlled setting where experiment will take place. That organization forwards the request to the FHWA - with a courtesy copy to the FHWA Division Office. The FHWA must approve the experiment before it begins. Requests may also be forwarded directly to the FHWA Division Office, and the Division Office can submit the request to the FHWA Headquarters Office.

For more information on the experimentation process, visit: <http://mutcd.fhwa.dot.gov/condexper.htm>.



Bus-bike lanes

A shared bus-bike lane is a bus lane that may also be used by people who are biking. Bus-bike lanes are identified with “bus-bike only” or similar signage and pavement markings which typically include a white diamond, the words “BUS ONLY” and a bicycle symbol. Shared bus-bike lanes, which may be appropriate on low speed bus lanes and roads, often provide a more direct route for people on bikes. They also offer some degree of separation from higher-speed travel lanes when there is not space for a bike lane.



Shared bus-bike lane: Wood Street, City of Pittsburgh



Shared bus-bike lane: Smithfield Street, City of Pittsburgh

When you bike:

- Look for signage and pavement markings that indicate the bus lane may be used by people on bikes. DO NOT use just any bus lane.
- Travel in the same directions as buses.
- Watch for buses making stops.
- Do not pass buses in a bus lane - doing so may expose you to oncoming traffic and put you at risk for a collision.

When you drive:

- Do not drive or park in a bus-bike lane. They are part of the roadway, but are only for buses and bikes.
- You may merge across a bus-bike lane to enter or leave a roadway or turn into a cross street.
- Watch for signs that restrict turning movements.



Regulatory signage indicating that only buses and bikes are allowed to use the lane: Smithfield Street and Oliver Avenue, City of Pittsburgh



Regulatory signage restricting turning movements, except for buses and bikes: Smithfield Street and Fifth Avenue, City of Pittsburgh



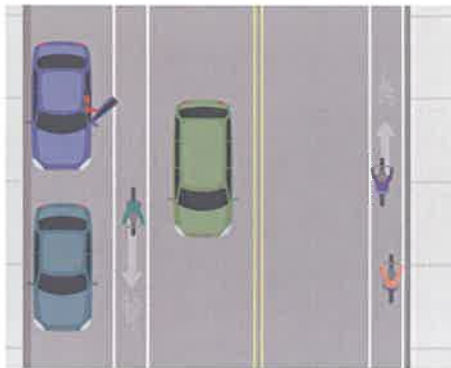
Bike lanes

Bike lanes are striped and signed lanes for bicycle traffic. They are usually at least five feet wide, marked by solid white lines and have white bicycle symbols marked on the pavement. Bike lanes may also be buffered to provide extra space between people on bikes and motorized traffic.

As a bike lane approaches an intersection or location where motor vehicle traffic may cross the bike lane, the white lines may be dashed to indicate a shared space between through-cyclists and turning vehicles. Bike lanes may also be continued through an intersection with the use of dashed lane lines and/or pavement markings such as bicycle symbols or chevrons. A bike lane is typically located adjacent to motor vehicle travel lanes and flows in the same direction of traffic, but they can be installed in other configurations.

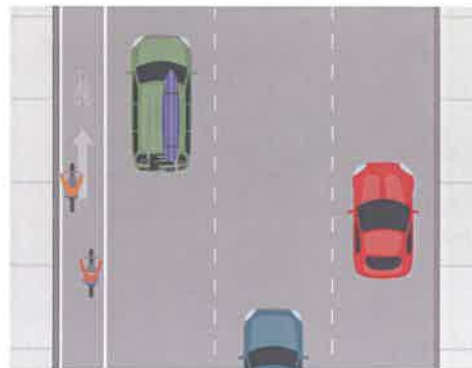
Pennsylvania motor vehicle code requires turns to be made from as close to the right-hand curb or edge of the road as practical. To do this, drivers may safely and prudently cross into a bike lane before making their turn, as long as they are not interfering with a biker's ability to travel in a straight line. In some locations, you may see "Begin Right Turn Here" signage.

- Solid lane lines discourage crossing or merging.
- Dashed lane lines encourage crossing or merging.



Bike lanes

Conventional bike lanes are located next to motor vehicle travel lanes and flow in the same direction of traffic. They are typically on the right side of the street, between the travel lane and curb, road edge or parking lane.



