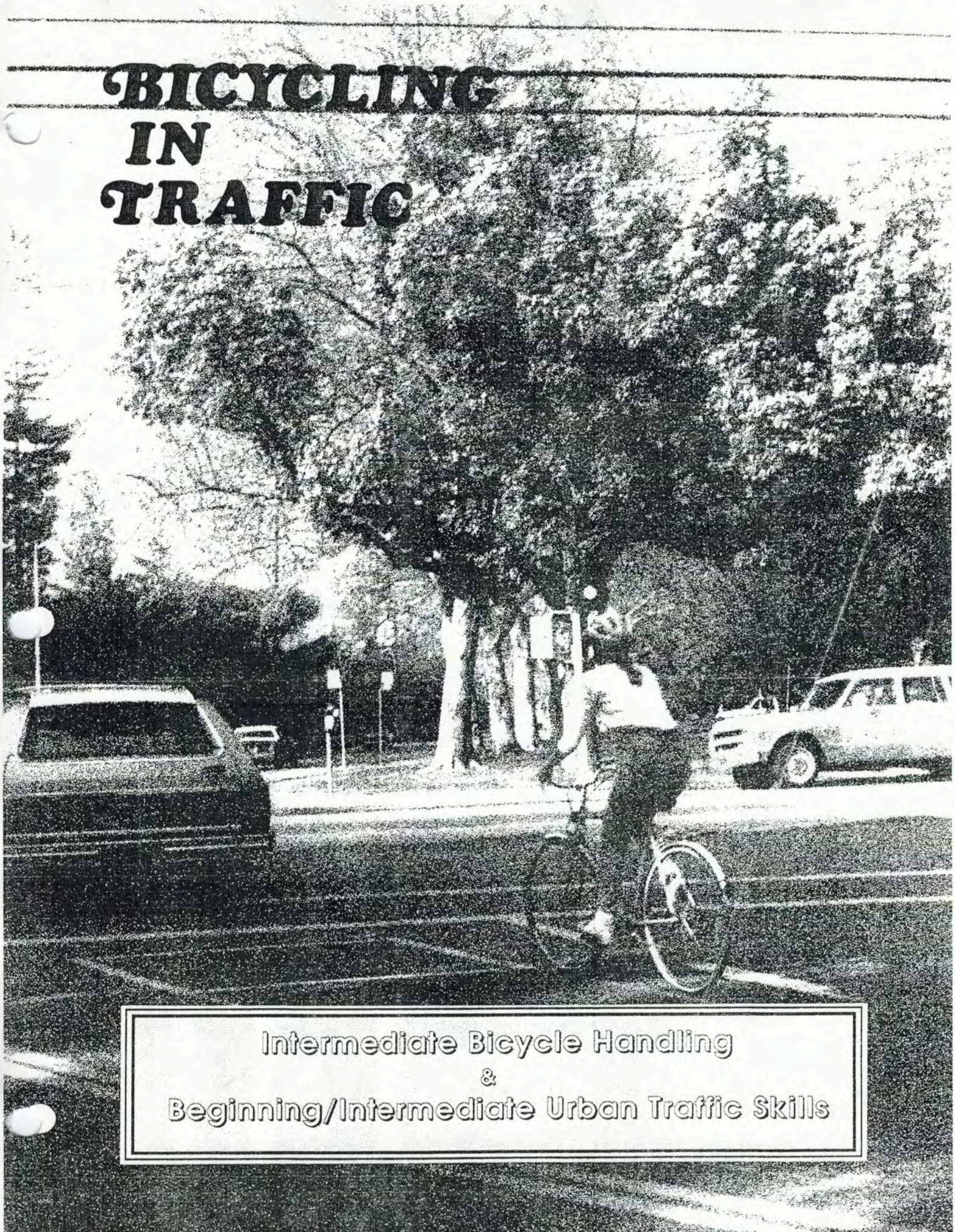
BICYCLING IN TRAFFIC



Intermediate Bicycle Handling
&
Beginning/Intermediate Urban Traffic Skills

BICYCLING IN TRAFFIC

Intermediate Bicycle Handling

&

Urban Traffic Skills

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This is a book about habits — unexamined old habits and conscientious new ones. Joseph Wolpe, a psychiatrist with a behavioral bent, says, "Emotional habits are resistant to logical arguments or good advice because something that is learned emotionally cannot be dealt with purely at an intellectual level."

What is a habit? According to the *Random House Dictionary of the English Language*, a habit is an acquired behavior pattern regularly followed until it has become almost involuntary.

How old were you when you started riding a bicycle? Five maybe six years? How many of the bicycle riding habits formed when you were younger do you still use? If your bike has derailleurs, do you shift gears when slowing down or speeding up? Use both hand brakes when stopping? Do you ride on the side of the street or the sidewalk closest to were you're going? Push the pedestrian push button to make a signal light turn green? Ride close to parked cars to keep out of the way of faster traffic? Do you ride in a bike lane because you feel "safe" from cars? Probably you answered "no" to the first two questions and "yes" to the rest. If those were your answers, then your bike riding habits are stuck at the "beginner" level. The purpose of this book is to help you understand an intermediate level of bicycling habits.

Old habits are hard to change. Once a habit is learned, it's difficult to see and accept as right another way of doing something. You can change old habits if you agree the new habits benefit you. Your incentive is personal.

This book is divided into two sections. Following this introduction is "Intermediate Bicycle Handling Skills." I propose you will enjoy riding your bicycle more if you know basic bicycle handling skills for starting, stopping, braking and shifting. If you don't buy into my premise, then you will resist changing your old bicycle handling habits.

The second, larger section addresses urban cyclist traffic skills. Emphasis is on beginning skills but includes some intermediate level traffic skills. The traffic skills are based on five basic traffic principles.

Introduction

In 1980, in his textbook *Effective Cycling at the Intermediate Level*, John Forester stated five basic traffic principles for traffic behavior on the roadway.[1] The five principles fit into two groups — road position and yielding duties. Study them on the next page then read the meaning of "yielding."

I challenge you to examine your own bicycle riding habits. Ask yourself, "Do I ride my bike, the machine, efficiently? Is my riding behavior in traffic predictable from the perspective of other drivers. That is, am I riding according to the same rules motorists use for driving?"

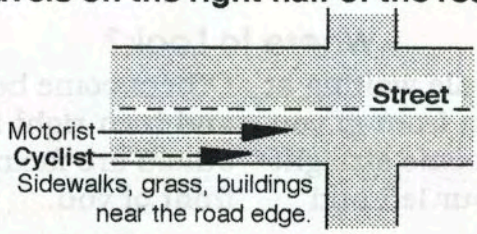
I believe many peoples' bicycle riding habits do not reflect an understanding of basic traffic principles. My thesis: If we all ride our bicycles according to these five traffic principles, there would be fewer conflicts between people on the street. If you accept that, you are ready to examine your bicycle traffic riding habits with a new set of eyes and an open mind.

[1] *Effective Cycling at the Intermediate Level* John Forester. League of American Wheelmen, 6707 Whitestone Road, Suite 209, Baltimore, MD 21207. $5.00

Roadway position

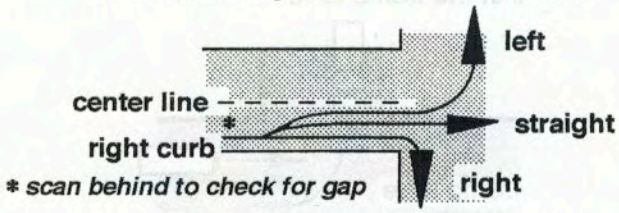
1 - Direction of Travel

Traffic travels on the right half of the roadway.



2 - Intersection

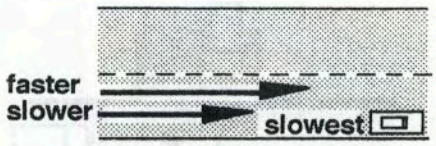
Traffic divides by direction of travel.



Near intersections choose the lane or part of a lane that goes in the direction you wish to go --nearer the right curb for a right turn, nearer thecenter line for a left turn and nearer the center of the traffic lane to go straight.

3 - Midblock

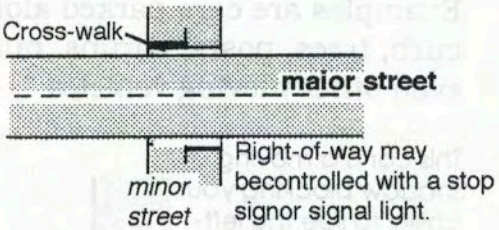
Traffic divides by speed.



Between intersections, slower traffictravels nearer the right curb, fastertraffic nearer the center line. The slowest object on the street is theparked vehicle.

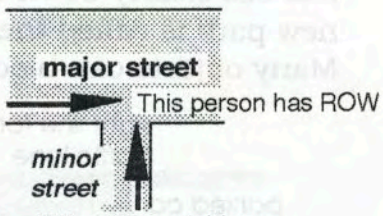
Yielding

4 Yield to cross traffic on a more important street or at a stop sign or signal.



More important streets are wider, may havemore lanes, have street markings, more traffic.

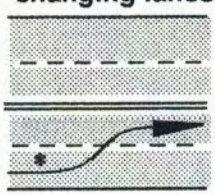
T - Intersection
Example: Driveway, alley



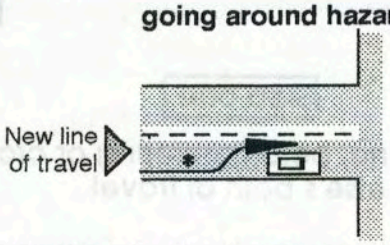
This person yields.

5 Yield to traffic in the new lane when you change your line of travel, for instance when --

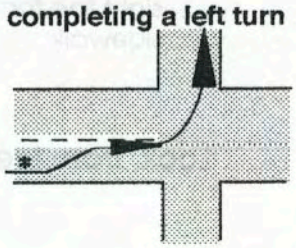
changing lanes



going around hazards



completing a left turn



** Indicates scan behind to check safe gap first*

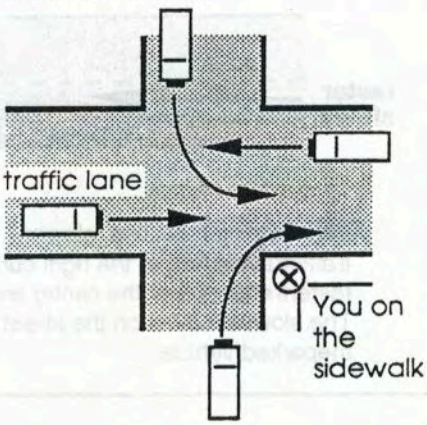
To yield properly you need to know **where to look, how to look** and **what to do with the information.**

Where to Look?

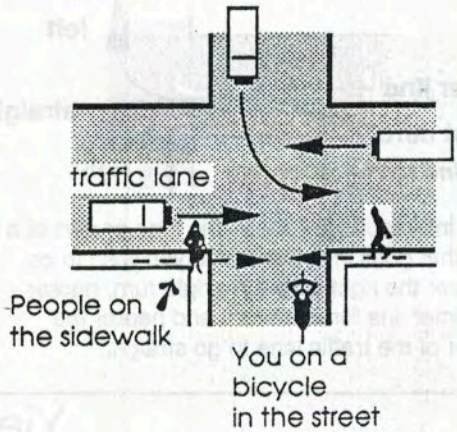
Know where to look. While waiting at a corner, people cross in front of you from both sides. Some come straight down the street from your left and right. Others come behind you on your left and turn right in front of you while others are facing you and turn left in front of you.

Look in the direction from which other people can come.

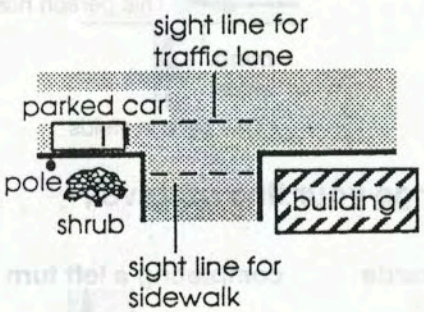
If on a sidewalk —



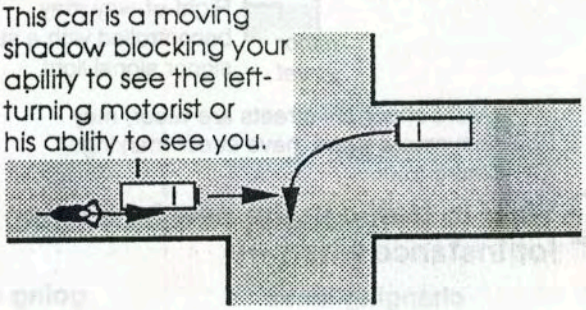
If in the traffic lane —



Before crossing or entering someone else's path, look along that person's path of travel. The place where you can see clearly down or along the new path is called the sight line. Many objects can block your ability to see other traffic even when you are right at a corner or along the curb. Examples are cars parked along the curb, trees, posts, shrubs, buildings, even other moving vehicles.



This car is a moving shadow blocking your ability to see the left-turning motorist or his ability to see you.



Step one

Look, from the sight line, before entering or crossing someone else's path of travel

How to Look?

Look to see. Looking at an object is not the same as seeing it. Something is seen or perceived when the brain recognizes it and is ready to act upon the information. That another person turned and looked at us doesn't mean we're seen.

Step two

Look to see others.

What to do with the information?

Answer some questions about other people you see on the street and yourself.

Two questions about **other people**, whether they are driving cars, trucks, motorcycles, or are walking are:

a) How far away are they? **= their distance**
b) How fast are they going? **= their speed**

Two questions about **yourself** are:

a) How far do I have to go to clear their path? **= your distance**
b) How fast can I go? **= your speed**

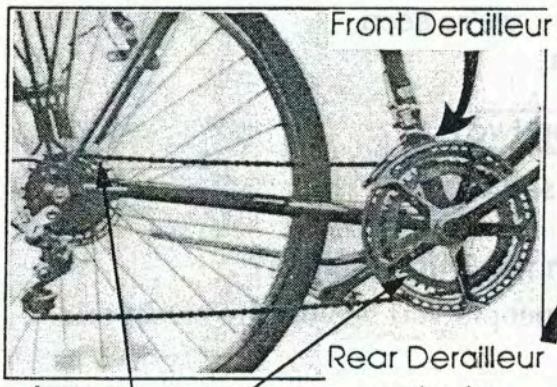
You use the answers to these questions to decide if you can move across or into others' paths without conflict. People moving 30 miles per hour will travel 300 feet in fewer seconds than people moving 5 miles an hour. The difference between the number of seconds others are from you and the number of seconds you use to cross their path is the gap. A gap is the hole in traffic you move into and across without getting in the way of other people.

