



Safe Biking in Traffic

January 25, 2022 | 6:30-7:30pm



Explore New Ways to Commute

Topics



Safe Biking In Traffic

- **Introduction**
 - **Your goals**
 - **Your Rights and Responsibilities as a Bicycle Driver**
- **Bicycle Driving**
 - **Skills for the Street**
 - **Simple streets & intersections**
 - **Busier streets & intersections**
- **Building your skills and confidence**

Poll: Your goals

Where would you like to be able to go confidently on your bike?

1. Shopping / running errands
2. Commuting to work
3. Commuting to school
4. Recreation / exploring (partner/friends)
5. Recreation / exploring (with children)
6. Multi-day touring

Rights and Responsibilities

Bicycle operators are drivers

CVC 21200. (a) Every person riding a bicycle upon a highway has all the rights and is subject to all the provisions applicable to the driver of a vehicle....



Cyclists may ride on any public street except:

Posted freeways & expressways

Toll bridges (however, many have paths)

→ Cities & counties may not prohibit bikes from their streets

Bicyclists may move laterally like motorists

Cyclists may leave the right edge (CVC 21202)
or leave a bike lane (CVC 21208)...

- if moving as fast as normal traffic
- to prepare for a left turn
- to pass
- to avoid obstacles (such as car doors)
- to avoid right turn conflicts

...and (if there is no bike lane),

- if a lane is too narrow to share



What is “practicable”?

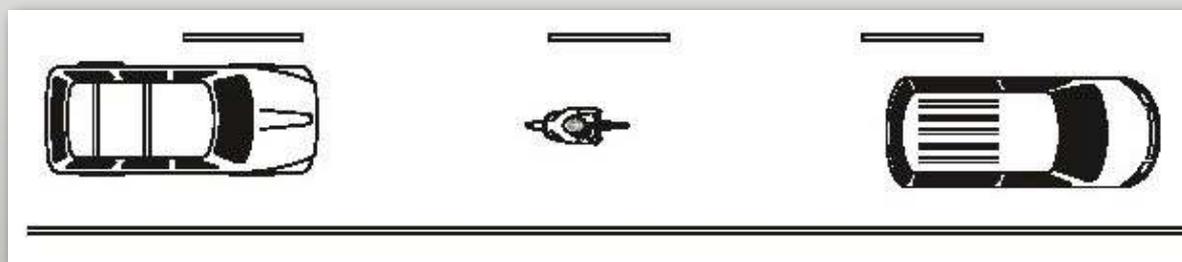
Drivers (including bicyclists) moving slower than normal traffic speed are required to travel as far to the right as “practicable” (i.e. safe and reasonable)

On multilane one-way streets, you may travel as far to the left as practicable



You may leave the right edge...

When a lane is too narrow to share (i.e. for safe passing)



“Controlling the lane” (getting in line with cars)



L.A. County METRO bus banner & bumper sticker



MUTCD R4-11



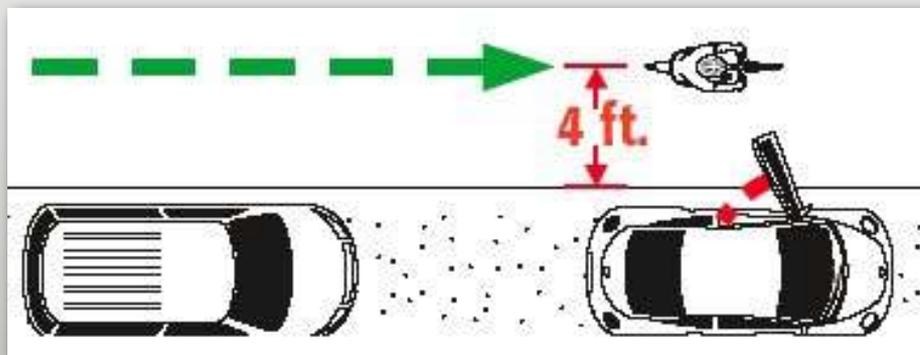
CA MUTCD R117 (CA)



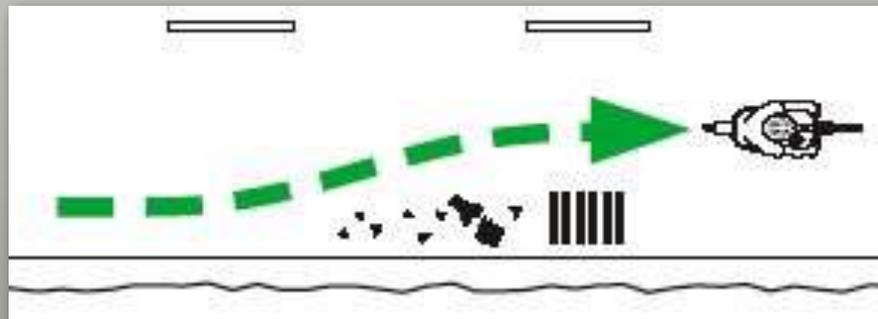
Older non-MUTCD (SF)

You may leave the right edge...

To avoid hazards



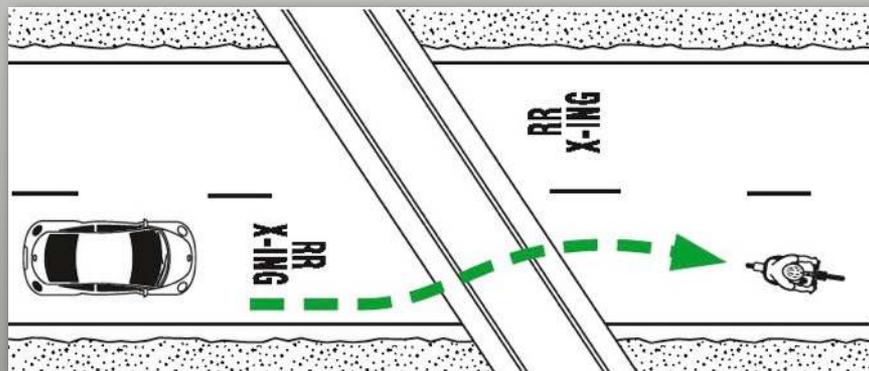
Door zone + "Startle zone"



