



bicycle coalition of the ozarks

PO Box 4173 Fayetteville AR 72702-4173
newsletter #36 Summer, 2011

The Bicycle Coalition of the Ozarks is a 501(c)3 coalition of bicycle-friendly folks and organizations creating a unified voice for a more bicycle-friendly community. The bco achieves this goal through education, advocacy for bicycle-friendly infrastructure and promotion of a superlative form of transportation and recreation.

A Big Fat "F" For Arkansas

The League of American Bicyclists rates the 50 United States each year as to the bicycle-friendly nature of six critical areas. Arkansas failed. This year we pulled 48th out of 50 in the ranking.

I suspect that the cycling environment in most of Northwest Arkansas, is above the state average, but by improving the performance of the state as a whole, we will increase our own comfort, pleasure, health and economic viability.

So who's 50th? Well, here are the top and bottom ranked states:

- 1. Washington
- 2. Maine
- 3. Wisconsin
- 4. Minnesota
- 5. New Jersey
- 6. Iowa

- 45. Nebraska
- 46. Montana
- 47. Alabama
- 48. Arkansas**
- 49. N Dakota
- 50. W Virginia



And Now What do we do about our ranking? How do we ensure we don't end up here again next year?

Well, the League provides feedback for improvement in six key areas:

- 1.) **Legislation**
- 2.) **Policies and Programs**
- 3.) **Infrastructure**
- 4.) **Education and Encouragement**
- 5.) **Evaluation and Planning**
- 6.) **Enforcement**

In this newsletter, we'll take a look at the League's feedback, and describe some actions you can take to help Arkansas climb out of the bottom of the pack.

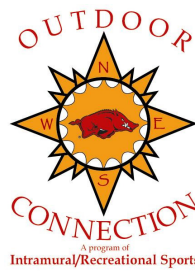
WARNING: This is a long article, and some of the content is a little depressing. Brace yourself, grab a beverage, and turn to page 3 to continue. →

A Big Fat "F" for Arkansas, continued.....page 3

In this issue: the Rationality behind the Passion!

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Many thanks to our fantastic BCO sponsors:



102 HPER Building
Fayetteville, AR 72701
<http://imrs.uark.edu>
479.575.CAMP

Extra Thanks to:

- Jerry Bailey**
- Jim Norys**
- Cyrus Young**
- Chuck Maxwell**
- Jeff & Gisela Erf**
- Patricia Mitchell & Greg Mitchell**
- Chris Kaiser & Andrew McQuie**

Art Hobson Professor Emeritus, Ph.D.

For info on why the bicycle is the most efficient form of transportation yet known, see:

<http://physics.uark.edu>

/hobson/



Waste Reduction Resources
Louise Mann's energetic effort to put some thought behind the phrase "Reduce, Reuse, Recycle"
Find out more at:
wastereductionresources.com

Wattle Hollow Retreat Center
Vipassana meditation * Yoga * Private weekend retreats near Devil's Den State Park
More info: wattlehollow.com
or call Joy at 479.225.2381

BCO Bicycle Advocacy 2011: Your Role

Each day that you leave your house, you make a decision as to how to transport yourself to your desired destination. If you're like most humans, the apparent ease of sitting in a private automobile is often a tempting option.

The BCO aims to create the counter-balance of cultural pressure to help you make cycling a more pleasurable choice. Keep our efforts strong. For less than a dollar a week (hey does this sound like NPR?) you can have your name spelled out in **bold** like those \$50 a year supporters listed above. Or for \$100, you may submit a logo ad with message of your choice.

Our newsletters bring enlightening info to over 400 readers each quarter. Make your name a part of grassroots bicycle advocacy!

WHAT'S HAPPENING

You can post Bicycle Events online
BCO Event Calendar at bconwa.com/events

July 28th, September 22nd BCO Board Meetings

Meeting of the Board of Directors, who guide the BCO's work.

TIME: 5:30-6:30pm

WHERE: Tim's Pizza, Mountain St, Fayetteville Square

MORE INFO: bco@bconwa.com or call us at 521-4619

All are welcome. Come meet the folks who guide the BCO.

July 25th, Aug 29th, Sep 26th WOMEN'S OPEN SHOP at Bike City

(Last Monday of Every Month)

TIME: 2-8pm

WHERE: Bike City Recyclery, 546 W Center Street, Fayetteville

MORE INFO: (479) 521-2020

This is a place for women to learn how to fix a flat, replace a rusty chain, tune up shifting, service bearings, and more with the help of women mechanics. We have new and used replacement parts available if needed. No registration is necessary; just bring your bike!