Step Three

Judge the gap

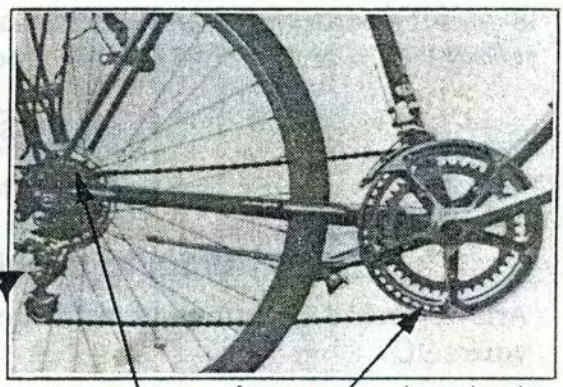
One way to learn to judge gaps is to stand on a street corner and time the seconds needed for different motorists, cyclists and pedestrians to reach you. Start timing each person from the same spot so your distance is always the same. Then time how many seconds you need to ride cross the street from corner to corner. If the other person uses 10 seconds to reach you from the spot down the street and you need 5 seconds to cross from curb to curb, you have enough time to move. Always add extra seconds to the seconds you need when figuring your gap. The extra time is a safety factor in case you misjudge and so other drivers don't become frightened and slam on their brakes. We surround ourselves with additional space when driving. It's our comfort zone and if others get too close we take evasive action.

Lower Gearing



Larger free-wheel + Smaller chain-wheel = easier to start pedaling

Higher Gearing



Smaller free-wheel + Larger chain-wheel = harder to start pedaling

Many bicycles have more than one gear. The advantage is, you control how much effort is needed to pedal the bicycle and can keep effort constant under varying conditions. A common way of providing multiple gears is with a device that shoves — derails — the chain from one sprocket to another. These devices are called changers or derailleurs. Most bicycles with this type of gearing have two derailleurs. The one on the seat tube derails the chain from one chainwheel sprocket to the other. The second derailleur, mounted on the rear dropout, moves the chain back and forth along the free-wheel sprockets.

Common locations for levers controlling derailleurs are on the down tube, stem, or handlebars.

The chain can be shifted from one sprocket to another only when you are pedaling forward.

Develop the habit of always stopping in a lower, easier pedaling gear. Starting up in lower gears is easier on your knees. You can balance better and start up from a stop faster.

Refer to the Bicycle Mechanics Work Sheet if some of the bike parts aren't familiar.

Thrown Chain

If you shift and the chain moves off the sprockets, STOP PEDALING. Stop out of the way of other traffic. Get off the bike and stand on the side of the bike facing the derailleurs. Pull the rear derailleur toward the bottom bracket. This releases tension on the chain. If it isn't jammed, you can lift the chain back into position on the sprockets.

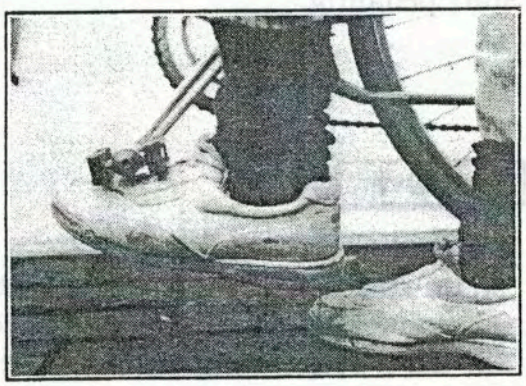
A chain thrown off while shifting means the derailleur needs adjusting.

There are spinning parts on your bike. If objects or articles of clothing get caught in a spinning wheel, particularly the front wheel, the bike stops suddenly and the cyclist goes mouth first over the handlebars.

Tuck in or secure pant legs and shoe laces so they won't catch on the chainwheel sprockets. Why do you want to do that?

Handlebars are NOT a hall tree.

Power Pedal



You have one foot with which you always start pedaling. Some of you will begin with your left foot, others with the right. The foot you start with is the *power-pedal* foot.

1. Put the toes of the *power-pedal* foot under the *power pedal.*
2. If using your left foot, pull up the pedal with your toes to where the little hand on a clock would be if it were 10 o'clock. Pull up the pedal to 2 o'clock if using your right foot.
3. Place your foot so the widest part of the foot,

Foot Position

at the base of the big toe, is over the spindle of the pedal.

4. Center your foot over the pedal and hold it parallel to the bicycle frame.

Rodeo

1. Grasp the handle bars.
2. Stand on the NOT-*power-pedal* foot on the same side of the bike as the *power pedal.*

3. Position the *power-pedal* foot correctly over the *power pedal.*
4. Shift your weight to and step down on the *power pedal.*
5. As the bicycle moves forward, throw your leg up over the back wheel and saddle.
6. Place the NOT-*power-pedal* foot on the pedal. Use the correct foot position.
7. Start pedaling.

Step Over

1. Grasp the handlebars.
2. Stand on the ground on the *power-pedal* foot on the *power-pedal* side of the bicycle.
3. Lift the NOT-*power-pedal* foot over the frame between the saddle and the handlebars.
4. Shift your weight to the NOT-*power-pedal* foot.
5. Pull up the *power pedal* with your toes.
6. Shift your weight to and step down on the *power pedal.* Your bicycle will start moving.
7. Place the NOT-*power-pedal* foot on the pedal. Use the correct foot position.
8. Start pedaling.

Slow Stop

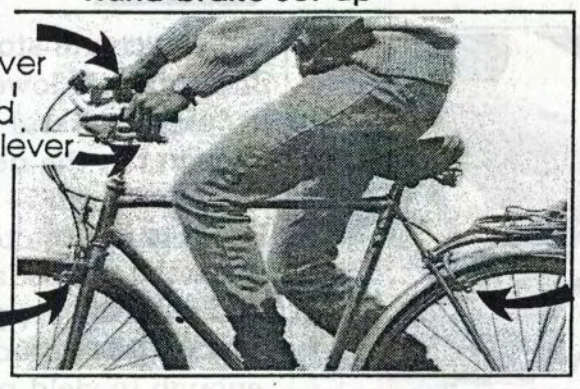
1. Anticipate stopping.
2. Shift to a lower, easier pedaling gear.
3. Pedal several more revolutions so the chain is in the new gear.
4. Slow down — stop pedaling.
5. Begin to brake.
6. Place the pedals nearly parallel to the ground with the *power pedal* slightly higher. With practice, you can ride slowly enough to yield properly without putting your foot down. Be ready to shift to a higher gear as you pick up speed.

Complete Stop

Follow steps 1 through 6 for a slow stop.

7. Continue braking.
8. Shift your weight and step down on the *power pedal* to the 6 o'clock position.
9. Stand on the *power pedal.*
10. Swing your body forward over the top tube. Your bicycle should be moving slowly.
11. Lower yourself to the ground.
12. Shift your weight to the foot on the ground.
13. Pull up the *power pedal* with your toes to the correct position if you want to start up again.

Hand-brake Set-up



Rear brake only

— When used properly, does not stop the bike as rapidly as the front brake only.

— Too much pressure on the brake lever causes the back of the bike to skid sideways.

Front brake only

— When used properly, stops the bike faster than the rear brake only but not as rapidly as both brakes used together.

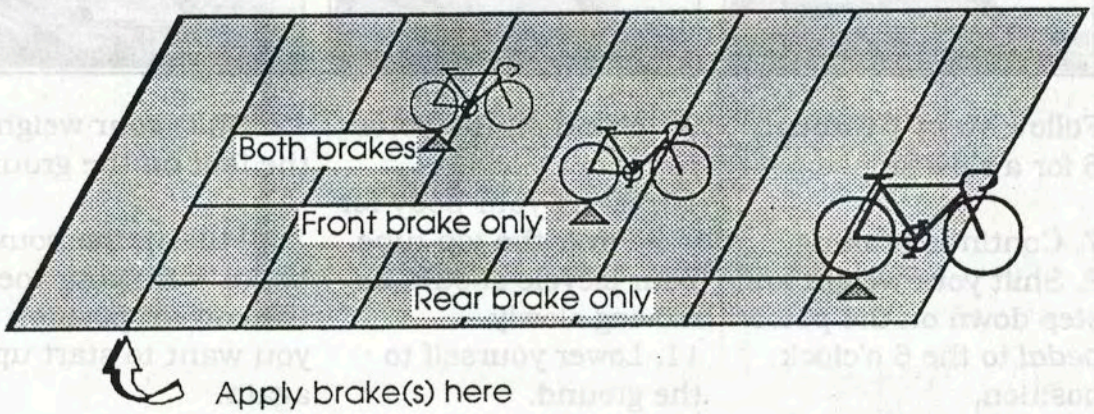
— Too much pressure on the brake lever causes the back wheel to go up in the air and the cyclist to fly over the handlebars.

Both brakes

— When used properly, stop the bike in the shortest distance.

— A bit more pressure on the front brake lever than on the rear lever ensures a smooth, controlled stop.

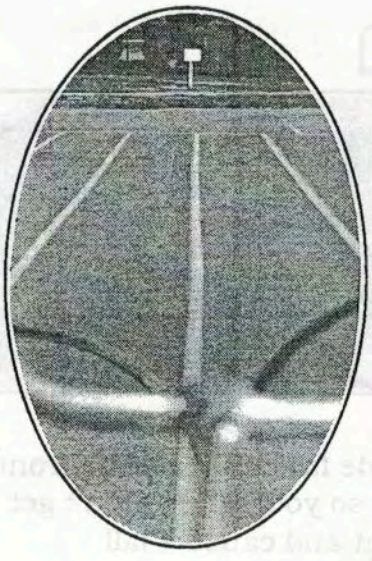
Stopping Distance



When Looking Straight Ahead

Practice riding a straight line.

1. Look ahead and focus on an object three to five feet above the spot on the road where you want to ride.
2. Move only your legs, not body, when pedaling so the bicycle doesn't sway right and left with each pedal stroke.



When Looking Behind

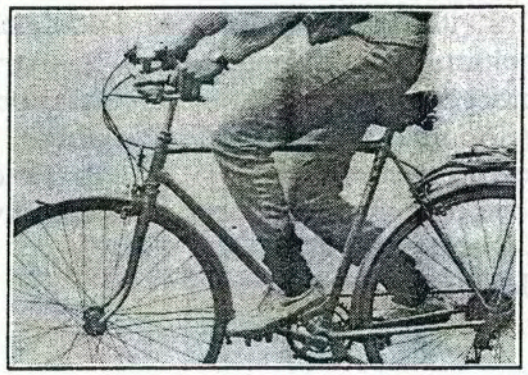
1. Look ahead for a clear path.
2. Turn your head and look left over your left shoulder while still riding a straight line ahead.
3. Practice until you can ride straight ahead while looking left behind.

Look Left Behind

Repeat this exercise but look behind over your right shoulder. Why would you need to look behind over your right shoulder?

...and Right Behind

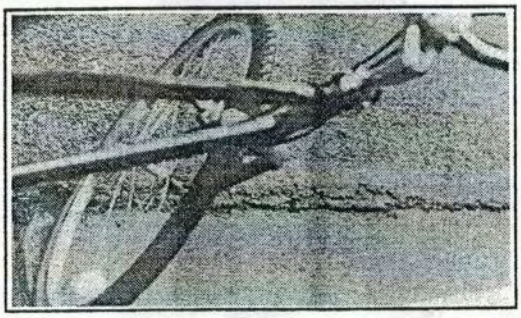
Speed Bump



Suddenly raised areas or cracks on the road surface parallel or at a slight angle to the direction you're riding can cause you to lose control and fall.

1. See the speed bump (or railroad tracks or driveway lip.) This sounds obvious, but you can't avoid what you don't see.
2. Put your hands on the handlebars.
3. Slow down.
4. Approach with the front wheel going straight toward the bump, driveway lip or tracks.
5. Put pedals nearly parallel with the *power pedal* slightly higher than the other pedal.
6. Shift your weight from your bottom to your legs and arms. They act like springs to absorb the jolt.
7. Let the bicycle move under you as you roll over the bump.

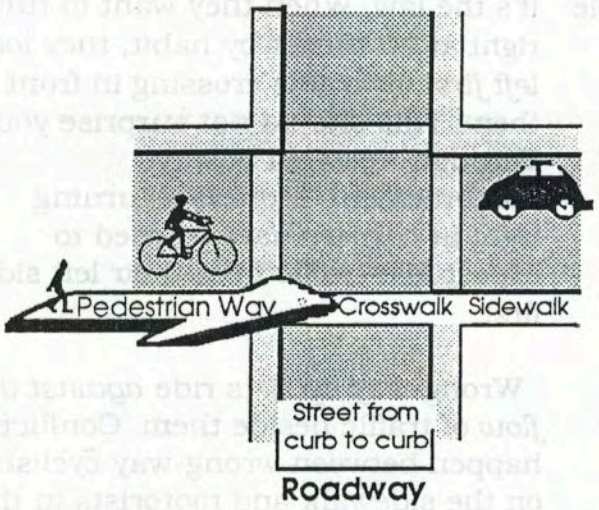
Parallel Crack



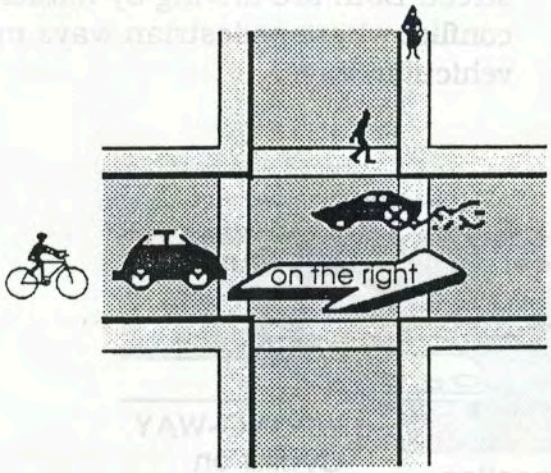
1. See the crack beside you.
2. Turn the front wheel sharply toward the crack.
3. Ride over the crack at a sharp angle.
4. Ride far enough away from the crack so your wheel won't get caught and cause a fall.

Direction of Travel

Basic Traffic Principle: Traffic travels on the right half of the roadway.

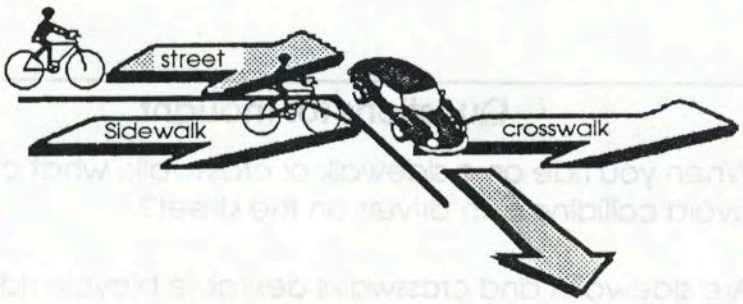


Traffic principles, upon which vehicular traffic laws are based, provide a logical set of guidelines for vehicle drivers. The roadway, where people drive vehicles, includes the street from one curb to the other. When people ride bicycles on roadways, they have all the rights and duties of other vehicle drivers.



There are five basic traffic principles — three define roadway positions and two define yielding duties. One of the three roadway position principles defines upon which half of the roadway we drive. In the United States, by custom of the country, we drive on the right half, while in other countries, the custom may be to drive on the left half. Sidewalks and crosswalks—the pedestrian way — aren't part of the roadway.

Conflicts happen where one path of travel crosses the other!