Debris, drainage grates, gutter lip



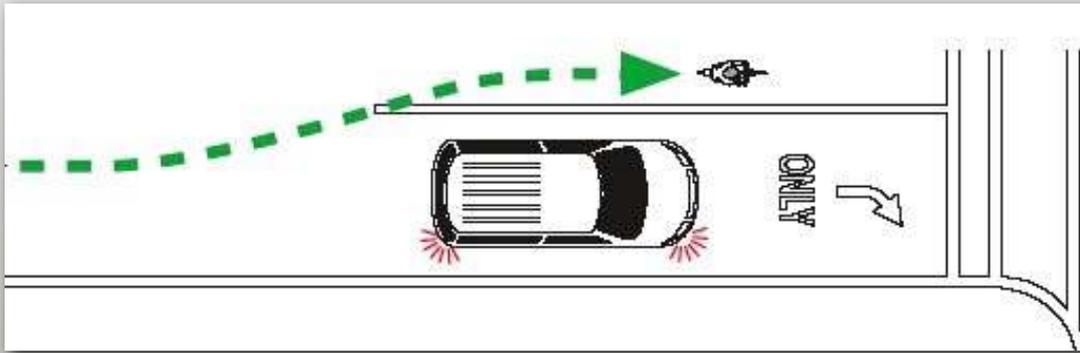
Scan before moving laterally, and negotiate if needed



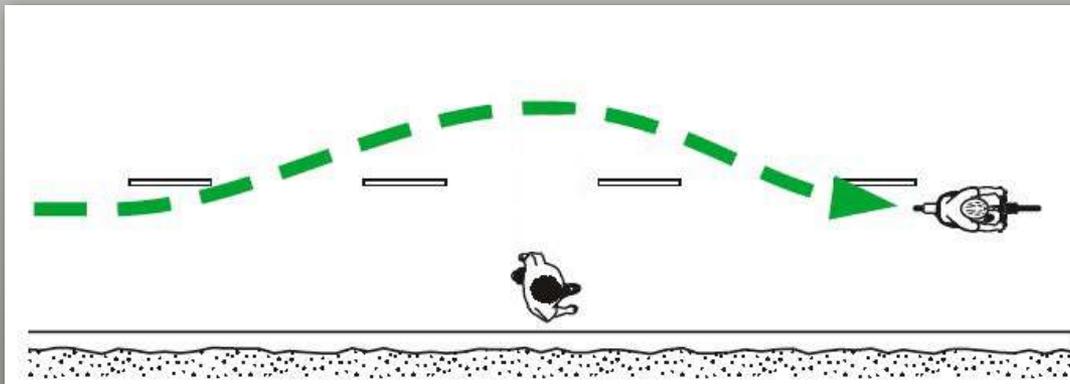
Angled rails that could trap or divert your front wheel

You may leave the right edge...

To avoid an area where right turns are permitted



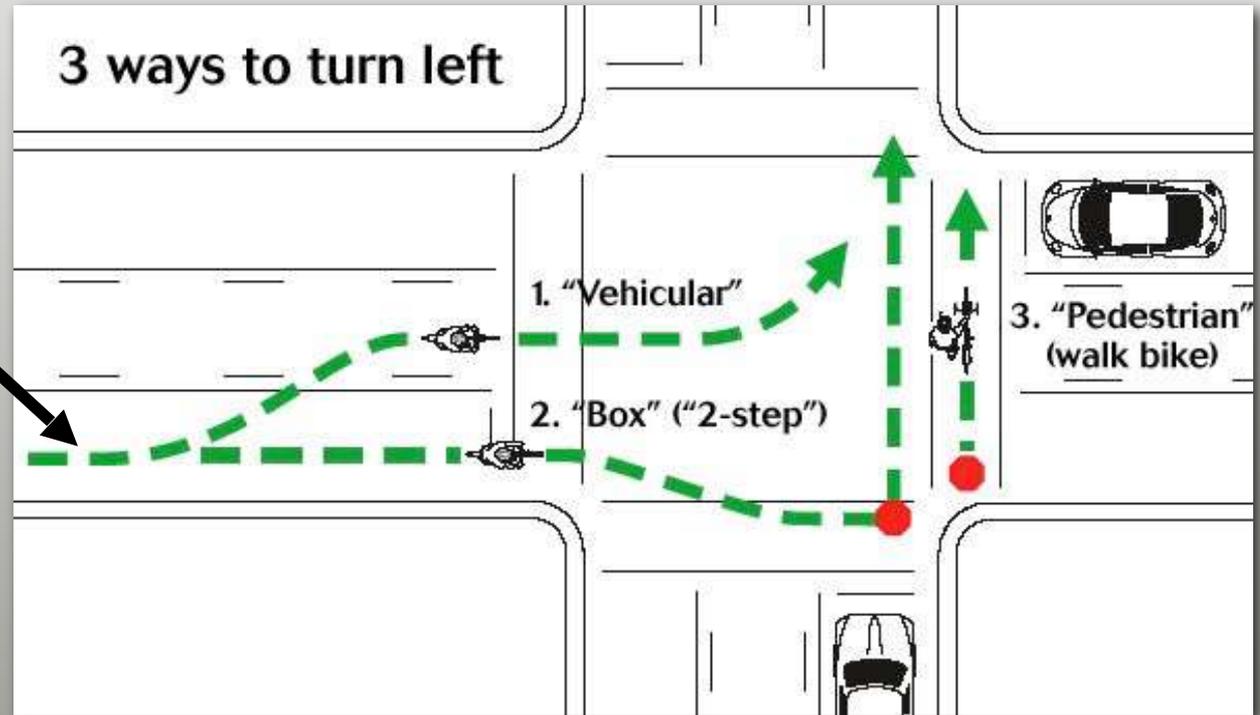
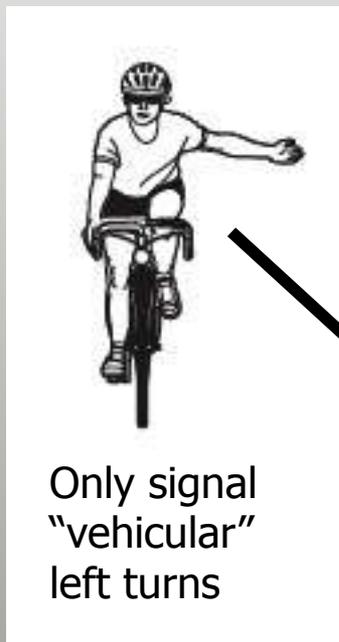
To pass slower traffic