July 9 Cycles & Sounds Bicycle for Habitat for Humanity in Fayetteville at Jose's on Dickson

7:30am.- 50 Miles with POKER RUN option

8:30am.- 20 Miles

9:30am - 10 Miles Family ride along Fayetteville Bike Trails!

Pre-Registration by July 1st guarantees T-shirt size.

Live Music on Jose's Patio.

WHERE: Jose's, 324 West Dickson Street, 72701

COST: \$15-30 depending on race and advance or day of.

Remember, all Proceeds benefit Habitat for Humanity.

REGISTRATION or MORE INFO: email Michelle:

Michelle@Habitat.arcoxml.com . Phone: (479)575-9696

July 15-17 Fat Tire Festival

The 2011 Fatty Fest has officially been coined "The Year of the Kid", and will include a massive "Kids Bike Rodeo". Also, skills courses and clinics, barrel races, games, water feature, food, fun, sun and more. Too many cycling events to list.

TIME: Full Schedule of Events at:

<http://fattirefestival.wordpress.com/> (scroll down)

WHERE: Lake Leatherwood State Park, Eureka Springs

MORE INFO: Dave Renko renkosweettrails@gmail.com 479-422-7654

August 18 Regional Active Transportation Committee Meeting

The folks who meet here form the heart of the Razorback Greenway and all regional active transportation planning, funding and creation.

TIME: 1pm, public welcome.

WHERE: Regional Planning Commission, 1311 Clayton St, Springdale, 72762

MORE INFO: <http://nwarpc.org/> or Phone: (479) 751-7125

September 2- 4 Slaughter Pen JAM Bentonville's Premiere Mountain Bike Event

Bike Events for all ages and skill levels. Adventure Race, Kid's Mountain Bike Race, AMBCS Cross Country Mountain Bike Race, Bicycle Trials & more.

WHERE: Slaughter Pen Hollow, Bentonville, AR. N Walton Blvd & NW "A" St, Bentonville.

MORE INFO: www.fasttrails.org or email: sphjinfo@gmail.com

Hey folks, there is a ridiculous number of bicycle-related events going on around NW AR right now, and you can see a list (and post your own) at: <http://bconwa.com/events>

In addition to all the above, you will also see:

Tuesdays July 5, 12, etc 7:00-8:00pm

Weekly New Owners Bike Maintenance Class Lewis and Clark Outfitters, **Springdale**

Tuesdays July 5,12, etc 7:15-8:15pm

Weekly Yoga for Cyclists Phat Tire Bike Shop, **Bentonville**

Tuesdays July 5,12, etc 6:00 pm

Mountain Bike Ride Lewis and Clark Outfitters, **Springdale**

Thursdays July 7, 14, etc 6:00 pm

Weekly Comfort / Cruiser Ride Lewis and Clark Outfitters, **Springdale**

Saturdays July 9, 16, etc 9:00 am

Beginner Road Ride Lewis and Clark Outfitters, **Springdale**

Sundays July 10, 17, etc 7:00 pm

Axles of Evil Group Ride in front of Fayetteville Public Library, **Fayetteville**

Tuesday July 12 5:45 pm

Last Day of the Bike Route Summer Race Series at County Road 706, **Fayetteville**

3rd Thursdays July 21 4:00-7:00pm

Every 3rd Thursday Bicycle Skills Workshop at Bike Bentonville, 208 NW "A" St, **Bentonville**

Check in on Bike Bentonville's webpage for more events in NWAR. These folks have lots of programs, resources & energy!

www.bikebentonville.com



Did You Know? The BCO earned a "Club of the Year" Award from the League of American Bicyclists. We are one of only 8 groups in the US earning this distinction.

1.) LEGISLATION

Legislation can be a tricky topic for a 501(c)3 such as ourselves, but we ARE in the business of educating the public and lawmakers, so here's some education:

The League of American Bicyclists believes that Arkansas should add some key bicycling laws to our Vehicle Code.

