

## Bicycle Driving Seminar

by Fred Oswald, League Cycling Instructor #947

[www.geocities.com/fredoswald](http://www.geocities.com/fredoswald)

[www.crankmail.com](http://www.crankmail.com) (see advocacy link)

*Commuter to work*  
*Ride for errands*  
*Touring & Recreation*  
*Sport Cycling*  
*Kids' Cycling*

*Fitness*  
*Health*  
*Quiet*  
*Reduced congestion*  
*Fun*  
*Clean air*  
*Companionship*

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Slide 1 -- Cycling uses & benefits.

This program shows the best practices of experienced bicycle drivers in contrast to dangerous mistakes taught in traditional "bike safety" programs.

Revised 21 Mar 2004

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*The great obstacle to progress is not ignorance, but the illusion of knowledge.*

--- Daniel Boorstin  
Historian, librarian of Congress



*It's not what he doesn't know that bothers me, it's what he knows for sure that just ain't so.*

--- Will Rogers, 1879-1935  
American-Cowboy humorist, philosopher

Fred Oswald, Mar 2004

Slide 2

These quotes summarize the great cycling dilemma: People do not know that they don't know.

## Early Cycling History



ca 1820, Running machine



Ca 1870, Penny Farthing



1890, Safety bicycle

Cycling popularity in USA boomed during 1880-90's then crashed with development of the auto. 'Dark ages' lasted until mid '60's.

Fred Oswald, Jun 2002

Slide 3 – History

Early bicycle-like devices ~2 centuries old. Cycling caught on only in late 19th century, then popularity crashed with development of horseless carriage.

By 1920's almost no adults cycled. The few adult cyclists had low status. Wrong ideas developed -- bicycle is child's toy, cycling on road is dangerous (fear from the rear).

No proof for these notions. Crash studies finally done in '70's refute the fear but it is still widely believed.

**Who teaches our children "Bike Safety"?  
Who taught us when we were children?  
-- Compare cycling with swimming**

	<b>Bike Safety</b>	<b>Water Safety</b>
<b>Qualifications</b>	"Authority figure"	Certified instructor
<b>Skill/ Experience Required</b>	None	Pre-class written & swim skills test
<b>Instructor Training</b>	None	36 hour class, master skills, written & swim exam.
<b>Syllabus</b>	None	Red Cross water safety prog.

Fred Oswald, Jun 2002

Slide 4 – Teachers

Typical "authority figure" is parent, teacher, policeman who make up "program" as they go with things that "sound good". Compare with Red Cross swim lessons.

This perpetuates incorrect ideas. The misinformed teach the ignorant.

**Beware of "GOOD" ADVICE**

1. "Stay out of the way of cars."
2. "Always ride on the sidewalk."
3. "Ride as far right as possible."
4. "You could be dead right."
5. "The roads are too dangerous for bikes."
6. "Ride as though other drivers can't see you."
7. "Always signal turns." (no mention of yielding)

**Don't repeat advice just because it "sounds good"**

Fred Oswald, Sep 2003

Slide 5 -- WHY the advice is bad ---

(1) Sometimes it is safer to obviously be in the way. If the travel lane is not wide enough to share with passing traffic, move LEFT so following drivers are not tempted to "squeeze by". At intersections and driveways, cyclists who stay out of the way "appear out of nowhere" and are hit. Experienced cyclists stay in the travel lane, are easily avoided.

(2) Sidewalk cycling at moderate speed has 2-9 times the risk as the adjacent road. The risk goes up with speed. Drivers do not look for fast traffic on the sidewalk. Sidewalk cycling is moderately safe only at walking speed.

(3) This is misinterpretation of law that says ride "as near to the right side as practicable" (practice+able). "Hugging the curb" is not safe where the right lane is not wide enough to share, if there are hazards at the edge of road, or where other drivers can see you better if you move left. Maintain a "safety zone" to your right.

(4) You are more likely to be "dead-wrong". This is often part of a fear campaign. We don't teach swimming that way. When you have the right of way, use it. You are better off riding predictably and acting like you know what you are doing. Of course, defensive driving is wise.