Scan before moving laterally,
and negotiate if needed

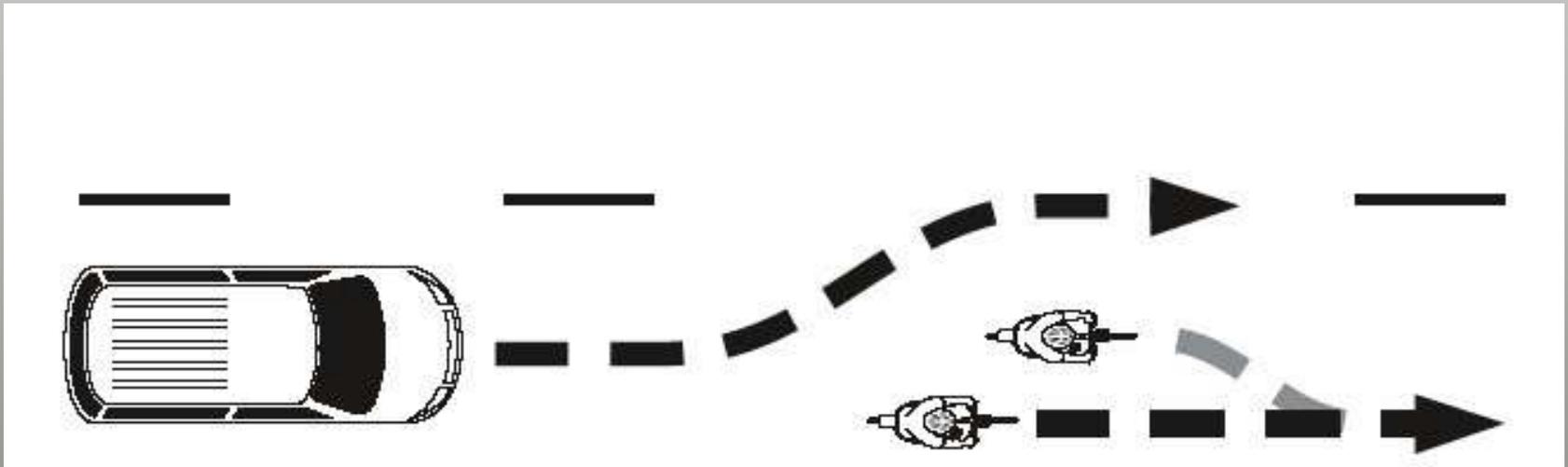
You may leave the right edge...

5) To prepare to turn left like a vehicle



Riding side by side

- **Not prohibited by California Vehicle Code**
- **“Single up” to enable passing when it’s safe,
(You decide; use your road position to indicate)**
- **If a lane is too narrow for one bicyclist to be passed
it’s too narrow for two riding abreast to be passed**





Safe Biking In Traffic

Bicycle Driving

- **Prepare for the Street**
 - Skills, Visibility, Accessories, Mindset
- **Simple streets & intersections**
- **Busier streets & intersections**
- **Trucks & buses**

Skills for the Street

Handling & Communicating

Basic

- Kickstand
- Mount / Dismount
- Power-pedal start
- Steady-leg coasting
- 3-step stop, re-start
- Turns (pedal, coast)
- Shifting gears

“Pre-driving”

- Stopping precisely
- Riding straight
- Shifting your line
- Scan (shoulder check)
- Hand signals
- “Merge negotiation”
 - Scan, signal intention, confirm, shift your line

Negotiating lateral shifts

1. Scan (check over shoulder without swerving)

a. **First, do a scan to understand your situation**

b. **Again, scan with face contact** (which indicates your intention to shift position)

KEY! To prevent swerving, firm up your arm before turning head

Negotiating lateral shifts

2. Hand-signal with face contact

- a. First time, tentatively (“May I move ahead of you?”)**
- b. Again, strongly (“OK, here I come!”)**
- c. Point downward at their line of travel (not a “turn signal”)**

Negotiating lateral shifts

3. Will the other driver cooperate?

a. YES: Shift your line of travel into theirs

b. NO (Plan B): HOLD YOUR LINE

Visibility

Be recognized early enough for safe action by others

- **Perception-Reaction Time & Distance**

- **Detection** (“I see something...”)
- **Recognition** (“I realize it’s a bicycle...”)
- **Action** (“I have time to safely interact”)

- **Daytime**

- **Bright, contrasting clothing & bike bags**
- **Accessories**
 - **Flag, Triangle,...** Pool Noodle?
 - **Daylight-visible flashing lights**



- **Dusk or Nighttime**

- **Retroreflectivity**
- **Lighting**



Night-riding equipment

Red rear reflector

Visible 500' behind

Optional, but recommended:

Red taillight

White headlamp

Visible 300' ahead and to sides

May be mounted on helmet

Consider on-bike AND on-helmet



Wheel or tire reflectors

White

Yellow pedal reflectors

Visible 200' ahead and behind

Helmets

- Required for riders and passengers under age 18; recommended for all
- A place to mount a rear-view mirror

Adjusting: 4 steps

- 1) "Head" (tightener): User rear knob or sliders
- 2) "Eyes" (level the helmet): You should see it when you look up, so it protects your forehead. If not, adjust the front straps.
- 3) "Ears" (slide-adjuster): Up to just below earlobe, so straps make a "Y"
- 4) "Chin" (strap): 1 finger-width loose, so you can talk but it can't tip back



Wear and clip it on every ride, even around the block. It's like wearing a seat belt in a car.

