Safe Biking in Traffic
January 25, 2022 | 6:30-7:30pm

Explore New Ways to Commute
Topics

• 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)

Bicyclists may need a full lane. Please share the road.

Every lane is a bike lane.

L.A. County METRO bus banner & bumper sticker

Older non-MUTCD (SF)
You may leave the right edge...

To avoid hazards

Door zone + “Startle zone”

Scan before moving laterally, and negotiate if needed

Debris, drainage grates, gutter lip

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

Only signal “vehicular” left turns
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
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

Helmets mounted

Eyewear (temple bar)

Handles mounted

“Take-A-Look”

“Take-A-Look”

Rhode Gear (U.K. photo)

“Take-A-Look”

Trail-Gator

Zefal

Cycle Aware

Reflex

The Flexible Helmet Mirror
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 ("Sharrow")
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

Provides width like a bike lane but may not guide correctly at right turn areas.
Bikeway types between intersections

Cycle Track: One- or two-way, at-grade, with parking

Cycle Track: One- or two-way, raised with mountable curb

Mountable curb should have 4:1 slope edge

Cycle Track: One- or two-way, curb separated

Parking Lane  Bike Lane  Side-Walk  Travel Lane  Bike Lane  Side-Walk  Travel Lane  Bike Lane  Side-Walk
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)
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

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

Indicated by “dotted” line or “skip striping”.

SF – EB JFK Drive approaching Nancy Pelosi Drive

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

1. "Vehicular"
2. "Box" ("2-step")
3. "Pedestrian" (walk bike)

Only signal "vehicular" left turns

How to use a Turn Box

1. Cross the intersection with a green light
2. Enter queue box and rotate bike
3. Wait for green light to continue forward
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”
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
Signalizing
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
Thanks for attending!

John Ciccarelli
lessons@bicyclesolutions.com
415-912-6999
Yelp: Bicycle Solutions