(5) A knowledgeable cyclist on the road is pretty safe. The alternatives (sidewalks, multi-purpose paths or separate bike lanes) are much more dangerous. The roads are safe because the "rules of the road" make traffic orderly and predictable.

(6) It is usually much better to make sure other drivers CAN see you. Use lights at night, wear bright clothes in daytime and ride in or near the travel lane where other drivers look for traffic.

(7) Signal when you can but not if you risk losing control of your bike. It is much more important to YIELD to any traffic that has the right of way.

The Guiding Principle:  
**Cyclists fare best when they act and are treated as drivers of vehicles**

Operating on the SAME ROADS by the SAME RULES with the SAME RIGHTS

Operating by pedestrian methods or in non-standard places can be dangerous

Photo above from Chicago's Bike Lane Design Manual Feb 2003

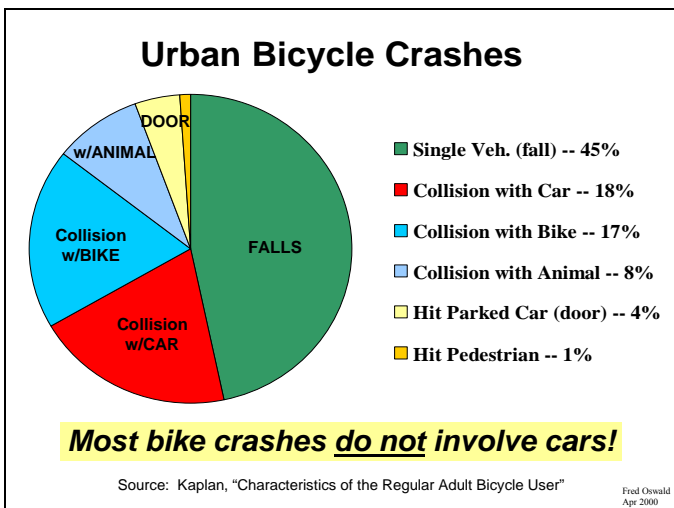
Slide 6 -- Comparing principles  
 The vehicular cycling principle is the basis of the best practices of experienced cyclists. Pedestrian methods are (somewhat) safe only at very slow speeds. If you need to go faster, ped. methods are very dangerous. Right photo shows dangerous door-zone bike lane.

**Expert Information About Cycling**

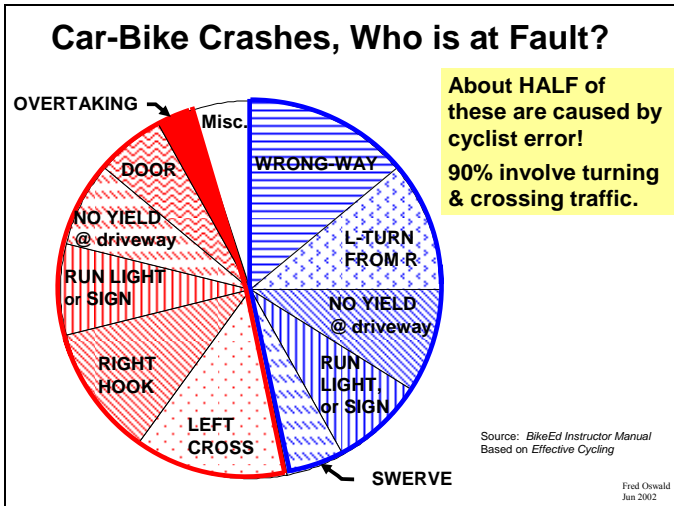
**Effective Cycling and Street Smarts should be on YOUR bookshelf**