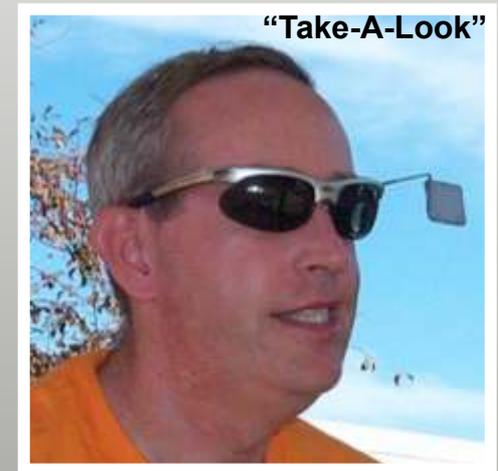
Mirrors

- Easily check behind more often
- On-head types let you scan all lanes easily and don't require looking down
- On-head types: use just left eye

Helmet mounted



Eyewear (temple bar)



Handlebar mounted



Poll: Improving visibility and ability to see traffic

What accessories or techniques are you currently using, or interested in trying?

1. Reflective triangle
2. Mirror attached to temple bar or helmet
3. Bright flag
4. Handlebar mirror
5. Fluorescent pool noodle on bike's rear rack
6. Practicing confidently looking behind me
7. Helmet visor

Mindset: How I think about bicycle driving

- **“Same roads, rights, & rules”**
- **Same direction as motor traffic**
 - **Never against traffic except when passing across centerline**
 - **Never cut corners into oncoming turner’s expected space**
- **Between intersections**
 - **Bike lane? Generally use it, with exceptions**
 - **Shared lane? Identify Effective (safe) Lane Width**
 - **Visualize door zones as “bubbles” around vehicles**
 - **Wide enough for safe passing AND I’m slower than traffic? SHARE**
 - **Otherwise, CONTROL**
 - **Change between SHARE and CONTROL as Effective Width changes**

Mindset: How I think about bicycle driving

- **Approaching and traversing intersections**
 - **Choose entry position according to my destination**
 - **Anticipate and deter conflicts (entering, crossing, leaving)**
 - **I can always become a pedestrian (walk bike) if needed**

- **Keep my “radar” mostly forward and to the sides**

Simple Streets & Intersections

Simple Streets

- **No “bicycle facility” between intersections** (Bike lane, buffered bike lane, separated bike lane)
- **One lane each direction, shared with vehicles**
- **Perhaps a center turn lane**
- **Possibly parked vehicles**
- **Technique: Share or Control**
(switch between these as conditions change)

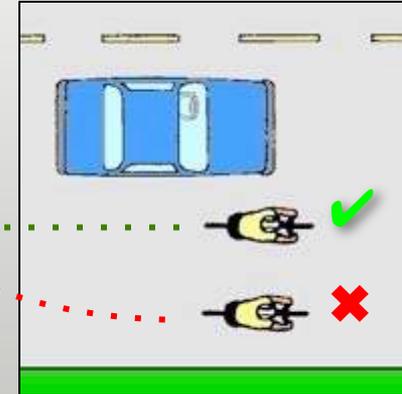
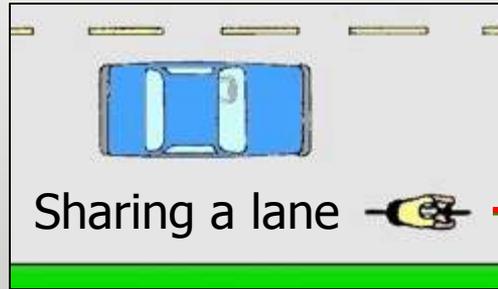
Simple Streets & Intersections

Simple Intersections

- **No turn lanes on approach**
- **Technique: Position By Destination**

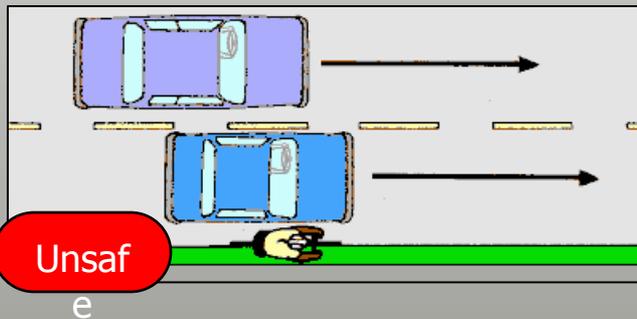
Share or control?

Depends on usable lane width, and your relative speed



If lane is wide enough to be safely passed (3+ feet), **AND**
You're substantially slower than motor traffic → **SHARE**

Extra-wide lane?
**Keep excess
width outside**



If lane is too narrow for safe passing, **OR**
You're traveling as fast (or slow) as cars
→ **CONTROL ("Single Up")**



Shared Lane Marking (“Sharrows”)

Suggests lateral positioning for safety



You may see them:

- **Along a parking lane to remind you not to ride in the “door zone”**
- **In a mixing zone (conflict area) on an intersection approach**
- **Within an intersection, to suggest a through or turning travel path**

Simple intersections

Position for entering according to your destination



Before you reach the intersection:

1. Change your thinking

- **FROM "Share or Control"** (mid-block thinking)
- **TO "Position for turning or going through"**

2. If you need to move laterally, scan and negotiate

Busier Streets & Intersections

Busier streets may have...