1. Specific language allowing cyclists to signal right turns with a right arm extended, as well as the current method of the left arm bent upwards.
2. Specific language allowing cyclists to ride two abreast when traffic conditions allow. Currently, there is no prohibition of lane sharing, so it is technically legal, however, the Uniform Vehicle (a model for state codes) specifically describes this right.
3. Speed and "red light running" photo enforcement can be a strong deterrent to this potentially deadly behavior. Automated photo speed enforcement takes a real-time photo of traffic to record vehicle speeds and behaviors. It can be used to document speeders and those who most endanger bicyclists and pedestrians. See: http://guide.saferoutesinfo.org/enforcement/photo_enforcement.cfm

As a 501(c)3 non-profit, the BCO has only a limited ability to address legislative issues. However, it is our duty to keep the cycling community informed as to Arkansas' performance in the League's Bicycle Friendly rating system.

MORE INFO:

A Summary of AR state laws pertaining to bicycles is available at: <http://www.bikeleague.org/action/bikelaws/ar.php>

YOUR PART:

When we form a statewide bicycle advocacy group (see the EDUCATION AND ENCOURAGEMENT section) passing appropriate statewide legislation will be a major task at hand.

If you are interested in participating in the formation of a statewide advocacy group, please do let us know at bco@bconwa.com. The time is right. The skill set is outlined farther on, so keep reading.

2.) POLICIES & PROGRAMS

The Big Item here is a statewide Complete Streets Policy. Fayetteville and North Little Rock currently have adopted Complete Streets plans—street plans that mandate accommodation of all roadway users, including transit users, pedestrians and cyclists.

A statewide policy could drastically improve the way that state highways pass through urban areas and small towns. Fayetteville can attest to the positive results of a local streets policy that sets minimum design guidelines for cross-sections and facilities.

A Big Fat "F" for Arkansas, continued top of next column →

MORE INFO:

<http://www.completestreets.org/>

YOUR PART:

Again, when we form a statewide bicycle advocacy group (see the EDUCATION AND ENCOURAGEMENT section,) passing complete streets legislation will be on the task list. Can you begin to see a trend here? Are you interested in taking part? Write: bco@bconwa.com. The tools are there. All we need is some attention to the matter.

A Big Fat "F" for Arkansas, continued....page 4

(I know it's long, but I learned so much, and I want you to learn it, too!)

Bike to Work Week Commuter Challenge—2011 Results

Engineers raked in the loot in this year's Bike to Work Week Commuter Challenge!

We'll take a quick look at how the extreme efficiency of the bicycle might attract engineering minds in "The Bicycle, a Lovely and Efficient Machine" by Art Hobson, page 7.

2011 Bike to Work Week Commuter Challenge winners:

4-20 employee size category:



U of A Intramural and Recreational Sports, Fayetteville, AR



21-100 employee size category:

Greenhouse Grille, Fayetteville, AR

2nd Place: McGoodwin, Williams and Yates
3rd Place: City of Fayetteville, Engineering, Planning & Strategic Planning

(we went 3 deep in this category due to the intense competition.)



100+ employee size category:

Kennemetal, Rogers, AR



Longest Single Commute:

Jon Bitler, Kennemetal, 45.6 miles

2nd Place: Brandon Bynum, Garver Engineering, 30 m

The Loot: Every cyclist at each winning workplace came away with a fat goody bag full of prizes from our generous sponsors. If you considered entering but decided the effort was too big for the payoff, don't make that same mistake next year!

You could win gift cards, organic fruit baskets, cycling merchandise, coffee and more from our generous sponsors:



A Big Bicycling Thanks to:



3a) INFRASTRUCTURE—RUMBLE STRIPS

Sadly, those lovely 2-lane roads that form the backbone of club rides are all at risk of having rumble strips carved into the shoulders from edge to edge, making them unusable as a bicycle route. Hot Springs area cyclists have already suffered this misguided attempt at increasing safety. Our state highway department is currently developing a new rumble strip policy. It is difficult to ascertain what the new design will be or how it will affect cyclists. We have heard that the strips will be used more discriminately and be only 16" wide (rather than the entire shoulder width). However, this will be 16" immediately adjacent to the white strip, thereby preventing motorists from "sweeping" the shoulders clean of debris in the favored area for cyclists. A 4'-0" setback from the white line would be a far preferable design option when the shoulder width allows.

This just in: The League of American Bicyclists is reporting that the Federal Highway Department just sent new policy guidelines to all State Highway Departments that exhibit flagrant disregard for bicyclist's needs. We'll email an ACTION ALERT when we know more.