Fred Oswald, Jun 2002

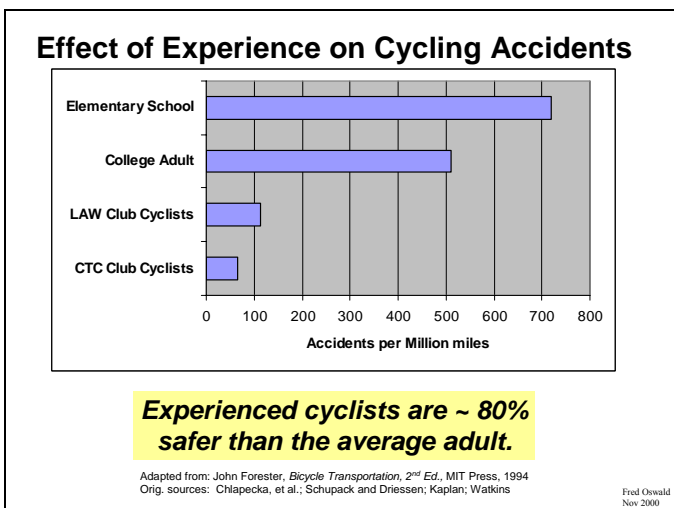
Slide 7 – Expert Information  
 "Street Smarts" originally pub by Bicycling Mag. was adopted by PA, Ohio and Florida (pending in VA). It is both an expert and "official" source. *Effective Cycling* is standard cyclists' reference book. *Bicycle Transportation* is advanced book or for trans. engineers. *Cyclecraft* is British book. BikeEd Instructor Manual is based on Effective Cycling course developed in mid-70's



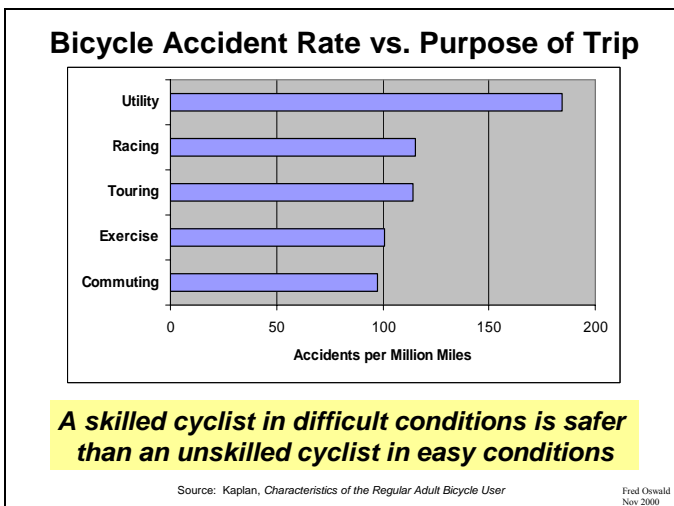
Slide 8 – Urban Crashes  
 To learn safe cycling, you must understand crashes & how to prevent them. Most people think car collision is #1 but it is actually distant 2nd. Most crashes are falls or other "single vehicle" crashes. Bike-bike collision is almost tied for #2. Even dogs cause many crashes



Slide 9 – Crashes, who at fault.  
 Most people think hit from behind (overtaking) is #1 but it is smallest slice.  
 About 90% are result of turning & crossing traffic.  
 About half of adult crashes are fault of cyclist (blue outline), wrong-way riders is #1 cause. Making L turn form curb causes many crashes (as taught in "bike safety")  
 More child crashes fault of cyclist, especially "driveway rideout" under age 8.  
 Note, many "motorist fault" crashes occur on sidewalk or bike lane crossing (preventable).



Slide 10 – Experience vs. Crashes  
 Elementary school crashes ~700/million mi.  
 College only 30% better.  
 Club cyclists are 5 times better than college, 7x than elementary (LAW is US club cyclists, CTC is British club cyclists)  
 Moral -- experienced cyclists have something to teach us about bike safety.



Slide 11 – Accidents vs Trip Purpose  
 Racing & commuting face greatest hazards but have lowest crash rate.  
 Even utility is safer than college kids.  
 Note, commuting shown separately from utility (errands, trips to store, etc.)