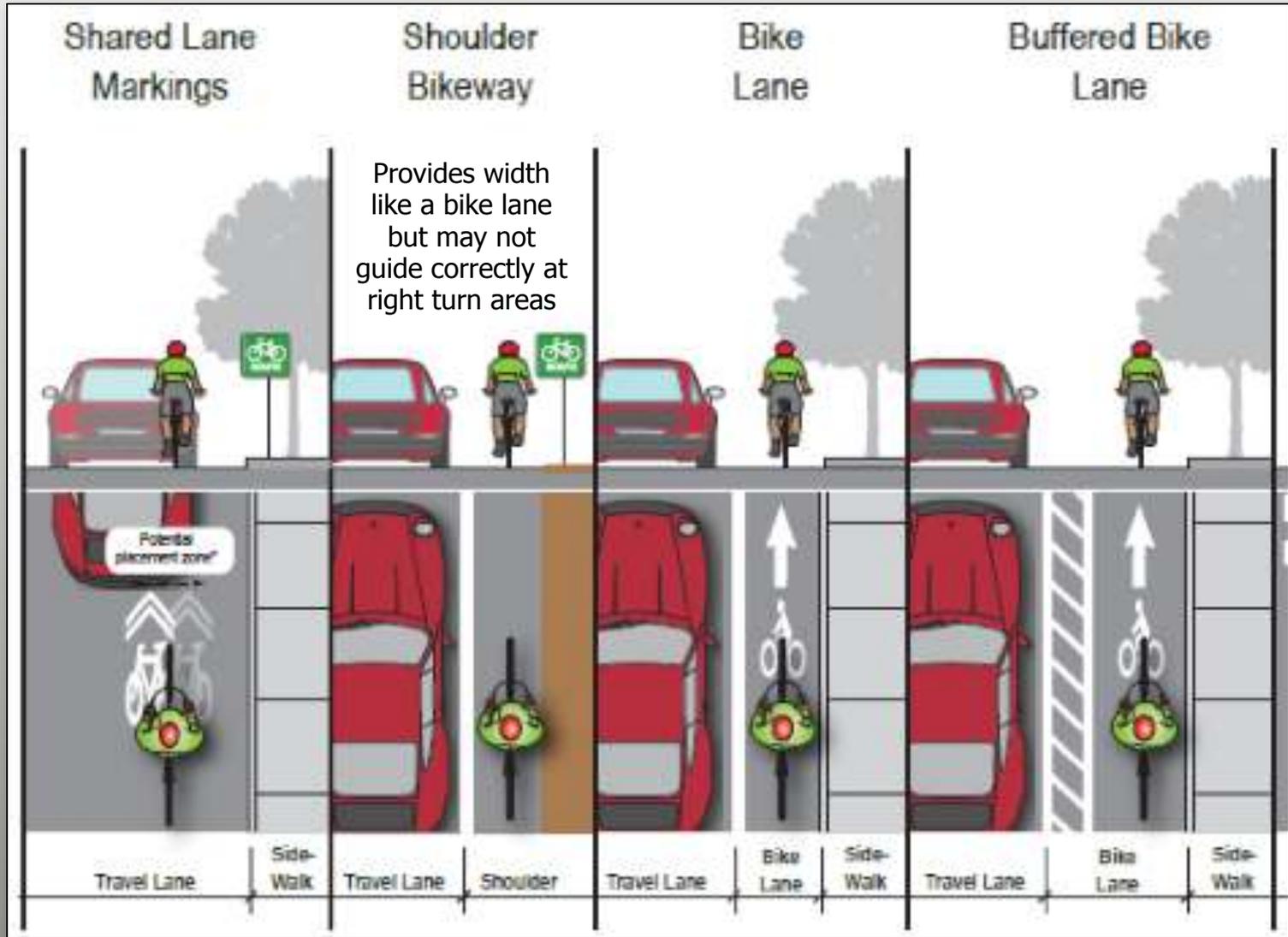
- **Multiple through lanes**
- **Bikeways, a.k.a. "Bicycle Facilities"**
 - **Bike lane, possibly with buffer and/or separation**
- **Parked vehicles**
- **Technique**
 - **Bikeway available? Generally, use it. Anticipate conflicts**

Busier Streets & Intersections

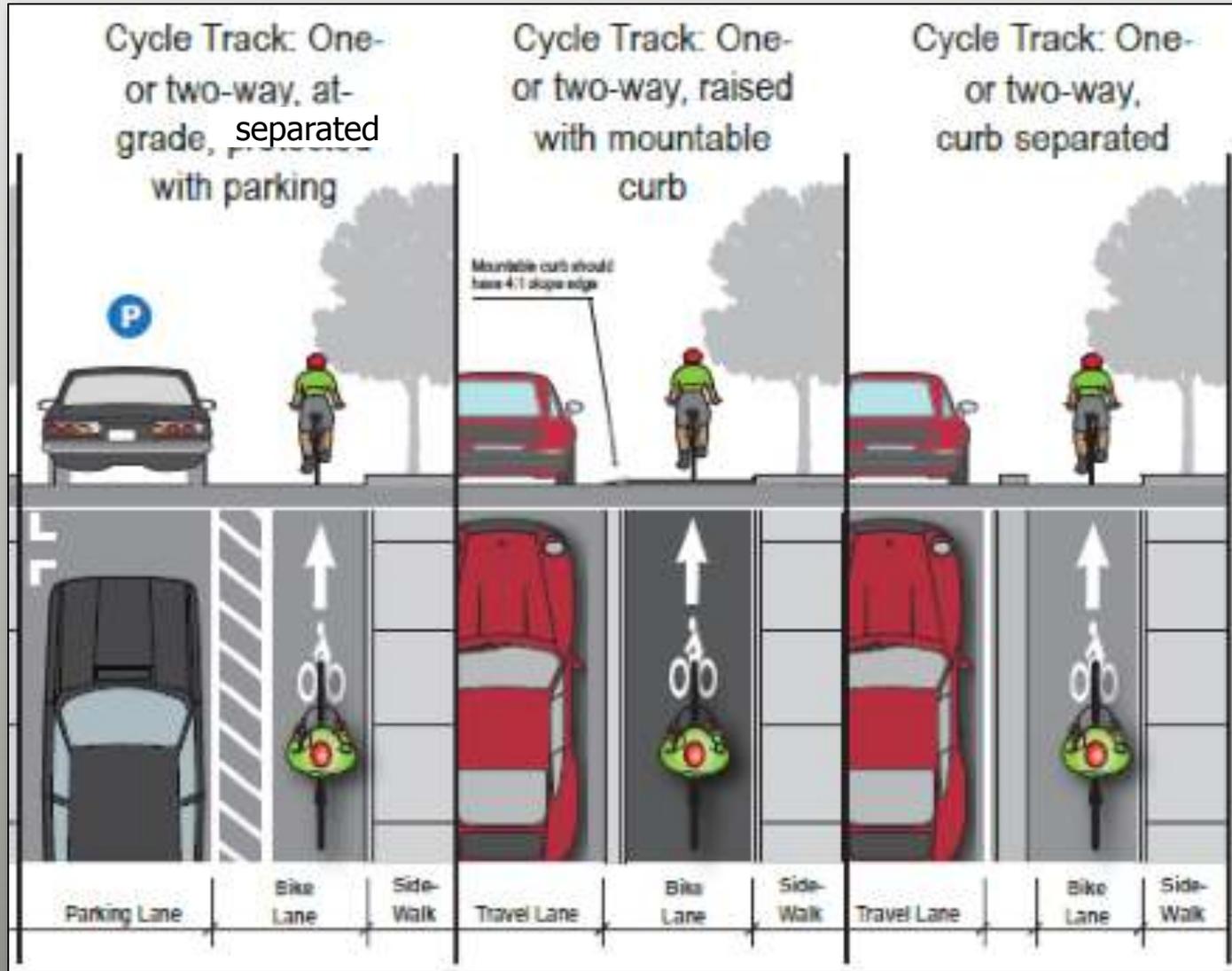
Busier intersections typically have...