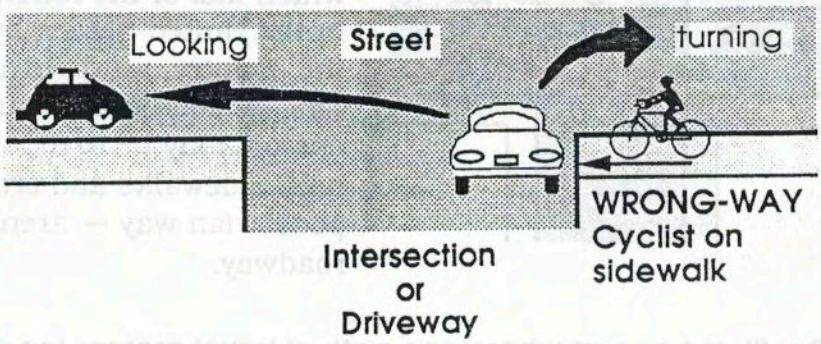
Right Half of the Roadway

Habits control much of our behavior. Once one learns a habit, most people don't question it. Changing a habit needs conscious effort. Walking, driving, or riding a bicycle are behaviors driven by habits learned during different stages of growth.

Habits learned for one activity are different from those learned for another.

Cyclists riding on sidewalks rarely think about riding *in the same direction* as traffic beside them. By habit, they ride on the side of the street closest to where they're going. If they then become motorists, they drive on the right half of the roadway. It's the law. When they want to turn right at an corner by habit, they look *left first* for traffic crossing in front of them. This should not surprise you. Through repeated positive reinforcement, motorists turning right at corners have learned to expect fast traffic from their left side first.

Wrong-way cyclists ride *against the flow* of traffic beside them. Conflicts happen between wrong-way cyclists on the sidewalk and motorists in the street. Both are driving by habits that conflict where pedestrian ways meet vehicular ways.

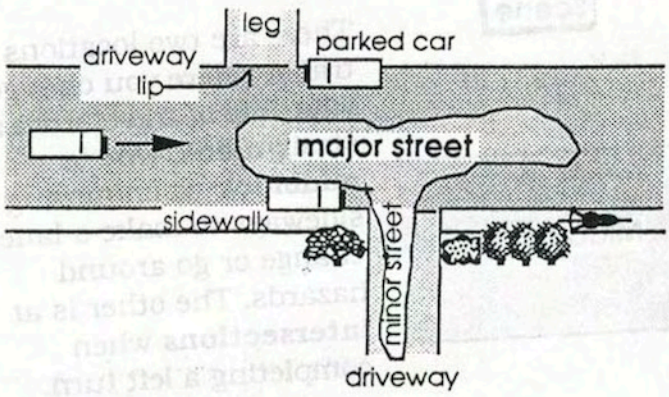


Questions for thought

- When you ride on a sidewalk or crosswalk, what can you do to avoid colliding with drivers on the street?
- Are sidewalks and crosswalks desirable bicycle riding routes? Why or why not?

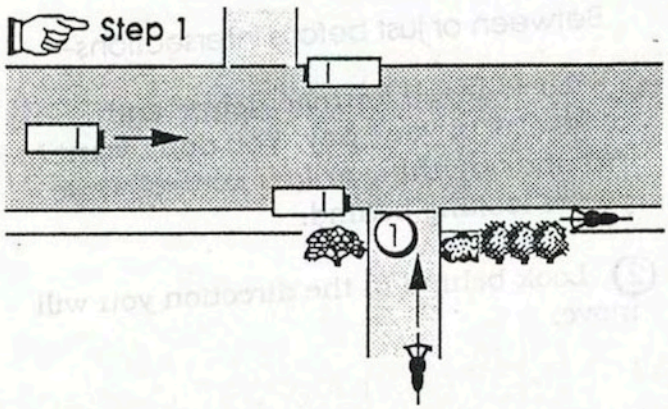
Exiting a Private Driveway

Scene

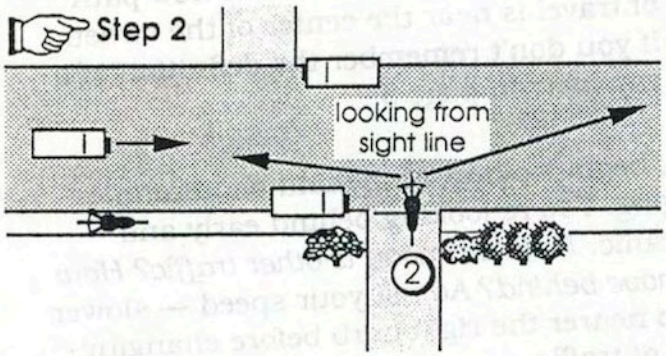


A driveway forms a T-intersection with the street. The leg of a T-intersection is the minor street. People on that street yield to people on the major street. People driving and riding on driveways and streets yield to people on sidewalks first.

Action



(1) As you approach the sidewalk, prepare to yield to people there. Shrubs or buildings may block a clear view down the walk. Follow the steps for "yielding." When you have a large enough gap, cross the sidewalk and...

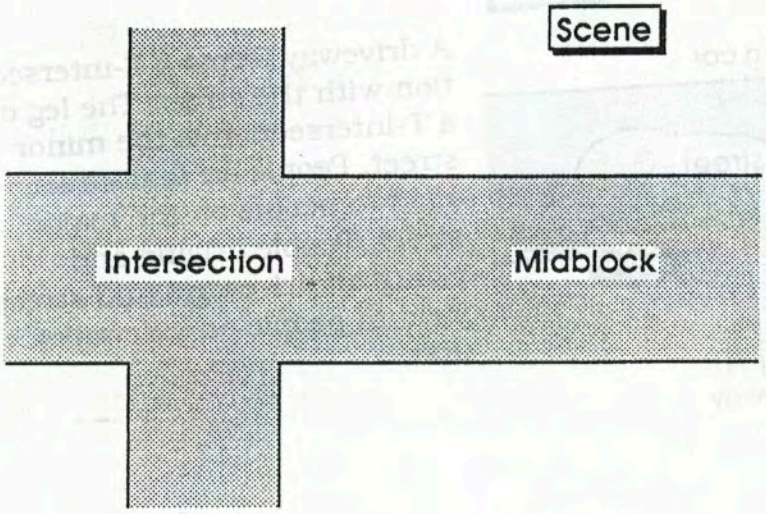


(2) move to the sight line for traffic on the major street. If vehicles are parked along the street, move to the corner of the vehicle nearer the traffic lane. Yield to traffic on the major street before entering.

Changing line of Travel

Basic traffic principle: Yield to people in the new lane when you change your line of travel.

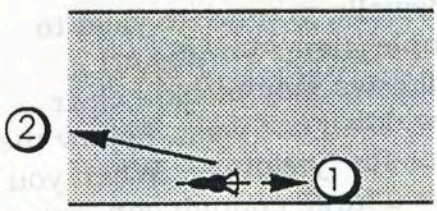
Scene



There are two locations in traffic where you change your line of travel from a straight line. One is **midblock** when moving sideways to make a lane change or go around hazards. The other is at **intersections** when completing a left turn.

Action

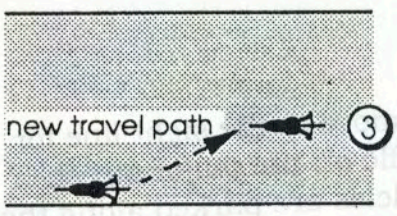
Midblock Lane Changing



Between or just before intersections—

1. Look ahead for road debris and obstacles in your way. You don't want to run into anything or lose control while you're looking behind.

2. Look behind in the direction you will move.



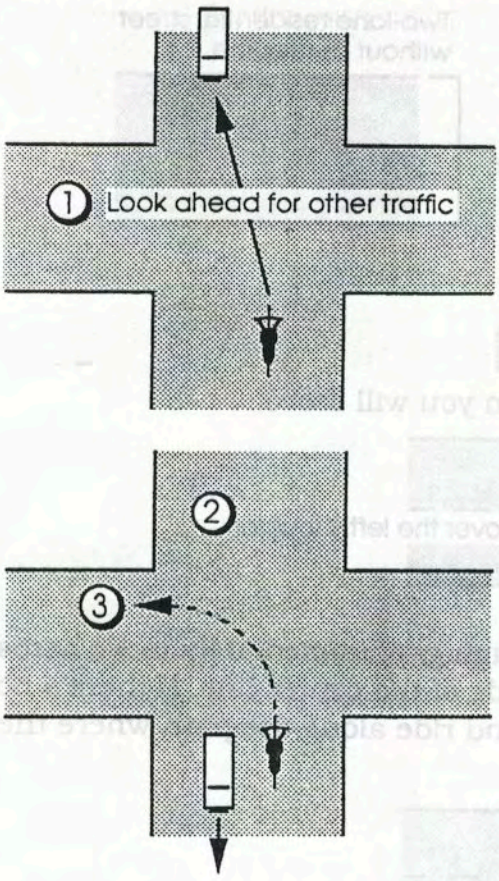
3. When you have a large enough gap, move immediately across the other person's path of travel. Your new path of travel is near the center of the street. If you don't remember the definition of a gap look on page 5.

On streets with a lot of faster traffic, begin looking left behind about one block before changing lanes or merging. You're looking behind early and collecting information about other traffic. *How far away is other traffic? How fast is it going? Which vehicle will I move behind?* Adjust your speed — slower or faster — so you won't have to stop nearer the right curb before changing lanes or merging into the faster lane of traffic.

Changing line of Travel

Action

Intersection: Completing Left turn



Before completing a left turn—

1. Look ahead for people facing you in the new line of traffic you're crossing. Once you're in the middle of the street, there's no need to look behind again. Traffic coming from behind will either wait for you to complete your turn or pass you on your right.

2. When there's a large enough gap, turn left across the facing lane of traffic.

3. Complete your left turn where the right side of a motor vehicle travels. Why? Car wheels efficiently clean the road surface of debris. You're likelier to lose control of your bike on loose debris when turning than when riding a straight line.

What are some reasons you might not *complete* the left turn closer to the right curb?

General Information

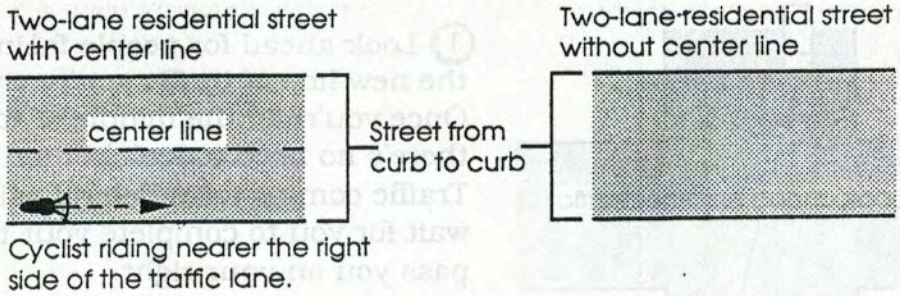
Which is more important: looking behind and not moving until you have a gap, or looking behind, signaling and riding into or across the new lane? People who signal without yielding properly are depending on other drivers to perceive *(looking to see)* them and to protect them. You're responsible for your own actions. A cyclist signals to inform others, not demand action of them. What's the difference? Which is more important? Signal and more or yield properly before moving? If you didn't say "Yielding properly," read again the definition of "Yielding."

Move into the new line of travel *after looking*, not at the same time.

Cyclist U-Turn

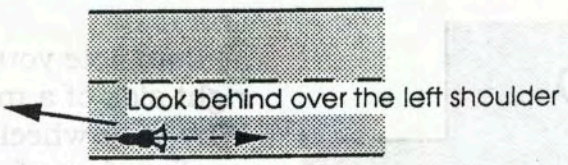
Scene

Quiet, two-lane residential street with or without a center line separating the two lanes of traffic.

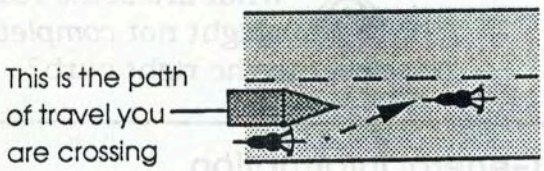


Action

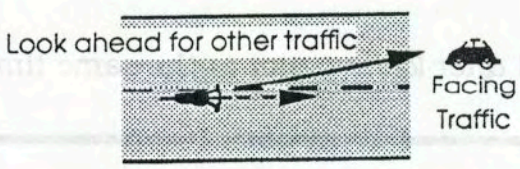
Step 1 Look behind in the direction you will move.



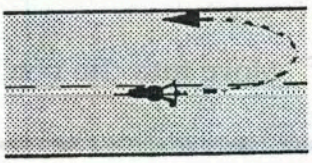
Step 2 When you have a large enough gap, immediately move across the traffic lane and ride along the right side of the center line. If there's no center line, move across the traffic lane and ride along the path where the left side of a motor vehicle would travel.



Step 3 While riding along the center line, look down the other traffic lane for a gap in traffic facing you. Coast slowly with *power pedal* in slow-stop position while waiting for your gap.

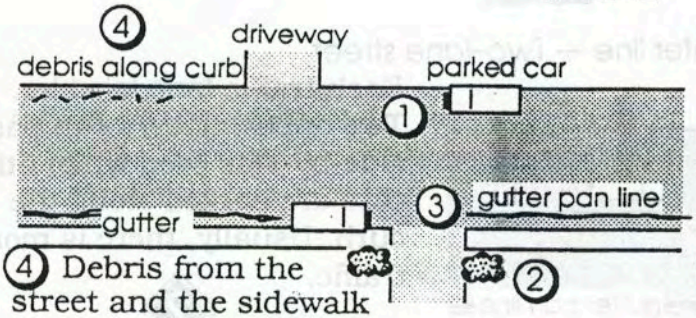


Step 4 When you have a large enough gap, turn left across the center line and facing traffic lane so you're riding opposite the direction you had been riding. Return to nearer the right curb. The U-turn is complete.



Midblock — Quiet Residential Streets

Scene



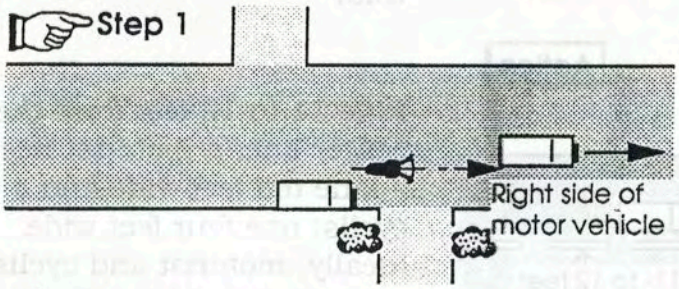
1. Vehicles may be parked along the curb between driveways.

2. Shrubs may grow beside the driveway right to the sidewalk.

3. A gutter pan joint may snake along between the gutter and street surface.

4. Debris from the street and the sidewalk may litter the curb side.

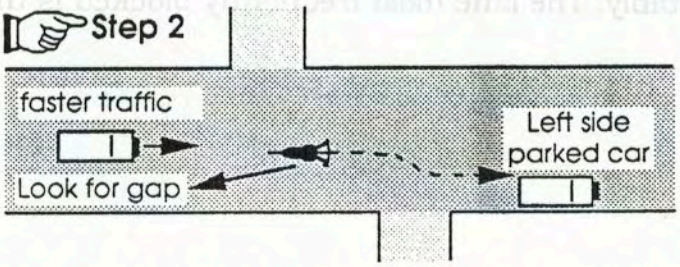
Action



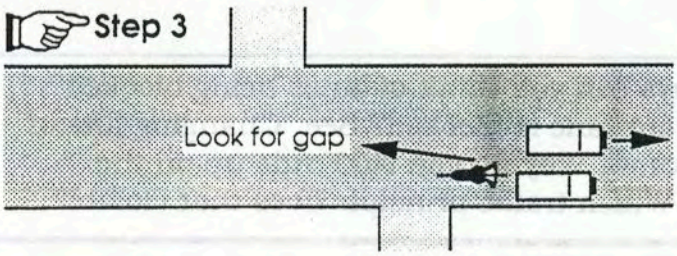
Watch where motor vehicles drive on the street. Ride where the right side of the car travels.