MORE INFO:

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf

YOUR PART:

If you are concerned about rumble strips on your favorite cycling route, call Mike Fugett (501) 569-2336, Engineer of Roadway Design, and ask the Highway and Transportation Department to remember the needs of cyclists in rumble strip design:

1. Make rumble strips as shallow as possible.
2. Only carve rumble strips where statistics show that the strips will be effective in helping prevent accidents.
3. Ensure maximum clear distance between the white lane stripe and the rumble strip.
4. Minimize width of rumble strip.
5. Provide frequent breaks in the rumble strip locations to allow cyclists to move across the strip when road conditions necessitate such a move.

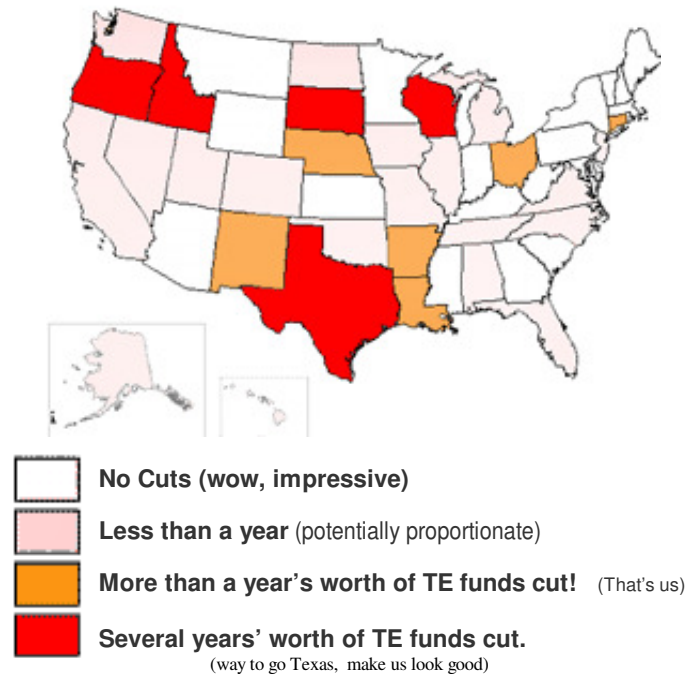
3b) INFRASTRUCTURE—TRANSPORTATION ENHANCEMENT \$\$, THE BACKBONE OF TRAIL FINANCING

Okay, trails are a super-bargain compared to the average state highway. In addition, bicycle and pedestrian projects **tend to employ more workers per dollar spent.** Economic powerhouses. However, when budget cuts strike, it is trail monies that are chosen for the chopping block. Why? They look like "fluff" to our decision makers. Can you bicycle commute on fluff? Right.

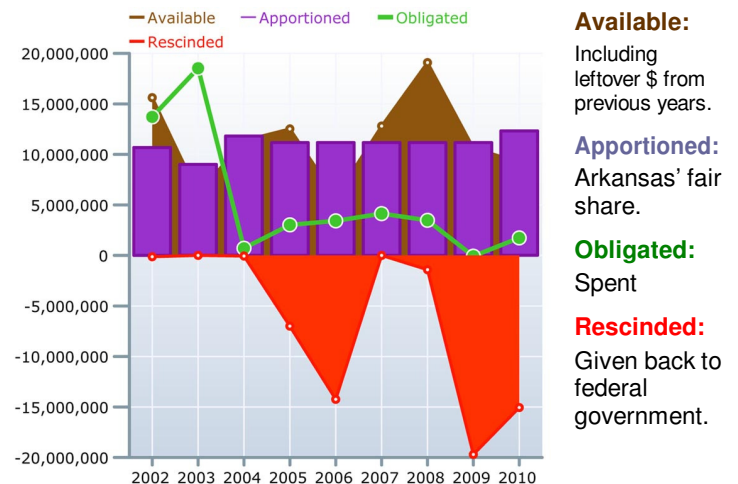
Automobile drivers have effectively communicated their needs to the Arkansas Highway and Transportation Department (AHTD). Bicyclists can do the same.

This is where the League's feedback comes down hard. AHTD officials responded to federal budget rescissions in 2006 & 2007 by cutting disproportionately deep from Transportation Enhancement funds. Ouch!

TE Budget Cuts by State in 2006



So, in addition to disproportionate rescissions, during the last decade, the bulk of TE funding that *has* been spent went to the renovation of highway visitors centers. So, as you pull over to use the nicely renovated restroom on your next long journey, enjoy the facilities and remember how many miles of bicycle trails were sacrificed for the convenience of that new roadside toilet stall.



Oh, OH!!!

Now for the good news! A new round of TE applications were just approved, and the approved projects don't include a single highway visitor center. In fact, we are looking at lots of bicycle and pedestrian improvements. Keep reading to see project list.