- **Turn lanes on approach** (big driveways may have)
- **Technique**
 - **Choose rightmost (=slowest) lane for your destination**
 - **Control that lane through the intersection**

Bikeway types between intersections



Bikeway types between intersections



Cycle tracks (Separated Bike Lanes)



SF – JFK Drive, Golden Gate Park
(Parking-separated, 1-way on-street)



Albany - San Pablo Avenue,
Monroe – Dartmouth
(2-way, off-street)

Bike signal



Busier Intersections

Approaching

- **Decide whether to become a pedestrian**
 - **If so, ride to corner, dismount, walk through crosswalk(s)**
- **Riding through**
 - **Choose the lane or space where you will enter the intersection, based on your destination**
 - If preparing for a 2-step Left Turn, the Turn Box or far-corner area is your destination
 - **Identify and traverse the mixing zone**
 - Scan for conflicting traffic
 - If you need to move laterally, negotiate

Busier intersections

Approaches – Mixing Zones



SF – EB JFK Drive approaching Nancy Pelosi Drive

In a mixing zone, through and turning traffic exchanges places to prepare to enter an intersection.

Indicated by "dotted" line or "skip striping".



SF – SB 5th Street approaching Harrison

“Filtering Forward”

(advancing on the right of slow or stopped traffic)

Allowed conditionally by CA Vehicle Code

Passing on the Right

21754. The driver of a vehicle may overtake and pass to the right of another vehicle only under the following conditions:

...

(b) Upon a highway within a business or residence district with unobstructed pavement of **sufficient width for two or more lines of moving vehicles** in the direction of travel.

Deciding whether to “filter forward”

Understand the hazards, including “screened conflicts”

Slow to a speed from which you can stop safely in 1 car length

Busier intersections: Approaches – Waiting areas



Bike Box (advance waiting area)
fed by Bike Lane (no mixing zone)



Through bike lane
(beyond mixing zone)