Left-side bike lanes

Left-side bike lanes are conventional bike lanes placed on the left side of one-way streets or two-way median divided streets.



Contraflow bike lanes

Contraflow bike lanes are bike lanes that allow for bicycle travel in the opposite direction from motorized traffic on a one-way street. In certain situations, a contraflow bike lane may be installed to increase safety, enhance connectivity to the broader bicycle network or provide access to high use destinations.



Buffered bike lanes

Any type of bike lane may be buffered to provide extra space between the bike lane and the adjacent motor vehicle travel lane and/or parking lane. The buffer area is created by painting additional white lines and diagonal stripes adjacent to the bike lane.



Buffered bike lane: Rose Street, Indiana County



Dashed bike lane: Penn Avenue, City of Pittsburgh



Buffered bike lane: Neville Road, Allegheny County

When you bike:

- Use caution as you approach an intersection and assume turning vehicles do not see you.
- Wait behind motorists who are already in the shared space preparing to turn.
- Whenever you enter or exit a bike lane, make sure to look behind you, signal and yield to vehicles already in adjacent travel lanes.
- Travel in the same direction as traffic, unless signage and/or pavement markings indicate otherwise.
- You are not required to ride in a bike lane. You should use adjacent motor vehicle travel lanes to pass another person on a bike, to avoid the door zone next to parked cars or other obstacles and unsafe conditions, or to prepare for a turn that will be made outside of the bike lane.

When you drive:

- You may cross a bike lane when you need to turn or park adjacent to the bike lane.
- Look both ways for people on bikes before turning across a bike lane.
- Yield to people on bikes and let them pass before turning across the bike lane.
- Do not block the bike lane.
- When parking next to a bike lane, look for people on bikes before exiting your car. Check your rear view and side view mirrors and use the Dutch Reach when opening your car door.
- Watch for people on bikes in the bike lanes and on the roads.
- There are many reasons someone on a bike could choose to be riding in the travel lane, usually for safety, and they are legally allowed to do so.
- People on bikes may use the travel lane to make a left-hand turn. You should not pass on the left of a rider trying to make a left turn.

Bicycle Climbing Lanes



In some cases, bike lanes are installed on one side of a roadway in the uphill direction of travel. These lanes are for people on bikes who may be traveling uphill slower than motorized traffic. People biking in the downhill direction will be going faster and can share the lane with cars.

Separated bike lanes

Separated bike lanes are bike lanes that are separated from motor vehicle traffic with a barrier or vertical element. Separated bike lanes are also known as protected bike lanes or cycle tracks. They can be separated from the roadway with a variety of treatments including, but not limited to, on-street parking, raised curbs or medians, bollards, landscaping or planters. Separated bike lanes may be one-way or two-way facilities. A two-way separated bike lane allows bicycle movement in both directions on one side of a street. When a separated bike lane approaches an intersection or other point where motor vehicle traffic may merge or cross the bike lane, the white lines are dashed. In some cases, these areas may also include green pavement or green stripes (intersection crossing markings).



One-way separated bike lanes

One-way separated bike lanes are located within or directly adjacent to the roadway and are physically separated from traffic with a barrier or vertical element. These facilities allow people to bike in one direction on one side of a street.



Two-way separated bike lanes

Two-way separated bike lanes are located within or directly adjacent to the roadway and are physically separated from traffic with a barrier or vertical element. These facilities allow people to bike in both directions on one side of a street.

Two-way separated bike lanes



3rd Street, City of Connellsville,
Fayette County



Penn Avenue, City of Pittsburgh



Schenley Drive, City of Pittsburgh

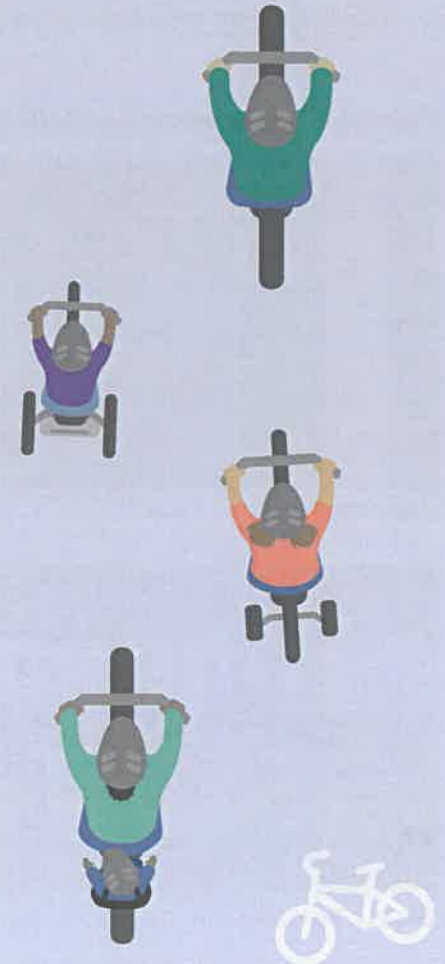
When you bike:

- Watch for signs and pavement symbols indicating the direction of travel.
- Use caution as you approach an intersection or other point where motorists may cross the bike lane and assume people driving do not see you.
- Wait behind motorists who are already in the shared space preparing to turn.
- Whenever you enter or exit a bike lane, make sure to look behind you, signal and yield to people who are already driving in adjacent travel lanes.
- Yield to people walking in the crosswalks or crossing the bike lane.

When you drive:

- You may cross a bike lane when you need to turn or enter or leave a roadway, or park adjacent to the bike lane.
- People on bikes may be traveling quickly and coming from both directions. Shoulder check and look both ways before turning across a bike lane.
- Yield to people biking in the bike lane and people walking in the crosswalk. Let them pass before turning across the bike lane.
- Do not block the bike lane.

Separated bike lanes provide a space on the roadway for people who may feel uncomfortable biking with or directly adjacent to motor vehicle traffic.



The color green

Green paint or green-colored pavement identifies points on the road where people cycling and driving may cross paths.

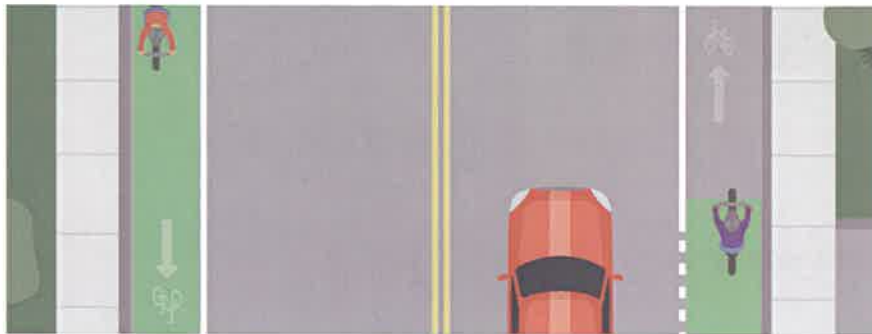
When you bike:

- Yield to drivers who are already traveling through shared green space.
- Move into green areas when safe to do so.

When you drive:

- Watch for people on bikes wherever you see green pavement.
- Don't stop on green pavement.

Examples of green pavement markings



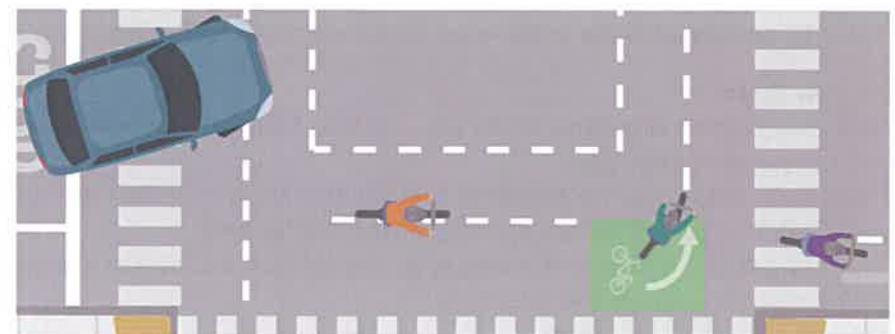
Green bike lanes



Green stripes



Green bike boxes



Green two-stage turn boxes

Green bike lanes

Some bike lanes or sections of bike lanes are painted green for better visibility and improved safety in areas where bikes and motorized traffic or pedestrians may mix. In our region, green-colored pavement is typically used within a bike lane to highlight traffic conflict areas.