## Principles of Traffic Law

1. First Come, First Served
2. Drive on the Right
3. Obey Traffic Control Devices
4. Observe Speed Positioning
5. Follow Intersection Positioning

2 wheels or 4, the rules of the road are the same

Vehicular Cycling teaches:  
*Cyclists fare best when they act and are treated as drivers of vehicles*

Source: Effective Cycling & BikeEd Instructor Manuals

Fred Oswald  
Jun 2002

Slide 12 – Principles of Traffic Law  
Rules of the road make the roadway an orderly place, a huge advantage for cyclists.  
#1 First Come -- you have right to space you occupy plus safe dist. ahead (right of way).  
At intersections, yield to right. Yield to superior road.  
#2 Drive on right, not left or sidewalk  
#3 Traffic control devices supercede right of way rules  
#4 Speed positioning means stopped veh. at extreme right, slow veh. next, fast to left.  
#5 Intersection positioning means use correct lane for destination.

## Vehicular Cycling “Layers of Safety”

1. Don't CAUSE collision (follow rules of road)
2. Deter motorist mistakes
3. Drive defensively to escape hazards
4. Use safety equipment to reduce injury



Fred Oswald,  
Jun 2002

Slide 13 – Layers of Safety  
#1 About half of bike accidents are fault of cyclist (run lights, no lights, wrong way)  
#2 Motorists may underestimate your speed or misjudge space for passing. If you take control you can often prevent motorist mistakes.  
#3 Anticipate problems and leave room to escape.  
#4 Helmet may allow walking away from accident. Gloves protect hands.

## Vehicular Cycling Safety Skills

1. Look Back (Scan) for Traffic
2. Rock Dodge
3. Hard Braking (panic stop)
4. Instant Turn

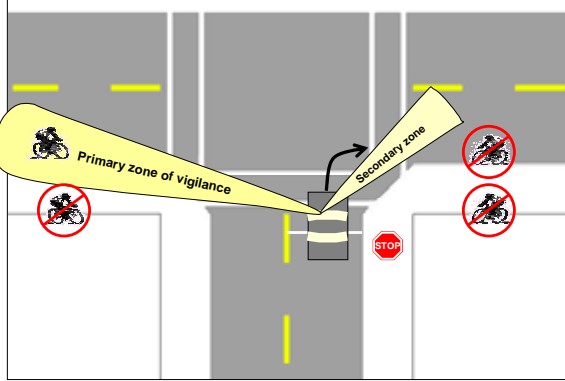
These skills can prevent YOU from causing an accident ... or allow you to escape someone else's error. They require instruction & practice.



Fred Oswald, Apr 2002

Slide 14 -- Safety Skills taught in Effective Cycling & Bike Ed  
First two are easy (parents can teach kids).  
Be careful with last two -- could cause crash if done wrong.  
(Photo shows rock dodge at cycling instructors training session.)

**Don't ride Wrong Way or on sidewalk!  
Stay in traffic lane to be seen**



Fred Oswald, Jun 2003

Slide 15 – Wrong Way Dangers

This is just one of many accident scenarios showing wisdom of following same rules of road as other drivers.

A driver is most likely to look in traffic lane to left. Less likely to look at sidewalk. Very unlikely to look right on sidewalk.

Some people are taught to ride on the wrong side of the road to “see traffic coming”. This is illegal and dangerous. The accident rate for wrong-way cyclists is about 3½ times as high as for cycling properly.

Pedestrians walk facing traffic so they can sidestep off the road if necessary. But you cannot sidestep on a bike.

**Sidewalk and Sidepath Hazards**

**Riding on sidewalk/sidepath compared to riding on road increases collision risk by a factor of:**

- 1.8 (California; Wachtel and Lewiston 1994)
- 2.7 (Eugene, OR, 1979)
- 4.7 (California, 1974)
- 3.4 (Sweden; Linderholm 1984)
- 2.4-8.6 (Finland, Sweden, & Norway; Leden 1988)
- 3.9 (Denmark; Jensen, Andersen, Nielsen 1997)
- 1.7 to 5 (Germany; Schnull, Alrutz et al 1993)



**Riding against traffic on sidewalk or sidepath is significantly more dangerous.**

Paul Schmek, 2001  
D. Gutierrez & B. P. DeSousa, 2003

Slide 16 – Sidewalk Accident Studies

Sidewalk about 2-9 times as dangerous as road

(depends on speed, driveway & intersection density, etc.)