Through bike lane along right turn lane

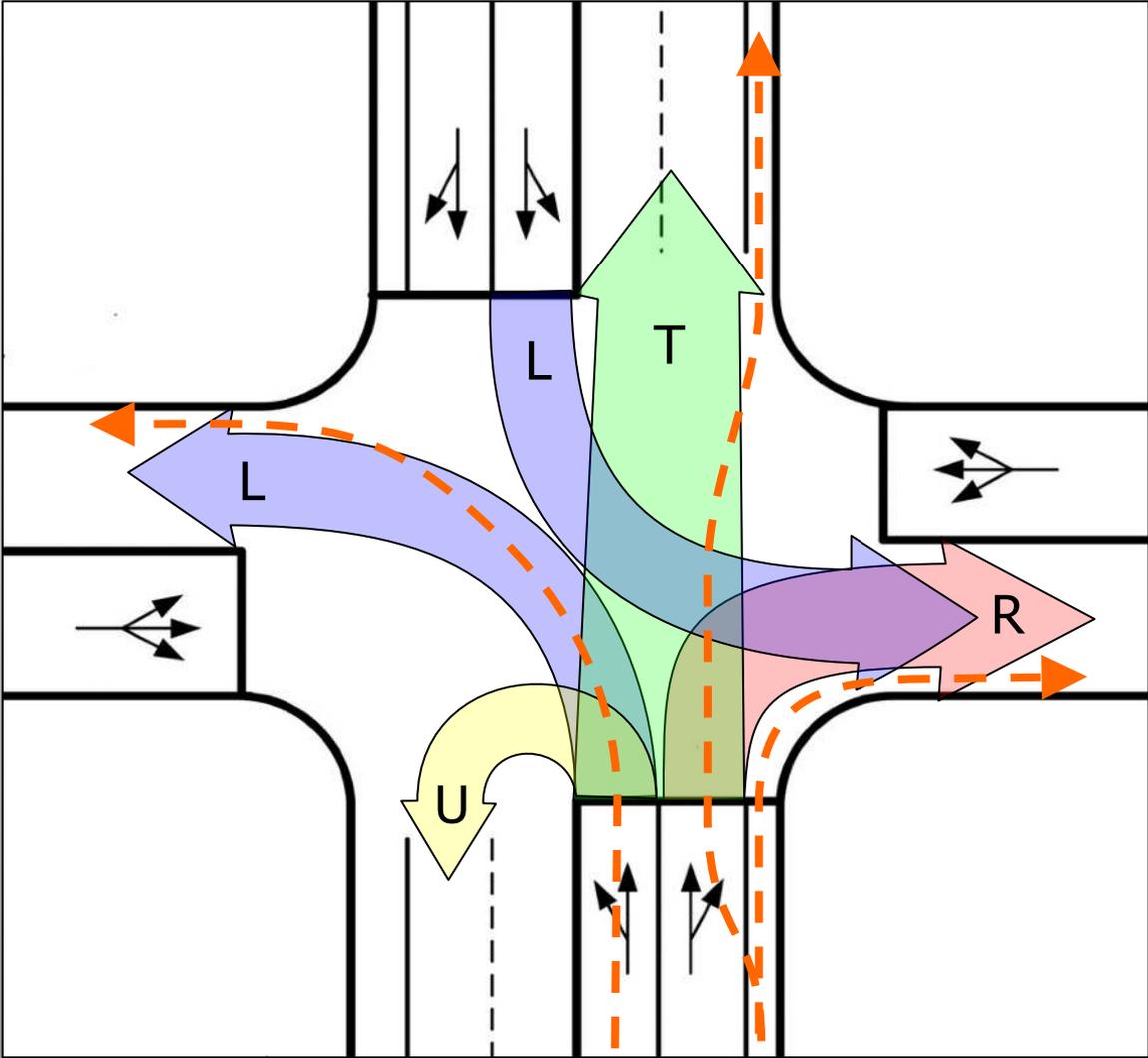


Busier Intersections

Traversing safely

- **Identify your lateral position for departing**
- **Identify same-direction conflicts (entering)**
 - Visualize “swept paths” of all entering movements
 - Control through areas where the movements overlap
- **Identify opposite-direction conflicts (midpoint)**
 - When turning left like a car, visualize oncoming left turns
- **Identify far-corner conflicts (departing)**
 - Right Turn on Red from cross street
 - “Corner attractor” (gas station, Starbucks, ...)

Visualizing "swept paths"



Elements within intersections



Two-Stage Turn Box



Bike lane extension markings

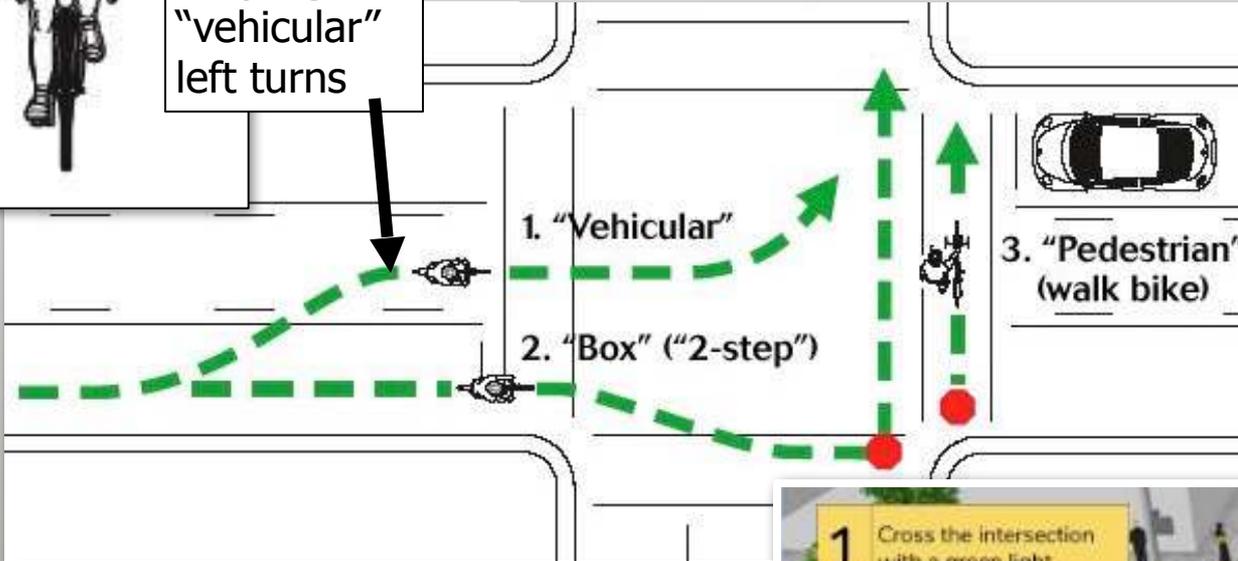


Bicycle signal

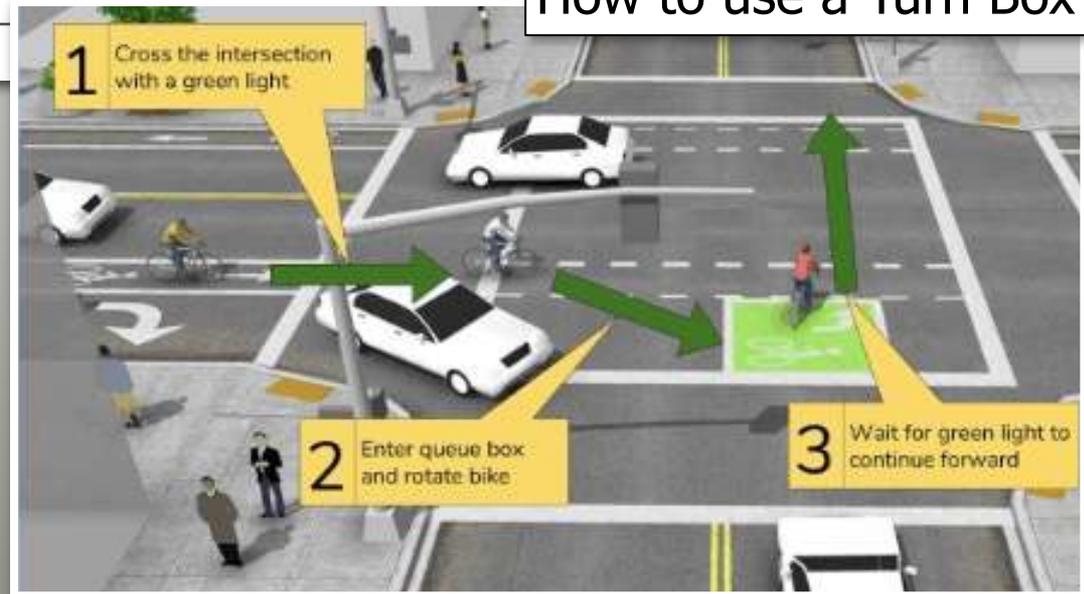
3 ways to turn left



Only signal
"vehicular"
left turns



How to use a Turn Box



Quiz: Intersection entry

Where should I position my bike to enter an intersection like a driver?