Can you think of three reasons you ride this far out from the curb? For clues, look at the "scene" picture.

What do you do if a faster-moving vehicle comes behind you? Recall the Basic Traffic Principle which states — Midblock, slower traffic travels on the right nearer the curb and faster traffic travels nearer the center of the traffic lane.



Look **RIGHT** behind you (the new line of traffic which you are entering is on the right.) If you have a large enough gap, move right. If cars are parked along the curb, ride in line with the left side of the parked vehicles. You may need to stop behind a left rear bumper while waiting for a big enough gap between faster traffic before pulling back into the traffic lane.

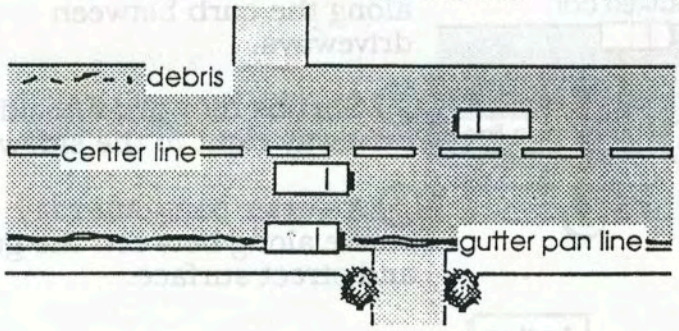


As the rear bumper of the faster vehicle passes, look **LEFT** behind for a gap. If it's large enough, move left. Ride on the street along the path where the right side of a vehicle travels.

Midblock — Streets with Lane Lines

Scene

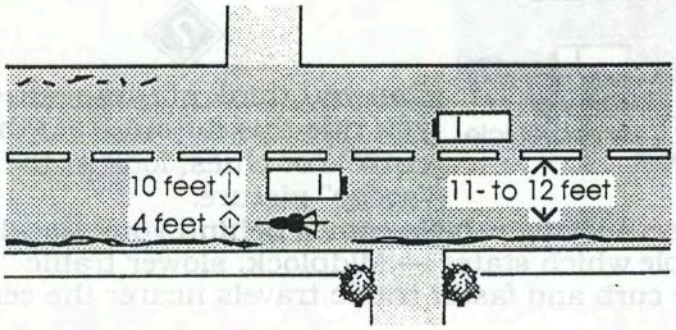
Center line — Two-lane street



Each traffic lane is wider. Two opposing cars can pass side-by-side even when other cars are parked along the curb. Usually, there is more traffic.

What are some of the streets where you ride that are like this?

Action



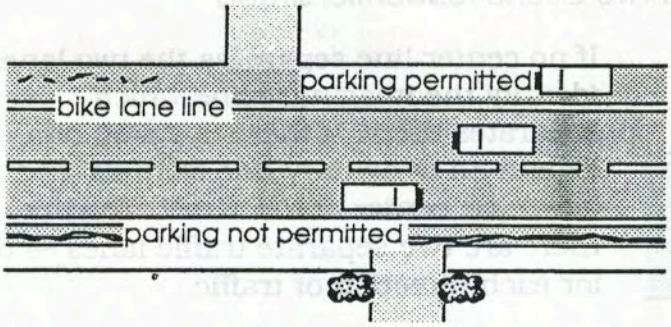
Ride 11 to 12 feet from the center line. A motorist needs a lane ten feet wide and a cyclist one four feet wide. Ideally, motorist and cyclist ride side-by-side each in a lane free of obstacles. Anything blocking either lane can lead to the driver in that lane driving unpredictably. The lane most frequently blocked is the cyclist's.

How many different ways can you think of lanes being blocked? What do you do when your lane is blocked? See "Changing line of Travel" page 16 if you don't know. Why do you **NOT** ride up on the sidewalk to avoid obstacles? Which traffic principle does that violate?

Midblock — Streets with Lane Lines

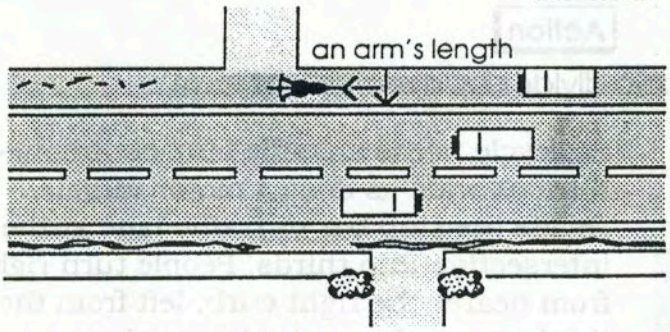
Scene

Bike Lane Lines



Sometimes lines are placed on streets to mark lanes for cyclists. Midblock, lanes are nearer the right curb. They may be dual-purpose, that is, shared sometimes or always with parked vehicles. All the hazards cyclists encounter when riding nearer the curb on quiet residential streets are also in bicycle lanes.

Action



If the lane is free of obstacles and hazards which could result in lose of control, ride an arm's length from the bike lane line. Ride between the line and the right curb. To avoid hazards, change lanes into the traffic lane when there's a gap.

Below is a partial list of obstacles and hazards in bicycle lanes. Can you think of others?

Obstacles

- Vehicles parked in lanes when it's prohibited.
- Wide vehicles such as trucks which take more room than automobiles.
- Construction equipment.
- Piles of debris left by street sweepers.
- People walking, jogging, roller skating, skate boarding and riding bicycles wrong-way.
- Car doors opening or hanging open.

Hazards

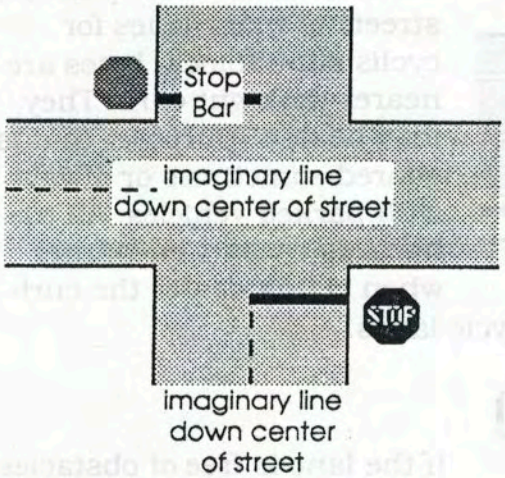
- Debris such as—
  - small branches and sticks that can catch in a front wheel.
  - stones, sand, gravel and small sticks which make the riding surface slippery.
  - wet leaves.
- Water from lawns or rain which hides holes or cracks.
- Cracked, broken, heaved road surface.
- Gutter pan lines.
- Wet metal plates.

Intersection

Basic Traffic Principle: Traffic divides by direction of travel at intersections.

Scene

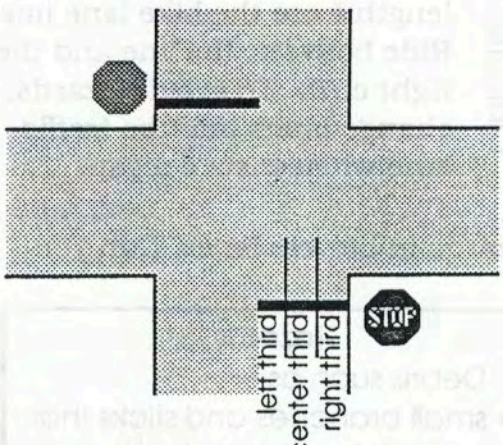
Intersection of two 2-lane residential streets



If no center line separates the two lanes, identify the imaginary line which separates them. If there is a stop bar, extend an imaginary line from its' end down the center of the street. You see there are two separate traffic lanes — one for each direction of traffic.

Action

At intersections traffic divides by direction of travel.



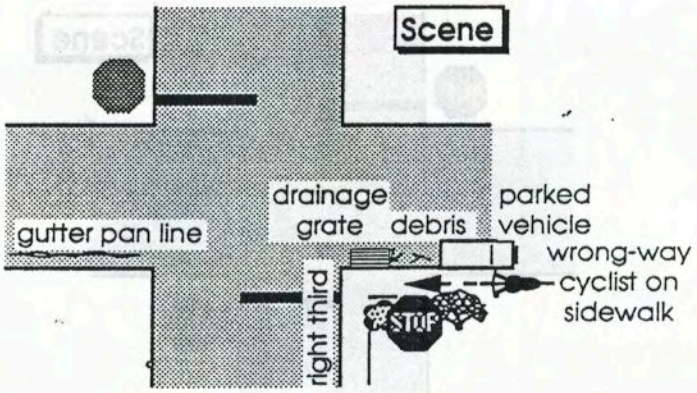
A bicycle needs a traffic lane about one-third as wide as does a motor vehicle. Divide the stop bar or traffic lane at the intersection into thirds. People turn right from nearer the right curb, left from the third nearer the center line and go straight from the center third. On narrow streets, motorists drive in the same place despite the direction they're going. Cyclists won't be.

General Information

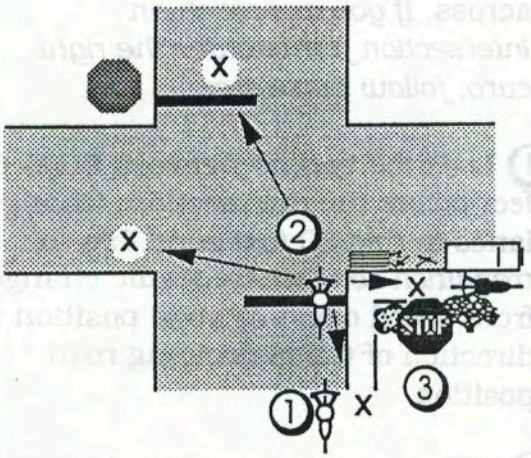
Traffic principles define riding behavior. The two categories are roadway positions and yielding duties. Another broad group we'll call "environmental factors" does also. Examples are roadway *design* such as width of traffic lanes, curves; roadway *condition* such as debris, construction, grates, riding *surface quality* (pot holes, mini-speed bumps, pools of water;) and *light conditions*.

? Can you think of others?

Intersection – Right Turn
Turn right from nearer the right curb.



Action

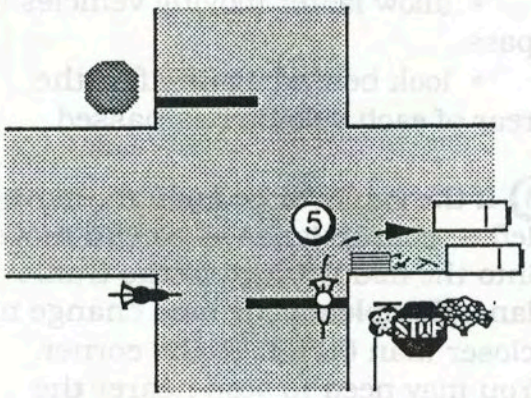


(1) Approach the intersection in the third of the traffic lane nearer the right curb.

(2) Ride to the sight line and look to see in the directions where other traffic can come. Xs mark the directions.

(3) Obey traffic control signs, if any.

(4) Find your gap. Pedestrians have right-of-way when crossing a street from one corner to another even if the crosswalk isn't marked.

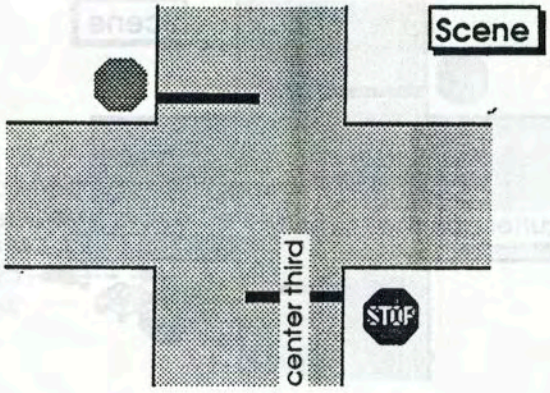


(5) *Complete* the turn in the traffic lane where the right side of a motor vehicle drives.

Can you see three reasons why? Look at the "scene" for answers.

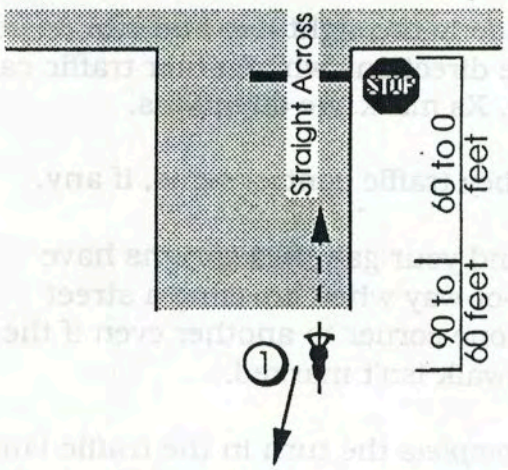
Intersection – Straight Across

Go straight across an intersection from the center third of the traffic lane.



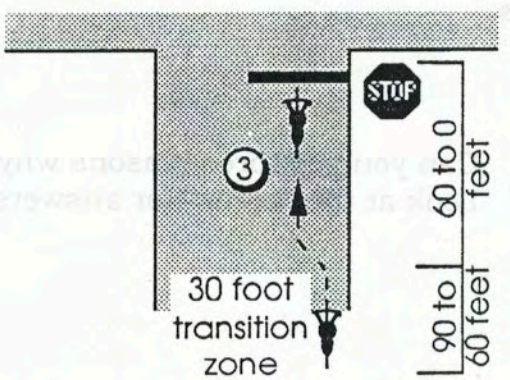
Action

If, on quiet residential streets, you ride where the right side of a car travels, you're in the middle third of the traffic lane. This is the correct lane position for going straight across. *If you approach an intersection from nearer the right curb, follow these steps.*



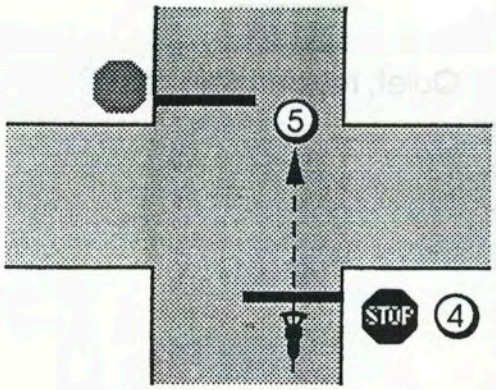
1. Look left behind between 90 to 60 feet before the intersection. Change lanes in this 30 foot zone. It's the *transition zone* where traffic changes from speed deciding road position to direction of travel deciding road position.

2. If the gap isn't big enough—
   - slow down.
   - allow faster moving vehicles to pass.
   - look behind again after the rear of each vehicle has passed.



3. If the gap is large enough, move left — change lanes — so you move into the middle third of the traffic lane. Complete your lane change no closer than 60 feet to the corner. You may need to stop nearer the curb and wait for faster traffic to pass before completing your move.