Photo credit: BikePGH

Separated bike lane with green pavement highlighting access path:
Schenley Drive, City of Pittsburgh

Green stripes

Green stripes may also be used to highlight conflict areas or to highlight extensions of bike lanes through intersections or other locations where people driving may turn across a bike lane.



Contraflow bike lane with entrance to parking garage highlighted by green stripes: 3rd Avenue, City of Pittsburgh



Green stripes extending a bike lane through an intersection: Neville Road, Allegheny County

Green bike boxes

Green bike boxes provide people on bikes with a waiting area in front of traffic at signalized intersections for better visibility and allow them to better position themselves when preparing to turn.



Bike boxes at Bayard and N. Craig Streets, City of Pittsburgh

A bike box includes an advance stop bar or white line for motorists to wait behind, and a marked space or green box for cyclists to wait in. Pavement markings within the green box include a white bicycle symbol and a directional arrow. Bike boxes provide people on bikes with a safe way to get in front of traffic for better visibility and allow them to better position themselves when preparing to make a left turn or access a left-turn lane from a bike lane located on the right side of a road. A bike box provides a more orderly and consistent flow of traffic.

If the light is red

When you bike:

- When you approach an intersection with a bike box you may ride up to the front of the traffic queue.
- Enter the bike box and position yourself in your direction of travel. When the signal turns green, proceed through the intersection or make a turn.

When you drive:

- Do not stop in the bike box.
- Stop behind the white line.
- When the signal turns green, yield to cyclists before proceeding or making a turn (you may drive over the bike box).

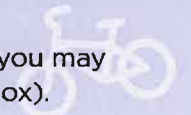
If the light is green

When you bike:

- If you're going straight or turning right, proceed as normal from the bike box.
- If you plan to make a left turn from the bike box, yield to cars and move into the left side of the bike box when safe to do so.

When you drive:

- Proceed as normal (you may drive over the bike box).



Two-stage turn boxes

Green two-stage turn boxes

Green two-stage turn boxes, also known as turn boxes, provide people on bikes with a safe way to make a left turn at a signalized intersection outside of the traveled path of motor vehicles by splitting the turning movement into two separate through movements.

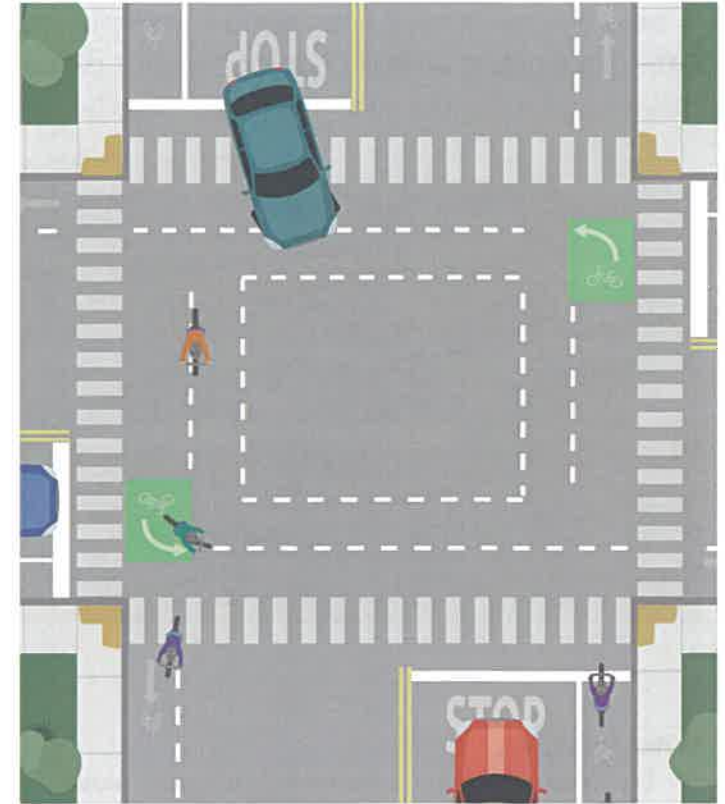
Pavement markings within a green turn box include a white bicycle symbol and a turn arrow to clearly indicate the appropriate direction for cyclists to turn and wait within the box. Turn boxes can also be used with a left-side bike lane to facilitate bicyclists turning right.