NWAR TE Projects Approved for Funding, June 2011

BENTON COUNTY:

Bentonville Water Tower Road Trail
Decatur Mount Olive Street Sidewalks
Gentry South Collins Ave. Sidewalks
Gravette Hwy. 72/59 Scenic Beautification
Pea Ridge Sidewalk Enhancements
Rogers I-540 Trail

WASHINGTON COUNTY:

Fayetteville Town Branch Trail
Springdale Shiloh Trail-South

Of the above, the Bentonville, Fayetteville, Springdale, and Rogers trails will all tie into the Razorback Greenway, the 40+ mile regional trail that will form a major bicycle transportation spine.

MORE INFO:

All approved projects listed here:

<http://www.arkansashighways.com/news/2011/Enhancement%20Projects%202011.pdf>

Searchable summary of all TE Projects here:

<http://www.enhancements.org/projectlist.asp>

And for a full understanding of how rescissions affect Bicycle Infrastructure Funding:

[http://www.advocacyadvance.org/site_images/content/Understading_Rescissions_\(2011\)1.pdf](http://www.advocacyadvance.org/site_images/content/Understading_Rescissions_(2011)1.pdf)

Here's some background on the drafting of our next overdue federal Transportation Bill:

<http://bconwa.com/action-alerts/154-transportation-bill-will-reflect-your-input>

YOUR PART:

As this newsletter goes to press, we've just learned that another rescission has been issued by the federal government on June 30th. The AHTD must make choices as to which projects are chosen for the chopping block **by July 8th**.

To voice your opinion on the importance of bicycle infrastructure in a healthy transportation network, please write Randy ORT, Public Info Coordinator AHTD.

Email: randy.ort@arkansashighways.com , Ph: (501) 569-2227.

CC the Bike/Ped Coordinator, Bud Laumer on your email, too.
Email: Bud.Laumer@arkansashighways.com

The director of the AHTD can be reached here:

<http://capwiz.com/lab/mail/?agencyindid=1882&type=AN>

Finally, our governor should hear your message, too:

<http://governor.arkansas.gov/contact/index.php>

4.) EDUCATION & ENCOURAGEMENT

The League of American Bicyclists (LAB) has an extensive Education Program for Cyclists and Motorists.

(see: bikeleague.org/programs/education)

LAB would like Arkansas to offer more of these Bike ED classes, which must be taught by League Certified Instructors (LCI).

So, now just let me interject that Arkansas just nearly doubled our number of League Certified Cycling Instructors over the June 24-26 weekend! Seven bicycle advocates completed the extensive training required and two more are well on their way. Arkansas went from having eleven LCIs to Eighteen!

Here we are:



That's Dan Dean near the back, with the head cropped, and yes, he's used to that. From Left to Right: Dale, Angie, Becci, Dan, Laura, Brenda, Jamie, Tom (LCI), Bill and Preston (LCI).

Congratulations to all those who participated in the training! I see our state ranking inching up as I type!!

But here's the elephant in our newsletter room. From the LAB Evaluation:

"Advocates in the state should work to form a professional group or coalition with dedicated staff working to improve conditions for cyclists across the state."

This is a "no-brainer" as we used to say back in the last century.

MORE INFO:

You can check out the GoogleGroup dedicated to Statewide Bicycle and Pedestrian issues to have instant contact with dozens of bicycling advocates from across the State. Write to: bike-ped-arkansas@googlegroups.com to request access.

There are already dozens of active Statewide groups including:

Illinois: bikelib.org

Maine: bikemaine.org

Minnesota: mnsbac.org

Wisconsin- bfw.org

Arkansas, it's time to organize.

YOUR PART:

Do you have two hours a month to devote to the next generation of Arkansas Bicycling Advocacy? The skill set involves a willingness to listen, disseminate information and seek precedent from authoritative sources. If you're interested or would like to learn more, please write: bco@bconwa.com. "Statewide Bicycle Advocacy" would be a great Subject line.

5.) EVALUATION & PLANNING

From our League of American Bicyclists' (LAB) Evaluation:

"The numbers of residents commuting to school and work by bike is below the national average. Advocates and agency staff should work to encourage more work trips be made by bike."

Well, this is the final hurdle, isn't it? Isn't this what we all want? More bicyclists?