Intersection – Straight Across



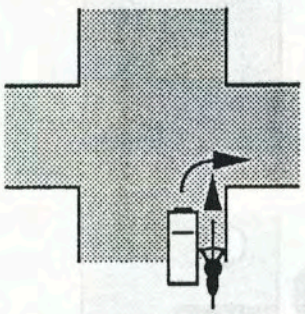
④ Obey traffic control signs. The word "Stop" on a stop sign means more than stop. The unwritten message is "...and yield." People on streets without stop signs have the right to keep going.

⑤ Ride straight across the intersection. If there's no faster traffic behind, follow guidelines for riding on quiet residential streets.

General Information

Most conflicts between motorists and cyclists at intersections are between motorists turning and cyclists going straight across the intersection. Of cyclists riding on the right side of the roadway, most are riding close to the curb or on the sidewalk. The motorist is either turning right or left and has no sign controlling right-of-way. If there is a sign, it's a signal light. The light phase is green for both people.

Right-turning motorist and same direction, straight across cyclist



There are two scenarios

① A faster-moving motorist turns right from the wrong lane position — too far away from the right curb — and hits a cyclist going straight. The cyclist is riding straight across from nearer the right curb — also from the wrong lane position.

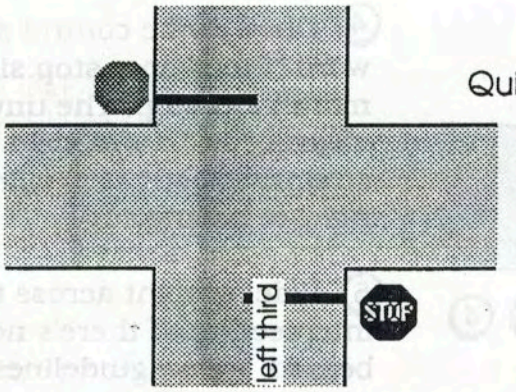
② A faster-moving cyclist goes straight from too close to the right curb and passes a slower-moving motorist on the right side as the motorist turns right.

Using what you know, what can you do to avoid these kinds of conflicts, even if other people make mistakes?

Intersection – Left Turn
Turn left from the left third of the traffic lane.

Scene

Quiet, residential street

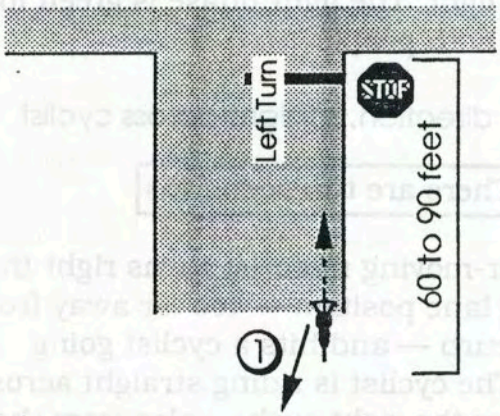


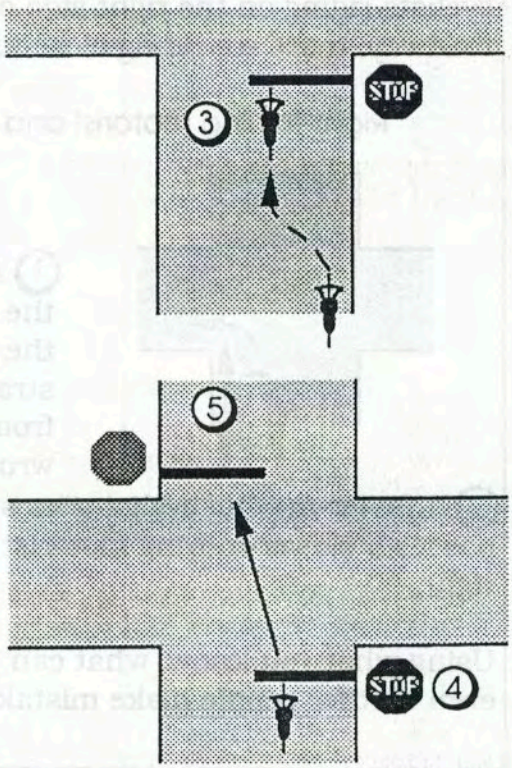
Action

① Look left behind when sixty to ninety feet before the intersection.

② If the gap isn't big enough —
- slow down.
- allow faster moving vehicles to pass.
- look behind again after the rear of each vehicle has passed.

③ If the gap is large enough, move left into the left third of the traffic lane. Move to an arm's length from the real or imaginary center line. Complete your lane change in the transition zone (see page 24 for definition of transition zone.)





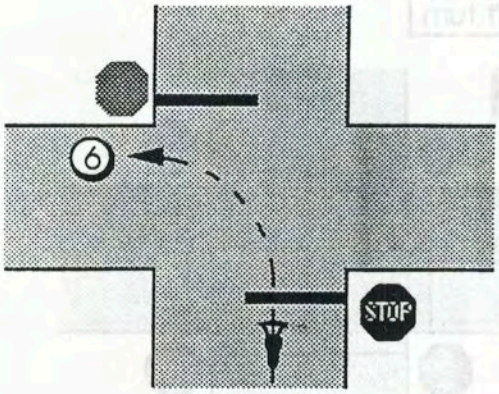
④ Obey the traffic control sign.

There is a second yielding duty.

⑤ Wait for a gap in traffic facing you if there's no traffic sign.

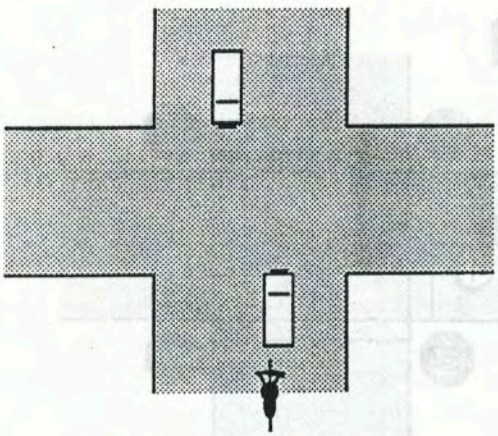
Which Traffic Principle is that?

Intersection – Left Turn



⑥ Complete the left turn to nearer the right curb if there aren't curbside hazards. (Questions on hazards? See pages 19 and 21.)

– when following a motorist



The correct roadway position is behind the left rear bumper of the motor vehicle ahead of you. In this position —

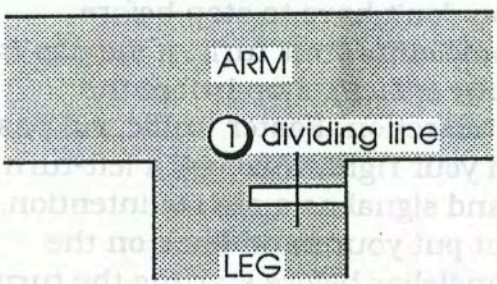
① The motorist ahead of you can see you in his mirror.

② You and the motorist across the intersection can see each other.

③ You are in the proper position to complete the left turn when there is a gap.

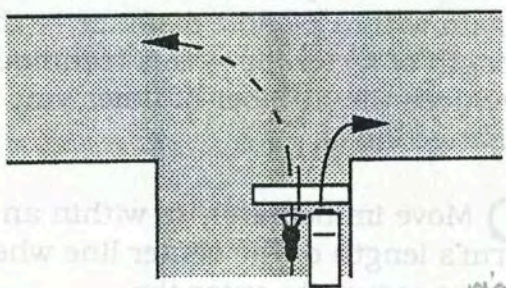
– at a T- intersection

Scene



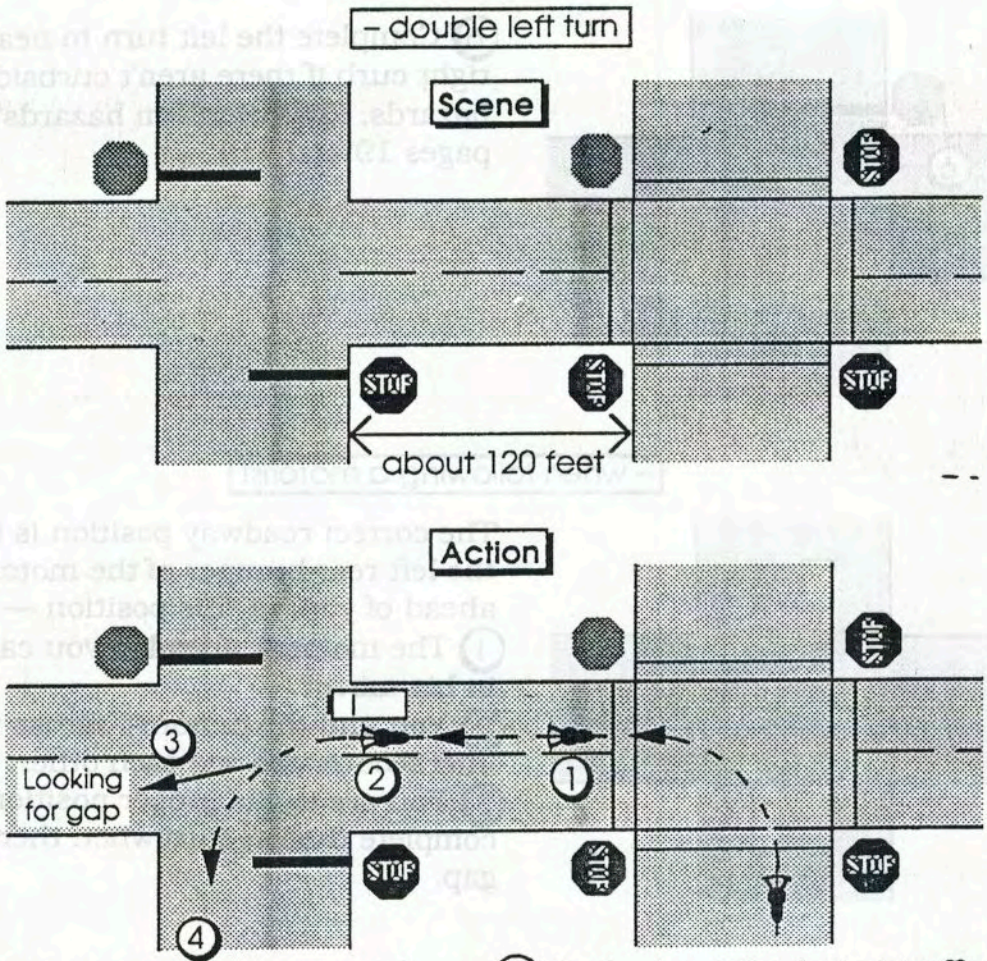
① Divide the traffic lane in half. People on the leg of the **T** yield to those on the arm.

Action



② Your lane position is just to the left of the dividing line. Motorists have room to turn right on your right but those turning left should stay behind you. Now is the time to signal a left turn.

Intersection – Left Turn



Signal lights or stop signs on all legs of an intersection create gaps in traffic. When you turn left and left again within a short distance — the length of a city lot — this technique reduces the number of times you change lanes.

(1) Move immediately to within an arm's length of the center line when it's your turn to enter the intersection.

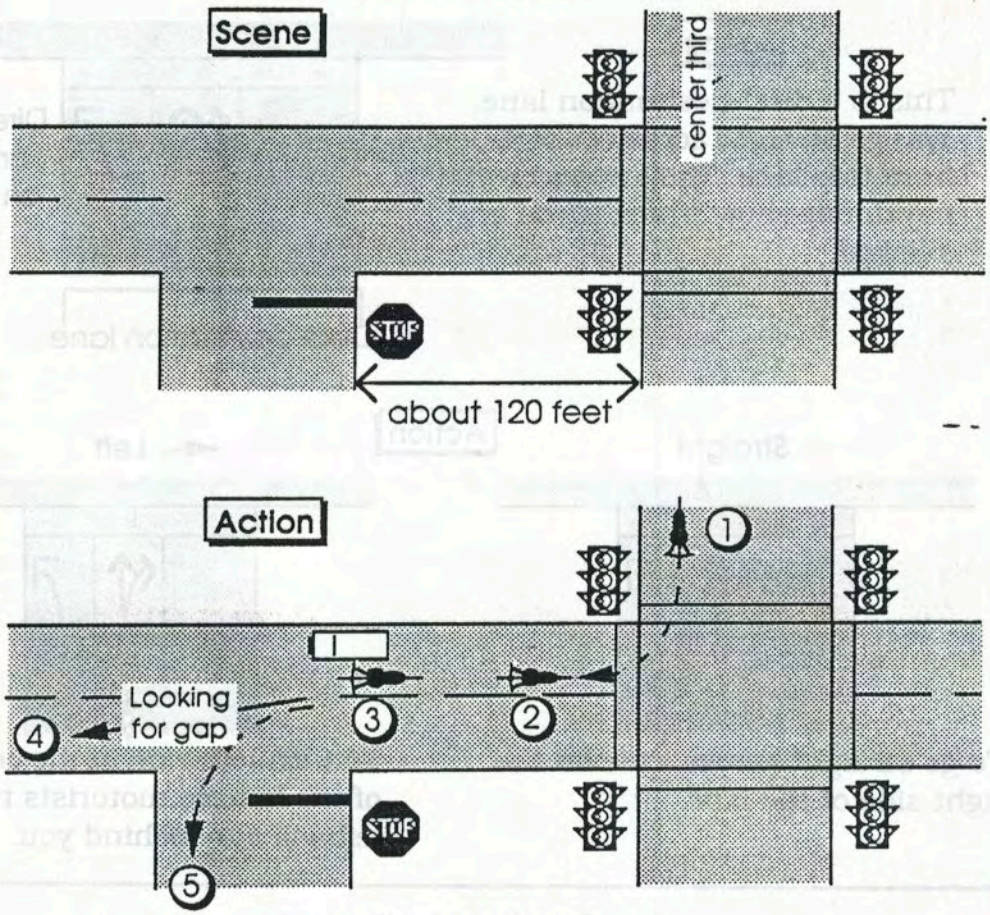
(2) Ride along the right side of the center line.

(3) Look ahead for facing traffic. Speed up or slow down depending on what you see. Adjust your speed so you don't have to stop before completing your turn. *If the gap isn't large enough*, stop before the intersection. Faster traffic will pass on your right. Now use a left-turn hand signal as a sign of intention, but put your hand back on the handlebar before starting the turn. When starting up, don't swerve right before turning left: a motorist may be beside you.

(4) Complete your turn when there is a gap.

Intersection – Left Turn

– right, immediate left turn



Sometimes you need to turn left immediately after turning right.

(1) Lane position at the intersection is in the center third of the traffic lane because you're riding across the traffic lane in front of you to the center line. There is enough room on your right for a motorist turning right but those turning left or going straight need to stay behind you.

(2) Move immediately to within an arm's length of the center line when there is a gap. If the intersection has a signal light, the green light creates your gap.

(3) Ride along the right side of the center line.

(4) Look ahead for facing traffic. If the gap isn't large enough, stop just before the intersection. Signal a left turn. This signal says,"I'm turning left but am yielding to you first."

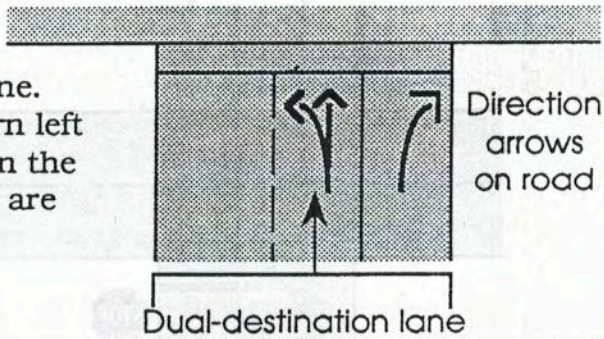
(5) Complete your turn when there is a gap.