When you bike:

- Wait for the traffic signal to turn green and move into the turn box on the far side of the intersection, in front of traffic on the cross street.
- Position yourself in your new direction of travel and wait at the red light.
- When the light turns green, ride straight through the intersection to complete the second stage of your turn.

When you drive:

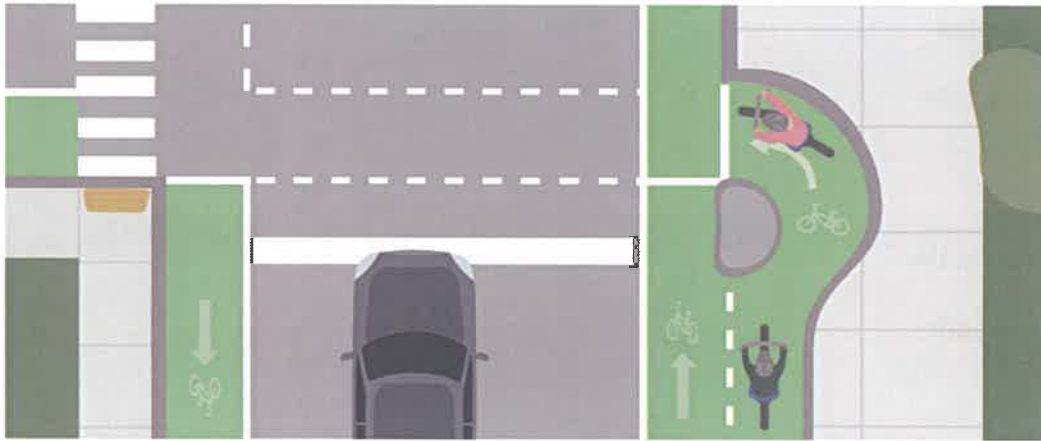
- If turning on a red light from the cross street, watch for cyclists entering the turn box.
- When turning right on a green light, yield to cyclists proceeding from the turn box before making the turn.
- If going straight on a green light, pass cyclists only when it is safe to do so.



Turn box at Forbes and Bigelow, City of Pittsburgh

Bike bays

A bike bay, also known as a jug handle because of its shape, features two bike lanes. The lane closest to the sidewalk is a left-turn pocket which provides a safe place for turning cyclists to wait until they get a green light or a crossing signal. The other lane is for through-cyclists. The City of Pittsburgh's first bike bay will be installed on Forbes and Morewood Avenues.



credit: San Francisco Municipal Transportation Agency

Bike bays make left turns safer:
San Francisco, CA

When you bike:

- If you are planning to turn across traffic, move to the right and enter the left-turn pocket.
- Position yourself in your new direction of travel and wait for the green light or crossing signal. If using a crosswalk, you may ride across at walking speed, but a better option is to dismount and walk your bike through the crosswalk.
- If traveling straight, use the lane for through-cyclists and proceed as normal.

When you drive:

- Stop at the white advance stop bar, before the crosswalk.
- Yield to people who may already be biking or walking across the intersection before proceeding when the light turns green.

Bicycle signals



Bicycle signal: Forbes and Bellefield Avenues, City of Pittsburgh

Bicycle signals are basically traffic signals for bikes. They are comprised of the traditional round red, yellow and green signal heads, but with bicycle-stenciled lenses. All traffic signals must be obeyed in accordance with standard vehicle laws.

When you bike:

- If a bicycle signal is present, you must follow the signal.

When you drive:

- Bike signals are for bikes.
- Yield to people on bikes who may be proceeding on a green signal for bicycle-specific movements.

Bike signals are often timed to give people on bikes a few seconds of green time before the adjacent motorized traffic gets the green light. Giving them a head start allows them enough time to clear the intersection and can also help prevent collisions when a motorist is turning right and a cyclist is going straight. Bike signals are often used at complex intersections. They may also be used to signalize bike-only approaches for separated bike lanes or intersections with contra-flow bicycle movements that otherwise would have no traffic signal. If a bike signal is not installed, people on bikes may be required to use the pedestrian crossing signal at these locations.



People on bikes are required to use the pedestrian signal at this intersection that does not have a traffic signal or a bicycle signal: 3rd Avenue and Wood Street, City of Pittsburgh



For more information visit the Active Transportation Resource Center at ATRC-SPC.org

The Southwestern Pennsylvania Commission's web-based toolkit is the hub for the latest information on active transportation.