And would you like to guess our largest obstacle? No, it's not facilities or lack thereof. No, it's not ill-informed drivers, and no it's not lack of powerful health and financial incentives. Guess what? It's human nature. We're lazy. In addition, we live in an auto-centric culture that tells us with every commercial, every sprawling parking lot, every five-lane arterial, that driving is EASY!

So, without a second thought, we turn the key and away we go. But this is a topic of another newsletter. For now:

MORE INFO:

See how Arkansas compares to other states:

http://www.bikeleague.org/programs/bicyclefriendlyamerica/bicyclefriendlystate/pdfs/acs_50_states_2009.pdf

YOUR PART:

Guess what that would be. RIDE A BIKE!! And support the BCO by visiting <http://bconwa.com/about-bco/support-the-bco>

6.) ENFORCEMENT

Hang in there, this is the last category! From the League's Evaluation:

"Bicycling enforcement should be included as a part of the overall Police Officer Standards and Training (POST)."

"Information on bicycles rights, responsibilities and safe cycling principles should be made available to traffic court judges."

I'm confident that a statewide advocacy group (with your help and support) can address these items as well.

MORE INFO:

See an example of Law Enforcement Education Guide: floridabicycle.org/resources/pdfs/PEGLEG2008_7-31-08web.pdf

YOUR PART:

Well, if you've made it this far in such a long saga, you are probably already mentally committed to a dozen tasks, so first, just relax, take it easy, and breathe deep. We'll have more on this issue in our next newsletter.

Final Word:

The LAB's feedback in its entirety can be found at:

<http://bconwa.com/news/arkansas>

also, see

<http://www.bikeleague.org/programs/bicyclefriendlyamerica/> for this clickable map to Bike-Friendly America



What are Complete Streets and How Do They Affect YOU?

Dan Burden & Todd Litman

The Victoria Transport Policy Institute has released a comprehensive report on Complete Streets.



An aging population;¹ rising fuel costs; congestion, health, and environmental concerns; and changing consumer preferences are all increasing demand for walking, cycling, and public transit.² These trends indicate that an integrated multi-modal transportation system is required if we are to meet future travel demands.

Excerpts:

*Multi-modal transportation serves both drivers and non-drivers by allowing mode choice based on the type of trip to be taken. This is the heart of the complete streets movement: **Choice is fundamental to improving safety, service, comfort, and performance for all.***

*When we focus on mobility, fast, cheap travel is the desired outcome. This focus is incorrect. The **ultimate goal of transportation must be accessibility**—our ability to reach desired goods, services, and activities safely.³*

*When we consider accessibility, we see how the modes affect one another. Efforts to improve automobile accessibility, for example, may involve expanding roads and parking facilities and locating activities along major highways, which reduces accessibility for all other modes. **Complete streets policies are aimed at balancing access for all modes.***

Nearly one-third of the U.S. population is transportation disadvantaged, which means that they cannot easily access basic needs such as healthy food choices, medical care, gainful employment, and educational opportunities.⁴

A complete streets policy specifies that the term "all users" include pedestrians, bicyclists, and transit passengers of all ages and abilities, as well as trucks, buses, and automobiles.

Today, more than 200 communities have adopted complete streets policies. In 2010, complete streets policies went into effect in Minnesota, Michigan, and Colorado.

Full Report: http://www.vtpi.org/ITE_comp_st.pdf

Also see: <http://www.completestreets.org/>

¹ AARP (2009), Planning Complete Streets for an Aging America, American Association for Retired Persons Public Policy Institute (www.aarp.org/ppi); at www.aarp.org/research/housingmobility/transportation/2009_02_streets.html.

² Todd Litman (2006), "Changing Travel Demand: Implications for Transport Planning," ITE Journal, Vol. 76, No. 9, September, pp. 27–33.

³ Todd Litman (2003), "Measuring Transportation: Traffic, Mobility and Accessibility," ITE Journal (www.ite.org), Vol. 73, No. 10, October 2003, pp. 28–32, at Victoria Transport Policy Institute website (www.vtpi.org); at www.vtpi.org/measure.pdf.

⁴ Surface Transportation Policy Project. Transportation and Poverty Alleviation. Available at: www.transact.org/library/factsheets/poverty.asp.

Safe Routes to School Local Policy Guide

SRTS National Partnership

The Safe Routes to School National Partnership is pleased to announce the release of a new publication entitled Safe Routes to School Local Policy Guide:

http://www.saferoutespartnership.org/media/file/Local_Policy_Guide_2011.pdf

The Local Policy Guide provides a colorful, well-documented instruction manual for communities, schools and even statewide advocacy organizations to create active healthy community environments.