Intersection – Cyclist Lane Law

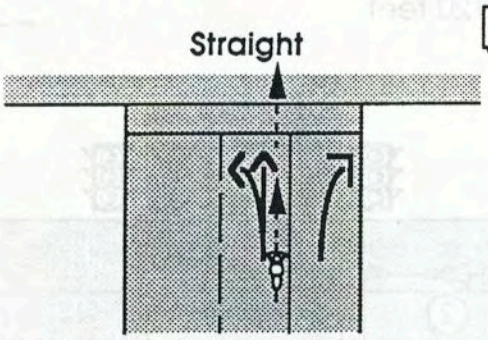
On a dual (2)-destination lane, ride on the side of the lane that leads to where you want to go.

Scene

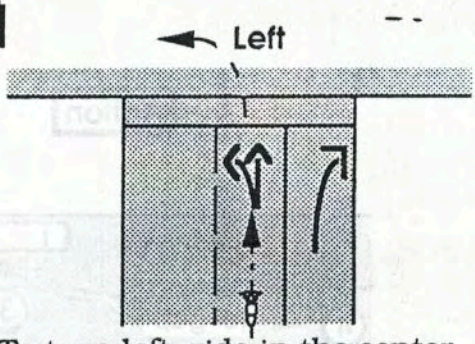
This is a dual-destination lane. You go straight across or turn left from this lane. The arrows on the pavement show which turns are allowed.



Action



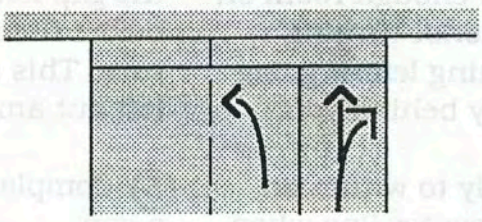
To go straight across, ride on the right side of the lane.



To turn left, ride in the center of the lane so motorists turning left will stay behind you.

Questions for thought

- Which basic traffic principle does the above technique illustrate?
- Which basic traffic principle do you follow when you move from nearer the right curb into the middle of the traffic lane?
- In the drawing below, on which side of the dual-destination lane do you ride if you want to go straight? Turn right?



Introduction to Signal Lights

Basic Traffic Principle: Yield to cross traffic on a more important street or at a stop sign or signal.

Signal Lights Create Gaps

Signal lights like stop signs create gaps in traffic so many people can move easily through busy intersections. When intersections have stop signs, you decide when it's your turn to go. That's not true at intersections with signal lights. You wait during the red light until a green light shows the right to enter the intersection is yours. An exception is for people turning right. Unless a sign says **"No Turn on Red,"** you treat a red signal as a stop sign. People may turn right after stopping and yielding properly.

Green Lights DO NOT mean "GO"

Signs and symbols are psychological barriers. No fence falls across the road to stop people from entering the intersection when their light is red. Even if the signal light is green, don't enter the intersection until you know you have a gap.

Two kinds of Signal Lights

Signal lights change from red to green for two reasons. For one type of signal light, light phases are on a timer. Phases change from red to green over and over. The length of green phase never changes. These are timed signal lights. The other type of light has different lengths of green. These signal lights are called traffic-actuated. Traffic activates the green phase and determines how long the light stays green.

Traffic-Actuated with a Push Button or a Metal Detector

A box near the intersection contains the device which controls these lights. Pedestrians activate them by pushing a button on a pole on the corner. Using the button doesn't make a light turn green faster.

For people using traffic lanes, activation is more complex. Metal loops of wire are buried in the street before the crosswalk. Although loops have several basic shapes, the function is always the same — to detect metal. Modern loops are metal detectors. When metal is detected over a loop, a signal is sent to the control box. The controls can be set to detect even small amounts of metal in bikes. Since traffic lanes are designed to fit automobiles, loops are installed in lanes so motorists drive over them without even knowing it.

Cyclists Need to Know More than Motorists

Motorists don't need to know how to make lights change from red to green. Cyclists do because most traffic systems aren't designed for two-wheeled vehicles. Yet, drivers of two-wheeled vehicles need the ability to call and receive right-of-way from the proper roadway position. *Traffic at intersections divides by direction of travel, not by vehicle type.*

Loops

General Information

Normally, only people going straight across or turning left need to call a green light.

Which traffic principle is violated when a cyclist pushes the pedestrian button to "call" a green light from the right side of the road?

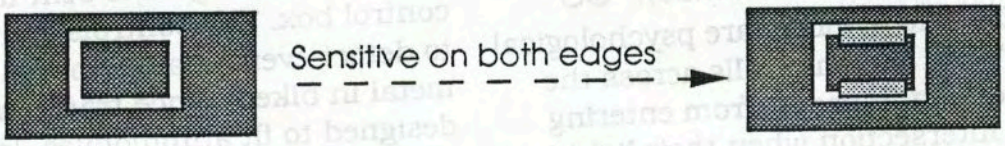
You may feel uncomfortable riding across an intersection in the traffic lane and prefer using the crosswalk.

What can you do to decrease conflict with motorists turning right?

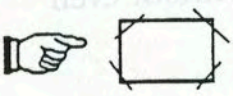
Types of Loops

Loop Patterns — **Where sensitive to metal**

① white, painted rectangle



② black lines about 1/4 inch wide

a 

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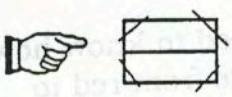
b 

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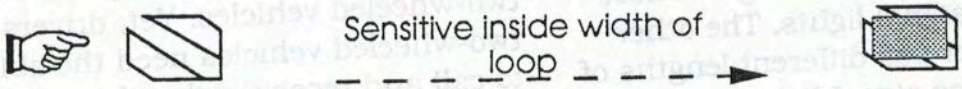
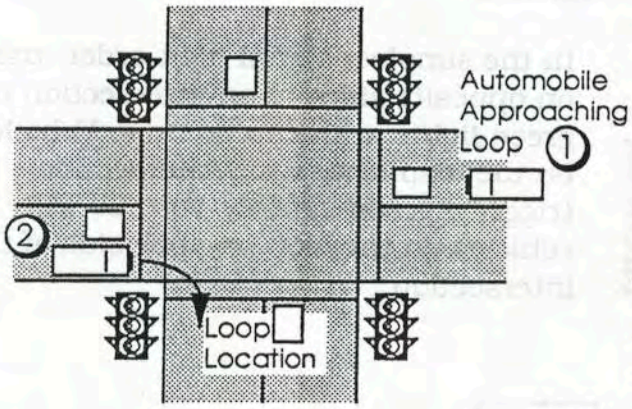
c 

Intersection – Lane Position on Loops

Scene



Loops are placed near the center line separating the two directions of traffic.

① Motorists going straight or turning left will automatically drive over the loop and trigger the light.

② Often, there is enough room between the loop and right curb for motorists to turn right and not trigger the green phase.

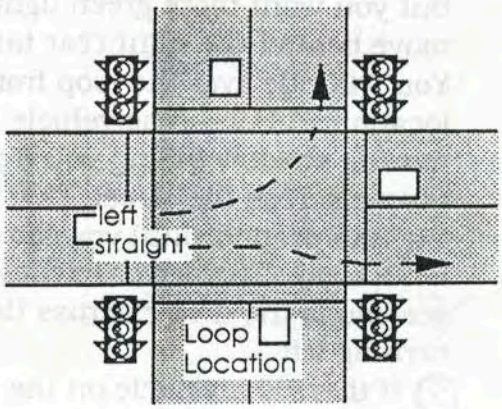
Action

If no other traffic has called right-of-way for the street you wish to cross —

① Move to the side of the loop closest to where you're going:

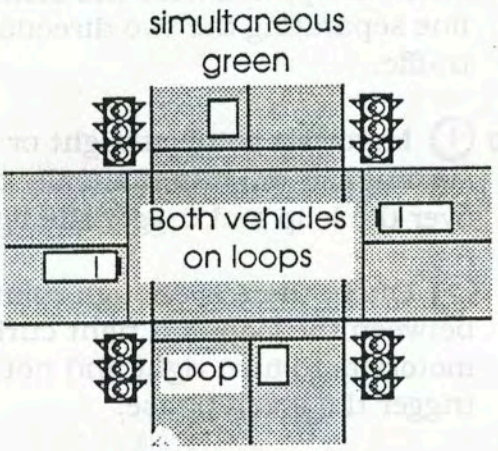
- right side for going straight,
- left side or center for turning left.

② Stay, with both bicycle wheels, on the most metal-sensitive area of the loop until you receive right-of-way. The area depends on loop type. If you're the only person triggering the light, don't leave the loop until you know you have a gap. The reason? Loops are metal detectors. When metal is over the sensitive area, the light will stay green to a maximum length of time. If another person hasn't stopped for his red light, you increase your green phase length by staying on the loop.



You can help slower cyclists cross intersections by letting them go first while you stay on the loop marking. The light will stay green. If a group of cyclists rides a bicycle length apart over the loop, the light will also stay green. As long metal is over the loop, the light stays green for the maximum length of green time for the light.

Intersection – Traffic-actuated Signal Lights

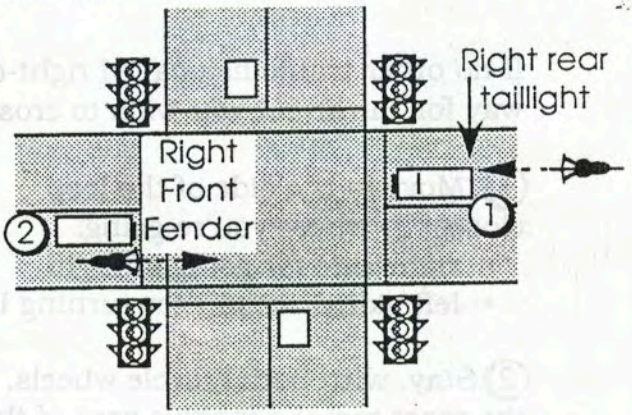


Scene

In the simplest signal light order, traffic on opposite sides of an intersection have green lights at the same time. Vehicles on the loop *across* the intersection trigger a green light for you. So will vehicles on the loop on your side of the intersection.

Action

Straight Across



① If another vehicle is on the loop but you want more green light time, move behind the right rear taillight. You will ride over the loop from this location. B U T — the vehicle is a moving shadow hiding you from people across the street. Don't enter the intersection until you know you have a gap. The driver likeliest not to see you is the driver across the street turning left.

② If there is a vehicle on the loop and you don't want extra green time, do the following. Ride an arm's length from the right side of the car. Wait for the green light beside its right, front fender. Motorists can see you in this spot.

You may decide not to use the loop to trigger the light. When looking for your gap, you looked far enough down the street to know if other traffic would catch up with you while you're waiting for the green light. That traffic will keep the light green as it drives over the loop.

If the traffic lane is wide enough, motorists can turn right between you and the right curb. Drivers may turn right on a red light after stopping and yielding properly first.

IMPORTANT

Never overtake and pass a moving vehicle between its right side and the right curb as it enters the intersection. Why?

THE MOTORIST MAY TURN RIGHT.

Before Beginning

The Bicycle —

✔ is the correct size, most importantly, FRAME NOT TOO LARGE.
✔ is mechanically sound. Both brakes work, the wheels are firmly attached, tires properly inflated. What should be tight, is. What should move freely like wheels, chain, pedals, and cranks, does.
✔ has a headlight and red taillight or reflector if riden at night.
✔ has racks, baskets or panniers for carrying objects.
✔ has a cable and lock for securing it.

You —

✔ are dressed appropriately for riding.
✔ are wearing an ANSI-approved bicycle helmet.
✔ have secured pant legs and,
✔ tied shoe laces so they don't dangle.
✔ have fastened scarves, belts and straps so they can't fall into the front wheel.

Individual Riding Skills

Starting up —

✔ *Power pedal* in correct position.
✔ Widest part of foot is over pedal spindle.
✔ Gears in low, easy pedaling position.

Slow stop —

✔ *Power pedal* in correct position.
✔ Hands are on brake levers.
✔ Gears are in low, easy pedaling position.

Complete stop —

✔ *Power pedal* is at 6 o'clock position.
✔ Hands are on brake levers.
✔ Gears are in low, easy pedaling position.
✔ *Not-Power-Pedal* foot is placed on the ground first.
✔ *Power Pedal* is pulled back to correct position if going to continue riding.
✔ Foot is correctly positioned on *Power Pedal.*

Braking —

✔ Use both hand brakes when stopping.

Riding a Straight Line —

✔ Ride a straight line when looking straight ahead.
✔ Ride a straight line when looking left or right behind.

Speed Bump, Tracks or Parallel Crack —

✔ See it and slow down.
✔ Put hands on handlebars and brake levers.
✔ Approach at a right angle.
✔ Shift weight to legs and arms.

Group Riding

You —

✔ Maintain one bike length space between riders.
✔ Ride with at least one hand on the handlebar.

Roadway Position

Direction of Travel

✔ Ride on the right half of the roadway in the same direction as other traffic.

Intersection

Right Turn

✔ Start the turn from nearer the right curb.
✔ Finish the turn far enough out in the street to avoid parked cars, grates and debris.
✔ Yield properly to other people on the road and to people coming from the sidewalk.

Straight Across

✔ Enter the intersection away from the right curb, in the correct lane, if lanes are marked.
✔ Complete the movement to nearer the right curb across the street if there are no private driveways, parked cars, debris or other obstacles blocking my path.
✔ Yield properly to other people.

Left Turn

✔ Enter the intersection from nearer the center line or from the proper road position if there are special lanes.
✔ Complete the movement to nearer the right curb if there is no reason not to do so.
✔ Follow all yielding requirements.

Midblock

✔ Pass slower traffic on its left side unless it's waiting to make a left turn.

Quiet Residential Streets

✔ Ride far enough out in the traffic lane to avoid debris in the gutter, the gutter pan line, parked cars, opening car doors.
✔ Ride a straight line.
✔ Move nearer the right curb or behind a parked car when faster traffic comes from behind.

Streets with Center Lines, Wide Lanes

✔ Share the traffic lane with motor vehicles and ride about 12 feet from the center line but out from the gutter to avoid curb-side hazards.

Streets with Bike Lane Lines

✔ Ride about an arm's length away from the bike lane line, in the bike lane, if there is no reason not to do so.
✔ Move out of the bicycle lane into the traffic lane when there is an obstacle or when preparing to go straight across or turn left at an intersection.

Yielding Duties

Cross Traffic

✔ Yield to pedestrians crossing the street even if there is no crosswalk.
✔ Yield at a stop sign to those on the street without the stop sign.
✔ Wait for the gap at a signal light, even if the light is green.
✔ Yield first to people on the sidewalk and then to people on the street when exiting a driveway.
✔ Trigger the signal light from the proper position to receive right-of-way.

New Lane

✔ Yield to people coming behind in the new lane, either on the left or the right side, before moving into the lane.
✔ Yield to people facing me before completing a left turn.

Answer the following questions "Yes" or "No." The more "Yes" answers, the easier the driving task, the fewer the riding hazards. A hazard is defined as any characteristic or situation, such as parked vehicles or obstacles near the right curb, road debris or frequent right-turning traffic requiring increased searches for gaps, lane-changing and evasive behavior. Route characteristics may change based on time of day and day of the week.