**Bicycle Sidepath / Sidewalk –  
Unsafe at (almost) any speed**



**"...Sidewalks are typically designed for pedestrian speeds and maneuverability and are not safe for higher speed bicycle use."** Amer Assoc. of State Highway Trans. Officials, *Guidelines for the Development of Bicycle Facilities*

Photo by F. Oswald, Jun 1999


Slide 17 – Sidepath Hazards

Sidepath type sidewalk from Cleveland Metroparks. A path beside the road is just an asphalt sidewalk. Quote at bottom is from AASHTO "Green Book".

## Bike Lane Hazards

**Bike lanes encourage:**

- Pass on right & filter fwd. (right of right-turn traffic)
- “Drive-out” at stop sign
- “Right hook”
- “Left cross”



cyclist and motorist paths converge

cyclist and motorist paths diverge!

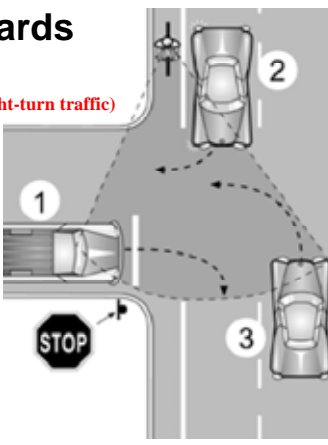


Illustration above from Oregon Bicycle Manual

Paul Schimek, 2002  
D. Gutierrez & B. P. DeSousa, 2003

Slide 18 – BL Hazards  
 BL encourages cyclists to pass on right even where car may turn right.  
 Makes motorist mistake more likely.  
 Note: “left cross” & “right hook” (accident pie chart above shows these are important hazards).

## Don't Get the “Door Prize”

### Bike lane hazards from Cambridge, MA



Passing bus in blind spot



Bike lane in the door zone



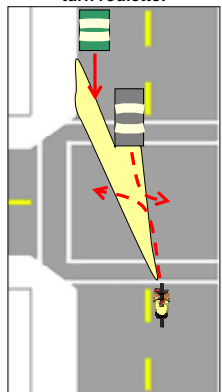
Fatality, Jul 2, 2002

Source: John Allen, [www.bikexpert.com](http://www.bikexpert.com)  
 Except fatality: [www.rwinters.com/](http://www.rwinters.com/)

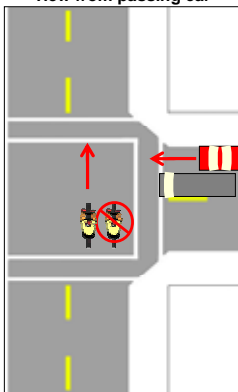
Slide 19 – Door Zone Bike Lanes  
 Door Zone -- photos from Cambridge MA from [www.bikexpert.com](http://www.bikexpert.com)  
 Fatality photo (of a cyclist who was doored and fell under a bus) from [www.rwinters.com/](http://www.rwinters.com/).

## Beware of hiding behind a ‘screen’

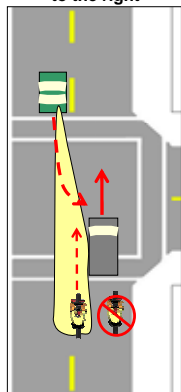
**Don't play left turn roulette!**



**A truck can block view from passing car**



**Don't ride too far to the right**



Fred Oswald, Feb 2004

Slide 20  
 Beware of a “screen” from a large vehicle

## Dealing With a Narrow Traffic Lane

Top -- even with cyclist very close to curb, motorist must use part of next lane to allow 3' passing clearance.