Topics covered include Bike ED Curriculum, School Siting, Walking and Bicycle Policies, Complete Streets (hey, I've heard that somewhere before) and much more.

On the Topic of a statewide Bicycle Curriculum, don't forget to check out the 12-minute YouTube documentary of the BCO's pilot year of Bike ED in Fayetteville Public Schools: [Bike ED: Kids on Wheels](#)

An excerpt:

Improving Safety through Fine-Based Funding

Many schools are located on busy streets, and due to the high number of parents who drive their children to school, most schools experience congested arrival and departure times that are wrought with traffic violations. More importantly, there are many dangerous traffic scenarios for children who are walking and bicycling, as well as spikes in air pollution around schools. When drivers speed and commit other moving violations, especially in areas where there are vulnerable populations such as in school zones, they endanger children and other people traveling on foot or by bicycle, along with other road users. Therefore, it is logical that the fine revenue generated in school zones should be used for projects and programs that increase safety around those same schools.

This guide is an thorough example of all the bicycle advocacy resources that exist for our use. Now we need is to educate our elected officials and ourselves. Take a peek at the manual through the URL listed above. The well-illustrated examples of successful policy implementation will inspire you.

The Bicycle, a Lovely and Efficient Machine

By Art Hobson, Professor Emeritus of Physics

Guess which transportation mode is the most efficient mover of mass ("weight").

Birds? Fishes? Whales (which move LOTS of mass)? Airplanes? Humans walking? Trains?



Insects?

This being the BCO newsletter, you can probably guess: *Bicycles!*

Pound-for-pound (but I prefer "kilogram-for-kilogram"), a human on a bike can move more total mass (including the bike



and also the human) a greater distance, per unit of expended energy, than any other transportation mode. When efficiency is measured in kilogram-kilometers per unit of energy, a human on a bike beats the runner-up, fishes, by a factor of three! Bikes beat walking by a factor of four, birds by a factor of six, trains by a factor of 11, jet planes (even though they move lots of mass) by a factor of 44, an average commuting automobile by a factor of 92, and a mouse by a factor of 220.



You may ask: Why? And even if you don't ask, I'd love to tell you. First, the bicycle is a "roller," so it can take advantage of "momentum" or, put another way, of Newton's first law. That law says that things keep moving unless some outside force slows or stops them. When you walk, for example, you must force one leg to slow down and stop with each step, and then start up again. This requires energy, which wheeled modes don't need to expend, and gives the bicycle a huge advantage over the entire animal kingdom (except perhaps for a species of lizard that rolls itself into a loop to roll downhill).

But why do bikes beat trains and other wheeled vehicles?

It's because they are heat engines of one sort or another. That is, they get their energy (even if it's electricity from power-plant steam) ultimately from converting heat into forward motion.

Bicyclists are different: They get their energy from the chemical energy in food. This means that bicyclists don't have to contend with the second law of thermodynamics. The



second law says that any process that converts heat into any other form of energy is necessarily very inefficient. In a typical car, for example, **only about one-eighth of the gasoline's chemical energy is actually converted to forward motion**, because the gasoline must be burned to provide heat to push the pistons and this involves a

large loss of useful energy.



Can you guess why the mouse does so poorly, worse even than the car? It's because mice are very small mammals, so they have a large ratio of surface area to body mass, so they lose lots of heat

through their skin, so they must metabolize really rapidly to keep their body temperature in the proper operating range for a mammal. Larger mammals, such as humans, metabolize at a much lower rate per kilogram.

To learn all sorts of interesting stuff such as transportation efficiency, global warming, nuclear weapons issues, and pseudoscience, not to mention the big bang, quantum physics, and other far-out stuff, all with no math or other unnecessary details, check out my textbook *Physics: Concepts and Connections* (Pearson/Addison-Wesley, 5th edition 2010) or, better yet, enroll in the "Physics and Human Affairs" course on the UA campus.