Is the Road...

- wide enough to share, motorist and cyclist side by side?

This means a parallel path of travel free of obstacles such as parked vehicles, construction joints, gutter pan lines.

- straight, free of curves?
- free of railroad tracks?

Is the Road Surface...

- free of debris such as small branches, sticks, gravel, wet leaves?
- as smooth and free from potholes and surface upheavals as the motorists?
- free of standing water?
- free of wheel-eating grates?
- free of speed bumps, raised reflectors and rumble strips?

Are there...

- clear sight lines?
- few or no business driveways?
- few or no vehicles parked along the curb?
- signal lights or 4-way stop signs at busy intersections?
- no buses or trucks?

Can you...

- ride on the same side of the road in the same direction as motor vehicle traffic?
- trigger traffic-actuated signal lights from the proper road position for your direction of travel?
- clear the intersection during the green signal light phase?

—Bike Class Overview

This booklet is the student textbook for the bike class I teach at Jane Lathrop Stanford Middle School. It's the result of nearly ten years' experience teaching on-road bicycle skills to twelve-year-olds and to the adults who help in the course. It describes bicycle handling techniques and traffic skills for riding bicycles on residential and collector streets.

Seven classes are offered each year — four during the morning in the fall and three during the afternoon in the spring. Each class, taught as a physical education unit to seventh graders, needs 20 school days. School periods are 45 minutes long; class size is limited to a maximum of ten students. The course requires two teachers. City of Palo Alto, California Transportation Development Act funds and the Palo Alto Unified School District have all contributed to funding the course.

Students, who use their own bicycles, may ride to school daily or keep their bikes in a storeroom during the four-week class. Helmets are optional but strongly recommended. The instructor supplies walkie-talkies and riding numbers worn during on-road instruction, tools and "show-and-tell" items. All written materials — student textbook, Bicycle Knowledge Survey, map, class schedule, grading policy, bike mechanics work sheet, on-road test score sheet — are photocopied at school and given to students as part of class supplies. From these, each student compiles a Bike Class notebook.

The first week of class is held indoors. Students answer a short Bicycle Knowledge Survey based on bicycling fact and myth the first day. The next day, toy cars, bicycles and dolls are used with a stylized roadway layout on a large piece of plastic to demonstrate answers to the questions. The framework for discussion is the five basic traffic principles by which traffic drives on the roadway and around which the course is organized.

Bicycle mechanics takes the rest of the week. All students complete a bike check on their bikes. Repairs aren't done but are noted on the bike mechanics work sheet. They learn what should be tight, what spins freely, how brakes and wheels work and how to maintain tires. When the student is finished, a parent signs the sheet and the student returns it to school. The goal is increased parental and student awareness and

responsibility for maintaining a mechanically sound bike.

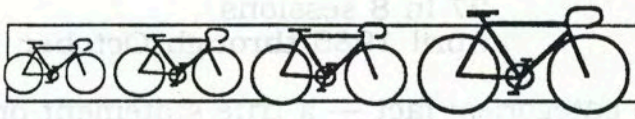
Checking shifting, the last step in bicycle mechanics, is done on the school parking lot. All bicycle handling skills are practiced here before moving onto the street. Except for course review on the last day of class, the rest of the class is spent practicing bicycle handling and traffic skills on the road.

Streets around school are used for practice. Most are two-lane; some are narrow residential streets, and others are collectors with and without bicycle lanes. There are many stop signs and some T-intersections but no four-way unsigned intersections. All signal lights are traffic-actuated and all loops are bicycle-sensitive.

This textbook reflects the order in which skills are introduced. Each skill builds on the next. A skill introduced one day is practiced again the next day. Instruction is individual. Through the walkie-talkie, each student is coached through the new skill alone the first time while others wait their turn. Group riding isn't compatible with learning individual cycling skills, since groups of cyclists tend to ride as single entities.

Unlike other classes, emphasis is on learning for oneself, not on competing with others for a grade. Although there's a final on-road riding test, no score is recorded in a teacher's book. This is a new concept for many students and is hard for some to accept.

I think the most difficult part of the class is the struggle many students have in coordinating bicycle handling skills with traffic judgment. To me, it's the same struggle that beginning motorists have when learning to drive. The vehicle used for driver training has an automatic transmission but our family car a manual. I watched my young adult struggle with our stick shift. There's no better demonstration that learning to drive in traffic is a two-part task: it includes both developing motor skills and evolving mental reasoning. Physical and traffic judgment skills need repeated practice to become habit.



J.L.S. Bike Class

Name_____(print)
Period_____ Date_____

The following are true or false statements. **Blacken T** if the answer is true. **Blacken F** if the answer is false.

T F 1. Cyclists *must* ride in the crosswalk when riding across busy intersections.

T F 2. If your bicycle has enough reflectors, you can ride it safely at night without a headlight because other people can see you.

T F 3. Cyclists riding on sidewalks need to stop at every intersection, look over their shoulder and wait for traffic turning right even if the light is green.

T F 4. If a sign along a sidewalk says it is a sidewalk bike path, the cyclist *must* ride on it instead of on the street.

T F 5. It is as important to ride on a sidewalk in the same direction as motor vehicle traffic as it is on the street.

T F 6. When riding on the street, it is safest to ride as close to the right hand curb as possible.

T F 7. It is more important to signal for a left-turn than to look behind before moving left.

T F 8. It's safer to ride on streets with bike lanes than on streets without bike lanes because you are safe from cars.

T F 9. Motorists who are turning right look mostly to their left because that is where they expect crossing traffic first.

T F 10. Once you see a direction signal blinking, you may safely assume the vehicle will turn in that direction.

T F 11. Many traffic lights in Palo Alto change from red to green if the cyclist rides over wires in the street which detect metal for the signal light.

T F 12. A bicyclist should ride as close to parked cars as possible so as to keep out of the way of faster-moving traffic.

Knowledge Survey Analysis

Total number students taking survey	294
Total number teaching periods	27 in 8 sessions
Time span	April 1985 through October 1989

Questions are separated into two categories: fact — a true statement or myth — a false statement. *The number following each question represents the percent of students who answered the question correctly.*

I make some basic assumptions about the interpretation of these numbers. If the percentage missed is lower (below 40 percent) or higher (over 60 percent), I assume more students think they know the correct answer. If the percentage hovers around 50%, I assume most students don't know the "correct" answer and are guessing. The word "correct" is in quotes because the question may be based on a myth, a false assumption.

FACT

3. Cyclists riding on sidewalks need to stop at every intersection and look over their shoulder and wait for traffic turning right even if the light is green.

89%

5. It is as important to ride on a sidewalk in the same direction as motor vehicle traffic as it is on the street.

84%

9. Motorists who are turning right look mostly to their left because that is where they expect crossing traffic first.

86%

11. Many of the traffic lights in Palo Alto will change from red to green if the cyclist rides over the wires in the street which detect metal for the signal light.

55%

MYTH

1. Cyclists must ride in the crosswalk when riding across busy intersections.

35%

2. If your bicycle has enough reflectors, you can ride it safely at night without a headlight because other people can see you.

72%

4. If a sign along a sidewalk says it is a sidewalk bike path, the cyclist must ride on it instead of on the street.

43%

6. When riding on the street, it is safest to ride as close to the right hand curb as possible.

37%

7. It is more important to signal for a left-turn than to look behind before moving left.

62%

8. It's safer to ride on streets with bike lanes than on streets without bike lanes because you are safe from cars.

24%

10. Once you see a direction signal blinking, you may safely assume that the vehicle will turn in that direction.

40%

12. A bicyclist should ride as close to parked cars as possible so as to keep out of the way of faster-moving traffic.

57%

Bike Class Evaluation Form

Date_____ Group/Cyclist#_____ Name_____

Traffic Riding Skills

Road Position

Custom of the Country

___Ride on the Right Side of the Road

Intersection

right turn _____
- ___Start wrong lane
- ___Finish wrong lane
- ___Look, not yield
- ___Not look/not yield

intersection approach _____
- ___R-side R-turn car
- ___R-side moving car
- ___Too far right
- ___Too far left
- ___Wrong loop position

left turn _____
- ___Wrong start position
- ___Look behind, not yield
- ___Look ahead, not yield
- ___Not look/not yield
- ___Look behind while changing lanes
- ___Swerve right when turning left
- ___End wrong lane

Midblock

residential _____
- ___Too far right
- ___Swerving

bike lane _____
- ___Too far right
- ___Swerving

being overtaken ___
- ___Too far left
- ___Too far right

parked car _____
- ___Too close

Cyclist U-Turn _____
- ___Look behind, not yield
- ___Improper road position during turn
- ___Look ahead, not yield
- ___Not look/not yield
- ___Look behind while changing lanes

Yielding

exit driveway (T—Intersection) _____
- ___Too fast
- ___Look, not yield
- ___Not look/not yield

stop sign _____
- ___Too fast
- ___Look, not yield
- ___Not look/not yield

signal light _____
- ___Wrong action

overtaking _____

Improper lane change
- ___Look, not yield
- ___Not look/not yield
- ___Pass wrong side

merge _____
- ___Look, not yield
- ___Not look/not yield

Bicycle Handling Skills

Before Beginning

___Pants secure
___Shoe laces tied
___Nothing dangling from handlebars
___Wheels firmly attached
___Lights if dark
___Helmet
___Lock

Individual Riding Skills

Starting from —

Complete stop

___Correct pedal position
___Wrong pedal position

Slow movement

___Correct pedal position
___Wrong pedal position

Stopping

Complete stop

___Correct pedal position
___Wrong pedal position

Slow movement

___Correct pedal position
___Wrong pedal position

Foot Position on Pedal

___Bone big toe over spindle
___Too far back toward heel

Braking

___Uses both brakes correctly
___Uses feet to slow bike
___Skids, stops too suddenly

Speed bump

___Correctly done
___Wrong approach
___Too fast
___Wrong pedal position

Straight line Riding

When looking ahead:
___Rides a straight line
___Weaves

When looking behind:
___Rides a straight line
___Weaves

Shifting

___Starts in easy-to-pedal gear
___Shifts to higher gear when appropriate
___Stops in easy-to-pedal gear
___Starts in too high a gear
___Stops in too high a gear

Group Riding

___Maintains one bike length space between next rider
___Rides with at least one hand on handlebars
___Follows too closely
___Rides no-handed

Bicycle Mechanics Work Sheet

Student _____

Bike Brand Name and Style _____

Frame

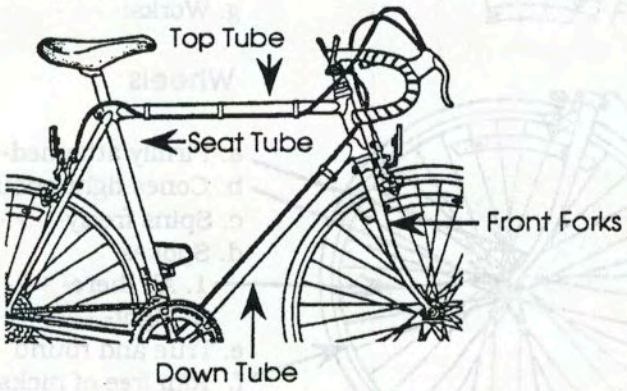
Fit

Frame size: Too large O.K.

Saddle height: Too low — too high — O.K.

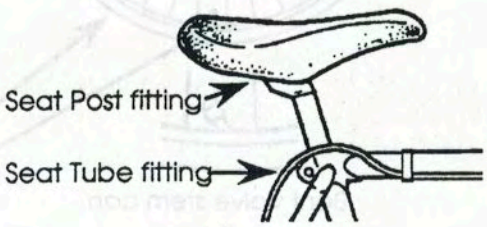
General Condition

Circle each condition which exists:
bent forks —bent tubes — rust.
Show location on picture.



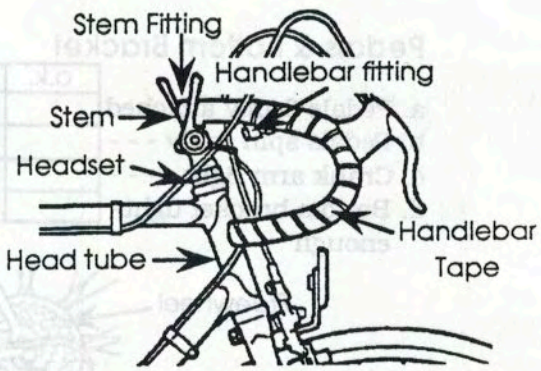
Saddle

	o.k.	repair
a. Attached to seat post-		
b. Tight at seat tube- - -		



Handle Bars & Stem

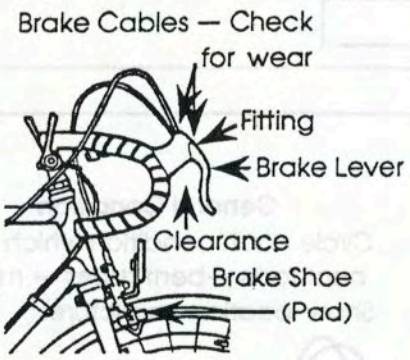
	o.k.	repair
a. Firmly attached-		
1. to stem- - - - - - - -		
2. to head tube - - - -		
b. Headset tight enough		
c. Ends plugged- - - - - -		
d. Grips or tape firmly - attached		



I have examined the results of the bike mechanics check and am aware of the condition of the bicycle.

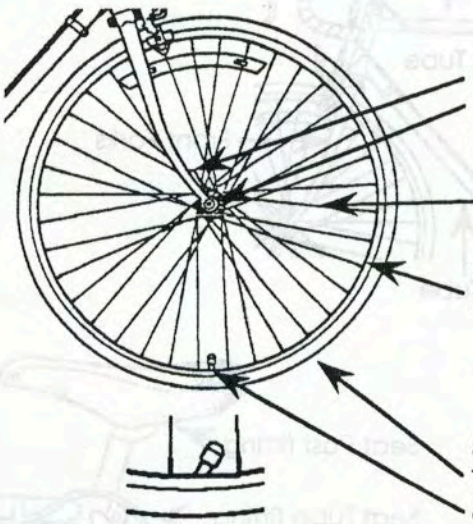
Parent/Guardian_____

Date_____



Brakes

	Front		Rear	
	o.k.	repair	o.k.	repair
a. Attached firmly- - -				
b. Cables not worn- -				
c. Lever clearance- - -				
d. Pads not worn- - -				
e. Pads strike rim correctly- - - - - - -				
f. Stops wheel- - - - -				
g. Works!- - - - - - - -				



Bent valve stem can cause a flat tire

Wheels

	Front		Rear	
	o.k.	repair	o.k.	repair
a. Firmly attached- - -				
b. Cones tight enough				
c. Spins freely- - - - - -				
d. Spokes				
1. All there- - - - - -				
2. Tight- - - - - - - -				
e. True and round - -				
f. Rim free of nicks -				

Tires

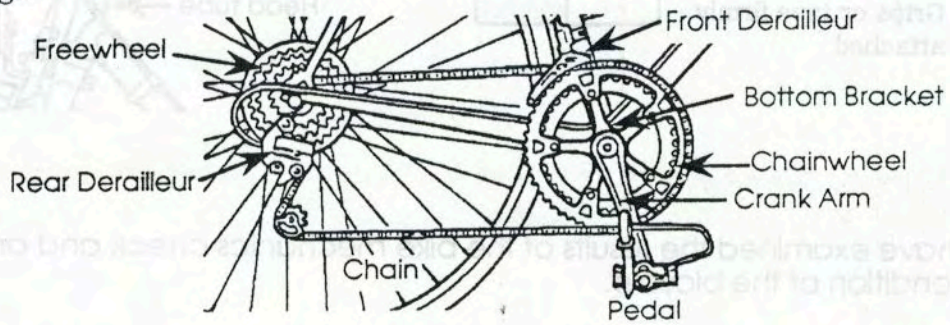
	Front		Rear	
	o.k.	repair	o.k.	repair
a. Gross damage- - -				
b. Tread- - - - - - - - -				
c. Valve stem straight				
d. Recommended pressure- - - - - - - -				

Pedals & Bottom Bracket

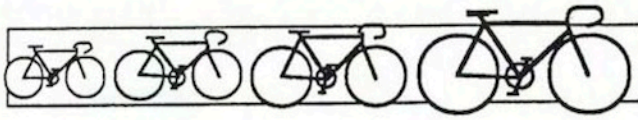
	o.k.	repair
a. Pedals firmly attached		
b. Pedals spin freely - - -		
c. Crank arm tight - - - -		
d. Bottom bracket tight-enough		

Chain & Derailleur

	o.k.	repair
a. Clean- - - - - - - - - - -		
b. Chain tight- - - - - - -		
c. Der. firmly attached-		
d. Gears shift- - - - - - -		



An easy-to-follow, how-to manual for basic bicycle maintenance is "Anybody's Bike Book" by Tom Cuthbertson and published by Ten Speed Press.