Bottom -- what happens if you "hug the curb". Motorist reluctant to cross lane line will "squeeze by" at unsafe clearance. Solution -- move LEFT!

Fred Oswald  
Aug 2002

## Slide 21 – Narrow Traffic Lane

Many motorists act as if there is a "glass wall" between lanes. Once they cross the lane line, then they generally give enough room. (The right tire track is often good place to ride.) Novices hug the curb and wonder why cars pass so close. You have the right to travel in safety.

## Proper Lane Positioning An essential skill for cyclists

Narrow Lane Road or Downhill – Use Full Lane

Cyclists have legal right and safety obligation to use the full lane when too narrow to share with motor vehicles



Photo by R. Woodward



Photo by Wayne Pein

Fred Oswald, Aug 2003

## Slide 22

The right tire track is often a good spot on a road with narrow lanes. Note how the red car is moving completely into the next lane – generous passing room.

Cyclists who hug the curb often unintentionally invite motorists to "squeeze" past.

## Avoiding Hazards on the Right



Above – you never need to dodge car doors if you ride far enough left.

Below – you almost never need to dodge drain grates if you ride far enough left.



Fred Oswald  
Aug 2002

## Slide 23 Hazards near edge of road

"Almost" is used in right photo because a few grates are in the travel lane.



### Left Turn Technique

1. Look back & plan move
2. Look back for gap in traffic
3. Signal & merge to L side of lane
4. Look back for gap in traffic
5. Signal & merge to next lane
6. etc.



**Plan ahead & get into position early**

Fred Oswald, Dec 2003

### Slide 24

Practice this on streets with low speeds, and then gradually extend to busy streets. Never try to force your way in front of cars.

### 'Negotiating' a Left Turn



**In tight traffic – look back & signal to get the cooperation of a following driver. Merge over only if driver allows. Never try to 'force' a merge.**

Fred Oswald  
Aug 2002

### Slide 25

This works only if traffic is below ~25-30 mph.

### State of Ohio on Bicycle Lane Position

Ohio Revised Code § 4511.55(A) says:

*...ride as near to the right side of the roadway as practicable ...*

**Note *practice-able*. It DOES NOT SAY as near as possible!**

Ohio Dept. of Public Safety says:

*Cyclists can travel in the middle of the lane if they are proceeding at the same speed as the rest of the traffic, or if the lane is too narrow to share safely with a motor vehicle.*

(Digest of Ohio Motor Vehicle Laws, 6/99, p. 63)

*On a road with two or more narrow lanes in your direction -- like many city streets -- you should ride in the middle of the right lane at all times.*

(Ohio Bicycling Street Smarts, p. 16)

Fred Oswald, Jun 2002

### Slide 26 – Ohio Law and Policies on Lane Position

Ohio law and state Public Safety agency publications that set policy.

"Far right rule" is a bad law, often misunderstood. At least if it is interpreted correctly "practicable" allows flexibility for safety.

Dept. of Public Safety quotes are extremely useful!

If you are from another state, see what official materials say and work for a state version of Street Smarts.

## Why traffic law matters

*Traffic laws help shape ---*

- How cyclists are taught to ride.
- How the police treat cyclists.
- What the motoring public expects from cyclists.
- What happens in court if a cyclist has a collision.

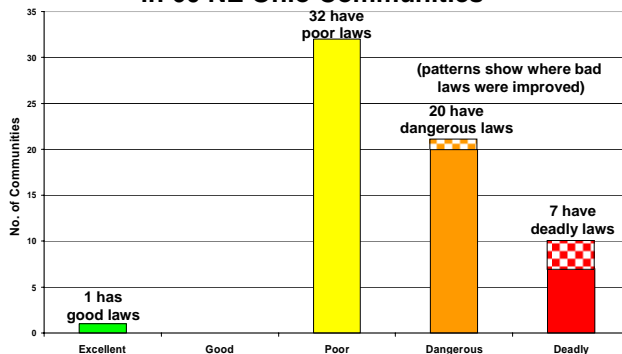
*Uniform traffic laws promote safe, fair & efficient travel for all.*

**Cyclists deserve equal protection under the law**

Paul Schimek &  
Fred Oswald, Mar 2003

Slide 27 -- Traffic law is important.