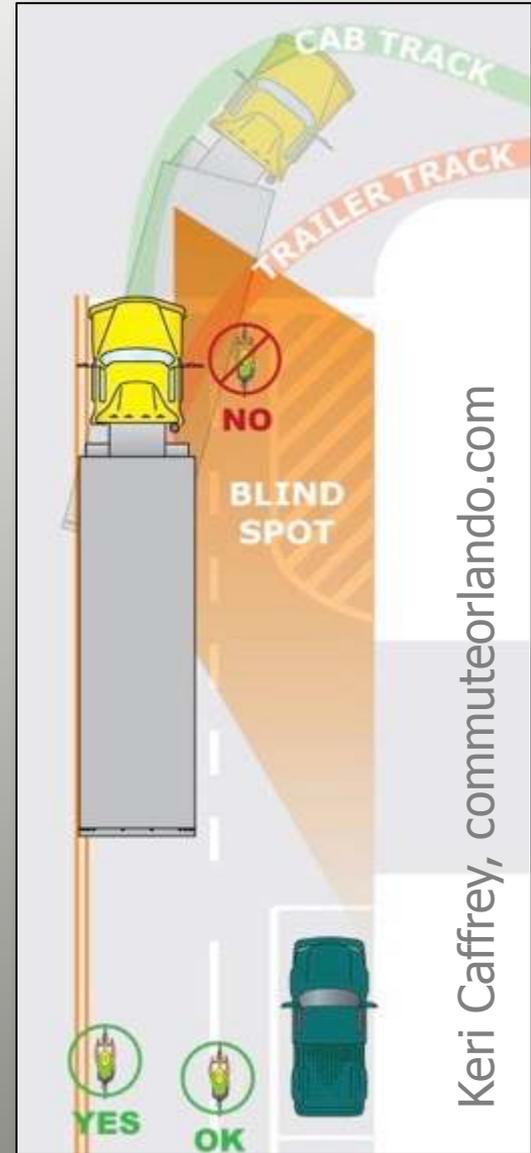
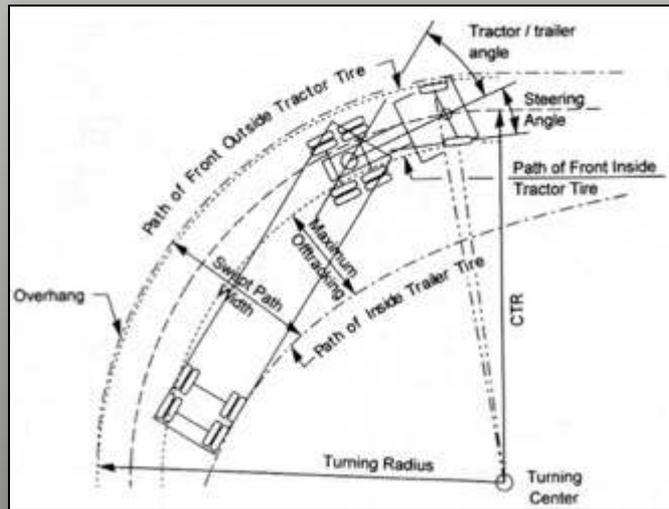
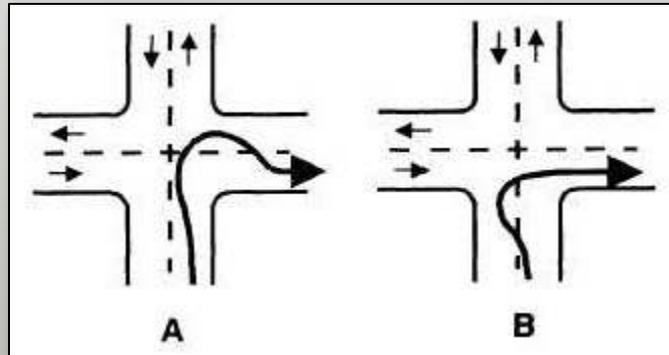
1. In the bike lane, if there is one
2. In the rightmost lane that goes where I'm going
3. On the sidewalk
4. In the leftmost lane that goes where I'm going
5. In the rightmost lane

Truck and Bus Hazards

- **BIG blind spots**
- **Trailer "off-tracking"**



CAUTION
IF YOU
CAN'T
SEE MY
MIRRORS,
I CAN'T SEE YOU!





Safe Biking In Traffic

Building skills and confidence

- **Off-street practice (solo or with a friend)**
 - Handling and communication skills
- **On-street practice**
 - Progressive rides
- **Educational resources**
 - Self-paced
 - Remote classes
 - In-person classes and rides

Off-Street Practice – This coach's playbook

- **Confident starts and stops: Stop/start drill**
 - Arbitrary stopping distance and location
 - Selected stop location, short distance

- **Confident turns**
 - Slalom (bear left, right, repeat). Mix pedaling & coasting
 - Figure-8 with straight cross-over
 - 1) Level ground, 2) On a slope. Mix pedaling & coasting

- **Building up to Lane-change / merge negotiation**
 - Line-shifting (4-6 feet to the left, right, left...)
 - Scanning: 1) Single line, 2) 2 lines (line-shift after each scan)
 - Build up to hand signals (1" up, 6" up, 6" up & hand forward)
 - Full sequence: Scan (repeat), Signal (repeat), Shift line
 - Have a friend be the other "driver" that you negotiate with

Progressive rides

- **Down the block(s), walk a U-turn, ride back**
- **Around the block with only right turns**
- **Around several blocks with only through movements and right turns**
- **Add left turns**
- **Progress to busier streets**

Educational resources

- **Bike East Bay** (bikeeastbay.org)
 - Online and in-person classes & rides
- **SF Bicycle Coalition** (sfbike.org)
 - Online and in-person classes & rides
- **League of American Bicyclists** (bikeleague.org)
 - Short instructional videos
 - Search for instructors, classes, clubs

League of American Bicyclists (LAB)

bikeleague.org/ridesmartvideos

Shifting Gears
Starting and Stopping
Scanning
Signaling
Steering
Basic Bike Check
Lane Changing
Intersection Positioning
Bike Lanes
Traffic Laws
Riding on the Sidewalk
Sharing the Trail
Where Should I Ride?
What to Bring
What to Wear
Bike Helmets
Fitting and Adjusting
How to Choose a Bike

Riding Tips



SHIFTING GEARS



STARTING AND STOPPING



SCANNING



SIGNALING



STEERING



BASIC BIKE CHECK



Safe Biking In Traffic

Thanks for attending!



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