J.L.S. Bike Class

Dear Parent or Guardian, April, 1991

With funds available through the Transportation Development Act (TDA) and the school district, we can offer an on-road bike class to a limited number of students. The purpose of the course is to introduce basic traffic principles which govern all road traffic and to practice them by using the bicycle as the vehicle. The four-week class, offered to seventh graders during periods 5, 6, and 7, Monday, April 22, through Friday, May 17, replaces one of the regular physical education units. Each class is limited to 10 students. Instructors are Diana Lewiston and Nan Blackledge.

We need your understanding and cooperation in the following ways:

- Students ride their bikes on Palo Alto streets during class time (under supervision) as part of the instruction. We need your permission.

- Each student must bring her or his **bike** to class **each day**. The bicycle needs to be:
  a. in good running condition
  b. not too large for the student. If the student can straddle the top bar while both feet are flat on the ground and lift the bike up about an inch without hitting the body, the frame height isn't too large. If the frame is too large, the student will not be permitted in the class.

- We urge all students wear protective head gear. **A helmet** or **sweat band** is required to secure the walkie-talkie.

- There are provisions for storing bicycles for students who don't ride every day.

- Students are to dress suitably for riding bikes. Shoes must attach firmly to feet. If clothes aren't suitable, they must change into regular gym clothes before class.

Questions about the class? Please call the school at 856-1713.

Sincerely,

Diana Lewiston

Diana Lewiston, Bike Class Instructor

✂ - - - - - - - - - - - - - - - - - - -Return Bottom Portion -

Physical Education Instructor_____ Period_____

The student and the undersigned parent or guardian agree to hold the Palo Alto Unified School District and the City of Palo Alto harmless for any personal injury, including property damage, arising from this course.

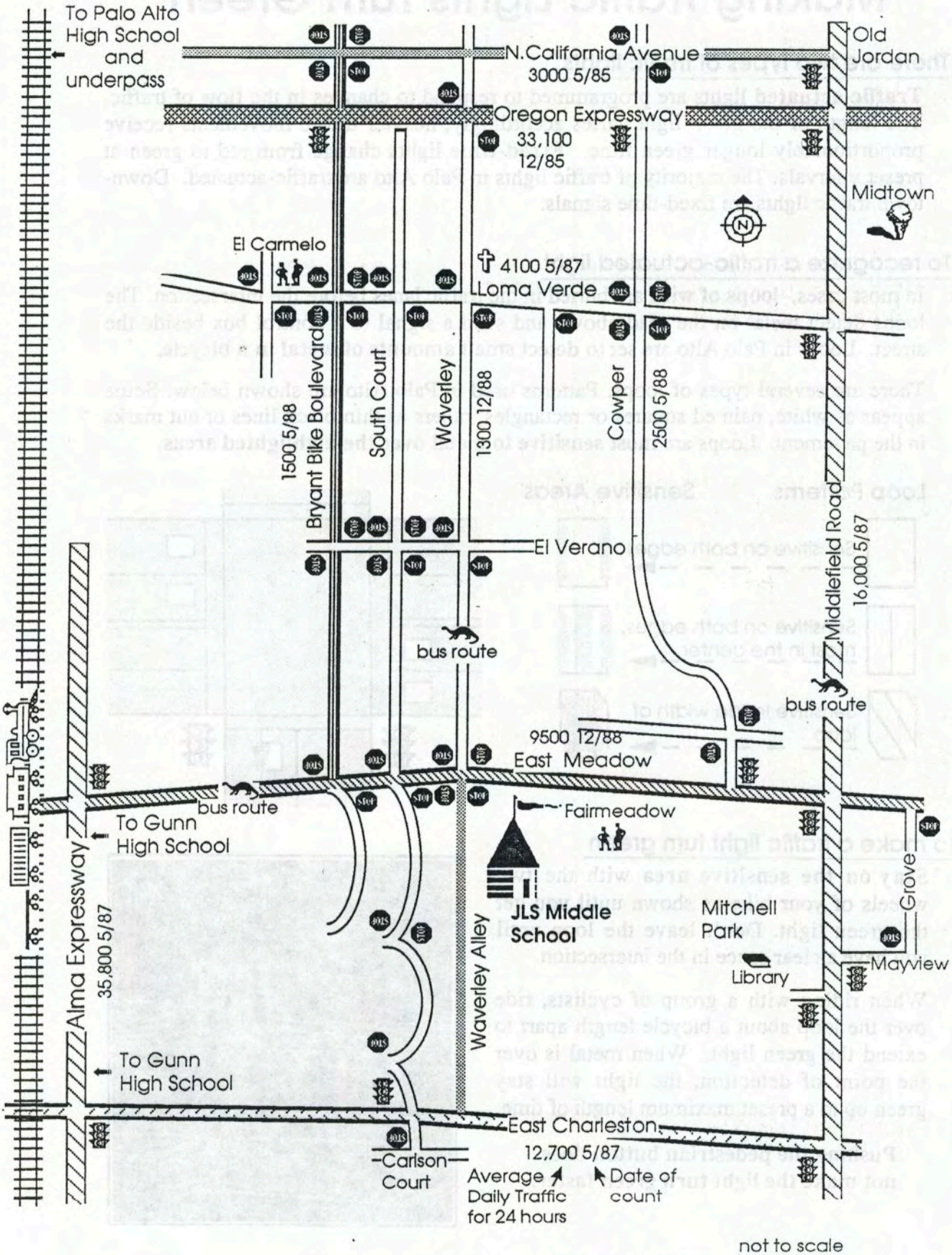
_____has my permission to ride a bicycle on Palo Alto streets as a part of the Stanford Middle School bike class.

_____(Parent or Guardian Signature)

Return bottom portion to J.L.S. Office **Friday**, April 19
OR
Bike Class teacher **Monday**, April 22.

Classroom: Dance studio between gym and weight room.

Palo Alto 1989



Making Traffic Lights Turn Green

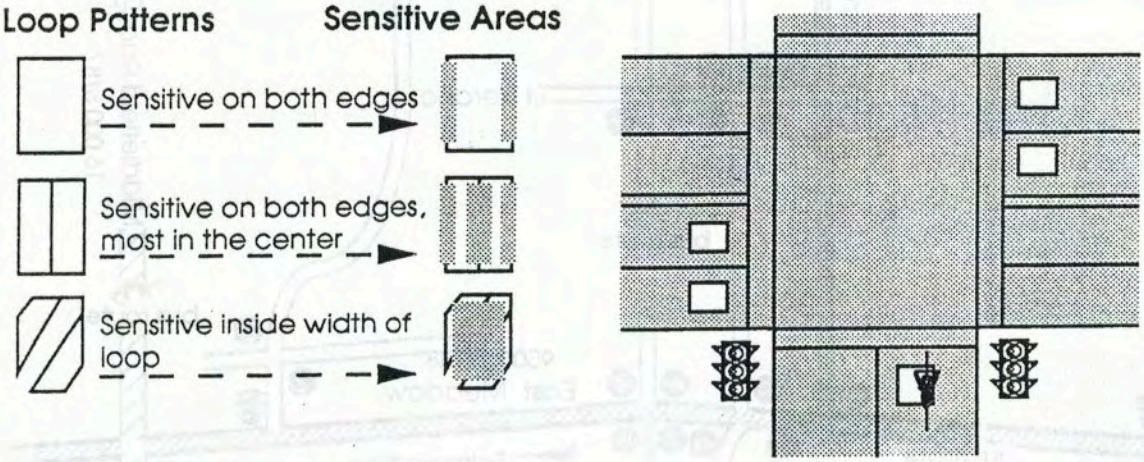
There are two types of traffic lights

Traffic-actuated lights are programmed to respond to changes in the flow of traffic. The length of the green light varies accordingly; heavier traffic movements receive proportionately longer green time. **Fixed-time** lights change from red to green at preset intervals. The majority of traffic lights in Palo Alto are traffic-actuated. Downtown traffic lights are fixed-time signals.

To recognize a traffic-actuated light

In most cases, **loops of wire** are buried in the traffic lanes before the intersection. The loops detect metal on the road above, and send a signal to a control box beside the street. Loops in Palo Alto are set to **detect small amounts of metal in a bicycle.**

There are several types of loops. Patterns used in Palo Alto are shown below. Some appear as white, painted squares or rectangles, others as thin black lines or cut marks in the pavement. Loops are **most sensitive to metal over the highlighted areas.**



To make a traffic light turn green

Stay on the sensitive area with the two wheels of your bike as shown until you get the green light. Don't leave the loop until you have a clear space in the intersection.

When riding with a group of cyclists, ride over the loop about a bicycle length apart to extend the green light. When metal is over the point of detection, the light will stay green up to a preset maximum length of time.

Pushing the pedestrian button does not make the light turn green faster.

If you can't find the loop or the light won't change

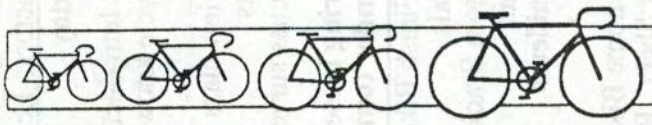
Call the City of Palo Alto Transportation Division at 329-2520 to report the location and problem.

1990

JLS Bike Class Schedule

Instructors: Lewiston and Blackledge — Periods 5,6 and 7 — Monday, April 22 through Friday, May 17, 1991

Monday April 22	Tuesday April 23	Wednesday April 24	Thursday April 25	Friday April 26
Class Introduction • Bicycle knowledge survey • Review class requirements • Discuss survey **Bring loose leaf binder tomorrow**	• Assign students to class • Complete class introduction. **Bikes tomorrow** **Park Bikes in cage by drive**	**Bike Mechanics** • Frame • Handle Bars and Stem • Introduction to tools • Saddle	**Bike Mechanics** • Brakes • Wheels	**Bike Mechanics** • Wheels completed • Tires
29) Finish Bike Mechanics • Pedals • Bottom Bracket • Chain • Derailleurs Take home Bike Mechanics Work Sheet. Return **Wednesday** with parent's signature.	30) Parking Lot Orientation • Shifting • Assign Walkie-Talkies • Before Beginning • Starting up Rodeo Step Over	31) Parking Lot Orientation Review yesterday. Add — • Stopping Slow Complete • Braking Front, rear, both Bike Mechanics Work Sheet due today.	May 1) Parking Lot Orientation Review yesterday. Add — • Group riding • Riding a straight line • Looking behind • Road surface hazards • Cyclist U-turn	2) On-Road Day 1 Practice: • Riding position - right side of the road, straight across • Yielding to cross traffic: 4-way stop sign • Riding position — quiet residential street • Cyclist U-turn **East Meadow/Waverley**
6) On-Road Day 2 Practice: • Yielding to cross traffic: 2-way stop sign • Riding position — a. Midblock b. Intersection 1. right turn 2. straight across **El Verano/Waverley**	7) On-Road Day 3 Review previous lesson Yielding Practice: • Time gaps a. Quiet street. **El Verano/Waverley** b. Busy street **South Court/E.Meadow** **Stop watch today**	8) On-Road Day 4 Practice: Left-turns — a. from stop signed intersection b. from unsigned intersection **Along Loma Verde**	9) On-Road Day 5 Practice: Continue Left-turn practice. **Along East Meadow**	10) On-Road Day 6 Practice: Continue Left-turn practice along East Meadow. Trip signal light **East Meadow/Cowper**
13) On-Road Day 7 Review: Left-turns along East Meadow. Trip light Cowper/E.Meadow. • Introduce hand signals • Trip light, straight across **Carls Charleston**	14) On-Road Day 8 Practice: Lane position on loop for staight across. **East Meadow/Middlefield** If time, double left turn at signal light. **Left from Carlson to Charleston to Waverley**	15) On-Road Day 9 Ride to Palo Alto High School on Bryant Bike Boulevard Bring Bike Class notebook. Print name and period number on score sheet. Place first in book. **Bryant aly**	16) **On-road riding test**	17) Review course material and on-road test. **Last Day Bike Class** **No Bikes today**



J.L.S. Bike Class

The grade your P.E. teacher receives is based on the following policy. Students are awarded six points a day in the following groups.

1 point — Punctuality

1 - properly suited *five minutes after passing bell.* "Suited" means ready to ride as defined below.

1 point — Properly Suited

2 - bicycle set up to start riding.
3 - clothes appropriate for riding a bike.
4 - shoes attach firmly to feet with shoe laces and pant legs secured.
5 - walkie-talkie attached to helmet or secured with head band.
6 - walkie-talkie in "on-road" mode.
7 - riding number correctly attached.

2 points — Active Participation

Behaviors which take away daily points are:

8 - delays departure of group.
9 - fails to return permission slip/mechanics sheet/binder by due date.
10 - leaves walkie-talkie on at end of class.
11 - talks on walkie-talkie without permission during class time.
12 - has negative, uncooperative attitude.

2 points — Teacher Discretion

Behaviors which take away daily points are:

13 - stores bike in small cage.
14 - rides on sidewalks/school walks.
15 - stunts or rides bike in a manner that endangers others.
16 - borrows a head band.

Not having a bicycle when required may result in losing all 6 points.

The following can compromise a student's right to stay in the "Bike Class:"

1. stunting or riding in a manner that endangers others.
2. missing two or more adjacent class days.
   New skills are introduced each day and practiced again the next day. One set of skills builds on the next. When a student misses several days in a row, he or she has lost on-road practice that is difficult to replace. Unlike a normal class room, students can't sit on the sidewalk and catch up.
3. using a bicycle whose frame is too large.
   A bicycle too large for the cyclist is harder to control. If it has a diamond frame, the frame can cause injury to the pelvic area if the cyclist falls on the top tube when stopping. As the instructor, I am not willing to accept the liability risk.