### Survey of Bicycle Traffic Laws in 60 NE Ohio Communities



Fred Oswald, Jul 2002  
Revised Jun 2003

Slide 28 -- Local Laws Chart

Some cities are improving laws (4 so far)! Deadly (score F) have sidewalk laws for everyone. Dangerous (D) have children's sidewalk law or sidepath law (these affect fewer cyclists). Poor (C) is generally consistent with state law (but still not good) Brook Park in 2003 adopted Model Laws, improved from F to A!

Ohio rates a D-, mainly because it allows local "regulation" plus "far right rule" See [www.crankmail.com](http://www.crankmail.com) for details and suggested model laws. We need similar surveys for other areas

## Dangerous bicycle laws

Actual local ordinances

*“Any person operating a bicycle shall ride upon the sidewalk rather than the roadway when sidewalks are available and not congested with pedestrian traffic.”*

*“Wherever a designated path for bicycles has been provided adjacent to a street, bicycle riders shall use such path and shall not use the street.”*

*“A person operating a bicycle shall yield the right of way to vehicular traffic on a roadway.”*

These ordinances require expert cyclists to imitate beginners. It is wiser and safer to have novices learn from the experts.

**Only informed governments can make good laws.**

Fred Oswald  
Jun 2001

Slide 29 – Examples of Dangerous Laws  
Best solution is reform at state level including uniform laws (like motor veh. laws).  
Good laws are uniform for all. Laws must provide safety, fairness, efficiency.  
Very few bicycle specific rules are necessary.  
Most are dangerous and discriminatory.

## Improving the cycling environment

- Promote “model” bicycle laws (see [www.crankmail.com](http://www.crankmail.com)).
- Reform Ohio bicycle traffic laws
  - Ohio Bicycle Federation proposal includes reform of the “far right rule” and addresses dangerous, non-uniform local laws. (See [www.ohiobike.org](http://www.ohiobike.org).)
- Reform local bicycle traffic ordinances
  - See [www.crankmail.com](http://www.crankmail.com) for summary and ratings of 60 NE Ohio communities.
  - Middleburg Hts. repealed children’s “sidewalk law” in 2001.
  - Solon revised ordinances in 2002.
  - Brook Park adopted Model Laws in 2003.
  - N. Olmsted adopted modest improvements in 2003
- Educate society about safe and effective cycling
  - Ohio Dept. of Public Safety issued “Ohio Cycling Street Smarts” in 2002
  - Ohio Bicycle Federation holds “Bicycle Awareness Day”
  - Ohio Bicycle Federation ‘Cyclist Friendly Communities program.
  - “Bike Ed” classes teach proper cycling methods
  - We need public service announcements and other media messages.

Fred Oswald, Jun 2003

Slide 30 -- Examples of efforts for law reform and education for Ohio. Ohio Bicycle Federation deserves your support. (Or a similar organization in other states.)

## Teach your kids: ‘Drive your Bike!’



**A bike is not a toy. It is a child’s first vehicle.**

Fred Oswald,  
Sep 2002

Slide 31  
Shows 7-year old learning how to scan, signal and merge for turn.  
Most parents do not know how to do what this girl is learning.  
This is a very quiet residential street (appropriate for her age).

## Summary

- Much of what we learned as kids is wrong.
- Most cycling accidents **do not** involve cars.
- Most collisions involve turning or crossing traffic.
- Experienced cyclists are ~80% safer than average.
- Proper lane position helps avoid trouble.
- Every traffic lane is a bike lane!
- Standard traffic laws good; bike specific laws bad.
- A bike is not a toy. It is a child’s first vehicle.

***Cyclists fare best when they act and are treated as drivers of vehicles***

Fred Oswald,  
Sep 2002

Slide 32 – Summary  
I hope audience remembers at least these points.