Bicycle Retailers in NW AR

SRTS National Partnership

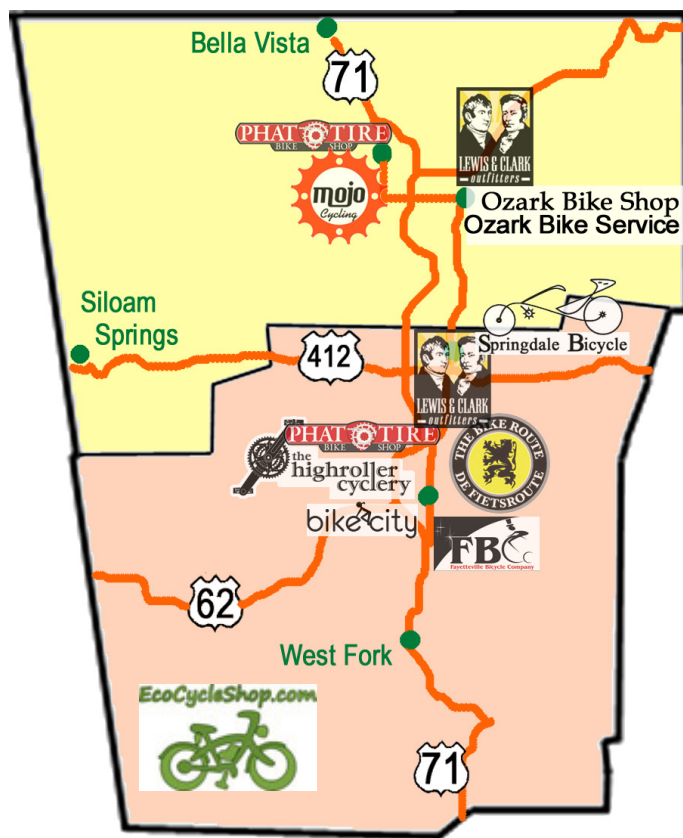
This map to the right illustrates the diverse bicycle retail industry here in Benton and Washington Counties.

Over the past week, bicycle shops have sent the BCO images, logos & business profiles.



← here's the interior of the non-profit Bike Shop, Bike City Recyclery

We will be adding more info, photos and descriptions into the Bike Shop Links page at bconwa.com this summer. A brief summary of the shops follows:



SHOP	Address	Phone / email	Website	Specialty
Bike City Recyclery	546 W Center St Fayetteville, AR 72701	(479) 521-2020 info@bikecityrecyclery.org	bikecityrecyclery.org	Rebuilding, restoring & DIY tool room
The Bike Route	3660 North Front St Fayetteville, AR 72703	(479) 966-4050 thebikeroutenwa@gmail.com	thebikeroutenwa.com	Tratholon equipment, near Mud Creek Trail
EcoCycles	On-line service only	jon@ecocycleshop.com	ecocycleshop.com	Electric Bikes & more
Fayetteville Bicycle Company	418 N. College Ave., Fayetteville, AR 72701	(479) 582-2001 faybikeddealer@sbcglobal.net	FayettevilleBicycleCompany.com	Experience, wheels built, sew-ups, too
Highroller Cyclery	322 W. Spring St., Fayetteville, AR 72701	(479) 442-9311 highrollercyclery@gmail.com	highrollercyclery.com	just voted "finest bike shop" by TFW readers
Lewis & Clark Outfitters, Springdale	4915 S Thompson Springdale, AR	(479) 756-1344 info@gooutandplay.com	gooutandplay.com	Both stores open every day, lots of rides
Lewis & Clark Outfitters, Rogers	2530 N. Pinnacle Hills Prkwy, Rogers, AR	(479) 845-1344 info@gooutandplay.com	gooutandplay.com	including Urban Adventure Races
Mojo Cycling	2212 S. Walton Blvd Bentonville, AR 72712	(479) 271-7201 Hyperbronco@cox.net	mojocycling.com	Many events, stresses customer allegiance
Ozark Bicycle Service	Rogers, AR (by appt. only, so call for location)	(479) 715-1496 info@ozarkbicycleservice.com	ozarkbicycleservice.com	Richard will work on ANY bike
Ozark Bike Shop	400 S 8th St # K, Rogers, AR 72756	(479) 636-0394 no email	no website, remember when nobody had one?	Large sales floor, old school to new
Phat Tire Bike Shop, Bentonville	106 East Central Ave. Bentonville, AR 72712	(479) 715-6170 info@phattirebikeshop.com	PhatTireBikeShop.com	Both locations open 7 days a week
Phat Tire Bike Shop, Fayetteville	3761 North Mall Ave. Fayetteville, AR 72703	(479) 966-4308 info@phattirebikeshop.com	PhatTireBikeShop.com	lots of rides & events, even yoga
Springdale Bicycle	212 E Emma Ave, Springdale, AR 72764	(479) 751-5318 sb@cox-internet.com	springdalebicycle.com	Comfy Bikes, including recumbants